

# Proposed District Plan Change 43

## Residential and Suburban Mixed Use

### VOLUME 2

Part 8 - Section 32 Evaluation and Attachments

Part 9 - Submission Form

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## Part 7: Section 32 Evaluation

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### SECTION 32 EVALUATION

Introduction .....	6
The Need for the Plan Change .....	6
Scope of the Plan Change .....	8
Hutt City Growth Context .....	10
The Evolution of the Proposed Plan Change .....	12
Consideration of Survey Results and Next Steps .....	17
Working Group Instructions .....	18
Statutory Basis for Section 32 Evaluation .....	19
Relevant Case Law .....	20
Scale and Significance Assessment .....	23
Introduction .....	23
Factor 1    Reasons for the Change .....	23
Factor 2    Resource Management Issues / Problem Definition .....	23
Factor 3    Degree of Shift from the Status Quo .....	24
Factor 4    Who and How Many Will be Affected/Geographical Scale of Effects .....	24
Factor 5    Degree of Impact on or Interest from Iwi/Maori .....	24
Factor 6    Timing and Duration of Effects .....	25
Factor 7    Type of Effects .....	25
Factor 8    Degree of Risk and Uncertainty .....	25
Overall Scale and Significance .....	25
Methodology and Approach to Evaluation .....	27
Evidence Base – Research, Information and Analysis Undertaken .....	27
Quantification .....	27
Consultation .....	27
Online Survey .....	27
Consultation with Iwi .....	27
Consultation with Statutory Authorities .....	28
Analysis of Other District Plans .....	29
Policy Framework .....	30
Resource Management Act 1991 .....	30
Section 5 Purpose and Principles .....	30
Section 6 Matters of National Importance .....	31

Section 7 Other Matters .....	32
Section 8 Treaty of Waitangi .....	33
Resource Legislation Amendment Act 2017 .....	34
National Policy Statement on Urban Development Capacity 2016 .....	34
New Zealand Coastal Policy Statement .....	37
Regional Policy Statement for the Wellington Region .....	39
Regional Form, Design and Function .....	40
Natural Hazards .....	41
Freshwater .....	42
Energy, Infrastructure and Waste .....	42
Historic Heritage.....	43
Indigenous Biodiversity .....	43
Proposed Natural Resources Plan for the Wellington Region .....	43
Natural Hazards .....	44
Discharges .....	45
District Plans in Wellington Region .....	45
Hutt City Council Policies and Strategies .....	46
An Integrated Vision for Hutt City .....	46
Urban Growth Strategy 2012 – 2032 .....	46
Environmental Sustainability Strategy 2015 – 2045.....	46
Infrastructure Strategy 2015 – 2045 .....	47
Long Term Integrated Community Facilities Plan 2015 .....	47
Petone Vision Statement.....	47
Petone 2040 Spatial Plan.....	48
Wainuiomata Development Plan .....	48
CBD Spatial Plan .....	49
Urban Design Protocol .....	49
Urban Forest Plan and accompanying documents .....	49
Stormwater Plan 2012-2017 .....	49
Housing Policy 2008.....	50
Hutt River Floodplain Management Plan .....	51
Resource Management Issue .....	52
Risk Matrix.....	52
Addressing the Issue .....	53
Who is likely to need housing and what type of housing are they likely to need? .....	53
Which areas of the City are suitable for more housing? .....	55



Natural Hazard Risk .....	56
Infrastructure .....	57
Area Suitability .....	57
What District Plan approaches could enable housing intensification while providing for appropriate levels of amenity? .....	58
Effects of Intensification on Amenity Values.....	59
Evaluation of Options and Provisions .....	60
Approach Options .....	60
Implementation of Option B.....	63
General Residential Activity Area.....	64
Evaluation of Proposed General Residential Provisions .....	64
Medium Density Residential Activity Area .....	73
Evaluation of Medium Density Residential Provisions .....	73
Suburban Mixed Use Activity Area.....	83
Evaluation of Suburban Mixed Use Provisions .....	83
Precincts and Scheduled Sites .....	89
Evaluation of Changes to Precincts and Scheduled Sites.....	89
Definitions.....	113
Evaluation of Changes to Chapter 3 Definitions .....	113
Subdivision .....	130
Evaluation of Changes to Chapter 11 Subdivision.....	130
Consequential Changes.....	140
Evaluation of Consequential Changes to Chapter 1 Introduction and Scope of the Plan	140
Evaluation of Consequential Changes to Chapter 4 Residential.....	140
Evaluation of Consequential Changes to Chapter 5 Commercial.....	140
Evaluation of Consequential Changes to Chapter 13 Network Utilities .....	140
Evaluation of Consequential Changes to Chapter 14A Transport.....	140
Evaluation of Consequential Changes to Chapter 14C Noise.....	140
Evaluation of Consequential Changes to Chapter 14D Hazardous Facilities .....	145
Conclusion .....	146
Attachments.....	146

# Introduction

1. Hutt City Council ('HCC' or 'Council') is undertaking a plan change to provide for greater residential growth and housing variety within the existing Lower Hutt urban area.
2. This report consists of the following parts:
  - Introduction
  - Statutory Basis for Section 32 Evaluation
  - Scale and Significance Assessment
  - Methodology and Approach to Evaluation
  - Policy Framework
  - Resource Management Issue
  - Addressing the Issue
  - Evaluation of Options and Provisions
  - Conclusion
  - Attachments.

## The Need for the Plan Change

3. The purpose of proposed Plan Change 43 is to enable greater housing capacity and a wider range of residential development within the existing Lower Hutt urban area. The plan change addresses the need for change in the current management of the residential environment.
4. The City of Lower Hutt District Plan was drafted in the 1990s, was notified in 1995, became operative in 2003 and is subject to an ongoing rolling review. The General Residential Chapter was last reviewed by Plan Change 12 which was notified in February 2009 and became operative on 1 December 2011.
5. This plan change proposes a more comprehensive review and rewrite of the General Residential chapter as well as the introduction of 2 new chapters. The plan change also introduces a new format that is more in line with second generation District Plans.
6. Lower Hutt has until recently experienced significantly lower population growth than surrounding areas, and New Zealand as a whole. However, the population is changing with greater demand for different types of housing expected as a result. A strategic response to this is set out in the Hutt City Urban Growth Strategy 2012-2032. The Urban Growth Strategy seeks to provide for more urban intensification opportunities to encourage greater levels of population growth, provide for a broader range of housing types, and support the economic prosperity of commercial centres.
7. The National Policy Statement on Urban Development Capacity 2016 (NPS-UDC) came into effect on 1 December 2016. The purpose of the NPS-UDC is to ensure business and housing development is adequately provided for in regional and district plans to enable urban areas to grow and change in response to the needs of their communities.
8. Lower Hutt has only limited areas of land available for greenfield residential development. Areas in Wainuiomata, Kelson and Stokes Valley are being investigated for residential development in other projects. Greenfield land alone will not be able to provide the housing growth required for Council to meet its Urban Growth Strategy aspirations or its obligations under the NPS-UDC. With limited potential to spread, Lower Hutt will need to

intensify within existing urban areas to meet current and future demand.

9. The proposed plan change responds to a single overriding resource management issue – providing housing capacity and variety for existing and future residents. The issue touches on a range of factors include housing supply, urban form and design, the efficient use of resources and the ability to take account of natural hazard risk.
10. The proposed plan change aims to assist with the following:
  - Provide for a greater variety of residential development and enable more intense development within targeted areas throughout the existing urban area.
  - Enable a large variety of housing types ranging from large houses for communal living to minor additional dwellings such as granny flats or tiny houses.
  - Cater for a wider demographic including an aging population, single households, single parents and couples without children.
  - Provide for residential growth in targeted areas which are close to and offer good access to shops, services, facilities and public transport, thereby supporting the economic activity and viability of these commercial centres.
  - Exclude areas of high risk from natural hazards until more detailed information regarding the level of risk and possible policy responses are available.
  - Enable well designed medium density development that addresses potential adverse effects on the amenity of surrounding areas and manages them to acceptable levels.
11. Urban areas exist because clustering reduces the costs of moving goods, people, information and ideas.
12. Residential intensification in already urbanised areas plays to a city's strengths rather than spreading its resources too thinly. Intensification is reported to offer the following benefits:
  - Improved land efficiencies.
  - Easier (and more cost efficient) to provide public transport facilities.
  - Increased use of public transport, walking and cycling and reduced private car use, when density increases beyond a certain level.
  - Reduced transport costs.
  - Efficient use of infrastructure capacity including water and wastewater pipes, schools and community facilities. The cost of building additional infrastructure elsewhere is avoided.
  - Reduced average overall cost per dwelling of infrastructure.
  - Greater use of community facilities.
  - Public investment benefits and lower maintenance burden.
  - More options for housing diversity, affordability and ownership.
  - Increased availability of existing houses as their current owners or occupiers take up new housing.
  - Availability of skilled workers, extensive business-by-business collaborations and a bigger market (economies of scale), all supporting businesses to grow.
  - Increased productivity / reduced dependency on other cities / better use of resources.

- Potential to attract investment from out of the city/region.
- Easier to provide quality schools, attract tertiary education institutions and training providers, specialist medical centres, museums, resulting in easier access for locals and better living standards.
- Potential to attract more tourists, and gain the cultural and financial impact.
- Larger cities in general provide more employment choices with higher incomes.

13. In “Using Land for Housing” The Productivity Commission (2016) noted:

*Cities are national assets. When cities function well, they provide greater choices of employment and more opportunities for specialisation, and they have higher incomes and productivity than other areas. This is because firms located in close proximity to each other can take advantage of having access to a wider pool of skilled labour, better links to markets for both inputs and outputs, and the ability to share knowledge. However, the concentration of people and businesses in cities also creates costs, such as pressure on infrastructure and on the availability of housing. This puts a premium on good city organisation and on the ability to plan for growth.*

14. Intensification can put pressure on infrastructure, transport systems, open space networks and vegetation. With less private open space available, the amenity provided by public open spaces and city and community facilities increases in importance.

15. A Ministry for the Environment report (The value of urban design: The economic, environmental and social benefits of urban design ME606 2005) summarised the benefits of residential intensification as follows:

*Urban design that promotes a higher density of buildings and public spaces (in conjunction with other conditions such as mixed use, good building design and adequate open space) can:*

- *deliver savings on land, infrastructure and energy*
- *reduce the economic costs associated with time spent travelling*
- *help concentrate knowledge and innovative activity in the core of the city*
- *promote social connectedness and vitality*
- *help encourage greater physical activity, with consequent health benefits*
- *help conserve green spaces, in conjunction with certain kinds of urban development*
- *reduce run-off from vehicles to water, and overall emissions to air/atmosphere (although air emissions may be more locally concentrated).*

## **Scope of the Plan Change**

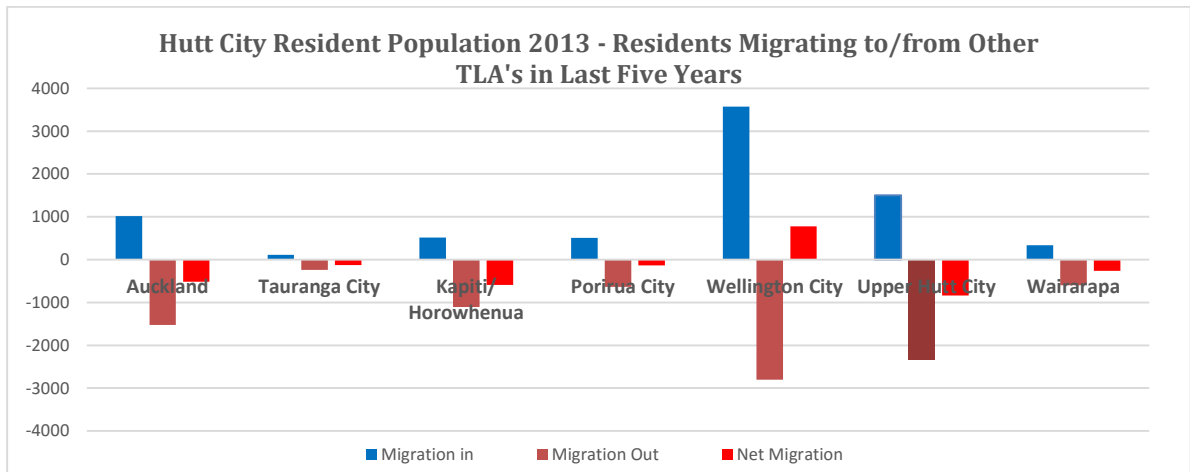
16. New and amended provisions are proposed through the plan change to enable the urban intensification objectives identified above. These include changes to suburban centre provisions for targeted areas to allow for more intense mixed use developments as well as provision for medium density development in residential areas around these targeted centres. Comprehensive residential development on suitable large residential sites and the establishment of a secondary residential unit on a site, or a minor residential unit such as a granny flat or a tiny house on an existing site are proposed to be provided for, with these provisions applying across the General Residential Activity Area.

17. The plan change reviews and seeks to amend the following parts of the Plan:
  - Chapter 4A General Residential Activity Area
  - Chapter 4F Medium Density Residential Activity Area – new
  - Chapter 5E Suburban Mixed Use Activity Area - new
  - Medium Density Design Guide - new
  - Chapter 3 Definitions
  - Chapter 11 Subdivision
  - Planning Maps.
18. The plan change also seeks consequential amendments to the following chapters:
  - Chapter 1 Introduction and Scope of the Plan
  - Chapter 4 Residential
  - Chapter 5 Commercial
  - Chapter 7A General Recreation Activity Area
  - Chapter 8A Rural Residential Activity Area
  - Chapter 8B General Rural Activity Area
  - Chapter 13 Network Utilities
  - Chapter 14A Transport
  - Chapter 14C Noise
  - Chapter 14D Natural Hazards
  - Appendices.
19. Further consequential amendments to Chapters 4B Special Residential Activity Area, 4C Historic Residential Activity Area, 4D Hill Residential Activity Area, 4E Landscape Protection Residential Activity Area, 5D(ii) Special Commercial Activity Area – Boulcott Village, 7A General Recreation Activity Area, 8A Rural Residential Activity Area, 8B General Rural Activity Area, 11 Subdivision and 17 Resource Consent and Notification Procedures do not propose any actual changes to the content of the chapters. Therefore Council will regard any submissions seeking to address these amendments to be outside scope of the plan change.
20. The changes to Chapters 4B Special Residential Activity Area, 4C Historic Residential Activity Area, 4D Hill Residential Activity Area, 4E Landscape Protection Residential Activity Area and Chapter 11 Subdivision are required because the current chapters refer back to provisions in the General Residential Chapter that are proposed to be deleted as part of the proposed plan change. It is therefore proposed to replace the current internal cross references with the relevant sections of Chapter 4A. No changes to the actual content of the provisions are proposed.
21. The proposed change to Chapter 7A General Recreation Activity Area is due to the fact that a site is currently being listed as a scheduled site in the General Residential Chapter despite being zoned General Recreation Activity Area. Adding the site specific provision to the General Recreation Chapter does not change the zoning or the provisions applying to the site.
22. Further changes to Chapters 4B Special Residential Activity Area, 4C Historic Residential

Activity Area, 4D Hill Residential Activity Area, 4E Landscape Protection Residential Activity Area, 5D (ii) Special Commercial Activity Area – Boulcott Village, Chapter 8A Rural Residential Activity Area, Chapter 8B General Rural Activity Area Chapter 9A Community Health Activity Area and Chapter 17 Resource Consent and Notification Procedures reflect proposed changes to the definitions chapter. They are solely required to maintain the existing activity status of activities and will not change the content of these chapters.

## Hutt City Growth Context

23. Historically, Lower Hutt has experienced low population growth. Population change in the district has been relatively flat since the mid-1970s. For example, Lower Hutt’s population grew just 0.55 percent between 2006 and 2013, compared with 5 percent for the Wellington Region, and 5.3 percent for New Zealand. Medium population projections anticipated Lower Hutt to decline in population from 2028.<sup>1</sup>
24. More recently Lower Hutt, as part of the wider regional housing market, has had its growth projections influenced by activities happening outside of the city boundaries. For example, the location of affordable retirement living and/or a greater number of new buildings and wider housing choices influences where people are moving from and to. See Figure 1 below for a summary of this analysis.



**Figure 1: Hutt City Residential Population migrating to/from other TLA's in the last 5 years (source: Gray Partners Limited 2016)**

25. There is also a significant change in demographic composition occurring within Lower Hutt which demonstrates a need for providing a new configuration of housing stock in the city. Examples of these changes are:
- A number of suburbs have experienced a net loss in household numbers between 2001-2013 mostly as a consequence of Housing New Zealand properties being demolished or not repurposed.
  - By contrast suburbs with greenfield capacity or with non-residential land being released for new family housing and retirement village development have experienced above average positive growth (e.g. Stokes Valley and Wainuiomata at 6% per annum).
  - 50% of growth is from single person or couple based households over the 2001/13 period.

<sup>1</sup> Statistics New Zealand, 2015, Subnational Population Projections: 2013(base) – 2043, Available from: [www.statistics.govt.nz](http://www.statistics.govt.nz) Accessed on: 29 August 2016

- 40% of growth is from households composed of families with children. There has also been a significant percentage change in household growth with two or more families living under the same roof.<sup>2</sup>

26. Within the General Residential Activity Area, outside of the Hutt CBD (Hutt Central) and Petone, between 2006 and 2016 there has been limited uptake of consents and/or construction of new multi-unit dwellings to support the changing trends in size and configuration of households. See Table 1 below.

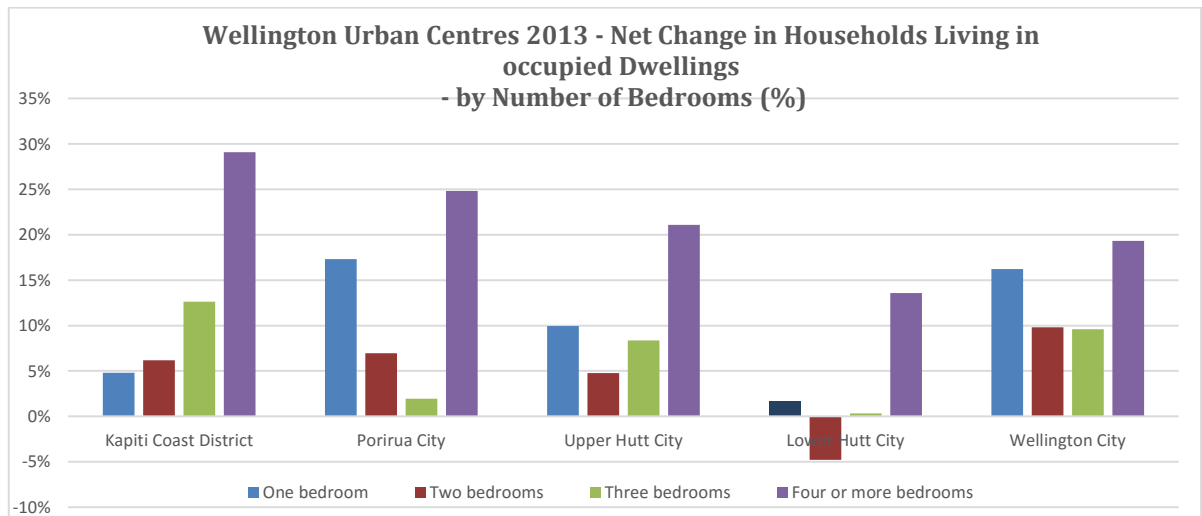
**Table 1: Hutt City new dwelling multi-unit consents July 2006-2016, Source: HCC (2016)**

	New construction			Conversion of existing building			Total by Study area	% change	
	Standalone	Attached townhouse	Apartment	Retirement unit and/or residential care unit	Convert commercial to apartment	Convert residential into flats			Bedsit / Boarding house
Stokes Valley		3			1			4	0%
Taita	13				3			16	3%
Naenae	2	4		20				26	3%
Avalon				2				2	0%
Boulcott								0	0%
Hutt Central	2	12	157	98	35	6	10	320	31%
Epuni	3				1		10	14	1%
Waterloo	5	3						8	1%
Waiwhetu								0	0%
Alicetown-Melling								0	0%
Petone	10	40	238	229	25	2	9	553	53%
Moera	4			4				8	1%
Eastbourne	9	7						16	2%
Wainuiomata	52							52	5%
Total by type	100	69	395	353	65	8	29	1019	
% change	10%	7%	39%	35%	6%	1%	3%		

27. While there has been very limited growth in Lower Hutt especially in the area of more intensive housing forms providing one, two and three bedroom units, other areas in the region such as Kapiti, Upper Hutt and Porirua have increased their supply of one to three

<sup>2</sup> Gray Partners Limited, 2016 Planning for Growth Drivers for Residential Intensification in Hutt City over the Next 30 Years.

bedroom units over the same time period. As a result while Lower Hutt has progressed development of four bedroom units in greenfield subdivisions, it has lost significantly to other regions in the one to three bedroom classes. See Figure 2 for details.



**Figure 2: Net change 2001-2013 in households living in occupied dwellings by number of bedrooms**

28. These trends pose a challenge for Lower Hutt in the future if changes to the existing planning framework and a new approach to development are not considered. These trends and challenges are further discussed later in this document as part of the assessment of resource management issues.
29. To address these challenges Council has been undertaking investigation work and consultation with the community on approaches to providing for greater population growth. These investigations are outlined below.

### The Evolution of the Proposed Plan Change

30. This section describes how the proposed plan change was developed over time in response to research and feedback.
31. The starting point for the plan change was Council's Hutt City Urban Growth Strategy 2012-2032. The Urban Growth Strategy addressed the expected challenges for growth and development of Hutt City, and contains the following goals:
  - *Capacity and demand for great living and a thriving commercial sector.*
  - *An economy that can compete in our world in 2040.*
  - *Thriving and distinctive centres that anchor Hutt City.*
  - *Fantastic recreational opportunities, the natural environment, and character urban environment underpin Hutt City's quality of life.*
  - *A city that is connected, driving opportunities for commerce, living and playing.*
32. To help realise these goals, the Urban Growth Strategy set the following growth targets to be achieved by 2032:
  - *at least 110,000 people live in the city (an increase of approximately 12,000 persons);*
  - *an increase of at least 6,000 in the number of homes in the city.*
33. These targets are supported by a range of actions to be advanced by Council. They include measures relating to the provision for greenfield development, business, financial



incentives and other matters. The measures also include the following actions relating to housing intensification:

- *Provide for targeted infill intensification in Waterloo and Epuni;*
- *Carry out further investigatory work on other areas that may be targeted be suitable for targeted infill intensification, for example the railway corridor and the periphery of the Central Business District (CBD);*
- *Provide for low rise apartments in key locations, including Eastbourne, Petone, Waterloo, periphery of CBD and suburban shopping centres;*
- *Provide for targeted multi-unit development;*
- *Develop and implement design guidelines for medium and high density developments; and*
- *Provide for 40% site coverage across the city.*

34. In November 2014, Council released the *Discussion Document on Providing for Residential Growth in Epuni, Waterloo and the CBD Edge*. The *Discussion Document* addressed potential ways of providing for urban intensification in targeted areas through the district plan framework. Proposals included a new residential growth zone, changing minimum site areas in some locations, making it easier to build multi-unit housing, and changes to commercial and business zones. Public submissions were invited on the *Discussion Document*. The results of this consultation informed the ongoing project and influenced the next steps.

35. After considering the results of consultation and intensification issues in workshops, councillors decided to assess options for residential growth in all parts of the City. At its 21 September 2015 meeting, the Policy and Regulatory Committee instructed staff to investigate the following approach:

- a) Identify targeted areas throughout the City for 10m high residential development. The target areas are typically, but not always associated with suburban centres and public transport.*
- b) On Suburban Commercial lots associated with targeted areas, enable 12m (3-4 storey) development to provide for residential development above commercial uses (no residential on ground floors)*
- c) On larger (>1000m<sup>2</sup>) General Residential lots, enable 10m high residential development and flexibility regarding boundaries internal to the overall site; and*
- d) On smaller (<1000m<sup>2</sup>) General Residential lots, retain 8m high residential development, enable slightly greater site coverage (40% up from 35%) and full building height (no additional setback at higher storeys) at the 3m road boundary setback.*

36. Based on these instructions preparation of an *Urban Development Plan* began and specialist assessments were commissioned to advise on transport networks, capacity of water infrastructure, natural hazards and urban amenity/urban design.

37. The *Urban Development Plan* assessed suburbs in the city that could provide for residential intensification. The assessment evaluated areas against the following criteria:

- proximity to transport modes;
- attributes of the local commercial centre;

- availability of land / ownership;
  - heritage / character overlays;
  - proximity to schools; and
  - proximity to reserves / open space.
38. The *Urban Development Plan* considered existing Council information on community facilities and reserves and new assessments of natural hazards, road infrastructure and pipe infrastructure that were commissioned to inform the plan change proposal:
- PAOS (June 2013) *Review of Valley Floor Reserves*. (Attachment 2)
  - GNS Science Consultancy Report 2016/74 (May 2016), *Review of hazard information for Hutt City*. (Attachment 3)
  - Harriet Fraser Traffic Engineering & Transportation Planning (June 2017), *Hutt City Council – Transport Assessment for Plan Change 43*. (Attachment 4)
  - Wellington Water Limited (August 2017) Hutt City Plan Change 43 Residential 3 Waters Summary Report. (Attachment 5)
39. Prior to confirming a new set of intensification typologies the spatial extents of intensification was reviewed against the above criteria and further technical work was undertaken to identify and understand natural hazards and infrastructure capacity restraints.
40. Preliminary results from these spatial investigations were presented at a Councillor briefing held on 31 May 2016 along with a recommendation that urban intensification follows the following approach:
- Targeted Areas – Type A - Mixed Use Suburban Commercial goes to 4 storeys
  - Targeted Areas – Type B – Identified Residential adjacent to Type A goes to 3 storeys
  - General Rollout – Type C - Comprehensive Development enabled in General Residential Activity Area on sites greater than 2000m<sup>2</sup>.
  - General Residential Activity Area – related changes to enable the above and key change to enable secondary residential units (granny flats)
41. Some suburban centres – Petone, Moera, Eastern Bays - were removed from further consideration for new intensification areas due to insufficient understanding of natural hazards. Those areas are likely to be reconsidered in future when additional information is available to inform an appropriate policy response to the hazards. The Eastern Bays also had pipe infrastructure constraints.
42. The final *Urban Development Plan* set out recommendations on the spatial extent of these intensification types, with Types A and B being located around identified suburban centres. Type C was recommended to apply across the General Residential Activity Area.
43. The report also provided proposed development provisions that could be incorporated in the district plan to enable the recommended intensification types. These included recommendations on how to ensure quality development through design elements in a design guide. Testing of those development provisions, including shade modelling, was undertaken to provide a city wide assessment of the potential effects of such development.
44. The final report by Jacobs New Zealand and Kamommarsh (2016), *Planning for the Future, A long-term vision for future housing growth and choice (Urban Development Plan)*

(Attachment 1) was received by the Council in September 2016.

45. Following Council approval an economic assessment of the suitability of the provisions proposed by the *Urban Development Plan* was commissioned (Attachment 6 *Gray Partners Limited (December 2016), Planning for Growth, Drivers for Residential Intensification in Hutt City over the next 30 years*). The assessment was instructed to meet the anticipated requirements of the then forthcoming National Policy Statement on Urban Development Capacity.
46. The economic assessment made specific recommendations on the typologies proposed. The Medium Density Residential Zones and provision for Comprehensive Residential Development on larger sites were considered to be attractive to developers and likely to be taken up over time. However, the proposed permitted height limit of 12m in the targeted suburban centres was not considered to be likely to result in additional development, based on latent demand in the CBD and land costs in suburban centres not justifying a significantly higher development where a site was reconfigured.
47. As a result, a revised permitted building height limit of 10m rather than the initially proposed 12m has been recommended for the Medium Density residential zone.
48. The proposed minimum site area of 2000m<sup>2</sup> for Comprehensive Residential Development in the General Residential Activity Area was also evaluated. While the overall typology was supported, the advice provided in the report was that the figure of 2000m<sup>2</sup> was too high to encourage use of this new rule and typology. As a result a 1400m<sup>2</sup> minimum site area is being proposed as a trigger for the Comprehensive Residential Development rule.
49. The economic assessment also noted that infill development would continue to be important.
50. In summary, the development types recommended in the *Urban Development Plan* changed to the following:
  - *Type A - 10m high Suburban Mixed Use*
  - *Type B - 10m high Apartment / townhouse zone*
  - *Type C - Comprehensive Residential Development on sites over 1400m<sup>2</sup>*
51. The revised recommendations and conclusions of the *Urban Development Plan* have formed the basis for the proposed plan change.
52. The Residential Intensification Councillor Working Group was established in 2016 and met again on 26 April 2017 to discuss and confirm public consultation on the draft plan change approach suggested by officers:
  - a. *Require intensive residential development that needs resource consent to follow a design guide.*
  - b. *Establish a new Suburban Mixed Use zone in 10 specific targeted areas to replace much of the existing Suburban Commercial zone and allow for buildings of up to three storeys, compared with Suburban Commercial's two-storey limit. Buildings would accommodate shops and cafes on the ground floor, with the second and third storeys being residential or office.*
  - c. *Establish a new Medium Density Residential zone in 10 specific targeted areas adjacent to the proposed Suburban Mixed Use zone and allow for residential buildings of up to three storeys.*
  - d. *Enable greater intensification (Comprehensive Residential Development) on sites larger than 1400m<sup>2</sup> in the General Residential zone.*

- e. *Enable traditional infill, allowing two dwellings per site subject to standards for outdoor living space and site separation.*
- f. *Enable minor dwellings (granny flats, tiny houses), subject to standards for outdoor living space and site separation.*

53. The Working Group resolved to use Council's standard approach of an online survey conducted by Council's survey provider Public Voice Ltd because of an online survey's ability to provide Council with a representative view of all sectors of the population.
54. The online survey explained Council's possible approach to intensification and sought feedback on the key elements of the approach and the locations targeted in the approach.
55. The survey included maps of possible targeted areas at Stokes Valley, Taita, Naenae, Avalon, Epuni, Waterloo, the CBD Edge, Alicetown, Waiwhetu/Woburn and Wainuiomata and asked respondents to comment on the extent of the areas.
56. The online survey was aimed primarily at *Hutt City Views* – a representative panel of Hutt City residents who participate in surveys about issues facing the city and provide Council with a representative view of all sectors of the population.
57. The survey was also made available to the general public via Council's website, Council's Facebook page and Neighbourly so that anyone with an interest could state their views.
58. The Working Group reviewed a draft online survey and approved its release subject to a number of amendments to improve clarity and understanding.
59. A non-functional version of the survey is available at the following link. Note the survey was designed to function online and is not able to be reproduced perfectly as a paper copy (Attachment 7 *Public Voice Limited (May 2017). Hutt City Council – Residential Intensification Survey*).  
<http://survey.publicvoice.co.nz/s3/ris-demonstration>
60. Officers advised iwi authorities of the survey in emails and meetings with Port Nicholson Block Settlement Trust and Tenth's Trust and in email to Ngati Toa.
61. The survey generated much discussion and was completed by 1540 people. Of these, 528 responses came from the *Hutt City Views* Panel. There were 1012 responses from the general public. The Panel responses and general public responses were collated and analysed separately. On several of Council's proposals, there were significant differences of opinion between the responses of the panel and those of the general public.
62. The results of the survey are summarised below. The full results are attached as Attachment 8 (*Public Voice Limited (June 2017) Hutt City Council – Residential Intensification Survey Results*).
63. Of the panel respondents, 82 per cent supported the proposed Suburban Mixed Use zone and 12 per cent opposed it. Among general public respondents, 62 per cent supported the proposed zone with 31 per cent against. Opinions also differed on the proposed Medium Density Residential zone, which was supported by 69 per cent of panel respondents and 44 per cent of general public respondents.
64. Respondents were strongly in favour of Option A of the three options presented for dealing with building height in relation to boundaries within the Medium Density Residential zone. Option A showed a height to boundary standard of 2.5 metres vertically at the side and rear boundaries with a 45 degree recession plane, and a 1m yard requirement.
65. Council's possible plan change ideas also included providing for greater development in

the General Residential zone, including enabling more intensification on large sites, ongoing provision for traditional infill and opportunities for tiny houses. Of the panel respondents, 66 per cent supported provision for comprehensive residential developments on larger sites compared to 43 per cent of the general public and 83 per cent of the panel supported traditional infill, compared to 67 per cent of the general public. The proposed infill development of small houses attracted 83 per cent support from the panel and 72 per cent from general public respondents.

66. To ensure high-quality developments, Council proposes all intensive residential developments that require resource consent would have to follow a design guide. Panel and general public respondents support for this is 82 per cent and 81 per cent respectively.
67. In summary, the *Hutt City Views* Panel strongly supported the suggested Council approach. The Panel also showed a solid minority response in opposition. The opposing point of view is shown more strongly in the self-selected general public response group.
68. The survey also asked for feedback on the size and location of targeted areas. For the results for individual targeted areas please refer to the full results in Attachment 8.

### ***Consideration of Survey Results and Next Steps***

69. The Working Group convened a workshop on 21 June 2017. The workshop considered the survey results and agreed to take a bus tour of the suggested targeted areas to assist in understanding the potential effects of residential intensification and determining the appropriate extent of any targeted areas. The bus tour took place on 27 June 2017.
70. The Working Group convened a follow up workshop on 7 July 2017 and discussed the plan change approach and the targeted areas in the context of the survey results and the bus tour.
71. The Working Group confirmed its support for the overall approach to residential intensification as set out above and confirmed a height to boundary standard in the Medium Density Residential zone of 2.5 metres vertically at the boundary with a 45 degree recession plane, and 1m yard requirement. The Working Group made a number of changes to targeted areas as a result of feedback in the online survey, confirmed by the tour of the sites.
72. The Working Group was unable to reach consensus on the extent of the CBD Edge targeted area and identified four options for the District Plan Committee to select its preferred option from. The amendments to targeted areas including the four CBD Edge options are shown in the maps, attached as Attachment 9 to this report.
73. The Working Group also discussed options for further public consultation and decided that the best way forward is a formal plan change process with an extended (3 month plus) submission period supported by comprehensive public communication. That enables a specific formal proposal to be tested through the submission, hearing and appeal processes with the outcomes determined on the merits of the resource management arguments.
74. The Working Group asked that officers present a proposed plan change document for consideration at the District Plan Committee meeting of 20 September 2017. Subject to recommendation to Council by the Committee, and subsequent Council approval, the proposed plan change would be publicly notified in early November 2017 with the submission period ending in February 2018.
75. The Working Group also asked for a comprehensive public communication plan.

## **Working Group Instructions**

76. The Working Group provided the following instructions to officers on the plan change's overall approach and the extent of the targeted areas. The instructions were formalised at the District Plan Committee meeting of 26 July 2017 (Attachment 10 *Hutt City Council Report DPC2017/3/163 to District Plan Committee (26 July 2017) Residential Intensification*).

*Requests officers to prepare Proposed Plan Change 43 Residential and Suburban Mixed Use for consideration at the District Plan Committee meeting of 20 September 2017. The plan change approach is confirmed as the approach that was consulted on in the Public Voice online survey of May/June 2017 and is summarised as:*

- *Intensive residential development requiring resource consent must follow a design guide*
- *New Suburban Mixed Use zone in targeted areas, with a maximum building height standard of 10 metres*
- *New Medium Density Residential zone in targeted areas, with a maximum building height standard of 10 metres and height to boundary standard of 2.5 metres vertically at the side and rear boundaries with a 45 degree recession plane*
- *Comprehensive Residential Development enabled on General Residential sites of 1400m<sup>2</sup> or larger*
- *Enabling infill development provisions including tiny houses*
- *Targeted area maps amended as attached as Appendix 2 to the report including the following option for the CBD Edge targeted area:*
  - *Option 1 Amend at north end and east of Cornwall St; or*
  - *Option 2 Suggested by Deputy Mayor Bassett; or*
  - *Option 3 Outlying areas of Option 2 also removed; or*
  - *Option 4 Defer CBD Edge for consideration as part of Lower Hutt 2040 project;*

*Requests that officers provide for a submission period in the plan change process of at least 3 months.*

*Requests officers to prepare a comprehensive communications plan to accompany the proposed plan change.*

77. At its meeting on 10 October 2017 Council resolved to promulgate Proposed Plan Change 43 for consultation but to remove the targeted area at the CBD edge from the plan change until such time as a Spatial Plan for the Lower Hutt CBD is developed.
78. Proposed Plan Change 43 is the result of the above evolution.

## Statutory Basis for Section 32 Evaluation

80. Section 32 of the Resource Management Act 1991 ('RMA', 'the Act') requires that an evaluation report be prepared before the notification of a plan change by Council. Sections 32(1), 32(2), 32(3) and 32(4) provide guidance as to what such an evaluation must examine and consider as follows:

- (1) *An evaluation report required under this Act must-*
  - (a) *examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act; and*
  - (b) *examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by-*
    - (i) *identifying other reasonably practicable options for achieving the objectives; and*
    - (ii) *assessing the efficiency and effectiveness of the provisions in achieving the objectives; and*
    - (iii) *summarising the reasons for deciding on the provisions; and*
  - (c) *contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal.*
- (2) *An assessment under subsection 1(b)(ii) must-*
  - (a) *identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for-*
    - (i) *economic growth that are anticipated to be provided or reduced; and*
    - (ii) *employment that are anticipated to be provided or reduced; and*
  - (b) *if practicable, quantify the benefits and costs referred to in paragraph (a); and*
  - (c) *assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.*
- (3) *If the proposal (an **amending proposal**) will amend a standard, statement, national planning standard, regulation, plan, or change that is already proposed or that already exists (an **existing proposal**), the examination under subsection (1)(b) must relate to-*
  - (a) *the provisions and objectives of the amending proposal; and*
  - (b) *the objectives of the existing proposal to the extent that those objectives-*
    - (i) *are relevant to the objectives of the amending proposal; and*
    - (ii) *would remain if the amending proposal were to take effect.*
- (4) *If the proposal will impose a greater or lesser prohibition or restriction on an activity to which a national environmental standard applies than the existing prohibitions or restrictions in that standard, the evaluation report must examine whether the prohibition or restriction is justified in the circumstances of each*

*region or district in which the prohibition or restriction would have effect.*

(4A) *If the proposal is a proposed policy statement, plan, or change prepared in accordance with any of the processes provided for in Schedule 1, the evaluation report must-*

(a) *summarise all advice concerning the proposal received from iwi authorities under the relevant provisions of Schedule 1; and*

(b) *summarise the response to the advice, including any provisions of the proposal that are intended to give effect to the advice.*

81. The benefits and costs are defined in Section 2 of the RMA as including benefits and costs of any kind, whether monetary or non-monetary.
82. Section 32 applies to the entire policy and plan development and change process from issue identification to decision release. Therefore, Section 32 is applicable:
- When objectives are identified and assessed.
  - When examining policies, rules, or other methods.
  - After the draft plan or provision is prepared.
  - When the decision is made to notify.
  - In the officer's report on submissions.
  - During deliberations by the council hearings committee.
  - Before the final decision being released.
83. A Section 32 evaluation is an iterative process, requiring a regular review of earlier steps and conclusions when necessary.

## **Relevant Case Law**

84. The decision in *Long Bay-Okura Great Parks Society Incorporated v North Shore City Council* (Decision A 078/2008), and amended in *High Country Rosehip Orchards Ltd and Ors v Mackenzie DC* ([2011] NZ EnvC 387) to reflect the changes made by the Resource Management Amendment Act 2005, sets out the mandatory requirements for district plans as follows. These have been updated here to reflect amendments to the RMA.

### A. General Requirements

1. A district plan should be designed to accord with, and assist the territorial authority *to carry out* its functions so as to achieve, the purpose of the RMA.
2. When preparing its district plan the territorial authority must *give effect to* any national policy statement or New Zealand Coastal Policy Statement.
3. When preparing its district plan the territorial authority shall:
  - (a) *have regard to* any proposed regional policy statement;
  - (b) *give effect to* any operative regional policy statement;
  - (c) *have regard to* the extent to which the plan needs to be consistent with the plans of adjacent territorial authorities.
4. The Supreme Court (referring to the Environment Court in *Clevedon Cares v Manukau City Council*) has stated that 'give effect to' simply means 'implement'. 'Give effect to' is a strong directive creating a firm obligation on those subject to it.

In relation to regional plans:



- (a) the district plan must *not be inconsistent with* an operative regional plan for any matter specified in s30 (1) [or a water conservation order]; and
  - (b) *must* have regard *to* any proposed regional plan on any matter of regional significance etc.
5. When preparing its district plan the territorial authority must also:
- have regard to any relevant management plans and strategies under other Acts, and to any relevant entry in the Historic Places Register and to various fisheries regulations; and to consistency with plans and proposed plans of adjacent territorial authorities;
  - take into account any relevant planning document recognised by an iwi authority; and
  - not have regard to trade competition;
6. The district plan must be prepared *in accordance with* any regulation and any direction given by the Minister for the Environment.
7. The requirement that a district plan (change) must also state its objectives, policies and the rules (if any) and may state other matters.

B. Objectives [the s32 test for objectives]

8. Each proposed objective in a district plan is *to be evaluated* by the extent to which it is the most appropriate way to achieve the purpose of the RMA .

C. Policies and methods (including rules) [the s32 test for policies and rules]

9. The policies are to *implement* the objectives, and the rules (if any) are to *implement* the policies.
10. Each proposed policy or method (including each rule) is to be examined, as to whether it is the most appropriate method for achieving the objectives of the district plan by:
- (a) *identifying* other reasonably practicable options for achieving the objectives; and
  - (b) *assessing the efficiency and effectiveness* of the provisions in achieving the objectives, including:
    - (i) identifying, assessing and quantifying (where practicable) the benefits and costs of the environmental, social and cultural effects anticipated from the implementation of the provisions, including opportunities for economic growth and employment; and
    - (ii) assessing the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods; and
    - (iii) if a national environmental standard applies and the proposed rule imposes a greater prohibition or restriction than that, then whether that greater prohibition or restriction is justified in the circumstances.

D. Rules

11. In making a rule the territorial authority must *have regard to* the actual or potential effect of activities on the environment.
12. There are special provisions for rules about contaminated land.

13. There must be no blanket rules about felling of trees in any urban environment.

E. Other statutes

14. Territorial authorities may be required to comply with other statutes.

85. In the article "Implications of the New Zealand King Salmon Supreme Court decision" solicitors Paul Beverley and David Allen state:

*The key implications of the NZKS decision for decision-makers on, and drafters of, plan changes are:*

- *Pay careful attention to the way in which objectives and policies are expressed in all planning documents (the words mean what they say)*
- *More directive objectives and policies carry greater weight than those expressed in less directive terms*
- *Directive objectives and policies to avoid adverse effects should usually be accompanied by a restrictive activity status, such as non-complying or prohibited*
- *There is a hierarchy of planning documents and subordinate plans that must implement the objectives and policies of the NZCPS and an NPS (and arguably a RPS) and, if they are directive, must do so as an "obligation"*
- *When considering the NZCPS and an NPS (and arguably a RPS, and a regional or district plan), do not refer to Part 2 or undertake a "balancing" interpretation unless the policy statement does not "cover the field" in relation to the issues being addressed, or the wording is uncertain or conflicting.*

# Scale and Significance Assessment

## Introduction

86. Under Section 32(1)(c) of the RMA, this evaluation report needs to:
- contain a level of detail that corresponds to the **scale and significance** of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal (**emphasis added**).*
87. The following Scale and Significance Assessment discusses the proposed plan change in terms of 8 factors, and scores each factor out of 5.
88. The Assessment concludes with a table summarising the factors and scores, and gives a final overall score for the scale and significance of the proposed plan change.

## Factor 1 Reasons for the Change

89. The review of the residential development provisions of the Plan is required for the following reasons:
- To achieve the housing and population growth targets contained in the Council's Urban Growth Strategy 2012-2032;
  - To avoid negative effects associated with a decline in population;
  - To provide additional development opportunities in existing suburban centres located close to transport hubs, which would assist in meeting employment and housing objectives.
  - To meet RMA requirements for plan provisions to be reviewed at least every 10 years. The district plan was made operative in 2003/2004. In 2009 the general residential chapter was reviewed and the resulting changes were made operative in 2011.
  - In 2014 Council released the Urban Growth Strategy. In order to comprehensively address the issues identified in the Urban Growth Strategy and feedback on the workability of some of the existing provisions a full review of the relevant chapters has been proposed.
  - The Plan also needs to be updated to give effect to the National Policy Statement for Urban Development Capacity.
90. *Factor 1 Reason for Change* scores 5 due to being driven in part by statutory requirements.

## Factor 2 Resource Management Issues / Problem Definition

91. There is one overarching Resource Management issue addressed by this plan change: To provide housing capacity and variety that meets the needs of existing and future residents.
92. The concept of urban intensification raises different subjects:
- Urban intensification has the potential to provide a range of positive benefits such as better access to public transport, more vibrant commercial centres and greater housing choice, improvements in housing affordability, and lower infrastructure costs (relative to 'greenfield' urban expansion).
  - Urban intensification can have adverse effects at a suburb or regional level in terms of pressure on transport and three water infrastructure, as well as an increase in

natural hazard risk (in terms of potential loss of life and damages to building), should intensification occur in higher risk areas.

- Urban intensification can have adverse effects at a localised level in terms of changes to the public and private built environment, for example through a reduction in landscaping/planting as built development increases, changes to levels of privacy and shading and changes in views and outlook.
- Urban intensification can have other effects which can be viewed by different interest groups as both positive and negative, including changes to population composition and housing tenure patterns and changes to the existing character or predominant building style.

93. *Factor 2 Resource Management Issues / Problem Definition* scores 5 for Urban Intensification for the above reasons.

### **Factor 3 Degree of Shift from the Status Quo**

94. The District Plan was written at a time when low residential growth was being experienced in Lower Hutt. A decision had been made to promote growth within Lower Hutt but also to provide for changing housing needs, recognising that the current housing stock is not well configured for changing demographics in general and an aging population in particular. There has been increased demand on housing stock in the Wellington region further emphasising the need to provide for a wider range of affordable housing types. The plan change proposes to provide a clearer regulatory framework and to reduce barriers to providing housing to meet the needs of the community. It also aims to reduce regulatory costs and bring the plan in line with current legislation.

95. *Factor 3 Degree of Shift from the Status Quo* scores 4 due to its moderate shift from current practice.

### **Factor 4 Who and How Many Will be Affected/Geographical Scale of Effects**

96. The whole of the General Residential zone and much of the Suburban Commercial zones are affected.

97. The General Residential zone covers approximately 2460 hectares, 6% of the City's 38,000 hectares. The zone contains approximately 33,000 properties, 83% of the City's 40,000 properties.

98. The Suburban Commercial Zone currently covers approximately 23 hectares and contains about 408 properties which accounts for about 1% of the City's properties.

99. The scale of the proposal is therefore significant.

100. *Factor 4 Who and How Many Will be Affected/Geographical Scale of Effects* scores 5 for its scale of influence.

### **Factor 5 Degree of Impact on or Interest from Iwi/Maori**

101. No specific impacts on or interest from Iwi/Maori over and above the general population have been identified to date. Changes to the existing medium density overlay may affect Maori owned land and Crown land that Iwi would have Right of First Refusal over should the land be deemed surplus to Crown requirements. There are also significant areas of land currently owned by Housing New Zealand Corporation which, if disposed of, would be offered back to Tangata Whenua in the first instance. However as the potential value to Iwi of these properties is unknown the changes to zoning of land is not likely to be significant as Housing New Zealand properties are or have previously been developed and it is possible that a new residential land use to regenerate the asset would be positive.

102. *Factor 5 Degree of Impact On or Interest from Iwi/Maori scores 3.*

**Factor 6 Timing and Duration of Effects**

103. The effects of the proposed plan change will be ongoing from the time any of its provisions become operative.

104. *Factor 6 Timing and Duration of Effects scores 5 due to the ongoing nature of effects.*

**Factor 7 Type of Effects**

105. The proposed plan change reduces some regulatory requirements and changes residential and suburban centre building envelope requirements. Reduced regulation may promote business and investment activity. The proposed plan change follows community feedback and continues regulatory intervention via a design guide approach to more intensive developments that trigger a resource consent process.

106. Enabling more intensive built development is likely to result in adverse effects that fall locally, on adjoining properties, while the wider benefits of intensification may accrue to the wider community.

107. *Factor 7 Type of Effects scores 4 due to the significance of the effects.*

**Factor 8 Degree of Risk and Uncertainty**

108. The degree of risk and uncertainty is moderate. The proposal’s approach - development standards for permitted activities, the consent process for more intensive projects and urban design guidance for built development that needs resource consent - is well understood and widely applied. However, residents may be anxious about change.

109. *Factor 8 Degree of Risk and Uncertainty scores 3 due to the certainty provided by industry standards.*

**Overall Scale and Significance**

110. Table 2 below lists the factors discussed above and the scores for each factor. The scores are then combined to give a total scale and significance score for the proposed plan change.

**Table 2: Summary of Scale and Significance**

<b>Factor</b>	<b>Score</b>
1. Reasons for the Change	5
2. Resource Management Issues / Problem Definition	5
3. Degree of Shift from the Status Quo	4
4. Who and How Many Will be Affected/Geographical Scale of Effects	5
5. Degree of Impact on or Interest from Iwi/Maori	3
6. Timing and Duration of Effects	5
7. Type of Effects	4
8. Degree of Risk and Uncertainty	3
<b>Total (out of 40)</b>	<b>34</b>

### **Total Score Interpretation**

0-10 Scale and Significance = Low

11-20 Scale and Significance = Moderate

21-30 Scale and Significance = High

31-40 Scale and Significance = Very High

111. The Scale and Significance Assessment of Proposed Plan Change 43 concludes that the scale and significance of the plan change is very high.

## Methodology and Approach to Evaluation

112. Council is developing a standard methodology and approach to its Section 32 evaluations. This approach is being developed taking into account guidance from the Ministry for the Environment, the Quality Planning website, case law and best practice approaches throughout the country.

### Evidence Base – Research, Information and Analysis Undertaken

113. The Council has reviewed the relevant parts of the District Plan, commissioned technical advice and assistance from external experts including Michael Hall, Rory Smeaton and Sarah Clarke from Jacobs New Zealand Limited (Planning), David Compton-Moen of DCM Urban Limited (Urban Design), GNS Science (Natural Hazards), Harriet Fraser Engineering Limited (Transport), Wellington Water (Water Infrastructure) and Gray Partners Limited (Economics). This input, along with workshops with the Council's Resource Consents Team and infrastructure staff and community feedback assisted with developing the proposed framework and provisions.
114. Council supervised and guided the project via the Residential Intensification Working Group comprising 6 councillors, one from each ward of the City. The Working Group met as required to consider and provide direction on information and options presented by officers. The Working Group's directions were formalised as appropriate through the District Plan Committee.

### Quantification

115. Section 32(2)(b) requires that if practicable, the benefits and costs of a proposal are quantified. Given the assessment of the scale and significance of the proposal above it is considered that quantifying costs and benefits would add significant time and cost to the Section 32 evaluation processes, therefore exact quantification of the benefits and costs in this report was not considered necessary, beneficial or practicable. Rather, this report identifies where there may be additional costs or cost savings.

### Consultation

116. Consultation has been an important part of the development of the proposal. Relevant consultation has occurred prior to the plan change on the Urban Growth Strategy and the Discussion Document on Providing for Residential Growth – Epuni, Waterloo and CBD edge.
117. Fifty eight written submissions were received on the Discussion Document. Additional information regarding public opinion was collected through a survey of 100 local residents, focus group discussion, and individual interviews undertaken by Peter Glen Research Ltd. An additional workshop was attended by 25 persons, including 17 submitters. Consultation responses were reported to the Policy and Regulatory Committee Meetings of 16 February and 9 March 2015.

### Online Survey

118. The online survey was discussed in Evolution of the proposed plan change above.

### Consultation with Iwi

119. Council is required by the Resource Legislation Amendment Act 2017 to provide iwi authorities with a copy of draft plan changes and adequate time and opportunity to respond.
120. Council staff consulted with Mana Whenua in face to face meetings with Port Nicholson Block Settlement Trust, Wellington Tenth Trust and Ngati Toa. Iwi were provided with

links to the online survey and encouraged their members to participate in the survey. Ngati Toa were also provided with a GIS viewer that showed Right of First Refusal properties in relation to targeted areas.

121. Ngati Toa responded:

*We don't have any issue with the Council's idea to change the District Plan. I'm not sure if this is already in the plan but we would like to ensure that any cultural heritage is protected or we are notified if anything is found. This is usually insured by an Accidental Discovery Protocol or Archaeological Authority and also identification of cultural sites (something that we are still to provide you). So just as long as this is included somewhere we don't have any issue with these changes."*

### **Consultation with Statutory Authorities**

122. Consultation has also been carried out during the preparation of the plan change with the following statutory authorities in accordance with Schedule 1 of the RMA. Letters were sent to the following statutory contacts informing them of the availability of the draft proposed plan change:

- Greater Wellington Regional Council (in addition to prior involvement of their flood protection department and public transport team);
- Ministry for the Environment;
- Port Nicholson Block Settlement Trust (in addition to consultation outlined above);
- Wellington Tenth Trust (in addition to consultation outlined above);
- Ngati Toa (in addition to consultation outlined above);
- Wellington City Council;
- Porirua City Council;
- Upper Hutt City Council;
- South Wairarapa District Council.

123. On 6 October 2017 a response was received from Greater Wellington Regional Council signalling general support for the plan change and the intention to provide further comment by way of submission once the plan change is notified. Aspects that were particularly noted and supported include:

- The proposal of provisions which recognise and adapt to the changing needs of the community including an increase in housing options close to commercial spaces.
- The encouragement of good urban design and control on effects on neighbouring properties and amenity.
- The positive effects on the viability of public transport and active modes achieved by focusing more intense residential development around transport hubs and suburban centres.
- The exclusion of areas due to known or potential high hazard risk.
- The stormwater neutrality requirements for comprehensive developments.
- The introduction of suburban mixed use which provides for an increased range and diversity of activities.
- The mitigation of stormwater effects by site coverage, permeable surface and stormwater neutrality provisions.



- The plain language and streamlined layout of the new chapters.

124. No other responses were received.

### **Analysis of Other District Plans**

125. In order to assess what is seen as current best practice elsewhere in relation to providing for increased urban development a review of the following District Plans was undertaken:

- Auckland Council Unitary Plan.
- Proposed Christchurch Replacement District Plan.
- Hamilton Proposed District Plan.
- Hastings District Plan.
- Porirua District Plan.
- Wellington City Plan.

126. In addition to these plans as part of the development of the Urban Development Plan, international design guidance was reviewed when considering a proposed set of typologies to promote development. The above District Plans were considered primarily due to:

- having been reviewed recently;
- having similar scales of development occurring within the district boundaries; and
- having contentious intensification proposals which had been challenged and resolved through a hearings process.

127. The review of these District Plans revealed both commonalities in their treatment of residential intensification and also differences, as outlined below.

128. Hamilton City Council provides for a higher permitted height limit of 10m for residential houses in the equivalent general residential areas. The remaining plans reviewed provide for 8m as a maximum height. For medium density zones the majority of plans had at least a 10 metre height limit.

129. Site coverage rules within general residential areas were mostly between 35%- 45%. Some councils were considering higher limits. Most councils with medium density zones were proposing site coverage areas between 40-50%.

130. For additional units within an existing property the Auckland, Christchurch and Hastings district plans all specifically provide for infill household units within the residential areas as permitted activities. Various terms are used for this type of development. Wellington provides for this within the multi-unit development provisions, as a restricted discretionary activity.

131. Auckland, Christchurch and Hastings all require that only one infill household unit be allowed per site. Specific standards for unit size and outdoor open space are common to Auckland and Christchurch, while Hastings has a maximum unit size but requires that the outdoor open space provided for the primary residential unit be shared with the supplementary unit. Maximum Unit size ranges from 65m<sup>2</sup> to 80m<sup>2</sup>. Christchurch is the only one plan with a minimum unit size, set at 35m<sup>2</sup>.

## Policy Framework

132. The following sections discuss the national, regional and local policy framework that provides the context for the proposed plan change.

### Resource Management Act 1991

133. Section 32(1)(a) requires an evaluation report to examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of the RMA. The purpose and principles are set out in Part 2, Sections 5 to 8, of the RMA.

### Section 5 Purpose and Principles

134. The purpose of the RMA is set out in Section 5. The purpose is to promote the sustainable management of natural and physical resources.

*[S]ustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—*

- (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
  - (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
  - (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.*
135. The proposed objectives of the plan change are considered to be consistent with Part 2 of the RMA. As a result, it is considered this would promote the sustainable management of natural and physical resources in Lower Hutt.
136. Providing for greater residential development opportunities within the existing urban area of Lower Hutt through changes to the District Plan provisions will help to enable people and communities to provide for their well-being, particularly their social and economic wellbeing.
137. Social wellbeing will be enabled through the provision of a greater number and range of residential dwellings, in locations supported by appropriate and adequate infrastructure, including social infrastructure. This is expected to provide a range of social benefits. These include the opportunity for people to choose different types of housing options during different life phases while continuing to be able to live in the same area, helping to maintain social connectedness and community cohesion.
138. The ability to develop a wider variety of housing options also provides a greater range of people with the opportunity to live in a dwelling that suits their circumstances and needs. The location of greater residential development opportunities in proximity to public transport and community facilities located in suburban centres will also help to ensure accessibility to these amenities and the associated benefits to people and the wider communities of their use and associated social interaction.
139. Economic wellbeing will be enabled through providing for residential development opportunities to meet demand thereby facilitating a market response to housing affordability issues. The location of opportunities for greater residential development around suburban commercial centres will help to maintain the economic viability of those centres through increasing the potential number of people accessing these areas, and

potential employment growth.

140. The objectives of the proposed plan change will help to sustain the potential of natural and physical resources in Lower Hutt to meet the reasonably foreseeable needs of future generations, and safeguard the life-supporting capacity of air, water, soil and ecosystems, by enabling more efficient use of land resources within the existing urban area. This will reduce the reliance on the development of currently undeveloped land for residential urban purposes. The proposal will also assist in meeting the foreseeable housing needs of existing and future generations.
141. Higher density residential development has the potential to have adverse effects on the existing urban environment, infrastructure and amenity. The provisions proposed through the plan change address the potential for adverse effects, within the context of the environment to which they apply. The effects are considered able to be appropriately managed through these provisions.

## **Section 6 Matters of National Importance**

142. Section 6 of the RMA sets out matters of national importance that all persons exercising functions and powers under it shall recognise and provide for in achieving the purpose of the RMA. The matters of national importance are identified as:
- (a) *the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:*
  - (b) *the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:*
  - (c) *the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*
  - (d) *the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:*
  - (e) *the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:*
  - (f) *the protection of historic heritage from inappropriate subdivision, use, and development:*
  - (g) *the protection of protected customary rights.*
  - (h) *the management of significant risks from natural hazards.*
143. Overall, the proposal is consistent with the matters listed in Section 6. The matters of national importance considered to be of particular relevance to the proposal are 6 (e), (f) and (h).
144. While the proposal has the potential to allow for some increased development opportunities within areas of the coastal environment, the areas where this may occur are already highly modified, and therefore the preservation of the natural character is not an issue (a). There are no outstanding natural features or landscapes or areas of significant indigenous habitat affected by the plan change (b) (c). Public access to the areas identified in (d), and the protection of customary rights (g) are not affected.
145. In relation to matter 6 (e), the proposal could have an effect on the relationship of Maori with water as a result of potential increases in impermeable surfaces, leading to higher surface water flows entering into stormwater and wastewater networks. The proposal has

been developed with consideration of the potential impact on stormwater flows and associated infrastructure capacity. Intensification around suburban centres has only been proposed where the infrastructure is considered to have sufficient capacity or can be provided through future upgrades that would be subsequently consented to provide for appropriately managed effects. The management of these effects to appropriate levels would be undertaken in consultation with local tangata whenua. As such the potential for adverse effects on the relationship of Maori with water as a result from this proposed plan change is not considered to be significant.

146. Maori are also known to have strong historical links with the Petone foreshore, with the former Pito-one Pa located in the Petone West area. The Hutt River and the Waiwhetu Stream are referred to in the Statutory Acknowledgement from the Port Nicholson Block (Taranaki Whānui ki Te Upoko o Te Ika) Claims Settlement Act 2009 and The Statutory Acknowledgement from the Ngāti Toa Rangatira Claims Settlement Act 2014. In relation to the Petone area, the current proposal is limited to those provisions that apply across the general residential area and not the foreshore or any other sites affected by cultural notations in the District Plan. The expected changes to the urban environment in Petone as a result of the proposal are therefore also likely to be limited. The proposal does not affect any requirements under the Heritage New Zealand Pouhere Taonga Act 2014. Consequently, the potential effect on the relationship of Maori and their culture and traditions with their ancestral lands, sites, waahi tapu, and other taonga is not considered to be significant.
147. In relation to matter 6 (f), within the targeted areas for urban intensification there is one listed heritage building identified in the District Plan. Throughout the General Residential Activity Area, within which some intensification is proposed to be provided for, there are several listed buildings identified in the District Plan. No changes are proposed to existing plan provisions regarding historic areas or listed heritage buildings. Therefore, the potential effect of the proposal on historic heritage is not considered to be significant.
148. In relation to matter 6 (h) the proposal has excluded areas of high natural hazard risk, including Petone, Eastbourne and Moera, from the spatially defined intensification areas until further work can confirm the appropriate response to these risks. Comprehensive Residential Development may allow some further development in these areas of risk. However, this is considered appropriate, as the potential increase in hazard risk is not considered to be significant and any affects can be managed at the resource consent stage.

## Section 7 Other Matters

149. Section 7 of the RMA sets out other matters that all persons exercising functions and powers under it shall have particular regard to in achieving the purpose of the RMA. The matters are identified as:
- (a) *kaitiakitanga*:
  - (aa) *the ethic of stewardship*:
  - (b) *the efficient use and development of natural and physical resources*:
  - (ba) *the efficiency of the end use of energy*:
  - (c) *the maintenance and enhancement of amenity values*:
  - (d) *intrinsic values of ecosystems*:
  - (e) *[Repealed]*
  - (f) *maintenance and enhancement of the quality of the environment*:

- (g) *any finite characteristics of natural and physical resources:*
- (h) *the protection of the habitat of trout and salmon:*
- (i) *the effects of climate change:*
- (j) *the benefits to be derived from the use and development of renewable energy*

150. Overall, the proposal is considered to be consistent with the matters listed in Section 7. The matters considered to be of particular relevance to the proposal are 7 (b), (ba), (c), (f), (g), and (i).
151. In relation to matter 7 (b), the proposal provides for the efficient use and development of natural and physical resources. This proposal will enable land resources within the existing urban area to be used and developed more efficiently through providing for higher densities. Physical resources, including horizontal infrastructure and community facilities, will also be able to be used more efficiently.
152. In relation to matter 7 (ba), higher density residential development provided for by the proposed plan change is likely to enable more efficient end use of energy. This includes through providing for higher densities in areas supported by public transport, which will facilitate greater use of more efficient transport modes and reduce the overall demand for transport due to proximity to commercial areas and other amenities resulting in a corresponding reduction in the expenditure of energy.
153. In relation to matter 7 (c), higher density residential development can have adverse effects on the amenity of existing urban environments due to larger buildings being closer together, potentially resulting in dominance and shading effects. It is acknowledged that medium density development may change and transform the amenity values and character of an area. This change may be perceived as a negative effect by some and a positive change by others. The proposal has been tested to examine the significance of these effects on the existing urban environment. These effects can be appropriately managed so that the amenity of the existing urban environment can be maintained.
154. Urban amenity values can be enhanced through appropriate development, including development that results in higher density. The proposal includes provisions that seek to encourage enhancements to urban amenity. These include providing additional design guidance, introducing outdoor living space requirements and ensuring that mixed use developments in suburban centres result in buildings that have a good relationship with the street in terms of urban design. As such, the proposal is consistent with matter 7(c).
155. In relation to matter 7 (f), the quality of the environment in which higher density residential development is proposed to be provided for is to be maintained through appropriate controls on that development, to ensure that any adverse effects are reduced to an acceptable level.
156. In relation to matter 7 (g), there is a finite area of developable land within Lower Hutt. The proposal recognises this by facilitating consolidation of the existing urban area, and enabling more efficient development of urban land.
157. In relation to matter 7 (i), the Lower Hutt area is subject to a range of natural hazards, some of which will likely have more significant effects as a result of the effects of climate change. The proposal has been developed with these natural hazards in mind and as a result some areas have been excluded from further consideration at this stage due to insufficient information about the risk of natural hazards.

## **Section 8 Treaty of Waitangi**

158. Section 8 of the RMA requires that the proposal take into account the principles of the

Treaty of Waitangi.

159. Consultation on the proposal has included consultation with tangata whenua.

160. No culturally significant sites are directly affected by the proposal.

### **Resource Legislation Amendment Act 2017**

161. The Resource Legislation Amendment Act 2017 ('RLAA') was enacted on 18 April 2017.

162. The RLAA adds an additional matter of national importance to Section 6 of the RMA, being:

*(h) the management of significant risks from natural hazards*

163. As discussed above the risk from natural hazards has been considered through the development of the provisions to implement the proposal and when identifying spatial areas suitable for urban growth. Some areas (Petone, Moera, the Eastern Bays) with higher risks from natural hazards were excluded from targeted areas identified for urban growth and will be reconsidered once additional information is available to inform a potential policy response to those hazards. Intensification within the General Residential Activity Area will require consideration of natural hazard risk. The proposal therefore manages significant risks from natural hazards.

164. The RLAA also introduced an additional function of territorial authorities to Section 31 (i), being:

*(aa) the establishment, implementation, and review of objectives, policies, and methods to ensure that there is sufficient development capacity in respect of residential and business land to meet the expected long-term demands of the district:*

165. The proposed plan change would result in the establishment and implementation of objectives, policies, and methods to ensure that there is sufficient development capacity within Lower Hutt for residential development.

### **National Policy Statement on Urban Development Capacity 2016**

166. Under Section 75 (3) (a) of the RMA a district plan must give effect to any national policy statement.

167. The National Policy Statement on Urban Development Capacity 2016 (NPS-UDC) came into effect on 1 December 2016. The NPS-UDC sets out objectives and policies that need to be given effect to in district plans.

168. The purpose of the NPS-UDC is to ensure business and housing development is adequately provided for in regional and district plans to enable urban areas to grow and change in response to the needs of their communities.

169. Lower Hutt forms part of the Wellington Urban Area, which has been identified as being a medium growth area. The policies that relate to medium growth areas are therefore relevant. Of greatest relevance to the proposed plan change are policies PA1 to PA4 which relate to 'Outcomes for planning decisions' and policies PD1 to PD2 which relate to 'Coordinated planning evidence and decision-making'. PC13 ('Responsive Planning') is also relevant where the proposed plan change and supporting technical reports and assessments have identified that some capacity upgrades need to be provided through future long term plans and upcoming revisions of Hutt City Council's infrastructure strategies.

170. The relevant Objectives and Policies for this proposed plan change are:

171. OA1: *Effective and efficient urban environments that enable people and communities and future generations to provide for their social, economic, cultural and environmental wellbeing.*
172. The proposed plan change is consistent with OA1 as it provides for an urban form that will maximise the potential for social and economic exchange within the urban area, and provide for the efficient use of resources by enabling the more efficient utilisation of land resources for residential development. This includes in particular those areas around appropriate suburban centres, facilitating greater patronage of and interaction within these centres.
173. OA2: *Urban environments that have sufficient opportunities for the development of housing and business land to meet demand, and which provide choices that will meet the needs of people and communities and future generations for a range of dwelling types and locations, working environments and places to locate businesses.*
174. The proposed plan change is consistent with OA2 as it enables increased residential development capacity and a wider range in house hold types within the existing urban area.
175. OA3: *Urban environments that, over time, develop and change in response to the changing needs of people and communities and future generations.*
176. The proposed plan change is consistent with OA3 as it provides for increased opportunities for urban residential development over time.
177. OC1: *Planning decisions, practices and methods that enable urban development which provides for the social, economic, cultural and environmental wellbeing of people and communities and future generations in the short, medium and long-term.*
178. The proposed plan change is consistent with OC1 as it promotes planning decisions that provide for increased urban development.
179. PA1: *Local authorities shall ensure that at any one time there is sufficient housing and business land development capacity according to the table below:*
- a. *Short term Development capacity must be feasible, zoned and serviced with development infrastructure.*
  - b. *Medium term Development capacity must be feasible, zoned and either:*
    - *serviced with development infrastructure, or*
    - *the funding for the development infrastructure required to service that development capacity must be identified in a Long Term Plan required under the Local Government Act 2002.*
  - c. *Long-term Development capacity must be feasible, identified in relevant plans and strategies, and the development infrastructure required to service it must be identified in the relevant Infrastructure Strategy required under the Local Government Act 2002.*
180. The proposed plan change is consistent with PA1 as it increases the development potential of the existing housing land by providing for intensification within the existing urban area.
181. PA2: *Local authorities shall satisfy themselves that other infrastructure required to support urban development are likely to be available.*
182. In preparing the proposed plan change and identifying targeted areas suitable for residential intensification and growth the availability of infrastructure such as open space,

schools and public transport was taken into account. The proposed targeted areas are located around existing suburban centres which provide a range of social and community infrastructure as well as good access to public transport. The proposed plan change is therefore consistent with PA2.

183. PA3: *When making planning decisions that affect the way and the rate at which development capacity is provided, decision-makers shall provide for the social, economic, cultural and environmental wellbeing of people and communities and future generations, whilst having particular regard to:*
- a. *Providing for choices that will meet the needs of people and communities and future generations for a range of dwelling types and locations, working environments and places to locate businesses;*
  - b. *Promoting the efficient use of urban land and development infrastructure and other infrastructure; and*
  - c. *Limiting as much as possible adverse impacts on the competitive operation of land and development markets.*
184. It is the intention of this plan change to provide for increased residential capacity and choice as well as additional development potential in and around existing suburban centres. The proposal promotes the more efficient use of land within the existing urban area thereby making efficient use of existing infrastructure. The proposed plan change is consistent with PA3.
185. PA4: *When considering the effects of urban development, decision-makers shall take into account:*
- a. *The benefits that urban development will provide with respect to the ability for people and communities and future generations to provide for their social, economic, cultural and environmental wellbeing; and*
  - b. *The benefits and costs of urban development at a national, inter-regional, regional and district scale, as well as the local effects.*
186. The proposed plan change is consistent with PA4. The positive effects of residential intensification development are maximised by providing for the greatest intensification around appropriate suburban centres, which will ensure access to services and facilities and promote economic development in those centres. The adverse effects of residential intensification development are minimised through appropriate development controls set out in the proposed provisions.
187. PC4: *A local authority shall consider all practicable options available to it to provide sufficient development capacity and enable development to meet demand in the short, medium and long term, including:*
- a. *Changes to plans and regional policy statements, including to the zoning, objectives, policies, rules and overlays that apply in both existing urban environments and greenfield areas;*
  - b. *Integrated and coordinated consenting processes that facilitate development; and*
  - c. *Statutory tools and other methods available under other legislation.*
188. The proposed plan change is consistent with PC4 because it proposes changes to the existing planning framework that enable medium density developments. It thereby provides additional development capacity to meet demand.



189. It is considered that the proposed plan change is consistent with the relevant objectives and policies of the NPS-UDC.

### New Zealand Coastal Policy Statement

190. Section 75(3) (b) of the RMA states that a district plan must give effect to any New Zealand coastal policy statement.

191. The New Zealand Coastal Policy Statement 2010 (NZCPS) sets out the objectives and policies in order to achieve the purpose of the RMA in relation to the coastal environment of New Zealand. The policy statement is relevant in that some limited intensification may occur in the General Residential Activity Area located in proximity to the coastal environment.

192. The particularly relevant objectives and policies of the NZCPS are addressed below:

**Table 3: Relevant NZCPS Objectives and Policies**

Objectives / Policies	Comments
<p><b>Objective 5:</b> To ensure that coastal hazard risks taking account of climate change, are managed by:</p> <ul style="list-style-type: none"> <li>• locating new development away from areas prone to such risks;</li> <li>• considering responses, including managed retreat, for existing development in this situation; and</li> <li>• protecting or restoring natural defences to coastal hazards.</li> </ul>	<p>Some coastal areas of Lower Hutt are subject to coastal hazard risk. The hazard risk information considered in relation to the proposed plan change took account of climate change effects on coastal hazard risk.</p> <p>The suburbs of Petone, Moera and the Eastern Bays in particular are subject to multi-hazard risk, including coastal hazards. Petone, Moera and the Eastern Bays have not been selected for new spatially defined residential intensification types. However, the proposed plan change includes intensification Type C and additional units that apply across the existing General Residential Activity Area. This is appropriate, including in areas subject to coastal hazard risk, as the areas are already developed for residential purposes and the potential increase in hazard risk is not significant as any affects could be managed at the resource consent stage.</p>
<p><b>Objective 6:</b> To enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development, recognising that:</p> <ul style="list-style-type: none"> <li>• the protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits;</li> <li>• some uses and developments which depend upon the use of natural and physical resources in the coastal environment are important to the social, economic and cultural wellbeing of people and communities;</li> <li>• functionally some uses and developments</li> </ul>	<p>The proposed plan change will enable people and communities to provide for their social and economic wellbeing and their health and safety by enabling a broader range of housing options, while managing natural hazard risk to the extent possible through development standards.</p> <p>The intensification types provided for in the coastal areas of Lower Hutt are considered to not affect the values of or resources located with the coastal environment because of their location within the existing developed urban area.</p> <p>The proposed plan change is therefore consistent with this objective.</p>

Objectives / Policies	Comments
<p>can only be located on the coast or in the coastal marine area;</p> <ul style="list-style-type: none"> <li>• the coastal environment contains renewable energy resources of significant value;</li> <li>• the protection of habitats of living marine resources contributes to the social, economic and cultural wellbeing of people and communities;</li> <li>• the potential to protect, use, and develop natural and physical resources in the coastal marine area should not be compromised by activities on land;</li> <li>• the proportion of the coastal marine area under any formal protection is small and therefore management under the RMA is an important means by which the natural resources of the coastal marine area can be protected; and</li> <li>• historic heritage in the coastal environment is extensive but not fully known, and vulnerable to loss or damage from inappropriate subdivision, use, and development.</li> </ul>	
<p><b>Policy 6: Activities in the coastal environment</b></p> <p>1. In relation to the coastal environment</p> <p>(b) consider the rate at which built development and the associated public infrastructure should be enabled to provide for the reasonably foreseeable needs of population growth without compromising the other values of the coastal environment;</p> <p>(c) encourage the consolidation of existing coastal settlements and urban areas where this will contribute to the avoidance or mitigation of sprawling or sporadic patterns of settlement and urban growth;</p> <p>(f) consider where development that maintains the character of the existing built environment should be encouraged, and where development resulting in a change in character would be acceptable;</p> <p>(h) consider how adverse visual impacts of development can be avoided in areas sensitive to such effects, such as headlands and prominent ridgelines, and as far as practicable and</p>	<p>The relevant listed matters are addressed below:</p> <p>In relation to matter 1(b), some residential intensification in the existing coastal urban area is considered necessary to encourage population growth, and will not compromise other coastal values because of its location in areas already developed for urban use.</p> <p>In relation to matter 1(c) the proposed plan change will encourage the consolidation of existing coastal settlements and urban areas by providing greater opportunities for development and housing choice in the existing urban areas.</p> <p>In relation to matter 1(f) the proposed plan change has considered the appropriateness of intensification in relation to the character of the existing built environment, including the spatial extent of geographically restricted provisions.</p> <p>In relation to matter 1(h) and (i), the proposed plan change addresses development in existing urban areas. There are no significant visual impacts of the proposed plan change. Setting back development from the coastal marine area any further than the existing urban development is not required.</p> <p>In relation to matter 1(j), there are no areas or</p>

Objectives / Policies	Comments
<p>reasonable apply controls or conditions to avoid those effects;</p> <p>(i) set back development from the coastal marine area and other water bodies, where practicable and reasonable, to protect the natural character, open space, public access and amenity values of the coastal environment; and</p> <p>(j) where appropriate, buffer areas and sites of significant indigenous biological diversity, or historic heritage value.</p>	<p>sites of significant indigenous biological diversity, or historic heritage value that require buffer areas.</p>
<p><b>Policy 7:</b> Strategic Planning</p>	<p>Consideration has been given to where and how residential development should be provided for in relation to the residential coastal areas of Lower Hutt. The proposed plan change provides for limited means for increasing density of residential development in the coastal environment within the existing General Residential Activity Area.</p>
<p><b>Policy 25:</b> Subdivision, use, and development in areas of coastal hazard risk</p> <p>(a) avoid increasing the risk of social, environmental and economic harm from coastal hazards;</p> <p>(b) avoid redevelopment, or change in land use, that would increase the risk of adverse effects from coastal hazards;</p> <p>(c) encourage redevelopment, or change in land use, where that would reduce the risk of adverse effects from coastal hazards, including managed retreat by relocation or removal of existing structures or their abandonment in extreme circumstances, and designing for relocatability or recoverability from hazard events;</p> <p>(f) consider the potential effects of tsunami and how to avoid or mitigate them.</p>	<p>In relation to matter (a-c), some existing urban areas of Lower Hutt are already subject to coastal hazard risk. The spatial identification of intensification areas has excluded these areas from further intensification until further analysis clarifies an appropriate response to this risk. Comprehensive Residential Development allows some further development in these areas of risk, however, this is considered appropriate, as the potential increase in hazard risk is not considered to be significant and any affects can be managed at the resource consent stage.</p> <p>Avoidance or managed retreat from these areas has not been provided as redevelopment of existing urban areas in these locations could be managed appropriately through design of a proposed development whether it be comprehensive development or infill of a site.</p> <p>In relation to matter (f), the coastal area of Lower Hutt is subject to hazard risk from tsunami, particularly around Petone, Moera and the Eastern Bays. The potential effects of tsunami have been considered. Additional residential intensification zones have not been proposed for these three areas.</p>

## Regional Policy Statement for the Wellington Region

193. Section 75(3)(c) of the Resource Management Act 1991 states that a district plan change must give effect to any regional policy statement.
194. The Regional Policy Statement (RPS) for the Wellington Region identifies the significant

resource management issues for the region and outlines the policies and methods required to achieve the integrated sustainable management of the region's natural and physical resources.

195. The objectives and policies of the RPS considered to be relevant to the proposed plan change are addressed below.

**Regional Form, Design and Function**

196. Section 3.9 Regional Form, Design and Function recognises that physical proximity of urban development to existing centres and public transport affects transport usage. It identifies Lower Hutt city centre as a sub-regional city centre and Petone as a suburban centre. The relevant objectives and policies are addressed below in Table 4.

**Table 4: RPS Objectives and Policies - Regional Form, Design and Function**

Objectives / Policies	Comments
<p><b>Objective 22:</b> A compact well designed and sustainable regional form that has an integrated, safe and responsive transport network and:</p> <p>(b) an increased range and diversity of activities in and around the regionally significant centres to maintain vibrancy and vitality;</p> <p>(e) urban development in existing urban areas, or when beyond urban areas, development that reinforces the region's existing urban form;</p> <p>(g) a range of housing (including affordable housing);</p> <p>(i) integrated land use and transportation;</p> <p>(k) efficiently use existing infrastructure (including transport network infrastructure).</p>	<p>The proposed plan change will assist in giving effect to Objective 22 by encouraging greater utilisation of existing urban land, and will therefore promote a compact and sustainable urban form. The location of greater intensification opportunities in proximity to public transport enhances the design and sustainability of the area, and integration with the transport network.</p> <p>In relation to matter (b), the proposed plan change will provide for a greater range and diversity of activity in Lower Hutt, particularly through the provisions allowing for mixed use development around certain suburban centres.</p> <p>The proposed plan change will give effect to matter (e) in particular through providing for greater development capacity within the existing urban area.</p> <p>The proposed plan change will give effect to matter (g) by providing greater opportunities for development of different housing typologies.</p> <p>The proposal will give effect to matter (i) and (k) by focusing urban intensification around key public transport routes.</p>
<p><b>Policy 30:</b> Maintaining and enhancing the viability and vibrancy of regionally significant centres</p>	<p>Lower Hutt city centre is identified as a sub-regional centre and Petone as a suburban centre. The proposed plan change will assist in maintaining and enhancing the viability and vibrancy of Lower Hutt city centre by encouraging a higher density of residential development in and around the centre. The maintenance and enhancement of the viability and vibrancy of the Petone suburban centre will be assisted by encouraging more limited residential intensification in the residential areas around the centre. The proposed plan change is therefore giving effect to this policy.</p>
<p><b>Policy 31:</b> Identifying and promoting higher density and mixed use development</p>	<p>The proposed plan change directly relates and gives effect to this policy. The proposed plan change identifies key centres suitable for higher density and mixed use development, with good access to the public transport network, and proposes a plan change to include policies, rules and other methods to encourage higher density and</p>

Objectives / Policies	Comments
	mixed use development in and around suitable centres.
<b>Policy 54:</b> Achieving the region's urban design principles	The urban design principles have been given particular regard through the development of the spatial planning for the city and the proposed design guide for residential intensification.
<b>Policy 57:</b> Integrating land use and transportation	Particular regard has been given to the following matters as set out in Policy 57: (a) A transport assessment has been undertaken for the proposed plan change. This considered the potential impacts of traffic generation from a growth in population as sought by the UGS, and in the context of the target areas. (b) and (c): The selection of areas for mixed use and three storey residential development was based on criteria including access to transport nodes, a local commercial centre, schools and open space. (d) Pedestrian environments have been considered through the design guide, with urban design outcomes sought to encourage more passive surveillance and walkability. (e) Expectations for new or upgraded transport network infrastructure have been considered through the Transport Assessment.
<b>Policy 58:</b> Co-ordinating land use with development and operation of infrastructure	The proposed plan change gives effect to this through encouraging residential intensification in areas supported by public transport, therefore reducing the likely reliance on private motor vehicles for people living in resulting developments. This will assist in minimising the impact on the efficiency of the road network, and enhance the effectiveness of the public transport network.
<b>Policy 67:</b> Maintaining and enhancing a compact, well designed and sustainable regional form	The proposed plan change gives effect to Policy 67, particularly (d) by providing opportunities for the development of a range of housing typologies.

### **Natural Hazards**

197. Section 3.8: Natural Hazards recognises that new development needs to respond to natural hazard risks. It identifies hazard risks within the Wellington region, including the Hutt Valley and that these risks can increase over time, particularly with the effects of climate change. The relevant objectives and policies are addressed below in Table 5.

**Table 5: RPS Objectives and Policies – Natural Hazards**

Objectives / Policies	Comments
<b>Objective 19:</b> The risks and consequences to people, communities, their businesses, property and infrastructure from natural hazards and climate change	Some existing urban areas of Lower Hutt are exposed to natural hazard risk. Higher density of development has potential to increase exposure to this risk.  The spatial identification of intensification areas has

Objectives / Policies	Comments
effects are reduced. <b>Objective 21:</b> Communities are more resilient to natural hazards, including the impacts of climate change, and people are better prepared for the consequences of natural hazard events	excluded areas of high hazard risk until further analysis clarifies an appropriate response to this risk. Comprehensive Residential Development allows some further development in these areas of risk, however, this is appropriate, as the potential increase in hazard risk is not considered to be significant and any affects can be managed at the resource consent stage.
<b>Policy 29:</b> Avoiding inappropriate subdivision and development in areas at high risk from natural hazards	The areas of mixed use and 10m high residential have been selected with consideration of the risk posed by natural hazards. Areas at high risk which cannot have risks mitigated through design have not been selected. The proposed plan change is therefore consistent with this policy.
<b>Policy 51:</b> Minimising the risks and consequences of natural hazards	A separate plan change has been proposed to manage development in these areas posed by natural hazards to provide for a range of new standards.

### **Freshwater**

198. Section 3.3 recognises the values of freshwater. It identifies that urban streams are affected by stormwater discharges, especially where there are high proportions of impervious surfaces in the catchment.

**Table 6: RPS Objectives and Policies – Freshwater**

Policies	Comments
<b>Policy 42:</b> Minimising contamination in stormwater from development	The proposed plan change allows for an increase in site coverage on sites where residential intensification is to occur, but maintains a 30% minimum permeable surface requirement. As identified in the Wellington Water assessment upgrades to the stormwater network may be required to manage further growth but this can be achieved.

### **Energy, Infrastructure and Waste**

199. Section 3.3 recognises the challenges for providing energy relating to tackling climate change and carbon emissions. The importance of infrastructure for the wellbeing of people and communities, and the potential effects of infrastructure on surrounding environments is also recognised. Dealing with waste is identified as an increasing problem.

**Table 7: RPS Objectives and Policies – Energy, Infrastructure and Waste**

Policies	Comments
<b>Policy 8:</b> Protecting regionally significant infrastructure	The areas of mixed use and 10m high residential intensification are not located in areas where they could affect or be affected by incompatible regionally significant infrastructure.
<b>Policy 9:</b> Reducing the use and	The spatially defined areas of intensification are based

<b>Policies</b>	<b>Comments</b>
consumption of non-renewable transport fuels and carbon dioxide emissions from transportation <b>Policy 10:</b> Promoting travel demand management	around access to quality public transport routes. This enables development that could reduce dependence on private cars, the need to travel and journey lengths, and therefore the use and consumption of non-renewable transport fuels. The proposed plan change therefore gives effect to this policy.
<b>Policy 11:</b> Promoting energy efficient design and small scale renewable energy generation	Energy efficient design is enabled through the proposed plan change through higher density residential development and orientation design guidance in the design guide. The proposed plan change therefore gives effect to this policy.

### **Historic Heritage**

200. Section 5.5 recognises historic heritage values and identifies the inappropriate modification and destruction of historic heritage as a regionally significant issue.

**Table 8: RPS Objectives and Policies – Historic Heritage**

<b>Objectives / Policies</b>	<b>Comments</b>
<b>Objective 15:</b> Historic heritage is identified and protected from inappropriate modification, use and development.  And associated policies.	The proposed plan change does not affect the existing provisions in the district plan protecting heritage buildings and structures, or significant natural, cultural and archaeological resources.

### **Indigenous Biodiversity**

201. Section 3.6 recognises the values of indigenous biodiversity (Table 9).

**Table 9: RPS Objectives and Policies – Indigenous Biodiversity**

<b>Policies</b>	<b>Comments</b>
<b>Policy 47:</b> Managing effects on indigenous ecosystems and habitats with significant indigenous biodiversity values	No identified indigenous ecosystems and habitats with significant indigenous biodiversity values are included in the spatially defined areas of intensification.

### **Proposed Natural Resources Plan for the Wellington Region**

202. Section 74(2)(a)(ii) of the RMA states that:

- (2) *In addition to the requirements of section 75(3) and (4), when preparing or changing a district plan, a territorial authority shall have regard to—*
- (a) *any—*
- (i) *...*
- (ii) *proposed regional plan of its region in regard to any matter of regional significance or for which the regional council has primary responsibility under Part 4; and*

203. The proposed Natural Resources Plan for the Wellington Region (pNRP) is therefore relevant to the proposed plan change. The pNRP was publicly notified in June 2015 with proposed provisions having immediate legal effect. Relevant matters for which the regional Council have primary responsibility are natural hazards and water quality (discharges).

**Natural Hazards**

204. The relevant objectives and policies relating to natural hazards are addressed below.

**Table 10: Proposed Natural Resources Plan - Natural Hazards**

Objectives / Policies	Comments
<p><b>Objective 20:</b> The risk, residual risk, and adverse effects from natural hazards and climate change on people, the community and infrastructure are acceptable.</p>	<p>Natural hazards in the Lower Hutt area have been considered throughout the development of the proposed plan change. This included the effects of climate change. The proposed plan change reflects this information, and has avoided inappropriate levels of intensification in areas where natural hazard risk meant that more intensive development would be unacceptable.</p>
<p><b>Objective 21:</b> Inappropriate use and development in high hazard areas is avoided.</p>	<p>The proposed plan change has considered the hazard constraints in Lower Hutt, and avoids inappropriate levels of intensification in high hazard areas.</p>
<p><b>Policy 27:</b> Use and development, including hazard mitigation methods, in high hazard areas shall be avoided except where:</p> <ul style="list-style-type: none"> <li>(a) they have a functional need or operational requirement or there is no practicable alternative to be so located, and</li> <li>(b) the risk to the development and/or residual risk after hazard mitigation measures, assessed using a risk-based approach, is low, and</li> <li>(c) the development does not cause or exacerbate natural hazards in other areas, and</li> <li>(d) interference with natural processes (coastal, fluvial and lacustrine processes) is minimised, and</li> <li>(e) natural cycles of erosion and accretion and the potential for natural features to fluctuate in position over time, including movements due to climate change and sea level rise, are taken into account.</li> </ul>	<p>The proposed plan change has avoided potentially significant increases in the level of development of Petone, Eastbourne and Moera by not providing for targeted intensification in these areas until further analysis confirms an appropriate response to this hazard risk.</p>
<p><b>Policy 29:</b> Particular regard shall be given to the potential for climate change to cause or exacerbate natural hazard events that could adversely affect use and development</p>	<p>The potential for climate change to cause or exacerbate natural hazard events has been given particular regard by avoiding targeted intensification in areas at high risk of flooding and by excluding areas potentially subject to inundation and sea level</p>



Objectives / Policies	Comments
including: [(a) to (d)]	rise until further assessment of these risks is conducted.

### Discharges

205. The relevant objectives and policies relating to discharges are addressed below.

**Table 11: Proposed Natural Resources Plan - Discharges**

Objectives / Policies	Comments
<p><b>Objective 48:</b> Stormwater networks and urban land uses are managed so that the adverse quality and quantity effects of discharges from the networks are improved over time.</p>	<p>The proposed plan change allows for some increase in the level of impervious surfaces in the existing urban area. However it is proposed that comprehensive residential development will need to meet stormwater neutrality requirements.</p> <p>Currently not all stormwater discharges are consented within the Hutt Valley. These all will need to be consented whether or not this plan change eventuates. Treatment of stormwater discharges will be undertaken where required to meet proposed stormwater management requirements. These will be managed through stormwater consents and upgrades to the network.</p>
<p><b>Policy 73:</b> Minimising adverse effects of stormwater discharges</p> <p>The adverse effects of stormwater discharges shall be minimised, including by:</p> <p>(c) implementing water sensitive urban design in new subdivision and development,</p>	<p>Water sensitive design, including the use of permeable surfaces, will be promoted in the urban design guide.</p>

### District Plans in Wellington Region

206. Section 74 (2) (c) of the RMA requires Council to have regard to the extent to which the proposed plan change needs to be consistent with the plans or proposed plans of adjacent territorial authorities.
207. Other councils in the Wellington region have planning policies in place which encourage additional housing growth and housing choice in targeted locations for high and medium density residential development. The provisions of different councils vary, reflecting the different contexts.
208. The characteristics of Lower Hutt, particularly the limited opportunities for urban expansion (greenfield development) and the suitability of suburban centres near public transport hubs for higher density development, warrant a planning response which varies from neighbouring Councils.
209. No cross-boundary issues apply in respect to the plan change area, as existing urban areas affected are fully located within the Council district.
210. The proposed plan change is therefore considered sufficiently consistent with the operative and/or proposed District Plans of neighbouring authorities.

## **Hutt City Council Policies and Strategies**

211. Section 74 (2) (b) (i) of the RMA requires that when preparing or changing a District Plan, a territorial authority shall have regard to any management plans and strategies prepared under other Acts.
212. Hutt City Council has a number of relevant strategies and plans that detail the priorities for the City in relation to urban growth. These are discussed briefly below.

### ***An Integrated Vision for Hutt City***

213. This document outlines Council's vision for Hutt City and how the Council will address the four key strategic areas of Growth and Development, Leisure and Wellbeing, Environment and Infrastructure.
214. Key strategies have been developed that define and illustrate this vision, these are:
- the Environmental Sustainability Strategy;
  - the Infrastructure Strategy;
  - the Leisure and Wellbeing Strategy;
  - the Urban Growth Strategy; and
  - the Long Term Integrated Community Facilities Plan
215. The relevant strategies are discussed below, being the Urban Growth Strategy, Environmental Sustainability Strategy and Infrastructure Strategy.

### ***Urban Growth Strategy 2012 – 2032***

216. The Urban Growth Strategy (UGS) sets out the long-term approach to managing growth and change for Hutt City. It outlines a future for the city and an approach for achieving it. The UGS sets a target for increasing the population to 110,000 and the number of homes by 6,000 by 2032.
217. The UGS includes several strategies to progress growth. These include providing for intensification in a number of locations and using a variety of methods. The proposed plan change advances a number of these decisions and so supports the implementation of the UGS.

### ***Environmental Sustainability Strategy 2015 – 2045***

218. The Environmental Sustainability Strategy gives direction for Council to protect, enhance or repair the environment. The Strategy identifies seven key focus areas: water, waste, transport, land use, biodiversity, energy and risk and resilience. Each focus area is led by three overarching strategic goals – leadership, protection and enhancement.
219. Water quality is identified as an issue. Changes to the district plan to promote onsite water retention and localised infiltration are identified as methods to assist in addressing water quality. The proposed plan change advances this in relation to mitigating effects of urban intensification.
220. The identified issues for transport are emissions and network optimisation. The role of targeted housing intensification with higher density around transport hubs as promoted by the UGS is noted. This assists in reducing travel demand and promoting more active travel modes. The proposed plan change therefore contributes to addressing identified transport issues.
221. The focus area for land use identifies relevant issues such as accessibility and efficient use of space, and the importance of green space. In relation to accessibility and efficient

use of space it notes that defining where urban intensification is encouraged or to be avoided is one way of helping to determine how communities would like urban spaces to look and function. The district plan could be used to encourage low impact design and integration with the transport network through placing intensification near transport nodes and community services. In relation to green space, the proposed plan change addresses these matters by providing a framework in the district plan to encourage intensification in appropriate locations, where there is sufficient public open space, whether this is active or passive space. The proposed plan change therefore contributes to addressing the matters identified.

222. The focus area of risk and resilience identifies the Council's approach to risks and building resilience as including risk identification, plan proactively for greater resilience and continuous adaptation. The issue of natural hazards is particularly relevant. The proposed plan change has taken natural hazards into consideration.
223. Overall, the proposed plan change advances a number of matters identified in the Environmental Sustainability Strategy.

### **Infrastructure Strategy 2015 – 2045**

224. The Infrastructure Strategy gives direction for Council to manage infrastructure needs over the next thirty years. It describes key infrastructure assets and their condition and expected lifespan, as well as key projects anticipated in the short to medium term. The vision incorporated within the strategy is *“Infrastructure is resilient, fit for purpose, affordable and meets the needs of today without compromising the needs of tomorrow.”*
225. The Infrastructure Strategy notes the target for population growth in the UGS and the likely location for this growth and that it is *“[t]his anticipated level of growth is used in the LTP and in this Strategy.”*
226. The proposed plan change does not conflict with the Infrastructure Strategy.

### **Long Term Integrated Community Facilities Plan 2015**

227. The Integrated Community Facilities Plan outlines the current situation and issues around community facilities and then defines Council's approach to investment and redevelopment of existing facilities with a strong focus on recreation and community hubs.
228. The Plan notes that these hub developments are important to the existing communities but will also help to address the needs and expectations of new households and are therefore seen as crucial to rejuvenating the city and making it more attractive to prospective home owners and developers.
229. Overall the proposed plan change with its focus of providing for residential growth around identified suburban centres aligns well with the Long Term Integrated Community Facilities Plan.

### **Petone Vision Statement**

230. The Vision Statement sets out community expectations and aspirations for the future development of Petone between 2007 and 2027.
231. It identifies four key elements which future development should take into account. Relevant statements listed under these elements include:
- (a) Ensuring change is sympathetic and reinforces the heritage look and feel (in particular around Jackson Street and adjoining streets);
  - (b) Sympathetically achieving a wider range of housing choice;
  - (c) Supporting investment with attention to design quality that reinforces and enhance

Petone's character;

(d) Fostering quality design for all private property and public space development.

232. In Petone, the proposed plan change does not identify any areas targeted for medium density development. Only the proposed changes to the General Residential Activity Area which provide for comprehensive residential development on larger sites apply. This type of development will need to be undertaken in accordance with an associated design guide. The proposed plan change does not conflict with the matters identified in the Petone Vision Statement.

### **Petone 2040 Spatial Plan**

233. The Petone 2040 Spatial Plan is an initiative of the Petone 2040 Community Group in partnership with Hutt City Council. P2040 does not have formal or statutory status but was approved by Council on 23 May 2017, recognising P2040 as a coordinated development and design strategy for Petone and Moera.

234. According to an officer's report (17/682) to the City Development Committee meeting of 2 May 2017:

*The Petone 2040 Spatial Plan has been guided by the following seven principles.*

- (i) Reinforce Jackson Street as the heart of Petone.*
- (ii) Establish three key gateway areas into Petone.*
- (iii) Intensify key corridors of Petone and Moera.*
- (iv) Revitalise the foreshore and The Esplanade.*
- (v) Enhance open green space.*
- (vi) Create an amenity spine from Alicetown through Petone to The Esplanade.*
- (vii) Enhance character areas.*
- (viii) Strategic Infrastructure.*

*Petone 2040 analysis was undertaken to understand:*

- (i) Maori and pre-European conditions.*
- (ii) Town planning processes that formed Petone.*
- (iii) Hazards including fault lines, tsunamis, subduction, liquefaction, and flood.*
- (iv) Urban make-up including street pattern, block size, land use pattern & tenure, character and heritage distribution, open space, and amenity.*
- (v) Projects and plans proposed by infrastructure providers and other third parties.*

235. P2040 recommends several areas that may be suitable for medium density housing. Adverse effects of intensification are also noted, and the need for avoidance or mitigation of those effects, including effects on the existing scale, character and amenity of particular areas. None of the areas are included as targeted areas in the plan change proposal. Petone and Moera were, at an early stage of investigations, explicitly excluded from further consideration due to insufficient information about the risk of natural hazards. More complete information on hazards may support future plan changes that support the recommendations of P2040.

### **Wainuiomata Development Plan**

236. The Wainuiomata Development Plan sets out a community vision for Wainuiomata, the

community's aspirations for what the area could be like in the next 20 years, and strategic direction through actions and programme implementation.

237. The vision for Wainuiomata in 2025 includes a town centre that is vibrant, safe and attractive. Relevant objectives for uses, activities and sociability include:

- *Increase activity in the town centre by increasing the population and density in good quality residential development nearby*
- *Enable economic and commercial growth by actively encouraging people to the town and working with businesses*

238. The proposed plan change will assist and support the vision and objectives of the Wainuiomata Development Plan by providing a District Plan framework that will enable higher density of residential development in close proximity to the town centre. The proposed provisions are also intended to encourage more people to the area by enabling appropriate residential development to take place.

### ***CBD Spatial Plan***

239. In October 2017 Council began the preparation of a Lower Hutt CBD Spatial Plan incorporating a refresh of the Making Places programme. The Spatial Plan will provide a map and vision for the City's Centre and the Centre's edge, that will be the reference for future Council initiatives. The Spatial Plan will take a first principles look at the issues and opportunities of the community's aspirations for the CBD, its functionality, built form, and road and pedestrian connections and identify a strategic framework for development and revitalisation. The Spatial Plan will consider links between the Civic Precinct, the proposed Riverlink development, the Queensgate Mall and the heart of the CBD. The Spatial Plan will develop layered strategies (e.g. land use, open space, street types, movement, parking, character), identify the preferred location of future initiatives (what should go where) and consider whether changes are required to policy and land use settings to foster desired development outcomes.

240. The Lower Hutt CBD Spatial Plan – Making Places is expected to be completed in 2018.

### ***Urban Design Protocol***

241. Hutt City Council became a signatory to the New Zealand Urban Design Protocol in 2008. The protocol is a voluntary commitment to specific urban design initiatives. It identifies seven essential design qualities that contribute to quality urban design.

242. Urban design has been addressed in the proposed plan change through specific requirements in the proposed district plan provisions and by developing a new Design Guide for the district plan to manage potential changes to the environment.

### ***Urban Forest Plan and accompanying documents***

243. The Urban Forest Plan describes green assets in the city and explains their significance and purpose from an asset management point of view. The Urban Forest Plan manages the vegetation that Council is responsible for, including street trees.

244. The plan change aligns with the Urban Forest Plan in noting that trees may contribute to neighbourhood identity and local amenity.

### ***Stormwater Plan 2012-2017***

245. The stormwater plan sets out the principle stormwater issues facing Hutt City and how the Council intends to manage these.

246. Additional capacity in the stormwater system is needed to meet higher accepted standards, combined with reduced ability to meet original standard as a result of climate

change and increases in impervious surfaces and associated stormwater runoff.

247. Relevant objectives for stormwater management include:

- To minimise the effects of flooding;
- To minimise adverse effects on the environment;
- To reduce stormwater and flood risk to new development; and
- To reduce amount of stormwater produced by development.

248. Actions proposed to address the objectives include:

- A requirement that new residential subdivisions and new buildings in flood hazard areas have floor levels constructed above the 1 in 100-year flood event level.
- A programme to reduce wet weather overflows from the wastewater system.
- That Low Impact Urban Design and Development Options are investigated as part of District Plan reviews, and where appropriate, incorporated into relevant planning documents.

249. The proposed plan change has been developed with consideration of the potential effects of urban intensification on stormwater infrastructure, and the potential for flooding in the Hutt City area. In addition work has started on a future plan change that will address flooding and stormwater effects and may result in additional requirements for building floor levels and stormwater neutrality of new developments. The proposed plan change is consistent with the relevant parts of the HCC Stormwater Plan.

### **Housing Policy 2008**

250. This policy sets out the Council's intentions to "ensure everyone has a quality standard of affordable housing".

251. Objectives of the housing policy include:

- *help ensure that the housing needs of Hutt City are met and to improve the affordability of housing in Hutt City be:*
  - *increasing the supply of residential developments;*
  - *ensuring there is a more balanced mix between intensive housing and non-intensive housing developments, particularly around shopping centres and key transport routes; and*
  - *ensuring a supply of social housing for the elderly and socially disadvantaged.*
- *ensure the District Plan and associated intensive housing design guidelines recognise and maintain appropriate levels of residential amenity;*
- *ensure that the family friendly nature of housing in Hutt City is maintained, particularly through the retention of family homes and sections within the city."*

252. The proposed district plan is generally consistent with the Housing Policy. It allows for an increase in residential development, particularly around shopping centres and key transport routes. It continues the use of design guidance to promote good quality developments and maintain amenity. While the proposed plan change could result in the loss of some 'family sized' homes and sections, the plan change would allow for a greater range of housing choice in a range of locations. The majority of the residential area is anticipated to retain a good supply of larger homes and sections.

### ***Hutt River Floodplain Management Plan***

253. The Hutt River Floodplain Management Plan (FMP) is a non-statutory document that provides strategic solutions for the management of flood risk in the Hutt Valley. The FMP sets out structural measures, non-structural measures and an environmental strategy for addressing flood mitigation for the Hutt River. Much of the Lower Hutt area is identified as subject to flood risk.
254. In relation to habitable buildings, the FMP discourages new buildings in all river corridor areas, requires mitigation of flood hazard effects for all new buildings in higher risk floodplain areas and encourages mitigation of flood hazard effects in low to moderate floodplain hazard areas.
255. Currently the FMP is addressed in the operative District Plan. All current provisions relating to the Hutt River Floodplain management are proposed to be retained.
256. The technical reports on natural hazards and water infrastructure that were commissioned as part of this plan change process have identified a number of risks that need to be managed when considering future development. In response some locations of high risk have been removed from the targeted areas. For the remaining areas any medium density development that requires resource consent needs to address hazards and impacts on water infrastructure capacity. However a comprehensive approach to managing flood hazard risk needs to be completed across the city. This is outside the scope of this plan change. As such a new plan change process addressing natural hazards will be undertaken in parallel to this plan change.

# Resource Management Issue

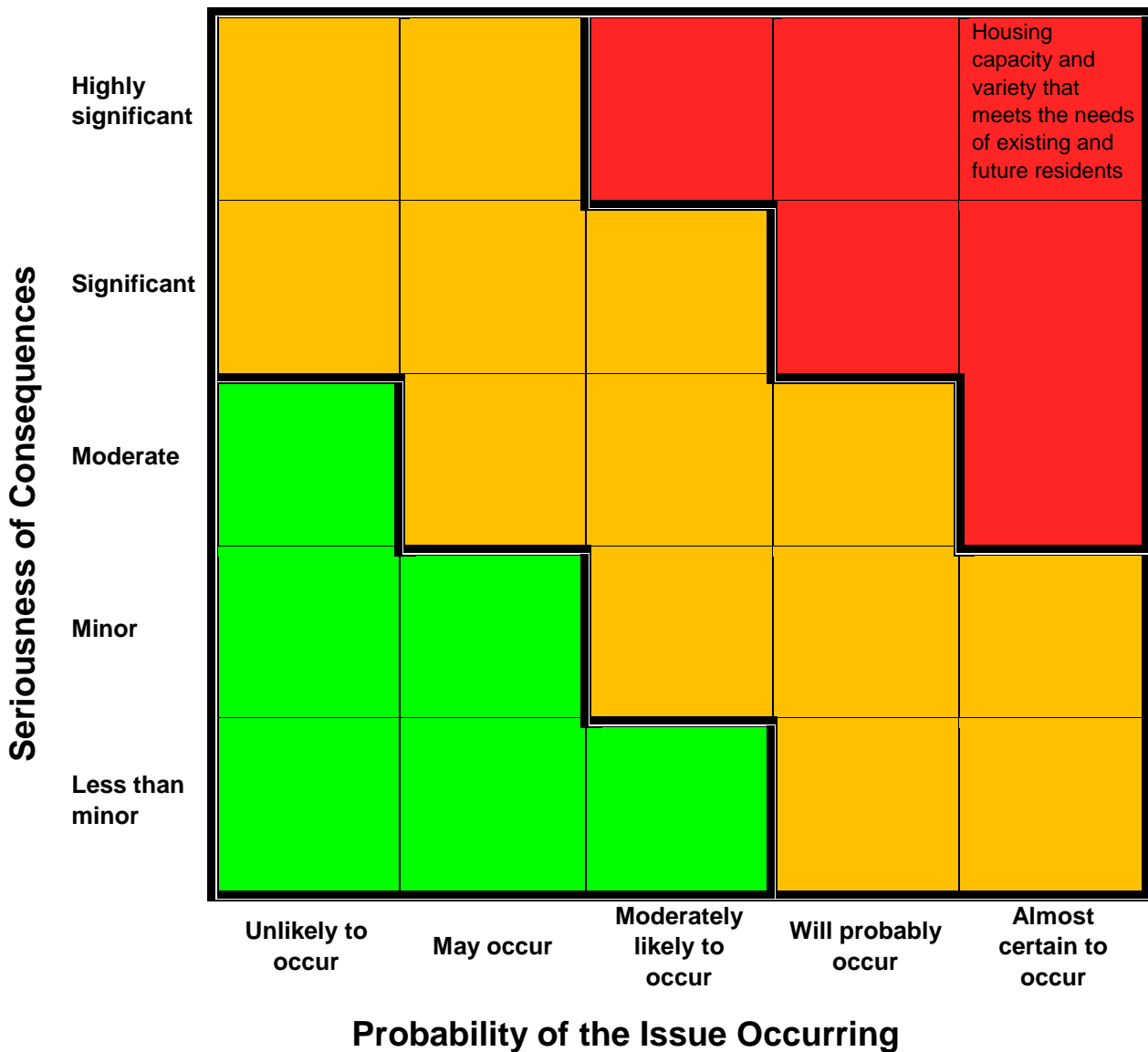
257. The proposed plan change addresses a single resource management issue:  
 Providing housing capacity and variety that meets the needs of existing and future residents.

## Risk Matrix

258. To help guide the overall approach to managing residential development in the Plan, this report considers the issue in terms of a Risk Matrix (Figure 3 below).

259. The issue associated with the proposed plan change is placed in the Risk Matrix according to its probability of occurrence and the consequence of that occurrence. Issues in the green zone (lower left) may not require action. Issues in the red zone (top right) almost certainly require action. Issues in the orange zone (top left to lower right) may require action.

260. The issue of housing capacity and variety places in the red zone of the Risk Matrix, suggesting that action is required.



**Figure 3: Risk Matrix of issues that need to be addressed**



## Addressing the Issue

261. Addressing the issue of housing capacity and variety requires considering and answering 3 key questions:
- (i) Who is likely to need housing and what type of housing are they likely to need?
  - (ii) Which areas of the City are suitable for more housing?
  - (iii) What District Plan approaches could enable housing intensification while providing for appropriate levels of amenity?

These questions are explored below.

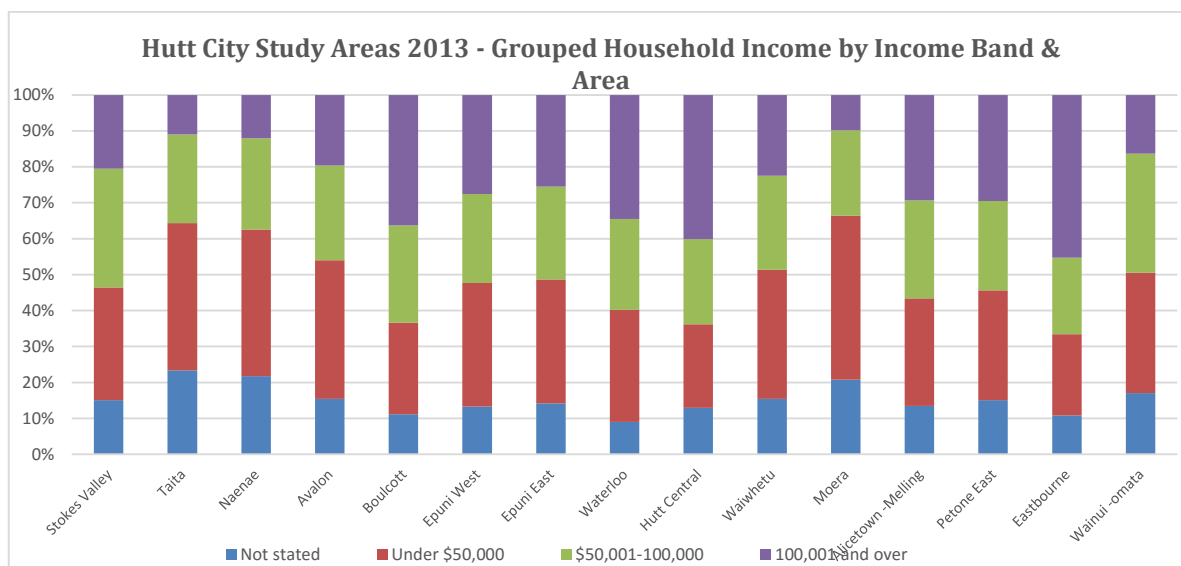
### Who is likely to need housing and what type of housing are they likely to need?

262. A detailed analysis of the Lower Hutt population and its housing needs is provided in the Gray Partners report (Attachment 6).
263. The City's estimated resident population in 2016 was 103,400. Forecast.id's current population forecast for 2043 is 109,885, an increase of 7.73% (from a base estimate of 102,003 at 2017).



264. The projected growth is a change from earlier Statistics NZ projections that had forecast long term population decline.
265. In earlier projections which formed the basis for the Urban Growth Strategy the population was projected to age, with both the number and the proportion of older residents (65 years and older) increasing significantly. In contrast, the population of children (0-14 years old) was projected to decrease significantly, and the number of working age residents was also expected to slowly decrease. Negative net migration, declining birth rates, and a falling employment base were also expected. The result of these projections was an overall population that would start to slowly decrease over the next few decades, with significant structural change happening at the same time.
266. These projections have been updated more recently and are now projecting an overall growth of population and dwellings. While the number of 0-14 and 15-24 year old is still expected to decline there is a predicted increase in the 25-39 year old and an even stronger increase in the over 55 year old. With regards to migration the main assumptions are that there will be a relatively stable migration profile throughout the forecast period with a gain of adults aged 25-44 years old with children aged 0-4 years and a loss of young adults aged 18-24 who leave Lower Hutt for education and employment purposes elsewhere. Some loss of mature adults, empty nesters, early retirees and people aged 45-69 years old who may be downsizing their housing options or selling housing in Lower Hutt and searching for housing opportunities elsewhere is expected. It is also projected that there will be net gains of frail elderly adults aged 85+ years who may be migrating to Lower Hutt in order to be closer to hospital, healthcare and aged care facility options.
267. The population trends are variable across the city, with some areas experiencing population decline, while others such as Hutt Central, Korokoro, Boulcott, and Petone Esplanade are growing faster than the national average.

268. There is a need to provide for smaller dwelling sizes. This is because over 80% of net household growth over the next 30 years will be single person and couple households, many of whom will be in the later stages of their life when the need for larger family homes is reduced. After reviewing growth projections for the city a new housing unit target of 6000 units over the next 15 years is required. This is to account for changes in recent state housing clearances, future surges in migration levels and distortions that may be present in the current forecasts. The current approach to managing development in the district plan cannot promote this level of development. Future development will require a diversification of the housing stock compared with what is currently available within brownfield and greenfield areas.
269. The supply of housing is an important factor for housing affordability. In Lower Hutt the market has not responded to the increasing house prices with a corresponding increase in supply. The current supply of new dwellings in Lower Hutt is approximately 150 per year. However an average of 170 new units per year are needed only to address the additional housing needs of the existing population, not accounting for any population growth.
270. The National Policy Statement on Urban Development Capacity acknowledges the importance of housing affordability. It is identified in the Minister's Foreword as a national issue. The aim of the NPS-UDC is stated as including reducing the cost of housing relative to income.
271. In Lower Hutt house prices doubled over just ten years, from around \$170,000 in 2002 to around \$340,000 in 2012. This increase was three times larger than the general rate of inflation over the same time. In addition to this, figures released late in 2016 by Quotable Value Limited on behalf of Hutt City Council show average Lower Hutt residential property values increased by over 24 per cent from 2013 to 2016. Some traditional first home buying areas have increased by 30-35%. In many cases this has meant some suburbs are still less than the average house price for the Wellington Region but are no longer providing affordable housing options for some sectors of Lower Hutt residents where incomes are less than the regional average (see **Error! Reference source not found.4** for an outline of incomes by band and suburb. Note the large proportion of residents who have a grouped income of less than \$100,000 per year).



**Figure 4: Household income by income band and area**

272. Potential trends that can be identified from this information are that unless there are more affordable housing units provided, it may become increasingly difficult for existing residents to achieve home ownership, and that residents from other areas will likely

continue to move into Lower Hutt. This will likely be due to out of area buyers being prepared to commute into employment centres, and would still consider the increased property prices within the Hutt as affordable.

273. There is therefore a significant issue for housing supply and affordability in Lower Hutt if measures are not taken to promote new development.

274. The Gray Partners report (Attachment 6, page 12) formed the view that:

*... the combination of aging and affordability issues will lead to a resurgence in multi-unit dwelling construction – provided that projects can deliver a comparable return to other building forms. Social housing providers are also likely to turn to smaller multi-unit construction as they work to align their portfolios with an aging customer base.*

### **Which areas of the City are suitable for more housing?**

275. Lower Hutt does not have sufficient houses particularly in smaller housing types (one and two bedroom) to cater for the changing needs of its population.

276. The options for new housing development are essentially:

- i. Development of rural or semi-rural land at the urban edge (greenfield development).
- ii. Intensification and redevelopment in existing urban areas.

277. Lower Hutt has limited greenfield development opportunities. The way the components of the urban environment fit and work together has a significant influence on the overall functionality of a city, and the enjoyment, amenity and prosperity of the people that live there. Good urban form and design contributes to social, economic and cultural well-being.

278. Lower Hutt has limited land available that is suitable for greenfield residential development. This is due to the topography of the land, and other geographic considerations. Developing other areas may have much higher costs, both to the developer (such as construction costs) or to the community (such as ongoing infrastructure costs).

279. Intensification in existing urban areas is anticipated to be the principal means by which Lower Hutt can accommodate the desired increase in household and population growth.

280. Continued outward expansion of urban areas can result in reduced accessibility to services and facilities needed for the well-being of people and communities. These include retail and commercial services, public transport, recreational opportunities, and community facilities such as libraries and pools.

281. Lower Hutt has an existing network of suburban centres that provide services and facilities and are usually well served by public transport. These can be supported and enhanced by more intensive residential development in appropriate locations. Providing for higher density of residential development in proximity to these services and facilities will enable greater accessibility for a greater number of people.

282. Council owns and maintains a large number of recreational and community facilities and has plans to redevelop many of these facilities in suburban centres over the next 30 years with particular focus on recreation and community facility hubs. These hubs will provide multiple facilities at appropriate levels for the needs and size of the communities they serve. The hub developments are seen as crucial to rejuvenating the city.

283. Recent examples of community facility upgrades are the Walter Nash Centre at Taita, the Koraunui Stokes Valley Hub, Fraser Park Recreation and Community Hub and the Lower

Hutt Town Hall and Events Centre.

284. Residential development and population growth result in demand on transport infrastructure. The type and location of residential development influences the level and effects of this demand. Greenfield development is generally more costly and less efficient to service by public transport. It is also generally further from employment or educational destinations, so generally does not encourage active transport modes, with resulting greater reliance on private car use.
285. Effects can be reduced, and demand managed, by integrating residential land use development with transport networks. Lower Hutt has a well established public transport rail 'spine', and bus service networks. These can be supported and enhanced by well-located residential development that promotes public transport use.
286. Providing for greater residential capacity close to public transport nodes, education institutions, and employment sources in Lower Hutt would encourage use of public and active transport modes and reduce reliance on private cars, making transport networks more efficient and effective, with economic and environmental benefits.
287. However, the capacity of the road and public transport networks can also be put under pressure by levels of residential development not suitably planned for.
288. Along with the accessibility benefits to people from providing greater housing capacity in proximity to commercial centres, the economic prosperity of those centres is also likely to be influenced by the population levels of the surrounding community.
289. Encouraging the use and patronage of the commercial centres by enabling development in areas around these centres means that people are more likely to choose to use the services and retail activities provided there. As such residential intensification is likely to have positive benefits for economic development in the city.
290. Greenfield development opportunities are being progressed in separate projects but will not yield sufficient housing supply on their own to cater for demand. Therefore existing urban areas were evaluated suburb by suburb for their intensification potential.
291. To identify areas suitable for a targeted area approach, each suburb's attributes and constraints were assessed. Suburbs were excluded from further consideration if they had insufficient attributes or one or more significant constraints that require further detailed investigation before any intensification would be supportable.
292. The key attributes were easily walkable access to good quality facilities:
- Public transport;
  - Shops and services;
  - Schools;
  - Parks.
293. The key constraints were:
- Risk from natural hazards;
  - Inadequate roading or pipe infrastructure for water supply, wastewater or stormwater;
  - Heritage and character values.

### ***Natural Hazard Risk***

294. Lower Hutt is at risk from a number of natural hazards. These include:

- Fault rupture
- Ground shaking
- Subsidence
- Liquefaction
- Landslides
- Tsunami
- Flooding
- Sea level rise

295. Some of these hazards are also likely to be exacerbated by climate change processes. The different areas of Lower Hutt have different levels of risk from these hazards. In this context risk is defined as the likelihood and consequences of a hazard.
296. The consequence of a hazard can be significantly affected by human activities. Relevant to this proposal is that a greater number of people within an area with potential to be affected by a natural hazard event would likely result in a greater exposure to that event, and therefore a greater risk. Providing for residential intensification therefore needs to be well informed by information on the potential for natural hazard so to ensure that inappropriate development does not occur which would lead to unacceptable increase to risk from natural hazards.
297. A Riskscape Assessment is currently being prepared by GNS to understand the benefits and costs of decisions to place further development and infrastructure in areas prone to natural hazards.

### ***Infrastructure***

298. Infrastructure networks have significant costs associated with both initial construction and development, and ongoing costs for upkeep and maintenance. This means that development which enables more efficient use of existing infrastructure networks in Lower Hutt could result in significant cost savings for the community in the long-term.
299. However, like transport networks, the capacity of water (wastewater, stormwater and water supply), electricity, and other networks can be placed under pressure if intensification occurs at levels not anticipated or planned for. The location and likely yield from allowing intensification needs to be well planned to ensure infrastructure networks can cope or be upgraded if required.

### ***Area Suitability***

300. A detailed discussion of the suitability assessment of Lower Hutt's suburbs is provided in the Urban Development Plan by Jacobs Consultants (Attachment 1). The findings are summarised below.
301. The commercial zones of Lower Hutt CBD and Petone already enable residential development and were not considered in this project.
302. The Special Residential, Historic Residential, Hill Residential and Landscape Protection zones were not considered in this project due to their limited area and significant constraints to more intensive development.
303. The western hill suburbs were excluded as targeted areas due to unsuitable attributes, particularly around public transport and shops and services.
304. The Eastern Bays were excluded as targeted areas due to risk from natural hazards and

inadequate roading or pipe infrastructure for water supply, wastewater or stormwater.

305. Petone and Moera were excluded as targeted areas due to risk from natural hazards and to ensure coordination with the findings of the Petone 2040 Spatial Plan.
306. Suitable targeted areas were identified in Stokes Valley, Taita, Naenae, Avalon/Park Avenue, Epuni, Waterloo, CBD Edge, Alicetown, Waiwhetu/Woburn and Wainuiomata.
307. At its meeting on 10 October 2017 Council resolved to exclude the CBD Edge from the proposed plan change until a Spatial Plan for the Lower Hutt CBD has been developed.
308. More detail on the approach and the results described above is available in the Jacobs report (Attachment 1).

### **What District Plan approaches could enable housing intensification while providing for appropriate levels of amenity?**

309. The General Residential zone is the most widespread residential zone and forms the basis of most of the City's suburbs. Existing suburban centres typically have a node of Suburban Commercial zoning, which provides for shops and cafes on the ground floor with a single level of offices or residential accommodation above. The services provided are within easy walking distance of surrounding residential properties and the centres are generally served by buses or trains.
310. The approach of the proposed plan change is to identify suburban centres that would be appropriate *targeted areas* for intensification. The centre of each targeted area is proposed to be a new zone "Suburban Mixed Use", which rezones mostly Suburban Commercial to enable a building height of 10 metres providing for 3 storeys. The Suburban Mixed Use Activity Areas would continue to have an active street front with shops and cafes, with offices or residential dwellings in the upper storeys. Outside of targeted areas the existing Suburban Commercial zoning of properties would remain unchanged.
311. Immediately adjacent to the Suburban Mixed Use centre of the targeted area would be a new Medium Density Residential Activity Area, with building envelope provisions enabling more intensive buildings, including a maximum building height standard of 10 metres to enable 3 storey buildings and a maximum site coverage of 60%. Building height in relation to boundary would continue to be controlled via a 45 degree recession plane beginning 2.5 metres vertically at the side and rear boundaries. No recession plane would be required in relation to road boundaries, which would provide increased development potential in upper storeys and promote dwellings that address the street.
312. In addition to the targeted areas, amendments are proposed to the General Residential Activity Area. The existing medium density overlay would be deleted. Comprehensive Residential Development would be enabled on General Residential sites of 1400m<sup>2</sup> or larger. Comprehensive Residential Development would enable more intensive development *within* the site, including a maximum building height standard of 10 metres to enable 3 storey buildings. The Comprehensive Residential Development site would relate to neighbouring sites with the same boundary provisions – yards, recession planes – that currently manage residential and neighbourhood amenity. No recession plane would apply to road boundaries, thereby providing increased development potential in upper storeys and promoting dwellings that address the street. Comprehensive Residential Development provisions would allow for the market to identify intensification opportunities, while managing externalities that would potentially affect neighbouring properties.
313. The plan change would also encourage more traditional infill development in General Residential, with two dwellings per site being permitted, subject to meeting development

standards such as site coverage and outdoor living space requirements. Minor additional dwellings such as granny flats or tiny houses would be enabled on sites unable to cater for two full scale dwellings.

314. The proposed plan change discards the current approach of setting a minimum lot size for General Residential sites. The proposed plan change allows density to be controlled through other provisions, including the building envelope provisions and requirements for outdoor living space and maximum site coverage. In particular density and building separation would be managed via provisions controlling site coverage, yards and outdoor living space.

### **Effects of Intensification on Amenity Values**

315. Along with the positive benefits of increased residential capacity in the right locations noted above, intensification can also have a range of adverse effects if not designed well to respond to its surrounding context.
316. These include effects on amenity values. Intensification can result in larger and higher buildings. These may also be built closer together. This can result in a range of effects, including shading, dominance, reduced privacy and outlook, less green space and landscaping, and increased noise. People may also perceive new building forms or types as affecting the character of an area, particularly if that area is characterised by an existing form or type of residential dwelling.
317. This means that planning for increased residential density requires careful consideration of acceptable levels of effects, and the need for avoidance or mitigation of these effects. Generally, well developed provisions that provide sufficient guidance to developers on good design outcomes can effectively manage potential adverse amenity effects.
318. The plan change proposes the introduction of a Medium Density Design Guide that applies to all medium density developments that require resource consent and is intended to help manage the effects on neighbouring properties through good design.

# Evaluation of Options and Provisions

## Approach Options

320. This section discusses two alternative approaches to achieving the goal of increased housing capacity and choice.

**Table 12: Overall Approach - Option A Greenfield only**

<b>Option A – Greenfield Development, no enabling of additional intensification in existing urban areas</b>	
<b>Description</b>	
A.1	Option A is to rely on greenfield development, apartment development in the Lower Hutt CBD, traditional infill development in existing residential zones and incremental intensive development through individual resource consent processes. No significant changes would be made to the District Plan.
<b>Benefits Including Opportunities for Economic Growth and Employment</b>	
A.2	Economic growth and employment opportunities would arise from construction activity.
A.3	Lower Hutt CBD may benefit from better providing for apartment development than other areas.
A.4	May reduce Council costs associated with a plan change.
<b>Costs</b>	
A.5	Fails to meet the goal of increased housing capacity and choice.
A.6	Fails to address the housing issues facing the City.
A.7	Fails to give effect to the Urban Growth Strategy and the National Policy Statement on Urban Development Capacity.
A.8	Fails to boost suburban centres by enabling more people to live in close proximity to businesses and services.
A.9	Development of more intensive housing would rely on the resource consent process and its related costs and uncertainties.
<b>Risk of Acting or Not Acting</b>	
A.10	The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Therefore, Option A is likely to be an inadequate response. Without changes to the District Plan sufficient housing capacity and variety to meet the needs of the community is unlikely to be achieved.
<b>Efficiency and Effectiveness</b>	
A.11	The efficiency of Option A is low because the costs significantly outweigh the benefits. Incremental intensification through the resource consent process is inefficient – it adds significant transaction costs.
A.12	The effectiveness of Option A is low because the goals are not met.



**Option A – Greenfield Development, no enabling of additional intensification in existing urban areas**

**Overall Assessment of Option A**

A.13 Option A is not recommended since it does not give effect to the growth goals of the Urban Growth Strategy and does not meet Council’s obligations under the National Policy Statement on Urban Development Capacity. Efficiency and effectiveness are low.

321. Option B is the proposed plan change approach of rezoning targeted areas plus including enabling provisions in the General Residential zone. Option B’s evaluation is set out in the table below. The major components of Option B are then evaluated in turn.

**Table 13: Overall Approach - Option B Targeted Growth Areas Plus Changes to General Residential**

<b>Option B – Targeted Areas Plus Enabling Provisions in General Residential</b>	
<b>Description</b>	
B.1	Option B is the proposed plan change approach of rezoning targeted areas plus including enabling provisions in the General Residential zone described in “Addressing the Issue” above.
<b>Benefits Including Opportunities for Economic Growth and Employment</b>	
B.2	Economic growth and employment opportunities would arise from construction activity.
B.3	The increased potential yield from 3 storey buildings may encourage redevelopment in the Suburban Mixed Use and Medium Density Residential zones.
B.4	The shops and businesses in suburban centres may benefit from having more people living in close proximity and using their services.
B.5	The enabling of smaller sites and houses in General Residential may encourage development.
B.6	The new Suburban Mixed Use zone would be based on and require little change to the existing Suburban Commercial zone provisions.
B.7	Contributes to the goal of increased housing capacity and variety to be achieved.
B.8	Makes efficient use of commercial and residential land in and around suburban centres.
B.9	Residential amenity beyond the Medium Density Residential zone is protected. Potential effects on neighbouring residential properties at the zone boundary are managed using the established and accepted provisions of the General Residential zone. Similarly, externalities beyond the overall site boundary of Comprehensive Residential Developments are managed by established General Residential provisions.
B.10	Comprehensive Residential Development provisions in the General Residential zone would enable the market to identify opportunities for development and redevelopment.
B.11	Enabling of smaller sites and houses encourages efficient use of residential sites

## Option B – Targeted Areas Plus Enabling Provisions in General Residential

and may fill a market niche currently in high demand and short supply.

- B.12 Continued use of building envelope provisions provides certainty and enables many buildings to be permitted activities, avoiding the costs of the resource consent process.
- B.13 Requiring more intensive development to obtain resource consent and to follow a design guide may lead to better environmental outcomes including protection of amenity.
- B.14 Contributes to giving effect to the Urban Growth Strategy and meeting the requirements of the National Policy Statement on Urban Development Capacity.
- B.15 Boosts suburban centres by providing more consumers in close proximity to shops, cafes and services.
- B.16 Gives effect to the Regional Policy Statement.
- B.17 Supports public transport nodes.
- B.18 Enables expansion of the population base to fund local and central government services and facilities.
- B.19 The approach has strong public support. In the online survey the representative Hutt City Views Panel responded as follows:
- 82% agreed that intensive development that requires resource consent should have to follow a design guide.
  - 82% supported the concept of a Suburban Mixed Use zone.
  - 69% supported the concept of a Medium Density Residential zone.
  - 66% supported the concept of Comprehensive Residential Development on larger sites in the General Residential Zone.
  - 76% supported the use of the established recession plane between properties in a Medium Density Residential zone.
  - 83% supported traditional infill development in the General Residential Zone.
  - 83% supported infill development of small houses in the General Residential Zone.

### Costs

- B.20 Building envelope provisions that set permitted activity standards that are acceptable in all circumstances are likely to be conservative and may constrain innovation and realising the full potential of some sites.
- B.21 The requirement for intensive development requiring consent to follow a design guide contributes to transaction and development costs.
- B.22 The Medium Density Residential zone may lead to a change in residential amenity within the zone.
- B.23 May require more investment in public spaces to compensate for the loss of private open space.
- B.24 Will require public investment in water infrastructure.

<b>Option B – Targeted Areas Plus Enabling Provisions in General Residential</b>	
B.25	Increases the costs of developing the plan change.
B.26	Additional zones add complexity to the Plan.
B.27	The change to provisions may reduce certainty for Plan users in the short term.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
B.28	The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the District Plan it is likely that the aspirations of the Urban Growth Strategy and the requirements of the National Policy Statement on Urban Development Capacity will not be met.
<b>Efficiency and Effectiveness</b>	
B.29	The efficiency of Option B is high because the benefits outweigh the costs.
B.30	The effectiveness of Option B is high because the goals are achieved.
<b>Overall Assessment of Option B</b>	
B.31	Option B gives effect to the growth goals of the Urban Growth Strategy and contributes to meeting the requirements of the National Policy Statement on Urban Development Capacity. The Risk Matrix supports taking action.

## Implementation of Option B

322. The implementation of the approach outlined in Option B requires the following changes to the District Plan:
- Introduce two new zones: Suburban Mixed Use and Medium Density Residential.
  - Rezone properties within the targeted areas from their current zoning to Suburban Mixed Use or Medium Density Residential as appropriate.
  - Replace General Residential zone provisions with new provisions.
  - Make amendments to the Definitions and the Subdivision provisions.
  - Make consequential amendments to other sections of the Plan. The consequential amendments are not substantive or policy amendments that would require comprehensive review.
323. The specific Plan provisions – Objectives, Policies and Rules - proposed to achieve the Option B are evaluated below, firstly for General Residential, secondly for Medium Density Residential and thirdly for Suburban Mixed Use.
324. The first part of each table below presents an objective followed by the relevant policies and rules that give effect to the objective. Policies and rules may give effect to more than one objective and are repeated as necessary.
325. The second part of each table below discusses why the provisions are included in the Plan and how they achieve the purpose of the RMA.
326. After that the proposed changes to the Definitions and the Subdivision provisions are evaluated.
327. Finally all consequential changes are outlined and briefly discussed.

## General Residential Activity Area

### Evaluation of Proposed General Residential Provisions

328. The proposed plan change's provisions for the General Residential Activity Area are evaluated below, in groups of related provisions that implement an objective.

**Table 14: Evaluation 1 - General Residential – Objective 4A 2.1, Policies and Rules**

<b>Evaluation 1</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<p><b>Objective 4A 2.1</b></p> <p>Residential Activities are the dominant activities in the General Residential Activity Area.</p> <p>Non-residential activities are compatible with the low to medium density residential development and high levels of amenity anticipated for the zone.</p>	<p><b>Policy 4A 3.1</b></p> <p>Provide for residential activities and those non-residential activities that support social and economic wellbeing and manage any adverse effects on residential amenity</p>	<p>Rule 4A 4.1.1 Residential Activities</p> <p>Rule 4A 4.1.2 Home Occupation</p> <p>Rule 4A 4.1.3 Care Facilities, Residential Facilities, Boarding Houses, Hostels, Visitor Accommodation</p> <p>Rule 4A 4.1.4 Childcare Facilities</p> <p>Rule 4A 4.1.5 Health Care Services</p> <p>Rule 4A 4.1.6 Community Facilities, Marae, Education Facilities, Places of Assembly and Emergency Facilities</p> <p>Rule 4A 4.1.7 Retirement Villages</p> <p>Rule 4A 4.1.8 All Other Activities</p> <p>Rule 4A 4.1.9 Light Spill</p> <p>Rule 4A 4.1.10 Vibration</p> <p>Note 4A 4.3 General Rules</p>
<p><b>Why these Provisions are included in the lan</b></p> <p><b>Primarily Residential</b></p> <p>Ev 1.1 Objective 4A 2.1 seeks that residential activities dominate the Activity Area, with associated high levels of amenity. The objective recognises however that some non-residential activities are appropriate in the zone but they should be compatible with residential activities and high levels of amenity.</p> <p>Ev 1.2 Policy 4A 3.1 gives effect to the objective, guiding decision makers that the zone provides for residential activities and non-residential activities that are compatible with residential activities. The policy sets a course of action to achieve the desired end state of predominantly residential activities supported by compatible non-residential activities.</p> <p>Ev 1.3 The rules provide for residential activities as permitted activities and for the non-residential activities that are generally anticipated in residential areas as permitted or restricted discretionary activities, subject to standards or matters of discretion.</p>		

<b>Evaluation 1</b>	
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 1.4	The provisions provide for communities' social, economic and cultural wellbeing.
Ev 1.5	The provisions give effect to: <ul style="list-style-type: none"> <li>• Section 7(c) the maintenance and enhancement of amenity values.</li> </ul>
<b>Benefits (including Opportunities for Economic Growth and Employment)</b>	
Ev 1.6	In this zone the listed activity approach is preferred to an effects based approach because it provides: <ul style="list-style-type: none"> <li>• Certainty</li> <li>• Familiar, established concepts</li> <li>• Tested thresholds</li> <li>• Ease of enforcement</li> <li>• Straightforward application of standards.</li> <li>• Greater control of activities whose effects are more likely to cause significant adverse effects, particularly on residential amenity.</li> </ul>
<b>Costs</b>	
Ev 1.7	The listed activities approach to non-residential activities may lead to additional transaction costs for small scale non-residential activities made to go through a resource consent process.
Ev 1.8	The listed activities approach to non-residential activities may provide less flexibility.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 1.9	The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.
<b>Efficiency and Effectiveness</b>	
Ev 1.10	The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 1.11	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 1.12	Alternative provisions could be more permissive towards non-residential activities or set purely effects-based standards for non-residential activities in particular to meet. That would lead to greater uncertainty, increased transaction costs and greater risk of adversely affecting residential amenity.

**Table 15: Evaluation 2 - General Residential – Objective 4A 2.2, Policies and Rules**

<b>Evaluation 2</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<p><b>Objective 4A 2.2</b></p> <p>Housing capacity and variety are increased.</p>	<p><b>Policy 4A 3.2</b></p> <p>Enable a diverse range of housing types and densities.</p> <p><b>Policy 4A 3.3</b></p> <p>Enable the efficient use of larger sites and combined sites by providing for comprehensive residential developments.</p> <p><b>Policy 4A 3.8</b></p> <p>Encourage medium density built development and comprehensive residential development that is in general accordance with the Suburban Centres and Residential Design Guide.</p>	<p>Rule 4A 4.2.1 Number of Dwellings per Site</p> <p>Rule 4A 4.2.9 Minor Additional Dwelling</p> <p>Rule 4A 4.2.10 Comprehensive Residential Developments</p> <p>Rule 4A 4.2.11 Demolition</p>
<p><b>Why these provisions are included in the plan</b></p> <p><i>Housing capacity and variety</i></p> <p>Ev 2.1 Objective 4A 2.2 addresses the fact that Lower Hutt’s housing stock does not match the needs of current and future residents. There is an overall shortfall in housing capacity and a particular shortage of one bedroom and two bedroom dwellings.</p> <p>Ev 2.2 The policies guide decision makers and set courses of action to achieve the desired end state of increased housing capacity and variety.</p> <p>Ev 2.3 Policy 4A 4.3.8 sets down the use of the Design Guide as a course of action to assist in achieving high quality built development and high quality amenity.</p>		
<p><b>How these provisions achieve the purpose of the RMA</b></p> <p>Ev 2.4 The provisions provide for communities’ social, economic and cultural wellbeing.</p> <p>Ev 2.5 The provisions respond to Council’s obligation (Section 31 (1)(aa)) for “the establishment, implementation, and review of objectives, policies, and methods to ensure that there is sufficient development capacity in respect of housing and business land to meet the expected demands of the district”.</p>		
<p><b>Benefits including Opportunities for Economic Growth and Employment</b></p> <p>Ev 2.6 The more enabling provisions would provide opportunities for more houses and more types of houses. Economic and employment opportunities would arise from construction activity.</p>		
<p><b>Costs</b></p> <p>Ev 2.7 The changes to residential areas have the potential to affect residential amenity.</p>		

<b>Evaluation 2</b>	
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 2.8	The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.
<b>Efficiency and Effectiveness</b>	
Ev 2.9	The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 2.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 2.11	The alternative approach is to rely on existing development standards and consent triggers and require proposals for more intensive development to be considered against existing provisions.

**Table 16: Evaluation 3 - General Residential – Objective 4A 2.3, Policies and Rules**

<b>Evaluation 3</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<b>Objective 4A 2.3</b> Built development is in keeping with the planned low to medium density built character and is compatible with the amenity levels associated with low to medium density residential development.	<b>Policy 4A 3.4</b> Manage effects on adjoining sites and the street and minimise visual dominance effects on adjoining sites by controlling height, bulk and form of development, requiring sufficient setbacks and managing the design and appearance of built development through the Suburban Centres and Residential Design Guide.  <b>Policy 4A 3.5</b> Require built development to maintain a reasonable level of privacy and sunlight access for adjoining sites.  <b>Policy 4A 3.7</b> Encourage high quality built development to achieve attractive and safe streets and public open spaces by providing for buildings that address the streets and public open spaces, minimise visual dominance	Rule 4A 4.2.1 Number of Dwellings Rule 4A 4.2.2 Site Coverage Rule 4A 4.2.3 Building Height Rule 4A 4.2.4 Recession Plane Rule 4A 4.2.5 Yards Rule 4A 4.2.8 Accessory Buildings Rule 4A 4.2.9 Minor Additional Dwelling Rule 4A 4.2.10 Comprehensive Residential Development

<b>Evaluation 3</b>		
	<p>and encourage passive surveillance.</p> <p><b>Policy 4A 3.8</b></p> <p>Encourage medium density built development and comprehensive residential development that is in general accordance with the Suburban Centres and Residential Design Guide.</p>	
<p><b>Why these provisions are included in the plan</b></p> <p><b>Amenity</b></p> <p>Ev 3.1 Objective 4A 2.3 seeks that new buildings are in keeping with the built character and amenity values associated with low to medium density residential zones.</p> <p>Ev 3.2 Policy 4A 4.3.4 identifies that managing externalities, including externalities to public streets, is the focus and states a course of action.</p> <p>Ev 3.3 Policy 4A 4.3.5 highlights specific key amenity values that may be affected by built development and specifies a course of action.</p> <p>Ev 3.4 Policy 4A 4.3.7 specifies a course of action to achieve high quality off-site amenity</p> <p>Ev 3.5 Policy 4A 4.3.8 sets down the use of the Design Guide as a course of action to assist in achieving high quality built development and high quality amenity.</p>		
<p><b>How these provisions achieve the purpose of the RMA</b></p> <p>Ev 3.6 The provisions cater for communities' social, economic, environmental and cultural wellbeing.</p> <p>Ev 3.7 The provisions give effect to:</p> <ul style="list-style-type: none"> <li>Section 7(c) RMA the maintenance and enhancement of amenity values.</li> </ul>		
<p><b>Benefits including Opportunities for Economic Growth and Employment</b></p> <p>Ev 3.8 The benefits of these provisions are that high quality residential amenity is protected.</p>		
<p><b>Costs</b></p> <p>Ev 3.9 The cost of protecting amenity is that development potential may not be available.</p>		
<p><b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b></p> <p>Ev 3.10 The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.</p>		



<b>Evaluation 3</b>	
<b>Efficiency and Effectiveness</b>	
Ev 3.11	The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 3.12	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 3.13	Alternative building envelope and development standards could be applied, resulting in stronger or weaker protection of residential amenity.

**Table 17: Evaluation 4 - General Residential – Objective 4A 2.4, Policies and Rules**

<b>Evaluation 4</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<p><b>Objective 4A 4.2.4</b></p> <p>Built development provides high quality on-site amenity for residents as well as high quality residential amenity for adjoining properties and the street.</p>	<p><b>Policy 4A 3.4</b></p> <p>Manage effects on adjoining sites and the street and minimise visual dominance effects on adjoining sites by controlling height, bulk and form of development, requiring sufficient setbacks and managing the design and appearance of built development through the Suburban Centres and Residential Design Guide.</p> <p><b>Policy 4A 3.5</b></p> <p>Require built development to maintain a reasonable level of privacy and sunlight access for adjoining sites.</p> <p><b>Policy 4A 3.6</b></p> <p>Require built development to provide useable and accessible outdoor living space to provide for outdoor amenity.</p> <p><b>Policy 4A 3.7</b></p> <p>Encourage high quality built development to achieve attractive and safe streets and public open spaces by providing for buildings that address the streets and public open spaces, minimise visual dominance</p>	<p>Rule 4A 4.1.9 Light Spill</p> <p>Rule 4A 4.2.2 Site Coverage</p> <p>Rule 4A 4.2.3 Building Height</p> <p>Rule 4A 4.2.4 Recession Plane</p> <p>Rule 4A 4.2.5 Yards</p> <p>Rule 4A 4.2.7 Outdoor Living Space</p> <p>Rule 4A 4.2.9 Minor Additional Dwelling</p> <p>Rule 4A 4.2.10 Comprehensive Residential Development</p>

<b>Evaluation 4</b>		
	<p>and encourage passive surveillance.</p> <p><b>Policy 4A 3.8</b></p> <p>Encourage medium density built development and comprehensive residential development that is in general accordance with the Suburban Centres and Residential Design Guide.</p>	
<p><b>Why these provisions are included in the plan</b></p> <p><b>Amenity</b></p> <p>Ev 4.1 Objective 4A 4.2.4 sets a desired end state of high quality amenity.</p> <p>Ev 4.2 Policy 4A 4.3.4 identifies that managing externalities, including externalities to public streets, is the focus and states a course of action.</p> <p>Ev 4.3 Policy 4A 4.3.5 highlights specific key amenity values that may be affected by built development and specifies a course of action.</p> <p>Ev 4.4 Policy 4A 4.3.6 highlights a specific key requirement and specifies a course of action.</p> <p>Ev 4.5 Policy 4A 4.3.7 specifies the course of action to achieve high quality off-site amenity.</p> <p>Ev 4.6 Policy 4A 4.3.8 sets down the use of the Design Guide as a course of action to assist in achieving high quality built development and high quality amenity.</p>		
<p><b>How these provisions achieve the purpose of the RMA</b></p> <p>Ev 4.7 The provisions cater for communities' social, economic, environmental and cultural wellbeing.</p> <p>Ev 4.8 The provisions give effect to:</p> <ul style="list-style-type: none"> <li>• Section 7(c) RMA the maintenance and enhancement of amenity values.</li> </ul>		
<p><b>Benefits including Opportunities for Economic Growth and Employment</b></p> <p>Ev 4.9 The benefits of these provisions are that high quality residential amenity is protected.</p>		
<p><b>Costs</b></p> <p>Ev 4.10 The cost of protecting amenity is that it may limit development potential.</p>		
<p><b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b></p> <p>Ev 4.11 The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.</p>		
<p><b>Efficiency and Effectiveness</b></p> <p>Ev 4.12 The efficiency of the proposed provisions is high because the benefits outweigh the</p>		

<b>Evaluation 4</b>	
	costs.
Ev 4.13	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 4.14	Alternative building envelope and development standards could be applied, resulting in stronger or weaker protection of residential amenity.

**Table 18: Evaluation 5 - General Residential – Objective 4A 2.5, Policies and Rules**

<b>Evaluation 5</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<b>Objective 4A 2.5</b> Built development is adequately serviced by network infrastructure	<b>Policy 4A 3.9</b> Require a minimum area of permeable surface in order to assist with the management of stormwater runoff created by development.  <b>Policy 4A 3.10</b> Require comprehensive residential development to be stormwater neutral.	Rule 4A 4.2.1 Number of dwellings Rule 4A 4.2.6 Permeable Surface Rule 4A 4.1.7 Retirement Villages Rule 4A 4.2.9 Minor Additional Dwelling Rule 4A 4.2.10 Comprehensive Residential Development Note 4A 4.3 General Rules
<b>Why these provisions are included in the plan</b> <b>Infrastructure and Services</b> Ev 5.1 The provisions acknowledge that built development needs to be serviced by adequate network infrastructure. Ev 5.2 Policy 4A 3.9 requires a minimum area of permeable surface as a course of action to assist in managing stormwater, to assist in ensuring network infrastructure is able to service development. Ev 5.3 Policy 4A 3.10 sets a course of action of requiring the site specific design of comprehensive residential development to achieve stormwater neutrality.		
<b>How these provisions achieve the purpose of the RMA</b> Ev 5.4 The provisions provide for communities’ social, economic, environmental and cultural wellbeing. Ev 5.5 The provisions respond to Council’s obligation (Section 31 (1)(aa)) for “the establishment, implementation, and review of objectives, policies, and methods to ensure that there is sufficient development capacity in respect of housing and business land to meet the expected demands of the district”.		
<b>Benefits including Opportunities for Economic Growth and Employment</b> Ev 5.6 The provisions require that development is adequately serviced by network infrastructure to ensure acceptable environmental results.		

<b>Evaluation 5</b>	
Ev 5.7	Onsite attenuation of stormwater can reduce the load on stormwater networks and overall system costs.
<b>Costs</b>	
Ev 5.8	Onsite attenuation of stormwater may increase development costs and may shift some costs from the community to the individual property owner.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 5.9	The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.
<b>Efficiency and Effectiveness</b>	
Ev 5.10	The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 5.11	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 5.12	The alternative approach is to allow development to assume that network infrastructure is available and will deal with water issues including stormwater.

**Table 19: Evaluation 6 - General Residential – Objective 4A 2.6, Policies and Rules**

<b>Evaluation 6</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<b>Objective 4A 2.6</b> Built development is located and designed to manage significant risk from natural hazards.	<b>Policy 4A 3.12</b> Manage medium density residential development in areas of high natural hazard risk.	Rule 4A 4.2.1 Number of dwellings Rule 4A 4.1.7 Retirement Villages Rule 4A 4.2.10 Comprehensive Residential Development Note 4A 4.3 General Rules
<b>Why these provisions are included in the plan</b> <b>Natural Hazards</b>		
Ev 6.1	This objective acknowledges that built development in Lower Hutt is susceptible to a range of potentially significant natural hazards.	
Ev 6.2	The plan change has avoided proposing targeted areas of known significant hazard risk where the appropriate policy response is not yet sufficiently understood.	
Ev 6.3	The policy provides a course of action to enable appropriate consideration of natural hazard risk in comprehensive residential development that can potentially occur anywhere in the General Residential zone where specific natural hazard overlays may not be in place.	

<b>Evaluation 6</b>	
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 6.4	The provisions provide for communities' social, economic, environmental and cultural wellbeing.
Ev 6.5	The provisions give effect to: <ul style="list-style-type: none"> <li>Section 6(h) RMA (Matters of National Importance) the management of significant risks from natural hazards.</li> </ul>
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 6.6	The provisions avoid increasing the risk to people and property from natural hazards.
<b>Costs</b>	
Ev 6.7	Development potential may not be realised, especially if assessments of hazards are overly conservative.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 6.8	The plan change has avoided proposing targeted areas in known significant hazard risk where the appropriate policy response is not yet sufficiently understood.
<b>Efficiency and Effectiveness</b>	
Ev 6.9	The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 6.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 6.11	Further residential development could be avoided until more information on natural hazards is available.

## Medium Density Residential Activity Area

### *Evaluation of Medium Density Residential Provisions*

329. The proposed plan change's provisions for the Medium Density Residential Activity Area are evaluated below, in groups of related provisions that implement an objective.

**Table 20: Evaluation 7 – Medium Density Residential – Objective 4F 2.1, Policies and Rules**

<b>Evaluation 7</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<b>Objective 4F 2.1</b> Residential Activities are the dominant activities in the Medium Density Residential Activity Area.	<b>Policy 4F 3.1</b> Provide for residential activities and those non-residential activities that support the community's	Rule 4F 4.1.1 Residential Activities Rule 4A 4.1.2 Home Occupation Rule 4F 4.1.3 Care Facilities, Residential Facilities, Boarding Houses,

<b>Evaluation 7</b>		
<p>Non-residential activities are compatible with the amenity levels associated with medium density residential development anticipated by the zone.</p>	<p>social, economic and cultural well-being and manage any adverse effects on residential amenity.</p>	<p>Hostels, Visitor Accommodation</p> <p>Rule 4F 4.1.4 Childcare Facilities</p> <p>Rule 4F 4.1.5 Health Care Services</p> <p>Rule 4F 4.1.6 Community Facilities, Marae, Education Facilities, Places of Assembly and Emergency Facilities</p> <p>Rule 4F 4.1.7 Retirement Villages</p> <p>Rule 4F 4.1.8 All other Activities</p> <p>Rule 4F 4.1.9 Light Spill</p> <p>Rule 4F 4.1.10 Vibration</p> <p><b>Note 4F 4.3</b> General Rules</p>
<p><b>Why these provisions are included in the plan</b></p> <p><i>Primarily Residential</i></p> <p>Ev 7.1 Objective 4F 2.1 seeks that residential activities dominate the Activity Area, with associated high levels of amenity. The objective recognises however that some non-residential activities are appropriate in the zone but they should be compatible with residential activities and high levels of amenity.</p> <p>Ev 7.2 Policy 4F 3.1 gives effect to the objective, guiding decision makers that the zone provides for residential activities and non-residential activities that are compatible with residential activities. The policy sets a course of action to achieve the desired end state of predominantly residential activities supported by compatible non-residential activities.</p>		
<p><b>How these provisions achieve the purpose of the RMA</b></p> <p>Ev 7.3 The provisions provide for communities' social, economic and cultural wellbeing.</p> <p>Ev 7.4 The provisions give effect to:</p> <ul style="list-style-type: none"> <li>• Section 7(c) RMA the maintenance and enhancement of amenity values.</li> </ul>		
<p><b>Benefits including Opportunities for Economic Growth and Employment</b></p> <p>Ev 7.5 In this zone the listed activity approach is preferred to an effects based approach because it provides:</p> <ul style="list-style-type: none"> <li>• Certainty</li> <li>• Familiar, established concepts</li> <li>• Tested thresholds</li> <li>• Ease of enforcement</li> <li>• Straightforward application of standards.</li> </ul>		
<p><b>Costs</b></p> <p>Ev 7.6 The listed activities approach to non-residential activities may lead to additional transaction costs for small scale non-residential activities made to go through a</p>		

<b>Evaluation 7</b>	
	resource consent process.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 7.7	The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.
<b>Efficiency and Effectiveness</b>	
Ev 7.8	The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 7.9	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 7.10	Alternative provisions could be more permissive towards non-residential activities or set purely effects-based standards for non-residential activities in particular to meet. That would lead to greater uncertainty, increased transaction costs and greater risk of adversely affecting residential amenity.

**Table 21: Evaluation 8 – Medium Density Residential – Objective 4F 2.2, Policies and Rules**

<b>Evaluation 8</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<b>Objective 4F 2.2</b> Land near the Suburban Mixed Use Activity Area and Central Commercial Activity Area and close to the public transport network that has been identified as suitable for medium density development is used efficiently.	<b>Policy 4F 3.2</b> Enable the efficient use of land by providing for a diverse range of housing types at medium densities.	Rule 4F 4.2.1 Site Coverage Rule 4F 4.2.2 Building Height Rule 4F 4.2.3 Recession plan Rule 4F 4.2.4 Yards Rule 4F 4.2.9 Demolition
<b>Why these provisions are included in the plan</b>		
<b><i>Housing capacity and variety</i></b>		
Ev 8.1	Lower Hutt’s housing stock does not match the needs of current and future residents. There is an overall shortfall in housing capacity and a particular shortage of one bedroom and two bedroom dwellings.	
Ev 8.2	Policy 4F 3.2 sets a course of action to contribute to the desired end state of increased housing capacity and variety in targeted areas.	
<b>How these provisions achieve the purpose of the RMA</b>		
Ev 8.3	The provisions provide for communities’ social, economic and cultural wellbeing.	
Ev 8.4	The provisions promote the efficient use of land and supporting infrastructure.	

<b>Evaluation 8</b>	
Ev 8.5	The provisions respond to Council’s obligation (Section 31 (1)(aa)) for “the establishment, implementation, and review of objectives, policies, and methods to ensure that there is sufficient development capacity in respect of housing and business land to meet the expected demands of the district”.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 8.6	The more enabling provisions would provide opportunities for more houses and more types of houses. Economic and employment opportunities would arise from construction activity.
<b>Costs</b>	
Ev 8.7	The changes to residential areas have the potential to affect residential amenity.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 8.8	The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.
<b>Efficiency and Effectiveness</b>	
Ev 8.9	The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 8.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 8.11	The alternative approach is to rely on existing development standards and consent triggers and require proposals for more intensive development to be considered against existing provisions.

**Table 22: Evaluation 9 – Medium Density Residential – Objective 4F 2.3, Policies and Rules**

<b>Evaluation 9</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<b>Objective 4F 2.3</b> Housing capacity and variety are increased.	<b>Policy 4F 3.2</b> Enable the efficient use of land by providing for a diverse range of housing types at medium densities.	Rule 4F 4.2.1 Site Coverage Rule 4F 4.2.2 Building Height Rule 4F 4.2.3 Recession plan Rule 4F 4.2.4 Yards Rule 4F 4.2.9 Demolition
<b>Why these provisions are included in the plan</b>		
<b><i>Housing capacity and variety</i></b>		
Ev 9.1	Lower Hutt’s housing stock does not match the needs of current and future residents. There is an overall shortfall in housing capacity and a particular shortage of one bedroom and two bedroom dwellings.	



<b>Evaluation 9</b>	
Ev 9.2	Policy 4F 3.2 sets a course of action to contribute to the desired end state of increased housing capacity and variety.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 9.3	The provisions provide for communities' social, economic and cultural wellbeing.
Ev 9.4	The provisions respond to Council's obligation (Section 31 (1)(aa)) for "the establishment, implementation, and review of objectives, policies, and methods to ensure that there is sufficient development capacity in respect of housing and business land to meet the expected demands of the district".
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 9.5	The more enabling provisions would provide opportunities for more houses and more types of houses. Economic and employment opportunities would arise from construction activity.
<b>Costs</b>	
Ev 9.6	The changes to residential areas have the potential to affect residential amenity.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 9.7	The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.
<b>Efficiency and Effectiveness</b>	
Ev 9.8	The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 9.9	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 9.10	The alternative approach is to rely on existing development standards and consent triggers and require proposals for more intensive development to be considered against existing provisions.

**Table 23: Evaluation 10 – Medium Density Residential – Objective 4F 2.4, Policies and Rules**

<b>Evaluation 10</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<b>Objective 4F 2.4</b> Built development is in keeping with the planned medium density built character and compatible with the amenity levels associated with medium density residential	<b>Policy 4F 3.3</b> Manage the effects of built development on adjoining sites and the streetscape by controlling height, bulk and form of development and requiring sufficient setbacks.	Rule 4F 4.2.1 Site Coverage Rule 4F 4.2.2 Building Height Rule 4F 4.2.3 Recession Planes Rule 4F 4.2.4 Yards Rule 4F 4.2.8 Screening and Storage

<b>Evaluation 10</b>		
development.	<p><b>Policy 4F 3.4</b></p> <p>Manage the effects of built development on adjoining sites within other Residential Areas and minimise visual dominance by controlling height, bulk and form of development and requiring sufficient setbacks.</p> <p><b>Policy 4F 3.5</b></p> <p>Encourage medium density built development that is in general accordance with the Suburban Centres and Residential Design Guide.</p> <p><b>Policy 4F 3.6</b></p> <p>Require built development to maintain a reasonable level of privacy and sunlight access for adjoining sites.</p>	
<p><b>Why these provisions are included in the plan</b></p> <p><b><i>Amenity</i></b></p> <p>Ev 10.1 Objective 4F 2.4 and its associated provisions address the impacts of built development on residential character and amenity, with the emphasis on the wider residential area.</p> <p>Ev 10.2 This objective seeks that new buildings are in keeping with the built character and amenity values associated with medium density residential zones. The desired level of amenity is high but is acknowledged as being different to, and possibly lower than, the level of amenity associated with the General Residential Activity Area.</p> <p>Ev 10.3 Policy 4F 3.4 identifies that managing externalities, including externalities to public streets, is the focus and states a course of action.</p> <p>Ev 10.4 Policy 4F 3.4 specifies a course of action to achieve high quality off-site amenity</p> <p>Ev 10.5 Policy 4F 3.5 sets down the use of the Design Guide as a course of action to assist in achieving high quality built development and high quality amenity.</p> <p>Ev 10.6 Policy 4F 3.6 highlights two key aspects of amenity – privacy and sunlight - that may be affected by built development and specifies a course of action.</p> <p>Ev 10.7 The rules work as a package to define the permitted activity standards of a site's building envelope, controlling the scale of buildings and the externalities of buildings.</p>		
<p><b>How these provisions achieve the purpose of the RMA</b></p> <p>Ev 10.8 The provisions cater for communities' social, economic, environmental and cultural wellbeing.</p> <p>Ev 10.9 The provisions give effect to:</p>		

<b>Evaluation 10</b>
<ul style="list-style-type: none"> <li>Section 7(c) RMA the maintenance and enhancement of amenity values.</li> </ul>
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 10.10 The benefits of these provisions are that high quality residential amenity is protected.
<b>Costs</b>
Ev 10.11 The cost of protecting amenity is that it may reduce development potential.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 10.12 The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.
<b>Efficiency and Effectiveness</b>
Ev 10.13 The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 10.14 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 10.15 Alternative building envelope and development standards could be applied, resulting in stronger or weaker protection of residential amenity.

**Table 24: Evaluation 11 – Medium Density Residential – Objective 4F 2.5, Policies and Rules**

<b>Evaluation 11</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<p><b>Objective 4F 2.5</b></p> <p>Built development is of high quality and provides on-site amenity for residents as well as residential amenity for adjoining properties and the street.</p>	<p><b>Policy 4F 3.5</b></p> <p>Encourage medium density built development that is in general accordance with the Suburban Centres and Residential Design Guide.</p> <p><b>Policy 4F 3.6</b></p> <p>Require built development to maintain a reasonable level of privacy and sunlight access for adjoining sites.</p> <p><b>Policy 4F 3.7</b></p> <p>Require built development to provide useable and accessible outdoor living space to provide for outdoor amenity.</p>	<p>Rule 4F 4.2.1 Site Coverage</p> <p>Rule 4F 4.2.2 Building Height</p> <p>Rule 4F 4.2.3 Recession Planes</p> <p>Rule 4F 4.2.4 Yards</p> <p>Rule 4F 4.2.6 Outdoor Living Space</p> <p>Rule 4F 4.2.8 Screening and Storage</p>

<b>Evaluation 11</b>		
	<p><b>Policy 4F 3.8</b></p> <p>Encourage built development to contribute to attractive and safe streets and public open spaces by providing for buildings that address the streets and public open spaces, minimise visual dominance and encourage passive surveillance.</p>	
<p><b>Why these provisions are included in the plan</b></p> <p><b>Amenity</b></p> <p>Ev 11.1 Policy 4F 3.5 sets down the use of the Design Guide as a course of action to assist in achieving high quality built development and high quality amenity.</p> <p>Ev 11.2 Policy 4F 3.6 highlights two key aspects of amenity – privacy and sunlight - that may be affected by built development and specifies a course of action.</p> <p>Ev 11.3 Policy 4F 4.3.7 highlights a specific key requirement to provide outdoor living space and specifies a course of action.</p> <p>Ev 11.4 Policy 4F 4.3.8 specifies a course of action to achieve high quality off-site amenity.</p>		
<p><b>How these provisions achieve the purpose of the RMA</b></p> <p>Ev 11.5 The provisions provide for communities’ social, economic, environmental and cultural wellbeing.</p> <p>Ev 11.6 The provisions give effect to:</p> <ul style="list-style-type: none"> <li>• Section 6(h) RMA (Matters of National Importance) the management of significant risks from natural hazards.</li> </ul>		
<p><b>Benefits including Opportunities for Economic Growth and Employment</b></p> <p>Ev 11.7 The benefits of these provisions are that high quality residential amenity is protected.</p>		
<p><b>Costs</b></p> <p>Ev 11.8 The cost of protecting amenity is that development potential may not be available.</p>		
<p><b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b></p> <p>Ev 11.9 The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.</p>		
<p><b>Efficiency and Effectiveness</b></p> <p>Ev 11.10 The efficiency of the proposed provisions is high because the benefits outweigh the costs.</p> <p>Ev 11.11 The effectiveness of the proposed provisions is high because the goals are achieved.</p>		

<b>Evaluation 11</b>
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 11.12 Alternative building envelope and development standards could be applied, resulting in stronger or weaker protection of residential amenity.

**Table 25: Evaluation 12 – Medium Density Residential – Objective 4F 2.6, Policies and Rules**

<b>Evaluation 12</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<p><b>Objective 4F 2.6</b></p> <p>Built development is adequately serviced by network infrastructure or addresses any infrastructure constraints on the site.</p>	<p><b>Policy 4F 3.9</b></p> <p>Require a minimum area of permeable surface in order to assist with the management of stormwater runoff created by development.</p> <p><b>Policy 4F 3.10</b></p> <p>Encourage medium density residential development to be storm water neutral.</p>	<p>Rule 4F 4.2.5 Permeable Surface</p> <p>Note 4F 4.3 General Rules</p>
<p><b>Why these provisions are included in the plan</b></p> <p><b>Infrastructure and Services</b></p> <p>Ev 12.1 The provisions acknowledge that built development needs to be serviced by adequate network infrastructure.</p> <p>Ev 12.2 Policy 4F 3.9 requires a minimum area of permeable surface as a course of action to assist in managing stormwater, to assist in ensuring network infrastructure is able to service development.</p> <p>Ev 12.3 Policy 4F 3.10 sets a course of action of requiring the site specific design of comprehensive residential development to achieve stormwater neutrality.</p>		
<p><b>How these provisions achieve the purpose of the RMA</b></p> <p>Ev 12.4 The provisions provide for communities’ social, economic, environmental and cultural wellbeing.</p> <p>Ev 12.5 The provisions respond to Council’s obligation (Section 31 (1) (aa)) for “the establishment, implementation, and review of objectives, policies, and methods to ensure that there is sufficient development capacity in respect of housing and business land to meet the expected demands of the district”.</p>		
<p><b>Benefits including Opportunities for Economic Growth and Employment</b></p> <p>Ev 12.6 The provisions require that development is adequately serviced by network infrastructure to ensure acceptable environmental results.</p> <p>Ev 12.7 Onsite attenuation of stormwater can reduce the load on stormwater networks and overall system costs.</p>		

<b>Evaluation 12</b>	
<b>Costs</b>	
Ev 12.8	Onsite attenuation of stormwater may increase development costs and may shift some costs from the community to the individual property owner.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 12.9	The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.
<b>Efficiency and Effectiveness</b>	
Ev 12.10	The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 12.11	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 12.12	The alternative approach is to allow development to assume that network infrastructure is available and will deal with water issues including stormwater.

**Table 26: Evaluation 13 – Medium Density Residential – Objective 4F 2.7, Policies and Rules**

<b>Evaluation 13</b>		
<b>Objective</b>	<b>Policies (to implement the objective)</b>	<b>Rules (to implement the policies)</b>
<b>Objective 4F 2.7</b> Built development is located and designed to manage significant risk from natural hazards.	<b>Policy 4F 3.11</b> Manage medium density residential development in areas of high natural hazard risk.	Rule 4F 4.1.7 Retirement villages (Natural Hazards are a matter of discretion) Note 4F 4.3 General Rules
<b>Why these provisions are included in the plan</b>		
<b>Natural Hazards</b>		
Ev 13.1	This objective acknowledges that built development in Lower Hutt is susceptible to a range of potentially significant natural hazards.	
Ev 13.2	The plan change has avoided proposing targeted areas of known significant hazard risk where the appropriate policy response is not yet sufficiently understood.	
Ev 13.3	The policy provides a course of action to enable appropriate consideration of natural hazard risk in comprehensive residential development that can potentially occur anywhere in the General Residential zone where specific natural hazard overlays may not be in place.	
<b>How these provisions achieve the purpose of the RMA</b>		
Ev 13.4	The provisions provide for communities' social, economic, environmental and cultural wellbeing.	

<b>Evaluation 13</b>	
Ev 13.5	The provisions give effect to: <ul style="list-style-type: none"> <li>Section 6(h) RMA (Matters of National Importance) the management of significant risks from natural hazards.</li> </ul>
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 13.6	The provisions avoid increasing the risk to people and property from natural hazards.
<b>Costs</b>	
Ev 13.7	Development potential may not be realised, especially if assessments of hazards are overly conservative.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 13.8	The plan change has avoided proposing targeted areas in known significant hazard risk where the appropriate policy response is not yet sufficiently understood.
<b>Efficiency and Effectiveness</b>	
Ev 13.9	The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 13.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 13.11	Further residential development could be avoided until more information on natural hazards is available.

## Suburban Mixed Use Activity Area

### *Evaluation of Suburban Mixed Use Provisions*

330. The proposed plan change's provisions for the Suburban Mixed Use Activity Area are evaluated below, in groups of related provisions that implement an objective.

**Table 27: Evaluation 14 – Suburban Mixed Use – Objective 5E 2.1, Policies and Rules**

<b>Evaluation 14</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<b>Objective 5E 2.1</b> Commercial activities which primarily serve the local community coexist with residential living and provide good community access to goods, services and community facilities.	<b>Policy 5E 3.1</b> Provide for a range of commercial, retail and community activities with a focus on local needs.  <b>Policy 5E 3.2</b> Discourage residential activities at ground level while enabling residential activities above ground floor.  <b>Policy 5E 3.3</b>	Rule 5E 4.1.1 Offices, Commercial Services, Retail and Entertainment Facilities  Rule 5E 4.1.2 Service Industries and Cottage Industries  Rule 5E 4.1.3 Health Care Services, Community Facilities, Marae, Education Facilities and Places of Assembly

<b>Evaluation 14</b>		
	<p>Discourage activities which have noxious or offensive qualities from locating within the Suburban Mixed Use Activity Area.</p> <p><b>Policy 5E 3.4</b></p> <p>Recognise the functional and operational requirements of activities and development.</p>	<p>Rule 5E 4.1.4 Residential Activities</p> <p>Rule 5E 4.1.5 Care Facilities, Residential Facilities, Boarding Houses, Hostels and Visitor Accommodation</p> <p>Rule 5E 4.1.6 Emergency Facilities</p> <p>Rule 5E 4.1.7 Commercial Garages and Service Stations</p> <p>Rule 5E 4.1.8 All other Activities</p> <p>Rule 5E 4.1.9 Light Spill</p> <p>Note 5E 4.3 General Rules</p>
<b>Why these provisions are included in the plan</b>		
<b>Mixed Use</b>		
Ev 14.1	This objective sets a desired end state of suburban mixed use areas of residential and local shops, services and facilities.	
Ev 14.2	The policies promote a range of commercial activities that are compatible with each other and with residential activities.	
Ev 14.3	Policy 5E 3.2 discourages residential activities at ground level in order to promote a well-functioning suburban centre.	
<b>How these provisions achieve the purpose of the RMA</b>		
Ev 14.4	The provisions provide for communities' social, economic, environmental and cultural wellbeing.	
<b>Benefits including Opportunities for Economic Growth and Employment</b>		
Ev 14.5	The provisions promote well functioning suburban centres including residential activities in close proximity, to provide a customer base for economic and employment opportunities from the development and operation of commercial activities.	
<b>Costs</b>		
Ev 14.6	Mixed use areas have potential for incompatible uses to clash.	
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>		
Ev 14.7	The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.	
<b>Efficiency and Effectiveness</b>		
Ev 14.8	The efficiency of the proposed provisions is high because the benefits outweigh the costs.	
Ev 14.9	The effectiveness of the proposed provisions is high because the goals are achieved.	



**Evaluation 14**

**Other Reasonably Practicable Options for Achieving the Objectives**

Ev 14.10 An alternative approach is to focus the zone on commercial rather than mixed uses.

**Table 28: Evaluation 15 – Suburban Mixed Use – Objective 5E 2.2, Policies and Rules**

<b>Evaluation 15</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<p><b>Objective 5E 2.2</b></p> <p>Land is efficiently used for medium density mixed use development.</p>	<p><b>Policy 5E 3.5</b></p> <p>Enable the efficient use of land through medium density built development while managing any adverse effects on the environment, including effects on infrastructure and residential amenity.</p>	<p>Rule 5E 4.2.1 Building Height</p> <p>Rule 5E 4.2.2 Recession Planes</p> <p>Rule 5E 4.2.3 Yards</p> <p>Rule 5E 4.2.7 Screening and Storage</p> <p>Rule 5E 4.2.8 Demolition</p>
<p><b>Why these provisions are included in the plan</b></p> <p><i>Efficient Use of Land</i></p> <p>Ev 15.1 Lower Hutt’s housing stock does not match the needs of current and future residents. There is an overall shortfall in housing capacity and a particular shortage of one bedroom and two bedroom dwellings.</p> <p>Ev 15.2 The suburban centres are well served by public transport, shops, services and facilities, parks and schools. The businesses may benefit from having more customers living in close proximity seeking local services.</p>		
<p><b>How these provisions achieve the purpose of the RMA</b></p> <p>Ev 15.3 The provisions provide for communities’ social, economic and cultural wellbeing.</p> <p>Ev 15.4 The provisions promote the efficient use of land and supporting infrastructure.</p> <p>Ev 15.5 The provisions respond to Council’s obligation (Section 31 (1)(aa)) for “the establishment, implementation, and review of objectives, policies, and methods to ensure that there is sufficient development capacity in respect of housing and business land to meet the expected demands of the district”.</p>		
<p><b>Benefits including Opportunities for Economic Growth and Employment</b></p> <p>Ev 15.6 The more enabling provisions would provide opportunities for more houses and more types of houses. Economic and employment opportunities would arise from construction activity and from the larger customer base for local shops and services.</p>		
<p><b>Costs</b></p> <p>Ev 15.7 The mix of uses in close proximity has the potential to lead to incompatibilities.</p>		
<p><b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b></p> <p>Ev 15.8 The issue scores in the red zone of the Risk Matrix, suggesting that action is likely</p>		

<b>Evaluation 15</b>	
	to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.
<b>Efficiency and Effectiveness</b>	
Ev 15.9	The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 15.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 15.11	The alternative approach is to rely on existing development standards and consent triggers and require proposals for more intensive development to be considered against existing provisions. That would not provide clear guidance for applicants and decision-makers.

**Table 29: Evaluation 16 – Suburban Mixed Use – Objective 5E 2.3, Policies and Rules**

<b>Evaluation 16</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<p><b>Objective 5E 2.3</b></p> <p>Built development is of a scale and quality that is compatible with the amenity level of medium density mixed use development and contributes towards creating a sense of place.</p>	<p><b>Policy 5E 3.6</b></p> <p>Encourage medium density built development to be in general accordance with the Suburban Centres and Residential Design Guide.</p> <p><b>Policy 5E 3.7</b></p> <p>Require built development adjacent to Residential Activity Areas to manage the effects on the amenity values of those areas, having specific regard to dominance, privacy and shading.</p> <p><b>Policy 5E 3.8</b></p> <p>Encourage high quality built development that positively contributes to the visual quality and interest of streets and public open space through active street frontages and buildings right on the road boundary.</p>	<p>Rule 5E 4.2.1 Building Height</p> <p>Rule 5E 4.2.2 Recession Planes</p> <p>Rule 5E 4.2.3 Yards</p> <p>Rule 5E 4.2.4 Outdoor Living Space</p> <p>Rule 5E 4.2.5 Building Frontage, Verandahs and Display Windows</p> <p>Rule 5E 4.2.6 Parking</p> <p>Rule 5E 4.2.7 Screening and Storage</p> <p>Rule 5E 4.2.8 Demolition</p>
<p><b>Why these provisions are included in the plan</b></p> <p><i>Design Quality</i></p>		

<b>Evaluation 16</b>	
Ev 16.1	Council's desire, supported by community feedback through the online survey, is that development should be of high quality and contribute to creating attractive, vibrant suburban centres.
Ev 16.2	The provisions require development to use the Design Guide and achieve high quality buildings that relate well to their immediate and wider surroundings.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 16.3	The provisions cater for communities' social, economic, environmental and cultural wellbeing.
Ev 16.4	The provisions give effect to: <ul style="list-style-type: none"> <li>Section 7(c) RMA the maintenance and enhancement of amenity values.</li> </ul>
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 16.5	The benefits of these provisions are that high quality amenity is protected.
<b>Costs</b>	
Ev 16.6	The cost of protecting amenity is that development potential may not be available.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 16.7	The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.
<b>Efficiency and Effectiveness</b>	
Ev 16.8	The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 16.9	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 16.10	Alternative building envelope and development standards could be applied, resulting in stronger or weaker protection of amenity.

**Table 30: Evaluation 17 – Suburban Mixed Use – Objective 5E 2.4, Policies and Rules**

<b>Evaluation 17</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<b>Objective 5E 2.4</b> Built development is of a scale and quality that is compatible with the amenity levels of adjoining residential areas	<b>Policy 5E 3.7</b> Require built development adjacent to Residential Activity Areas to manage the effects on the amenity values of those areas, having specific regard to dominance, privacy and shading.	Rule 5E 4.2.1 Building Height Rule 5E 4.2.2 Recession Planes Rule 5E 4.2.3 Yards Rule 5E 4.2.7 Screening and Storage

<b>Evaluation 17</b>
<b>Why these provisions are included in the plan</b>
<b>Amenity</b>
Ev 17.1 Suburban Mixed Use development is immediately adjacent to residential zones and has the potential to adversely affect residential amenity. These provisions manage those impacts.
<b>How these provisions achieve the purpose of the RMA</b>
Ev 17.2 The provisions cater for communities' social, economic, environmental and cultural wellbeing.
Ev 17.3 The provisions give effect to: <ul style="list-style-type: none"> <li>Section 7(c) RMA the maintenance and enhancement of amenity values.</li> </ul>
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 17.4 The benefits of these provisions are that high quality amenity is protected.
<b>Costs</b>
Ev 17.5 The cost of protecting amenity is that it may reduce development potential.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 17.6 The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.
<b>Efficiency and Effectiveness</b>
Ev 17.7 The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 17.8 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 17.9 Alternative building envelope and development standards could be applied, resulting in stronger or weaker protection of amenity.

**Table 31: Evaluation 18 – Suburban Mixed Use – Objective 5E 2.5, Policies and Rules**

<b>Evaluation 18</b>		
<b>Objective</b>	<b>Policies</b> (to implement the objective)	<b>Rules</b> (to implement the policies)
<b>Objective 5E 2.5</b> Built development is adequately serviced by network infrastructure or addresses any infrastructure constraints.	<b>Policy 5E 3.9</b> Encourage development to be stormwater neutral.	Note 5E 4.3 General Rules <i>Other Methods</i>
<b>Why these provisions are included in the plan</b>		

<b>Evaluation 18</b>	
<b><i>Infrastructure and Services</i></b>	
Ev 18.1	The provisions acknowledge that built development needs to be serviced by adequate network infrastructure.
Ev 18.2	Policy 5E 3.9 sets a course of action of requiring the site specific design of comprehensive residential development to achieve stormwater neutrality.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 18.3	The provisions provide for communities' social, economic, environmental and cultural wellbeing.
Ev 18.4	The provisions respond to Council's obligation (Section 31 (1)(aa)) for "the establishment, implementation, and review of objectives, policies, and methods to ensure that there is sufficient development capacity in respect of housing and business land to meet the expected demands of the district".
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 18.5	The provisions require that development is adequately serviced by network infrastructure to ensure acceptable environmental results.
Ev 18.6	Onsite attenuation of stormwater can reduce the load on stormwater networks and overall system costs.
<b>Costs</b>	
Ev 18.7	Onsite attenuation of stormwater may increase development costs and may shift some costs from the community to the individual property owner.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 18.8	The issue scores in the red zone of the Risk Matrix, suggesting that action is likely to be required. Without change to the Plan the aspirations of the Urban Growth Strategy and the requirements of the NPS Urban Development Capacity are unlikely to be met.
<b>Efficiency and Effectiveness</b>	
Ev 18.9	The efficiency of the proposed provisions is high because the benefits outweigh the costs.
Ev 18.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 18.11	The alternative approach is to allow development to assume that network infrastructure is available and will deal with water issues including stormwater.

## **Precincts and Scheduled Sites**

### ***Evaluation of Changes to Precincts and Scheduled Sites***

331. The operative Plan contains 20 scheduled sites in the General Residential Activity Area. Each site has been reviewed to assess the nature of and continuing need for its site specific provisions.
332. The plan change proposes to retain the scheduled sites associated with:

- Flood hazard areas
  - Tertiary Education Precinct
  - Two retirement villages
  - Waterloo bus depot.
333. The other precincts and scheduled sites no longer serve any resource management purpose and are proposed to be removed.
334. Each precinct or scheduled site is discussed in an Evaluation Table below.
335. The proposed general provisions of General Residential would replace the existing general provisions that apply to the retained precincts and scheduled sites.
336. The site specific development standards enjoyed by each retained precinct or scheduled site would remain unchanged.
337. The retained precincts and scheduled sites are proposed to be housed together in Section 4A 5 to reduce repetition and make the Plan easier to use.

**Table 32: Evaluation 19 – Precincts and Scheduled Sites – Tertiary Education Precinct**

<b>Evaluation 19</b>	
<b>4A 5.1 Tertiary Education Precinct</b>	
<p>All residential activities and related developments within the Tertiary Education Precinct must comply with and are assessed against the provisions under 4A 2 Objectives, 4A 3 Policies and 4A 4 Rules. The provisions below do not apply.</p> <p>All tertiary education activities and development related to tertiary education activities within the Tertiary Education Precinct must comply with and are assessed against the provisions of the underlying General Residential Activity Area unless specified otherwise.</p> <p>No changes to precinct specific rules proposed.</p>	
<b>Why these provisions are included in the plan</b>	
Ev 19.1	The Tertiary Education Precinct was created by Plan Change 25 which became operative in November 2013.
Ev 19.2	The Tertiary Education Precinct applies to the main campus of WelTec in Petone. The precinct is intended to provide for the ongoing use and development of the campus to meet future tertiary education needs while also protecting residential amenity. Subareas of the Precinct have different area-specific provisions.
Ev 19.3	The highly detailed provisions of the Precinct were established following a Schedule 1 process with extensive exploration of the issues at pre-hearing meetings and the hearing.
Ev 19.4	Revisiting the site specific provisions of the Tertiary Education Precinct is outside the scope of Proposed Plan Change 43. No changes to the site specific provisions are proposed.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 19.5	The provisions continue to cater for communities' social, economic, environmental and cultural wellbeing.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 19.6	Retaining the provisions as they are provides certainty for WelTec and the affected

<b>Evaluation 19</b>	
	local communities. Revisiting the provisions only 4 years after they became operative would relitigate the issues unnecessarily.
<b>Costs</b>	
Ev 19.7	Retaining the provisions as they are continues the complex approach to managing the effects.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 19.8	The existing provisions are operating satisfactorily without generating significant issues or numbers of complaints. There is no information to suggest a more comprehensive review is required at this time.
<b>Efficiency and Effectiveness</b>	
Ev 19.9	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 19.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 19.11	The Tertiary Education Precinct provisions should be reviewed in future in accordance with the Act's timeframes. Alternative approaches may be identified in a comprehensive review.

**Table 33: Evaluation 20 – 4A 5.2 Scheduled Site – 32A Hathaway Avenue, Boulcott – Housing for the Elderly**

<b>Evaluation 20</b>	
<b>4A 5.2 Scheduled Site – 32A Hathaway Avenue, Boulcott – Housing for the Elderly</b>	
All residential activities and related development within the site must comply with and are assessed against the provisions under 4A 2 Objectives, 4A 3 Policies and 4A 4 Rules. The provisions below do not apply.	
All Retirement Village activities and related development within the site must comply with and are assessed against the provisions of the underlying General Residential Activity Area unless specified otherwise.	
<b>Why these provisions are included in the plan</b>	
Ev 20.1	This scheduled site was created by Private Plan Change 35, which became operative on 18 January 2017.
Ev 20.2	The scheduled site provides site specific provisions that would apply to an anticipated retirement village project.
Ev 20.3	The detailed provisions of the scheduled site were established following a Schedule 1 process with extensive exploration of the issues at pre-hearing meetings and the hearing.
Ev 20.4	Revisiting the site specific provisions of the scheduled site is outside the scope of Proposed Plan Change 43. No changes to the site specific provisions are

<b>Evaluation 20</b>
proposed.
<b>How these provisions achieve the purpose of the RMA</b>
Ev 20.5 The provisions continue to cater for communities' social, economic, environmental and cultural wellbeing.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 20.6 Retaining the provisions as they are provides certainty for the approach to a retirement village on the site. Revisiting the provisions less than a year after they became operative would relitigate the issues unnecessarily.
<b>Costs</b>
Ev 20.7 Retaining the provisions as they are continues the complex site specific approach to managing the effects.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 20.8 The existing provisions are anticipated to operate satisfactorily. There is no information to suggest a more comprehensive review is required at this time.
<b>Efficiency and Effectiveness</b>
Ev 20.9 The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 20.10 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 20.11 The scheduled site's provisions should be reviewed in future in accordance with the Act's timeframes. Alternative approaches may be identified in a comprehensive review.

**Table 34: Evaluation 21 – 4A 5.3 Scheduled Site – 39 Fitzherbert Road, Wainuiomata – Housing for the Elderly**

<b>Evaluation 21</b>
<b>4A 5.3 Scheduled Site – 39 Fitzherbert Road, Wainuiomata – Housing for the Elderly</b>
All residential activities and related development within the site must comply with and are assessed against the provisions under 4A 2 Objectives, 4A 3 Policies and 4A 4 Rules. The provisions below do not apply.
All Retirement Village activities and related development within the site must comply with and are assessed against the provisions of the underlying General Residential Activity Area unless specified otherwise.
<b>Why these provisions are included in the plan</b>
Ev 21.1 This scheduled site was created by Plan Change 37, which became operative on 31 March 2016.



<b>Evaluation 21</b>
<p>Ev 21.2 The scheduled site provides site specific provisions that would apply to an anticipated retirement village project.</p> <p>Ev 21.3 The detailed provisions of the scheduled site were established following a Schedule 1 process.</p> <p>Ev 21.4 Revisiting the site specific provisions of the scheduled site is outside the scope of Proposed Plan Change 43. No changes to the site specific provisions are proposed.</p>
<p><b>How these provisions achieve the purpose of the RMA</b></p> <p>Ev 21.5 The provisions continue to cater for communities' social, economic, environmental and cultural wellbeing.</p>
<p><b>Benefits including Opportunities for Economic Growth and Employment</b></p> <p>Ev 21.6 Retaining the provisions as they are provides certainty for the approach to a retirement village on the site. Revisiting the provisions less than 2 years after they became operative would relitigate the issues unnecessarily.</p>
<p><b>Costs</b></p> <p>Ev 21.7 Retaining the provisions as they are continues the complex site specific approach to managing the effects.</p>
<p><b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b></p> <p>Ev 21.8 The existing provisions are anticipated to operate satisfactorily. There is no information to suggest a more comprehensive review is required at this time.</p>
<p><b>Efficiency and Effectiveness</b></p> <p>Ev 21.9 The efficiency of the proposed approach is high because the benefits outweigh the costs.</p> <p>Ev 21.10 The effectiveness of the proposed provisions is high because the goals are achieved.</p>
<p><b>Other Reasonably Practicable Options for Achieving the Objectives</b></p> <p>Ev 21.11 The scheduled site's provisions should be reviewed in future in accordance with the Act's timeframes. Alternative approaches may be identified in a comprehensive review.</p>

**Table 35: Evaluation 22 – 4A 5.4 Scheduled Site – Waterloo Bus Depot – Pt Sec 30 Hutt District**

<b>Evaluation 22</b>
<p><b>4A Scheduled Site – Waterloo Bus Depot – Pt Sec 30 Hutt District</b></p> <p>Bus depot is permitted activity.</p>
<p><b>Why these provisions are included in the plan</b></p> <p>Ev 22.1 This scheduled site was created by Council in response to a submission on the</p>

<b>Evaluation 22</b>	
	Proposed District Plan. The scheduled site became operative in 2003.
Ev 22.2	The scheduled site provides site specific provisions that provide for a bus depot, which continues to be the activity on the site.
Ev 22.3	The site specific provisions continue to be appropriate because, although the bus depot has existing use rights, any changes sought to the operation would be likely to have non-complying activity status under the General Residential provisions and consent approval may be uncertain.
Ev 22.4	No changes to the site specific provisions are proposed.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 22.5	The provisions continue to cater for communities' social, economic, environmental and cultural wellbeing.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 22.6	Retaining the provisions as they are provides certainty for the bus depot and the community.
<b>Costs</b>	
Ev 22.7	Retaining the provisions as they are continues the complex site specific approach to managing the effects.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 22.8	The existing provisions are operating satisfactorily without generating significant issues or numbers of complaints. There is no information to suggest a more comprehensive review is required at this time.
<b>Efficiency and Effectiveness</b>	
Ev 22.9	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 22.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 22.11	The scheduled site's provisions should be reviewed in future in accordance with the Act's timeframes. Alternative approaches may be identified in a comprehensive review.

**Table 36: Evaluation 23 – 4A 5.5 Scheduled Site – Sites in Belmont that contain the Building Setback Line (Planning Map E3), 4A 5.6 Scheduled Site – Buildings and Structures within the 1 in 100-year Flood Extent (Planning Maps D3, E3, G1), 4A 5.7 Scheduled Site – Primary and Secondary River Corridors**

<b>Evaluation 23</b>
<b>4A 5.5 Scheduled Site – Sites in Belmont that contain the Building Setback Line (Planning Map E3),</b>

<b>Evaluation 23</b>
<p><b>4A 5.6 Scheduled Site – Buildings and Structures within the 1 in 100-year Flood Extent (Planning Maps D3, E3, G1),</b></p> <p><b>4A 5.7 Scheduled Site – Primary and Secondary River Corridors</b></p> <p>Site specific policies and rules restricting additional development apply.</p>
<p><b>Why these provisions are included in the plan</b></p> <p>Ev 23.1 These scheduled sites were created by Plan Change 6, which became operative in 2006.</p> <p>Ev 23.2 Plan Change 6 responded to some of issues raised in the Hutt River Floodplain Management Plan.</p> <p>Ev 23.3 The scheduled sites have provisions that manage the risks of flood hazard in specific areas.</p> <p>Ev 23.4 The site specific provisions continue to be appropriate to manage the risks of flood hazard.</p> <p>Ev 23.5 No changes to the site specific provisions are proposed.</p>
<p><b>How these provisions achieve the purpose of the RMA</b></p> <p>Ev 23.6 The provisions provide for communities’ social, economic, environmental and cultural wellbeing.</p> <p>Ev 23.7 The provisions give effect to:</p> <ul style="list-style-type: none"> <li>• Section 6(h) RMA (Matters of National Importance) the management of significant risks from natural hazards.</li> </ul>
<p><b>Benefits including Opportunities for Economic Growth and Employment</b></p> <p>Ev 23.8 Retaining the provisions as they are continues to manage the risk of natural hazards.</p>
<p><b>Costs</b></p> <p>Ev 23.9 Retaining the provisions as they are continues the complex site specific approach to managing the effects.</p>
<p><b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b></p> <p>Ev 23.10 There would be significant risk from removing the site specific provisions in the absence of a better understanding of the appropriate policy response to the Hutt River flood risk.</p>
<p><b>Efficiency and Effectiveness</b></p> <p>Ev 23.11 The efficiency of the proposed approach is high because the benefits outweigh the costs.</p> <p>Ev 23.12 The effectiveness of the proposed provisions is high because the goals are achieved.</p>
<p><b>Other Reasonably Practicable Options for Achieving the Objectives</b></p>

<b>Evaluation 23</b>	
Ev 23.13	The scheduled site provisions should be reviewed in future as part of a comprehensive review of the natural hazards chapter.

**Table 37: Evaluation 24 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 24</b>	
<b>Corner Eastern Hutt Road/Reynolds Bach Drive, Stokes Valley (Appendix Gen Res 1) - Silverstream Retreat</b>	
Residential Accommodation, Visitor Accommodation, Conference Facilities, Places of Assembly and Marae are permitted activities in existing buildings.	
Erection of new buildings or addition to existing buildings are discretionary activities	
<b>Why these provisions are included in the plan</b>	
Ev 24.1	In 1994 the Transitional Plan rezoned the site to residential, with site specific provisions.
Ev 24.2	The site specific provisions provide for Residential Accommodation, Visitor Accommodation, Conference Facilities, Places of Assembly, Marae as permitted activities in existing buildings.
Ev 24.3	Under the site specific provisions the construction of any new buildings or additions to existing buildings would be discretionary activities.
Ev 24.4	The site has existing use rights for its activities to the potential available in its existing buildings
Ev 24.5	The site would require resource consent to extend the scale of its commercial activities to additional buildings, both under the proposed provisions of General Residential and under its site specific provisions.
Ev 24.6	Under the proposed provisions of General Residential, construction or alteration of buildings would be permitted activities subject to development standards.
Ev 24.7	Since the site specific provisions do not confer any significant benefits to the site, are unnecessarily restrictive for the construction and alteration of buildings, and serve no RMA purpose they are proposed to be removed.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 24.8	No RMA purpose is served by the site specific provisions.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 24.9	Removing the provisions would have no significant effect except that building construction and alteration would be permitted subject to development standards.
<b>Costs</b>	
Ev 24.10	Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 24.11	The proposed provisions of General Residential provide sufficient certainty.

<b>Evaluation 24</b>	
<b>Efficiency and Effectiveness</b>	
Ev 24.12	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 24.13	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 24.14	The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.

**Table 38: Evaluation 25 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 25</b>	
<b>Corner Eastern Hutt Road/Reynolds Bach Drive, Stokes Valley (Appendix Gen Res 1)</b>	
Forestry is restricted discretionary activity	
<b>Why these provisions are included in the plan</b>	
Ev 25.1	The site specific provisions were introduced to the Plan in the review that became operative in 2003.
Ev 25.2	The provisions provide for forestry as a restricted discretionary activity, with discretion to manage effects on residential amenity and traffic effects.
Ev 25.3	The site is no longer used for forestry and is unlikely to be suitable in future for forestry. No resource management purpose is served by the site specific provisions and they are proposed to be removed.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 25.4	No RMA purpose is served by the site specific provisions.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 25.5	Removing the provisions would have no significant effect.
<b>Costs</b>	
Ev 25.6	Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 25.7	The proposed provisions of General Residential provide sufficient certainty.
<b>Efficiency and Effectiveness</b>	
Ev 25.8	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 25.9	The effectiveness of the proposed provisions is high because the goals are

<b>Evaluation 25</b>
achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 25.10 The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.

**Table 39: Evaluation 26 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 26</b>
<b>95 &amp; 97 Cuba Street, Petone (Appendix Gen Res 2)</b>
Repair restoration and sale of second hand goods are permitted activities within existing building. Parking associated with the sale of second hand goods is permitted activity.
<b>Why these provisions are included in the plan</b>
Ev 26.1 The 1995 Proposed District Plan included site specific provisions enabling the repair, restoration and sale of second hand good and associated parking. The provisions were made operative in 2003.
Ev 26.2 The site holds subdivision consent for 11 lots, approved in 2015 but not yet implemented.
Ev 26.3 The conditions on the site specific provisions include that “these uses shall cease on removal of the existing buildings from the site.”
Ev 26.4 The site is no longer used for second hand goods so the site specific provisions are no longer necessary nor appropriate and are proposed to be removed.
<b>How these provisions achieve the purpose of the RMA</b>
Ev 26.5 No RMA purpose is served by the site specific provisions.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 26.6 Removing the provisions would have no significant effect.
<b>Costs</b>
Ev 26.7 Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 26.8 The proposed provisions of General Residential provide sufficient certainty.
<b>Efficiency and Effectiveness</b>
Ev 26.9 The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 26.10 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>

<b>Evaluation 26</b>	
Ev 26.11	The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.

**Table 40: Evaluation 27 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 27</b>	
<b>Summit Road Nursery, Fairfield (App Gen Res 3)</b>	
Plant propagation, and associated office functions and buildings and the storage and non-mechanical maintenance of equipment for the purposes of maintaining parks and reserves are permitted activities.	
<b>Why these provisions are included in the plan</b>	
Ev 27.1	The 1995 Proposed District Plan included site specific provisions to enable the property to be used as a Council Parks and Gardens Department depot. The site specific provisions enable: <ul style="list-style-type: none"> <li>• plant propagation, and associated office functions and buildings.</li> <li>• the storage and non-mechanical maintenance of equipment for the purposes of maintaining parks and reserves.</li> </ul>
Ev 27.2	The provisions were made operative in 2003.
Ev 27.3	The site is no longer used as a Parks and Gardens depot. It has in part been developed as a rehabilitation centre. Resource consent has been granted for the remainder to be developed into residential housing.
Ev 27.4	Since the site is no longer used for the specified purpose, the site specific provisions are no longer necessary nor appropriate and are proposed to be removed. The site specific noise standards are also proposed to be deleted.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 27.5	No RMA purpose is served by the site specific provisions.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 27.6	Removing the provisions would have no significant effect.
<b>Costs</b>	
Ev 27.7	Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 27.8	The proposed provisions of General Residential provide sufficient certainty.
<b>Efficiency and Effectiveness</b>	
Ev 27.9	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 27.10	The effectiveness of the proposed provisions is high because the goals are achieved.

<b>Evaluation 27</b>
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 27.11 The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.

**Table 41: Evaluation 28 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 28</b>
<b>Moore's Valley Road Depot, Wainuiomata (App Gen Res 4)</b>
Plant propagation, and associated office functions and buildings and the storage and non-mechanical maintenance of equipment for the purposes of maintaining parks and reserves are permitted activities.
<b>Why these provisions are included in the plan</b>
Ev 28.1 The 1995 Proposed District Plan included site specific provisions that enable: <ul style="list-style-type: none"> <li>• plant propagation, and associated office functions and buildings.</li> <li>• the storage and non-mechanical maintenance of equipment for the purposes of maintaining parks and reserves.</li> </ul>
Ev 28.2 The provisions were made operative in 2003.
Ev 28.3 The site is no longer used as a plant nursery. It is now used as a private commercial site (Specialised Concrete Services). This use is protected by existing use rights.
Ev 28.4 Since the site is no longer used for the specified purpose, the site specific provisions are no longer necessary nor appropriate and are proposed to be removed. Any future commercial use of the site should be assessed against residential provisions. The site specific noise standards are also proposed to be deleted.
<b>How these provisions achieve the purpose of the RMA</b>
Ev 28.5 No RMA purpose is served by the site specific provisions.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 28.6 Removing the provisions would have no significant effect.
<b>Costs</b>
Ev 28.7 Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 28.8 The proposed provisions of General Residential provide sufficient certainty.
<b>Efficiency and Effectiveness</b>
Ev 28.9 The efficiency of the proposed approach is high because the benefits outweigh the costs.



<b>Evaluation 28</b>	
Ev 28.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 28.11	The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.

**Table 42: Evaluation 29 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 29</b>	
<b>Fire Stations - 74-378 Stokes Valley Road (App Gen Res 5)</b>	
Emergency Facilities are permitted activities	
<b>Why these provisions are included in the plan</b>	
Ev 29.1	This site was scheduled in the District Plan that became operative in 2003.
Ev 29.2	The site specific provisions provide for emergency facilities as a permitted activity.
Ev 29.3	The site continues to be used as a fire station.
Ev 29.4	That use is protected by existing use rights. If the fire station wishes in future to extend its operation in some way beyond existing use rights, General Residential provides for that as a restricted discretionary activity. That means any proposal could be assessed on its merits in its residential context.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 29.5	The proposed provisions provide for the fire station as a restricted discretionary activity. This is more enabling than the existing discretionary activity provisions but provides for any extension of the operation to be assessed on its merits in its residential context.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 29.6	The proposal provides for continued operation of the fire station while managing adverse effects on residential amenity from any signification extension of operations.
<b>Costs</b>	
Ev 29.7	Removing the scheduled site means resource consent would be required for activities beyond those protected by existing use rights.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 29.8	The proposed provisions of General Residential provide greater certainty for the residential neighbourhood.
<b>Efficiency and Effectiveness</b>	
Ev 29.9	The efficiency of the proposed approach is high because the benefits outweigh the costs.

<b>Evaluation 29</b>	
Ev 29.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 29.11	The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.

**Table 43: Evaluation 30 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 30</b>	
<b>Fire Stations - 26 Buick Street (App Gen Res 5)</b>	
Emergency Facilities are permitted activities	
<b>Why these provisions are included in the plan</b>	
Ev 30.1	This site was scheduled in the District Plan that became operative in 2003.
Ev 30.2	The site specific provisions provide for emergency facilities as a permitted activity.
Ev 30.3	The site is no longer used as a fire station. It currently operates as a childcare centre.
Ev 30.4	No resource management purpose is served by continuing the site specific provisions.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 30.5	No RMA purpose is served by the site specific provisions.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 30.6	Removing the provisions would have no significant effect.
<b>Costs</b>	
Ev 30.7	Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 30.8	The proposed provisions of General Residential provide sufficient certainty.
<b>Efficiency and Effectiveness</b>	
Ev 30.9	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 30.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 30.11	The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.

**Table 44: Evaluation 31 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 31</b>
<b>Fire Stations - 42 Fitzherbert Road (App Gen Res 5, now 34 Fitzherbert Road)</b> Emergency Facilities are permitted activities
<b>Why these provisions are included in the plan</b> Ev 31.1 This site was scheduled in the District Plan that became operative in 2003. Ev 31.2 The site specific provisions provide for emergency facilities as a permitted activity. Ev 31.3 The site continues to be used as a fire station. Ev 31.4 The site is zoned General Recreation Activity Area so the site specific provisions should be housed in that chapter to avoid confusion. Ev 31.5 General Recreation does not provide for emergency facilities so the continued scheduling of the site is necessary to provide for the ongoing operation of the fire station. The outcome of a resource consent process would be uncertain.
<b>How these provisions achieve the purpose of the RMA</b> Ev 31.6 The provisions provide for communities' social, economic, environmental and cultural wellbeing. Ev 31.7 General Recreation does not provide for emergency facilities so the continued scheduling of the site is necessary.
<b>Benefits including Opportunities for Economic Growth and Employment</b> Ev 31.8 Retaining the provisions in General Recreation continues to provide for the ongoing operation of the fire station.
<b>Costs</b> Ev 31.9 Removing the provisions would require the fire station to rely on existing use rights only. The outcome of any resource consent process would be uncertain.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b> Ev 31.10 Correctly locating the scheduled site in General Recreation is required to provide certainty.
<b>Efficiency and Effectiveness</b> Ev 31.11 The efficiency of the proposed approach is high because the benefits outweigh the costs. Ev 31.12 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b> Ev 31.13 The scheduling could be removed, with the fire station made to rely on existing use rights.

**Table 45: Evaluation 32 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 32</b>	
<b>Fire Stations - 4 Makaro Street (App Gen Res 5, now 2 Makaro Street)</b>	
Emergency Facilities are permitted activities	
<b>Why these provisions are included in the plan</b>	
Ev 32.1	This site was scheduled in the District Plan that became operative in 2003.
Ev 32.2	The site specific provisions provide for emergency facilities as a permitted activity.
Ev 32.3	The site continues to be used as a fire station.
Ev 32.4	That use is protected by existing use rights. If the fire station wishes in future to extend its operation in some way beyond existing use rights, General Residential provides for that as a restricted discretionary activity. That means any proposal could be assessed on its merits in its residential context
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 32.5	The proposed provisions provide for the fire station as a restricted discretionary activity. This is more enabling than the existing discretionary activity provisions but provides for any extension of the operation to be assessed on its merits in its residential context.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 32.6	The proposal provides for continued operation of the fire station while managing adverse effects on residential amenity from any signification extension of operations.
<b>Costs</b>	
Ev 32.7	Removing the scheduled site means resource consent would be required for activities beyond those protected by existing use rights.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 32.8	The proposed provisions of General Residential provide greater certainty for the residential neighbourhood.
<b>Efficiency and Effectiveness</b>	
Ev 32.9	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 32.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 32.11	The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.

**Table 46: Evaluation 33 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 33</b>
<b>214 Knights Road, Hutt Central (App Gen Res 7)</b>
Retail and commercial activities within the buildings and structures existing on the site as at 5 December 1995 are permitted activities.
<b>Why these provisions are included in the plan</b>
Ev 33.1 This site was scheduled in the District Plan that became operative in 2003.
Ev 33.2 The site specific provisions provide for, as permitted activities: “Retail and commercial activities within the buildings and structures existing on the site as at 5 December 1995”.
Ev 33.3 The current activities on the site are protected by existing use rights.
Ev 33.4 The site is proposed to become zoned Suburban Mixed Use, which would provide for the ongoing commercial use of the site as a permitted activity. Therefore the site specific provisions are proposed to be removed.
<b>How these provisions achieve the purpose of the RMA</b>
Ev 33.5 No RMA purpose is served by the site specific provisions.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 33.6 Removing the provisions would have no significant effect.
<b>Costs</b>
Ev 33.7 Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 33.8 The proposed provisions of Suburban Mixed Use would provide sufficient certainty.
<b>Efficiency and Effectiveness</b>
Ev 33.9 The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 33.10 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 33.11 The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no resource management purpose.

**Table 47: Evaluation 34 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 34</b>
<b>190 Knights Road, Hutt Central (App Gen Res 8)</b>
Retail and commercial activities within the buildings and structures existing on the site as at 5 December 1995 are permitted activities.

<b>Evaluation 34</b>
<b>Why these provisions are included in the plan</b>
Ev 34.1 This site was scheduled in the District Plan that became operative in 2003.
Ev 34.2 The site specific provisions provide for, as permitted activities: “Retail and commercial activities within the buildings and structures existing on the site as at 5 December 1995”.
Ev 34.3 The current activities on the site are unclear. Ongoing retail and commercial activities would be protected by existing use rights. Any future commercial use that is not covered by existing use rights would appropriately be assessed against relevant provisions.
Ev 34.4 Therefore the site specific provisions are proposed to be removed.
<b>How these provisions achieve the purpose of the RMA</b>
Ev 34.5 No RMA purpose is served by the site specific provisions.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 34.6 Removing the provisions would have no significant effect.
<b>Costs</b>
Ev 34.7 Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 34.8 The proposed provisions of General Residential would provide sufficient certainty.
<b>Efficiency and Effectiveness</b>
Ev 34.9 The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 34.10 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 34.11 The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no resource management purpose.

**Table 48: Evaluation 35 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 35</b>
<b>Cnr Stokes Valley Road And Kamahi Streets, Stokes Valley (App Gen Res 9)</b>
Bus depot is permitted activity
<b>Why these provisions are included in the plan</b>
Ev 35.1 This site was scheduled in the District Plan that became operative in 2003.
Ev 35.2 The site specific provisions provide for a bus depot as a permitted activity.

<b>Evaluation 35</b>	
Ev 35.3	The site continues to be used as a bus depot. That use is protected by existing use rights.
Ev 35.4	Therefore the site specific provisions are proposed to be removed except for the specific noise standards, which are proposed to be retained.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 35.5	No RMA purpose is served by the site specific provisions, except for the noise provisions, which are proposed to be retained.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 35.6	Removing the provisions would have no significant effect.
<b>Costs</b>	
Ev 35.7	Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 35.8	The proposed provisions of General Residential would provide sufficient certainty.
<b>Efficiency and Effectiveness</b>	
Ev 35.9	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 35.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 35.11	The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no resource management purpose.

**Table 49: Evaluation 36 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 36</b>	
<b>Cnr Main Road/Burden Avenue, Wainuiomata (App Gen Res 10)</b>	
Bus depot is permitted activity	
<b>Why these provisions are included in the plan</b>	
Ev 36.1	This site was scheduled in the District Plan that became operative in 2003.
Ev 36.2	The site specific provisions provide for a bus depot as a permitted activity.
Ev 36.3	The site continues to be used as a bus depot. That use is protected by existing use rights.
Ev 36.4	Therefore the site specific provisions are proposed to be removed except for the specific noise standards, which are proposed to be retained.
<b>How these provisions achieve the purpose of the RMA</b>	

<b>Evaluation 36</b>
Ev 36.5 No RMA purpose is served by the site specific provisions, except for the noise provisions, which are proposed to be retained.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 36.6 Removing the provisions would have no significant effect.
<b>Costs</b>
Ev 36.7 Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 36.8 The proposed provisions of General Residential would provide sufficient certainty.
<b>Efficiency and Effectiveness</b>
Ev 36.9 The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 36.10 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 36.11 The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no resource management purpose.

**Table 50: Evaluation 37 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 37</b>
<b>155-157 Waterloo Road, Hutt Central (App Gen Res 11)</b>
Emergency facilities are permitted activities
<b>Why these provisions are included in the plan</b>
Ev 37.1 This site was scheduled in the District Plan that became operative in 2003.
Ev 37.2 The site specific provisions provide for emergency facilities as a permitted activity.
Ev 37.3 The site is no longer used as a fire station.
Ev 37.4 The site is listed by Heritage NZ but not is listed in the District Plan as a heritage site.
Ev 37.5 No resource management purpose is served by continuing the site specific provisions.
<b>How these provisions achieve the purpose of the RMA</b>
Ev 37.6 No RMA purpose is served by the site specific provisions.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 37.7 Removing the provisions would have no significant effect.



<b>Evaluation 37</b>
<b>Costs</b>
Ev 37.8 Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 37.9 The proposed provisions of General Residential provide sufficient certainty.
<b>Efficiency and Effectiveness</b>
Ev 37.10 The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 37.11 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 37.12 The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.

**Table 51: Evaluation 38 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 38</b>
<b>20 Bellevue Road, Woburn (App Gen Res 13)</b>
Educational activities and buildings directly associated with the existing school are permitted, subject to more restrictive bulk and location provisions.
<b>Why these provisions are included in the plan</b>
Ev 38.1 This site was scheduled in the District Plan that became operative in 2003 as a result of an appeal and subsequent Environment Court consent order (DIV/14/7988).
Ev 38.2 The site specific provisions provide for specific education activities with additional setback and height restrictions.
Ev 38.3 The site abuts a Special Residential Activity Area and forms part of the existing school site at 65 Laings Road (Sacred Heart College). As a state-integrated school the site does not have the benefit of a designation.
Ev 38.4 The site is protected by existing use rights.
Ev 38.5 No resource management purpose is served by continuing the site specific provisions.
<b>How these provisions achieve the purpose of the RMA</b>
Ev 38.6 No RMA purpose is served by the site specific provisions.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 38.7 Removing the provisions would have no significant effect.

<b>Evaluation 38</b>
<b>Costs</b>
Ev 38.8 Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 38.9 The proposed provisions of General Residential provide sufficient certainty.
<b>Efficiency and Effectiveness</b>
Ev 38.10 The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 38.11 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 38.12 The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.

**Table 52: Evaluation 39 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 39</b>
<b>Land South Of Belmont School (App Gen Res 14)</b>
Additional permitted activity condition relating to position and floor level of buildings
<b>Why these provisions are included in the plan</b>
Ev 39.1 This site was scheduled in the District Plan that became operative in 2003.
Ev 39.2 The site specific provisions apply additional permitted activity conditions as follows: <ul style="list-style-type: none"> <li>• all buildings and structures must be sited within the area shown on Appendix General Residential 14, and</li> <li>• have a floor level set at a minimum of 13.5m above sea level.</li> </ul>
Ev 39.3 The site is situated in the Primary and Secondary River Corridor and within the Wellington Faultline Special Study Area, which trigger resource consent for built development. These provisions appropriately manage the site so there is no additional resource management purpose for the site specific provisions.
Ev 39.4 The site specific provisions are therefore proposed to be deleted.
<b>How these provisions achieve the purpose of the RMA</b>
Ev 39.5 No RMA purpose is served by the site specific provisions.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 39.6 Removing the provisions would have no significant effect.
<b>Costs</b>

<b>Evaluation 39</b>
Ev 39.7 Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 39.8 The proposed provisions of General Residential provide sufficient certainty.
<b>Efficiency and Effectiveness</b>
Ev 39.9 The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 39.10 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 39.11 The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.

**Table 53: Evaluation 40 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 40</b>
<b>Corner of Hutt Road and Te Mome Road</b>
Any industrial activity in the industrial building is a controlled activity with matters of control relating to duration of activity, hours of operation, glare and light spill, odour, vibration and retailing.
<b>Why these provisions are included in the plan</b>
Ev 40.1 The site specific provisions were proposed in the 1994 Proposed Plan and made operative in 2003.
Ev 40.2 The provisions make any industrial activity in an industrial building a controlled activity. Any retailing is supposed to be “ancillary to the manufacturing industry”.
Ev 40.3 The site is currently used for retail (The Music Warehouse) with associated servicing.
Ev 40.4 The retail activity is not authorised by the site specific provisions or the underlying General Residential Activity Area.
Ev 40.5 Council granted resource consent (RM20-H70-478) in 1998 for the repair and maintenance of instruments and associated retail sales
Ev 40.6 No RMA purpose is served by the site specific provisions including the site specific noise standards. Therefore they are proposed to be removed.
<b>How these provisions achieve the purpose of the RMA</b>
Ev 40.7 No RMA purpose is served by the site specific provisions.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 40.8 Removing the provisions would have no significant effect.
<b>Costs</b>

<b>Evaluation 40</b>
Ev 40.9 Removing the provisions would have no significant effect.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 40.10 The proposed provisions of General Residential provide sufficient certainty.
<b>Efficiency and Effectiveness</b>
Ev 40.11 The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 40.12 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 40.13 The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.

**Table 54: Evaluation 41 – Scheduled Sites Proposed to be Excluded**

<b>Evaluation 41</b>
<b>10 Bauchop Road</b>
Any industrial activity is a controlled activity with matters of control relating to duration of activity, hours of operation, glare and light spill, odour, vibration and retailing.
<b>Why these provisions are included in the plan</b>
Ev 41.1 Site specific provisions have been in place since at least 1983. The current site provisions enable any industrial activity as a controlled activity.
Ev 41.2 The current use of the site is indeterminate. In 2016 Council received an enquiry about the use of the site for a home occupation. Continuous industrial use would have been protected by existing use rights. However, in the absence of continued use, existing use rights appear to have lapsed.
Ev 41.3 Industrial use of the site has the potential to be incompatible with the amenity of the surrounding residential neighbourhood.
Ev 41.4 The site specific provisions including noise provisions are proposed to be deleted, with future use assessed against the provisions of the General Residential Activity Area.
<b>How these provisions achieve the purpose of the RMA</b>
Ev 41.5 No RMA purpose is served by the site specific provisions.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 41.6 Removing the provisions would have no significant effect.
<b>Costs</b>
Ev 41.7 Removing the provisions would have no significant effect.

<b>Evaluation 41</b>	
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 41.8	The proposed provisions of General Residential provide sufficient certainty.
<b>Efficiency and Effectiveness</b>	
Ev 41.9	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 41.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 41.11	The alternative of retaining the site specific provisions would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.

## Definitions

### *Evaluation of Changes to Chapter 3 Definitions*

338. The proposed changes to the Definitions chapter are evaluated below.

339. The following definitions are proposed to be deleted.

- Allotment;
- Critical Facility;
- Living Court;
- Non-residential Activity.

**Table 55: Evaluation 42 – Definitions - Deleted**

<b>Evaluation 42</b>	
<b>Allotment:</b>	<del>shall have the meaning set out in Section 218 of the Resource Management Act 1991.</del>
<b>Critical Facility:</b>	<del>any facility which provides critical services and includes ambulance, fire and police stations, and hospitals.</del>
<b>Living Court:</b>	<del>a part of a net site area set aside for outdoor activities which is required to be unoccupied and unobstructed by buildings, pedestrian accessways or parking areas except as otherwise provided for in this Plan.</del>
<b>Non-residential Activity:</b>	<del>the use of land and buildings for any activity within a residential or rural activity area which does not fall under the definition of residential activity and which does not meet the conditions for a home occupation.</del>
<b>Why these provisions are included in the plan</b>	
Ev 42.1	<b>Allotment</b> is sufficiently defined in the RMA. Terms defined in other legislation should only be redefined in the District Plan for a compelling resource management purpose. The reference is therefore proposed to be deleted
Ev 42.2	The definition for <b>Critical Facility</b> is almost identical to the definition for Emergency Facility. The only difference is that Critical Facility covers hospitals.

<b>Evaluation 42</b>	
	The term Critical Facility is referred to twice only in the Plan. The proposal is therefore to delete the definition for Critical Facility and replace any references to Critical Facility with Hospital.
Ev 42.3	The term <b>Living Court</b> is used only once in Chapter 17 and is proposed to be replaced by the new definition and concept of Outdoor Living Space.
Ev 42.4	The definition for <b>Non-residential Facility</b> is circular and does not add any value. It is therefore proposed to be deleted.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 42.5	Clear definitions assist with the orderly administration of the District Plan.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 42.6	Removing unnecessary definitions reduces the complexity of the Plan.
<b>Costs</b>	
Ev 42.7	Deleting the definitions would have no significant costs.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 42.8	The remaining definitions provide sufficient certainty
<b>Efficiency and Effectiveness</b>	
Ev 42.9	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 42.10	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 42.11	The alternative of retaining the definition would forego the opportunity to reduce the complexity and clutter of the existing Plan, for no significant resource management purpose.
Ev 42.12	A glossary linked to but not part of the Plan can be a useful guide to terms and avoids Plan users having to refer to legislation and other primary sources of terms.

340. The following amendments propose the introduction of new definitions of terms that are introduced by this plan change or have not been defined previously:

- Communal Carparking;
- Comprehensive Residential Development;
- Home Occupation;
- Minor Additional Dwelling;
- Outdoor Living Space.

**Table 56: Evaluation 43 – Definitions - Added**

<b>Evaluation 43</b>	
	<p><b>Communal Carparking:</b> means an area or building providing carparking for the exclusive use of residents of a mixed use, multi-unit, or comprehensive residential development, where those residents have direct and legal access.</p>
	<p><b>Comprehensive Residential Development:</b> a development of three or more dwellings that is designed and planned in an integrated manner, on a site of at least 1400m<sup>2</sup>. The development may incorporate accessory buildings, infrastructure, landscaping, communal open space and communal carparking.</p>
	<p><b>Home Occupation</b> any occupation, profession, business, or service undertaken within a residential house or accessory building by a person who permanently resides in that residential house, and which is secondary to the use of the site for residential purposes.</p>
	<p><b>Minor Additional Dwelling:</b> a dwelling that is located on the same site as and secondary to a primary dwelling and has a gross floor area that does not exceed 50m<sup>2</sup>.</p>
	<p><b>Outdoor Living Space:</b> an area of open space which is set aside for the exclusive use of the occupants of the dwelling to which it relates and which is required to be unoccupied and unobstructed by buildings, pedestrian accessways or parking or manoeuvring areas.</p>
<b>Why these provisions are included in the plan</b>	
Ev 43.1	The definitions of the above terms are required for the Plan's ease of use and efficient administration.
Ev 43.2	The terms and concepts of <b>Communal Carparking, Comprehensive Residential Development Minor Additional Dwelling and Outdoor Living Space</b> have been introduced as part of this plan change. The addition of relevant definitions will provide clarity and certainty to plan users.
Ev 43.3	The concept of <b>Comprehensive Residential Development</b> is introduced by this plan change to provide for more intensive development on larger sites in the General Residential Activity Area while controlling the external effects and protecting the amenity of surrounding properties.  A minimum site size of 1400m <sup>2</sup> has been included in the definition to avoid smaller sites being proposed for Comprehensive Residential Development.
Ev 44.1	A maximum size of 50m <sup>2</sup> has been included in the definition for <b>Minor Additional Dwelling</b> to provide certainty regarding the maximum size of Minor Additional Dwellings and avoid interpretations that argue that even a significantly bigger dwelling could still be assessed as minor.
Ev 44.2	The term and concept of <b>Home Occupation</b> is not new but despite the fact that it has been used for a long time there is no definition in the Plan. Adding the definition will provide clarity and certainty to plan users.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 44.3	Clear definitions assist with the orderly administration of the District Plan.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 44.4	Adding the above new definitions provides certainty and improves the usability of

<b>Evaluation 43</b>	
the Plan.	
<b>Costs</b>	
Ev 44.5	Adding the above definitions would have no significant costs.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 44.6	The proposed definitions provides sufficient certainty
<b>Efficiency and Effectiveness</b>	
Ev 44.7	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 44.8	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 44.9	Relying on the common dictionary meaning of the terms would not provide sufficient clarity for Plan users.

341. The following amendments are minor changes to existing definitions that are intended to improve clarity without making substantial changes to the meaning:

- Boarding House;
- Boundary;
- Childcare Facility;
- Community Activities/Facilities;
- Emergency Facility;
- Housing for the Elderly/Retirement Village;
- Permeable Surfaces;
- Residential Activity;
- Residential Facility;
- Retail Activity;
- Site Coverage;
- Visitor Accommodation;
- Yard.

**Table 57: Evaluation 44 – Definitions – Minor Amendments**

<b>Evaluation 44</b>	
<b>Boarding House:</b>	<del>building or buildings providing permanent or semi-permanent accommodation for more than five boarders/lodgers for profit.</del> <u>as defined in Section 66B of the Residential Tenancies Act 1986.</u>
<b>Boundary:</b>	<del>any boundary of the net site area and includes any road boundary or</del>



## Evaluation 44

	<p><del>internal boundary.</del></p> <p><del><b>Internal boundary</b> means any boundary of the net area of the site other than a road boundary.</del></p> <p><del><b>Road boundary</b> means any boundary of a site abutting a legal road (other than an accessway or service lane) or contiguous to a boundary of a road designation. Frontage or road frontages shall have the same meaning as road boundary.</del></p> <p><del>The legal boundary of a site.</del></p>
<b>Childcare Facility:</b>	<p><del>a facility the use of land or buildings for the care and/or education of children including crèche, day care centre, kindergarten, Kohanga Reo, playcentre, playgroups and day nurseries; such facilities shall not provide for overnight stays.</del></p>
<b>Community Activities/Facilities:</b>	<p><del>these the use of land or buildings for activities which provide for the social and cultural needs of the community; and includes libraries, halls, plunket rooms and childcare facilities.</del></p>
<b>Emergency Facility:</b>	<p><del>any service the use of land or buildings for activities which provides critical services and including fire, ambulance and police stations, and civil defence emergency management facilities.</del></p>
<b>Permeable Surface:</b>	<p><del>Any part of a site which is grassed or planted in trees or shrubs and/or is capable of absorbing water or is covered by decks which allow water to drain through to a permeable surface. It does not include any area which:</del></p> <p><del>(a) falls within the definition of site coverage except for decks as above;</del></p> <p><del>(b) is occupied by swimming pools; or</del></p> <p><del>(c) is paved with a continuous surface.</del></p> <p><del>Any part of a site with a surface which allows for the soakage of water into the ground, including:</del></p> <p><del>(a) areas grassed or planted in trees or shrubs, gardens and other vegetated areas;</del></p> <p><del>(b) porous or permeable paving;</del></p> <p><del>(c) living roofs; and</del></p> <p><del>(d) decks which allow water to drain through to a permeable surface.</del></p> <p><del><b>But excluding:</b></del></p> <p><del>(a) any area which falls within the definition of site coverage except for decks and living roofs, as above;</del></p> <p><del>(b) swimming pools; and</del></p> <p><del>(c) any area paved, sealed or compacted to a continuous, non-permeable surface.</del></p>
<b>Residential Activity:</b>	<p><del>the use of land and buildings for any domestic/living purposes by people living in the building, but does not include home occupations or non-residential activities.</del></p> <p><del>the use of land and buildings by people for living purposes.</del></p>
<b>Residential Facility:</b>	<p><del>a building or buildings and The use of land and buildings for activities</del></p>

## Evaluation 44

providing:

- (a) residential support/care;
- (b) respite care; and
- (c) therapeutic/rehabilitation services;

**but which excludes:**

- (a) ~~dwelling~~ house ~~(including residential facilities for up to and including seven people);~~
- (b) care facilities;
- (~~b~~c) detention facilities;
- (~~e~~d) visitor accommodation;
- (~~e~~) health care service; and
- (~~e~~f) boarding houses.

**Retail Activity:**

any activity which involves display, sale or hire of goods direct to the public; and includes restaurants, cafes and takeaway food premises, off-licences, auction rooms, hair dressers, laundries and dry cleaners; but excludes service stations, commercial garages, and car sales yards, video parlours and licensed premises.

**Site Coverage:**

~~that the~~ portion of a site which is covered by any buildings, accessory buildings and overhanging or cantilevered parts of buildings. The eaves of a building up to a maximum depth of 0.6m shall be excluded from this measurement.

**Visitor Accommodation:**

~~any building or buildings offering temporary accommodation and includes (but is not limited to) motels, tourist houses, backpackers accommodation, hostels and youth hostels. It does not include motor camps or camping grounds, and board and lodging facilities for up to and including five people.~~

the commercial use of land and buildings for the accommodation of tourists and short stay visitors away from their normal place of residence.

**Yard:**

any part of a ~~net site area~~ which is ~~unoccupied~~ must be kept clear and unobstructed by buildings except as otherwise provided by this Plan. Yards shall be measured in a horizontal plane and at right angles to ~~from~~ the boundaries ~~of the net site area.~~

**Front Yard:** ~~an~~ the area of land between the ~~road line~~ front boundary of the site and a line parallel to that boundary and extending the full width of the site; for the purposes of a corner site or a through site, there shall be two front yards;

**Rear Yard:** ~~an~~ the area of land between the rear boundary of the site and a line parallel to that boundary and extending across the full width of the site;

**Side Yard:** ~~an~~ the area of land between a side boundary of the site and a line parallel to that boundary and extending across the full length of the site but excluding those areas comprised by a front or rear yard;

(a) ~~from the front yard to the rear yard; or~~

(b) ~~if there is no front yard, from the front boundary of the site to the rear yard; or)if there is no rear yard, from the front yard or~~

## Evaluation 44

~~boundary, as the case may be, to the rear boundary of the site; or  
(c) — if there are two or more front yards, from yard to yard.~~  
for the purposes of a corner site, there shall be one side yard.

### Why these provisions are included in the plan

- Ev 44.1 The current definition for **Boarding House** is very similar but not identical with the definition for Boarding House in Section 66B of the Residential Tenancies Act 1986. Terms defined in other legislation should only be redefined in the District Plan for a compelling resource management purpose.
- Ev 44.2 The current definition for **Boundary** is not clear. It is proposed to retain a definition for boundary as it is included in list of definitions proposed by the Draft National Planning Standards. The proposed rewording is intended to reduce the complexity of the Plan.
- Ev 44.3 The definitions for **Childcare Facility, Community Facility, Emergency Facility and Residential Facility** are proposed to be amended by replacing references to facilities, services, activities and buildings with a reference to ‘the use of land and buildings’. This is intended to reflect that the definitions refer primarily to the activity not the built structure. The definition for **Residential Facility** has also been amended to reflect a change to the definition for dwelling house which is discussed below.
- Ev 44.4 The proposed definition for Permeable Surface is more comprehensive than the current definition. The update is appropriate as it provides more certainty and reflects the increasing importance of permeable surfaces in addressing stormwater runoff from more intense developments.
- Ev 44.5 The proposed change to the definition for **Residential Activity** simplifies and declutters the current definition and is important in light of recent changes to the RMA.
- Ev 44.6 It is proposed to amend the definition for **Retail Activity** to no longer exclude video parlours and licensed premises. The exclusion of these specific activities from retail does not address any RMA issues and is therefore considered inappropriate. Any resulting unintended changes to chapters that are not being reviewed by this plan change have been addressed by consequential changes to retain the status quo.
- Ev 44.7 The proposed changes to **Site Coverage** move reference to “accessory buildings and overhanging or cantilevered parts of the buildings” from development standards and permitted activity conditions to the definition to avoid unnecessary repetition.
- Ev 44.8 The new definition for **Visitor Accommodation** is clearer and more flexible regarding new forms of Visitor Accommodation that were neither included nor excluded in the current definition.
- Ev 44.9 The proposed changes to the **Yard** aim to clarify the definition and avoid uncertainty. However some inconsistencies and ambiguities could not be corrected to avoid unintentional consequential changes to chapters that are not under review by this plan change.

<b>Evaluation 44</b>
<b>How these provisions achieve the purpose of the RMA</b>
Ev 44.10 Clear definitions assist with the orderly administration of the District Plan.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 44.11 Amending the definitions would improve the clarity of the definitions and the usability of the Plan.
<b>Costs</b>
Ev 44.12 Amending the definitions would have no significant costs.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 44.13 The proposed definitions provide sufficient certainty
<b>Efficiency and Effectiveness</b>
Ev 44.14 The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 44.15 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 44.16 No other reasonably practicable options are identified.

342. The following amendments propose more substantial changes to existing definitions and are therefore evaluated in more detail.

Building/ Structure, Dwelling/Dwelling House/Care Facility, Height, Housing for the Elderly/Retirement Village, Recession Plane, Site,

**Table 58: Evaluation 45 – Definitions – Building / Structure**

<b>Evaluation 45</b>
<b>Building / Structure:</b> means any <u>building or structure</u> or part of a <u>building or structure</u> , whether temporary or permanent, movable or immovable, but for the purposes of this Plan excludes:
(a) any fence <u>or wall</u> not exceeding 2 metres in height;
(b) any retaining wall not exceeding 1.2 metres in height;
(c) satellite dishes with a diameter not exceeding 0.6m;
(d) decks less than 500mm in height;
(e) all structures less than 1.2 metres in height;
(f) all signs, as defined in this Plan;
(g) <u>any scaffolding or falsework erected temporarily for construction or maintenance purposes.</u>
<b>Structure:</b> see <u>Building / Structure</u>
<b>Why these provisions are included in the plan</b>

<b>Evaluation 45</b>	
Ev 45.1	The definitions of building/structure available in the Building Act and the Oxford English Dictionary are broad and unsatisfactory for resource management purposes. Too many matters would trigger resource consent. The terms are therefore defined in the Plan.
Ev 45.2	The term 'structure' is used throughout the plan but not defined and causes confusion for Plan users and decision makers.
Ev 45.3	The existing definition is therefore amended to incorporate 'structure'. A cross-reference from 'structure' is also included to guide Plan users.
Ev 45.4	Under the current definition scaffolding would be a building/structure and thereby require resource consent in certain cases. It is therefore proposed to be added to the list of exclusions.
Ev 45.5	'Wall' has been added to the exclusion of fence to avoid confusion about a fence on top of a wall.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 45.6	Clear definitions assist with the orderly administration of the District Plan.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 45.7	Amending the definition would improve the clarity of the definition and usability of the Plan.
<b>Costs</b>	
Ev 45.8	Amending the definition would have no significant costs.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 45.9	The proposed definition provides sufficient certainty
<b>Efficiency and Effectiveness</b>	
Ev 45.10	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 45.11	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 45.12	No other reasonably practicable options are identified.

**Table 59: Evaluation 46 – Definitions – Dwelling / Dwelling House / Care Facility**

<b>Evaluation 46</b>	
<b>Dwelling House:</b>	<del>a building or unit within a building providing self-contained residential accommodation for a person, a family or non-family group and includes a foster home, women's refuge, accommodation for up to five boarders/lodgers and residential facilities for up to and including seven people but excludes:</del>

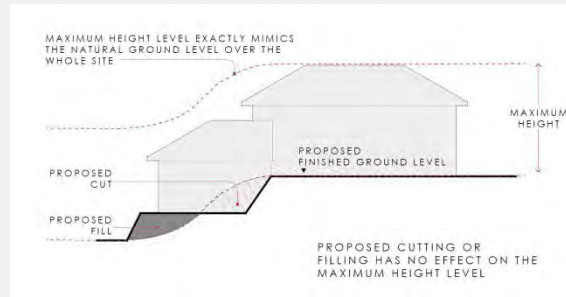
<b>Evaluation 46</b>	
	<p>(a) <del>detention facilities;</del></p> <p>(b) <del>visitor accommodation;</del></p> <p>(c) <del>health care service; and</del></p> <p>(d) <del>boarding houses.</del></p>
<b>Dwelling:</b>	<p>a building or unit within a building that is used or designed to be used as a single household residence and:</p> <p>(a) is a self-contained unit;</p> <p>(b) includes kitchen and bathroom facilities.</p>
<b>Care Facility:</b>	<p>The use of land and buildings for activities which provide small scale residential care, including:</p> <p>(a) foster homes</p> <p>(b) women's refuge</p> <p>(c) accommodation for up to five boarders/lodgers</p> <p>(d) residential support/care for up to and including seven people;</p> <p>(e) respite care for up to and including seven people ; and</p> <p>(f) therapeutic/rehabilitation services for up to and including seven people;</p> <p><b>but excluding:</b></p> <p>(a) detention facilities;</p> <p>(b) visitor accommodation;</p> <p>(c) health care service; and</p> <p>(d) boarding houses.</p>
<b>Why these provisions are included in the plan</b>	
Ev 46.1	The current definition for Dwelling House is a confusing mixture and does not differentiate clearly between activities and built development.
Ev 46.2	It is proposed to replace the existing definition for Dwelling House with two new definitions for Dwelling (covering the built development) Care Facility (covering the activities)
Ev 46.3	The proposed definition for Dwelling relates solely to residential building or unit while all activities that were previously covered by Dwelling House are clearly separated out and defined as Care Facilities.
Ev 46.4	The proposed amendments result in consequential changes to other chapters to ensure that the existing provisions in chapter that are not being reviewed by this plan change remain unchanged.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 46.5	Clear definitions assist with the orderly administration of the District Plan.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 46.6	Amending the definition would improve the clarity of the definition and usability of

<b>Evaluation 46</b>
the Plan.
<b>Costs</b>
Ev 46.7 Amending the definition would have no significant costs.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 46.8 The proposed definition provides sufficient certainty
<b>Efficiency and Effectiveness</b>
Ev 46.9 The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 46.10 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 46.11 No other reasonably practicable options are identified.

**Table 60: Evaluation 47 – Definitions - Height**

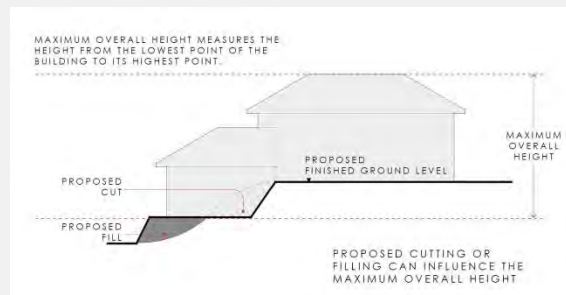
<b>Evaluation 47</b>	
<b>Height:</b>	<p><b>Maximum Height</b> <u>in relation to buildings and structures</u> shall be the <del>perpendicular</del> <u>vertical</u> distance <u>between</u> the <del>lowest</del> ground level at any point and the highest part of the <u>building or structure</u> immediately above that point (<u>rolling height method</u>).</p> <p>(a) For the purposes of calculating maximum height, ground level shall be deemed to be:</p> <p>(i) the natural level of the ground or the finished level of the ground as a result of an approved subdivision, and shall not include earthworks which have resulted or will result from work undertaken as part of the construction of any building or development of the site.</p> <p>(ii) where the natural ground level has fluctuated over time, as a direct result of nature, the natural ground level will be the level that exists at the time the level has to be ascertained.</p> <p>(b) When calculating maximum height the following shall be excluded:</p> <p>(i) satellite dishes with a diameter not exceeding 0.6m, flagpoles, finials or other similar decorative features, <u>chimneys, flues and ventilation shafts</u> where the maximum height is not more than <del>3.0</del> <u>1.5</u>m above the maximum height permitted for the activity area.</p> <p><del>(ii) chimneys, flues and ventilation shafts.</del></p> <p>(iii) lightning rods attached to network utilities.</p>

## Evaluation 47



**Maximum Overall Height** in relation to buildings and structures shall be the vertical distance between the lowest ground level of the building or structure and the highest part of the building or structure immediately above that point.

- (a) For the purposes of calculating maximum overall height, ground level shall be deemed to be the lowest of the following levels:
  - (i) the finished level of the ground as a result of an excavation for building construction works.
  - (ii) the finished level of the ground as a result of any other works.
- (b) When calculating maximum overall height the following shall be excluded:
  - (i) satellite dishes with a diameter not exceeding 0.6m, flagpoles, finials or other similar decorative features and chimneys, flues and ventilation shafts where the maximum height is not more than ~~3.0~~1.5m above the maximum height permitted for the activity area.
  - ~~(ii) chimneys, flues and ventilation shafts.~~
  - (iii) lightning rods attached to network utilities.



Note: Compliance with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP34:2001) is mandatory under the Electricity Act 1992. All activities regulated by NZECP34, including buildings, structures, earthworks and the operation of mobile plant, must comply with that regulation. Activities should be checked for compliance even if they are permitted by the District Plan.

### Why these provisions are included in the plan

- Ev 48.1 The word perpendicular has 2 different dictionary meanings/definitions: it can be interpreted either as “at a right angle to” or as “vertical”.
- Ev 48.2 The current Appendix/Diagram explaining height is confusing as it lacks any ground level and referencing points.



<b>Evaluation 47</b>	
Ev 48.3	It is proposed to replace perpendicular with vertical and add a new diagram to illustrate the rolling height method which is in line with other councils.
Ev 48.4	It is also proposed to tidy up the exceptions and restrict the maximum height above the permitted height for those exemptions to 1.5m (from 3m).
Ev 48.5	The current wording of the definition for Maximum Overall Height is conflicting with the relevant diagram.
Ev 48.6	It is proposed to correct the wording to reflect the diagram and bring it in line with the current interpretation when assessing resource consent applications.
Ev 48.7	As above it is also proposed to tidy up the exceptions and restrict the maximum height above the permitted height for those exemptions to 1.5m (from 3m).
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 48.8	Clear definitions assist with the orderly administration of the District Plan.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 48.9	Amending the definition would improve the clarity of the definition and usability of the Plan.
<b>Costs</b>	
Ev 48.10	Amending the definition would have no significant costs.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 48.11	The proposed definition provides sufficient certainty
<b>Efficiency and Effectiveness</b>	
Ev 48.12	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 48.13	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 48.14	No other reasonably practicable options are identified.

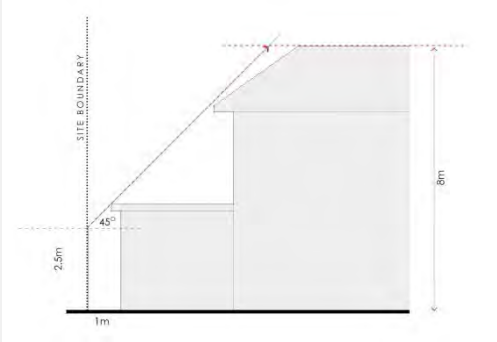
**Table 61: Evaluation 48 – Definitions – Retirement Village / Housing for the Elderly**

<b>Evaluation 48</b>
<p><b>Housing for the Elderly:</b> <del>a building or part of a building used as a home under the Old People's Homes Regulations 1987 or any Regulation in substitution thereof. It includes old people's homes, rest homes, pensioner housing developments, retirement villages and associated ancillary facilities such as medical, recreational and other communal facilities which offer an exclusive service to the residents of the Home for the Elderly.</del></p> <p style="text-align: center;"><u>See Retirement Village</u></p> <p><b>Retirement Village / Housing for the Elderly:</b> A managed comprehensive residential development used to provide</p>

<b>Evaluation 48</b>	
	<u>accommodation for aged people, including recreation, leisure, supported residential care, welfare and medical facilities and other related non-residential activities.</u>
<b>Why these provisions are included in the plan</b>	
Ev 48.1	It is proposed to replace the existing definition for Housing for the Elderly with a new definition for Retirement Village / Housing for the Elderly
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 48.2	Clear definitions assist with the orderly administration of the District Plan.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 48.3	Amending the definition would improve the clarity of the definition and usability of the Plan.
<b>Costs</b>	
Ev 48.4	Amending the definition would have no significant costs.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 48.5	The proposed definition provides sufficient certainty
<b>Efficiency and Effectiveness</b>	
Ev 48.6	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 48.7	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 48.8	No other reasonably practicable options are identified.

**Table 62: Evaluation 49 – Definitions – Recession Plane**

<b>Evaluation 49</b>	
<b>Recession Plane:</b>	<p><u>a control relating to the receipt of natural light by adjoining sites; controls the height of a building or structure relative to its distance from the boundary of the site. The allowable height increases as the distance from the boundary increases up to the maximum height allowed.</u></p> <p><u>The Recession Plane is measured by lines that proceed at a prescribed angle (e.g. 45°) from the horizontal, measured from any point at a prescribed height (e.g. 2.5m) vertically above ground level along site boundaries. The angle of the recession plane and the height of the starting point vary by Activity Area.</u></p> <p><u>‡This control does not apply to chimneys, finials or other similar decorative features, flues and ventilation shafts, antennas, satellite dishes with a diameter not exceeding 0.6m and flagpoles.</u></p> <p><u>Where the site boundary is immediately adjacent to an access leg to a</u></p>

<b>Evaluation 49</b>	
	<p><u>rear site the Recession Plane is calculated from the outside boundary of the access leg.</u></p>  <p>The diagram illustrates a site boundary on the left. A horizontal line represents the ground level. A vertical line of 2.5m height is shown. A horizontal line of 1m extends from the base of this vertical line. A diagonal line representing a 45-degree recession plane starts from the top of the 2.5m vertical line and extends to the right. A horizontal dashed line is drawn from the top of the 1m horizontal line to the right. A vertical dashed line of 8m height is shown on the right side of the diagram. A red dot is marked at the intersection of the 45-degree line and the horizontal dashed line.</p>
<b>Why these provisions are included in the plan</b>	
Ev 49.1	Current definition is not very clear, especially with the related diagram being located in the residential chapter as an appendix.
Ev 49.2	New definition tries to explain the concept more comprehensively and include a diagram in the definition.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 49.3	Clear definitions assist with the orderly administration of the District Plan.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 49.4	Amending the definition would improve the clarity of the definition and usability of the Plan.
<b>Costs</b>	
Ev 49.5	Amending the definition would have no significant costs.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 49.6	The proposed definition provides sufficient certainty
<b>Efficiency and Effectiveness</b>	
Ev 49.7	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 49.8	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 49.9	No other reasonably practicable options are identified.

**Table 63: Evaluation 50 – Definitions - Site**

<b>Evaluation 50</b>	
<b>Site:</b>	<p>1. <del>an area of land which is</del></p> <p>(a) <del>comprised in a single allotment, or other legally defined</del></p>

## Evaluation 50

~~parcel of land and held in a single certificate of title; or~~

~~(b) comprised in a single allotment or legally defined parcel of land for which a separate certificate of title could be issued without the further consent of Council;~~

~~2. any area of land which comprises two or more adjoining legally defined parcels of land held together in one certificate of title in such a way that the lots cannot be dealt with separately without prior consent of the Council; or~~

~~3. an area of land which comprises two or more adjoining certificates of title where such titles are:~~

~~(a) subject to a condition imposed under section 37 of the Building Act 1991 or section 643 of the Local Government Act 1974 incapable of being legally disposed of separately; or~~

~~(b) held together in such a way that they cannot be dealt with separately without the prior consent of Council;~~

~~**except** that site shall have the following meaning in the cases as set out in 4 to 6 below.~~

~~4. In the case of land subdivided under the cross lease or company lease systems (other than strata titles), site shall mean an area of land containing:~~

~~(a) a building or buildings for residential or business purposes with any accessory building(s), plus any land exclusively restricted to the users of that/those building(s); or~~

~~(b) a remaining share or shares in the fee simple creating a vacant part(s) of the whole for future cross lease or company lease purposes;~~

~~and~~

~~5. In the case of land subdivided under the Unit Titles Act 1972 (other than strata titles), site shall mean an area of land containing a principal unit on a unit plan together with its accessory units; and~~

~~6. In the case of strata titles, site shall mean the underlying certificate of title of the entire land containing the strata titles, immediately prior to the subdivision.~~

Any area of land which meets one of the descriptions set out below:

1. an area of land comprised in:

(a) a single computer freehold register; or

(b) a single allotment for which a separate computer freehold register could be issued without further involvement of, or prior consent from, the Council;

whichever is the smaller.

2. an area of land comprised in two or more contiguous allotments:

(a) that are subject to a certificate issued under Section 75(2) of the Building Act 2004, Section 37(2) of the Building Act 1991, section 643(2) of the Local Government Act 1974, or any equivalent legislation; or

## Evaluation 50

(b) that cannot be transferred or leased independently of each other without the Council's prior consent.

3. an area of land:

(a) comprised in two or more computer freehold registers; and

(b) for which two or more separate computer freehold registers could be issued without further involvement of, or prior consent from, the Council;

where the land will be amalgamated into a single computer freehold register as part of the resource consent process.

4. in the case of land that is subject to a unit title, cross-lease, or company lease development, the area of land comprising the original parcel that was subdivided, leased or licenced (as the case may be) to create the unit title, cross-lease or company lease development.

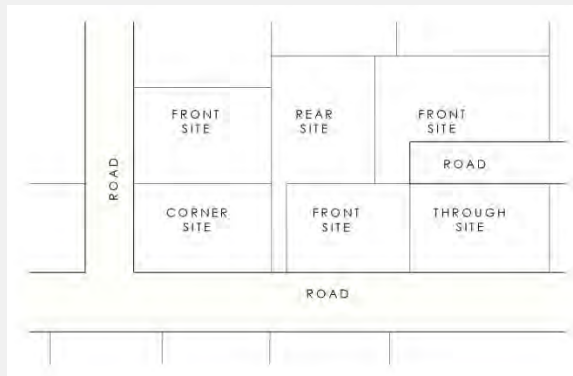
Site shall also include the access to the site.

**Front Site:** a site having frontage to a legal road of not less than ~~the~~ ~~minimum required~~ 6m.

**Corner Site:** a site which lies within a general change of direction of abutting roads.

**Through Site:** a site having 2 or more road frontages, other than a corner site.

**Rear Site:** a site situated to the rear of another site ~~or a site not~~ ~~and~~ having ~~the required~~ a frontage for a "Front Site" of less than 6m.



### Why these provisions are included in the plan

- Ev 50.1 Current definition is not very clear.
- Ev 50.2 Under the current definition for unit title any common/shared areas are not covered by the definition for site, so no provisions apply.
- Ev 50.3 Current provisions relating to unit titles, cross lease and strata titles only work in conjunction with the use of net site area throughout the plan. However it is the intention of the plan change to avoid net site area.
- Ev 50.4 Auckland does not use net site area and has a reverse definition for cross lease and unit titles.
- Ev 50.5 Any references to "certificate of title" should be replaced with "computer freehold register".

<b>Evaluation 50</b>
Ev 50.6 Upper Hutt’s definition is the most recent (2014) and has been legally reviewed.
Ev 50.7 Regional Consistency
Ev 50.8 Tidy up and add diagram for front, rear, site, and through site.
<b>How these provisions achieve the purpose of the RMA</b>
Ev 50.9 Clear definitions assist with the orderly administration of the District Plan.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 50.10 Amending the definition would improve the clarity of the definition and usability of the Plan.
<b>Costs</b>
Ev 50.11 Amending the definition would have no significant costs.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 50.12 The proposed definition provides sufficient certainty
<b>Efficiency and Effectiveness</b>
Ev 50.13 The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 50.14 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 50.15 No other reasonably practicable options are identified.

## Subdivision

### *Evaluation of Changes to Chapter 11 Subdivision*

343. The proposed changes to the Subdivision provisions are evaluated below.

**Table 64: Evaluation 51 – Subdivision – 11.1.1 Policies**

<b>Evaluation 51</b>
<u>Policies</u>
(a) To ensure that allotments <u>in lower density residential areas and rural zones</u> have minimum design standards such as, minimum size, shape and frontage, which are suitable for the proposed use or development.
(b) To provide flexibility in lot size, shape and frontage within <u>Commercial, Mixed Use, General Residential and Medium Density Residential Activity Areas to enable diversity of commercial and residential development size and density.</u>
<b>Why these provisions are included in the plan</b>
Ev 51.1 Amend existing policy to refer to lower density zones to reflect changed approach to subdivision in General Residential and Medium Density Residential.

<b>Evaluation 51</b>	
Ev 51.2	Introduce new policy (b) to reflect intention to provide greater flexibility in General Residential, Medium Density Residential and Suburban Mixed Use areas to enable more efficient use of land in existing urban areas and provide for a greater variety in housing types, sizes and forms.
Ev 51.3	Changes to policies are reflected in proposed changes to subdivision standards for the above activity areas.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 51.4	The provisions provide for communities' social, economic and cultural wellbeing.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 51.5	The changes promote development opportunities and efficient use of urban land.
<b>Costs</b>	
Ev 51.6	No significant costs are identified.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 51.7	The information available is sufficient and certain.
<b>Efficiency and Effectiveness</b>	
Ev 51.8	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 51.9	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 51.10	Allotment standards could be specified for all zones.

**Table 65: Evaluation 52 – Subdivision – 11.2.2 Controlled Activities**

<b>Evaluation 52</b>	
<b>11.2.2</b>	<b>Controlled Activities</b>
	All subdivisions in the following activity areas are Controlled Activities except where provided for as Permitted or Discretionary Activities:
	(a) General Residential Activity Area
	(b) Hill Residential Activity Area
	(c) Landscape Protection Residential Activity Area
	(d) Special Residential Activity Area
	<u>(e) Medium Density Residential Activity Area</u>
	(ef) General Business Activity Area
	(fg) Special Business Activity Area
	(gh) Rural Residential Activity Area

<b>Evaluation 52</b>	
	<p>(<del>h</del>i) General Rural Activity Area</p> <p>(i) Suburban Commercial Activity Area</p> <p>(k) Suburban Mixed Use Activity Area</p> <p>(j) Central Commercial Activity Area</p> <p>(<del>k</del>m) Petone Commercial Activity Area 1</p>
<b>Why these provisions are included in the plan</b>	
Ev 52.1	The proposed new Activity Areas need to have an activity status for subdivision and are included in the list of controlled activities for consistency.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 52.2	The consistency of approach with this proposed change assists with the orderly administration of the District Plan.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 52.3	Controlled activity status for subdivision provides certainty of outcome to applicants.
<b>Costs</b>	
Ev 52.4	No significant costs are identified.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 52.5	The information available is sufficient and certain.
<b>Efficiency and Effectiveness</b>	
Ev 52.6	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 52.7	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 52.8	Subdivision in the new activity areas could be given different activity status.

**Table 66: Evaluation 53 – Subdivision – 11.2.2.1 Standards and Terms (a) Allotment Design - General Residential Activity Area**

<b>Evaluation 53</b>	
<b>11.2.2.1 Standards and Terms</b>	
All Controlled Activity subdivisions shall comply with the following Standards and Terms:	
<b>(a) Allotment Design</b>	
The minimum size of an allotment shall exclude rights of way and access legs to a rear site.	
<b>General Residential Activity Area</b>	



## Evaluation 53

Minimum size of allotment: 400m<sup>2</sup>

No minimum size is required if:

(i) For every allotment where there is an existing dwelling:

There is no increase in the degree of non-compliance with the relevant General Residential Development Standards specified in 4A 4.2 and 4A 5. Where subdivision is proposed between dwellings that share a common wall, recession plane and yard requirements shall not apply along the length of the common wall.

(ii) For every allotment where there is no existing dwelling, or for which no existing land use consent for a dwelling has been granted, or is being concurrently granted (in the case of joint land use and subdivision applications):

It can be demonstrated that it is practicable to construct on all allotments, as a permitted activity, a dwelling which complies with all relevant General Residential Development Standards specified in 4A 4.2 and 4A 5.

Minimum frontage:

3m to ensure that there is drive-on access to the allotment. For rear allotments the 3m frontage may be satisfied through a registered Right of Way outside the title (outside legal boundaries of the allotment).

Shape factor:

All allotments must be able to contain a rectangle measuring 10m by 15m. Such a rectangle must be clear of any yard or right of way and have a suitable building platform.

No shape factor is required if:

(i) For every allotment where there is no existing dwelling, or for which no existing land use consent for a dwelling has been granted, or is being concurrently granted (in the case of joint land use and subdivision applications)

It can be demonstrated that it is practicable to construct on all allotments, as a permitted activity, a dwelling which complies with all relevant General Residential Development Standards specified in 4A 4.2 and 4A 5.

Other: Compliance with the development standards of the activity area.

### Why these provisions are included in the plan

Ev 53.1 The Standards and Terms for Allotment Design for the General Residential Activity Area are proposed to be amended to reflect changes to the General Residential development standards and provide greater flexibility.

Ev 53.2 It is proposed to retain the 400m<sup>2</sup> minimum size of allotment requirement but to also provide an alternative pathway which enables smaller lot sizes as long as it can be demonstrated that it is still possible to build a dwelling that is in compliance with all relevant development standards on the site. Providing the two options allows for more traditional subdivision and infill where preferable but also offers a pathway within the controlled activity status for more intense or more innovative developments on smaller sites.

Ev 53.3 The same approach is proposed in relation to the shape factor requirement. Option

<b>Evaluation 53</b>	
	1 is the traditional approach of providing a shape factor of 10m by 15m for each allotment but option 2 allows for smaller housing footprints as long as all relevant development standards can be complied with.
Ev 53.4	This approach provides the applicant with the choice to either follow with the well known and tested subdivision requirements or to demonstrate that other forms of development can be achieved within the development standards set by the General Residential Activity Area.
Ev 53.5	The reference to compliance with all other development standards is proposed to be deleted as it is unclear which standards it refers to and what the relevance of those standards for the subdivision process is.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 53.6	The provisions provide for communities' social, economic and cultural wellbeing.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 53.7	The option of flexibility provides for innovation and promotes efficient use of urban land.
<b>Costs</b>	
Ev 53.8	No significant costs are identified. The option of working to a minimum lot size is still available.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 53.9	The information available is sufficient and certain.
<b>Efficiency and Effectiveness</b>	
Ev 53.10	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 53.11	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 53.12	No other reasonably practicable options are identified.

**Table 67: Evaluation 54 – Subdivision - 11.2.2.1 Standards and Terms (a) Allotment Design - General Residential Activity Area Medium Density**

<b>Evaluation 54</b>	
<del><b>General Residential Activity Area on residential sites identified on the District Planning Maps as Medium Density Residential</b></del>	
<del>Minimum size of allotment: 300m<sup>2</sup></del>	
<del>Minimum frontage: 3m, to ensure that there is drive-on access to the allotment. For rear allotments the 3m frontage may be satisfied through a registered Right of Way outside the title (outside legal boundaries of the allotment).</del>	

<b>Evaluation 54</b>	
Shape factor:	All allotments must be able to contain a rectangle measuring 9m by 14m. Such a rectangle must be clear of any yard or right of way and have a suitable building platform.
Other:	Compliance with the permitted activity conditions of the activity area.
<b>Why these provisions are included in the plan</b>	
Ev 54.1	It is proposed to delete the existing Medium Density overlay provisions within the General Residential Activity Area. The existing subdivisions provisions relating to the Medium Density Overlay in General Residential are therefore obsolete.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 54.2	The proposed change assists with the orderly administration of the District Plan.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 54.3	The benefits provided by the Medium Density overlay related to a slightly easier consent pathway and slightly greater site coverage. These benefits are now available through the proposal and are obsolete.
<b>Costs</b>	
Ev 54.4	There is a minor cost in terms of Plan users having to familiarise themselves with a new approach.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 54.5	The information available is sufficient and certain.
<b>Efficiency and Effectiveness</b>	
Ev 54.6	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 54.7	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 54.8	No other reasonably practicable options are identified.

**Table 68: Evaluation 55 – Subdivision - 11.2.2.1 Standards and Terms (a) Allotment Design – Medium Density Residential Activity Area**

<b>Evaluation 55</b>
<p><b><u>Medium Density Residential Activity Area</u></b></p> <p><u>Minimum size of allotment: No minimum size required.</u></p> <p>(i) <u>For every allotment where there is an existing dwelling:</u></p> <p><u>There shall be no increase in the degree of non-compliance with the relevant Medium Density Residential Development Standards specified in 4F 4.2. Where subdivision is proposed</u></p>

<b>Evaluation 55</b>	
	<p><u>between dwellings that share a common wall, recession plane and yard requirements shall not apply along the length of the common wall.</u></p> <p>(ii) <u>For every allotment where there is no existing dwelling, or for which no existing land use consent for a dwelling has been granted, or is being concurrently granted (in the case of joint land use and subdivision applications):</u></p> <p><u>It can be demonstrated that it is practicable to construct on all allotments, as a permitted activity, a dwelling which complies with all relevant Medium Density Residential Development Standards specified in 4F 4.2.</u></p> <p><u>Minimum frontage: 3m to ensure that there is drive-on access to the allotment. For rear allotments the 3m frontage may be satisfied through a registered Right of Way outside the title (outside legal boundaries of the allotment).</u></p>
<b>Why these provisions are included in the plan</b>	
Ev 55.1	The proposed subdivision controls for the Medium Density Residential Activity Area are intended to reflect the more permissive development controls of the zone to provide for more intense residential development and achieve a greater choice in housing development.
Ev 55.2	The proposed standards do not require a minimum size of allotment but for subdivisions with no existing dwellings it needs to be demonstrated that a dwelling can be developed that complies with all relevant development standards.
Ev 55.3	There is no minimum shape factor requirement proposed.
Ev 55.4	The lack of a minimum lot size pathway similar to the General Residential standards and of a shape factor requirement reflects the intention to encourage different building types and greater densities in this zone.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 55.5	The provisions provide for communities' social, economic and cultural wellbeing.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 55.6	The provisions promote innovation and the efficient use of urban land.
<b>Costs</b>	
Ev 55.7	The absence of minimum lot sizes may reduce certainty.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 55.8	The information available is sufficient and certain.
<b>Efficiency and Effectiveness</b>	
Ev 55.9	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 55.10	The effectiveness of the proposed provisions is high because the goals are achieved.

<b>Evaluation 55</b>
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 55.11 Minimum lot sizes could be established.

**Table 69: Evaluation 56 – Subdivision 11.2.2.1 Standards and Terms (a) Allotment Design – Suburban Mixed Use Activity Area**

<b>Evaluation 56</b>
<b>Central Commercial Activity Area, Suburban Commercial Activity Area, <u>Suburban Mixed Use Activity Area</u> and Petone Commercial Activity Area 1</b>
Minimum size of allotment: 200m <sup>2</sup>
Minimum frontage: 6m
Other: Compliance with the permitted activity conditions of the activity area
<b>Why these provisions are included in the plan</b>
Ev 56.1 It is appropriate that the same Allotment design standards apply to the Suburban Mixed Use Activity Area that are currently relevant for the Central Commercial, Suburban Commercial and Petone Commercial Activity Areas.
<b>How these provisions achieve the purpose of the RMA</b>
Ev 56.2 The provisions provide for communities' social, economic and cultural wellbeing.
<b>Benefits including Opportunities for Economic Growth and Employment</b>
Ev 56.3 The proposed change assists with the orderly administration of the District Plan.
<b>Costs</b>
Ev 56.4 No significant costs are identified.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>
Ev 56.5 The information available is sufficient and certain.
<b>Efficiency and Effectiveness</b>
Ev 56.6 The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 56.7 The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>
Ev 56.8 A different minimum lot size for Suburban Mixed Use would be possible.

**Table 70: Evaluation 57 – Subdivision - 11.2.2.1 Standards and Terms (b) Engineering Design (v) Wastewater**

<b>Evaluation 57</b>		
<b>(b) Engineering Design</b>		
<b>(v) Wastewater</b>		
Compliance with the following standards:		
...		
<b>Retail and Suburban Commercial Areas, Suburban Mixed Use Areas</b>		
ADWF	(Average Dry Weather Flow)	0.25 l/ha/sec
PDWF	(Peak Dry Weather Flow)	0.44 l/ha/sec
MWWF	(Maximum Wet Weather Flow)	0.44 l/ha/sec
where l/ha/sec = litres/hectare/second		
<b>Why these provisions are included in the plan</b>		
Ev 57.1	The existing Engineering Design Standards for Wastewater that apply to Retail and Suburban Commercial areas are appropriate.	
<b>How these provisions achieve the purpose of the RMA</b>		
Ev 57.2	The provisions provide for communities' social, economic and cultural wellbeing.	
<b>Benefits including Opportunities for Economic Growth and Employment</b>		
Ev 57.3	The proposed change assists with the orderly administration of the District Plan.	
<b>Costs</b>		
Ev 57.4	No significant costs are identified.	
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>		
Ev 57.5	The information available is sufficient and certain.	
<b>Efficiency and Effectiveness</b>		
Ev 57.6	The efficiency of the proposed approach is high because the benefits outweigh the costs.	
Ev 57.7	The effectiveness of the proposed provisions is high because the goals are achieved.	
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>		
Ev 57.8	Alternative engineering standards would be possible.	

**Table 71: Evaluation 58 – Subdivision - 11.2.2.3 Assessment Criteria (b) Engineering Design (i) Access**

<b>Evaluation 58</b>	
<b>11.2.2.3 Assessment Criteria</b>	
<b>(b) Engineering Design</b>	

<b>Evaluation 58</b>	
<b>(i) Access</b>	
...	
-	Allotments must have drive on access, <u>except those in the Suburban Mixed Use and Medium Density Residential Activity Areas, and those Comprehensive Residential Developments in the General Residential Activity Area provided with access to communal parking areas.</u> In cases where it can be shown that it is physically not possible to provide drive on access, alternative arrangement for off-street parking must be provided.
<b>Why these provisions are included in the plan</b>	
Ev 58.1	The proposed change to the Engineering Design Assessment Criteria for Access reflects the introduction of the concept of communal parking areas for more intensive residential developments.
<b>How these provisions achieve the purpose of the RMA</b>	
Ev 58.2	The provisions provide for communities' social, economic and cultural wellbeing.
<b>Benefits including Opportunities for Economic Growth and Employment</b>	
Ev 58.3	The provisions promote innovation.
<b>Costs</b>	
Ev 58.4	No significant costs are identified.
<b>Risk of Acting or Not Acting if Information is Uncertain or Insufficient</b>	
Ev 58.5	The information available is sufficient and certain.
<b>Efficiency and Effectiveness</b>	
Ev 58.6	The efficiency of the proposed approach is high because the benefits outweigh the costs.
Ev 58.7	The effectiveness of the proposed provisions is high because the goals are achieved.
<b>Other Reasonably Practicable Options for Achieving the Objectives</b>	
Ev 58.8	More prescriptive requirements could be imposed.

## Consequential Changes

### ***Evaluation of Consequential Changes to Chapter 1 Introduction and Scope of the Plan***

- 344. It is proposed to update Chapter 1 Introduction and Scope of the Plan to include new sections for the two new activity areas (Medium Density Residential and Suburban Mixed Use).
- 345. It is also proposed to amend the policies relating to Residential Activity and Commercial Activity to include appropriate references to the new zones.
- 346. The proposed changes are required to update the Introduction to be in line with the proposed changes.

### ***Evaluation of Consequential Changes to Chapter 4 Residential***

- 347. Chapter 4 contains a short description of the main characteristics of all Residential Activity Areas. It is proposed to amend the narrative for the General Residential Activity Area and add a new section for the Medium Density Residential Activity Area to reflect the proposed changes.

### ***Evaluation of Consequential Changes to Chapter 5 Commercial***

- 348. Chapter 5 contains a short description of the main characteristics of all Commercial Activity Areas. It is proposed to amend the narrative for the Suburban Commercial Activity Area and add a new section for the Suburban Mixed Use Residential Activity Area to reflect the proposed changes.

### ***Evaluation of Consequential Changes to Chapter 13 Network Utilities***

- 349. It is proposed to update the provisions relating to height, size and diameter, and separation distance and setbacks, to include reference to the new chapters, thereby making sure that the appropriate provisions apply within these zones.

### ***Evaluation of Consequential Changes to Chapter 14A Transport***

- 350. The proposed consequential changes to chapter 14A Transport relate to Minimum Parking Standards as proposed by Plan Change 39. No submissions were received on the minimum parking standards proposed by PC39 and these specific provisions are therefore considered to be beyond challenge. A decision on PC39 is expected to be issued prior to notification of this plan change.
- 351. The consequential changes proposed by this plan change reflect changes to the definition for dwelling house and seek to add Suburban Mixed Use to the parking standards for retail.

### ***Evaluation of Consequential Changes to Chapter 14C Noise***

- 352. The proposed changes to the Noise Chapter relate mostly to site specific provisions in Residential Activity Areas, where it is proposed to remove site specific provisions from the General Residential Activity Area (discussed above) and the site specific noise standards are therefore no longer required.

**Table 72: Evaluation 59 – Noise - Delete Site Specific Noise Standards**

<b>Evaluation 59</b>	
<b>14C 2.1.1 All Residential Activity Areas</b>	
<b>(a)</b>	Emergency Facilities
	(iii) <del>On Lot 2 DP 82046 (155 -157 Waterloo Road, Lower Hutt – Central Fire Station) the</del>



## Evaluation 59

following conditions shall apply:

- ~~The noise standard must not exceed the conditions specified, measured anywhere within a residential activity area other than the site on which the activity takes place:~~

~~Maximum 55dBA Monday to Saturday 7.00am – 8.00pm~~

~~Maximum 45dBA Monday to Saturday 8.00pm – 7.00am~~

~~Maximum 45dBA Sundays and Public Holidays~~

~~with the exception of noise from the following activities:~~

- ~~Activities relating to an emergency situation or callout;~~
- ~~Movement of fire appliances and other equipment in the rear yard which is not reasonably avoidable; and~~
- ~~The carrying out of training activities in the rear yard between 8.00am and 6.30pm Monday – Friday and 8.00am – Midday Saturday.~~

~~(iv) With respect to Lot 2 DP 82046 (155-157 Waterloo Road, Lower Hutt – Central Fire Station) the following additional conditions apply: —~~

- ~~That there be no heavy vehicle (a vehicle requiring a hubometer) movements in the rear yard, including the covered vehicle wash area, between 8.00pm and 7.00am;~~
- ~~That no water tanks on fire appliances be filled on the site between 8.00pm and 7.00am;~~
- ~~That no breathing apparatus cylinders be filled on the site between 8.00pm and 7.00am; and~~
- ~~That civil defence equipment stored on the site be uplifted prior to 8.00pm and when it is necessary to return the equipment between 8.00pm and 7.00am, that the equipment be returned to the front of the workshop garage on the eastern side of the site.~~

Ev 59.1 The site is no longer used as fire station, site specific standards are therefore no longer needed.

**Table 73: Evaluation 60 – Noise - Delete Site Specific Noise Standards**

## Evaluation 60

~~14C 2.1.1.2 Corner Eastern Hutt Road and Reynolds Bach Drive, Part Section 742 Hutt District~~

~~All activities must not exceed the conditions as specified, measured anywhere within a residential activity area other than the site on which the activity takes place—~~

~~Maximum 58dBA 6.30am – 8.00pm~~

~~Maximum 45dBA 8.00pm – 6.30am~~

~~Insert Appendix Noise 1 – Residential Activity Areas – Noise Area 1~~

Ev 60.1 The site is proposed to be deleted from the scheduled sites with site specific provisions in Chapter 4A General Residential.

<b>Evaluation 60</b>	
Ev 60.2	The current site specific noise provisions (58dBA 6.30am to 8pm, 45dBA 8pm to 6.30am) are similar to Noise Area 1 (60dBA 7am to 10pm, 45 dBA 10pm to 7am).
Ev 60.3	Considering the location and use of the site it is therefore recommended to include the site in Noise Area 1 by adding it to Appendix Noise 1 – Residential Noise Areas (Noise Area 1)

**Table 74: Evaluation 61 – Noise - Delete Site Specific Noise Standards**

<b>Evaluation 61</b>	
<p><del>14C 2.1.1.3 Summit Road Nursery, Lot 1 DP 20206 and Lot 34 DP 31233; Moores Valley Road Depot, Part Lot 2 DP 88509; and Bracken Street Depot, Section 979 Hutt District -</del></p> <p>All scheduled activities must not exceed, the conditions as specified, measured anywhere within a residential activity area other than the site on which the activity takes place -</p> <p>Maximum 55dBA            7.00am - 8.00pm</p> <p>Maximum 40dBA           8.00pm - 7.00am</p>	
Ev 61.1	The sites are proposed to be deleted from the scheduled sites with site specific provisions in Chapter 4A General Residential.
Ev 61.2	Summit Road has been redeveloped for residential use and the regular noise standards are therefore considered appropriate for the site.
Ev 61.3	The former Moores Valley depot is used by a private commercial activity. Due to the residential environment the regular noise standards of Noise Area 3 are therefore considered appropriate.

**Table 75: Evaluation 62 – Noise - Delete Site Specific Noise Standards**

<b>Evaluation 62</b>	
<p><del>14C 2.1.1.4 10 Bauchop Road, Lot 1 DP 10377</del></p> <p>All activities must not exceed, the conditions as specified, measured anywhere within a residential activity area other than the site on which the activity takes place -</p> <p>Maximum 57dBA            6.30am - 8.00pm</p> <p>Maximum 45dBA            8.00pm - 6.30am</p>	
Ev 62.1	Site is proposed to be deleted from the scheduled sites with site specific provisions in Chapter 4A General Residential.
Ev 62.2	The current use of the site is unclear. It is appropriate to apply regular residential noise standards considering the location of the site in a residential area.

**Table 76: Evaluation 63 – Noise - Delete Site Specific Noise Standards**

<b>Evaluation 63</b>	
<b>14C 2.1.1.5 Cnr Hutt and Te Mome Roads, Lot 26 DP 1984</b>	
All activities must not exceed, the conditions as specified, measured anywhere within a residential activity area other than the site on which the activity takes place -	
Maximum 65dBA	6.30am – 8.00pm
Maximum 58dBA	8.00pm – 6.30am
Ev 63.1	Site is proposed to be deleted from the scheduled sites with site specific provisions in Chapter 4A General Residential.
Ev 63.2	Site is currently used for retail (The Music Warehouse) with associated servicing which is not covered by site specific provisions.
Ev 63.3	Current site specific provisions (65dBA 6.30am to 8pm, 58dBA 8pm to 6.30am) are rather high.
Ev 63.4	If site specific condition is removed the site will fall into Noise Area 2 (55dBA 7am to 10pm, 45 dBA 10pm to 7am) which is considered appropriate.

**Table 77: Evaluation 64 – Noise - Delete Site Specific Noise Standards**

<b>Evaluation 64</b>	
<b>14C 2.1.1.7 Stokes Valley Bus Depot, cnr Stokes Valley Road and Kamahi Streets, Lot 1 DP 55258</b>	
All activities must not exceed the conditions as specified measured anywhere within a residential activity area other than the site on which the activity takes place -	
Maximum 60dBA	5.30am - 10.00pm Monday - Thursday
	5.30am - Midnight Friday & Saturday
	5.30am - 9.00pm Sunday
Maximum 45dBA	Any time outside those times specified above.
Ev 64.1	The site is proposed to be deleted from the scheduled sites with site specific provisions in Chapter 4A General Residential.
Ev 64.2	However although activity is covered by existing use right the same does not apply to noise emissions. If special noise provisions were to be deleted it would most likely push activity into non-compliance with noise standards.
Ev 64.3	Therefore site specific noise standards are proposed to be retained although site are no longer scheduled in 4A.

**Table 78: Evaluation 65 – Noise - Delete Site Specific Noise Standards**

<b>Evaluation 65</b>	
<b>14C 2.1.1.8 Wainuiomata Bus Depot, Main Road/Burden Avenue, Lot 3 DP 55256</b>	
All activities must not exceed the conditions as specified measured anywhere within a residential	

<b>Evaluation 65</b>		
activity area other than the site on which the activity takes place -		
Maximum 60dBA	5.30am - 10.00pm	Monday - Thursday
	5.30am - Midnight	Friday & Saturday
	5.30am - 9.00pm	Sunday
Maximum 45dBA	Any time outside those times specified above.	
Ev 66.1	The site is proposed to be deleted from the scheduled sites with site specific provisions in Chapter 4A General Residential.	
Ev 66.2	However although activity is covered by existing use right the same does not apply to noise emissions. If special noise provisions were to be deleted it would most likely push activity into non-compliance with noise standards.	
Ev 66.3	Therefore site specific noise standards are proposed to be retained although site are no longer scheduled in 4A.	

**Table 79: Evaluation 66 – Noise - Delete Site Specific Noise Standards**

<b>Evaluation 66</b>		
14C 2.1.1.9 Waterloo Bus Depot - that area of Pt Sec 30 Hutt District located on the western side of the Wairarapa Railway Line between Knights Road and Wilford Street		
All activities must not exceed the conditions as specified, measured anywhere within a residential activity area other than the site on which the activity takes place -		
Maximum 60dBA	5.30am - 10.00pm	Monday - Thursday
	5.30am - Midnight	Friday & Saturday
	5.30am - 9.00pm	Sunday
Maximum 45dBA	Any time outside those times specified above.	
Ev 66.1	Site is proposed to be retained as scheduled site in Chapter 4A as well as the Noise chapter due to location and limited potential for residential use	

**Table 80: Evaluation 67 – Noise - Delete Site Specific Noise Standards**

<b>Evaluation 67</b>		
14C 2.1.3 <u>Suburban Commercial Activity Area and Suburban Mixed Use Activity Area</u>		
(a)	All activities must not exceed the conditions as specified measured anywhere within a residential activity area -	
	Maximum 60dBA	7.00am - 10.00pm (Sun 9am - 4pm)
	Maximum 45dBA	10.00pm - 7.00am
Discussion:		
Ev 67.1	The noise standards currently applying to Suburban Commercial Activity Area are most	

<b>Evaluation 67</b>	
	appropriate to apply to Commercial Mixed Use Activity Area due to similar concept and provision for smaller scale retail and commercial with residential above ground floor.
Ev 67.2	Main difference is higher height limit in Commercial Mixed Use which does not necessarily have noise implications.
Ev 67.3	More appropriate than including with Central Commercial and Petone Commercial because of different scale.

**Table 81: Evaluation 68 – Noise - Delete Site Specific Noise Standards**

<b>Evaluation 68</b>		
<b>14C 2.1.5 General Business Activity Area</b>		
<b>Location Reference</b>	<b>Location Description</b>	<b>Performance Standards</b>
8	Park Avenue	Maximum 60dBA 6.30am – 10.00pm Maximum 46dBA 10.00pm – 6.30am
11	Birch St/Knights Rd	Maximum 50dBA 7.00am – 10.00pm Maximum 45dBA 10.00pm – 7.00am
1412	Victoria St/Cuba St - <i>AMMENDED</i>	Maximum 58dBA 7.00am - 10.00pm Maximum 45dBA 10.00pm - 7.00am
23	Hawkins Street	Maximum 58dBA 6.30am – 10.00pm Maximum 45dBA 10.00pm – 6.30am
<i>Amend Appendix Noise 2 – General Business Activity Area – 14 Victoria Street/Cuba Street to exclude areas proposed to be rezoned to Suburban Mixed Use</i>		
Discussion:		
Ev 68.1	The above areas are proposed to be rezoned from General Business to Suburban Commercial and therefore General Business Noise standards do not apply anymore.	
Ev 68.2	Only exception is 14. Victoria Street/Cuba Street where only part of the area is proposed to be rezoned and therefore it is proposed to amend the relevant Appendix.	

**Evaluation of Consequential Changes to Chapter 14D Hazardous Facilities**

353. It is proposed to update the provisions relating to consent status matrix, the interface provisions and the Wellington Fault Special Study Area provisions to include reference to the Suburban Mixed Use Activity Area, thereby making sure that the appropriate provisions apply.

## Conclusion

354. The proposed plan change has been evaluated under the requirements of Section 32 of the RMA and is the best available means to achieve the objectives and the sustainable management purpose of the RMA.

## Attachments

- Attachment 1 Jacobs New Zealand and Kamommarsh (2016), *Planning for the Future, A long-term vision for future housing growth and choice (Urban Development Plan)*. Hutt City Council DOC/16/139940.
- Attachment 2 PAOS (June 2013) *Review of Valley Floor Reserves*. Hutt City Council DOC/15/141572
- Attachment 3 GNS Science Consultancy Report 2016/74 (May 2016), *Review of Hazard Information for Hutt City*. Hutt City Council DOC/16/75159.
- Attachment 4 Harriet Fraser Traffic Engineering & Transportation Planning (June 2017), *Hutt City Council – Transport Assessment for Plan Change 43*. Hutt City Council DOC/17/90174.
- Attachment 5 Wellington Water Limited (August 2017) *Hutt City Plan Change 43 Residential 3 Waters Summary Report*. Hutt City Council DOC/17/127547.
- Attachment 6 Gray Partners Limited (December 2016), *Planning for Growth, Drivers for Residential Intensification in Hutt City over the next 30 years*. Hutt City Council DOC/17/17118.
- Attachment 7 Public Voice Limited (May 2017). *Hutt City Council – Residential Intensification Survey*. Hutt City Council DOC/17/97507.
- Attachment 8 Public Voice Limited (June 2017) *Hutt City Council – Residential Intensification Survey Results*. Hutt City Council DOC/17/97058.
- Attachment 9 Targeted Areas as Amended by Councillor Working Group (7 July 2017). Hutt City Council DOC/17/133916.
- Attachment 10 Hutt City Council Report DPC2017/3/163 to District Plan Committee (26 July 2017) *Residential Intensification*. Hutt City Council DOC/17/122883.
- Attachment 11 Hutt City Council Resolution 17/1331 (10 October 2017) *Proposed Plan Change 43 Residential and Suburban Mixed Use*. Hutt City Council DOC/17/172219.

## **Attachment 1**

Jacobs New Zealand and Kamommarsh (2016), *Planning for the Future, A long-term vision for future housing growth and choice (Urban Development Plan)*. Hutt City Council DOC/16/139940.







# HUTT CITY

Planning for the Future  
A long-term vision for future  
housing growth and choice

12 SEPTEMBER 2016

# URBAN DEVELOPMENT PLAN FOR HUTT CITY RESIDENTIAL INTENSIFICATION

Project no: IZ005300  
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Client name: Hutt City Council  
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2	15 May 2016	Final draft bar infrastructure and hazard update	MH/DCM	MH/SC	MH
3	18 July	Final report - updated maps, changes to height limit and insertion of infrastructure and hazard section	MH/DCM	MH/SC	MH
4	17 August 2016	Final Report - correction of text, labels	SC/DCM	MH	MH
5	12 September 2016	Final Report - minor corrections to labels	DCM	MH	MH

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**JACOBS**

# CONTENTS

<b>1.</b>	<b>INTRODUCTION</b>	<b>4</b>
	1.1 What is the purpose of this study?	
	1.2 Approach to assessment	
<b>2.</b>	<b>METHODOLOGY FOR ASSESSMENT</b>	<b>10</b>
	2.1 Suburb selection	
	2.2 Evaluation criteria used to confirm appropriateness for levels of intensification	
<b>3.</b>	<b>URBAN CAPACITY</b>	<b>14</b>
	3.1 Growth context	
	3.2 Site sensitivities	
	3.3 Summary of suburb evaluation	
<b>4.</b>	<b>REVIEWING THE PLANNING FRAMEWORK</b>	<b>28</b>
	4.1 Zoning	
	4.2 Possible Development Provisions	
	4.3 How would this compare against the existing district plan rules?	
	4.4 Suggested provision table	
<b>5.</b>	<b>TESTING OF DEVELOPMENT PROVISIONS</b>	<b>44</b>
	5.1 Development potential v Recession Planes	
	5.2 Testing of Development Provisions	
	5.3 Low impact design solutions	
	5.4 Summary of effects	
<b>6.</b>	<b>POTENTIAL YIELD</b>	<b>90</b>
<b>7.</b>	<b>CONCLUSIONS</b>	<b>92</b>
<b>8.</b>	<b>BIBLIOGRAPHY</b>	<b>95</b>
<b>APPENDICES</b>		
	Alicetown	98
	Avalon	102
	CBD Edge	106
	Eastbourne	110
	Epuni	114
	Moera	118
	Naenae	122
	Petone East	126
	Stokes Valley	130
	Taita	134
	Wainuiomata	138
	Waterloo	142
	Woburn / Waiwhetu	146

# 1. INTRODUCTION

Providing for the changing demographic needs of Lower Hutt City within the wider growth framework of Wellington's urban settlement pattern has been a key focus of this review of the Hutt's urban residential zones. The Urban Growth Strategy (the Strategy) in 2012-2032 has identified the following key issues that need to be addressed if Hutt City is to continue to provide for strong building blocks for further residential development which provides for:

- the opportunity for a growing population; and
- access to the types of housing the market wants to provide for the each part of the residential population in Hutt City.

The Strategy identified a range of targets for population growth of providing for 11,762 people and at least 6000 new homes within the city by 2032. The Urban Growth Strategy also recognises that a "business as usual" approach will not achieve their goal of achieving the council vision for urban growth of:

*"Hutt City is the home of choice for families and innovative enterprise"*


A business as usual approach is not supported due to the current low population growth levels of 0.55% since 2006 compared to the Wellington Region as a whole of 5%. Generally growth has been concentrated in a small number of central valley and western hill areas, the northern suburbs of Taita and Naenae, and in Waiwhetu, Epuni and Waterloo. Some areas of Wainuiomata have experienced substantial depopulation. In order to address these concerns we must address not only housing choice but economic development needs. However provision of jobs within Lower Hutt city is also complicated by the make up of residents employment with many working outside of Hutt City, in Wellington City for example.

In order to provide for housing choice, much of this new home growth was identified as being provided for through greenfield development at the edges of the general residential activity areas in Lower Hutt. Urban intensification was also identified for investigation primarily through:

- Targeted intensification in Waterloo and Epuni through infill;
- Investigation of further areas that may be suitable for targeted intensification, such as the railway corridor and the periphery of the Central Business District (CBD);
- Providing for low rise apartment developments in targeted locations;
- Providing for targeted multi unit development rather than reducing lot size across the board; and
- Providing for a 40% site coverage rule to remove this restriction to multi unit development, where necessary.







Investigation into confirming the viability of potential greenfield sites and in the existing urban environment has been undertaken for the Urban Growth Strategy. A Residential Growth Discussion Document was released for consultation with the community and a series of targeted consultation meetings and workshops were held to understand people's initial views of providing for residential intensification.

The discussion document also helpfully defines what is meant by residential intensification. The definition is outlined below:

*"Residential intensification refers to an increase in the density of dwellings or residential population over the existing level. Residential intensification can take a number of forms including standalone houses on smaller lots, semi-detached housing, townhouses (terrace housing) and apartment buildings. Higher density can be achieved vertically or horizontally, and does not always involve an increase in height."*

A range of options for changing the district plan was outlined for feedback from the community in this document and also to inform the future assessment. This document identifies a planning framework for Council providing for future housing and population growth. This growth needs to be planned and have an acceptable impact on existing communities.

## 1.1 WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of this assessment is to outline how residential intensification can be improved within the urban limits of Hutt City in order to continue to achieve its growth objective of being a home of choice for families and innovative enterprise in addition to what has already been identified within the existing district plan.

## 1.2 APPROACH TO ASSESSMENT

A whole of city approach has been taken in spatially identifying where increased levels of intensification may be appropriate. Additionally the testing of the impacts of this development has been assessed. The study has not just looked at the areas identified to date in the Urban Growth Strategy but also considered the all residential activity areas in the city. A starting point for investigation of suburbs was to consider areas where suburbs already provide the following characteristics:

- They have a suburban centre with a bus or other public transport connection which can provide for further intensification that can provide for walkability; and
- only general residential activity areas in the district plan were considered for intensification.

While these are simple criteria they fit into a recognised set of spatial criteria for assessing appropriate urban form patterns of providing for people, places and spaces through:

### Consolidation of activity

Providing for intensity and interaction with communities;

### Integration and connectivity

With movement networks and building interfaces;

### Diversity and adaptability

Providing for mixed use and flexibility of spaces and buildings within an urban area;

### Environmental responsiveness

Providing for increased activity within the existing urban footprint providing for efficiency of networks, while not further impinging on green networks and public open space provision.

The core reasons for using this high level criteria are because residential intensification relies on services are within walkable distances and provide a range of options for access throughout the suburb to provide for a range of demographics.

In general this has resulted in the majority of opportunities for consideration of residential intensification occurring on the valley floor as there are only a few hill suburbs which have a suburban centre with public transport connections.

A range of suburbs has then been assessed, the method of which is outlined in section 4 and the results are outlined in section 5. Overall each area has been assessed testing whether increased height and diversity of uses could be included within the existing suburban centre zones and general residential activity areas.

Three types of uses have been assessed. The proposed mixed use zone and higher intensity residential zone have been selected and mapped spatially primarily because it is only appropriate to provide for these types of zones in selected locations. A proposed rule change to provide for encouraging well designed comprehensive residential development is then provided for in the general residential zone. Each suggested change has been provided as a way to provide a step change for development to make the most of:

- The existing amenity and walkable services that can already provide for intensity of development in Lower Hutt;
- the existing well used public transport spine and bus services within Lower Hutt so that future development does not need to rely on high levels of vehicle use and can maximise the benefits of transit oriented development principles.

This step change recognises that while the medium density provisions can currently exist in the district plan cover and provide for increasing residential density, it is a business as usual approach to development. This alternative approach takes account of changing development forms that are being implemented throughout New Zealand, accounts for a range of development patterns that are required for Hutt City's growth aspirations and provides for a clear framework for how well designed development could be further encouraged through the district plan over the long term.

Each agent for change is outlined below:

- Mixed use
- 10m high residential
- 2000m<sup>2</sup> comprehensive residential development



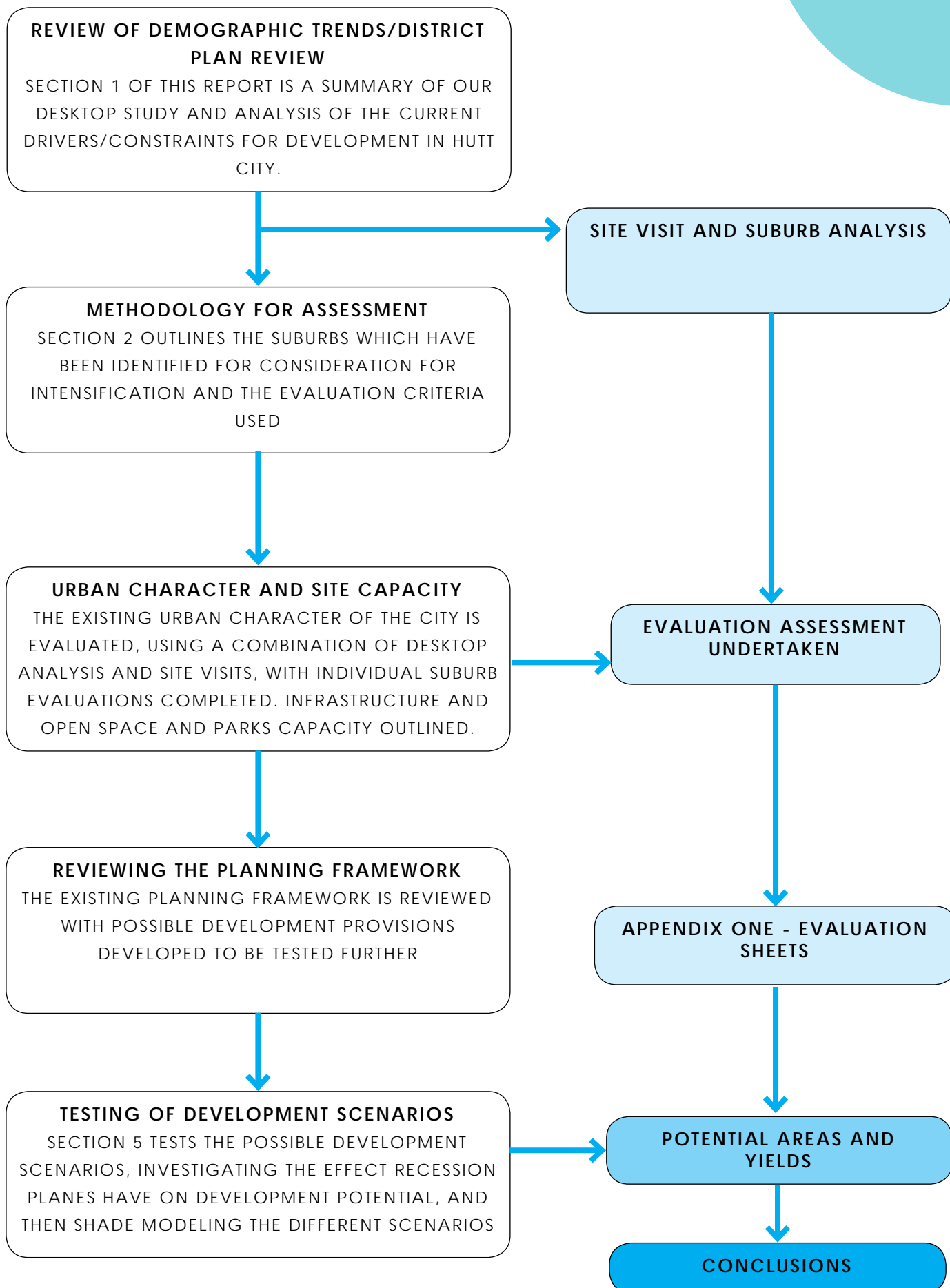


FIGURE 1.1 REPORT STRUCTURE FLOWCHART

THIS FLOWCHART OUTLINES THE STRUCTURE OF THE REPORT AND THE METHODOLOGY WHICH WAS USED TO DEVELOP ITS FINDINGS

## 2. METHODOLOGY FOR ASSESSMENT

In order to identify where future growth opportunities could be present we have completed the following assessments:

- Undertaken site walkovers of the main village and suburban centres in Lower Hutt. These walkovers were undertaken to determine the current condition of the urban environment in terms of retail activity, condition of houses and amenity within each suburb.
- Areas chosen for assessment were chosen primarily by:
  - Primarily looking at sites with railway stations;
  - Secondly identifying primary bus routes or major bus stations which have suburban centres as the focus of an area for intensification.

After completing site visits, selection of areas for intensification was informed by using the following tools:

- Walkability assessment using GIS identifying walkable catchments of up to 400m from the public transport node;
- Context maps were created identifying features associated with each area such as community facilities, natural features such as beaches, and educational facilities;
- An assessment undertaken of bottom up (not viewing how the district plan is currently zoned) and top down (using the existing zonings) to inform the identification of intensification areas;
- Previous work identifying reserves and open space provision on the valley floor was used to inform capacity for providing public open space provision to support intensification;
- Infrastructure capacity has been investigated and this concludes that intensification will not be suitable in all areas.

### 2.1 SUBURB SELECTION

Section 3 describes the existing urban character of Hutt City, evaluating 19 suburbs in terms of their suitability for intensification. These suburbs were selected in consultation with council staff, with evaluation criteria developed to 'score' their suitability for intensification as well as a possible yield, based on the scenarios outlined in Section 4. In order to identify where areas of growth may be best targeted there has been a tiered approach to investigate intensification. Firstly targeting development where there is existing or expected higher density development. For example where suburbs are more walkable, with good levels of amenity and public transport provision, near

railway stations and bus routes so residential intensification may have more local community acceptance and existing infrastructure levels of service to cope for additional demand.

Areas which have good long term potential for intensification, but with known high levels of community resistance to change and/or require increased infrastructure provision for intensification are likely to be prioritised for the next level of development intensification if they are still logical areas for development. In order to continue to encourage intensification Council is also keen to pursue opportunities for the market to respond and provide well design infill development at higher yields where lots are larger and can be redeveloped comprehensively. In summary the areas that have been investigated are:

- Alicetown
- Avalon
- Boulcott
- CBD edge
- Eastbourne
- Epuni
- Fairfield
- Kelson
- Maungaraki
- Moera
- Naenae
- Petone
- Petone East
- Stokes Valley
- Taita
- Wainuiomata
- Waterloo
- Woburn

The results of this work are such that each centre has been individually mapped to confirm how much further intensification can be supported. Each of these centres have then been integrated into an overall map of the city to confirm each how intensification can be provided, accounting for the interactions of how each centre and land use in between the centre can support each other. On the valley floor in particular this means that many of the centres and land use activity co-support each other. This is why in some residential areas with a neighbourhood centre, such as Boulcott, it would result in lower levels of targeted residential intensification being provided for, compared with an area such as Epuni which has a train station, suburban centre and capacity for expansion around the centre which could lead to further residential activity being provided.

Overall in confirming whether an area is selected for intensification above using the proposed comprehensive general residential proposed rule the area had to have a higher score than the neighbouring centre to be confirmed as the area for intensification. For example Epuni has been selected for targeted intensification, whereas Fairfield and Boulcott has not been selected but will be influenced by this targeted area for intensification.

## 2.2 EVALUATION CRITERIA USED TO CONFIRM APPROPRIATENESS FOR LEVELS OF INTENSIFICATION

Each of the selected suburbs have been scored against the following criteria. Where a suburb receives a score above 12 then this has been considered as a site potentially appropriate for further targeted intensification. Scores under 12 have resulted in the area not being considered for targeted intensification. However the suburb may be influenced by other neighbouring suburbs targeted intensification. E.g Epuni influencing Boulcott. Suburbs which scored less than 12 have only had the comprehensive residential development rule being recommended as an overall outcome for providing increased intensification:

### PROXIMITY TO TRANSPORT MODES



	<i>Proximity to train stations, Bus Rapid Transport (BRT) corridors or bus stations is considered one of the key design criteria influencing where intensification should occur. Train stations and BRT corridors signal to the market that these corridors will provide a permanent location for high frequency public transport. However frequent service bus transport corridors also provide for accessibility, but are not as strong for encouraging development due to bus routes being more easily changed spatially or services reduced. Overall, public transport choice allows for a greater number of residents while minimising the need for increasing road infrastructure. Intensification also helps support public transport provision providing for more efficient service provision. It also can attract people to existing suburban centres to support economic activity. These suburbs have greater accessibility and connectivity, and provides choice for how people make journeys. People should be able to walk in 5 minutes (400metres) to local shops, bus stop or 10minutes to a train station</i>
4	Train, BRT or bus stations within 400m walking distance
3	Train station within 400m walking distance but physical constraints to movement/access
2	Train station within 800m
1	Major bus stop within 400m
0	No public transport routes within 800m

### ATTRIBUTES OF THE LOCAL COMMERCIAL CENTRE



	<i>The next most important attribute of a suburb is the provision of amenities to create a diverse and interesting place for residents to buy everyday items as well as to meet and socialise. There is a wide variety of different commercial centres throughout Hutt City, each with its own character and influence. It is considered that a larger commercial centre can support greater residential intensification, and in some cases needs it to make a centre more viable. Some of the existing commercial centres are in decline, with empty shops and it would not be appropriate to provide additional commercial space over the next 30 year planning horizon. Other centres, however would benefit from additional capacity or the ability to cater for different businesses.</i>
4	Commercial centre with more than 10 shops / offices including a supermarket and community facilities
3	Mid-sized commercial centre with more than 10 shops / offices
2	Convenience store + 5-10 local shops / offices
1	Less than 5 shops / offices
0	No commercial shops / offices

## AVAILABILITY OF LAND / OWNERSHIP



SCORE		<i>Large parcels of undeveloped or vacant land make it easier for comprehensive developments to occur without adversely affecting existing residential areas. There are a number of brownfield sites throughout the Hutt that are either vacant or are not developed to their full potential. These can provide an opportunity for a 'master planned area' where good urban design principles can be employed.</i>
	3	Large areas of vacant land, single ownership
	2	Vacant land but in small holdings and or large parcels of land that can be amalgamated, multiple owners
	1	Under utilised land, with the ability to redevelop a site as a comprehensive development.
	0	No vacant land and or built envelope of building close to or at maximum site coverage, multiple owners



## HERITAGE / CHARACTER OVERLAYS

SCORE		<i>Heritage and character overlays and notations protecting a valued area of the city are important to retain identity, but can have a negative effect on the availability of land to develop. It can also be difficult to integrate two very different built typologies with newer developments potentially relating poorly to a heritage building. Areas where there are no restrictions are seen as preferable for intensification. This will build on the existing listed items identified within the District Plan, and also those areas with established historic residential activity area zoning. Possibilities exist to create an overlay for areas considered to be of particular interest or special character. Where character has been identified in a suburb, (other than a District Plan zone or notation) and may require additional assessment, it has not influenced scoring. However it may influence the location of the boundary for targeted intensification.</i>
	3	No overlays in or neighbouring the identified zone
	2	Some overlays but limited in area and unlikely to restrict redevelopment to a single street
	1	More than one overlay over most of the area increasing consent restrictions



## PROXIMITY TO SCHOOLS

SCORE		<i>Travel movements to schools generate the largest number of vehicle numbers during peak periods. By intensifying development close to existing school infrastructure it is likely more trips will be by foot or bicycle.</i>
	3	Primary and intermediate school within 1.2km
	2	Primary school within 1.2km
	1	primary school between 1.2km and 2.0km
	0	No schools within 2.0km

## RESERVES / OPEN SPACE



SCORE		<i>It is important that the perceived negative effects of intensification can be offset by the provision of high quality public spaces. Good public spaces allow people to gather, socialise and play close to their homes, and is more important where private amenity space has been reduced</i>
	3	Reserves, public open space and facilities within 400m walking distance
	2	Reserves over 400m from area or limited / undersupply of open space
	1	Inadequate open space provision

# 3. URBAN CAPACITY

## 3.1 GROWTH CONTEXT

As identified through the Urban Growth Strategy Hutt City has had very limited population growth of 0.55% since 2006, compared to 5% in the Wellington Region as a whole and 5.3% nationally.

However, overall this level of growth has been skewed by a range of suburbs in particular which has had negative growth due to a range of factors such as redevelopment of Housing New Zealand housing stock in Waiwhetu, Woburn, Epuni and Taita. Other areas in Hutt City consisting of primarily housing that is associated with the valley floor has had significant increases, some above the average population increase for the Wellington region and nationally.

Examples include:

- Hutt Central (5.7%)
- Maungaraki (6.3%)
- Alicetown (6.3%)
- Petone Esplanade (5.3%)[1]

In many of these cases this population growth has also resulted in an increase of occupied dwellings and depending on the typologies in demand has resulted in higher percentage increases in dwellings.

For example in Petone Esplanade the population increase is 5.3% but the dwelling number increase is 6.2% indicating a demand for dwellings with lower occupancy, which on the Esplanade has been primarily characterised by new build, higher end homes. Whereas in Waiwhetu South, while the population increase has been below 5% there has been a 3.2% increase in population but only a 2.4% increase in dwellings. This is due to the provision of large 3-4 bedroom family homes providing for families. These homes have been spec built and provided on former railway land.

Overall, analysis of what growth trends are occurring indicates there is still positive demand for housing stock across Hutt City. Growth figures have primarily been affected by redevelopment of housing stock rather than large new areas of greenfield development. Some of this growth is also due to the desirability of suburbs acting as employment generators changing. For example, Waiwhetu and Petone.

[1] 2013 Census data



## 3.2 SITE SENSITIVITIES

The following site sensitivities have been considered in the identification of areas. Each are important to consider but they do not necessarily mean that development should not be considered in a particular situation. A range of responses can be considered including:

- Avoidance of intensification in an area either temporarily through staging of development until suitable infrastructure is in place or never developing an area
- Remedying or mitigating against the hazard or lack of service provision through design. For example providing habitable building floor levels above a 1/100 year flood event.

### 3.2.1 HAZARDS

Residential development needs to take into account and appropriately respond to natural hazard risk, and therefore hazards can dictate what areas are and are not appropriate for intensification. Some hazards such as protection of overland flow paths and providing protection of residential floor levels may also be able to be addressed through managing development to standards through the district plan. Much of Hutt City is located on a floodplain and large parts of the city are vulnerable to natural hazards. Natural hazard risks in Lower Hutt include:

- Landslide/slope failure: Western Hills, Eastbourne and Bays, and Wainuiomata Hill Road are most vulnerable.
- Subsidence: particularly in Moera
- Flooding: Parts of the Hutt Valley flood plain could be subject to flooding in the event of stopbank failure or overtopping. Or from sea level rise as a result of climate change, increasing coastal erosion and storm surges.
- Earthquake: Fault rupture could cause catastrophic subsidence in



Petone, and liquefaction in low elevation floodplain areas.

- Tsunami: Initial wave and ongoing wave oscillation within the harbour (seiching) could lead to major flooding to the Hutt Valley and significant damage to coastal infrastructure.

Seismic hazards risk may be able to be sufficiently managed through engineering methods and planning controls. Flooding risk from the Hutt River and Waiwhetu Stream can be largely addressed through planning structural works and building controls provided for in the district plan. There is also a tsunami risk in the southern end of the Hutt, including the Petone/Moera general area. This tsunami risk reduces the more heading inland. All of these risks have been reviewed by Geological Natural Sciences (GNS) in Review of hazard information for Hutt City, GNS Science Consultancy Report 2016/74 May 2016. The key implications from this review is discussed in the suburb evaluation section.

### 3.2.2 INFRASTRUCTURE

Existing and future infrastructure influences are primarily designed to support existing development around central and suburban communities. These proposals can then support further residential development. To provide further guidance in the confirmation of whether suburban development could currently be provided for from an infrastructure capacity perspective, Wellington Water Limited provided an infrastructure capacity assessment of water supply, stormwater and waste water to confirm whether sufficient capacity could be provided for development without having to increase funding for further capex upgrades. In addition to the Wellington Water work, a transport assessment by Harriet Fraser Limited was completed.

The findings of this work was that while there were potential infrastructure constraints for primarily waste water services and water supply, the majority of areas zoned for intensification could be planned for encouraging residential intensification, either now or subject to further upgrades or developers providing for additional mitigation of their development through design and or change in funding for allocating upgrades. However, the following suburbs were discounted primarily due to high infrastructure constraints or a combination of infrastructure and hazard constraints:

- Eastbourne due to waste water and water supply constraints
- Petone East due to stormwater and hazards.

In addition there are some projects that could potentially encourage further residential growth through:

- Increase in the provision of infrastructure to improve levels of service could



improve quality of life. For example through reducing risk of inundation from flooding. An example of this is the replacement of Melling bridge and Stopbank. This project in particular could help contribute to the City Making Places Strategy to revitalise the CBD.

- Cross Valley Link which could improve access for commuters across the city but more importantly reduce the transportation of freight via The Esplanade.
- Additional walkways/cycleways in Eastern Bays, Hutt Valley and Wainuiomata Hill which not only improve accessibility but also the amenity and choice for residents.
- Asset renewal projects such as Awamutu Stream which can improve flood risk- through channel improvements and pump station.
- A new rail network hub may be provided as part of the Greater Wellington Rail Strategy at the Waterloo Railway Station for a new level of train service of up to 5 trains per hour in the AM peak.

Other projects such as potential cycleway projects from Melling to Ngauranga Cycleway and Petone to Grenada Link Road could also improve accessibility to Hutt city, including addressing the current congestion identified on the Petone Esplanade. Subsequently, increased multi modal accessibility could provide opportunities for a change in land use in Petone, such as that identified through the Urban Growth Strategy and Ngauranga Triangle Study.



FIGURE 3.1 IMPRESSION OF THE ESPLANADE WITH MEDIUM DENSITY DEVELOPMENTS ALONG THE WATERFRONT

(SOURCE: RESIDENTIAL INTENSIFICATION, OPTIONS FOR EPUNI, WATERLOO AND CPD PHERIPHERY (HUTT CITY 2014, URBAN GROWTH STRATEGY 2012-2032)

While discussed above, the Cross Valley Link is a project that could also have significant land use change as it connects the west and east sides of the valley alongside the railway line. This could result in encouraging freight off The Esplanade, creating opportunities to enhance the waterfront. This could result in local development (mixed use) and along The Esplanade through to Jackson Street due to associated traffic calming and amenity improvements.

The Link could create better linkages and access for the eastern suburbs around the Moera area, however there may be adverse land use effects along Wakefield Street from the intensity of passing traffic, as well as some impacts on surrounding properties. This detracts from residential amenity, however may create opportunity for light industrial or commercial activities. This includes opportunities for industrial/commercial regeneration of the Seaview Marina

### **3.2.3 COMMUNITY FACILITIES**

A range of new community and civic facilities are currently being built or planned for to provide for future growth and employment needs within Hutt City. Key projects that may encourage growth, particularly residential intensification are outlined below:

#### *Avalon Park*

The upgrade of the primary recreation park for Hutt City will provide for further growth of population in the northern suburbs. The park also acts as a regional facility for families so will continue to provide a strong public centre of activity

#### *Walter Nash Sports Centre - Taita*

This completed Centre provides a new community service and activity node for Taita. It provides a high quality multi-purpose sports facility and associated spaces for providing services and local connections, providing vulnerable kids with more choices and opportunities and giving them access activities that have not always been provided in the north east suburbs of Hutt City.

#### *Stokes Valley Community Hub*

A new project will be undertaken to provide a new all of service community centre to improve access to community services in the suburb of Stokes Valley. This could potentially increase the attractiveness of the suburb centre for local residents.

#### *Civic Precinct Upgrade - CBD*

The Civic Precinct aims to create an exciting community space and provide greater integration with the council administration building, the Civic Gardens and Riddiford Gardens, the War Memorial Library, The Dowse Art Museum and

Dowse Square. Overall this new space could potentially improve the vitality of the CBD but also influence the attractiveness for development of suburbs within walking distance of this precinct, which is Alicetown and the CBD Edge.

#### *Huia Pool upgrade- CBD Edge*

A dedicated Learn to Swim pool is being built to meet the growing numbers of residents taking part in our Learn to Swim programmes, while a hydrotherapy pool will fill the need for therapeutic facilities in the community. This facility is a regionally based facility adding additional services for the community

#### *Regional Bowls Centre - Naenae*

A new Regional Bowls Centre based in Naenae will also soon be built on Walter Mildenhall Park. The centre will have the capacity to host significant national and international events.

### **3.2.4 RESERVES**

Public reserve lands are considered to be core assets for a community due to their recreational, amenity, social, stormwater management, cultural and ecological benefits.

Population and demographics (children, elderly, ethnic diversity, etc.) determine the how much reserve land is required and the character/function of these reserves. Where there is medium or high density housing, there is increased demand on public reserves due to the higher site coverage and limited private on site open space. It is important to identify what areas of Hutt City have sufficient reserve to cater for intensification, and which areas have a short fall.

Hutt City Council (HCC) have undertaken significant research on the availability and quality of reserves in the valley floor. This review was aimed at understanding the public open spaces on the valley floor and the likely future demands of these spaces. The review provides an audit of the reserve areas and also outlines the qualities and characteristics of the public open spaces.

The supplementary reports developed by PAOS Ltd look at reserves in the suburbs, especially neighbourhood reserves. The reports also consider the current and future need for reserves. The goal is to have a reserve within 400 metres or 8.5 minutes walk of any home.

Overall there was 339 hectares of reserve in the valley floor, 197 hectares of which are owned by HCC. Greater Wellington Regional Council (GWRC) owns 142 hectares of reserve, which is largely situated along the Hutt River and is generally not multi-use. A small portion of reserve land (0.71%) is owned by

DoC. Essentially, the GWRC and DoC land is for conservation and amenity, but do not serve as reserves with community facilities such as sport grounds or play equipment.

Neighbourhood reserves tend to have playground equipment and open grassed area. They are especially important in areas of higher density, where properties have limited outdoor space and vegetation. Neighbourhood reserves are also important in areas of low socio-economic status, where people may not be able travel outside their community easily.

The valley floor has a number of enclosed neighbourhood reserves, especially in the northern and eastern areas of the valley floor; which are enclosed reserves established to serve higher density housing schemes. These reserves are surrounded by houses as opposed to facing the street and are often low quality, largely due houses turning their back on the reserves and having high fences, restricting access and visibility of these spaces.







Areas identified to date as having a shortfall are outlined in figure 3.2 below. While this work has been derived using the existing medium density overlay the areas considered are consistent with the majority of areas considered for intensification in this study. For the remaining suburbs considered in this assessment all have a good range of public reserve provision either through passive open space or formal play areas.

Overall, there is sufficient sports and recreational reserves to serve the Hutt under the existing development scenarios anticipated in the district plan. However, there is demand for more good quality neighbourhood reserves, especially in light of the intensification and changing demographics under the operative district plan. There are also a number of existing enclosed valley neighbourhood reserves with opportunities for enhancement, through revegetation and improvement of facilities. The identified short falls in neighbourhood reserves have been taken into account with the evaluation of areas which could provide for further intensification. Key areas of interest where there are short falls have been:

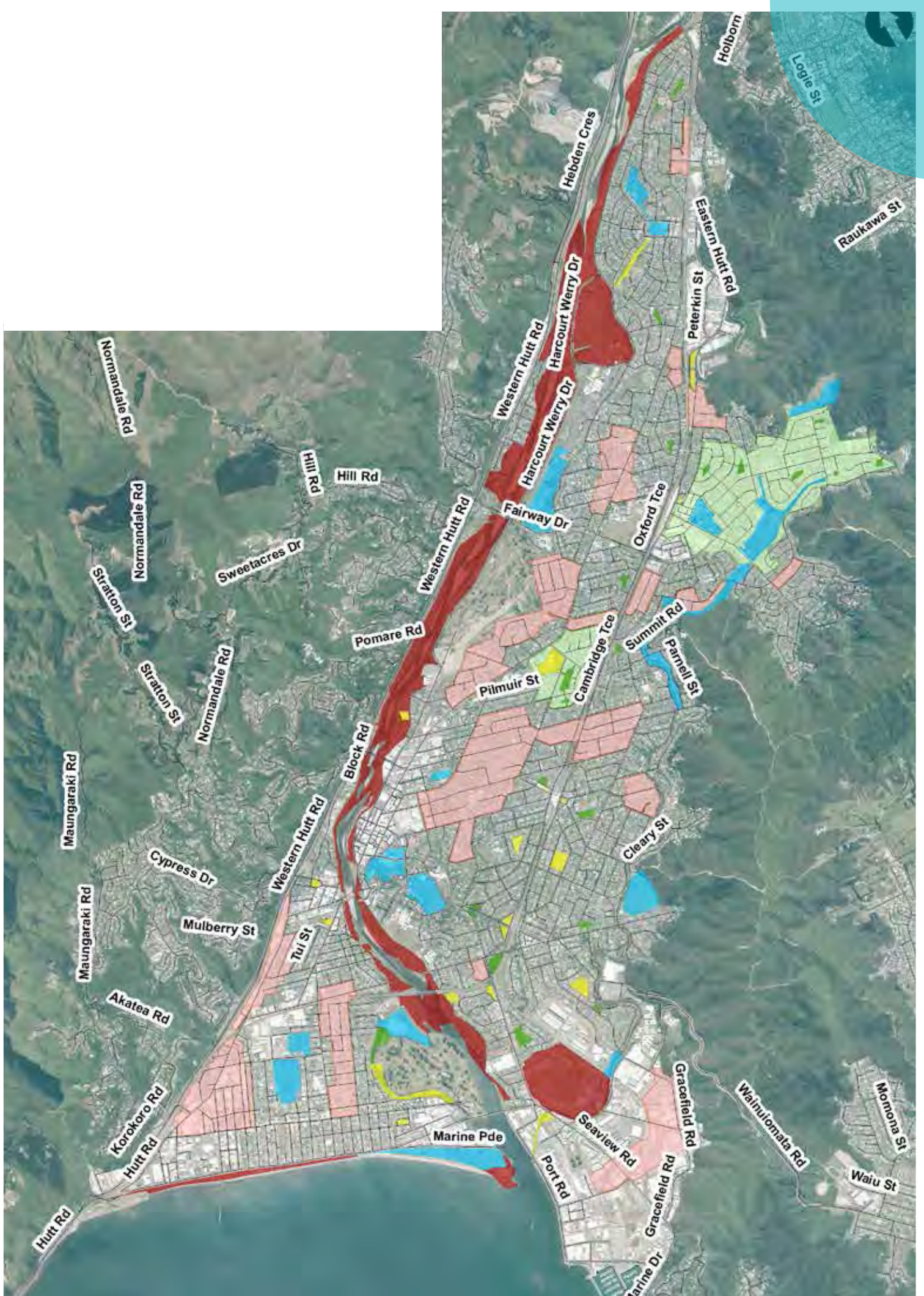
- Ava, Petone and Petone West
- West Alicetown
- CBD Edge, Avalon and Boulcott; and
- Fairfield.

FIGURE 3.2 AREAS OF SUFFICIENT RESERVES AND RESERVE SHORTFALL  
Sourced from Hutt City Council report 'Review of Valley Floor Reserves - June 2013'

## LEGEND RESERVE AREAS

Reserve Shortage (<1 reserve within 8.5min walk)	
Reserve (>1 reserve within 8.5min walk)	
City / District	
Community / Suburban	
Local / neighbourhood	
Regional assets	







### 3.3 SUMMARY OF SUBURB EVALUATION

An evaluation of each suburb was undertaken to confirm which had a higher level of capacity for residential intensification, where some levels of site specific for residential intensification could be provided for:

- Petone East
- Avalon
- Eponi
- Waterloo
- Woburn
- Naenae
- Moera
- CBD Edge
- Stokes Valley
- Wainuiomata
- Avalon
- Alicetown
- Taita
- Eastbourne

In addition to these suburbs, each suburb should experience at least the ability to provide for further comprehensive residential development within existing general residential activity areas.

Not all development scenarios (described in Section 4) should be applied to every suburb or at the same scales. Accessibility to public transport facilities, with the view to creating Transport Orientated Development was considered the most important aspect followed by the attributes of the local commercial centre, and then proximity to high amenity areas, open space and services in defining areas that could accommodate new mixed use or 10m high residential zones. Remaining areas would allow for encouragement of comprehensive residential development.

Suburbs that had a higher ability to provide for transit orientated development were centres that provided for a railway station and local commercial centre. Intensification types A and B would be promoted in these areas, generally within a 400m walking distance of the station. In some cases, where there was still strong access to employment and public space Type B was extended within 800m of the transit node. All of the centres proposed for mixed use are all located with good transport links to the Hutt CBD, industrial employment areas and Wellington City making them attractive for home buyers who work in major employment nodes.

Following this evaluation the overlay of hazard impacts and ability for providing for intensification within the zones from an infrastructure perspective



EPUNI INTENSIFICATION MAP



WATERLOO INTENSIFICATION MAP

was overlaid. As a result some of the identified suburbs were discounted from being recommended as being taken forward for further assessment in a future plan change. However, by still including these suburbs for intensification it does not mean that in all cases infrastructure and or hazards are not an issue in the area. Only that they could be managed through capital upgrades and or design controls in the district plan.

Of all of the centres proposed for mixed use, the following provide the strongest potential for targeted intensification through a mix of either intensification type A and B:

- Epunī
- Waterloo
- Naenaē
- Taitā
- Woburn/Waiwhetu

To a lesser extent intensification types A and or B were recommended for the following suburbs, but to smaller degrees as they took account of the following characteristics that need to be balanced in the suburb:

- Wainuiomata: has all of the characteristics of a self sufficient suburban town with commuter bus connections. Currently there is likely to not be the demand for this type of intensification within the town centre. However as greenfield development capacity is filled over time further intensification within the existing town centre should also be provided for to provide for choice and a range of housing types and to continue to strengthen and revitalize the existing centre, including provision for Mixed Use Development. Provision for some levels of intensification type B in addition to C was also identified to provide for future long term growth.
- Stokes Valley: is a self sufficient suburb that has frequent bus connections to the Hutt CBD and a commuter service to Wellington CBD. Due to the



NAENAĒ INTENSIFICATION MAP



TAITĀ INTENSIFICATION MAP



WOBURN INTENSIFICATION MAP



EASTBOURNE INTENSIFICATION MAP

compact nature of the suburban centre, planned future community services and existing medium density residential development surrounding the village centre, mixed use zoning could be provided for long term growth and residential intensification Type B can be provided around the centre. Due to the larger land parcels within Stokes Valley you can also expect a higher amount of comprehensive residential development being able to occur throughout the suburb.

- CBD Edge: is characterized by the CBD and as such further mixed use development is not recommended to effectively extend the boundary of the CBD. However due to the high amenity and walkability to the bus interchange and the CBD employment node, the area can cater for further residential intensification to support the CBD. The area also has a number of schools and community facilities within walking distance, however as you move further north towards Boulcott there becomes a shortage of community reserve and play areas for providing for more targeted residential intensification. In addition to this, while there could be potential for the Type B area to extend further north, this is further away from the Queensgate and Melling stations and away from the civic precinct which provides for place making.
- Avalon: has a small suburban centre with a mix of fine grain retail and convenience stores and a larger service centre including petrol station in the business zoned land. The centre is served by a bus route but residents need to cycle or drive to reach the closest railway station at Epuni or Naenae. A small amount of infill development has been observed and some medium density residential development is present as well as a residential tower but most dwellings are typically on an individual section. The suburban centre is fragmented at the moment by residential and business land, but as it is central to the suburb



WAINUIOMATA INTENSIFICATION MAP



STOKES VALLEY INTENSIFICATION MAP



AVALON INTENSIFICATION MAP



CBD EDGE INTENSIFICATION MAP



and close to Avalon Park and schools in the area a small mixed use zone has been identified which could strengthen the centre and support limited targeted intensification within the suburb.

Of the remaining suburbs, only comprehensive residential development intensification was recommended around each centre due to their lack of connectivity, existing levels of intensification already provided for, or lack of walkable open space provision. In addition to the above criteria, a lack of development space due to topography was another reason that influenced selection. For example Maungaraki, but this was not a consistent issue that needed to be addressed for each suburb.

- Fairfield: has a small and well utilised commercial centre on Waiwhetu Road. However, due to its close proximity to the Epuni intensification areas, which are served by both rail as well as a commercial centre on the western side the influence of this centre on Fairfield meant there was a large degree of overlap with development aspirations in this area. As a result it was not recommended for further intensification at this stage.
- Boulcott: has a small but well patronised commercial centre. Given the centre's close proximity to the proposed intensification areas of Epuni, further residential intensification is provided from Epuni and overlaps with much of the area that is appropriate for further intensification in Boulcott. This level of intensification could also support the Boulcott village centre. The area was not recommended for providing for further residential intensification in its own right.
- Petone West: The large number of heritage overlays and special amenity areas will affect the amount of land which is available for intensification. The remaining areas of land are covered by the Petone Commercial Zone. Intensification is already occurring in Petone due to the amenities the local retail area and zoning with good access to good public transport.



ALICETOWN INTENSIFICATION MAP

Suburb	Intensification Criteria							Recommended Intensification Type			infrastructure and Hazards (green - acceptable for consideration for intensification subject to management of effects, red - currently has too high a risk or significantly constrained to be considered)
	Proximity to Transport Nodes	Availability of Land / Ownership	Heritage / Character Overlays	Attributes of local commercial centre	Proximity to Schools	Reserves / Open Space / Amenity	Total Score	Type A - 12m Mixed Use	Type B - 10m Apartment / townhouse	Type C - 2,000m <sup>2</sup> Comprehensive Development	
Alicetown / Ava	4	0	3	3	3	2	15	x	x	x	
Avalon	1	1	3	2	3	3	13	x	x	x	
Boulcott	1	1	2	1	1	1	7	-	-	x	
CBD Edge	2	0	1	4	3	3	13	-	x	x	
Eastbourne	1	0	3	3	2	4	13	-	x	x	
Epuni	4	3	3	2	2	2	16	x	x	x	
Fairfield	1	1	3	1	2	1	9	-	-	x	
Mangauraki	1	1	3	2	1	2	10	-	-	x	
Moera	3	1	3	3	2	4	16	x	x	x	
Naenae	4	2	3	3	2	2	16	x	x	x	
Petone East	2	1	2	4	1	2	12	-	x	x	
Stokes Valley	1	1	3	4	2	3	14	x	x	x	
Taita	4	1	3	4	2	2	16	x	x	x	
Wainuiomata	1	2	3	4	2	3	15	x	x	x	
Waterloo	4	1	3	3	3	3	17	x	x	x	
Woburn/Waiwhetu	4	2	2	3	2	2	15	x	x	x	

TABLE 3.3.1 THE TABLE ABOVE IS A SUMMARY OF EACH SUBURB'S SCORE AND WHAT INTENSIFICATION TYPE IS RECOMMENDED, PRIOR TO INFRASTRUCTURE AND HAZARDS CONSTRAINTS BEING TAKEN INTO ACCOUNT.

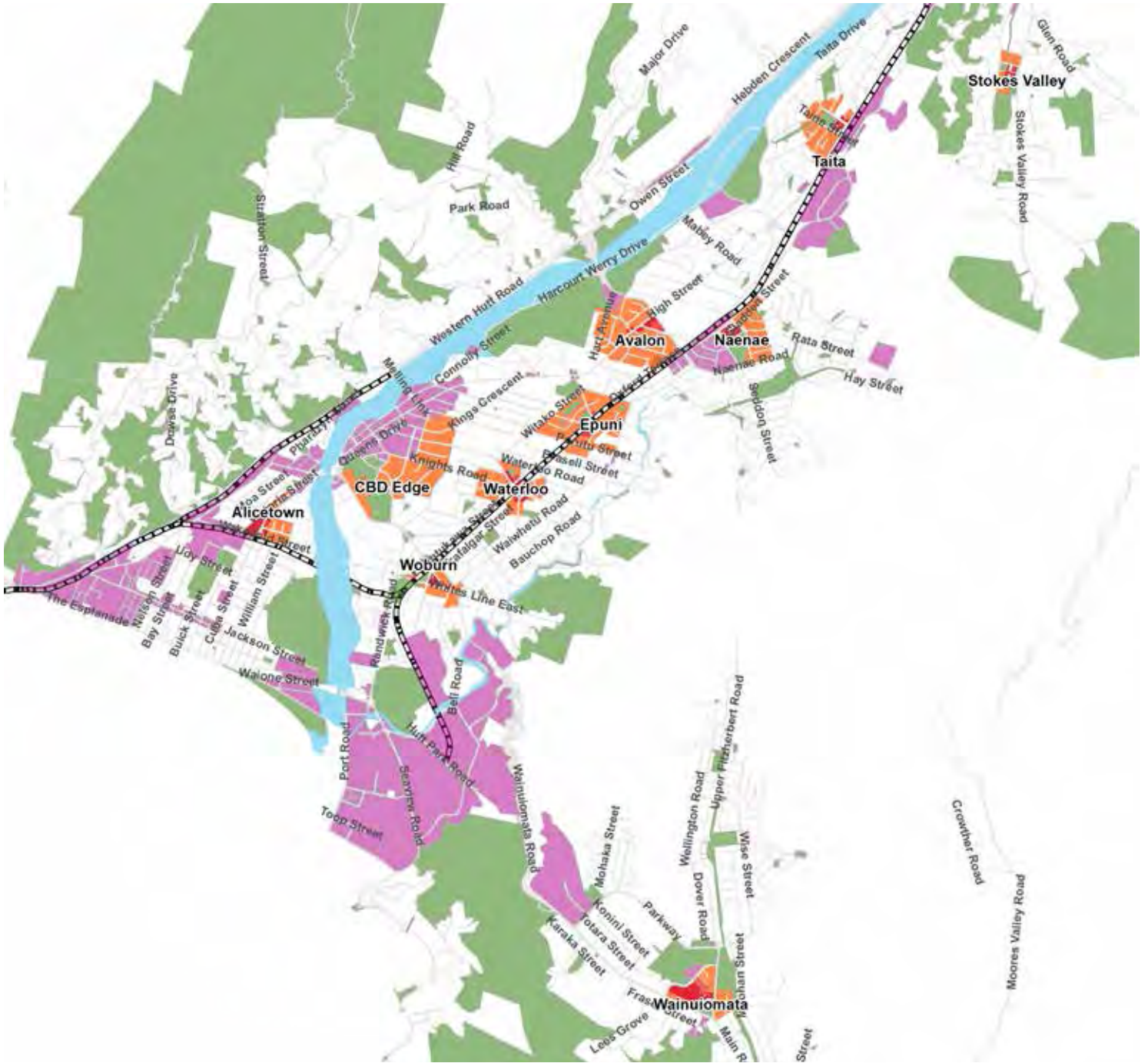


FIGURE 3.3 SUGGESTED INTENSIFICATION MAP FOR HUTT CITY

# 4. REVIEWING THE PLANNING FRAMEWORK

The existing planning framework for development in Hutt City is established by the District Plan. This section provides a brief summary of the current provisions which currently manage residential intensification outcomes. Potential changes to be considered to allow for changes further residential intensification are then outlined. These changes provide the basis for unlocking further residential development within the existing urban limits.

## 4.1 ZONING

The District Plan (Chapter 4) includes zoning and provisions for residential activities. The various residential activity areas are:

- General Residential
- Special Residential
- Historic Residential
- Hill Residential
- Landscape Protections Residential Activity Area.

There is also a medium density overlay over some General Residential activity areas within the District. The difference in rules between General Residential and Medium Density is limited to the site area, site coverage and multi-unit developments standards.

The overall approach for managing increased residential intensification is by controlling the following matters:

- amenity values, traffic effects and landscaping.

Development in the Medium Density area needs to be assessed against the Medium Density Design Guide. The design guideline has the following design criteria for assessment:

- fitting into the neighbourhood
- integrated buildings and spaces
- vehicles
- fences and walls
- site facilities
- privacy and safety
- landscaping and vegetation.

If a medium density site is proposed outside of the medium density overlay then additional matters of discretion are assessed:

- whether public transport facilities and community services facilities which provide for residents daily needs are accessible within reasonable walking distances
- where there is a recorded flood risk associated with the site
- the capacity of the cities infrastructure to service additional development on the site.

Overall the current district plan approach promotes a centres based approach to encouraging development. This same approach is being undertaken as part of this study as current plan provisions are reviewed. The design guide is comprehensive. It provides strong guidance, but not direct requirements. Note that there is no requirement for a design statement against this Design Guide to be submitted with the consent application. As such there is no mechanism that makes developers consider the guidelines. However as a general practice Council will consider the proposal against the design guide in processing the resource consent.



FIGURE 4.1

WHILE NOT A PRIMARY FOCUS OF THE STUDY A FINAL VERSION OF THE MAPS TO BE CREATED COULD POTENTIALLY USE SYMBOLOGY SIMILAR TO THE CURRENT DISTRICT PLAN TO DEFINE THE TARGETED AREAS.

## 4.2 POSSIBLE DEVELOPMENT PROVISIONS

The following section describes possible development provisions which could be adopted to encourage intensification in the areas identified in section 3 of this report. The provisions are then tested in Section 5, at both a city wide scale and at a localised level.

The provisions are suggested as possible approaches to achieve additional intensification within Hutt City to help meet growth targets set by the Urban Growth Strategy at a city wide level. Each provision has benefits as well as potential negatives which need to be evaluated and tested further as part of a future section 32 evaluation assessment for a plan change. In developing each zone approach and rules for the general residential zone understanding how each land use type can contribute to the criteria used for this study has been taken into account.

It is also important to recognise that these proposed provisions will need to be assessed in conjunction with a wider review of the residential chapters and there may need to be review of future chapters. For example, currently land use is a restricted discretionary activity and subdivision is assessed as a discretionary activity. Activity status for the same anticipated activity would need to be brought in line with each other to achieve the result sought based on anticipated environmental outcomes identified for the district plan.

To encourage and facilitate future intensification, the following intensification types have been created.

### 4.2.1 INTENSIFICATION TYPE A - MIXED USE

A new mixed use suburban centre activity area will be created providing for mixed use development with greater permitted bulk, including 12m height to allow for greater residential development capacity and variety of building forms. This type of development would only be proposed within 400m of a railway station or in a suburban centre that has capacity to provide for further growth serviced by public transport.

Type A is generally in areas that are currently Suburban Commercial, with a development potential up to 8m height. Providing development to 12m caters for an addition 1-2 storeys, which can provide for apartment like living above retail / commercial premises. It is likely that development form would result in only some areas of the zone developing to the full height parameters. The purpose of this zone is to provide for intensification and contributing to further place making consolidated in appropriate areas. For example, areas with existing amenities, shops, public transport and infrastructure. The ground floor level and second floor will be encouraged to provide for retail, commercial and office spaces through the design guide, to ensure availability of building space in suburban centres.



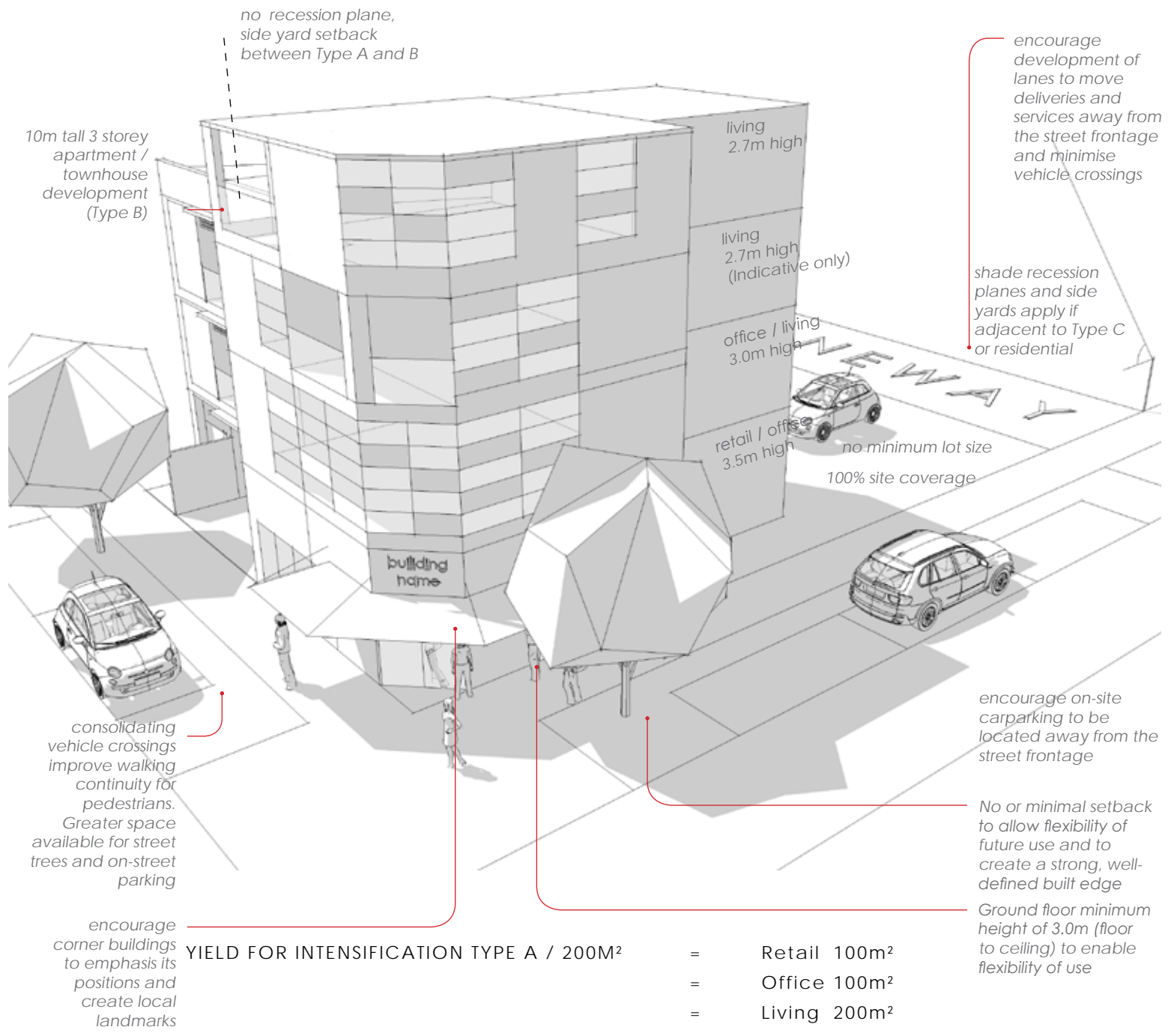


FIGURE 4.2 THE SKETCH ABOVE SHOWS A 12M HIGH, 4 STOREY MIXED USE BUILDING WHICH WOULD BE A PERMITTED ACTIVITY FOR TYPE A INTENSIFICATION

The difference in provision for Type A and Suburban Commercial are related to bulk and form. Larger buildings will be able to be established, while meeting permitted activity conditions. Other rules of the Suburban Commercial zone are anticipated to be adopted, where applicable.

This is a long term vision – it does not mean development will occur to 12m at the moment, but going forward planning for this development can happen more easily, when there becomes a market or community need. Buildings are required to be built up to or close to the street frontage so that they have a strong interface with the streetscape. It also enables provision of requiring verandas in these areas.

Key design elements of this typology are:

- No minimum lot size or site coverage requirement
- Height recession planes and side yards would only apply to sites adjacent to a Residential (8m) zoned property. No street frontage recession plane will be required; and
- Communal carparking, the creation of laneways and the removal of minimum carparking provision would be permitted to provide for more flexible approaches to residential building types and functionality.





#### 4.2.2 INTENSIFICATION TYPE B - 3 STOREY RESIDENTIAL

Intensification Type B is a new residential zone that allows a greater level of bulk form for buildings as a permitted activity. Type B is a transitional area between Type A mixed use and General Residential. All Type B areas are within 400m (convenient walking distance) of a railway station or adjacent to an existing commercial area with public transport provision which supports developments which do not need as many car parks. Each area requires adequate provision of active and or passive open space provision.

Type B provides for development up to 10m high, which is in between the 12m provided for in Type A and the 8m provided under General Residential. It is anticipated that this type will consist of townhouses and apartments. The 10m height enables an extra storey, providing for intensification and consolidation of development within appropriate areas – i.e. those areas with existing amenities, shops, public transport and infrastructure. There will be stricter provisions around the buildings bulk and location as the site relates to adjoining residential areas, to help protect the amenity values of those areas. Buildings are required to be built close to the street frontage so that they have a strong interface with the streetscape. The transition from these areas to general residential are considered to be able to be managed. An example of the approach is outlined below. This is a long term vision to support growth in the right areas, when there becomes a market need. Type B will enable one-two dwellings as of right on a section. There will be more permissive bulk and form permitted activity conditions.



THE PHOTO ABOVE SHOWS THE TRANSITION FROM A LOW DENSITY, SINGLE STOREY BUNGALOW TO A MEDIUM DENSITY, THREE STOREY APARTMENT DEVELOPMENT AND THE BOUNDARY ISSUES THAT MAY RESULT. IN THIS EXAMPLE, ADDITIONAL MORNING SHADING IS EXPERIENCED BUT THE SETBACK REDUCES PRIVACY ISSUES

Key design elements of this typology are:

- No minimum lot size
- A 60% site coverage would be permitted
- Height recession planes and side yards would only apply to sites adjacent to a Residential (8m) zoned property. No street frontage recession plane will be required
- Front setback 2m minimum - 6m maximum
- Communal carparking, the creation of laneways would be permitted and the removal of minimum carparking provision would be provided
- No on-site carparking within the front yard of a development; and
- A minimum outdoor living space, directly accessible living space from internal living area of:
  - 10m<sup>2</sup> with a minimum dimension of 2m regarding strata title units;
  - 20m<sup>2</sup>, 2m wide minimum with remaining units.

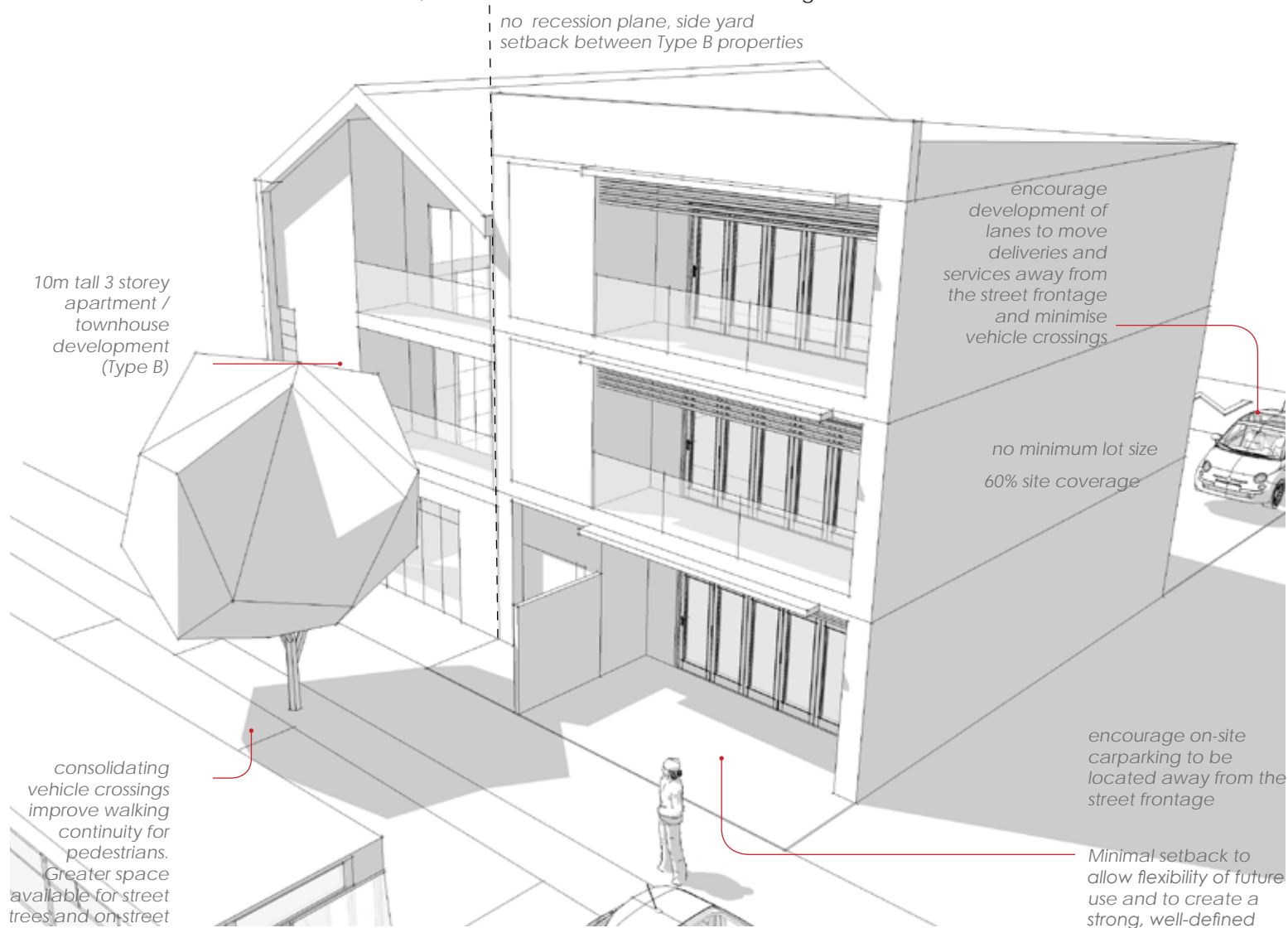


FIGURE 4.3

THE SKETCH ABOVE SHOWS A 10M HIGH, 3 STOREY RESIDENTIAL BUILDING WHICH WOULD BE A PERMITTED ACTIVITY FOR TYPE B INTENSIFICATION



#### 4.2.3 INTENSIFICATION TYPE C - COMPREHENSIVE RESIDENTIAL DEVELOPMENT

Intensification Type C provides for comprehensive residential development (CRD). CRD will provide for developments of on sites larger than 2,000m<sup>2</sup>. This will be provided for under a new comprehensive residential development rule in the General Residential zone, as a restricted discretionary activity. This rule is in addition or to replace rule 4A 2.3 regarding residential development of 3 or more dwelling houses.

The CRD rule will have specific standards that apply to these sites, overriding some permitted activity conditions of the underlying residential zoning, This is ultimately to encourage well designed greater levels of density on a site. The CRD rule will not override the multi-unit development rule on sites under 2,000m<sup>2</sup>. The aim of the CRD rule is to enable integrated design of larger scale residential development instead of having development occur on an ad hoc basis. Creation of this CRD rule guides the market to create this sort of development and gives them the confidence that it is deemed suitable by Council (subject to suitable design – as per a design guide or alternative method). This rule caters for town houses, in addition to the standard existing development already catered for in the district plan in the general residential

zone. This provides more flexibility of housing stock and types of development, providing for a wider audience changes in demands and needs over time.

The suggested definition of CRD is:

*Comprehensive residential development: providing for residential dwellings sited within a separate, contiguous area of at least 2,000m<sup>2</sup> in the General Residential zone, at a density and/or building coverage that:*

- *Has an average net site area of no more than 200m<sup>2</sup> per residential building; and*
- *Has a minimum net site area of 150m<sup>2</sup>.*

*Note: The land on which the proposed residential dwellings are to be Comprehensive residential developments may include multiple certificates of title.*

The design criteria outlined below have been developed around a terrace house and semi-detached house typology where it is possible to efficiently utilize a relatively small lot without adverse amenity issues being created for residents or neighbours. The limits allow for higher density yields to be achieved without a significant change to an existing residential neighbourhood. Typically the developments result in individual titles being created as opposed to body corporates being required.

Key design elements of this typology are:

- 10m+1m for additional roof height subject to meeting design criteria;
- Minimum lot size of 150m<sup>2</sup>, average lot size of 200m<sup>2</sup>
- A 60% site coverage would be permitted
- Existing recession planes are retained with external boundaries but not required on the street frontage or on internal boundaries between proposed dwellings
- Provision for 1 on-site carparking spaces (either garage, carport or parking spaces) for each dwelling
- Front yard setback 2m minimum - 6m maximum
- A minimum outdoor living space, directly accessible living space from internal living area of 25m<sup>2</sup> with a minimum dimension of 3m; and
- Design controls over above ground-floor balconies within 4m of a boundary.





FIGURE 4.4 THE SKETCH ABOVE SHOWS 10+1M HIGH, 3 STOREY TERRACE HOUSES WHICH WOULD BE A PERMITTED ACTIVITY FOR TYPE C INTENSIFICATION WHERE A SITE GREATER THAN 2,000M<sup>2</sup> IS DEVELOPED WITH NO SIDE YARDS OR INTERNAL RESSION PLANES REQUIRED



## 4.3 HOW WOULD THIS COMPARE AGAINST THE EXISTING DISTRICT PLAN RULES?

Section 4.3 outlines the comparison of the proposed changes to the plan against the existing planning framework. Two new activity areas will need to be created and the standards for these are outlined in the table. For the Comprehensive Residential Development approach a new rule will be required as outlined below:

*x.x Comprehensive residential development is a Restricted Discretionary Activity.*

*Note 1: Comprehensive Residential Development are not subject to the minimum net site area requirements of rule4A 2.1.1(a) and site coverage requirements of rule4A 2.1.1(b).*

*Note 2: There are no side/rear yards or building recession planes internally within the comprehensive residential development site.*

*Matters of discretion and the terms of the rule are outlined in table 4.4 below.*

In developing this revised approach we have considered how this compares with the existing medium density overlay. As you can see from figure 4.5 and 4.6 the revised targeted intensification areas cover a much smaller area than what is provided for in the medium density overlay. Comprehensive residential development is then able to occur in the general residential zone which covers the majority of the remaining areas already identified as medium density overlay. It also enables future development occurring in other centres where general residential zoning is present.

Overall this approach provides a similar spatial outcome of targeting medium density development around centres. However, this study's approach only allows for further intensity where there is a strong public transport stop coupled with a suburban centre to help create a stronger centre for community interaction and commerce and encouraging design of residential developments to allow for flexibility of transport choice.

The current zoning allows for much of this to occur, but also highlights areas for further intensification along public transport corridors which may not necessarily converge at a suburb or village which can limit the attractiveness of providing for further well designed residential intensification. The comparison in approaches is outlined below. Overall after reviewing the approach a final recommendation of this study would be for the current medium density overlay to be removed and replaced with a new targeted intensification overlay.

Finally, this study recognises that there was previously a Comprehensive Residential Development rule provided in an earlier version of the district plan. This new rule, while it has a similar title, provides a clearer certainty around the outcomes sought and as a result should be promoted for re-integration into the plan to provide a clearer set of options for well designed housing choice in the city.

<sup>1</sup> *Comprehensive residential development will be subject to the existing general residential rules and conditions with the exception of the terms of that rule*



FIGURE 4.5 THE EXISTING MEDIUM DENSITY RESIDENTIAL OVERLAY



FIGURE 4.6 THE PROPOSED INTENSIFICATION MAP FOR THE VALLEY FLOOR

## 4.4 SUGGESTED PROVISION TABLE

The following table (Table 4.4) is a summary of the possible development scenarios in comparison with the existing district plan provisions.

	EXISTING PROVISIONS			
	GENERAL RESIDENTIAL	MEDIUM DENSITY OVERLAY	SUBURBAN COMMERCIAL	PETONE COMMERCIAL
Description			Residential activity is permitted above ground level and at the rear of the ground level floor	Residential is permitted above ground floor
Definition				
Min Site Area	400m <sup>2</sup>	300m <sup>2</sup>		
Yard Requirements	For all buildings on the net site area:  Front Yard 3.0m/5m  All Other Yards 1.0m		All buildings must be built up to the front boundary  Where a building or structure abuts a residential activity area:  Side yard: 3.0m (0m when there's a service lane)  Rear yard: 8m (3 if there's a service lane to the rear of the site)	Where a building or structure abuts a residential activity area: Side yard: 3.0m Rear yard: 8m (less if there's a service lane to the rear of the site)



## PROPOSED PROVISIONS

INTENSIFICATION A 12M MIXED USE	INTENSIFICATION B 10M RESIDENTIAL	INTENSIFICATION C 2,000M <sup>2</sup> LOT AMALGAMATION
Development would only be proposed with 400m walking distance of a rail-way station and adjacent to exist-ing commercial areas.	3 story residential	Development standards are the same as General Residential but a new RD rule for Comprehensive residential de-velopment is created. Design guide controls these com-pre-hensive devel-opments Within the com-prehensive devel-opment there is no internal setbacks or internal yards required. (Still required on neighbours)
Development up to 12m of mixed use would only be proposed with 400m walking distance of a railway station and adjacent to existing commercial areas	Up to 10m high residential development anticipated	Comprehensive residential development: providing for residential dwellings sited within a separate, contiguous area of at least 2000m <sup>2</sup> in the General Residential zone, at a density and/or building coverage that: <ul style="list-style-type: none"> <li>• Has an average net site area of no more than 200m<sup>2</sup> per residential building</li> <li>• Has a minimum net site area of 150m<sup>2</sup>.</li> </ul> Note: The land on which the proposed residential dwellings are to be Comprehensive residential developments may include multiple certificates of title.
No minimum lot size  Explanation: Sites have been selected as suitable for intensification. No min site area allows for greater building diversity and affordability Site coverage and permeable surface will control the level of development on site.	No minimum lot size  Explanation: Sites have been selected as suitable for intensification. No min site area allows for greater building diversity and affordability Site coverage and permeable surface still control the level of development on site.	150m <sup>2</sup> /unit
Front setback 0 to 3m  No side or rear yard requirements except where a site abuts a Residential Activity area. In these locations a 3m side yard will apply.	Front setback 2 to 6m  Explanation: Having a smaller front set back allows for outdoor living space to be maximised where it receives sunlight while maintaining the flexibility for developments to alter their yard dimension to suit their site. No side or rear yard requirements except where abuts a Residential Activity Area or a corner site. In these locations a 3m side yard will apply	Front setback 2m to 6m All Other Yards 1.0m  Explanation: Having a smaller front set back allows for outdoor living space to be maximised where it receives sunlight while maintaining the flexibility for developments to alter their yard dimension to suit their site.

	EXISTING PROVISIONS			
	GENERAL RESIDENTIAL	MEDIUM DENSITY OVERLAY	SUBURBAN COMMERCIAL	PETONE COMMERCIAL
Parking and Access	Existing units: 1 car park. New single units: 2 car parks. Home occupation: 1 in addition to the dwelling.  Traffic generation rate dictates access width. 0-30 vehicle movements per hour requires a 2.5-6.0m wide access. 31-100 movements requires a 6m access.	3 or more dwelling units 1 per dwelling		As per table in Appendix 3, Chapter 14
Building Recession Plane	2.5m + 45 degree	-	All buildings /structures which abut a residential activity area shall comply with the recession plane requirements of the abutting residential activity area	All buildings /structures which abut a residential activity area shall comply with the recession plane requirements of the abutting residential activity area
Height	Maximum Height of Buildings and Structures: 8m Maximum overall height: 13m	-	8m	10m
Site Coverage	35%	40%	-	100%
Maximum Building Length	20m			
Min Permeable Surfaces	30%	-	-	-
Outdoor Living space requirement		Subject to the design guide which recommends 35m <sup>2</sup>		Subject to mixed use design guide
Balcony placement				

Design criteria that will be added to the district plan design guide for restricted discretionary activities

Corner Treatment				
Maximum Building length				

## PROPOSED PROVISIONS

INTENSIFICATION A 12M MIXED USE	INTENSIFICATION B 10M RESIDENTIAL	INTENSIFICATION C 2,000M <sup>2</sup> LOT AMALGAMATION
Communal car parking, the creation of laneways and removal of minimum carparking provision would be permitted Parking to be located at the rear or underneath buildings. Parking is not permitted in the front yard.	Communal car parking, the creation of laneways and removal of minimum carparking provision would be permitted Parking to be located at the rear or underneath buildings. Parking is not permitted in the front yard.	Provision for 1 on site carparking spaces per dwelling (either garage, carport or parking spaces for each dwelling)
Building recession planes would only apply to sites adjacent to residential zoned property. No street frontage recession plane required	Building recession planes would only apply to sites adjacent to residential zoned property. No street frontage recession plane required	Existing recession planes (for general residential) are retained with the exception of the street frontage where no recession plane is required.
12m high mixed use consisting of retail/office on the first two floors with apartments/living spaces on the top floors.	10m high	10m high + 1m allowance for roof height
100%	60%	60%
		20m
30%	30%	30%
	A minimum outdoor living space, directly accessible living space from internal living area of: 10m <sup>2</sup> with a minimum dimension of 2m regarding strata title units 20m <sup>2</sup> , 2m wide minimum with remaining units	25m <sup>2</sup> , 3m minimum width Directly accessible living space from internal living area
		no above ground-floor balconies within 4m of an external boundary
Buildings shall emphasise their corner location, relate to both frontages with glazing and detailing to reflect this.	1.0m side yard required where a building is located at the end of a row. of units on a corner site. Glazing must be provided on both frontages on all floors to avoid large blank walls facing a street	
		Variety of building treatments for exterior facades.

# 5. TESTING OF DEVELOPMENT PROVISIONS

The following section tests possible development provisions using building layouts/diagrams and shade modeling to illustrate proposed changes. It tests the implications of providing for different development forms in Hutt City and informs the final recommendations around plan rules to manage future residential development intensification. It highlights which provisions could be adopted to encourage intensification in the areas identified in section 2 of this report.

A key test that has been undertaken is shade modeling to confirm implications of changes of building heights and bulk and location in residential areas.

The shade modeling investigates four different design scenarios which are considered to be where the largest degree of change will occur, being:

- Intensification Type A - 12m high mixed use development (Case study : Waterloo)
- Intensification Type B - 10m high residential development (Case study : Epuni)
- Intensification Type B - 10m high residential development (Case study : Eastbourne)
- Intensification Type C - Comprehensive Development of a 2,000m<sup>2</sup> lot within the general residential zone (Case study : Stokes Valley)

For each of the scenarios the effects generated from changes to recession planes, building heights and boundary setbacks are investigated, with shade diagrams generated to show shadows at:

Winter (21 June)	8.30am, 10am, 12pm, 3pm, 4.30pm
Summer (21 December)	8.00am, 10am, 12pm, 3pm, 5pm, 7pm
Autumn / Spring equinox (21 March / 21 September)	8.00am, 10am, 12pm, 3pm, 5pm

All sketches have been generated using Sketchup Pro 2015 and Geo-referenced to actual sites within Hutt City. They also highlight impacts on public areas such as courtyards or streets. An illustration has been prepared showing how low impact design solutions can be integrated into a development, including where carparking will be provided.

Development form assumptions in terms of site characteristics from a character assessment perspective has been provided at a high level for each suburb in Appendix A but have not been assessed in this section. There is also a level of control around character outcomes provided for in the district plan through the design guide.

## 5.1 DEVELOPMENT POTENTIAL V RECESSION PLANES

A series of illustrations have been developed showing how recession planes have a considerable influence on the amount of a site which can be developed and that a 10m or 12m high limit may not be achievable on many sites if there is not a relaxation of existing requirements. The sketches work through different scenarios, establishing why certain assumptions have been made, and which are then tested in section 5.3.

### 5.1.1 INTENSIFICATION TYPE A - 12M HIGH MIXED USE DEVELOPMENT (CASE STUDY : WATERLOO)

Figure 5.1.1 shows how the existing recession planes limit development potential on an existing site (a real-life scenario has been used with a 10.48m wide lot). A lot characteristic of the local area was selected, but also somewhere development is anticipated due to its proximity and prominence. In this scenario, there is a 45° recession plane on all sides including the street frontage as per the existing District Plan rules. Please note that the sketch does not take into account setbacks but is simply showing the building envelope created by the existing recession planes.

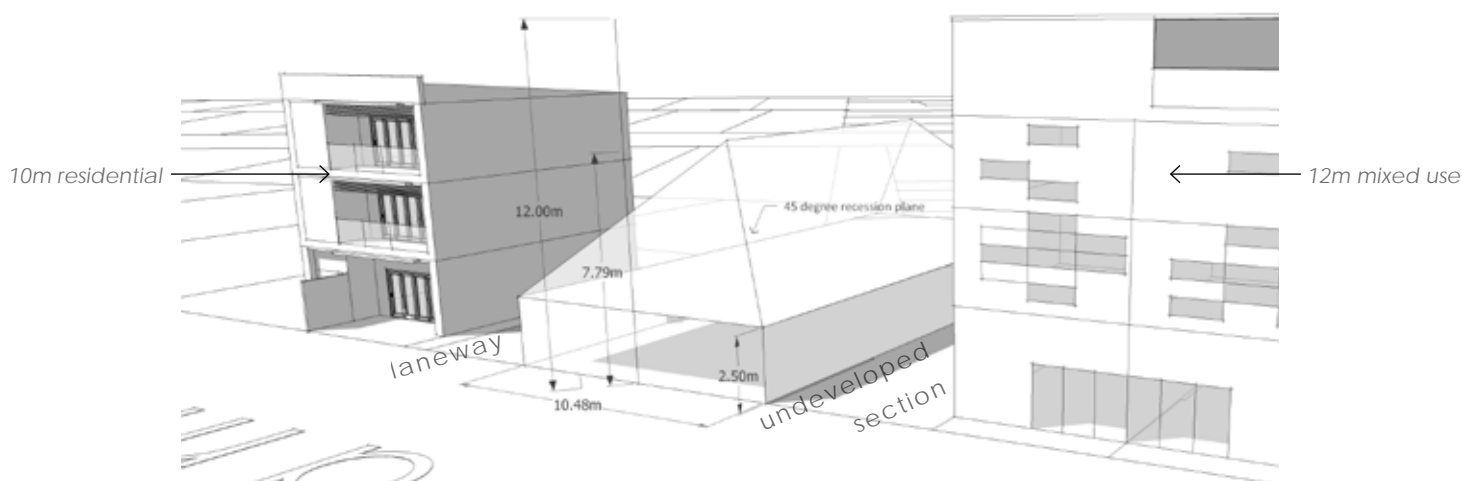


FIGURE 5.1.1 EXISTING RECESSION PLANES

Note: The illustration shows the recession plane controls and not an actual building as it does not take into account setback requirements.

With the removal of the street front recession plane in figure 5.1.2 the size of the building envelope increases but over 4m of developable floor space (height) is not accessible. Consolidation of lots would need to occur to access this additional height which has a number of disadvantages:

- it reduces the fine grain nature of neighbourhoods
- it could lead to an 'irregular' or scattered built form where development is limited to larger sites as opposed to creating a well-defined built edge along street frontages; and
- it removes the potential for smaller developers to construct mixed use as a larger site is required.

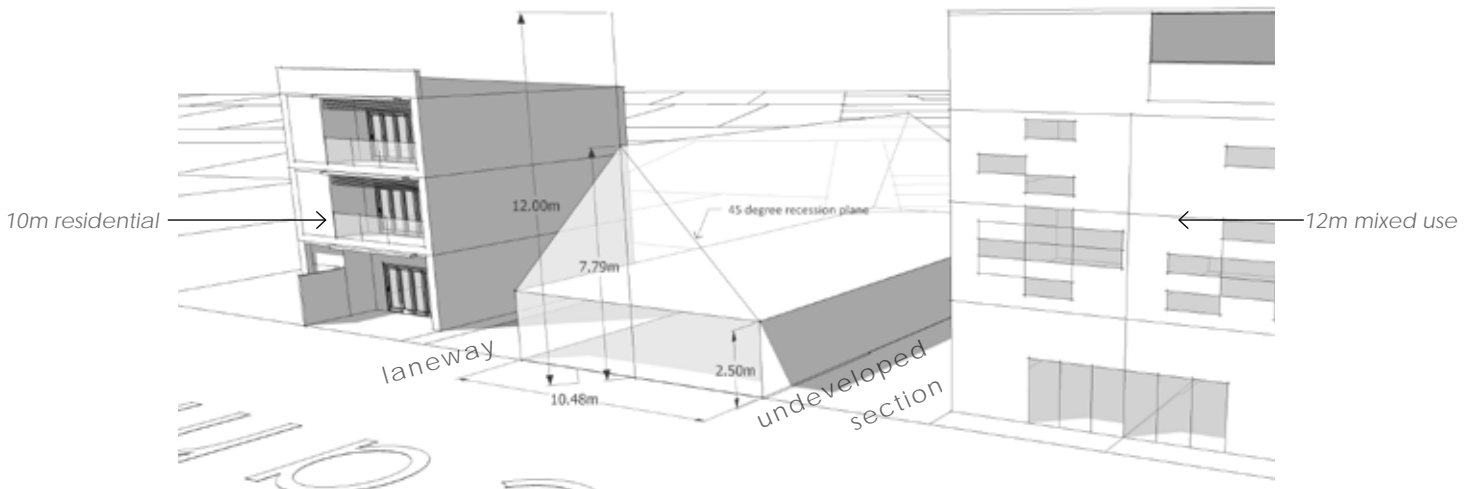


FIGURE 5.1.2 EXISTING RECESSION PLANES WITH THE REMOVAL OF THE STREET FRONTAGE RECESSION PLANE

Note: The illustration shows the recession plane controls and not an actual building as it does not take into account setback requirements.

Figure 5.1.3 then combines the proposed height and setback allowances with the existing recession planes to show how much developable floor space is lost if the existing controls are maintained. In section 5.2, the modelling assumes no recession planes within the mixed use zone and compares this with the existing provisions, making an analysis of the degree of effects.

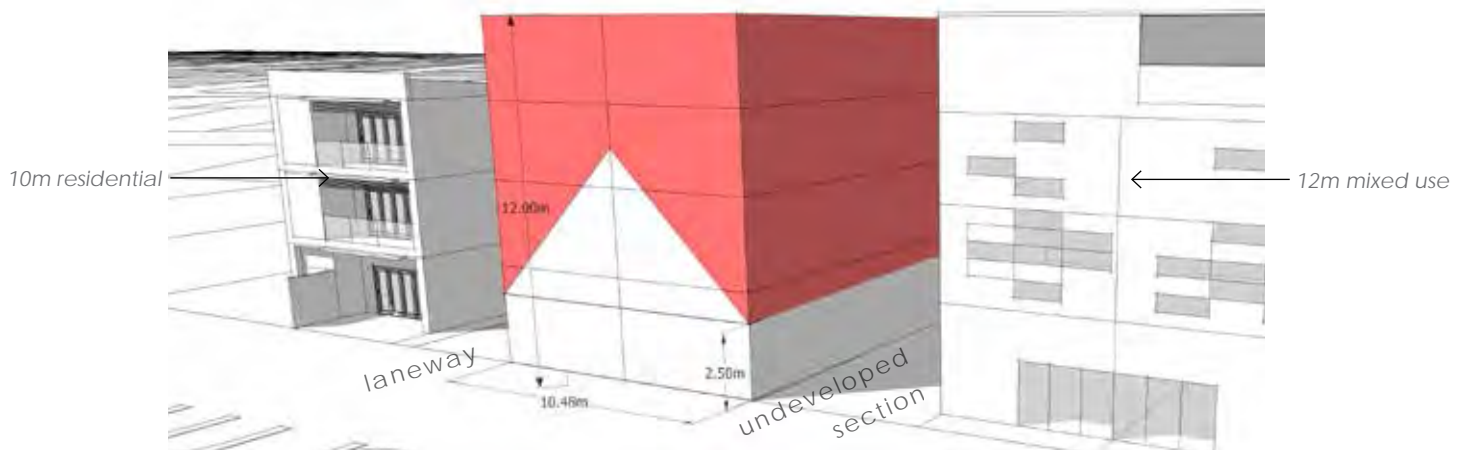


FIGURE 5.1.3 DEVELOPMENT POTENTIAL V RECESSION PLANES IN THE MIXED USE ZONE

The recommended approach, from an urban design point of view, and to be able to realise the full development potential of a site, is that recession planes and side yards are removed from the 12m mixed use zone, except where they adjoin a residential activity area. The sketch above highlights how much yield is lost and how it would not be possible to develop finer grain, taller developments as outlined earlier.

### 5.1.2 INTENSIFICATION TYPE B 10M HIGH RESIDENTIAL ZONE (CASE STUDY : EPUNI)

Figure 5.1.4 shows how the existing recession planes limit development potential on an existing site (a real-life scenario has been used with a 16.23m wide lot). In this scenario, there is a 45° recession plane on all sides including the street frontage as per the existing District Plan rules.

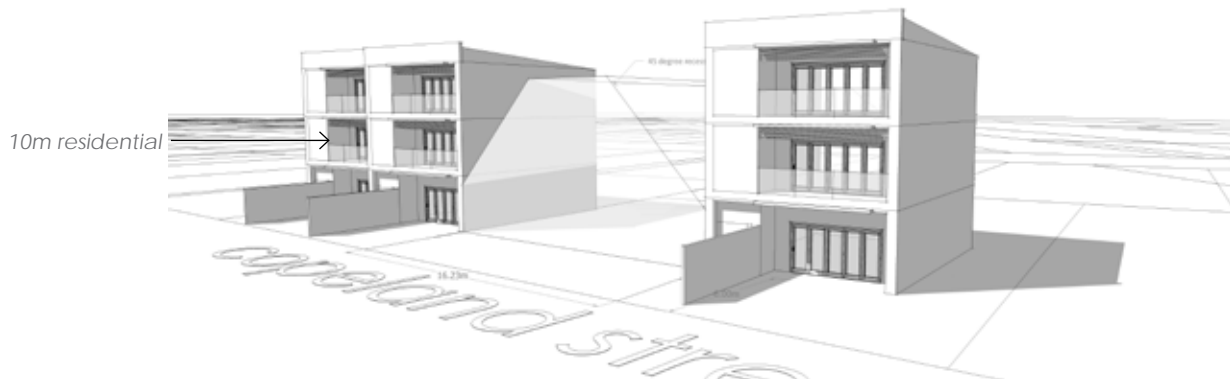


FIGURE 5.1.4 EXISTING RECESSION PLANES WITH THE REMOVAL OF THE STREET FRONTAGE RECESSION PLANE

*Note: The illustration shows the recession plane controls and not an actual building as it does not take into account setback requirements.*

Figure 5.1.5 below shows the difference between the current recession planes combined with no street frontage recession plane versus the proposed removal of recession planes within the zone and building up to 10m. With the removal of the recession planes the site becomes more usable with the ability to utilise the increased building height.



FIGURE 5.1.5 DEVELOPMENT POTENTIAL V RECESSION PLANES IN THE 10M RESIDENTIAL ZONE

The recommended approach is that recession planes and side yards are removed for the 10m residential zone and where they adjoin a 12m Mixed Use zone, but recession planes and side yards apply where they adjoin a general residential zoned property.

### 5.1.3 INTENSIFICATION TYPE B 10M HIGH RESIDENTIAL ZONE ADJACENT TO A 8M RESIDENTIAL ZONE (CASE STUDY : EASTBOURNE)

Figure 5.1.6 shows how the existing recession planes combined with the 3m sideyard requirements will protect existing residential development in lower density zones. The recession plane is drawn on a 45° angle 2.5m above the side boundary. Note how the end wall of the building should be designed to avoid large blank walls.

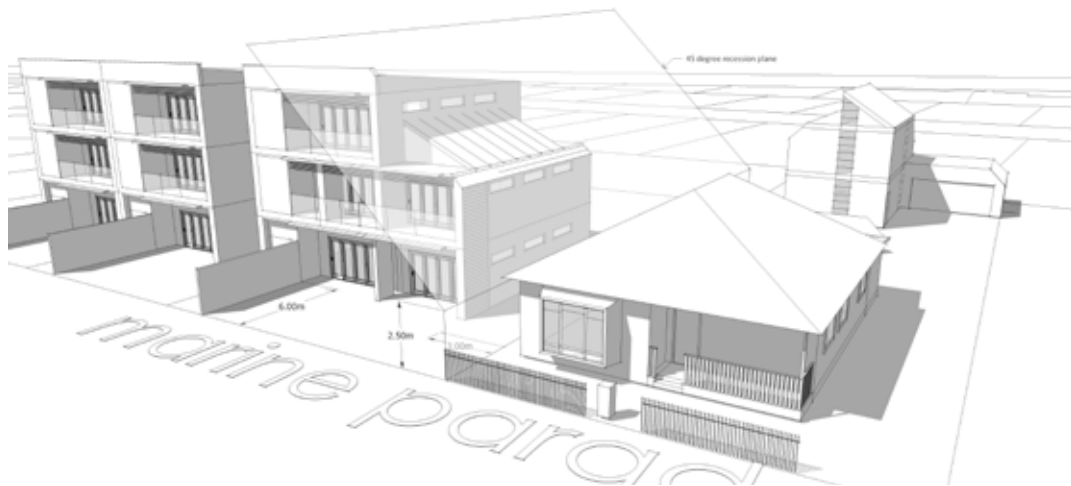


FIGURE 5.1.6 EXISTING RECESSION PLANES AND SIDE YARD CONTROLS

Figure 5.1.7 below shows the potential yield lost by enforcing the shade and setback requirements. Compared with other areas, the loss is not significant and in many cases vehicle access to the rear of the site would be necessary. The accessway can be located in the 3m set back to further minimise any potential loss of yield.



FIGURE 5.1.7 DEVELOPMENT POTENTIAL V RECESSION PLANES ADJOINING 8M RESIDENTIAL ZONE  
The recommended approach is for the existing recession plane requirements to be adopted along with a 3m side yard immediately adjacent to the residential zone. It should be noted that a change in 'intensification type' generally does not occur mid block to avoid adverse boundary effects.



#### 5.1.4 INTENSIFICATION TYPE C - COMPREHENSIVE DEVELOPMENT ON A 2,000M<sup>2</sup> LOT WITHIN THE GENERAL RESIDENTIAL ZONES (CASE STUDY : STOKES VALLEY)

Figure 5.1.8 shows how a 2,000m<sup>2</sup> lot could be developed comprehensively if internal side yards and recession planes are not required.



FIGURE 5.1.8 COMPREHENSIVE DEVELOPMENT WITHIN HUTT CITY

Figure 5.1.9 below shows how if the current recession planes were imposed on a comprehensive development of terrace housing and the benefits of removing this requirement. The existing recession planes have been applied to each individual internal lot with the area in red showing where it would not be possible to build. It would largely make terrace housing impossible to build above one storey.



FIGURE 5.1.9 COMPREHENSIVE DEVELOPMENT WITH INTERNAL RECESSION PLANE REQUIREMENTS

The recommended approach is for the existing recession planes and sideyards to be removed from the internal boundaries. This will allow for the construction of two storey terrace houses which are an efficient house typology. There will be no change in the effects experienced by adjoining properties as the existing recession planes and side yard setback requirements will still apply. The shading modelling in the following section will focus on the impacts removing internal recession planes and side yard setbacks will have on outdoor living space.

## 5.2 TESTING OF DEVELOPMENT PROVISIONS

### 5.2.1 INTENSIFICATION TYPE A - 12M HIGH MIXED USE DEVELOPMENT (CASE STUDY : WATERLOO)

#### DEVELOPMENT SCENARIO

In the block immediately adjacent to the railway station and bounded by the Cambridge Terrace, Hardy and Cressy Streets a theoretical simulation was created to allow 12m high mixed and 10m high residential development. The following sketches show how the proposed development could look in a simple bulk and location form and are then tested to show how it compares with shading caused by the current permitted baseline for medium density development.

#### PROPOSED ZONING

The sketch shows 12m mixed use in red and 10m residential in orange.

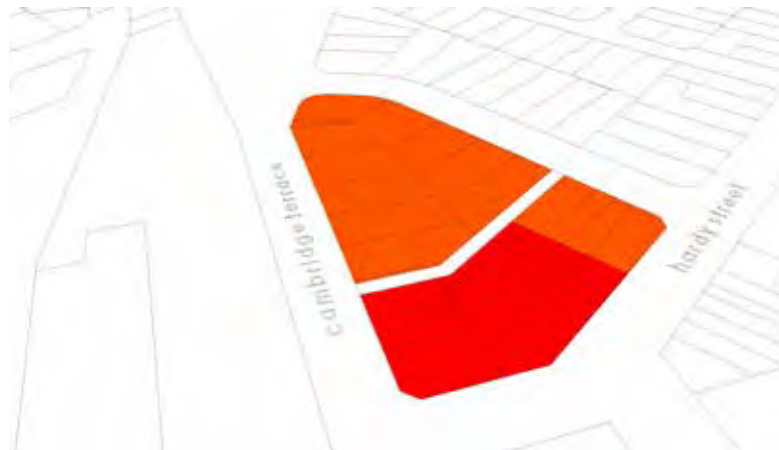


FIGURE 5.2.10 PROPOSED INTENSIFICATION BLOCK

#### DEVELOPMENT POTENTIAL

The sketch shows how the block could look, purely in bulk and location terms, if it were developed to its full potential. The 12m mixed use is in the foreground with 10m behind. The shading effects are generated to show 12pm, lunchtime, 21 September.

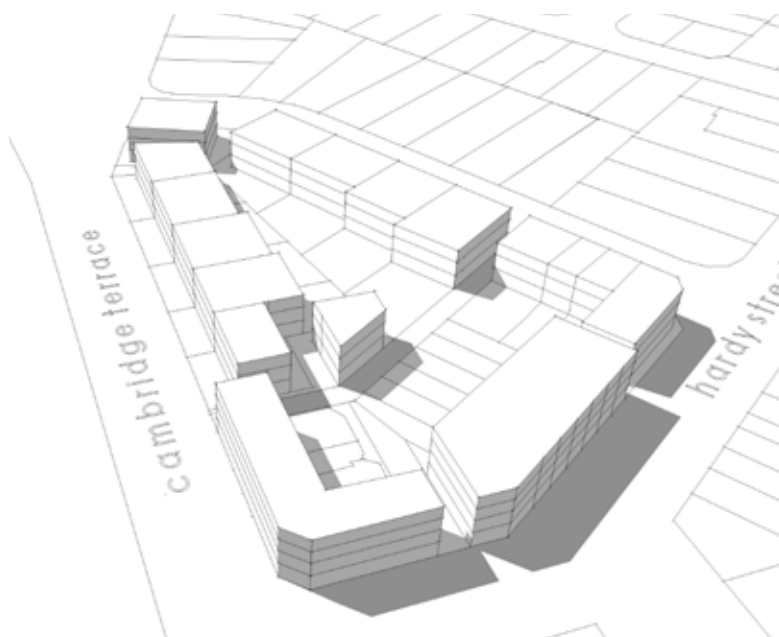
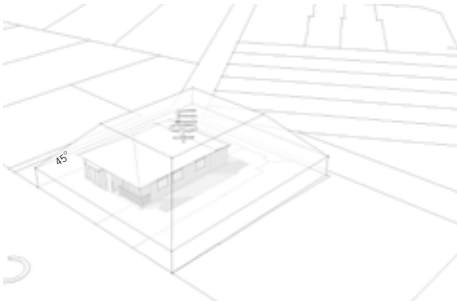
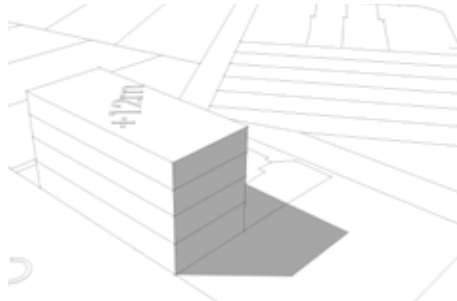


FIGURE 5.2.11 DEVELOPMENT POTENTIAL

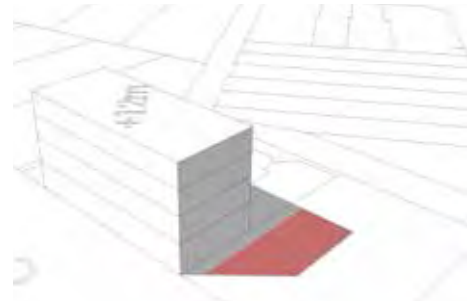
## EXISTING MEDIUM DENSITY RECESSION PLANES - PERMITTED BASELINE



**EXISTING SCENARIO** The above sketch shows the current permitted baseline for medium density housing with an 8m maximum height and 45° shade planes from 2.5m above the ground on all sides

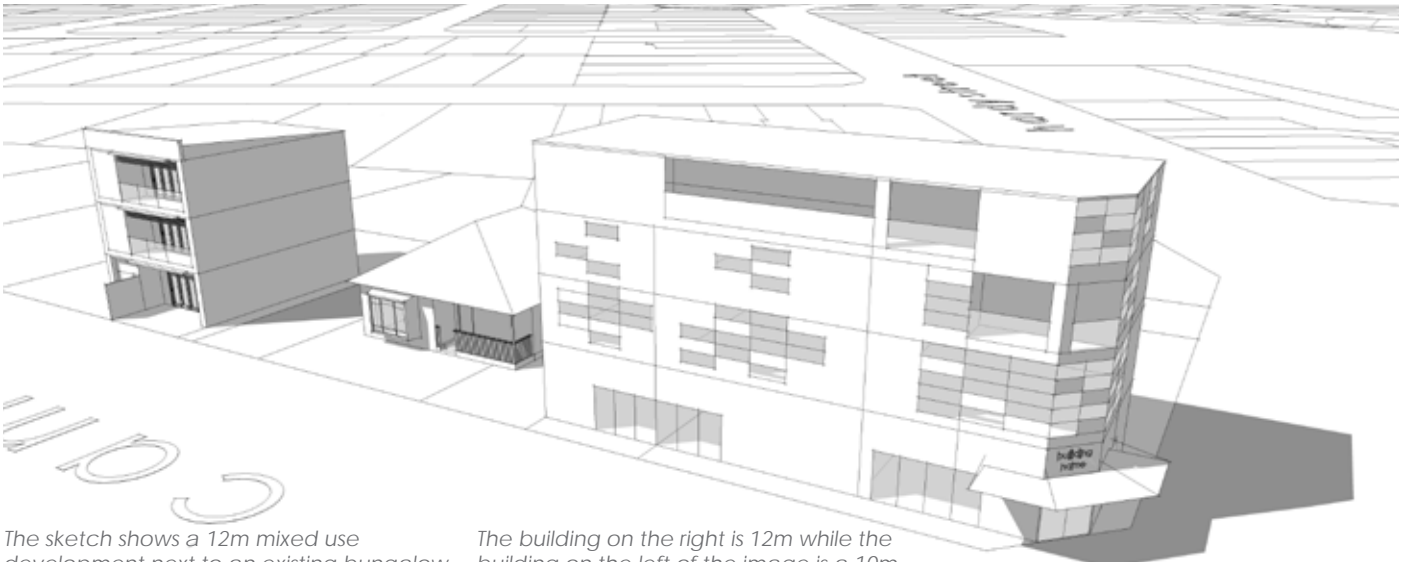


**PROPOSED SCENARIO** The above sketch shows the proposed scenario for Type A with a 12m maximum height, no side yard requirements and no recession planes



**COMPARISON** The above sketch shows a comparison between the two scenarios with the difference highlighted in red. This shows 12pm, 21 September.

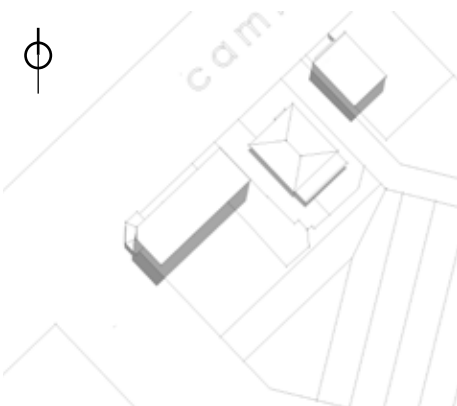
## SCENARIO SKETCH



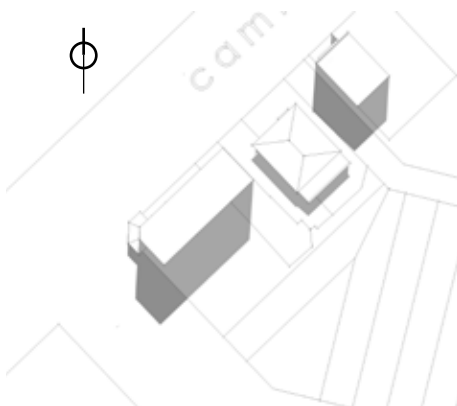
The sketch shows a 12m mixed use development next to an existing bungalow and how it maybe affected during a transitional period as intensification occurs.

The building on the right is 12m while the building on the left of the image is a 10m high residential townhouse or apartment development.

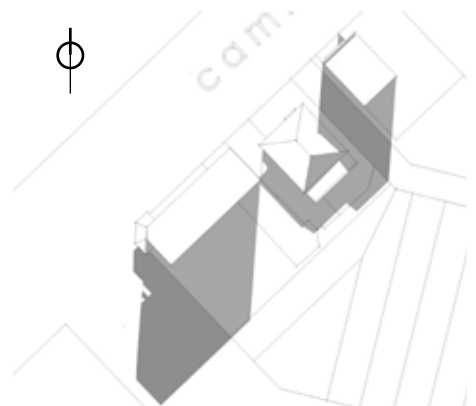
## SHADE DIAGRAMS



**SUMMER Solstice**  
12pm, 21 December  
Times shown will be:  
8.00am, 10am, 12pm, 3pm, 5pm, 7pm



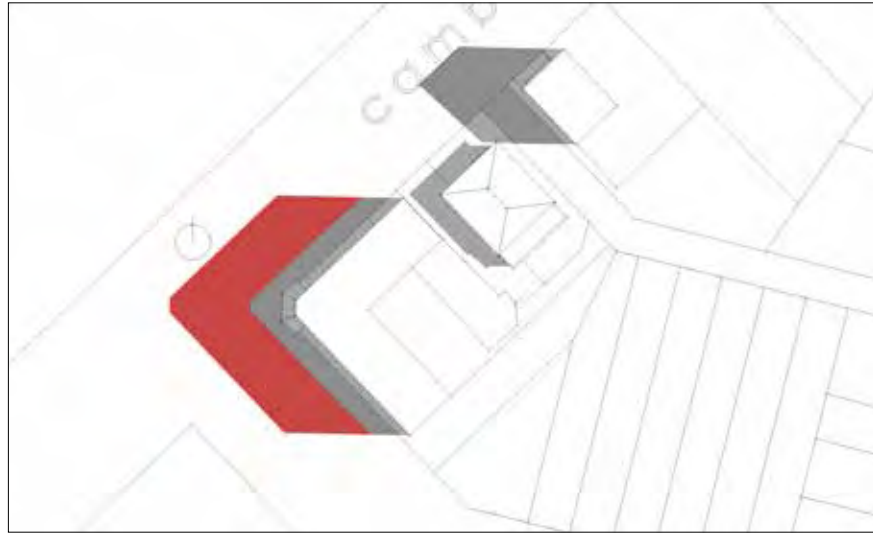
**AUTUMN /SPRING EQUINOX**  
12pm, 21 March / September  
Times shown will be:  
8.00am, 10am, 12pm, 3pm, 5pm



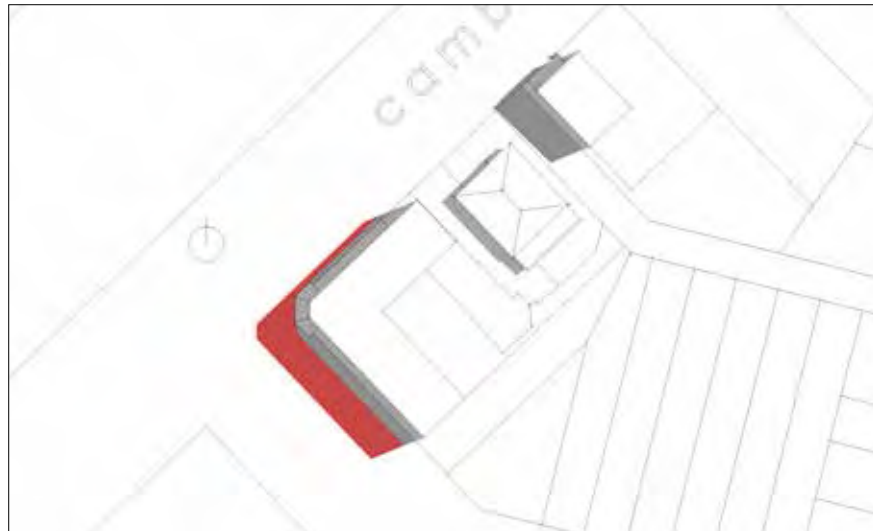
**WINTER Solstice**  
12pm, 21 June  
Times shown will be:  
8.30am, 10am, 12pm, 3pm, 4.30pm

## SUMMER SOLSTICE

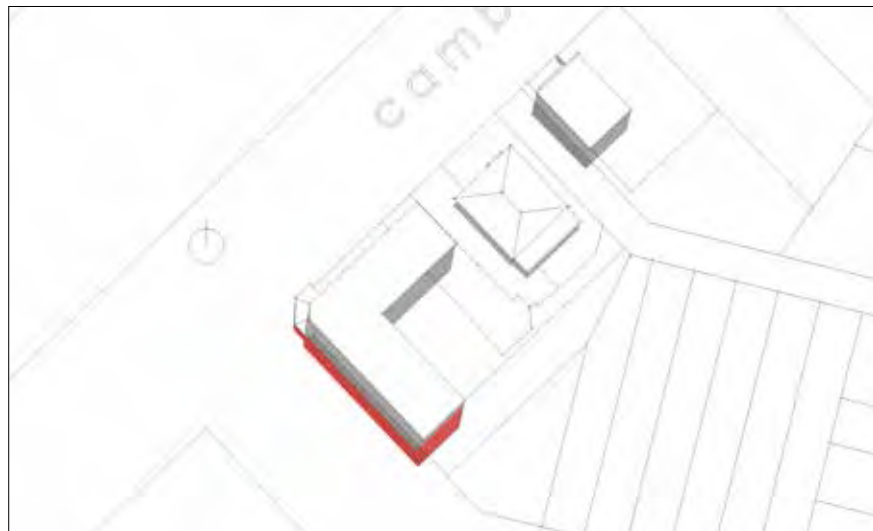
SUMMER Solstice  
21 December  
Time shown: 8.00am



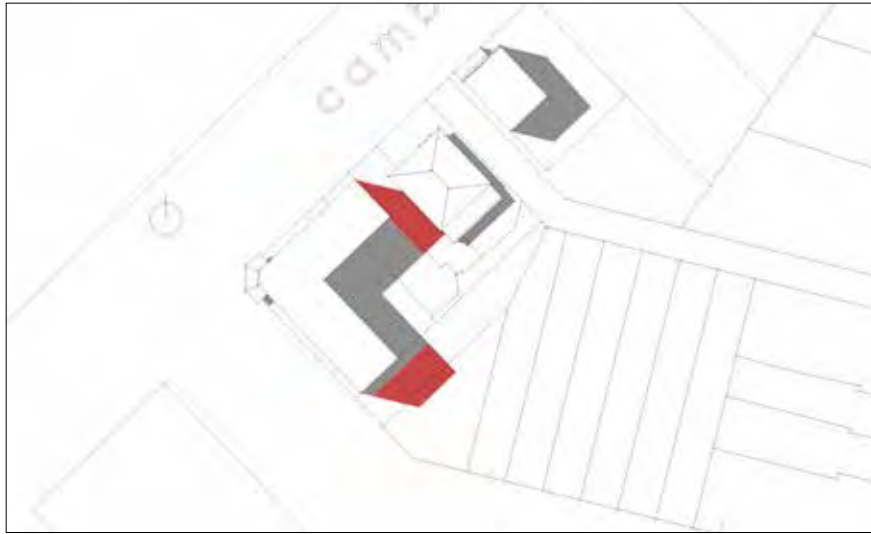
SUMMER Solstice  
21 December  
Time shown: 10.00am



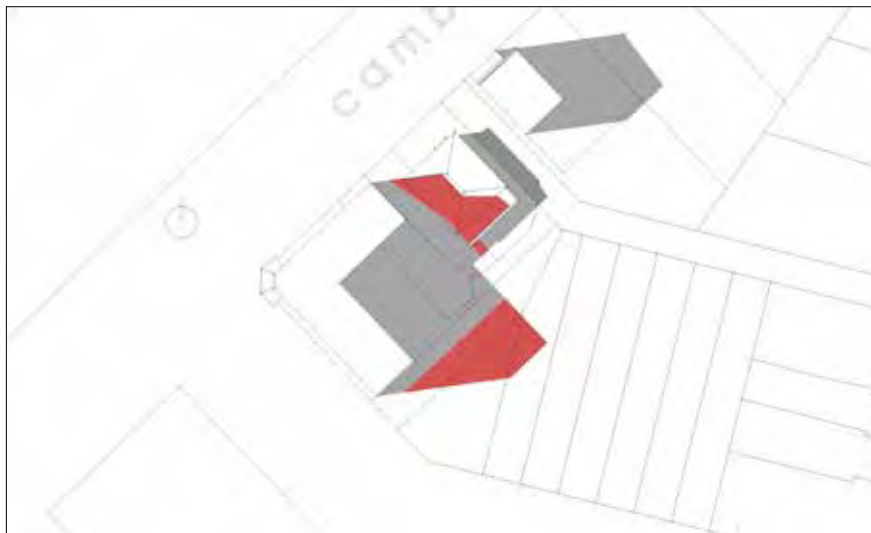
SUMMER Solstice  
21 December  
Time shown: 12.00pm



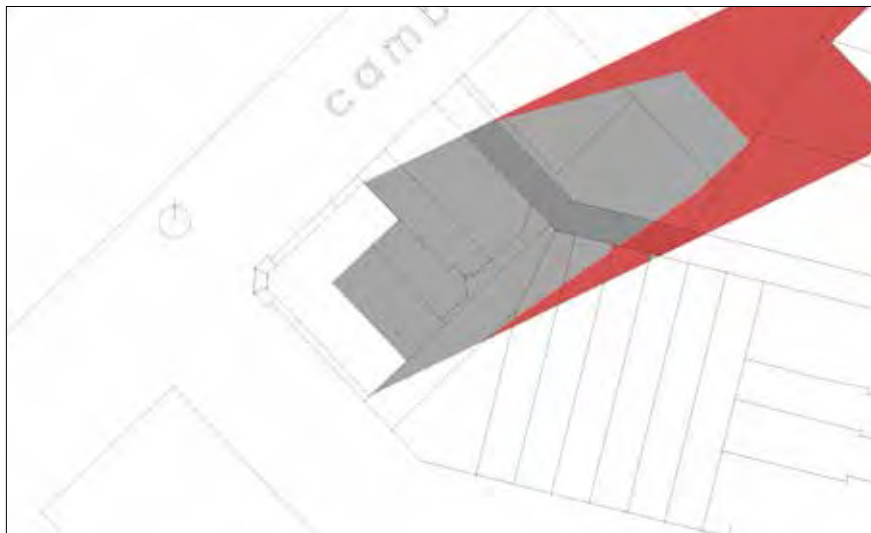
SUMMER Solstice  
21 December  
Time shown: 3.00pm



SUMMER Solstice  
21 December  
Time shown: 5.00pm



SUMMER Solstice  
21 December  
Time shown: 7.00pm

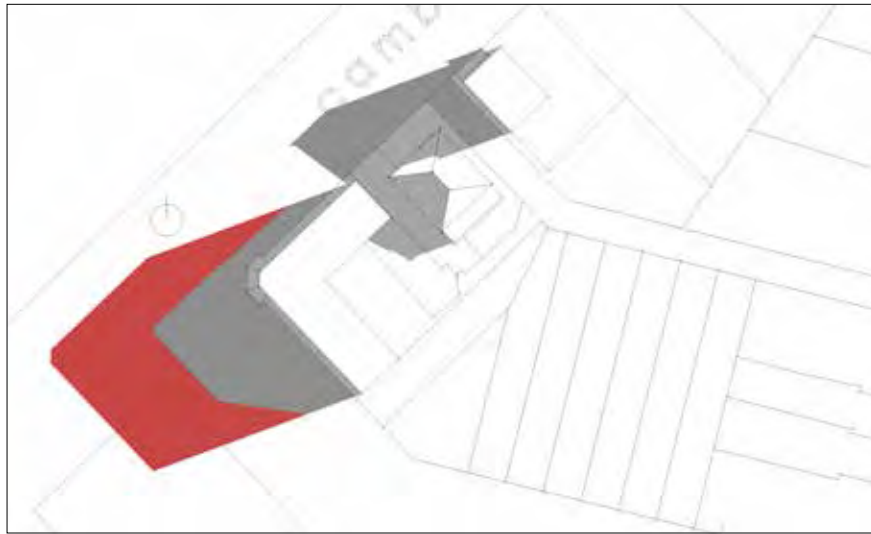


## AUTUMN / SPRING EQUINOX

AUTUMN / SPRING EQUINOX

21 March / September

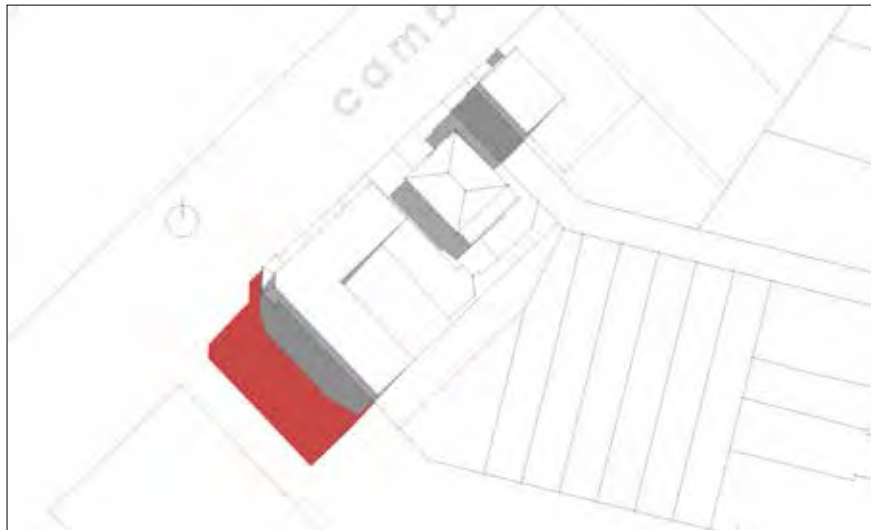
Time shown: 8.00am



AUTUMN / SPRING EQUINOX

21 March / September

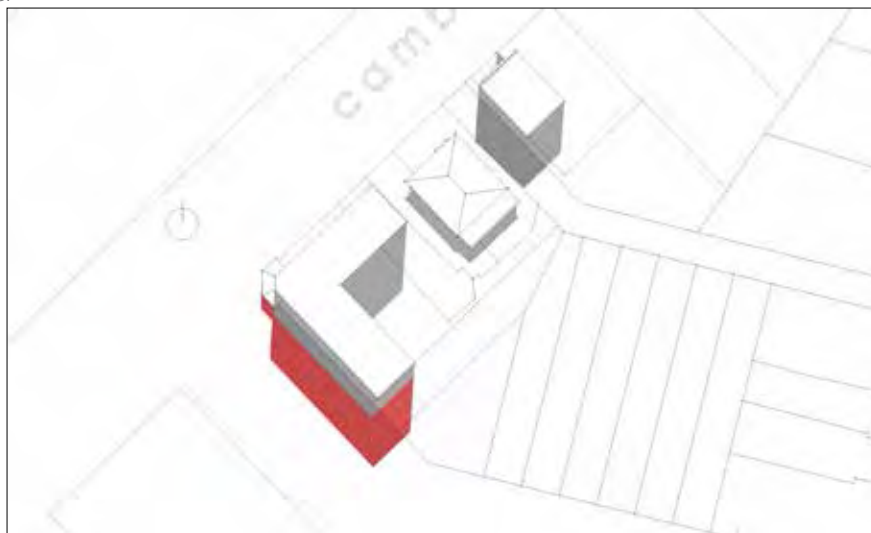
Time shown: 10.00am



AUTUMN / SPRING EQUINOX

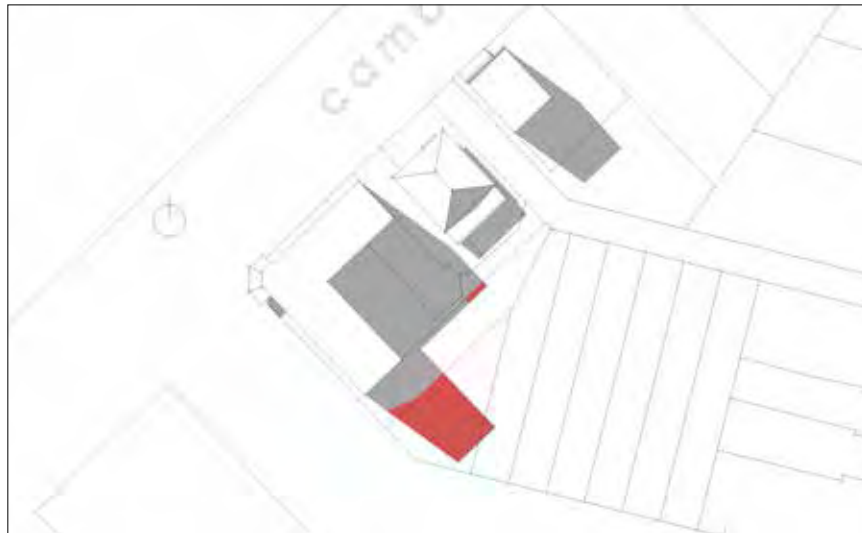
21 March / September

Time shown: 12.00pm

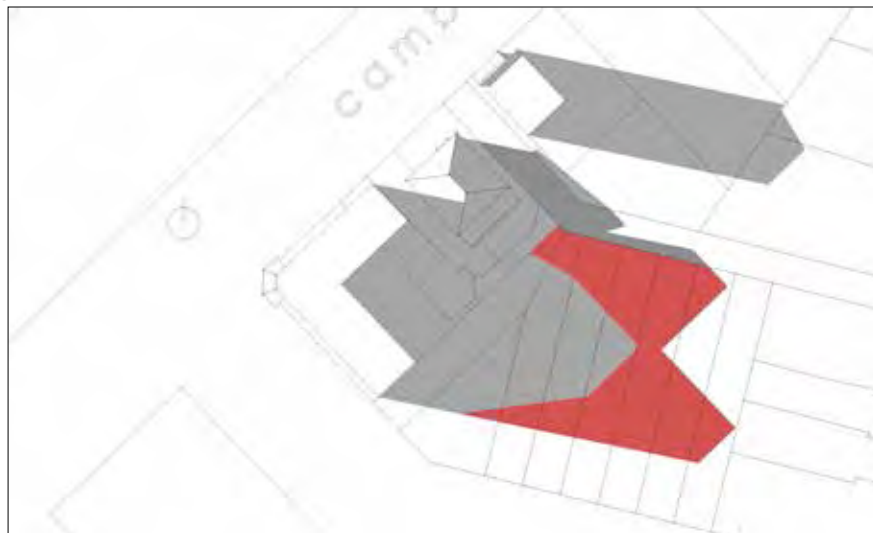




AUTUMN / SPRING EQUINOX  
21 March / September  
Time shown: 3.00pm



AUTUMN / SPRING EQUINOX  
21 March / September  
Time shown: 5.00pm

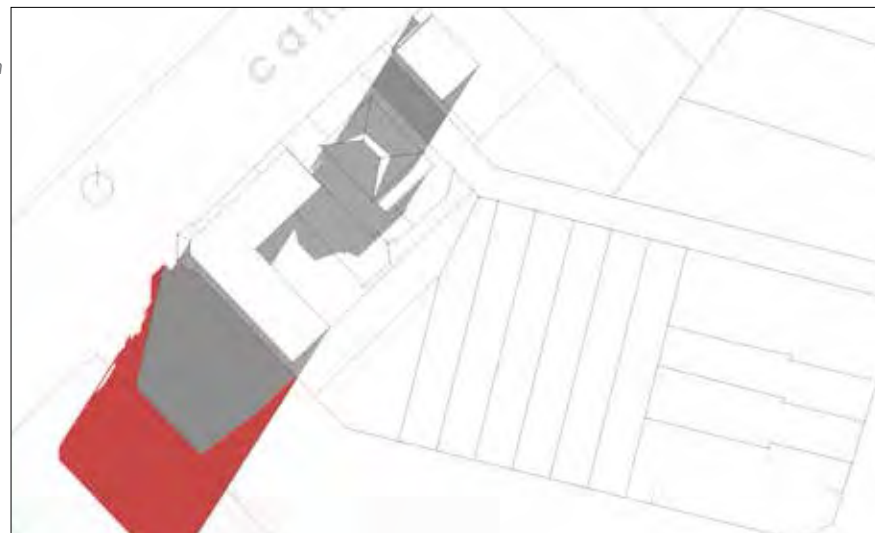


## WINTER SOLSTICE

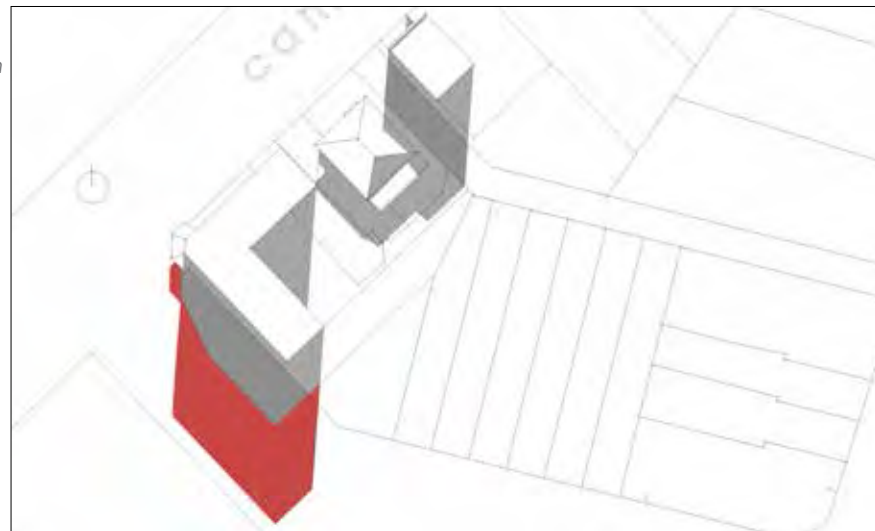
WINTER Solstice  
21 June  
Time shown: 8.30am



WINTER Solstice  
21 June  
Time shown: 10.00am

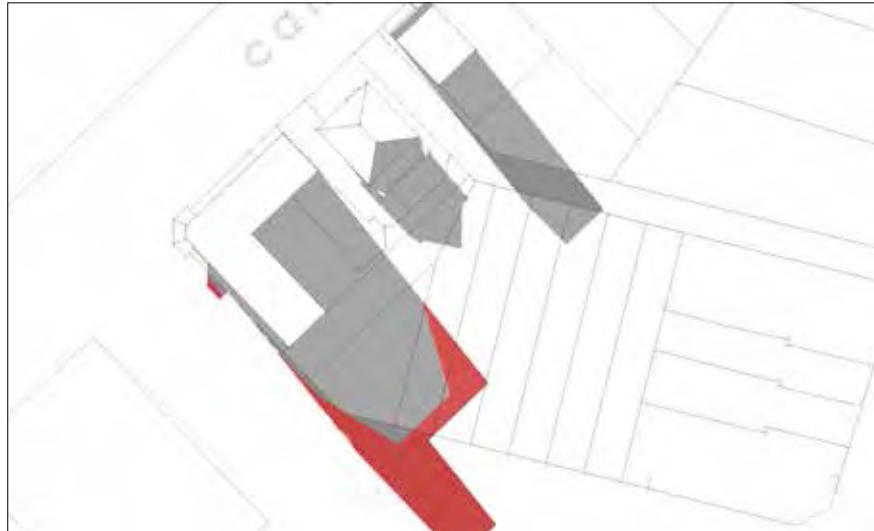


WINTER Solstice  
21 June  
Time shown: 12.00pm





WINTER Solstice  
21 June  
Time shown: 3.00pm



WINTER Solstice  
21 June  
Time shown: 4.30pm



### ASSESSMENT OF SHADING FOR INTENSIFICATION TYPE A - 12M MIXED USE

The modelling showed there will be a significant adverse effect for adjoining properties from Autumn through to Spring including the winter solstice as the zone transitions from a low rise residential area into a 12m high mixed use area with apartments. The diagrams show a significant increase in the amount of shading. In summer the effects are less noticeable except in the late evening when long shadows are present. It is considered that as the area develops, residual adverse effects will reduce as building typologies change to the new development rules.

## 5.2.2 INTENSIFICATION TYPE B - 10M HIGH RESIDENTIAL (CASE STUDY : EPUNI)

### DEVELOPMENT SCENARIO

In the block a short distance from the Epuni Railway station, and bounded by Copeland Street, Hall Crescent, and Witako Street a scenario to show how 10m high residential development could effect shading effects was created. The following sketches show how the proposed development could look in a simple bulk and location form and are then tested to show how it compares with shading caused by the current permitted baseline for medium density development.

### PROPOSED ZONING

The sketch shows  
10m residential in  
orange

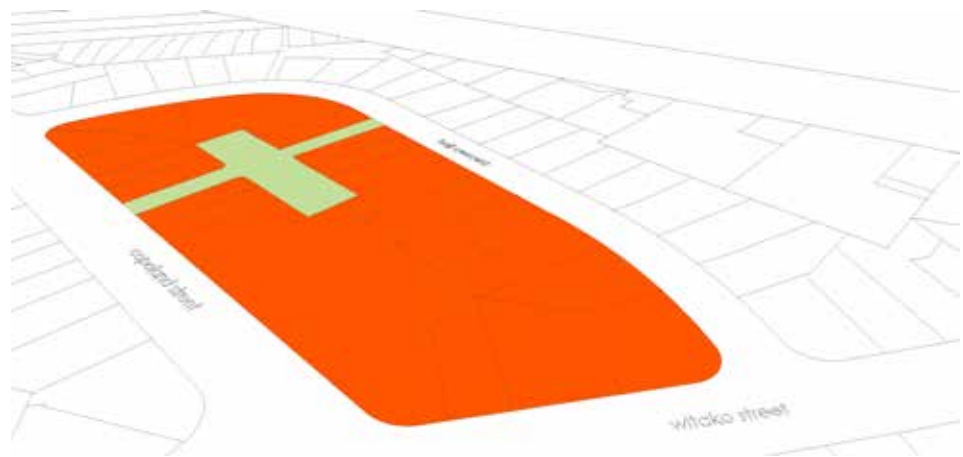


FIGURE 5.12 PROPOSED INTENSIFICATION BLOCK

### DEVELOPMENT POTENTIAL

The sketch shows how the block could look, purely in bulk and location terms, if it were developed to its full potential. The shadows are generated to show 12pm, lunchtime, 21 September.

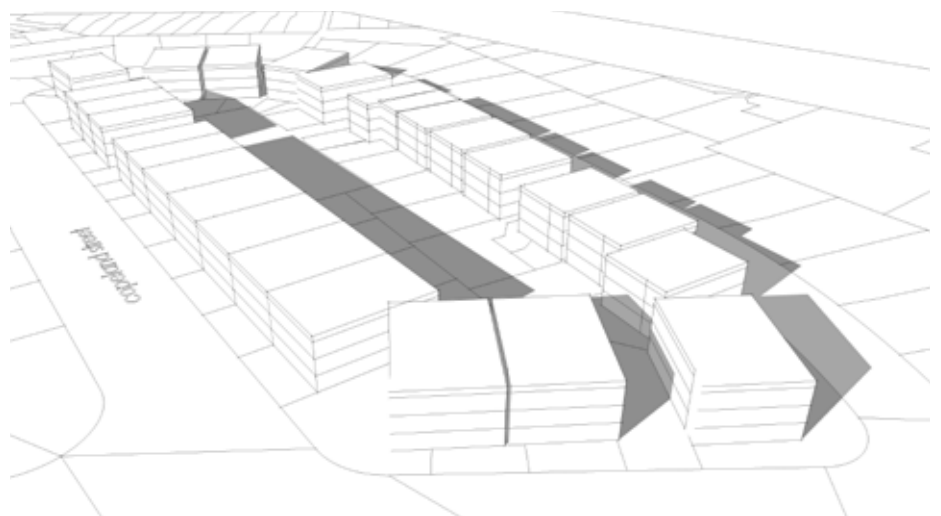
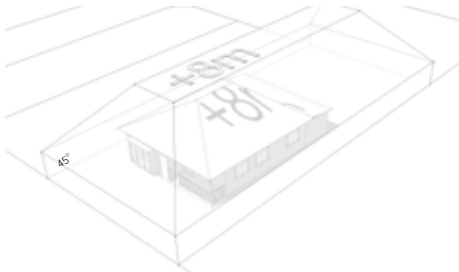
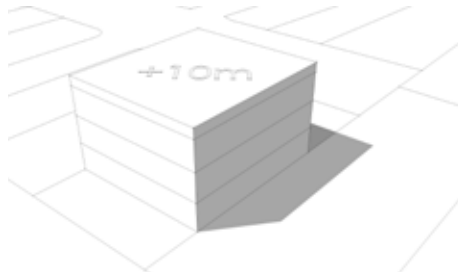


FIGURE 5.13 DEVELOPMENT POTENTIAL

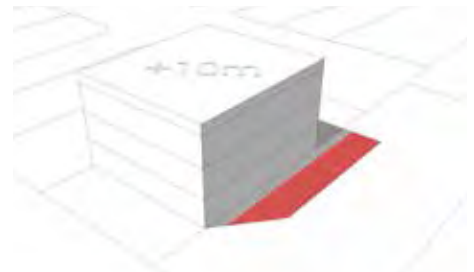
## EXISTING MEDIUM DENSITY RECESSION PLANES - PERMITTED BASELINE



**EXISTING SCENARIO** The above sketch shows the current permitted baseline for medium density housing with an 8m maximum height and 45° shade planes from 2.5m above the ground on all sides



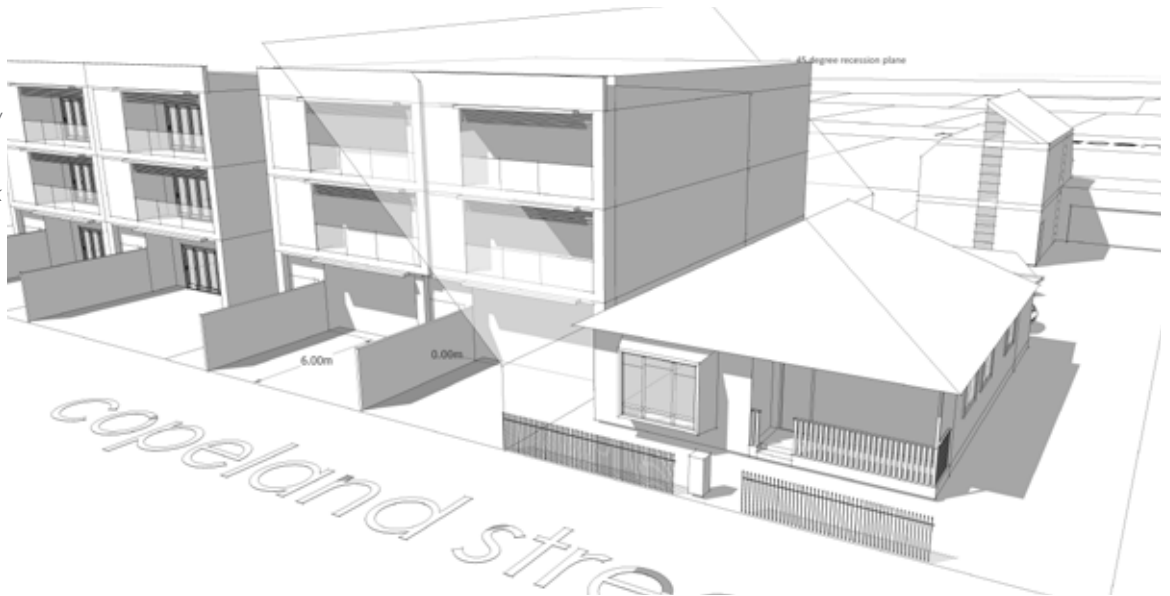
**PROPOSED SCENARIO** The above sketch shows the proposed scenario for Type B with a 10m maximum height, no side yard requirements and no shade planes, except adjacent to the 8m residential zone



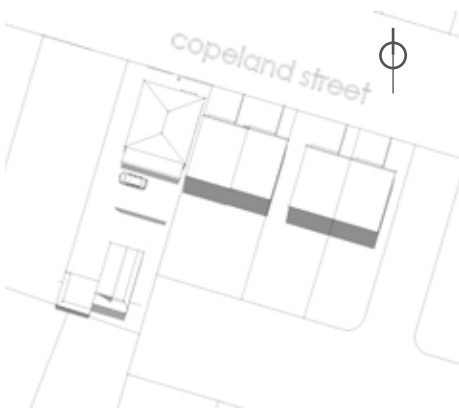
**COMPARISON** The above sketch shows a comparison between the two scenarios with the difference highlighted in red. This shows 12pm, 21 September.

## SCENARIO SKETCH

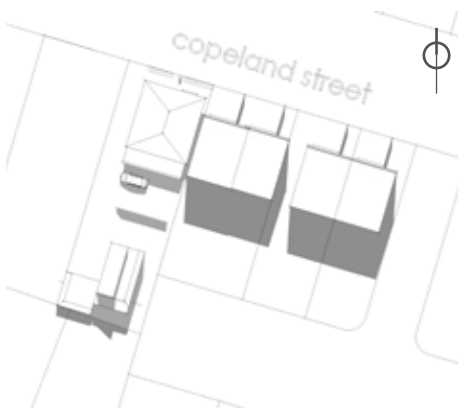
The sketch shows a 10m residential development next to an existing bungalow and how it may be affected without a 3m side yard setback and a 45° recession plane starting 2.5m above the internal boundary.



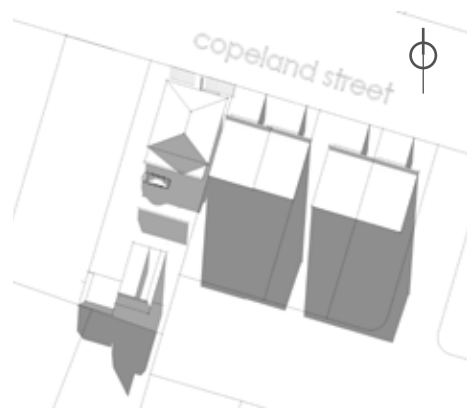
## SHADE DIAGRAMS



**SUMMER Solstice**  
12pm, 21 December  
Times shown will be:  
8.00am, 10am, 12pm, 3pm, 5pm, 7pm



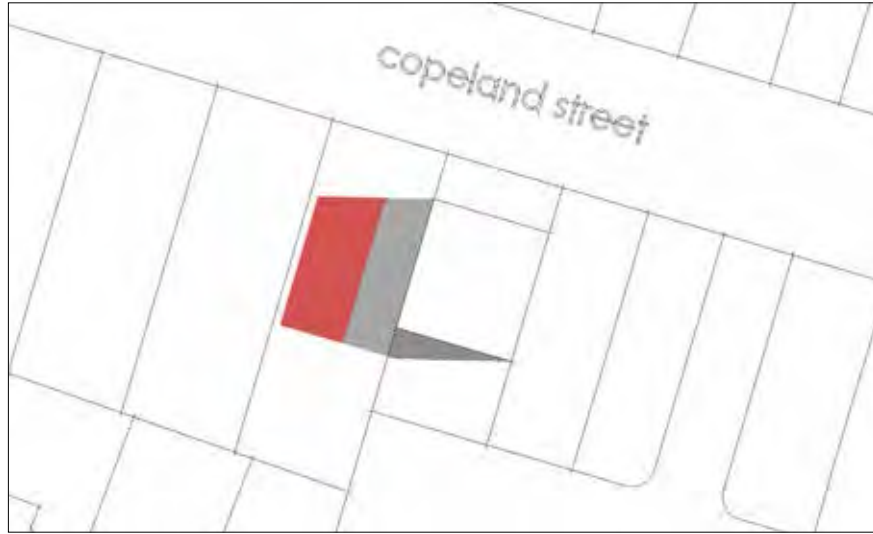
**AUTUMN /SPRING EQUINOX**  
12pm, 21 March / September  
Times shown will be:  
8.00am, 10am, 12pm, 3pm, 5pm



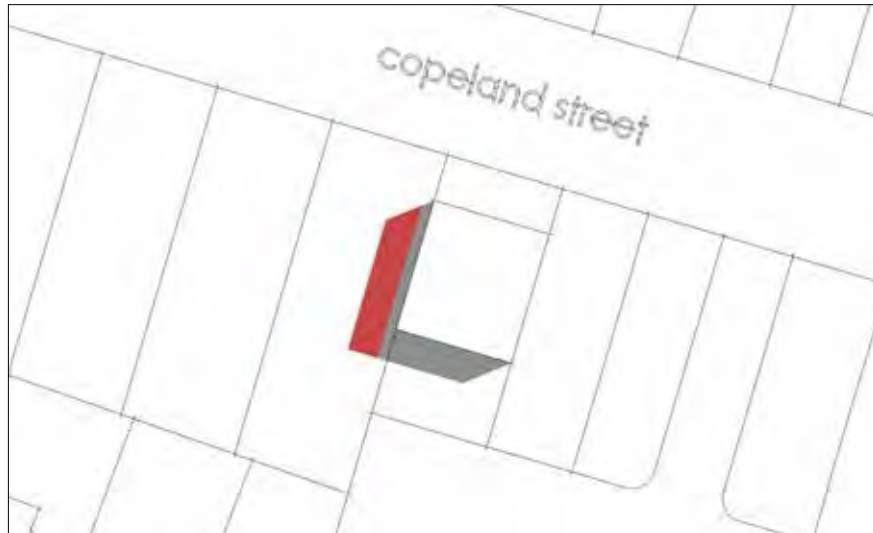
**WINTER Solstice**  
12pm, 21 June  
Times shown will be:  
8.30am, 10am, 12pm, 3pm, 4.30pm

## SUMMER SOLSTICE

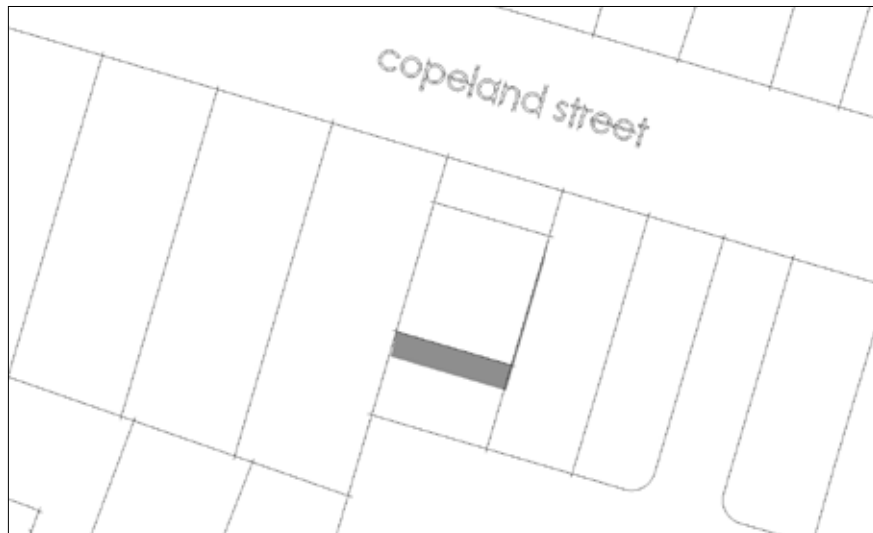
SUMMER Solstice  
21 December  
Time shown: 8.00am



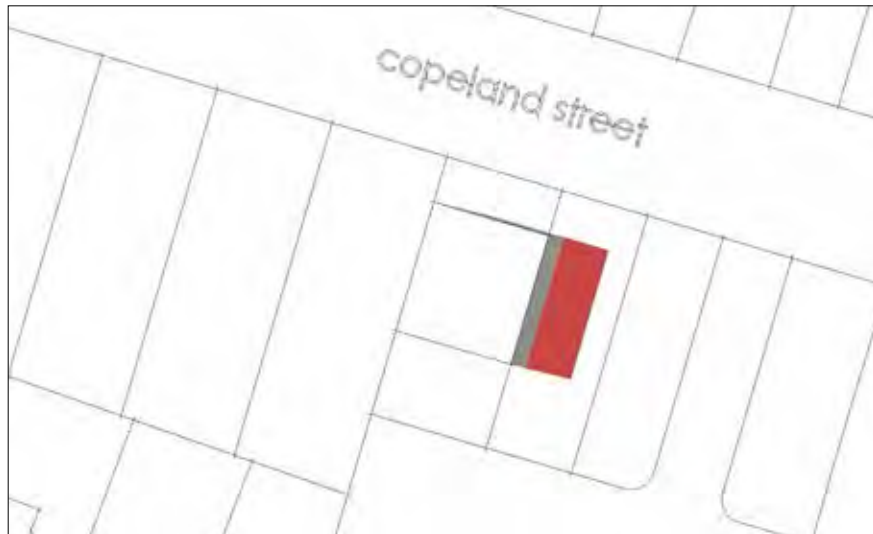
SUMMER Solstice  
21 December  
Time shown: 10.00am



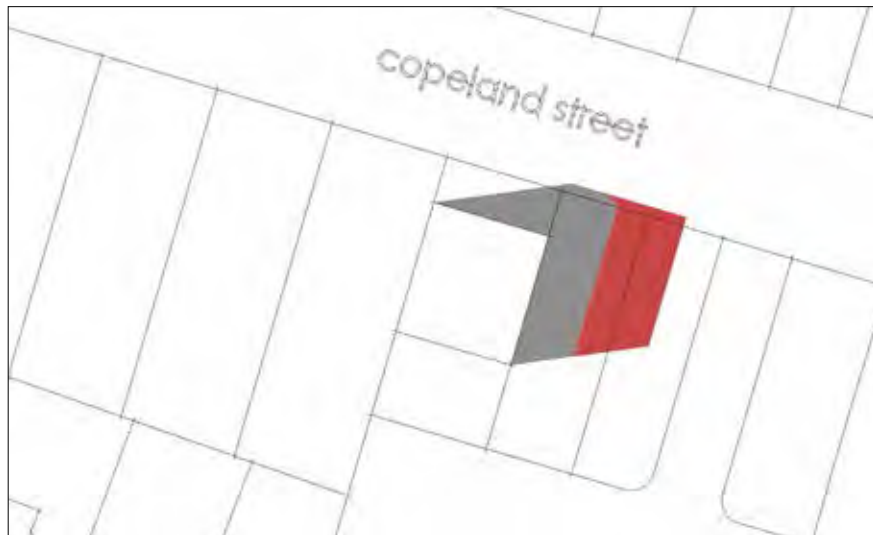
SUMMER Solstice  
21 December  
Time shown: 12.00pm



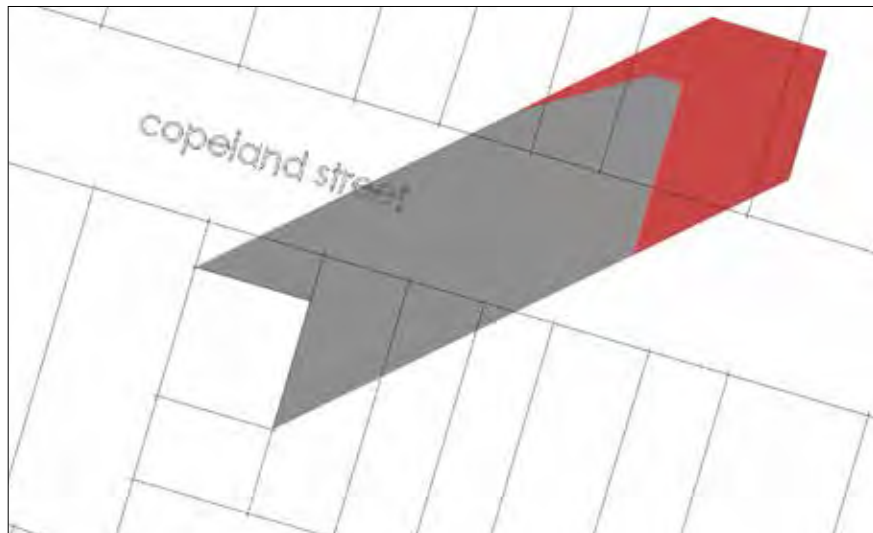
SUMMER Solstice  
21 December  
Time shown: 3.00pm



SUMMER Solstice  
21 December  
Time shown: 5.00pm



SUMMER Solstice  
21 December  
Time shown: 7.00pm

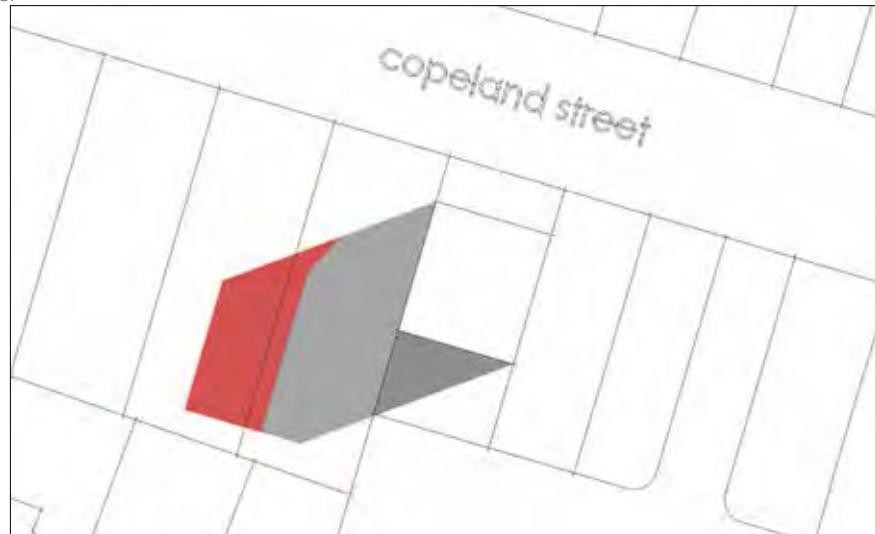


## AUTUMN / SPRING EQUINOX

AUTUMN / SPRING EQUINOX

21 March / September

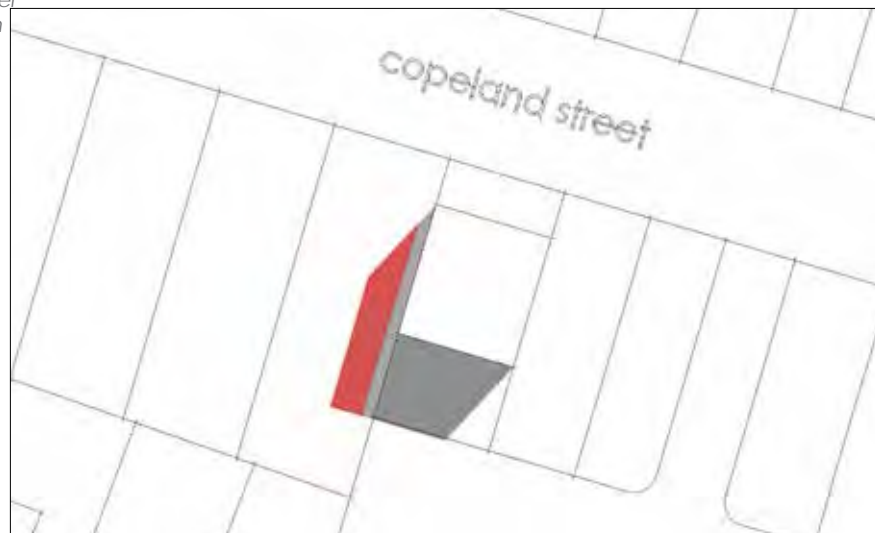
Time shown: 8.00am



AUTUMN / SPRING EQUINOX

21 March / September

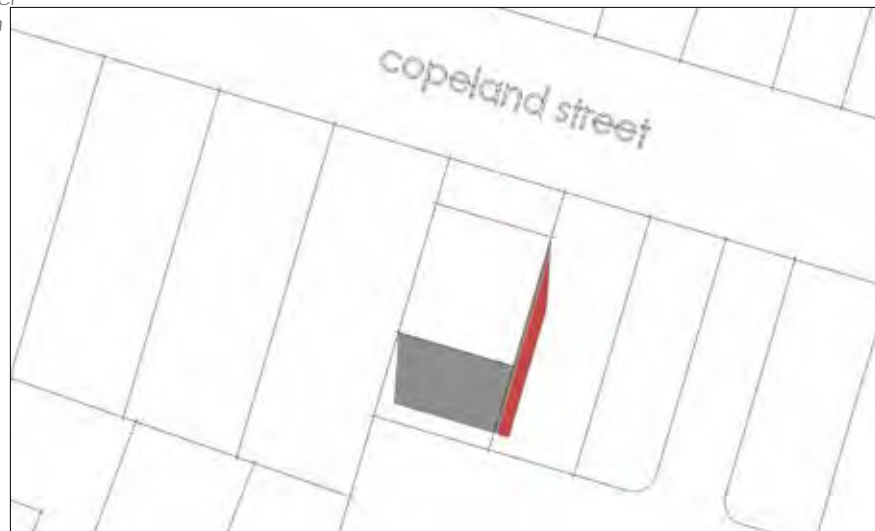
Time shown: 10.00am



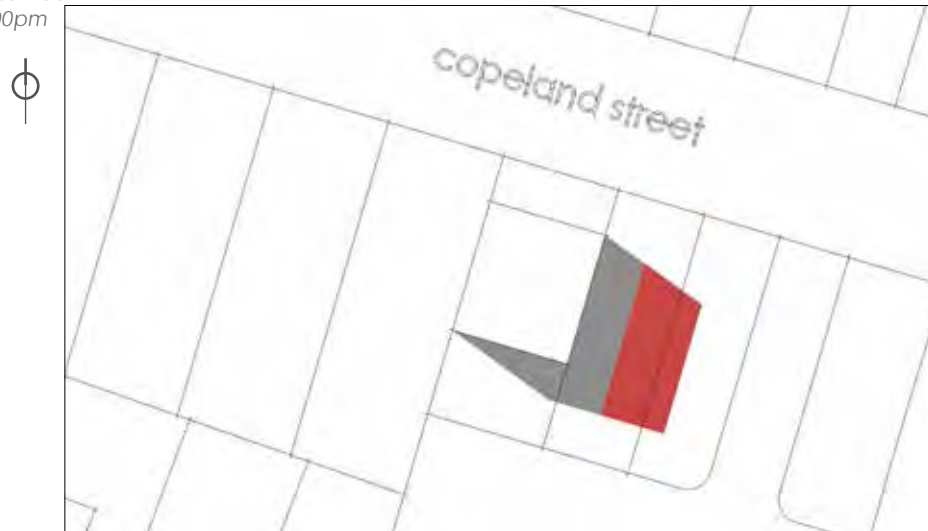
AUTUMN / SPRING EQUINOX

21 March / September

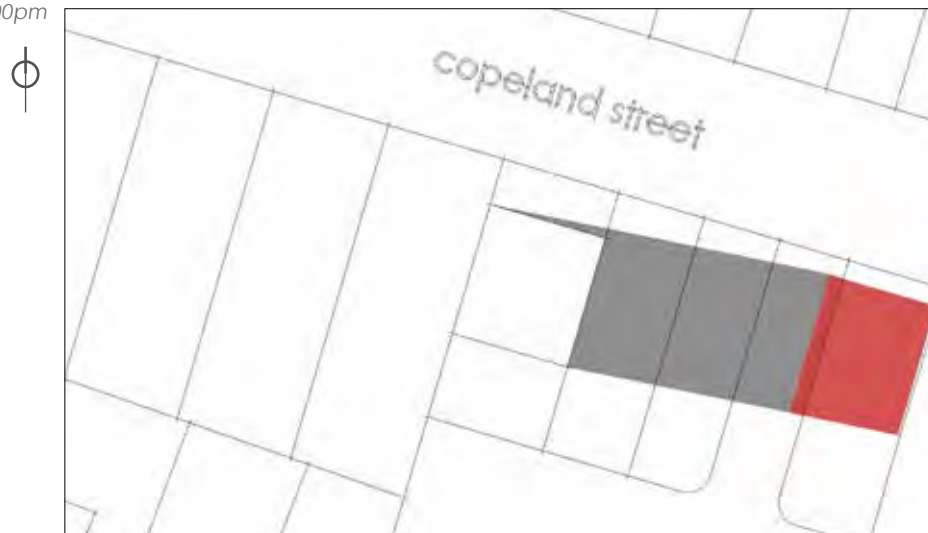
Time shown: 12.00pm



AUTUMN / SPRING EQUINOX  
21 March / September  
Time shown: 3.00pm



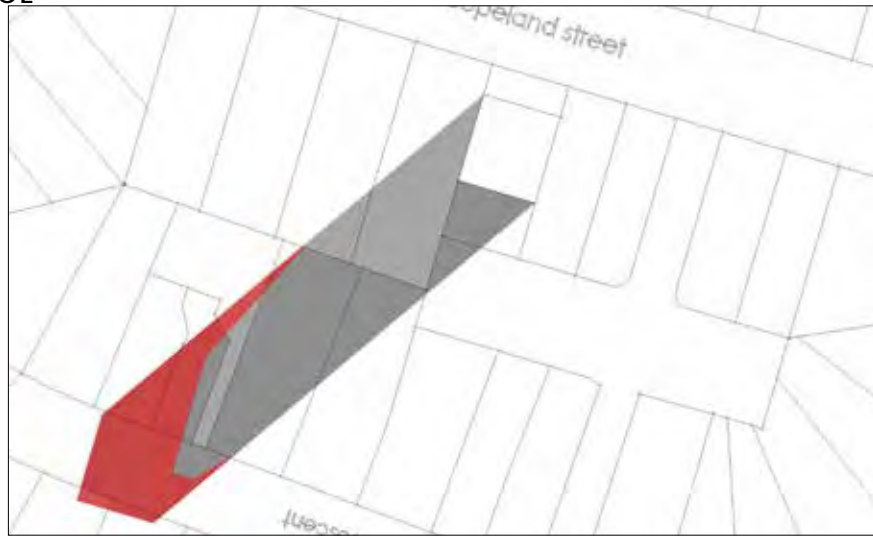
AUTUMN / SPRING EQUINOX  
21 March / September  
Time shown: 5.00pm



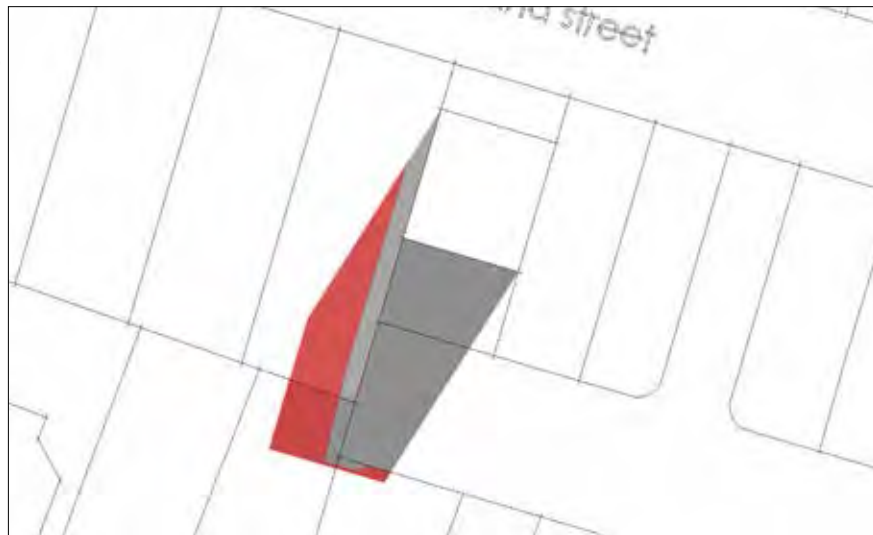


## WINTER SOLSTICE

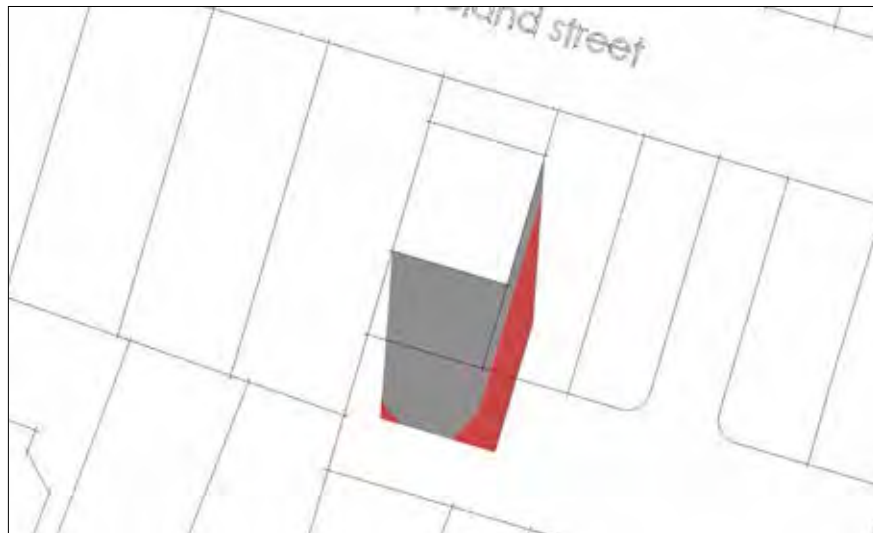
WINTER Solstice  
21 June  
Time shown: 8.30am



WINTER Solstice  
21 June  
Time shown: 10.00am

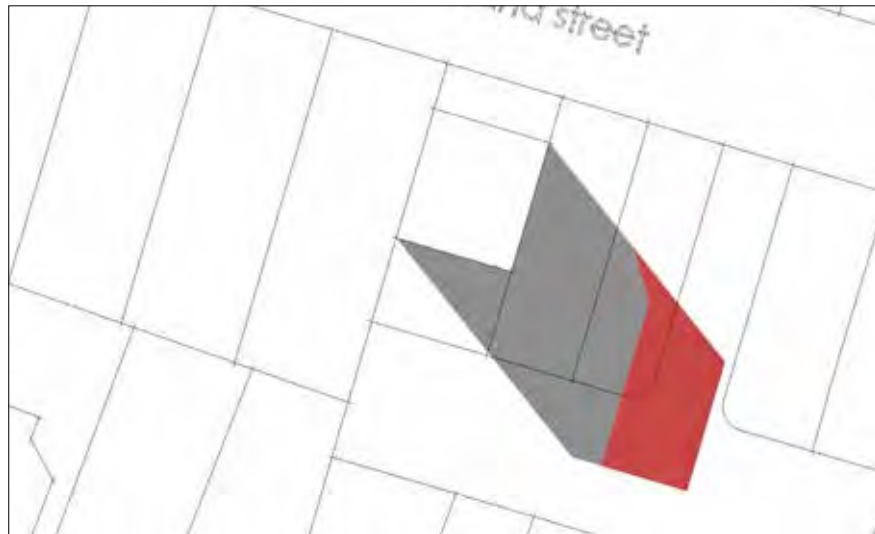


WINTER Solstice  
21 June  
Time shown: 12.00pm

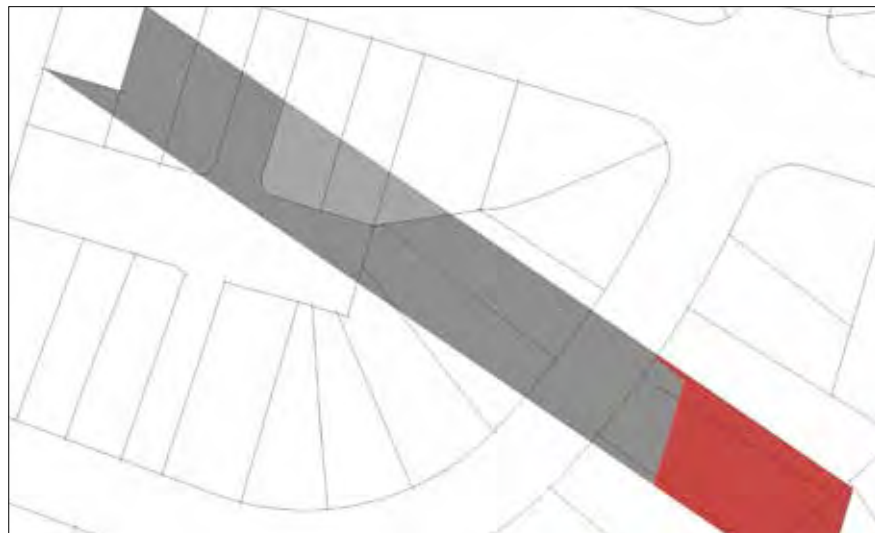




WINTER Solstice  
21 June  
Time shown: 3.00pm



WINTER Solstice  
21 June  
Time shown: 4.30pm



### ASSESSMENT OF SHADING FOR INTENSIFICATION TYPE B - 10M RESIDENTIAL

The modelling showed there will be a significant adverse effect for adjoining properties for most of winter as the zone transitions from a low rise residential area into a 10m high residential area with apartments and townhouses. The diagrams show a significant increase in the amount of shading which occurs during winter but lesser degrees of change in Autumn and Spring. In summer the effects are less noticeable except in the late evening when long shadows occurs. It is considered that as the area develops, residual adverse effects will reduce as building typologies change to the new development rules.

### 5.2.3 INTENSIFICATION TYPE B - 10M HIGH RESIDENTIAL (CASE STUDY : EASTBOURNE)

#### DEVELOPMENT SCENARIO

This scenario is located on Marine Parade, Eastbourne to show how the existing shade recession planes would influence development which borders a general residential zone. It is positioned on a northwest, harbour facing site where it adjoins an area which would remain as a 8m residential zone. The existing shade and side set back requirements are maintained for the boundary adjoining the 8m zone but removed on all others.

#### PROPOSED ZONING

The sketch shows 12m mixed use in red and 10m residential in orange. The 8m residential area is not coloured.

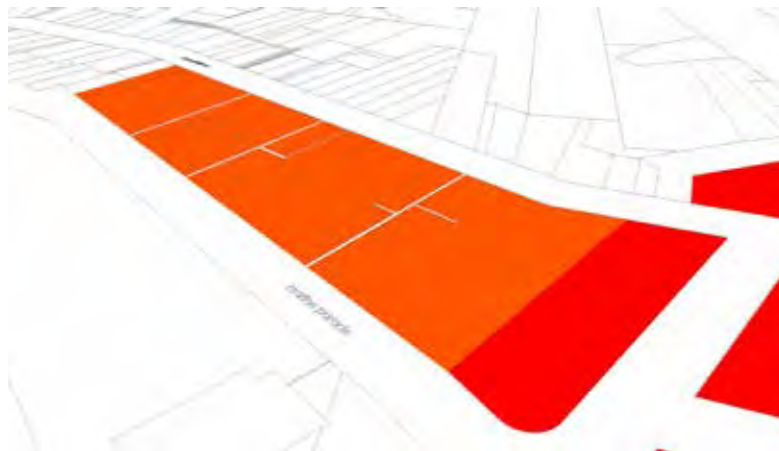


FIGURE 5.2.14 PROPOSED INTENSIFICATION BLOCK

#### SCENARIO SKETCH

The sketch shows a 10m residential development next to an existing bungalow and how it may be affected with a 3m side yard setback and a 45° recession plane starting 2.5m above the internal boundary.

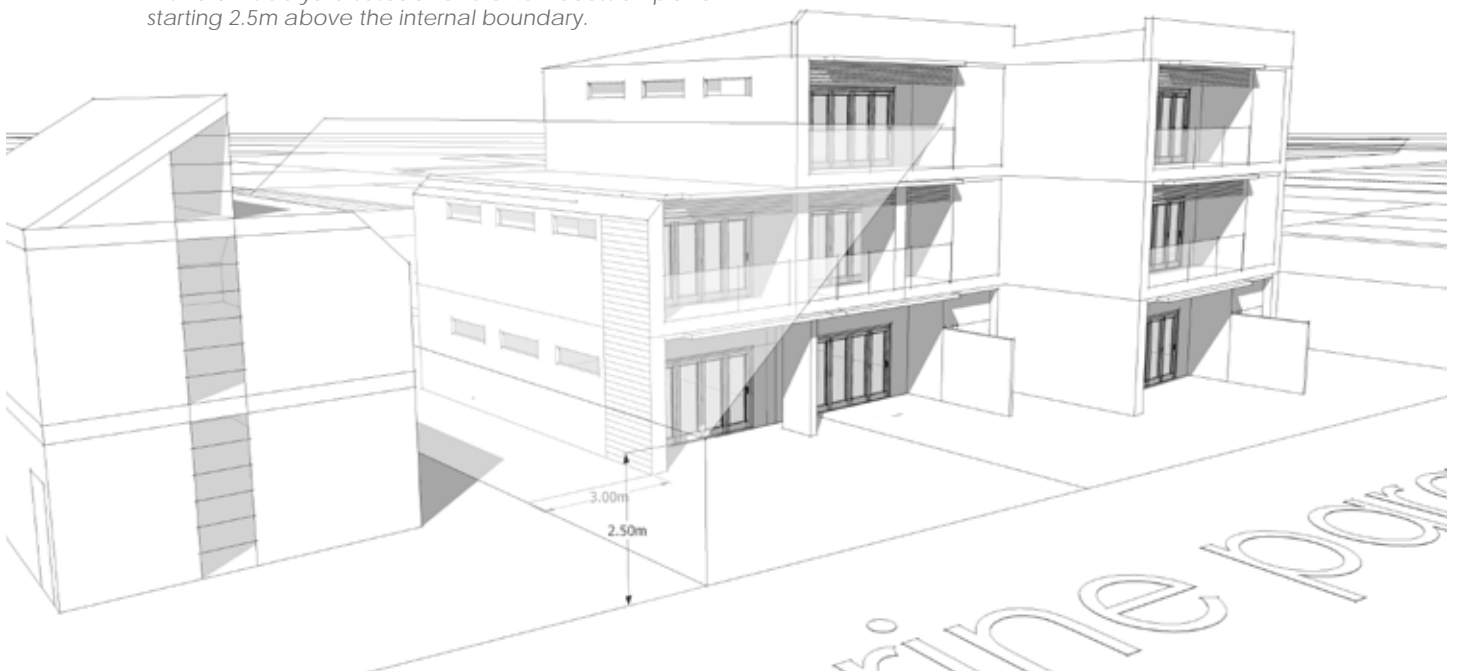
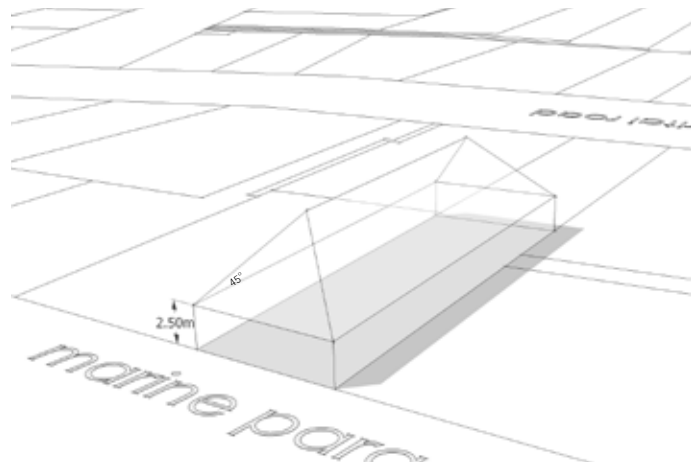


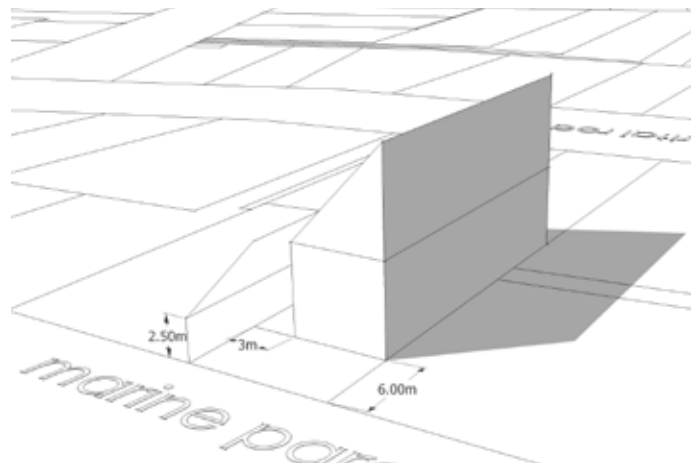
FIGURE 5.15 DEVELOPMENT POTENTIAL

## EXISTING MEDIUM DENSITY RECESSION PLANES - PERMITTED BASELINE

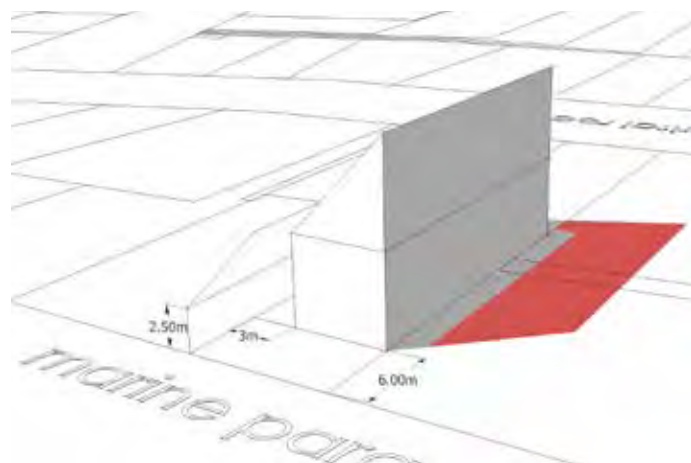
*EXISTING SCENARIO* The sketch shows the current permitted baseline for medium density housing with an 8m maximum height and 45° shade planes from 2.5m above the ground on all sides



*PROPOSED SCENARIO* The sketch shows the proposed scenario for Type B with a 10m maximum height, no side yard requirements and no shade planes, except adjacent to the 8m residential zone

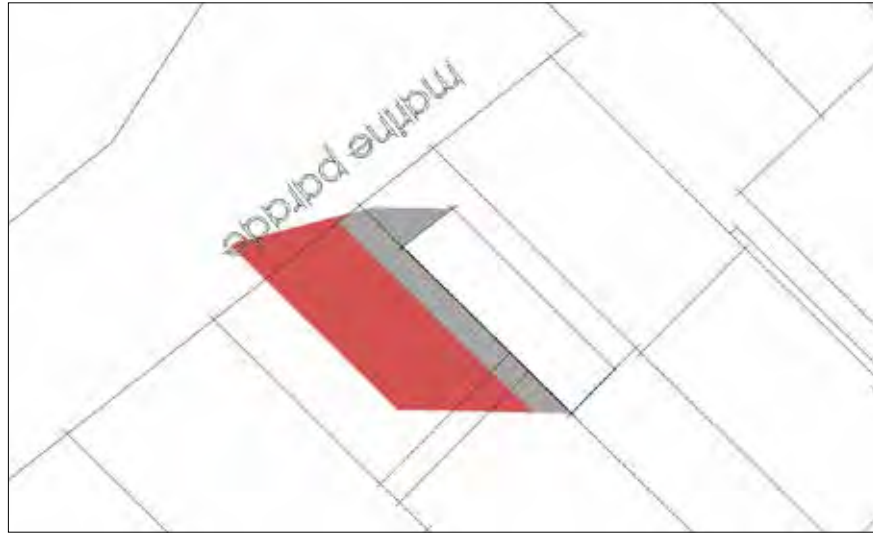


*COMPARISON* The sketch shows a comparison between the two scenarios with the difference highlighted in red. This shows 12pm, 21 September.

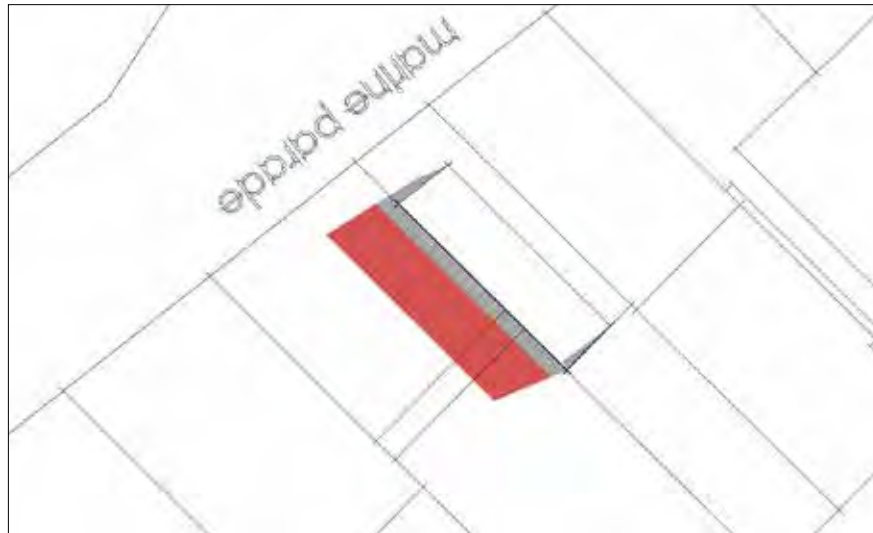


## SUMMER SOLSTICE

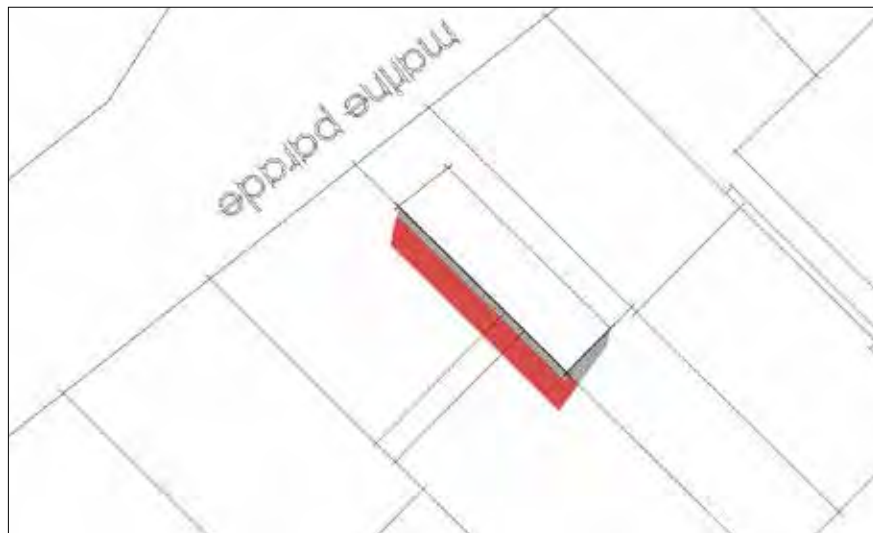
SUMMER Solstice  
21 December  
Time shown: 8.00am



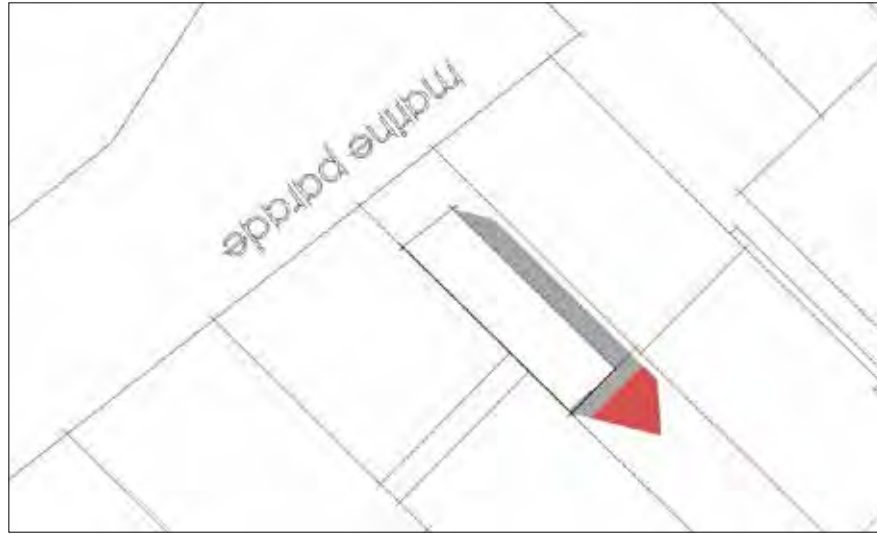
SUMMER Solstice  
21 December  
Time shown: 10.00am



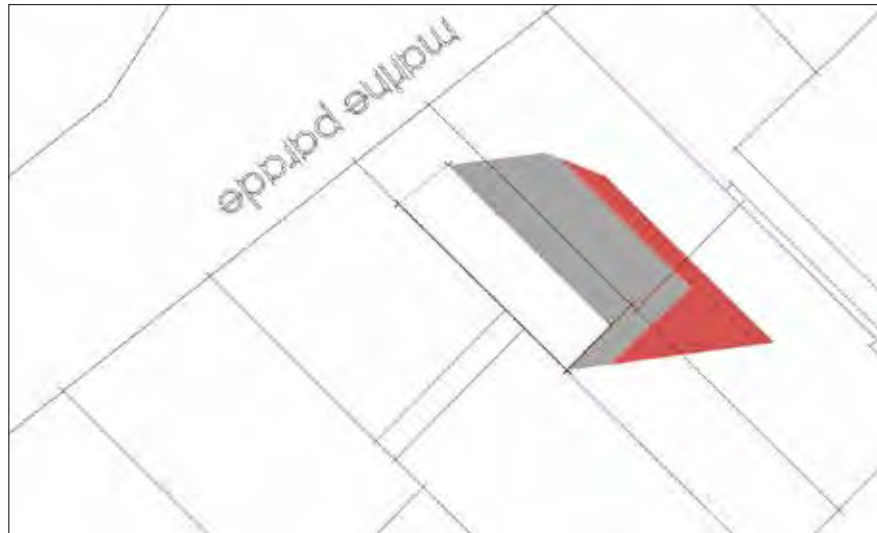
SUMMER Solstice  
21 December  
Time shown: 12.00pm



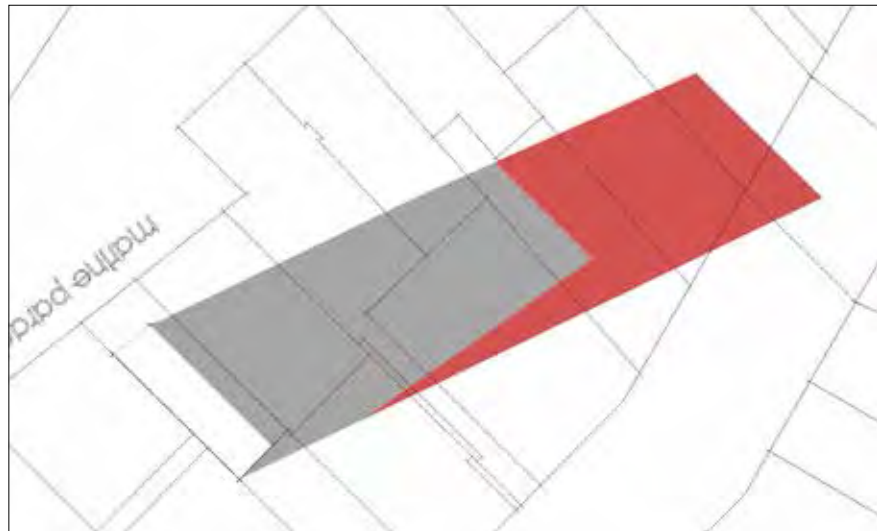
SUMMER Solstice  
21 December  
Time shown: 3.00pm



SUMMER Solstice  
21 December  
Time shown: 5.00pm



SUMMER Solstice  
21 December  
Time shown: 7.00pm

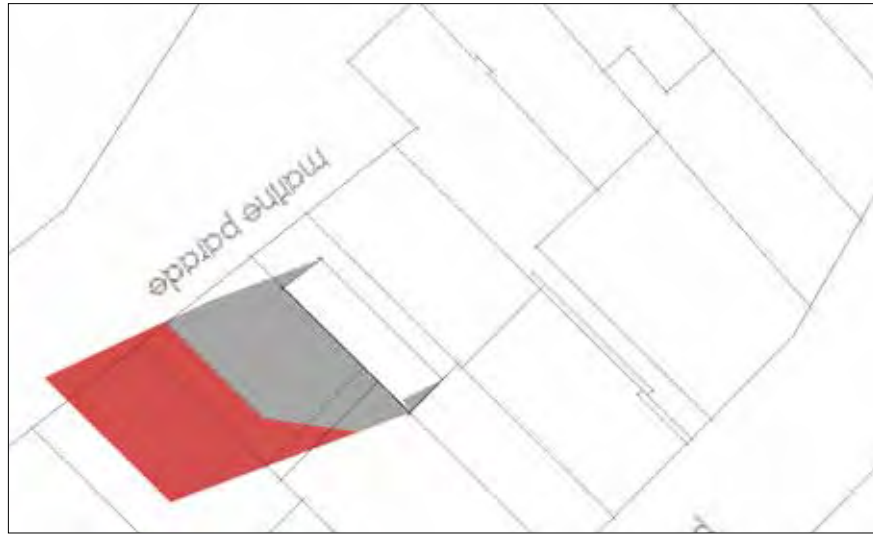


## AUTUMN / SPRING EQUINOX

AUTUMN / SPRING EQUINOX

21 March / September

Time shown: 8.00am



AUTUMN / SPRING EQUINOX

21 March / September

Time shown: 10.00am



AUTUMN / SPRING EQUINOX

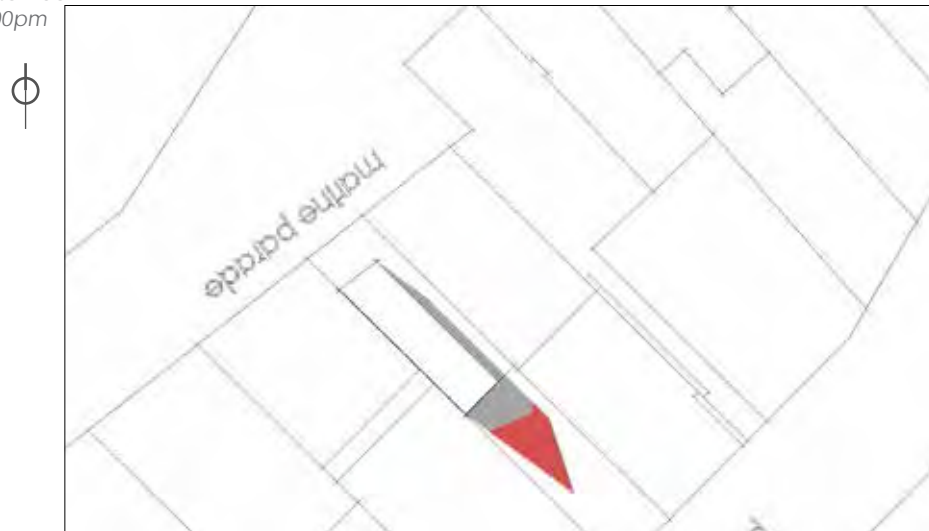
21 March / September

Time shown: 12.00pm

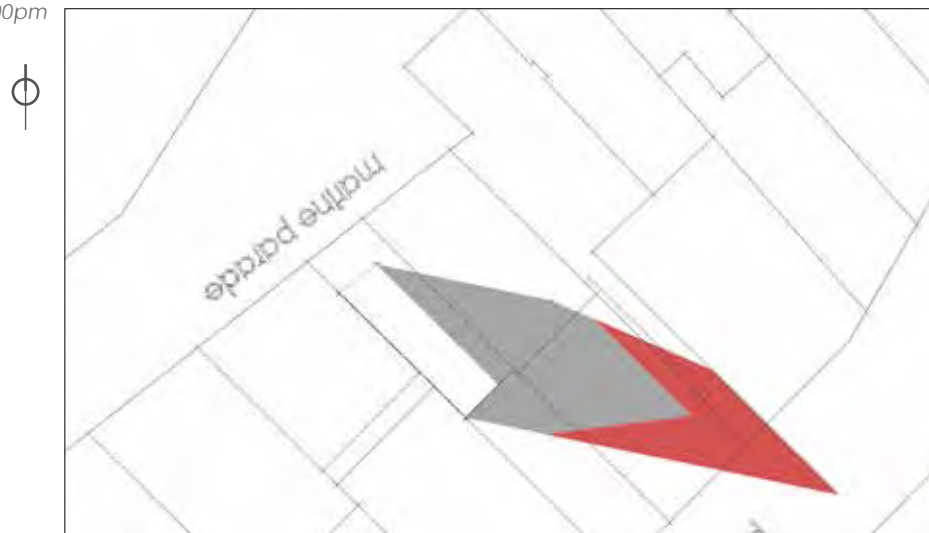




AUTUMN / SPRING EQUINOX  
21 March / September  
Time shown: 3.00pm

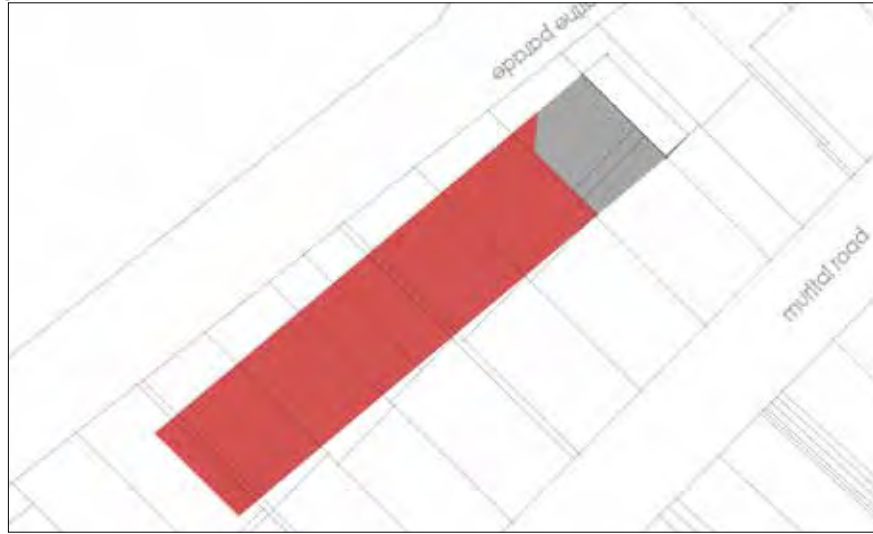


AUTUMN / SPRING EQUINOX  
21 March / September  
Time shown: 5.00pm

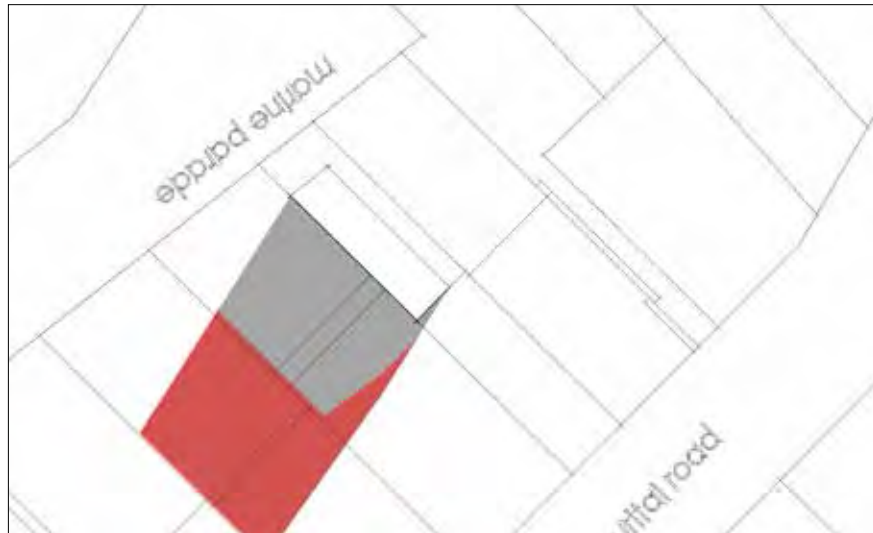


## WINTER SOLSTICE

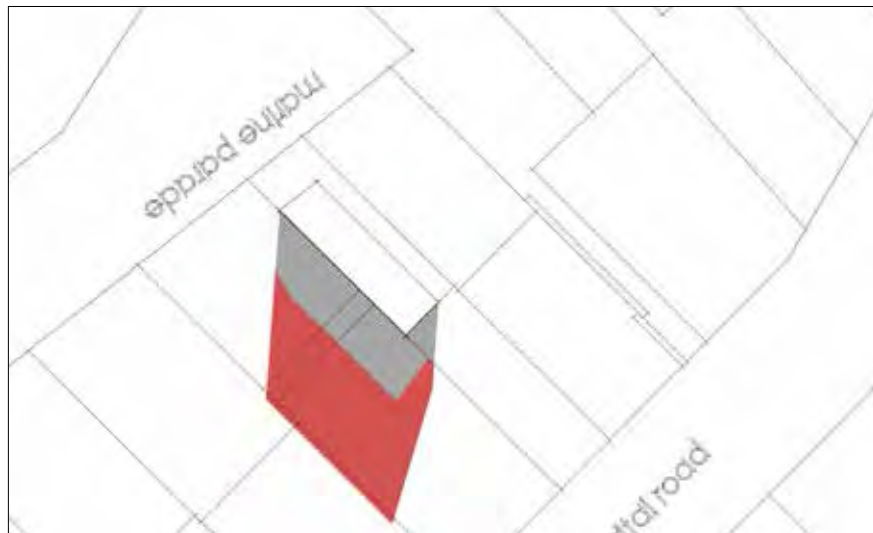
WINTER Solstice  
21 June  
Time shown: 8.30am



WINTER Solstice  
21 June  
Time shown: 10.00am

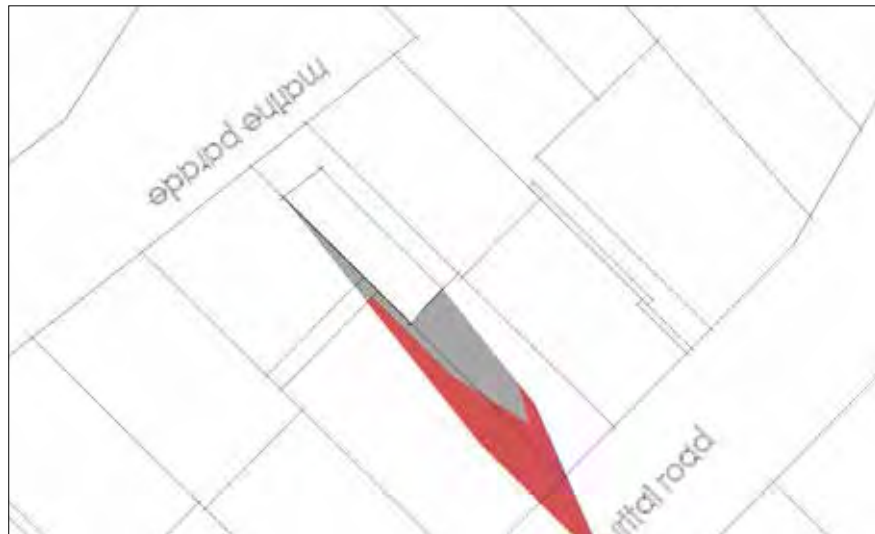


WINTER Solstice  
21 June  
Time shown: 12.00pm





WINTER Solstice  
21 June  
Time shown: 3.00pm



WINTER Solstice  
21 June  
Time shown: 4.30pm



## ASSESSMENT OF SHADING FOR INTENSIFICATION TYPE B - 10M RESIDENTIAL ADJACENT TO GENERAL RESIDENTIAL

The modelling showed there will be some adverse effects for adjoining properties for most of the year on the zone boundary between 10m and 8m. The 3m side yard set back and the 45 degree recession plane is considered effective in minimising adverse effects caused by the increase height. The results which are most helpful in this situation are the afternoon images where the effects are not too dissimilar from the existing effects. The morning images show the effects of no side yard and no set back, which are significant, but these adjoin a 10m residential property.

## 5.2.4 INTENSIFICATION TYPE C - COMPREHENSIVE DEVELOPMENT ON A 2,000M<sup>2</sup> LOT WITHIN THE GENERAL RESIDENTIAL ZONE (CASE STUDY : STOKES VALLEY)

### DEVELOPMENT SCENARIO

This scenario is located on Rawhiti Street in Stokes Valley but could be on any lot within the general residential zone which is greater than 2,000m<sup>2</sup> in area. In this example 2 lots have been combined.

### PROPOSED SITE

The sketch shows the proposed site for comprehensive development, being a total area of 2,060m<sup>2</sup>.

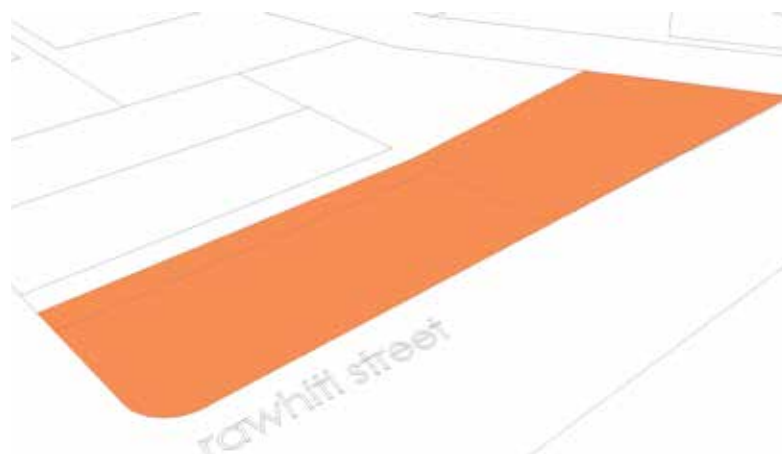


FIGURE 5.2.15 PROPOSED INTENSIFICATION BLOCK

### SCENARIO SKETCH

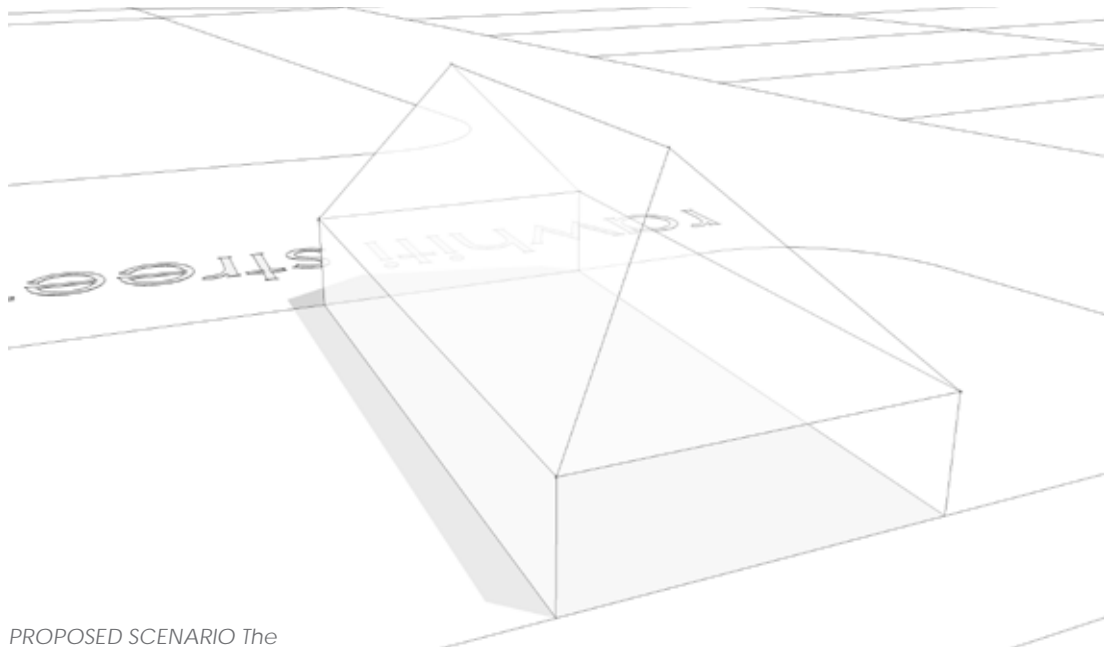
The sketch shows a 10 residential dwellings on a 2,060m<sup>2</sup> site. A 3m side yard setback and a 45° recession plane starting 2.5m apply on external property boundaries (not street boundaries) but not on internal boundaries



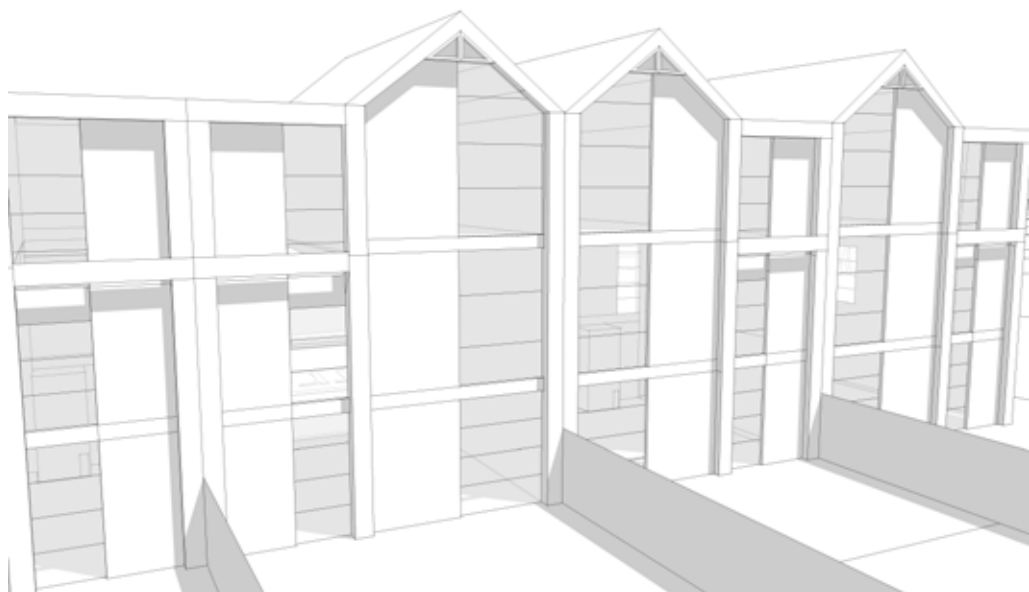
FIGURE 5.2.16 DEVELOPMENT POTENTIAL

## EXISTING MEDIUM DENSITY RECESSION PLANES - PERMITTED BASELINE

*EXISTING SCENARIO* The sketch shows the current permitted baseline for medium density housing with an 8m maximum height and 45° shade planes from 2.5m above the ground on all sides

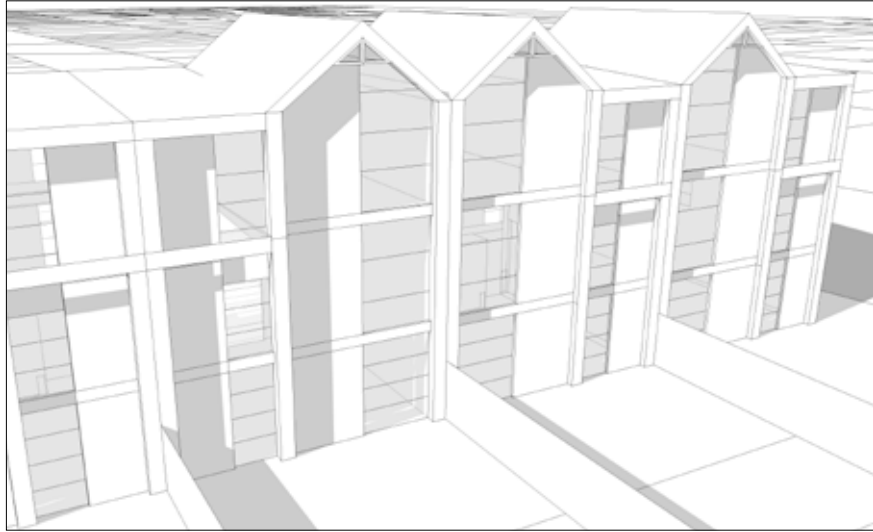


*PROPOSED SCENARIO* The sketch shows a terrace house, comprehensive development where there are no internal side yards or recession planes

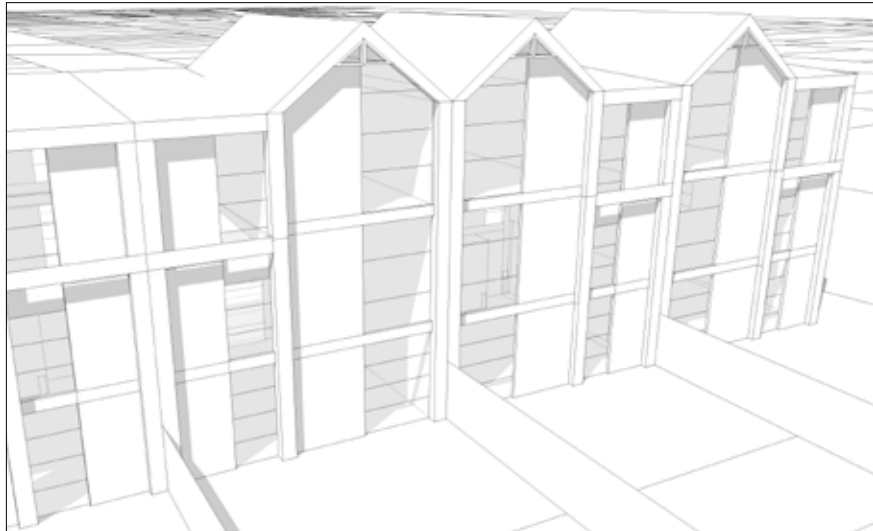


## SUMMER SOLSTICE

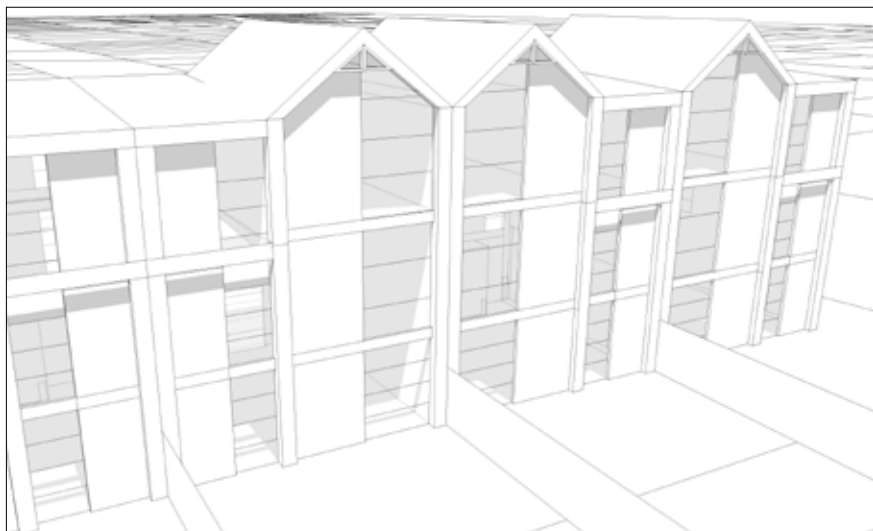
SUMMER Solstice  
21 December  
Time shown: 8.00am



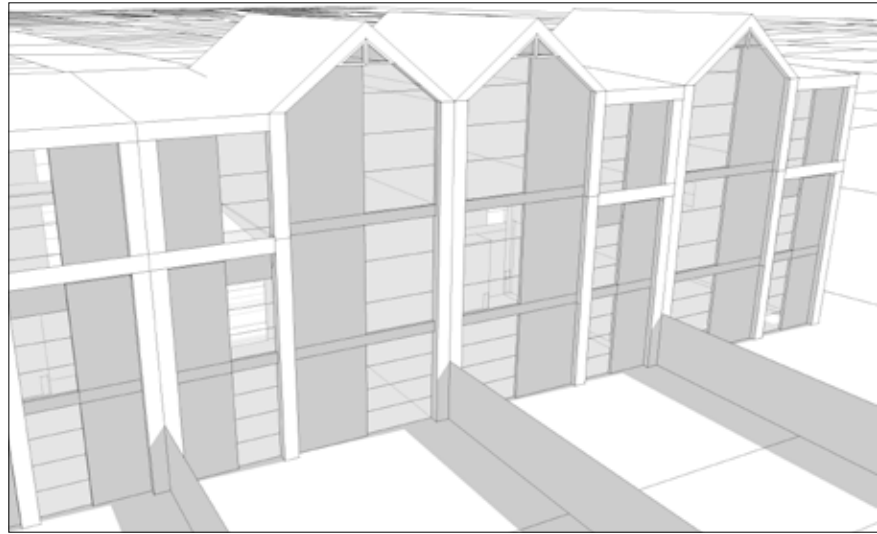
SUMMER Solstice  
21 December  
Time shown: 10.00am



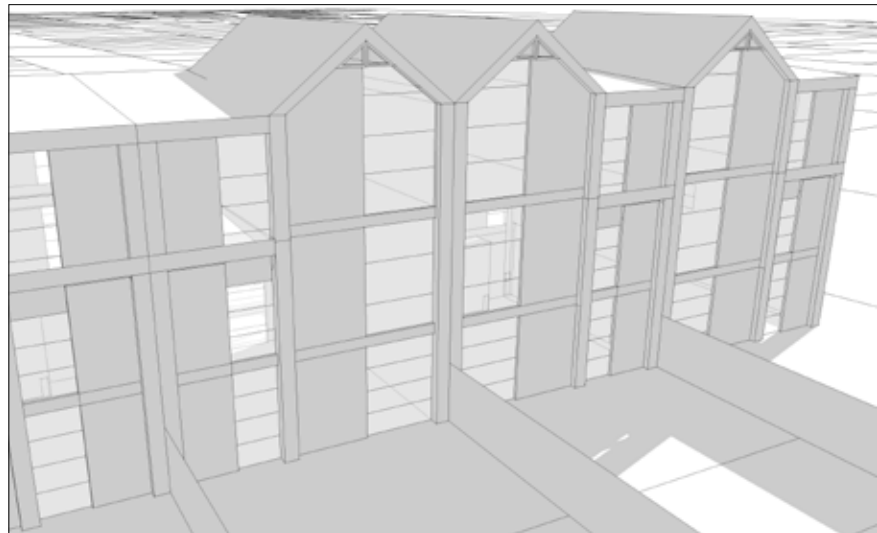
SUMMER Solstice  
21 December  
Time shown: 12.00pm



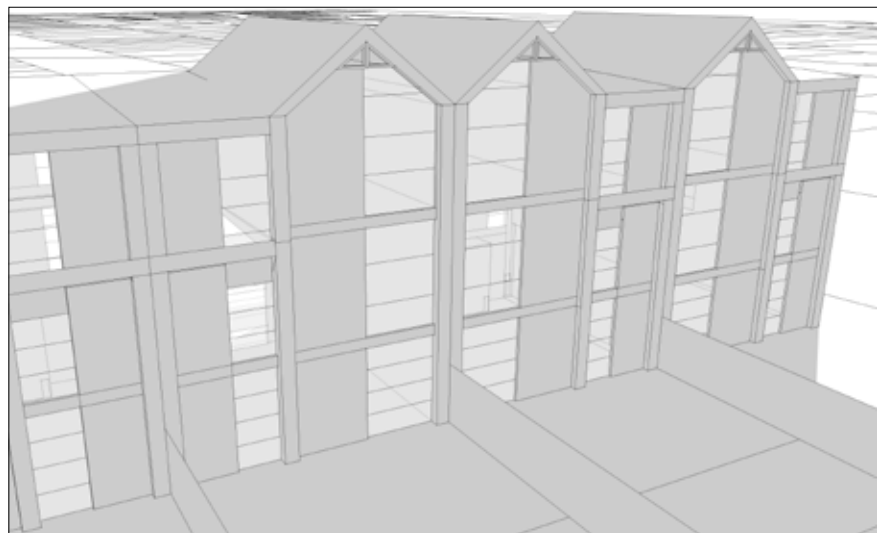
SUMMER Solstice  
21 December  
Time shown: 3.00pm



SUMMER Solstice  
21 December  
Time shown: 5.00pm



SUMMER Solstice  
21 December  
Time shown: 7.00pm

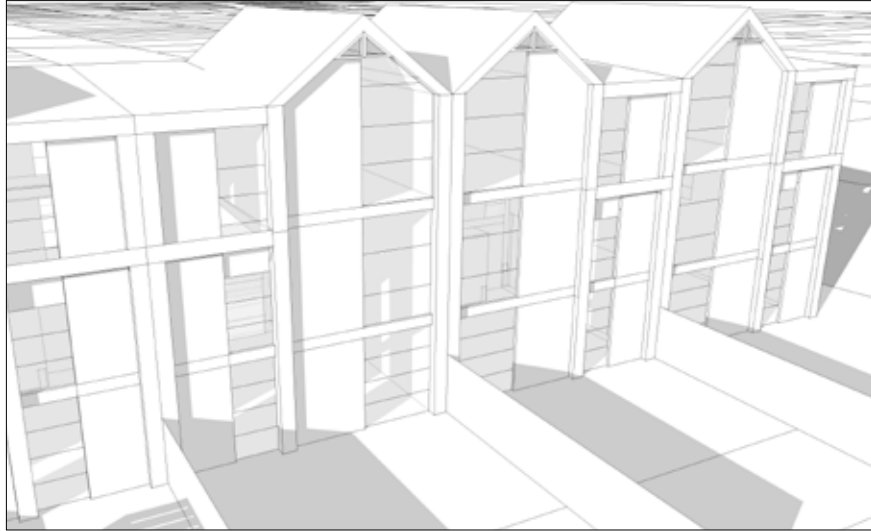


## AUTUMN / SPRING EQUINOX

AUTUMN / SPRING EQUINOX

21 March / September

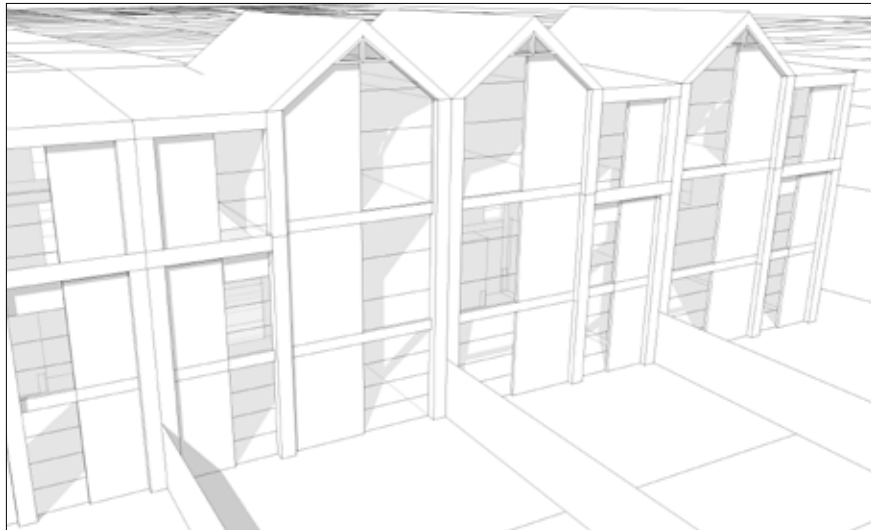
Time shown: 8.00am



AUTUMN / SPRING EQUINOX

21 March / September

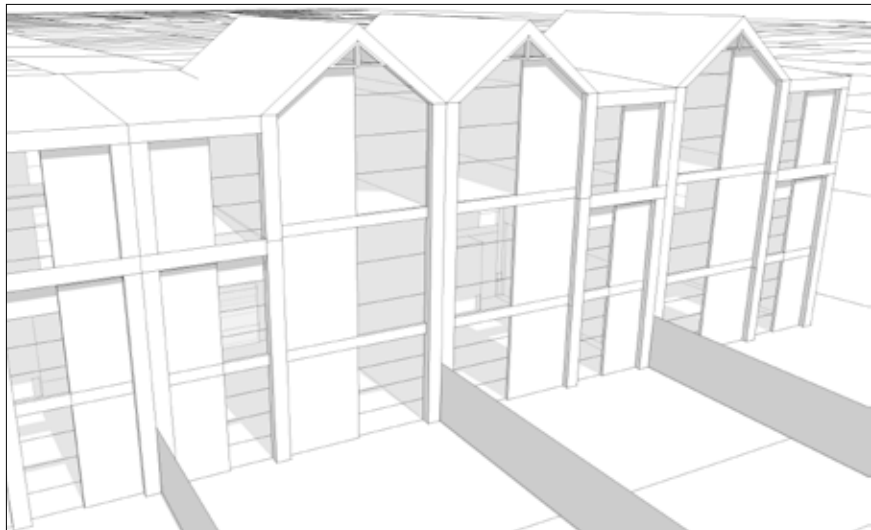
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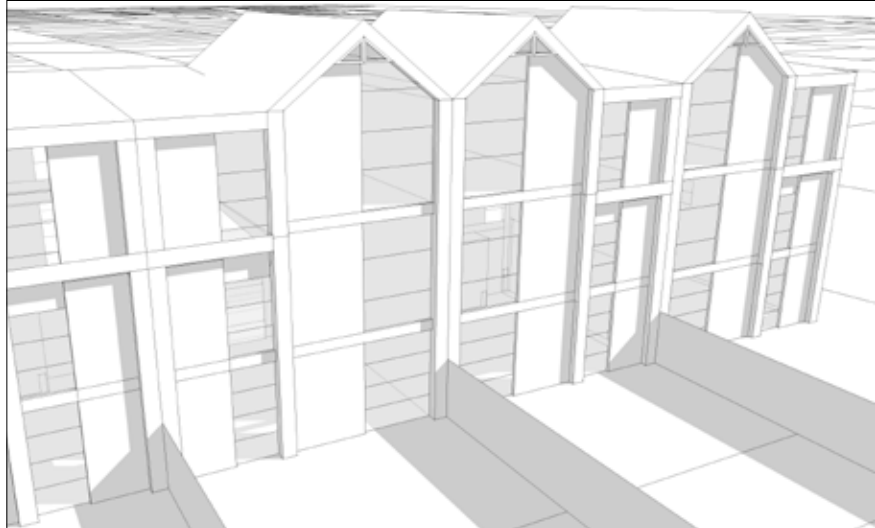
AUTUMN / SPRING EQUINOX

21 March / September

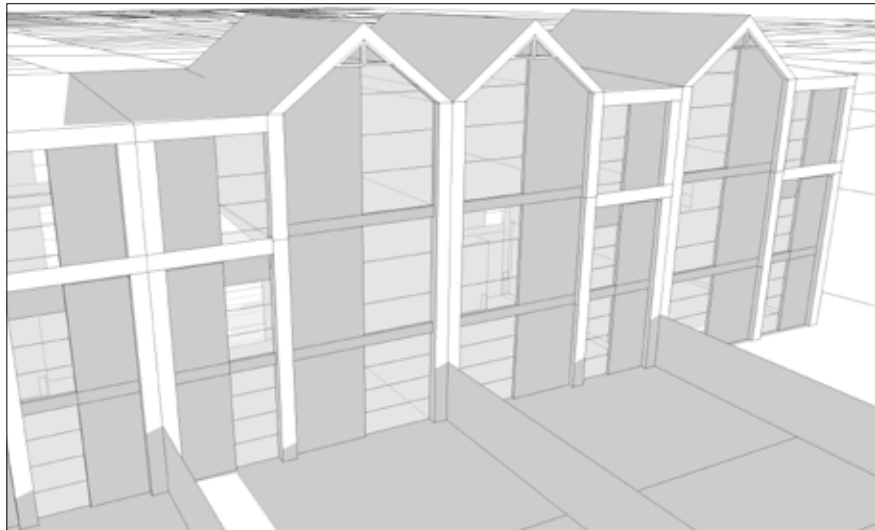
Time shown: 12.00pm



AUTUMN / SPRING EQUINOX  
21 March / September  
Time shown: 3.00pm



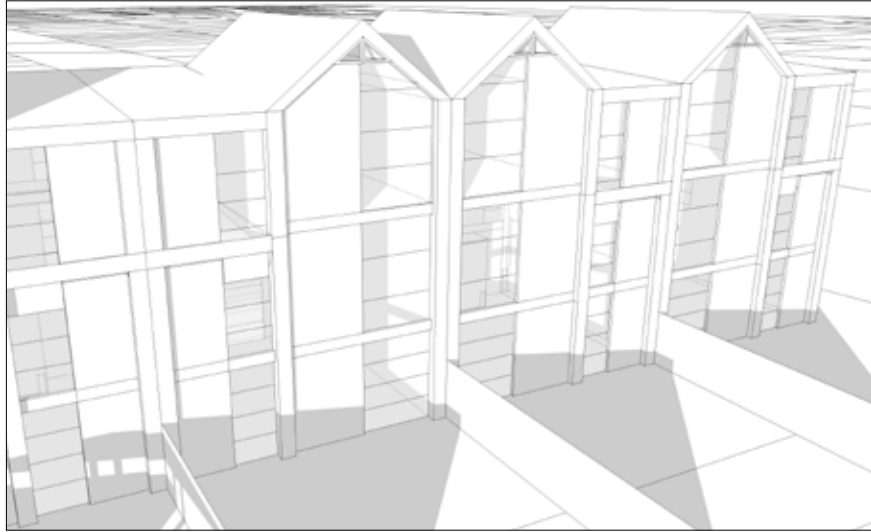
AUTUMN / SPRING EQUINOX  
21 March / September  
Time shown: 5.00pm



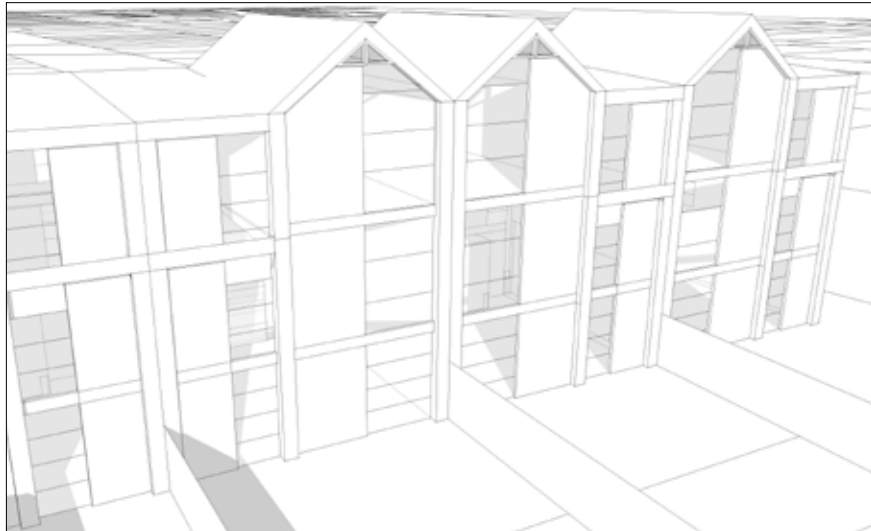


## WINTER SOLSTICE

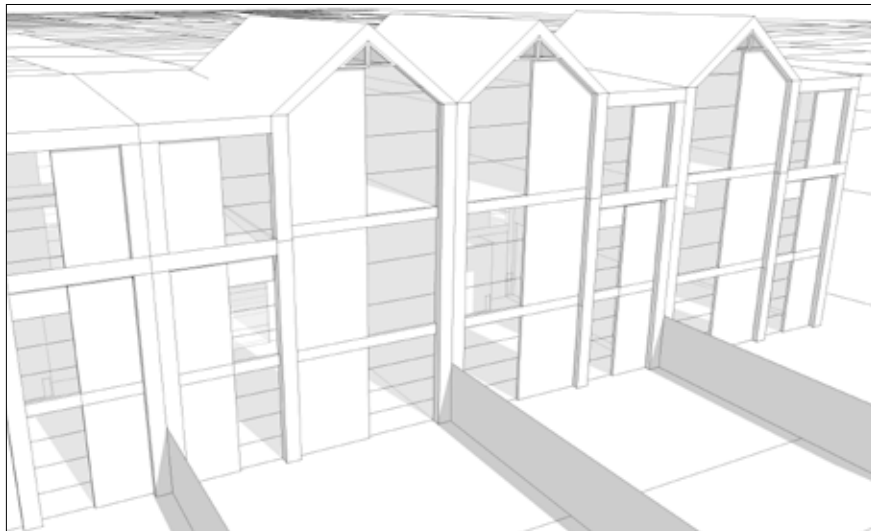
WINTER Solstice  
21 June  
Time shown: 8.30am



WINTER Solstice  
21 June  
Time shown: 10.00am

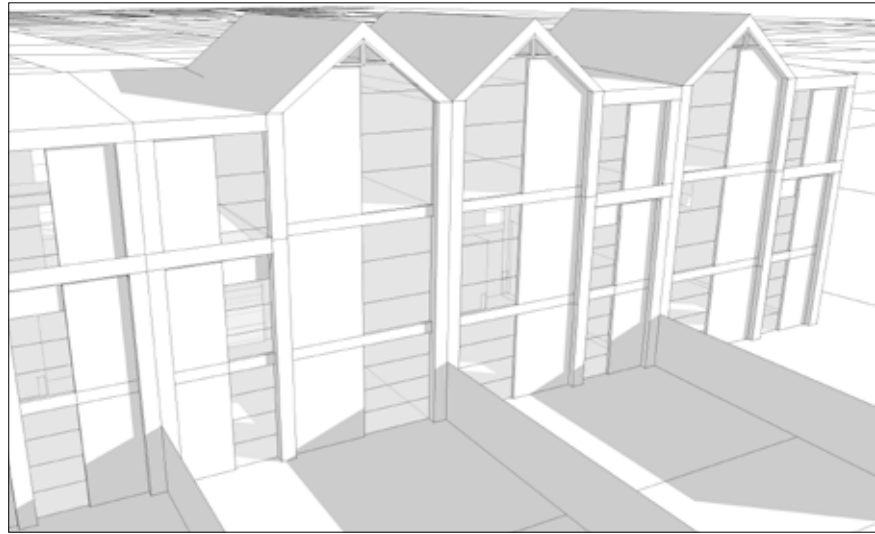


WINTER Solstice  
21 June  
Time shown: 12.00pm

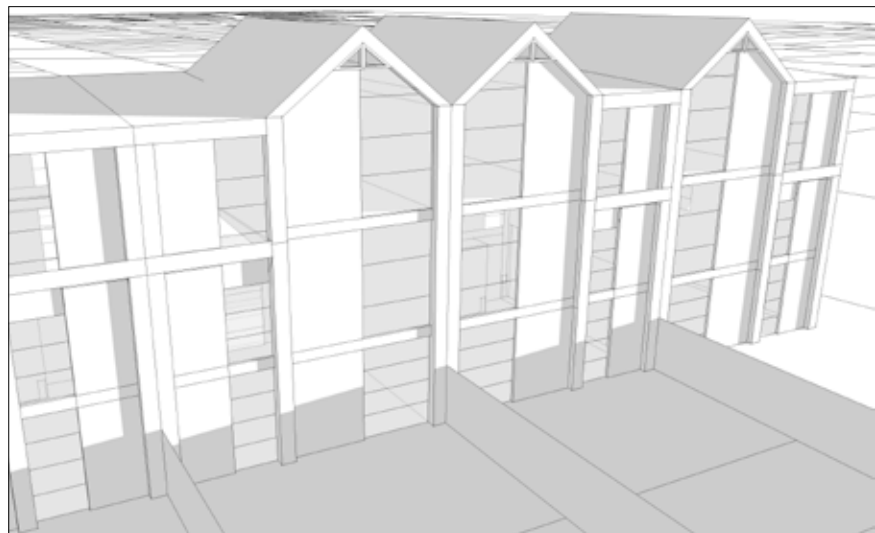




WINTER Solstice  
21 June  
Time shown: 3.00pm



WINTER Solstice  
21 June  
Time shown: 4.30pm



### ASSESSMENT OF SHADING FOR INTENSIFICATION TYPE C

The modelling shows how the removal of side yards and internal recession planes can maximise the amount of developable space while not having an adverse effect on the amount of light a dwelling receives into its main living areas and outdoor courtyards. In all of the images, the private outdoor courtyard receives sunlight throughout the year. If the development were to be located on the southside of the road an option could be to provide the private courtyard on the north facing street front.

## 5.3 LOW IMPACT DESIGN SOLUTIONS

For targeted areas of intensification to be acceptable from an infrastructure and hazards management perspective, a proposed development would also need to confirm that the development could be stormwater neutral. For example, peak stormwater runoff from the site will be no more than the existing situation. In some cases this will mean that some development sites will not be able to be developed until upgrades to existing stormwater infrastructure are in place. In other cases they will just need in addition to stormwater upgrades, to implement low impact design solutions into the development such as those outlined below. To illustrate this an example of the highest hard stand building typology has been used to illustrate the incorporation of low impact design techniques into the development. The following sketch shows a possible 12m high mixed use development and how low impact design solutions could be incorporated into the building design with a view to having a stormwater 'neutral' development.



FIGURE 5.3.1 12m HIGH MIXED USE DEVELOPMENT INCORPORATING LOW IMPACT DESIGN SOLUTIONS

### THE BUILDING CONSISTS OF:

1. 6 x 1 bedroom studios (35m <sup>2</sup> +10m <sup>2</sup> balcony)	270m <sup>2</sup>
2. 3 x 2 bedroom apartments (70m <sup>2</sup> + 15m <sup>2</sup> balcony)	255m <sup>2</sup>
3. 2 x 3 bedroom apartments (90m <sup>2</sup> + 20m <sup>2</sup> balcony)	220m <sup>2</sup>
4. Utility space (stairs, lifts, walkways, communal outdoor space)	268m <sup>2</sup>
5. Office space	600m <sup>2</sup>
6. Retail space (3 units)	165m <sup>2</sup>
SITE AREA	1,029m <sup>2</sup>
BUILDING HEIGHT	12m (excluding 1m parapet)
GFA	1,778m <sup>2</sup>
SITE COVERAGE	50%

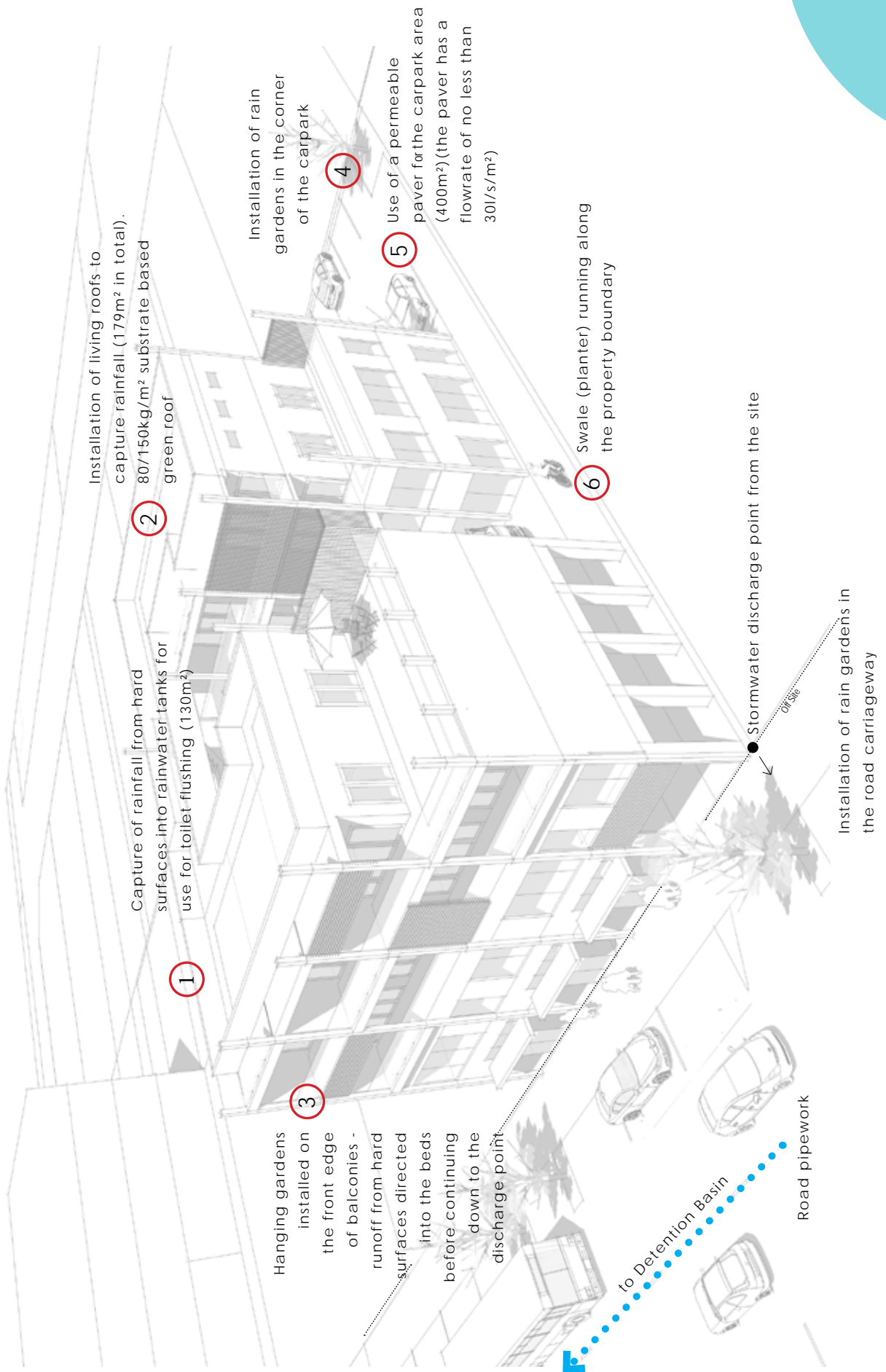


FIGURE 5.3.2 LOW IMPACT DESIGN SOLUTIONS

## 5.4 SUMMARY OF EFFECTS

To summarise the likely effects of different development scenarios, using the models and illustrations previously shown, the following issues are addressed:

- Privacy Effects
- Shading
- Role of large trees in providing amenity
- Carparking and a well-defined built edge

### PRIVACY EFFECTS

Issues relating to a loss of privacy (whether actual or perceived) are often associated with the development of higher intensification projects. Many effects are the result of poorly designed developments where the indoor living areas of one unit look directly into the indoor or outdoor living area or an adjoining unit. It can also result where there is insufficient space between buildings, resulting in windows from adjacent units looking directly into each other. All of these effects can be mitigated either through building design, site layout, landscape elements or a combination of the three. The sketch below is one example of how privacy can be maintained with a terrace house development.

no provision of side yards or windows on side boundaries with the exception of the end unit where it is recommended (to avoid blank walls)

setting back balconies from the main wall as opposed to extending the balcony out forward of any party wall

solid or semi solid fencing between units to a height of 1.8 to 2.0m. Slat fencing can be used but slats must be close enough to ensure direct views through are not possible.

the extension of party walls passed the front and back walls of units, partially blocks views into the dwelling from adjacent properties while providing good visual definition between units



FIGURE 5.4.1 PRIVACY EFFECTS





*THIS IS AN EXAMPLE OF INITIAL PRIVACY ISSUES IN BACK YARDS AS SUBURBS TRANSITION FROM LOW TO MEDIUM DENSITY DEVELOPMENTS*

## **SHADING**

Shading effects are considered to be the largest (adverse) change to existing amenity levels. It is recognised that there will be a considerable level of change as buildings change from a single storey dwelling on an individual title to up to four storey buildings built right up to the boundary. Significant adverse effects will be experienced for Intensification Types A and B, during the 'transitional' period when there is a mix of house typologies immediately adjacent to each other. Over time these effects will reduce. Intensification Type C is not considered to have adverse shading effects as the existing (current) shade recession planes are maintained at the site boundaries. A description of the change likely from each intensification type is outlined below.

### **Intensification Type A – 12m Mixed use**

For the mixed use areas, which are typically in existing suburban commercial area, the modelling showed there will be a significant adverse effect for adjoining properties from Autumn through to Spring including the winter solstice as the zone transitions from a low rise residential area into a 12m high mixed use area with apartments. The diagrams show a significant increase in the amount of shading which occurs. In Summer the effects are less noticeable except in the late evening when long shadows occurs. It is considered that as the area develops, residual adverse effects will reduce as building typologies change to the new development rules. Shade recession rules will still apply where the development adjoins a residential zone.

### **Intensification Type B – 10m Residential**

For the 10m residential areas the modelling showed there will be a significant

adverse effect for adjoining properties for most of winter as the zone transitions from a low rise residential area into a 10m high residential area with apartments and townhouses. The diagrams show a significant increase in the amount of shading that occurs during winter, but lesser degrees of change in autumn and spring. In summer the effects are less noticeable, except in the late evening when long shadows occurs. It is considered that as the area develops, residual adverse effects will reduce as building typologies change to the new development rules.

Where a Type B development adjoins properties in a Residential Zone with 8m building height limit, the modelling showed there will be some adverse effects for adjoining properties for most of the year. The 3m side yard setback and the 45 degree recession plane is considered effective in minimising adverse effects caused by the increase height. This is evident in the afternoon images, which show the effects are not too dissimilar from the existing shading effects. The morning images show the effects of no side yard and no set back, which are significant, but these relate to development adjoining another Type B residential property.

#### Intensification Type C - Comprehensive Residential Development

The modelling shows how the removal of side yards and internal recession planes can maximise the amount of developable space, while not having an adverse effect on the amount of light a dwelling receives into its main living areas and outdoor courtyards. In all of the images, the private outdoor courtyard receives sunlight throughout the year. If the development were to be located on the south-side of the road an option could be to provide the private courtyard on the street front. This scenario is considered to have positive effects in terms of amenity.

#### THE ROLE OF LARGE TREES

Large established trees play a significant role in the amenity and character of a suburb. Numerous studies and reports have been prepared highlighting the benefit large trees can play in the social, economic and environmental aspects of a neighbourhood. In many cases this is a result of trees in the public realm, i.e. road reserve and parks due to them being controlled by Councils who protect and maintain these trees, as opposed to those trees in private ownership. However, there are still levels of control occurring on private property.

The District Plan is a key tool to control tree removal (on private property) where particular trees are listed as significant. This can be added to or amended through the District Plan review or a plan change.

Amendments to the Resource Management Act on trees steer District Plans away from having blanket tree rules. As a result, HCC is removing



FIGURE 5.4.2 PRUNING OF STREET TREES TO ALLOW FOR OVERHEAD INFRASTRUCTURE

protection of trees on private land, but identifying and protecting specific listed trees under proposed plan change 36: Notable Trees and Vegetation Removal. Protected trees on private land are often view as a constraint to development. However through this process protection for notable trees on private property will be recognized. As a result, future residential intensification will also have to balance the amenity and character provided by these trees in future development decisions.

From our observations with developments, the greatest control over tree removal (on private property) comes through the District Plan process and trees being listed as significant. Many Councils also reserve right to define any tree at the time of subdivision application as being significant and is able to register a consent notice against the title. However, this provides no protection to the tree prior to any application being sought and may result in sites being clear felled prior to seeking approval. The alternative is for a larger number of trees to be listed at the time of District Plan review but this is often constrained by resourcing issues, or may result in some sites not be able to be intensified and some landowners being unduly penalized, providing amenity for adjacent higher density dwelling while not being able to develop themselves.

However, as highlighted above the importance of trees in the public realm is of greater significance in terms of amenity. This is particularly so with promoting development to be built up to or close to the street boundary to create well-defined, strong edges to streets, as well as improving the flexibility for the future use of buildings. Street trees have a great impact on the

character of suburb, which is especially important as infill development and high density typologies are constructed.

Hutt City is well provided for in terms of street trees with a number of well established avenues. Unfortunately, pruning by utility providers has had a detrimental effect of the form and habitat of a large number of trees with the centre being cut out. The photo above (figure 5.4.2) shows a typical tree lined street where the centre of all the trees along one side have been removed to allow for electricity and telecommunication lines. While not part of this project, it is suggested that the policy regarding overhead infrastructure is reviewed as the overhead lines are a significant detractor to an area's amenity.

A similar adverse effect that may arise from the provision of infrastructure relates to the position of vehicle accessways into developments and the location of street trees. The greater number of accessways, the greater likelihood that there will be a clash with existing trees or prevent street trees being planted in the future. A key consideration in any development is the location of accessways with the aim to minimise the number of vehicle crossings. By either consolidating entrances or creating laneways it is possible to create a greater amount of space available for street trees as well as on street car parking. In all of the intensification scenarios it is considered that the loss of vegetation is likely to be 'neutral' in terms of effects and largely dependent on an actual design. As a result, while this assessment is around amenity impacts it is worthwhile considering as part of the ongoing review of the district plan whether accessways, laneways and influence of street parking should be addressed to manage street amenity.

#### **LOW IMPACT DESIGN – STORMWATER**

The sketches and systems presented in Section 5.3 show how it is possible for low impact design solutions to be incorporated on-site to minimise runoff and peak flows with a view to achieving stormwater neutrality or at least a reduction. All of the systems are cost effective if incorporated during the design phase (as opposed to being retrofitted) but require maintenance to ensure their effectiveness is retained. By implementing systems such as these they can reduce peak stormwater discharges reducing the impact on Council owner stormwater infrastructure, subject to on-site solutions being well-designed and maintained.

#### **CARPARKING AND A WELL-DEFINED BUILT EDGE**

The location of both carparking and entrances can have a significant effect on streetscape amenity. If carparks are positioned at the rear of buildings or placed underneath, it prevents parked cars from dominating the streetscape visually, or inconveniencing pedestrians and cyclists. The best



places for off-street car parking are in secure rear courtyards, where these are well overlooked. An additional benefit is on-street carparking can be increased with the consolidation of accessways and vehicle entrances to laneways and reduction of minimum carparks where you have a higher density development form. Moving carparking to the rear of the site also allows for the development of a strong, well defined built edge which improves legibility and the creation of active frontages to buildings. As such, while the proposed changes can strengthen the design response as land use changes.

### **CHARACTER ENHANCEMENT**

In many of the suburbs evaluated the building stock varied considerably with extensively renovated 1900-1920 villas or bungalows through to houses which have had poor additions or modifications to their frontages, detracting from the quality of an area's/street's character. Landscape treatment also varied greatly and those dwellings which have either a low (less than 1.2m in height) or no fence contributed more positively to the streetscape character than properties with high fences or vegetation. The difficult aspect in determining where intensification should occur is looking past poorly designed/constructed modifications or landscape treatment to look purely at the scale, age and built form of the existing buildings. Generally, where there is a consistent, small, setback combined with an open frontage, it results in a strong relationship between the house and the footpath.

It is recommended that comprehensive mapping, in addition to what has been completed for this project and the recent Petone Spatial Plan, of an area is undertaken where there are character concerns where further intensification is proposed. This study can highlight what are the qualities which should be protected. This may be the retention of a consistent setback, the placement of garages and the position of the front door relative to the street as some examples. This would provide greater recognition that existing dwellings may be retained adjacent to higher density developments and potential reinstatement of recession planes for an area (compared to other areas) with the exception of the street recession plane.

### **SUMMARY**

In summary, the proposed Intensification Types A and B will have a significant adverse effect on shading existing dwellings within a zone until housing typologies become more homogeneous in character, setbacks and built form. Other effects such as increased traffic, reduced privacy and the potential for the loss of large trees can all be mitigated through good design principles and district plan rules.

## 6. POTENTIAL YIELD

To assist with determining whether the proposed development scenarios would allow sufficient capacity for growth in the city, a 'yield potential' table was developed based on the areas presented in Appendix A. Assessing the 'yield potential' is difficult as there are a large number of uncontrollable variables, for which a number of assumptions must be made. A minor change in an assumption threshold/percentage can have a dramatic influence on the number of dwellings which may actually be achieved. As a result these numbers must be interpreted as a guide as opposed to a fixed number. The key outcome demonstrated by these potential yield calculations are that even if not all of these areas are taken up that there is sufficient capacity within the Hutt City urban area to provide for the outcomes sought through the Urban Growth Strategy. The following assumptions have been made:

### 1. TYPE A - MIXED USE

- a. Assumes each building will be 4 storeys in height with 50% site coverage. In calculating the size of the buildings, no account has been made for carparking, service areas, communal stairwells and lifts etc. They are simply Gross Floor Area. A 50% coverage was assumed although some sites may have 100% site coverage - this is to allow for car parking, service areas and outdoor living space.
- b. Retail - assumes retail can only be on the ground floor and only occupies 25% of the building, with an average retail unit of 60m<sup>2</sup>
- c. Office - assumes the remainder of the ground floor is office along with 100% of the first floor. Note in many cases there could be potential for residential activities to occur on the first floor as well.
- d. Apartment - assumes the remaining two floors are apartments with an average apartment size of 80m<sup>2</sup> - this is large as a one bedroom apartment can be as small as 30m<sup>2</sup>, two bedroom 70m<sup>2</sup> and a three bedroom unit 90m<sup>2</sup>. The average size of 80m<sup>2</sup> is considered a good average to allow for well-sized apartment units. Other factors such as location and market demand will have a greater influence on what is actually constructed.
- e. In reality not all buildings will be 4 storeys. A large number will only be 2 or 3 storeys, largely determined by construction costs and whether the additional costs of going higher can be recuperated by higher sale price.

### 2. TYPE B - 3 STOREY DEVELOPMENT

- a. A 3 storey residential building with a 50% site coverage and average townhouse size of 150m<sup>2</sup> (3-4 bedroom plus stairs, living areas, storage and possibly garaging. The New Zealand average house size is currently 149m<sup>2</sup>. We have assumed that most lots will be about 150m<sup>2</sup> in area.

### 3. Type C – Comprehensive Residential Development

- a. The table does not account for any growth which may result from Comprehensive Residential Development. There are a number of different permutations of how this maybe achieved, and where it may be achieved so was not included for the purposes of this exercise. In reality it may be where the greatest growth occurs initially as it is the most 'traditional' of the 3 Intensification types, with density increasing by three fold from the current situation.

Suburb	Intensification	Number of Parcels	Sum Area (m <sup>2</sup> )	Type A			Type B
				Retail (units)	Office (m <sup>2</sup> )	Apartment (no.)	Townhouse (no.)
Alicetown	10m Residential	134	67,070				447
Alicetown	12m Mixed Use	52	30,103	63	26,340	241	
Avalon	10m Residential	495	313,320.1				2089
Avalon	12m Mixed Use	28	21,331	44	18,665	171	
CBD Edge	10m Residential	458	376,282				2,509
Eastbourne	10m Residential	79	28,760				192
Eastbourne	12m Mixed Use	28	9,776	20	8,554	78	
Epuni	10m Residential	447	250,515				1,670
Epuni	12m Mixed Use	37	18,707	39	16,369	150	
Moera	10m Residential	87	63,557				424
Moera	12m Mixed Use	16	8,657	18	7,576	69	
Naenae	10m Residential	179	115,381				769
Naenae	12m Mixed Use	61	16,134	34	14,117	129	
Petone East	10m Residential	724	295,297				1,969
Stokes Valley	10m Residential	53	42,884				286
Stokes Valley	12m Mixed Use	42	8,225	17	7,197	66	
Taita	10m Residential	203	128,459				856
Taita	12m Mixed Use	34	10,996	23	9,622	88	
Wainuiomata	10m Residential	155	91768				612
Wainuiomata	12m Mixed Use	57	54,344.5	113	47,551	435	
Waterloo	10m Residential	236	137,903				919
Waterloo	12m Mixed Use	26	21,900	46	19,163	175	
Woburn	10m Residential	94	63,520				423
Woburn	12m Mixed Use	34	10,035	21	8,781	80	
		<b>2,849</b>		<b>417</b>	<b>183,935</b>	<b>1,682</b>	<b>13,165</b>

Note that the Number of parcels assumes 1 house per parcel so 2849 dwellings would be lost with the intensification. In reality they might not be lost, but this number needs to be subtracted from the TYPE A and B totals.

The table highlights that approximately 8,000 residential units could be achieved with the proposed intensification scenarios, accounting for the loss of 2790 existing residential dwellings. Growth is spread throughout Hutt City with the greatest growth areas likely to be CBD edge, Epuni, Naenae, Taita, and Waterloo,

## 7. CONCLUSIONS

The purpose of this assessment has been to outline how residential intensification can be accommodated within the urban limits of Hutt City. The aim of providing for further intensification is to continue to help achieve its growth objective of being a home of choice for families and innovative enterprise and increasing at least 6000 households into the city by 2032 while still providing for the urban design outcomes sought by the city. This can be achieved by providing a for a range of traditional through to new housing typologies that provide for the needs of the community, while also enabling efficient land use and provide opportunities for place making.

The approach outlined in this assessment is one which is consistent with how other councils in New Zealand and globally are providing for well-designed residential development that provides for housing choice for changing demographic needs and encouraging place making around accessible land use patterns that also contribute to providing amenity and economic development. The approach has taken into account the following spatial criteria for assessing appropriate urban form patterns of providing for people, places and spaces through:

### Consolidation of activity

Providing for intensity and interaction with communities around transport orientated development ranging from small suburban centres through to larger suburban centres and the CBD;

### Integration and connectivity

With movement networks, building interfaces, providing for a range of streetscapes, encouraging a range of transport choice for connectivity;

### Diversity and adaptability

Providing for a mix use uses and flexibility of spaces and buildings which can occur when additional choice is provided within an urban area; and

### Environmental responsiveness

Providing for increased activity within the existing urban footprint providing for efficiency of networks and not further impinging on green networks and public open space provision.

The study recognises that in order to provide for future intensification such as this, the community will also have to accept a change in amenity values, in order to provide the benefits that intensification of landuse can provide including:

- New commerce through different office and retail spaces in some neighbourhood centres;
- In some cases more affordable housing through townhouses and apartments;
- Variety in interest of the urban condition, subsequently differentiating suburbs and Hutt City as a whole from other centres; and
- Increased housing choice to provide for the differing needs within the city.

Overall this study, has concluded from a planning and urban and landscape design perspective that the effects of the proposed changes can be managed. Further review and integration of the proposed concepts into the district plan would be required through a plan change and associated section 32 analysis. The options and potential outcomes outlined now needs to be tested further with the community to understand people's perceptions of these proposed changes and whether they are acceptable.

The next steps in the development of a plan change will now be to consider the following:

1. Further testing the costs and benefits of planning for all identified areas to be provided for from an infrastructure capacity perspective. For example, some areas such as the suburbs of Naenae and Wainuiomata has existing infrastructure constraints that need to be budgeted for which are not fully included in annual planning due to the shorter timeframes which development planning horizons work to. Upgrades of infrastructure either can occur as a forward infrastructure spend to provide for intensification and encourage development, or could be developed as development applications are lodged with Council. Alternatively to manage infrastructure upgrade costs some areas be identified in a future plan change as being areas of prioritisation of development first and other areas could be considered post implementation of upgrades either lead by Council or a developer or joint upgrades.
2. Confirm the appropriateness of standards for managing natural hazards where development has been assessed as being appropriate. In particular while Type A and B areas have been located in less susceptible or areas that are appropriate for development subject to standards for managing hazard impacts, the Type C CDR rule is not spatially defined other than it is

in an area where currently the general residential activity area is located. It is likely that hazard overlays as well as other criteria such as landscape or ecological may need to be considered to effectively manage values where these sites may be located. This will need to be further tested through the plan change phase.

3. This report has identified new rules to be implemented. However, the final wording of these and the subsequent changes to design guidance and policy will need to be reviewed to provide a clear outcome. A full review of the residential and suburban centre chapters of the plan will be provided to give effect to the outcomes assessed in this report.
4. Economic viability of residential development and likely demand for residential intensification has not been assessed as part of this report. Demographic trends have been, as well as what building types are coming to market that are producing good design outcomes. In order to be consistent with the draft National Policy Statement on Urban Development Capacity (NPS) this assessment should be undertaken to provide consistency with the NPS. This demand assessment may also influence recommendations under 1 in confirming whether prioritisations of areas for development can occur.
5. Prior to the plan change being developed, the public should be consulted on the outcomes of this work.
6. Regard should be given to character and heritage areas where local communities may value particular elements of their neighbourhood, and seek their protection. A more detailed street by street character assessment of Petone and Alicetown should be undertaken to confirm existing character and heritage values.



FIGURE 6.1 THE POTENTIAL DESIRED OUTCOME FOR WATERLOO WITH A MIX OF HOUSING TYPOLOGIES, RETAIL AND OFFICE SPACE



## 8. BIBLIOGRAPHY

1. 2013 Census – Populations and dwellings, 2013, Statistics New Zealand
2. 30 Years On: Porirua Development Framework, August 2009, Porirua City Council
3. Adelaide Road – Planning for the Future: Adelaide Road Framework, A long-term vision for future growth and development, November 2008, Wellington City Council
4. Bus Transit Oriented Development – Strengths and Challenges Relative to Rail, 2006, Graham Currie
5. Chapter 3 Definitions - District Plan, 1 December 2011, Hutt City Council
6. Chapter 4A General Residential Activity Area - District Plan, 1 December 2011, Hutt City Council
7. GNS Science (May 2016), Hazard Report, Consultancy Report 2016/74
8. Discussion Document: Providing for residential growth in Epuni, Waterloo and the CBD edge, November 2014, Hutt City Council
9. HCC, Draft Suggested Boundary for Residential Growth Zone (from Discussion Document: Providing for residential growth in Epuni, Waterloo and the CBD edge), November 2014
10. Draft Wellington Urban Growth Plan 2014-2043, 2014, Wellington City Council
11. Focus Groups Urban Growth Strategy, March 2013, MMResearch
12. Hastings Urban Issues and Urban Design Framework for Hastings District Council, 5th August 2010, Urbanism Ltd, Patrick Panthers Pty Ltd, Pocock Design Environment Ltd, TTM Consulting Pty Ltd.
13. Hutt City Water Infrastructure Constraints Mapping 3 Waters capacity/ constraints analysis, May 2016, Wellington Water Limited
14. Infrastructure Strategy 2015-2045, 1 July 2015, Hutt City Council
15. Ngauranga Triangle Strategic Study – Technical Report: Urban Design Framework, August 2009, UrbanismPlus Ltd
16. Preliminary Study for a Petone Spatial Plan, 2016, McIndoe Urban Limited.
17. Proposed Auckland Unitary Plan, 2016, Auckland Council
18. Proposed Christchurch City Plan, 2016, Christchurch City Council
19. Proposed Hamilton City Plan, 2016, Hamilton City Council
20. Proposed Hastings District Plan Decision Report – Section 7.2 Hastings Residential Environment, 9th November 2013, Hastings District Council
21. Proposed Hastings District Plan, 2016, Hastings District Council
22. Review of Valley Flood Reserve, June 2013, PAOS Ltd
23. Summary Guide (District Plan Changes 72 and 73) proposed changes to the residential area and suburban centre zones of Wellington’s District Plan, September 2009, Wellington City Council
24. Survey of Residents – Overview (For the discussion document on providing for residential growth in Waterloo, Epuni and CBD edge), November 2014, Peter Glen Research Ltd

- 
25. Urban Growth Transport Assessment , Traffic Assessment, May 2016, Harriet Fraser Traffic Engineering & Transportation Planning
  26. Urban Growth Strategy 2012-2032, 2012, Hutt City Council
  27. Vision Wainuiomata Road map, date unknown, Wainuiomata Development Plan Steering Group
  28. Wellington City Housing and Residential Growth Study: Final Planning Assessment and Recommendations, September 2014, The Property Group
  29. Wellington Regional Rail Plan 2010-2035 'A Fresh Look at a Better Rail Experience', June 2013, Wellington Regional Council





# APPENDIX ONE

## SUBURB EVALUATION SHEETS

# ALICETOWN

Approximate age of suburb	: 1920
Housing Typology:	Primarily made up of single storey bungalows, along with pockets of medium density dwellings. Some infill development is also present.
Quality of Housing Stock:	Varies but a lot of the dwellings have been renovated with extensions.
Typical Lot Size:	Lots typically 500m <sup>2</sup> . Most sites have a single dwelling apart from isolated lots of medium density development.
Commercial Area Attributes:	A mix of shops and offices on the main street with a light industrial feel to some buildings. The busy road creates a different feel to a typical suburban centre. The commercial area to the south by Ava Railway Station is under utilised with car yards and service centres.
Proximity to Public Transport:	The closest train station is Ava, 400m away which is not considered part of this commercial area but is walkable for providing commuter public transport. Bus stops with direct links into the CBD and Wellington are provided in the village centre. For some parts of the Ava, the CBD is also within walking distance.
Streetscape / Street Trees / Amenity:	Tree lined streets with well established pohutukawas on streets set back from the main road on the western side, particularly Tui Street. The main road is busy and creates a potential barrier to pedestrian movement. On the eastern side while there is not street tree amenity the narrow nature of the streets provides an inviting and walkable street network.
Open space	The Hutt River trail is to the east of Alicetown providing for active recreation along the river. The Victoria Street park to the north provides for playground equipment and outdoor meeting space.

## EVALUATION OF OPPORTUNITIES AND CONSTRAINTS

Alicetown has the potential to intensify given its close proximity to the CBD, Ava train station and Cuba Street bus network. Some of the streets may have limited development potential due to their existing character and street trees but the main road corridors are well suited to high levels of mixed use development, around the suburban centre. There are also limited opportunities for higher residential development along Cuba Street.

Transport Proximity	Availability of land	Character Overlays	Commercial Centre	School Proximity	Amenity / Open space	
4	0	3	3	3	2	
<b>Total Score</b>						<b>15</b>

A number of streets have well established street trees which provide a high degree of amenity.



This commercial building has a strong relationship to the corner. This style of building should be replicated to provide a strong street edge and high level of glazing



A variety of different commercial business were observed in Alicetown but little foot traffic was observed. The busy character of the road reduced the amenity for pedestrians.



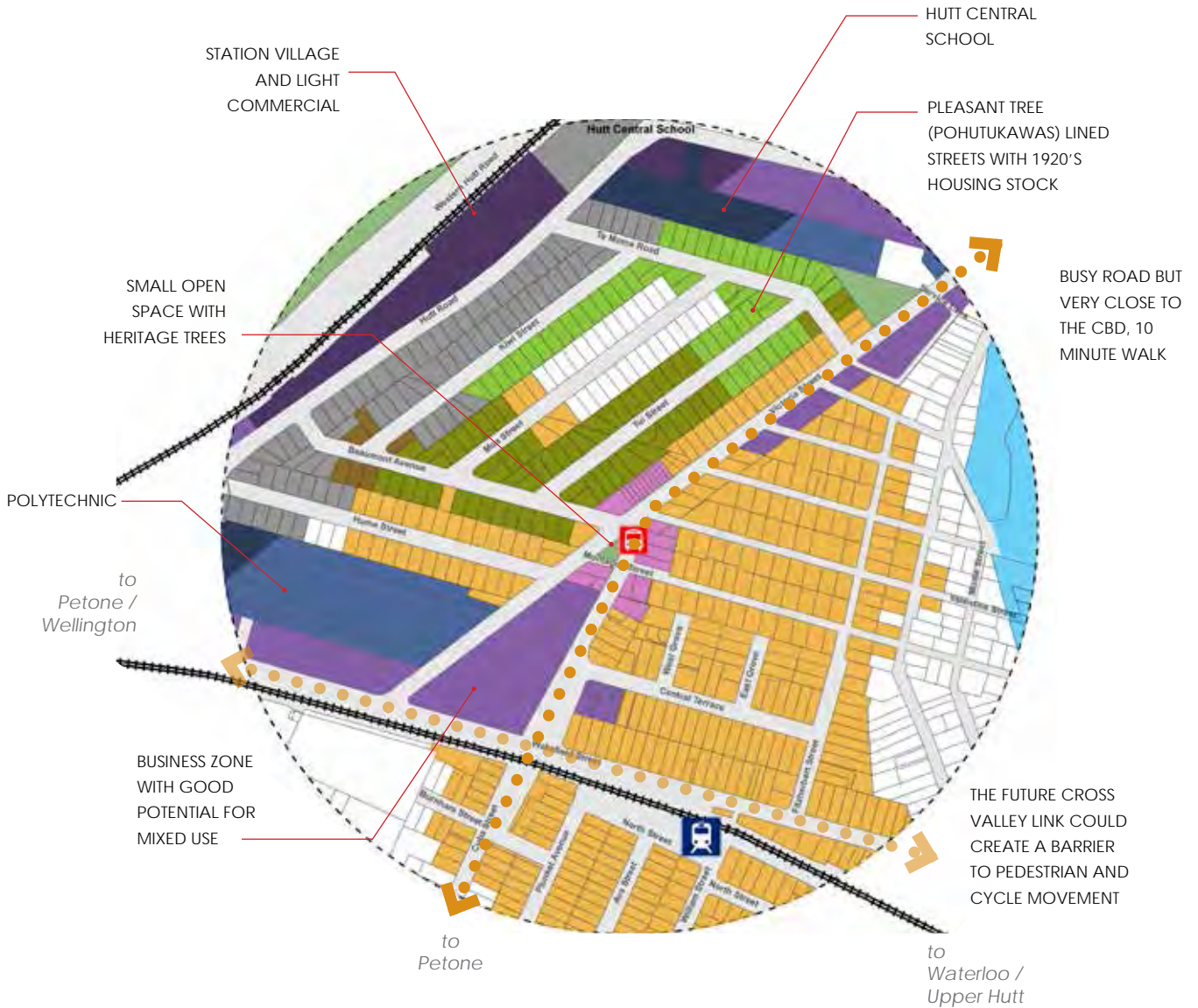
Existing character houses in close proximity to the railway station











The main road heading towards the CBD is well served by bus routes



## PUBLIC TRANSPORT / OPEN SPACE / CONNECTIVITY / CONSTRAINTS / OPPORTUNITY MAP

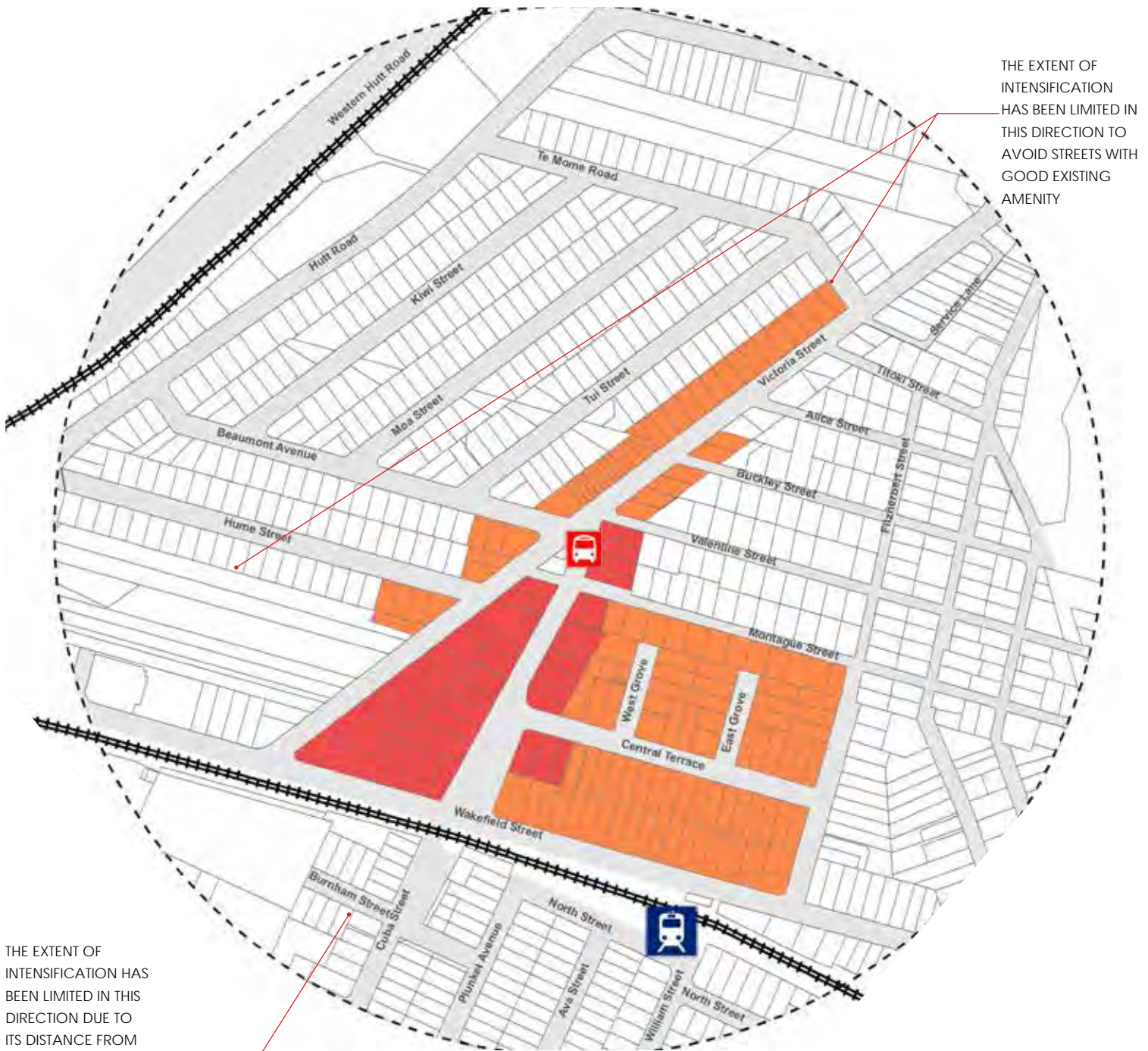


KEY:

	EXISTING SUBURBAN COMMERCIAL		TREE LINED STREETS WITH HERITAGE CHARACTER
	EXISTING BUSINESS ZONE		SECTIONS AFFECTED BY THE WELLINGTON FAULTLINE SPECIAL STUDY AREA
	RECREATION ZONE		FLOODPLAIN
	RESIDENTIAL PARCELS WITHIN 400M WALKING DISTANCE OF THE STATION / BUS STOP		COMMUNITY / SCHOOLS (DESIGNATED SITES ONLY)

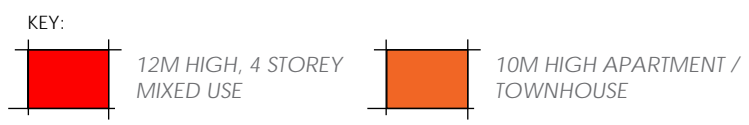


## SUGGESTED INTENSIFICATION AREA AND POTENTIAL YIELD



THE EXTENT OF INTENSIFICATION HAS BEEN LIMITED IN THIS DIRECTION TO AVOID STREETS WITH GOOD EXISTING AMENITY

THE EXTENT OF INTENSIFICATION HAS BEEN LIMITED IN THIS DIRECTION DUE TO ITS DISTANCE FROM EXISTING SHOPS AND BUS STOPS



# AVALON

Approximate age of suburb	: 1970's
Housing Typology:	Primarily made up of single story housing, however there is a large tower block by the suburban centre and some medium density housing present.
Quality of Housing Stock:	Varies but there is a range of 1970's and above housing stock.
Typical Lot Size:	Range in size from 300-600m <sup>2</sup>
Commercial Area Attributes:	There is a mix of shops that are occupied and business commercial land and service centre including community facilities. As the centre is close to the CBD there is no supermarket present but fine grain food and retail stores. Overall there is capacity for further development but the land holdings are currently fragmented and do not provide a coherent suburban streetscape.
Proximity to Public Transport:	The suburb is on a major bus route to the Hutt CBD. Parts of the suburb are in walking distance to Epuni Railway station, but not the suburban centre.
Streetscape / Street Trees / Amenity:	Residential streets are tree lined, but with mixed levels of amenity on main street as there is no coherent street scape strategy and an array of land use types.
Open space	Avalon park is to the west of the suburb. This is Hutt City premier park and open space area which is currently being upgraded to provide for further capacity for residents. The area is also well served by public open spaces to the east of the suburban centre.

## EVALUATION OF OPPORTUNITIES AND CONSTRAINTS

Avalon has the potential to intensify, around the suburban centre and out to the edge of Daysh Street. The configuration of the arterial road and layout of housing backing away from the arterial road acts as a barrier to further intensification around the suburban centre. However, development around a small mixed use centre can be provided for and supported by public transport routes and open space, schools and facilities in the area. Note, the former Avalon Studios also forms a strong focal point of the built edge and historical identity of the suburb.

<i>Transport Proximity</i>	<i>Availability of land</i>	<i>Character Overlays</i>	<i>Commercial Centre</i>	<i>School Proximity</i>	<i>Amenity / Open space</i>	
1	1	3	2	3	3	
<b>Total Score</b>						<b>13</b>

Street view looking north from southern end of suburban centre showing mixture of neighbourhood shops and business zoning providing larger scale service land use in the distance (Z service station and take away, medical centre).



Street view showing existing taller residential building (in proposed mixed use area) which is opposite a recent medium density development.



A medium density development on Park Avenue showing a good level of material variation and modulation. The chimneys provide visual interest but the building's relationship to the street could have been improved by directly fronting the street.



Arterial road view. No houses or vehicle access fronting the road creating a natural barrier to interaction. High volume road as well so it's appropriate for this location with interaction of side streets



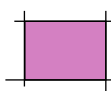
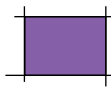

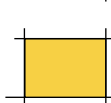
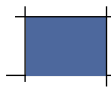
The southern end of Avalon Park, looking north. Good open park frontage with a strong relationship to the street





# PUBLIC TRANSPORT / OPEN SPACE / CONNECTIVITY / CONSTRAINTS / OPPORTUNITY MAP



-  EXISTING SUBURBAN COMMERCIAL
-  EXISTING BUSINESS ZONE
-  OPEN SPACE
-  RESIDENTIAL PARCELS WITHIN 400M WALKING DISTANCE OF THE STATION / BUS STOP
-  COMMUNITY / SCHOOLS



## SUGGESTED INTENSIFICATION AREA AND POTENTIAL YIELD

DEVELOPMENT LIMITED TO ARTERIAL ROAD - FUNCTION OR OPPOSING SIDE OF FAIRWAY DRIVE DOES NOT RELATE TO SOUTH AVALON. ROAD TRAFFIC ALSO ACTS AS A BARRIER TO PEDESTRIAN MOVEMENT



MIXED USE ZONE TO REPLACE EXISTING BUSINESS AND RESIDENTIAL ZONES AND TO LINK THE EXISTING FRAGMENTED SUBURBAN CENTRE.

 12M HIGH, 4 STOREY MIXED USE

 10M HIGH APARTMENT / TOWNHOUSE

# CBD EDGE

- Approximate age of suburb** : 1920-30
- Housing Typology:** Mixed character with residential dwellings and small offices, medical rooms etc.
- Quality of Housing Stock:** Mixed quality of housing with high quality older homes in pockets of the CBD Edge and other older dwellings which have been converted to flats or are used as offices. There is also ongoing infill development occurring.
- Typical Lot Size:** Section sizes typically around 500m<sup>2</sup> with larger lots having been subdivided down to 300-400m<sup>2</sup>.
- Commercial Area Attributes:** Adjacent to CBD. There is an ability for residential development to further strengthen the CBD. However future mixed use development should not be encouraged outside of the CBD core.
- Proximity to Public Transport:** Close to major bus routes with the closest train station being Melling Station.
- Streetscape / Street Trees / Amenity:** Many of the streets have street trees and a high levels of amenity. Some streets have much lower levels, such as by the large format end of the CBD to the north and are more commercial/service centre focused.
- Open Space:** Open space and reserves are limited to the north of the CBD edge and is primarily provided through the river corridor, but there are high levels of active and usable open space provided through the civic precinct of the city. For example, Dowse Square, Riddiford Gardens.

## EVALUATION OF OPPORTUNITIES AND CONSTRAINTS

The CBD edge is already showing signs of intensification with infill development present. The area is in walking distance of the main commercial areas and is well served by bus routes. It is less well served by the train network with the closest station being Melling Station and to the east is Waterloo Station. However, the main bus terminal at Queensgate provides a strong public transport focus point. The Civic Precinct also provides the primary civic centre and centre for events. This facility helps support further residential intensification around the provision of upgraded public open space facilities. This area has a high capacity for increased residential development but not mixed use considering it is so close to the existing CBD which is where commercial activity should be focused to reinvigorate the city core.

Transport Proximity	Availability of land	Character Overlays	Commercial Centre	School Proximity	Amenity / Open space	
2	0	1	4	3	3	
<b>Total Score</b>						<b>13</b>

*There are a number of smaller, heritage style shop+dwelling buildings close to the CBD*



*House typology is mixed from large, individual dwellings to multi-unit developments*



*Some existing houses have been converted into businesses*



*The age and style of housing varies, more so than other areas of the city with no distinct character type.*



*Some of the smaller streets are tree lined with well established pohutukawas*





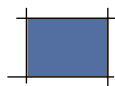
## PUBLIC TRANSPORT / OPEN SPACE / CONNECTIVITY / CONSTRAINTS / OPPORTUNITY MAP



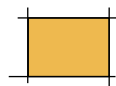
TREE LINED STREETS CLOSE TO CBD

CIVIC GARDENS AND LIBRARY  
- HIGH QUALITY PUBLIC OPEN SPACE

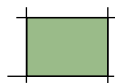
KEY:



SCHOOL/ EDUCATION LAND



RESIDENTIAL PARCELS WITHIN 400M WALKING DISTANCE OF THE STATION / BUS STOP



RECREATION ZONE

## SUGGESTED INTENSIFICATION AREA AND POTENTIAL YIELD

INTENSIFICATION AREAS HAVE BEEN EXTENDED FURTHER THAN 400M OUT TO 500-800M DUE TO THE PRESENCE OF COMMERCIAL AMENITIES NEARBY. MELLING RAILWAY STATION IS ALSO WITHIN A 800M WALKING DISTANCE



INTENSIFICATION HAS BEEN EXTENDED TO THE SOUTH BECAUSE OF ACCESS TO THE CIVIC CENTER WHERE THERE IS A HIGH AMOUNT OF OPEN SPACE AND COMMUNITY FACILITIES.

INTENSIFICATION AREAS HAVE BEEN EXTENDED FURTHER THAN 400M OUT TO 500-800M DUE TO THE PRESENCE OF COMMERCIAL AMENITIES NEARBY.

KEY:



# EASTBOURNE

- Approximate age of suburb : 1920
- Housing Typology: Varies with larger dwellings positioned along the beach front. There is a large 7 storey residential apartment building which is out of character with the rest of the suburb but three storey dwellings are not uncommon.
- Quality of Housing Stock: Generally high with a number of modern dwellings using high quality materials and finishes
- Typical Lot Size: Range from 100m<sup>2</sup> upwards with a high level or variety. Some have long narrow section, being only 9m across. There is a large 7 storey residential apartment building which is out of character with the rest of the suburb but three storey dwellings are not uncommon.
- Commercial Area Attributes: Small commercial area on Rimu Street, immediately adjacent to the proposed higher density areas, has a high level of amenity which is compact and walkable. There is potential to increase the height and ability for new uses within this centre to support further growth and place making at the centre.
- Proximity to Public Transport: Bus stops are located on Muritai Road, less than 200m away. Commuter ferry comes into Days Bay, approximately 1.5km away to the north.
- Streetscape / Street Trees / Amenity: Most streets running to the north, north of village have limited or no street trees. Marine parade is framed by the coastal dunes and open space or sea, which provides for its high level of street amenity. Streets to the south have higher levels of amenity associated with the street trees and quality of building stock.
- Open Space: The beach front, swimming pool and wharf are immediately adjacent to the area, providing a high level of amenity.

## EVALUATION OF OPPORTUNITIES AND CONSTRAINTS

Eastbourne is a standalone destination that with its isolated connections to the city requires it to be more self sufficient than other suburbs. Residential intensification is already occurring, especially on high amenity sites. There is a good mix of house typologies including the large apartment building which is out of character with other developments and not recommended as a future typology in this location. Smaller scale residential developments however are, where there is good open space provision nearby and within walking distance of the suburban centre. The suburban centre is also compact and has capacity for providing for further commercial and mixed use activity within the existing suburban centre over time which could support further growth and activity within this spatially small coastal settlement.

Transport Proximity	Availability of land	Character Overlays	Commercial Centre	School Proximity	Amenity / Open space	
1	0	3	3	2	4	
Total Score						13



*Eastbourne has a well formed commercial area with good connectivity to the beach and surrounding residential areas*



*The majority of housing is single or two storey except for a 7 storey apartment building which is somewhat out of character with the adjoining properties*



*There is a high level of landscape detailing on the main commercial street with traffic calming measures*



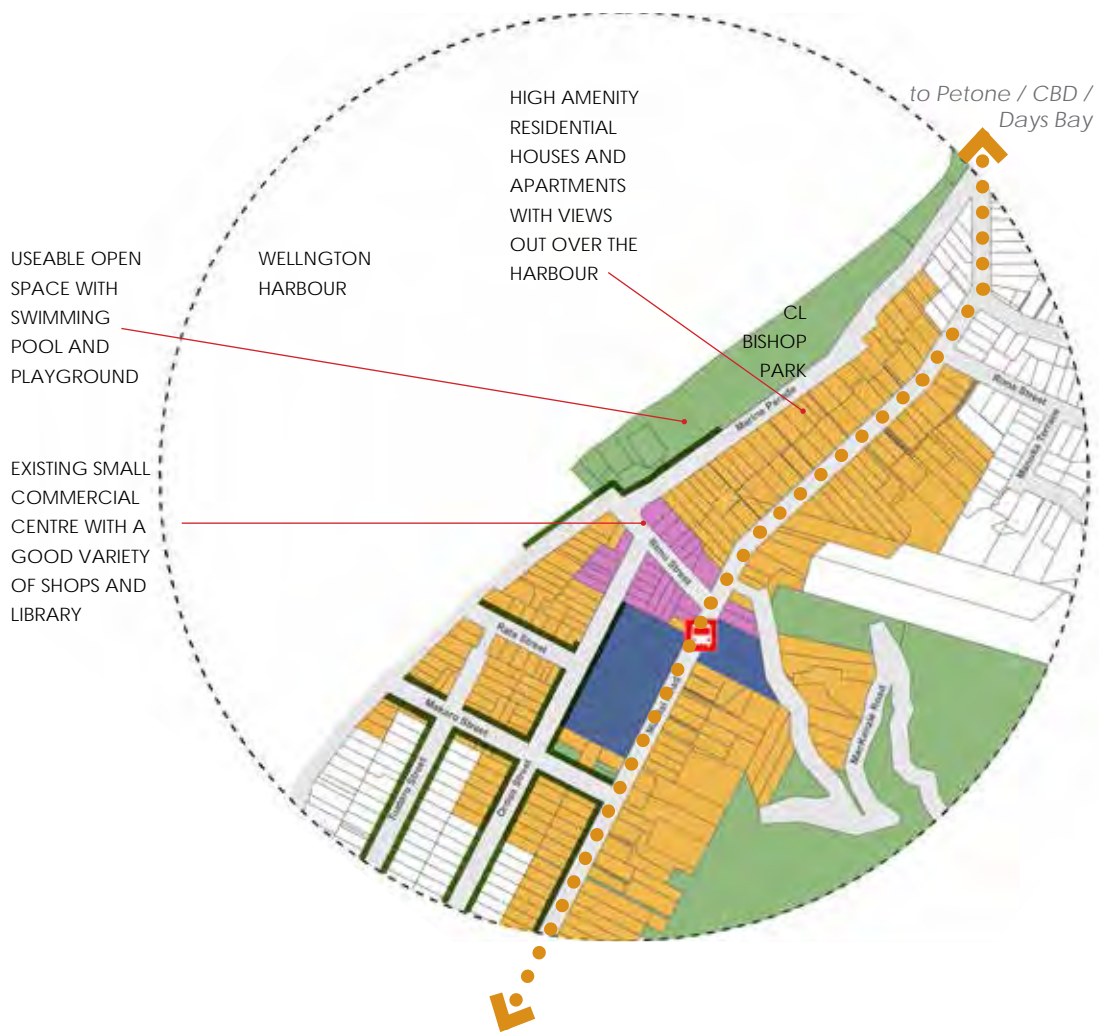
*The foreshore provides and beach provides a high level of amenity. Views across the harbour to Wellington are possible.*



*Houses are typically of a high standard and a good relationship to the street*



## PUBLIC TRANSPORT / OPEN SPACE / CONNECTIVITY / CONSTRAINTS / OPPORTUNITY MAP

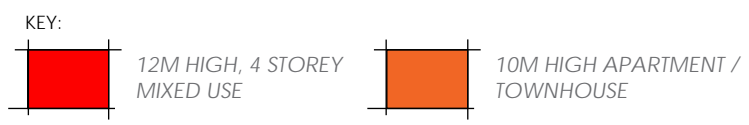


KEY:

	EXISTING SUBURBAN COMMERCIAL		TREE LINED STREETS
	OPEN SPACE		COMMUNITY / SCHOOLS
	RESIDENTIAL PARCELS WITHIN 400M WALKING DISTANCE OF THE STATION / BUS STOP		



## SUGGESTED INTENSIFICATION AREA AND POTENTIAL YIELD



# EPUNI

- Approximate age of suburb** : 1940-50
- Housing Typology:** A mix of single and two storey state housing. Many of the houses are terraces or semi-detached. There are some three or more story buildings as well and infill housing is present on rear sections with long driveways.
- Quality of Housing Stock:** Generally poor on the eastern side with a number of dwellings having been demolished due to earthquake concerns. Further out towards Fairfield and Boulcott the quality of housing improves.
- Typical Lot Size:** Lot sizes range from 300m<sup>2</sup> upwards with a large variation in size. A lot of lots have been subdivided into smaller lots, following existing building walls. The shape of the lots as a result vary greatly.
- Commercial Area Attributes:** A small commercial area is located on the northern side of the Epuni Station which is accessible from the south via a subway.
- Proximity to Public Transport:** The train station is at the middle of the area with bus routes using both Oxford Terrace and Waiwhetu Road
- Streetscape / Street Trees / Amenity** : Many of the trees are tree lined with large, well established pohutukawas. It is also well serviced by small open spaces although these tend to be sited at the rear of sections (as opposed to fronting streets) with long narrow entranceways
- Open Space:** Reserves are constrained in this area with limited formal playgrounds. Playgrounds and reserves are more limited to the west of the railway line with only the Epuni community hall area and Mitchell Street Gardens. The Copeland Street reserve has been revoked, but we understand there may be future options from development of this that may provide for some playground provision. However Epuni school provides some open space to the east of the railway tracks.

## EVALUATION OF OPPORTUNITIES AND CONSTRAINTS

There is a large amount of vacant land on the eastern side of the railway line which has the potential to be 'master planned' to create a desirable place to live. The suburb has a local commercial centre which is very accessible and could benefit from more local residents. Epuni is also nearby existing shops at Boulcott to the West, the Hospital Precinct and Fairfield on the eastern side of the railway tracks. In terms of development potential, having large areas of vacant land creates definite opportunities for intensification as there are less boundary issues with existing developments.

Transport Proximity	Availability of land	Character Overlays	Commercial Centre	School Proximity	Amenity / Open space	
4	3	3	2	2	2	
Total Score						16

*Opportunity for intensification due to the number of large empty sections available*



*Housing demand and population growth may be a constraint to development occurring*



*Terrace houses and duplexes are a common house typology in Eponi*



*A number of streets have well established street trees which provide a high degree of amenity. Pruning to provide for overhead lines has a negative visual impact.*



*The commercial centre is small, with less than 10 shops but provides a variety of services and amenities*

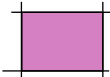




# PUBLIC TRANSPORT / OPEN SPACE / CONNECTIVITY / CONSTRAINTS / OPPORTUNITY MAP



KEY:

	EXISTING SUBURBAN COMMERCIAL		TREE LINED STREETS
	EXISTING BUSINESS ZONE		COMMUNITY / SCHOOLS (DESIGNATED SITES ONLY)
	RECREATION ZONE		RESIDENTIAL PARCELS WITHIN 400M WALKING DISTANCE OF THE STATION / BUS STOP

## SUGGESTED INTENSIFICATION AREA AND POTENTIAL YIELD



INTENSIFICATION AREAS HAVE BEEN EXTENDED FURTHER THAN 400M TO ENCOMPASS AN ENTIRE BLOCK WHERE POSSIBLE TO AVOID ZONE BOUNDARY ISSUES

KEY:	
	12M HIGH, 4 STOREY MIXED USE
	10M HIGH APARTMENT / TOWNHOUSE

UNDERLYING ZONE SAME AS NEIGHBOURHOOD ZONE

# MOERA

- Approximate age of suburb** : 1910-20
- Housing Typology:** Single and two storey standalone dwellings, with pockets of medium density up to 4 stories present. Infill development present.
- Quality of Housing Stock:** A mixture but generally an older building stock. For example there are a large amount of 1910 railway cottages present as well as later 1960/70's housing stock. There are some isolated new housing infill occurring. Some renovation work is being undertaken on early housing stock particularly around the village centre.
- Typical Lot Size:** Typically 500-600m<sup>2</sup> with the ability for intensification
- Commercial Area Attributes:** Small to mid sized, well used commercial area, but predominantly providing take away foods. A well used community library and hall is in place but other shopping services outside of food and a pharmacy has to be done out of the area.
- Proximity to Public Transport:** The closest train station is Woburn Station being approximately 800m away. However there is a 30minute frequency and 15minute at peak bus services for local commuting across the valley and to Wellington along Randwick road.
- Streetscape / Street Trees / Amenity** : Occasional street trees are present, but quality of trees and number provides limited additional amenity. Mixture of housing from the street is varied.
- Open Space:** Riverside reserves immediately adjacent to the area to the west. This is well used as part of the Hutt River Cycle Trail. Community park provided by the library and is well used as a result of being placed by community services. Hutt Park is immediately to the South and provides for a range of outdoor sports and is the primary indoor sports centre for the Hutt Valley.

## EVALUATION OF OPPORTUNITIES AND CONSTRAINTS

Moera is already has a range of medium density dwellings and some infill housing and a busy, albeit small, commercial centre. The distance to the train station is only 800m but it requires crossing over a bridge and a busy intersection which acts as a barrier to easy movement. Conversely the area is well serviced by buses which go to the Hutt CBD and to the south there are connecting buses to the city. The area has the benefits of the riverside reserve but limited vacant land for development by this due to the flood way.

<i>Transport Proximity</i>	<i>Availability of land</i>	<i>Character Overlays</i>	<i>Commercial Centre</i>	<i>School Proximity</i>	<i>Amenity / Open space</i>	
3	1	3	3	2	4	
<b>Total Score</b>						<b>16</b>



*Moera is a narrow strip of land between the rail line on the east and the Hutt River on the west and a major collector road running through the city*



*Intensification and infill housing is already occurring in Moera*



*The strip of shops serves the immediate community while a couple are destinations for people from throughout the city*



*Small, early 20th century bungalows are common in Moera along with infill development*



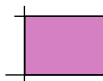

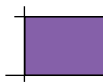
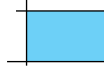
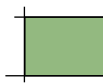
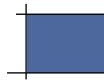

*The main road through Moera is relatively busy with vehicles dominating the space*



## PUBLIC TRANSPORT / OPEN SPACE / CONNECTIVITY / CONSTRAINTS / OPPORTUNITY MAP



KEY:

- |   |  |   |   |
|---|--|---|---|
|  | EXISTING SUBURBAN COMMERCIAL   |  | TREE LINED STREETS                          |
|  | EXISTING BUSINESS ZONE   |  | FLOODPLAIN                                  |
|  | RECREATION ZONE  |  | COMMUNITY / SCHOOLS (DESIGNATED SITES ONLY) |
|  | RESIDENTIAL PARCELS WITHIN 400M WALKING DISTANCE OF THE STATION / BUS STOP |   |   |



## SUGGESTED INTENSIFICATION AREA AND POTENTIAL YIELD



INTENSIFICATION AREAS HAVE BEEN LIMITED TO THE AREA SHOWN DUE TO THE DISTANCE TO THE TRAIN STATION BUT THE AREA IS WELL SERVED BY THE LOCAL COMMERCIAL CENTRE



# NAENAE

<b>Approximate age of suburb</b>	: 1960
<b>Housing Typology:</b>	A mix of single and two storey state housing along with some private dwellings. The majority are standalone bungalows on individual titles with some infill development.
<b>Quality of Housing Stock:</b>	Varies, but most housing of good quality is renovated state housing stock. Limited new builds occurring. Well kept yards and limited front fencing.
<b>Typical Lot Size:</b>	Typically range from 350m <sup>2</sup> to 600m <sup>2</sup> , with the ability in a large number of sections to provide an additional dwelling at the rear.
<b>Commercial Area Attributes:</b>	A large commercial area, with buildings up to four stories, including a pedestrian mall and the Naenae swimming pool complex. A large area of industrial and large format retail buildings to the south of the commercial centre is nearby. The supermarket has recently closed reducing the functionality of the town centre, however there are still a large range of shops present. The supermarket has recently closed reducing the functionality of the town centre
<b>Proximity to Public Transport:</b>	Train station immediately adjoining the commercial area and is well serviced by bus routes to the Hutt CBD and Seaview.
<b>Streetscape / Street Trees / Amenity</b>	A mix of tree lined streets, although these tend to be sited at the rear of sections (as opposed to fronting streets) with long narrow entranceways.
<b>Open Space:</b>	The area is well serviced by small open spaces outside of the village centre. The Naenae swimming pool and council gym provides a primary community facility for Naenae and the region and there are outdoor park areas surrounding the pool complex. A new regional sports centre will be proposed to the east of the site, which may also be used by some residents.

## EVALUATION OF OPPORTUNITIES AND CONSTRAINTS

Naenae has existing examples of multi unit developments which are potentially coming to the end of their design life, creating an opportunity to intensify some residential areas. There appears to be sufficient commercial space available with vacant or lower end retail offices visible. Both suburbs have good transport connectivity and provision of open space which would also support intensification as well as provide a bigger 'consumer' base for the local retail businesses.

<i>Transport Proximity</i>	<i>Availability of land</i>	<i>Character Overlays</i>	<i>Commercial Centre</i>	<i>School Proximity</i>	<i>Amenity / Open space</i>	
4	2	3	3	2	2	
<b>Total Score</b>						<b>16</b>

*The shopping mall is tidy and well kept but the supermarket is no longer located here*



*There is a good variety of small shops*



*Housing is typically single storey with limited infill development*



*Naenae is well served by both train and bus services*



*There is a large park located immediately to the south of the shopping area and the swimming centre*

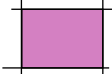



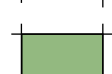




## PUBLIC TRANSPORT / OPEN SPACE / CONNECTIVITY / CONSTRAINTS / OPPORTUNITY MAP



### KEY:

	EXISTING SUBURBAN COMMERCIAL		RESIDENTIAL PARCELS WITHIN 400M WALKING DISTANCE OF THE STATION / BUS STOP
	EXISTING BUSINESS ZONE		COMMUNITY / SCHOOLS (DESIGNATED SITES ONLY)
	RECREATION ZONE		

## SUGGESTED INTENSIFICATION AREA AND POTENTIAL YIELD

INTENSIFICATION IS NOT PROPOSED ON THIS SIDE OF THE RAILWAY AS THE LINE FORMS A BARRIER TO THE COMMERCIAL AREA

INTENSIFICATION STOPS WHERE THERE IS AN ACCESSWAY TO CREATE A BUFFER BETWEEN DENSITIES



KEY:



# PETONE EAST

- Approximate age of suburb** : 1900-20
- Housing Typology:** Single storey bungalows with but some larger social housing complexes (three storeys) closer to Waohine Street and the former Unilever site. Some infill development has taken place.
- Quality of Housing Stock:** Generally smaller houses, older building stock. Housing closer to Jackson Street and some whole blocks such as Patrick Street have been well renovated, consistent with the heritage precinct. Some housing stock is obviously being land banked to a point when they will be redeveloped or renovated.
- Typical Lot Size:** 400m<sup>2</sup> with limited ability for infill development given the width of the lots without demolishing the existing dwelling. Considerable areas of vacant land available at the eastern end.
- Commercial Area Attributes:** No retail of note with the closest main shopping area being Jackson Road. Light industrial and commercial/ large format retail is present at Waione Street.
- Proximity to Public Transport:** Good bus routes but the closest train station is Ava, being 1-1.4 km away.
- Streetscape / Street Trees / Amenity** : Streets tend to be open, with minimal street trees present, reflecting the coastal nature of the suburb.
- Open Space:** Open space is primarily provided along The Esplanade and Petone beach which provides for a passive and active uses. Hikoikoi Reserve is to the south east of Petone and Petone Beach playground provides the primary formal playground in the area. Aurora Street historic reserve provides an open space area for members to picnic in. The final open space area is the park to the east of Adelaide Street, bounded by Schofield Street.

## EVALUATION OF OPPORTUNITIES AND CONSTRAINTS

Petone East is at the edge of the Jackson Street precinct where the primary bus public transport routes converge at Jackson Street and Cuba Street. The area is defined as the start of the Jackson Street shopping precinct and has existing apartment development and Weltec behind the precinct. The area also has the Petone foreshore as a primary open space area nearby. There is an opportunity to undertake limited additional intensification supporting the Jackson Street precinct while still maintaining the character of the area.

<i>Transport Proximity</i>	<i>Availability of land</i>	<i>Character Overlays</i>	<i>Commercial Centre</i>	<i>School Proximity</i>	<i>Amenity / Open space</i>	
2	1	2	4	1	2	
<b>Total Score</b>						<b>12</b>



*There is a mix of housing typologies in the area*



*Many of the houses date from the 1900's to 1930's with Californian bungalows common towards Ava*



*At the eastern end of the suburb there are a number of terrace houses and duplexes*



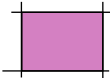
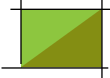
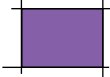
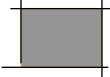

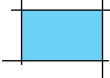
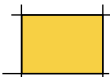
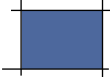
*Many of the houses in the area are single storey*



# PUBLIC TRANSPORT / OPEN SPACE / CONNECTIVITY / CONSTRAINTS / OPPORTUNITY MAP



KEY:

	EXISTING SUBURBAN COMMERCIAL		TREE LINED CHARACTER STREETS CONSISTENT HOUSE AGE, SET BACK AND FORM (OLDER THAN 1940)
	EXISTING BUSINESS ZONE		HERITAGE / CHARACTER BUILDINGS
	RECREATION ZONE		FLOOD PROTECTION BANK AND PRIMARY RIVER CORRIDOR
	RESIDENTIAL PARCELS WITHIN 400M WALKING DISTANCE OF THE STATION / BUS STOP		COMMUNITY / SCHOOLS



## SUGGESTED INTENSIFICATION AREA AND POTENTIAL YIELD



INTENSIFICATION AREAS HAVE BEEN EXTENDED FURTHER THAN 400M TO ENCOMPASS AN ENTIRE BLOCK TO AVOID ZONE BOUNDARY ISSUES

INTENSIFICATION AREAS HAVE BEEN EXTENDED FURTHER THAN 400M TO ENCOURAGE DEVELOPMENT ALONG THE WATERFRONT (HIGH AMENITY) AND TO ENCOMPASS AN ENTIRE BLOCK TO AVOID ZONE BOUNDARY ISSUES. DEVELOPMENT MAY BE SUBJECT TO DESIGN CONTROLS



# STOKES VALLEY

Approximate age of suburb	: 1960-70
Housing Typology:	A mix of housing types and styles. Some terrace housing close to the commercial centre is run down. Some infill present and new greenfield sites on the hills, but most of the lots are a single standalone dwellings.
Quality of Housing Stock:	Mixed, primarily 1970's and 80's housing stock, some newer build housing present.
Typical Lot Size:	Typically larger than other areas being 600-800m <sup>2</sup> in size with little variation or subdivision.
Commercial Area Attributes:	A large commercial area which includes a pedestrian mall and swimming pool. Has a New World supermarket. A new community facilities building incorporating the library and function space is likely to be developed on site.
Proximity to Public Transport:	Bus routes along Stokes Valley Road, which connect to Hutt CBD and a commuter service to Wellington CBD is provided. The closest train station is Pomare Station 3km away.
Streetscape / Street Trees / Amenity	Limited street tree amenity.
Open Space:	There is a large playground and open space area to the south of the suburban centre. There is also a swimming pool complex and views towards the bush clad hills and walking tracks into the hills from the suburb.

## EVALUATION OF OPPORTUNITIES AND CONSTRAINTS

Currently there is a high level of capacity for further infill development and possibly Comprehensive Residential Development in the long term. Current medium density housing is provided around parts of the town centre, but is in need of revitalisation. Over time there could be capacity for further medium density development around the town centre to support further growth in the long term.

<i>Transport Proximity</i>	<i>Availability of land</i>	<i>Character Overlays</i>	<i>Commercial Centre</i>	<i>School Proximity</i>	<i>Amenity / Open space</i>	
1	1	3	4	2	3	
<b>Total Score</b>						<b>14</b>

*The commercial centre appeared busy and well used by local residents.*



*The centre is sheltered with good vehicle accessibility*



*House quality is mixed with some of the older stock showing signs of disrepair*



*The channelised nature of the stream lacks amenity*

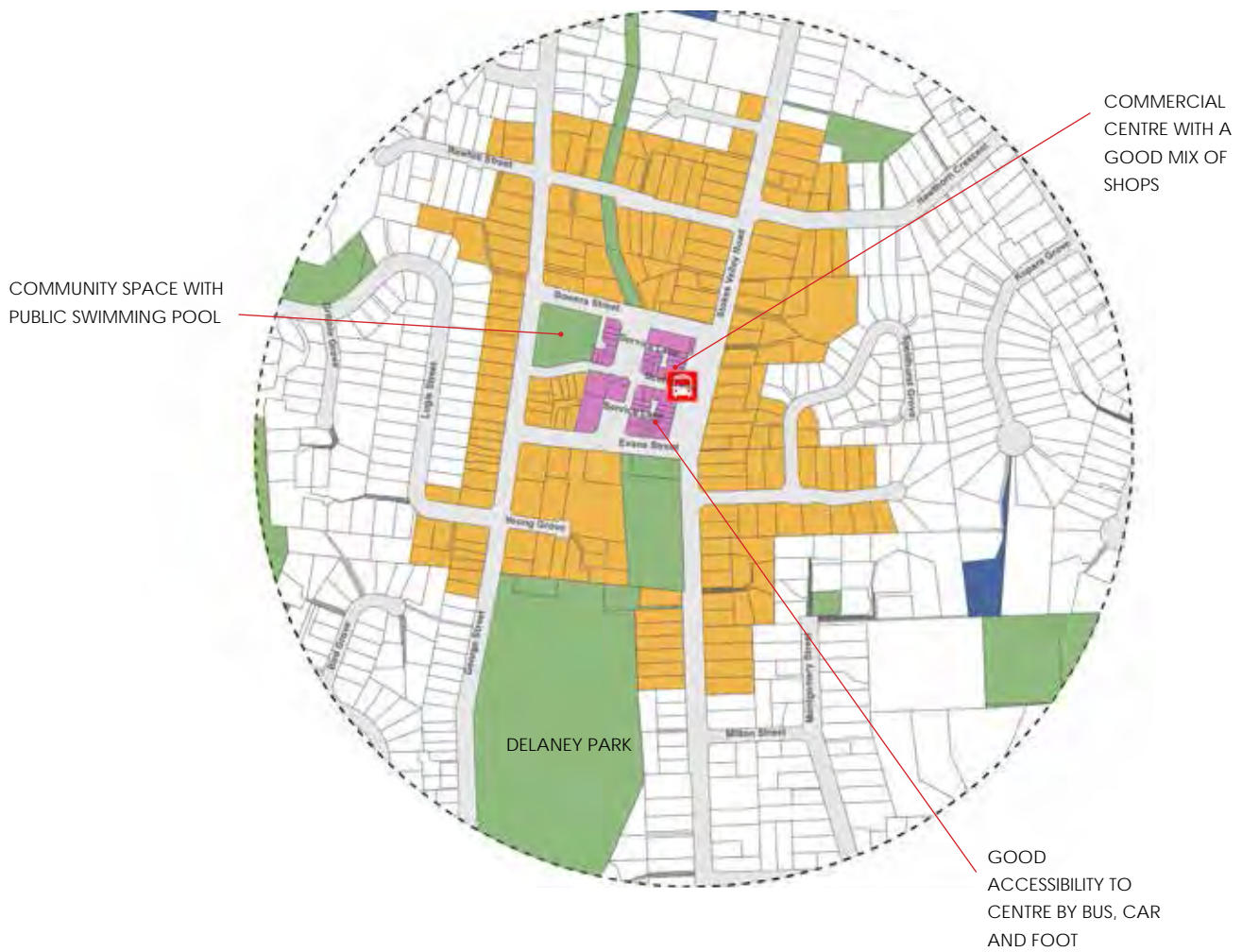


*The centre is well laid out with the local swimming pool adjacent to the main shopping area*





## PUBLIC TRANSPORT / OPEN SPACE / CONNECTIVITY / CONSTRAINTS / OPPORTUNITY MAP



KEY:

	EXISTING SUBURBAN COMMERCIAL		RESIDENTIAL PARCELS WITHIN 400M WALKING DISTANCE OF THE STATION / BUS STOP
	EXISTING BUSINESS ZONE		COMMUNITY / SCHOOLS (DESIGNATED SITES ONLY)
	RECREATION ZONE		

## SUGGESTED INTENSIFICATION AREA AND POTENTIAL YIELD



INTENSIFICATION AREAS HAVE BEEN LIMITED TO THE AREA SHOWN, RECOGNISING THE SMALLER URBAN CATCHMENT OF STOKES VALLEY COMBINED WITH ITS DISTANCE FROM RAIL LINES



# TAITA

Approximate age of suburb	: 1960
Housing Typology:	: Mix of house types including flats but limited infill development. Standalone single storey bungalows are common as well as large multi unit blocks
Quality of Housing Stock:	: Varied but with well kept yards. New development occurring at Farmers Crescent in Pomare.
Typical Lot Size	: Lots are typically 600m <sup>2</sup> in size with some variation.
Commercial Area Attributes:	: A large commercial area which includes a pedestrian mall and the new Walter Nash recreation complex. A large area of industrial buildings is located on the other side of the rail line. A small supermarket and shops are also present.
Proximity to Public Transport:	: Train station immediately adjoining the commercial area. The area is also well connected by bus services to Hutt CBD.
Streetscape / Street Trees / Amenity	: Some street trees but not consistent through the area.
Open Space:	: The new Walter Nash stadium provides a primary active recreation centre for the community. There are limited parks in the remainder of the area.

## EVALUATION OF OPPORTUNITIES AND CONSTRAINTS

There are existing examples of multi unit developments which are potentially coming to the end of their design life, creating an opportunity to intensify some residential areas. There appears to be sufficient commercial space available with vacant or lower end retail offices visible. There is good transport connectivity, but longer travel times to employment destinations. Open space provision is limited, but there is a new large recreation centre providing for activity and community spirit.

<i>Transport Proximity</i>	<i>Availability of land</i>	<i>Character Overlays</i>	<i>Commercial Centre</i>	<i>School Proximity</i>	<i>Amenity / Open space</i>	
4	1	3	4	2	2	
<b>Total Score</b>						<b>16</b>



*The railway station is easily accessible although the subway could be upgraded to improve CPTED issues*



*Connectivity to Taita is high with good road and rail links*



*The town centre is currently being upgraded with large footpaths and seating providing good opportunities for people to gather*



*The housing stock is generally in good condition, albeit getting old.*



*The newly established recreation centre is adjacent to the centre providing additional amenity.*



## PUBLIC TRANSPORT / OPEN SPACE / CONNECTIVITY / CONSTRAINTS / OPPORTUNITY MAP



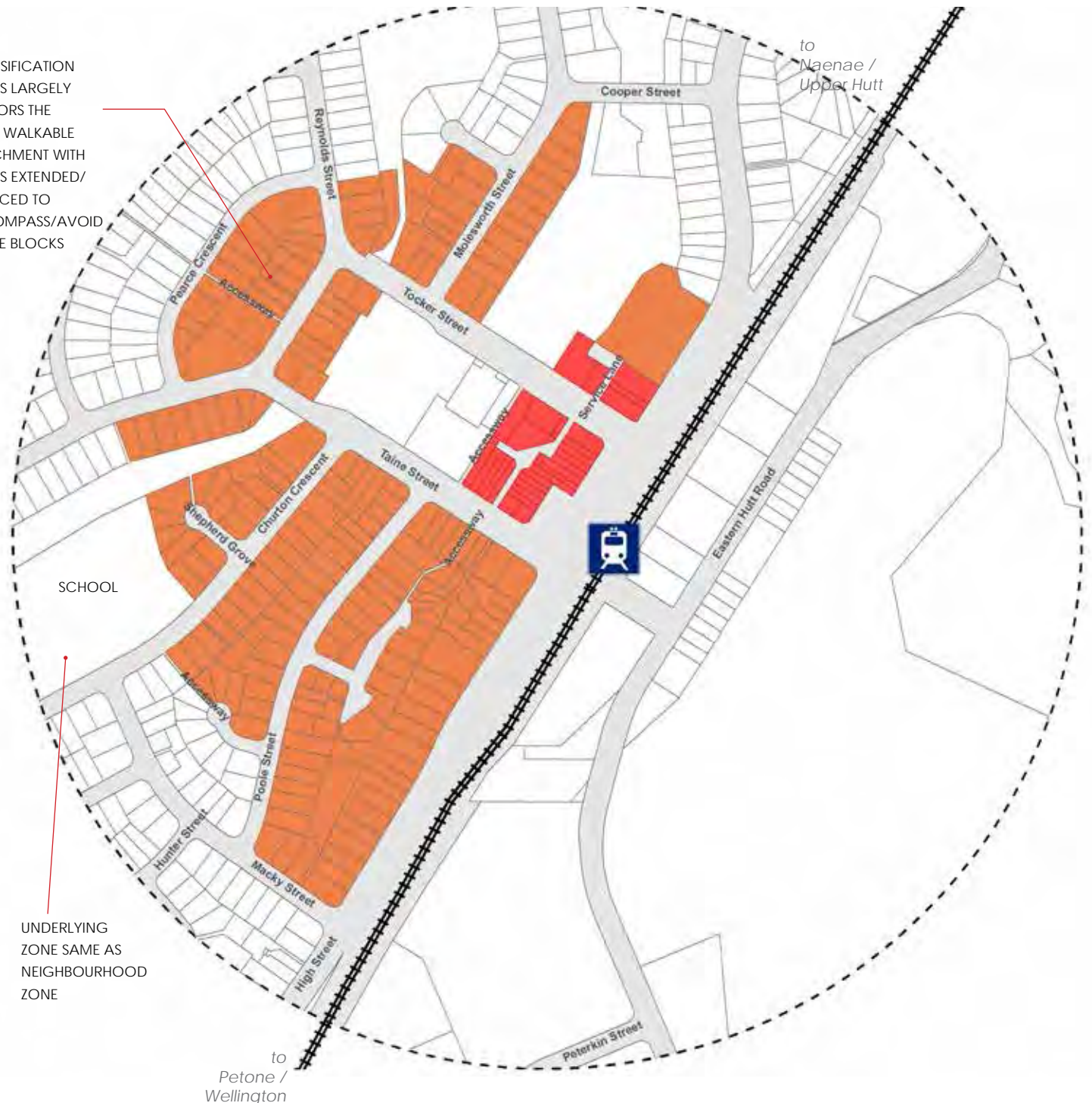
KEY:

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	EXISTING BUSINESS ZONE		COMMUNITY / SCHOOLS (DESIGNATED SITES ONLY)
	RECREATION ZONE		



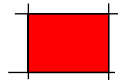
## SUGGESTED INTENSIFICATION AREA AND POTENTIAL YIELD

INTENSIFICATION AREAS LARGELY MIRRORS THE 400M WALKABLE CATCHMENT WITH AREAS EXTENDED/ REDUCED TO ENCOMPASS/AVOID ENTIRE BLOCKS

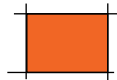


UNDERLYING ZONE SAME AS NEIGHBOURHOOD ZONE

KEY:



12M HIGH, 4 STOREY MIXED USE



10M HIGH APARTMENT / TOWNHOUSE

# WAINUIOMATA

Approximate age of suburb	: 1960
Housing Typology:	Single storey bungalows with limited in fill development visible. Future retirement accommodation is planned near the town centre.
Quality of Housing Stock:	Mixed standard of quality but largely unmodified from the original dwelling
Typical Lot Size:	Typically 800m <sup>2</sup> in area with the houses occupying a small percentage of the size
Commercial Area Attributes:	A large commercial area which includes a mall and big box retail. A large area of industrial buildings is located on the other side of the rail line. Has a small supermarket.
Proximity to Public Transport:	Bus routes through to CBD and Petone. No access to train.
Streetscape / Street Trees / Amenity	Well serviced by open space close to the commercial centre.
Open Space:	There is a good array of parks and open space around the town centre and to the periphery of the suburb there is a wide range of walking tracks and outdoor activities.

## EVALUATION OF OPPORTUNITIES AND CONSTRAINTS

Wainuiomata is unique from other suburbs in that it is a standalone settlement in its own right and needs to be self-sufficient to minimise trips over the hill for day-to-day needs. There is already sufficient commercial space available and plans for future strengthening of the town centre with the planned retirement village and community facilities, but current lack of development within the mall precinct.

<i>Transport Proximity</i>	<i>Availability of land</i>	<i>Character Overlays</i>	<i>Commercial Centre</i>	<i>School Proximity</i>	<i>Amenity / Open space</i>	
1	2	3	4	2	3	
Total Score						15

*Housing stock varies within Wainuiomata. This house is only 100 m from the town centre and is on a large section*



*The town centre is easily accessible by car and foot*



*There is a variety of shops in the centre with a strong street frontage*



*The carpark by the mall is a low amenity area and legibility is not good*



*Wainuiomata is served by large roads which provide good vehicle connectivity but tend to make pedestrian trips uninteresting*

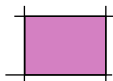




## PUBLIC TRANSPORT / OPEN SPACE / CONNECTIVITY / CONSTRAINTS / OPPORTUNITY MAP



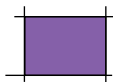
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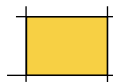
EXISTING SUBURBAN COMMERCIAL



RECREATION ZONE



EXISTING BUSINESS ZONE



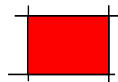
RESIDENTIAL PARCELS WITHIN 400M WALKING DISTANCE OF THE STATION / BUS STOP

## SUGGESTED INTENSIFICATION AREA AND POTENTIAL YIELD

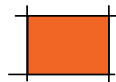
INTENSIFICATION AREAS LARGELY MIRRORS THE 400M WALKABLE CATCHMENT WITH AREAS EXTENDED/ REDUCED TO ENCOMPASS/AVOID ENTIRE BLOCKS



KEY:



12M HIGH, 4 STOREY MIXED USE



10M HIGH APARTMENT / TOWNHOUSE

# WATERLOO

- Approximate age of suburb** : 1950
- Housing Typology:** Single and two storey standalone dwellings as well as terraces and duplexes. Some infill development has been completed.
- Quality of Housing Stock:** Generally of a high quality with houses having undergone renovations and extensions.
- Typical Lot Size:** 450-750m<sup>2</sup>, infill development occurring with houses being constructed in the rear yard of larger sections.
- Commercial Area Attributes:** A small commercial area, including a four square, butcher and all necessary community faculties required for a village, which includes a central town square. Close proximity to the railway station and school. On the western side there is a small offering of convenience store and shops.
- Proximity to Public Transport:** Train station immediately adjoining the commercial area, the remaining residential area is well serviced by bus routes along Waiwhetu road with feeder services along riverside drive, along to Waterloo Road. Bus routes link in with railway station timetables.
- Streetscape / Street Trees / Amenity** : A number of tree lined streets with well established trees, including large pohutukawas. Small town square and the primary school is located immediately behind the commercial area.
- Open Space:** Waterloo has limited pocket parks on each side of the railway tracks. However, there are a number of schools in the area which also have playgrounds and fields at the edges of school grounds and are available to the public to use. The primary open space reserve is the stream along Riverside Drive. Te Whiti Park is also nearby the suburb.

## EVALUATION OF OPPORTUNITIES AND CONSTRAINTS

Waterloo scores highly in terms of all aspects, being well served by a small commercial centre, schools and train station. Some infill development has occurred but could be incorporated into the existing character without a loss of amenity. The commercial centre could be developed further, supporting the centre with further residential development above retail which is situated here due to good access to community facilities and the commercial centre and also well situated to the Hutt CBD and the rail transport hub in the Hutt Valley.

<i>Transport Proximity</i>	<i>Availability of land</i>	<i>Character Overlays</i>	<i>Commercial Centre</i>	<i>School Proximity</i>	<i>Amenity / Open space</i>	
4	1	3	3	3	3	
<b>Total Score</b>						<b>17</b>



There is a small set of shops on the western/CBD side of the railway line also



Waterloo is well services by buses with a direct link into the CBD



There is a good mix of shops providing a variety of services



The commercial area has a strong relationship with the railway station and has well positioned public space



the commercial centre is small, but with a full array of shops/services required for the community.





## PUBLIC TRANSPORT / OPEN SPACE / CONNECTIVITY / CONSTRAINTS / OPPORTUNITY MAP

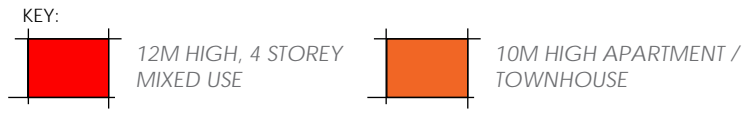
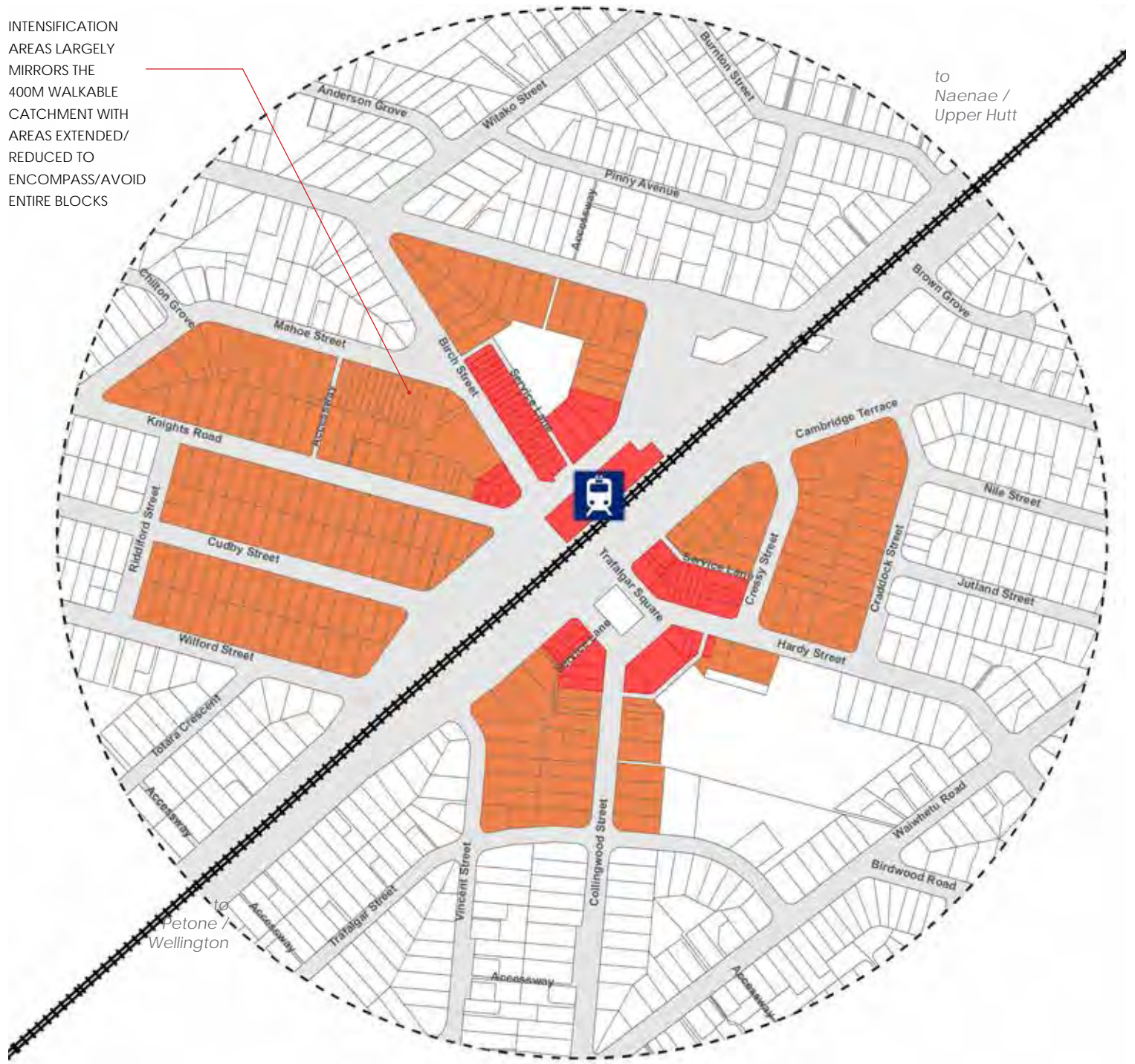


### KEY:



## SUGGESTED INTENSIFICATION AREA AND POTENTIAL YIELD

INTENSIFICATION AREAS LARGELY MIRRORS THE 400M WALKABLE CATCHMENT WITH AREAS EXTENDED/ REDUCED TO ENCOMPASS/AVOID ENTIRE BLOCKS



# WOBURN / WAIWHETU

- Approximate age of suburb :** 1930-40
- Housing Typology:** A mix of single and two storey dwellings. A large number of terrace houses and medium density dwellings present along with infill housing. A large number of new stand alone housing has been built as the Kiwirail repair yard land has been sold off though Leighton Avenue and Mandel Mews. A new greenfield development has also been developed at the former Waiwhetu School site.
- Quality of Housing Stock:** A mix of qualities with much of the existing privately held housing being renovated. New development that has not been infill has primarily been traditional new build housing, at single level. The site on Ludlam Crescent is one of the few sites that has recently been developed to 2 storeys, where larger executive homes have been built on small section sizes.
- Typical Lot Size:** Varies greatly with a number of the ex-state houses being subdivided off onto their own sections. These lots can be as small as 170m<sup>2</sup> but 500m<sup>2</sup> sections are also common.
- Commercial Area Attributes:** A small commercial area by the Woburn railway station that extends to Waiwhetu Road. The are has had recent investment of additional commercial activity with a new community supermarket and takeaway store and refurbishment of some shops. Street amenity is limited but provides commercial offering that is suited to passing vehicle traffic and walkable and bike-able for existing Waiwhetu community.
- Proximity to Public Transport:** Woburn Station is immediately adjacent to the area and the bus routes to Lower Hutt CBD are on Ludlam Crescent and Waiwhetu road.
- Streetscape / Street Trees / Amenity :** Street trees and well established pohutukawas are common on neighbourhood streets. Mid-block streets have high levels of amenity, including Ludlam Crescent. Waiwhetu Road and Whitelines East Road has mixed levels of amenity.
- Open Space:** Waiwhetu/Woburn has a number of pocket parks around medium density housing already present. There is also a large area of open space on Ludlam Crescent and along Waiwhetu Stream. Te Whiti Park also provides a large area of open space and the schools in the suburb , both private and public have playground equipment and access to fields open to the public.

## EVALUATION OF OPPORTUNITIES AND CONSTRAINTS

Woburn/Waiwhetu has the potential for intensification with existing higher density development present, some of which requires repair work. It is well served by a small commercial area and a nearby train station. This can be further enhanced by providing for limited encouragement of mixed use to strengthen the location of this commercial centre and support regeneration of medium density housing that is already present. There are also multiple primary schools within a 15minute walking distance and good access to public parks and high frequency public transport.

Transport Proximity	Availability of land	Character Overlays	Commercial Centre	School Proximity	Amenity / Open space	
4	2	2	3	2	2	
<b>Total Score</b>						<b>15</b>



*Access to the railway station is good with two large bridges at either end of the platform*



*There is a mix of housing styles including some higher density townhouses*



*It has a small commercial area including a small supermarket*



*Higher density housing is not uncommon in Woburn*



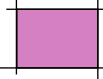

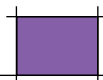
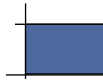


*Streets in the area are generally in a good condition with space available to improve the pedestrian environment*



## PUBLIC TRANSPORT / OPEN SPACE / CONNECTIVITY / CONSTRAINTS / OPPORTUNITY MAP



KEY:

	EXISTING SUBURBAN COMMERCIAL		TREE LINED STREETS
	EXISTING BUSINESS ZONE		COMMUNITY / SCHOOLS
	RECREATION ZONE		RESIDENTIAL PARCELS WITHIN 400M WALKING DISTANCE OF THE STATION / BUS STOP

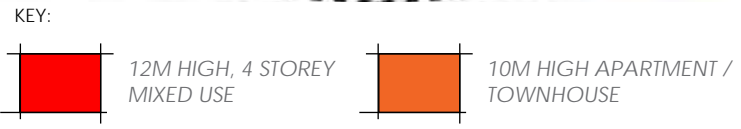


## SUGGESTED INTENSIFICATION AREA AND POTENTIAL YIELD

THE EXTENT OF INTENSIFICATION HAS BEEN LIMITED IN THIS DIRECTION TO AVOID STREETS WITH GOOD EXISTING AMENITY AND SPECIAL CHARACTER AREAS



INTENSIFICATION AREAS LARGELY MIRRORS THE 400M WALKABLE CATCHMENT WITH AREAS EXTENDED/ REDUCED TO ENCOMPASS/AVOID ENTIRE BLOCKS







**Attachment 2**

PAOS (June 2013) *Review of Valley Floor Reserves*. Hutt City Council DOC/15/141572





## REVIEW OF VALLEY FLOOR RESERVES



# CONTENTS

1.0	Introduction	5	7.0	Proposed Future Reserve Requirements	32
1.1	Qualities and Characteristics of Effective Open Space	6	8.0	Conclusions	35
1.2	Objectives	7	9.0	Recommendations	38
1.3	Methodology	8		Glossary	39
2.0	Valley Floor Reserves	9		References	40
2.1	Reserves Considered in the Review	9		Appendices	41
2.2	Ownership	9		Appendix 1: Criteria for assessment of reserve availability	41
2.3	Reserves Protected under the Reserves Act 1977	10		Appendix 2: Location of Reserves	42
2.4	Contribution of Reserves to the Wider Network	10		Map 1	42
2.5	Regional Council Lands	11		Map 2	43
3.0	Categories of Reserves	12		Map 3	44
3.1	NZRA Categories	12		Appendix 3: Database of Reserves	45
3.2	Reserve Significance	14			
4.0	Review of Reserve Provision	15			
4.1	Housing Density	16			
4.2	Current and Projected Ages	18			
4.3	Ethnicity	20			
4.4	Socio-economic Status, Social Housing and Health	21			
4.5	Main Transport Corridors	23			
4.6	Retirement Homes	24			
4.7	Enclosed Neighbourhood Reserves	25			
5.0	Summary of Current Reserve Supply	27			
6.0	Recommended Measures of Reserve Availability	29			
6.1	Introduction	29			
6.2	Factors to Consider When Assessing Reserve Availability	29			
6.3	Measures of Reserve Availability	29			







# 1.0 INTRODUCTION

This section introduces the review and summarises qualities and characteristics of effective public open space, review objectives, the study area and review methodology

Hutt City Council (HCC) owns, administers and manages over 5,300 hectares of public open space throughout the City as reserves. The vast majority is bush covered hills surrounding Wainuiomata, Stokes Valley and Lower Hutt. This open space is a key factor in establishing the “green” character of the City and central to its vision of being “a great place to live, work and play.”

Seventy-four percent of the population of Hutt City live on the valley floor. Others come from the hill suburbs and other parts of Hutt City as well as outside the City to schools, for work and for recreation. In particular, people come to the valley floor for sports, given the hilly landscape of much of Hutt City and the Wellington region.

Changes in demographics will have implications for the types of public open space that will be needed in the future. Societal and population changes also may mean that the purpose and use of individual spaces may change over time. The school age population is expected to decrease over the next 10 years, the elderly to increase and the population in general is expected to become more ethnically diverse.

Most of the areas with high deprivation are located on the valley floor. It is well documented that areas of high deprivation require a higher proportion of public open space because residents do not have the resources to travel outside their immediate area.

Housing density is increasing in areas of the valley floor. This results in smaller sites, greater site coverage, multi-unit housing, low-rise apartments and infill housing. The likely result is growing demand for reserves close to people’s homes.

Neighbourhood reserves are therefore likely to increase in importance. As the valley floor developed in the 1940s, 50s and 60s with large scale central government housing schemes in the northern and eastern parts of the City, land set aside for local public open space was often located at the rear of housing clusters with poor access and visibility from surrounding streets.

This review, therefore, aims to better understand the current Hutt City Council (HCC) public open spaces on the valley floor, along with those of the Greater Wellington Regional Council (GWRC) in the Hutt River corridor, and the likely future demands on these spaces. In this way, HCC can plan and make decisions on the future of individual properties.

The review considers a range of factors to do with public open space:

- Distribution of public open space areas
- Purpose of the open space, its values, use and whether the open space is fulfilling its purpose
- Demographics of the immediate and the wider population and their needs
- Current and predicted population trends
- The degree of existing and proposed residential intensification
- Contribution to the wider public open space network
- The degree of changes, development or other measures to increase reserve performance.

The review also considers the wide ranging role of public open space in the urban context. Public space:

- Contributes to the revitalisation of urban life
- Provides respite from the built environment and space for organised and casual active and passive recreation and sport
- Promotes physical activity critical for maintaining good health, reducing the risk of contracting certain diseases and reducing costs arising from physical inactivity. Less access to quality open space has been linked to inequalities in health overseas, although the direct link in New Zealand is not so clear
- Provides for development and conservation of the natural environment – space for large trees that are no longer viable on smaller house lots, plantings and gardens which provide intrinsic values such as habitat, shade and shelter for flora and fauna
- Provides attractive settings for human activities
- Provides recreational and ecological connections
- Plays a key role in connecting the main landscape features that give Hutt Valley its distinctive character
- Provides linear recreational and ecological opportunities: connections between the eastern and western hills, along the Hutt River and its tributaries on the valley floor and connections to the harbour
- Contributes to resilience of Hutt valley communities by providing open space in emergencies
- Provides space for vegetable and fruit gardens to reconnect people with food production.





# 1.1 Qualities and Characteristics of Effective Public Open space

Qualities and characteristics that make an open space effective vary from place to place, the users, the society within which the open space is set, its physical and environmental setting and linkages, and the quality and degree of management and maintenance.

Nevertheless it is useful to identify qualities and characteristics of effective public open space and to use them as a guideline when determining the degree of effectiveness of current provision. These qualities and characteristics are summarised below.

Key is accessibility, inclusion and equal distribution. A successful public open space applies not just to popular or dominant recreation groups and activities or to a selected demographic or use, but also to minorities and minority recreation groups and activities. Other qualities and characteristics are summarised below:

## ACCESSIBILITY

- Close to residential, commercial and business areas and can be reached on foot if a local reserve, on foot or a short bike ride or drive if a suburban reserve, a bike ride, drive or ride on public transport if a city or district reserve, and clear and defined routes by car and public transport if a regional reserve
- Easy to access e.g. street frontages, multiple and clearly visible entrances, not severed by busy main roads or railway lines, accessible and well-graded paths.

## INCLUSIVE

- Public participation in planning, design and in some cases management
- **Welcoming and easily identified as a public reserve**
- Inviting well maintained entrances
- Open and sheltered areas with shade options
- Spaces of different sizes
- Facilities and amenities to support a diverse public with a variety of seating for a range of social interactions and path surfaces suitable for a range of users
- Different users separated in some instances but within view of each other e.g. areas for skaters separate from paths for the elderly
- **Clear wayfinding, signs and interpretation not text dependent.**

## CONNECTED

- Physically and visually well connected or a gateway to other areas of

- open space e.g. part of a green recreational and ecological corridor
- Physically and visually part of the neighbourhood/city open space network and not hidden away.

## FUNCTIONAL

- Provides for a range of users e.g. ages, abilities, ethnicities for formal and informal recreation, activities and events
- A variety of different sized open spaces (from small neighbourhood parks to large sportsfields or regional parks)
- Has a clear and logical layout and orientation
- **Is flexible and can adapt to different and changing needs, demands and participation patterns.**

## HIGH QUALITY

- Well maintained
- Attractive and aesthetically pleasing e.g. has quality materials and design - paths, plantings, turf, furniture, signage etc according to the purpose of the reserve.

## SAFE

- Safe and perceived as safe and follows CPTED principles - clear sightlines in and out of the reserve, multiple entrance/exits, clear and logical layout, connected and looped pathways with no dead-ends.

## ENVIRONMENTALLY SUSTAINABLE

- Emphasis on locally sourced vegetation
- Vegetation with multi-purpose functions e.g. for shelter, shade, amenity, nectar for birds, habitat for insects, pollen for bees etc
- Sustainable materials (paths, seats, buildings)
- Supports general ecological principles such as ecological connections
- Streams made visible and provide habitat for aquatic life
- Permeable surfaces to slow and reduce runoff and primary treatment of path and carpark run-off such as vegetated swales.

## VALUED

- Community involvement and participation in planning, design, and management
- **Lack of graffiti and vandalism with any graffiti quickly removed and vandalism quickly repaired**
- Fosters a sense of kaitiakitanga and community pride
- Recognises culture e.g. Maori waka landing site, cultivation or garden sites.



# 1.2 Objectives

## OBJECTIVES

The overall objective of the review is to establish the extent that reserve provision on the valley floor meets current and future public open space needs. The review has a particular objective of establishing the likely requirements for neighbourhood reserves. Other objectives are:

1. To quantify the number of sites and hectares of public open space on the Valley floor from Pomare in the north to the Petone Foreshore.
2. To break down these sites into the various categories according to the newly adopted categories promoted by NZRA.
3. To identify, review and assess the distribution and suitability of current provision, and in particular neighbourhood reserves.
4. To review reserve contribution to the wider public open space network and assess reserve provision against the key direction and principles of the Reserves Strategic Directions.
5. To identify and make recommendations on the likely requirements for future reserve provision, and in particular requirements for neighbourhood reserves.
6. To recommend measures of public open space availability.

## STUDY AREA

The study area is the flat valley floor land from High St/Eastern Hutt Road roundabout (Pomare) in the north to the Petone foreshore in the south, from the Western Hutt Road to the foot of the eastern Hills.<sup>1</sup>

<sup>1</sup> The study area excluded the part of Belmont on the valley floor between Hutt River and the State Highway

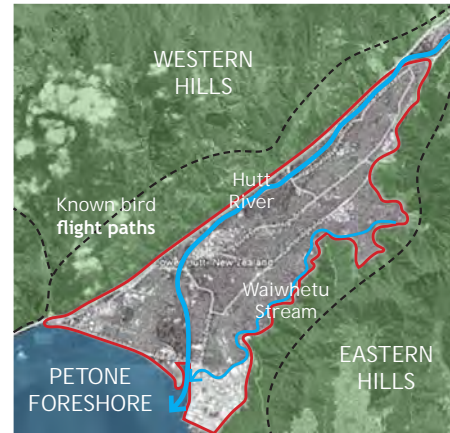


FIGURE 1 - WIDER HUTT VALLEY CONTEXT SHOWING STUDY AREA AND KEY LANDSCAPE FEATURES

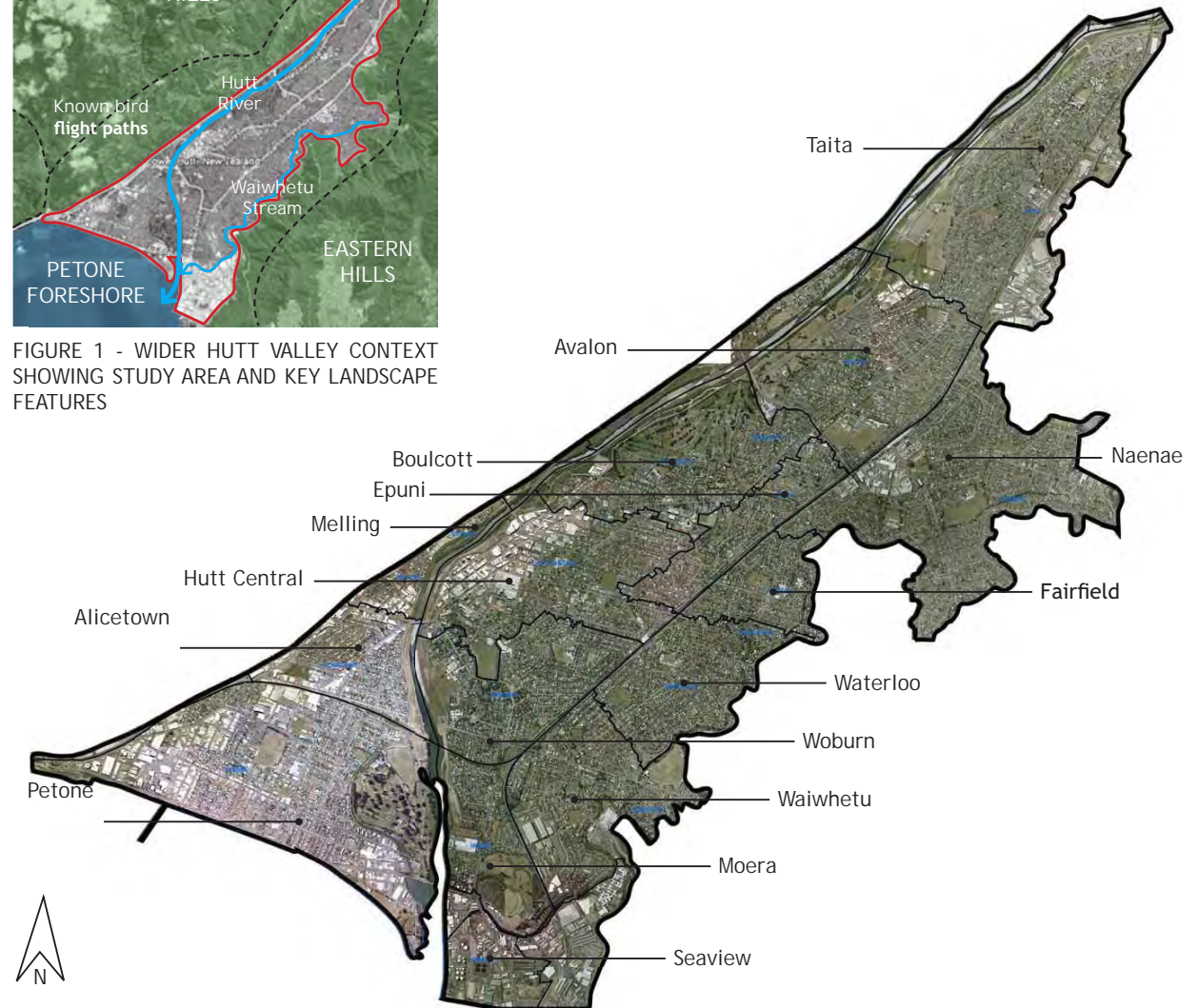


FIGURE 2 - SUBURBS OF THE HUTT VALLEY FLOOR



## 1.3 Methodology

The review used HCC land review information as a basis, updating information since the review using HCC GIS data, data from Statistics New Zealand and other information from a number of sources.

Public open space in the study area is owned by HCC, GWRC or DOC and is generally reserve land. For this reason, the term 'reserve' is used for the lands considered in this study. The review does not include private open space, golf courses (with the exception of the Hutt Park Golf Centre managed as a public facility in Hutt Park), schools and other educational institutes. This is because even though some schools may be currently accessible to the public after school hours, public access may change in the future.

The reserves considered in this review are made up of:

- Green space - parks for recreation, sportsgrounds, amenity, biodiversity, ecological and cultural heritage protection, developed and undeveloped linear vegetated areas along Te Awa Kairangi/Hutt River and streams, Waiwhetu stream and other streams
- Blue space - beaches and waterways (Te Awa Kairangi/Hutt River, Waiwhetu Stream and other smaller streams, wetlands and dunelands)
- Grey space - outdoor malls and squares (Naenae, Dowse Square) hard courts and artificial surfaces such as artificial turf.

### 1.3.1 QUANTIFYING THE NUMBER OF SITES AND HECTARES OF RESERVES

This was a desk-top mapping approach involving a number of steps and site visits:

1. Hutt City GIS data was used for identifying, mapping and recording reserves on a database.
2. Mapping recent District Plan changes that allow for residential intensification, identified in the Hutt City District Plan as Medium Density Housing.
3. Mapping GWRC designations.

From this information the number of sites and hectares of reserves were quantified and mapped digitally at a scale of 1:15,000.

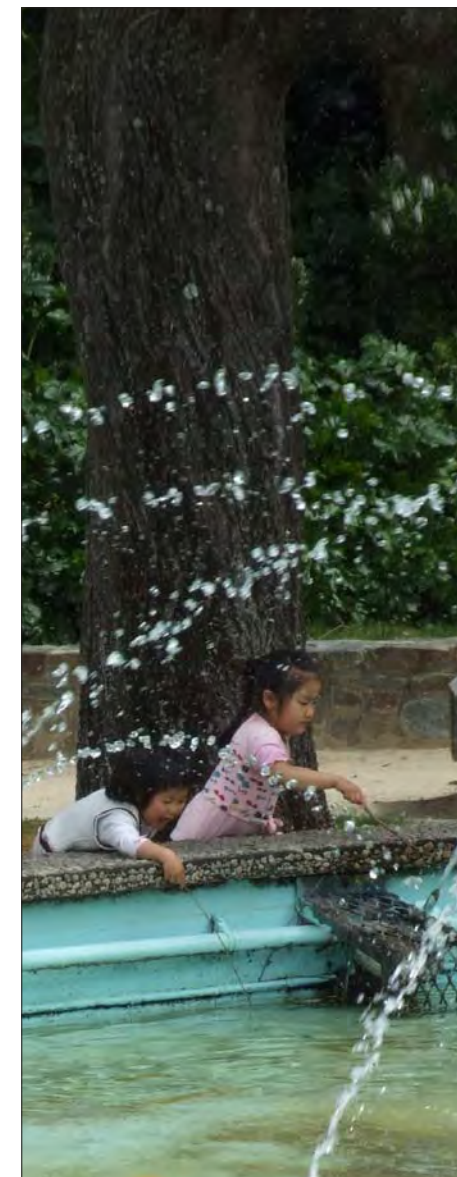
### 1.3.2 IDENTIFICATION OF THE RESOURCE AND CATEGORISATION

1. Categorise reserves by identifying the primary purpose of each reserve and its key values using Reserves Act classification and established through the earlier Reserve Review. Any changes since the review were established where necessary through site visits.
2. Categorise the reserves using the New Zealand Parks Categories.

### 1.3.3 IDENTIFICATION OF DISTRIBUTION AND SUITABILITY OF CURRENT RESERVES

A needs-based approach was used, involving a number of steps:

1. Assessing distribution and suitability of current sites. To do this, the following was established and mapped:
  - Medium density areas established potential housing density and likely reserve requirements
  - Housing ownership - social housing (Housing NZ and HCC properties)
  - Existing and projected population trends and demographics using data from Hutt City and Statistics NZ
  - Demographics (age and ethnicity)
  - Deprivation index of different suburbs
  - Private retirement homes that impact on demographics and reserve requirements.
2. Establishing reserve needs of different demographics as far as possible using existing research. This assisted in assessing likely reserve requirements.
3. Recommend measures of public open space availability.
4. Recommend likely future reserve requirements.



## 2.0 VALLEY FLOOR RESERVES

This section identifies the reserves, their ownership, protection and contribution to the reserve network

### 1.3.4. LIMITATIONS OF DATA

Demographic information is from the 2006 census, the last census for which data is available, and projections made by Statistics New Zealand. More up to date information will not be available until data from the 2013 census held in March has been processed.

Demographic data from HCC GIS is organised under suburbs. This was useful as it has made it possible to show demographic differences between suburbs. However, projections sourced from Statistics New Zealand are only available by 'meshblocks', which is the smallest geographic unit for which statistical data is collected by Statistics New Zealand. In order to compare existing HCC data organised under suburbs with projections from Statistics NZ, meshblocks were combined to make up suburbs. For example the meshblocks that make up Naenae were combined.

Not all reserves were visited as part of this study. High resolution maps and data, aerial photographs, photographs and information from site visits during the earlier Land Review were used. Google Maps and Google Street View were also used in many instances to check reserve street frontages, entrances, facilities and natural features. This was followed up by site visits to a selection of reserves.

### 2.1 RESERVES CONSIDERED IN THIS REVIEW

The total number of public reserves on the valley floor is 148. Some reserves are made up of multiple land parcels and reserve lands and in these cases they have been defined as one site. Grouping the separate reserves/parcels together clarified their public open space purpose. An example is Walter Mildenhall Park which is made up of a number of reserves collectively called Walter Mildenhall Park. Another example is reserves along Waiwhetu Stream and Hutt River, which have been treated as two sites, even though they are made up of a number of reserves and land parcels. In these cases the rivers were identified as two very important linear recreation and ecological corridors that link suburbs to the harbour on the western and eastern sides of the valley floor.

A small number of reserves were excluded from this study because they were utilities, isolation strips or were very small and not usable as public open space.

The reserves were mapped and recorded in a database (see Appendix 2 for more detailed maps and Appendix 3 for details of each reserve, their name, location, area, characteristics, contribution to the wider network and values). Where reserves have been grouped, the individual reserves are identified in the database.

After grouping, the total number of reserves is 85, making up a total of 339 hectares.

### 2.2 OWNERSHIP

The majority of reserves on the valley floor are owned by Hutt City and Greater Wellington Regional Councils, with two small reserves owned by the Department of Conservation (see Figure 3). The first is at the far western end of the Petone foreshore, also the mouth of the Korokoro Stream. The second is Judd Crescent neighbourhood reserve located in Naenae.

All Greater Wellington Regional Council lands are along the Hutt River and are part of the Hutt River corridor. Most are held for soil conservation, river control and recreation. This land along the river is a key feature of the valley floor.

#### SAMPLE OF VALLEY FLOOR RESERVES



Walter Mildenhall Park



Hutt River



Civic Buildings and Civic and Riddiford Gardens



Waiwhetu Stream



### 2.3 RESERVES PROTECTED UNDER THE RESERVES ACT 1977

Reserves were categorised according to their primary purpose under the Reserves Act 1977. Sixty-five percent are protected, classified and managed under the Act. Of reserves that come under the Reserves Act, 61 have a Recreation classification which means recreation is their primary purpose and 19 are classified Local Purpose. Local purposes include community centres, cemeteries and a riverbank.

In some instances, different parts of some reserves have different classifications. For example Hikoikoi Reserve is a Recreation Reserve and one part of the reserve has a Local Purpose (Community Building).

The balance of reserves are not reserves under the Reserves Act. Most are Greater Wellington Regional Council owned along the Hutt River and their purpose is to do with conservation of soil and river control, as well as recreation. Recreation on these lands varies from walking or cycling along the Hutt River Trail to kayaking, swimming, fishing and other activities, as well as sports on formal sportsgrounds.

### 2.4 CONTRIBUTION OF RESERVES TO THE WIDER RESERVE NETWORK

The study area lies within the Hutt Valley and Harbour Landscape Identity Areas (LIA) as identified in Council's Reserves Strategic Directions. Their central location on the valley floor near major transportation routes means that the reserves have a role in protecting and strengthening valley and harbour LIAs.

Key strategies in these LIAs are to:

- Develop ecological and recreational linkages
- Naturalise the foreshore
- Improve natural qualities of streams, ecological health and linear recreation
- Improve horticultural displays and street planting
- Increase the carrying capacity of sportsfields.

The contribution of valley floor reserves to the wider reserve network is identified according to the extent they meet three Key Directions:

- Providing good quality facilities and services focusing on where there is greatest overall benefit and more efficient provision of services
- Improving linear recreational and ecological opportunities
- Linking natural features within and close to the urban environment.

FIGURE 3 - RESERVE OWNERSHIP

- Hutt City Council owned reserves
- Greater Wellington Regional Council owned reserves
- Department of Conservation owned reserves

# 339 hectares

197 hectares owned by HCC  
 142 hectares outside of HCC ownership  
 65% comes under the Reserves Act

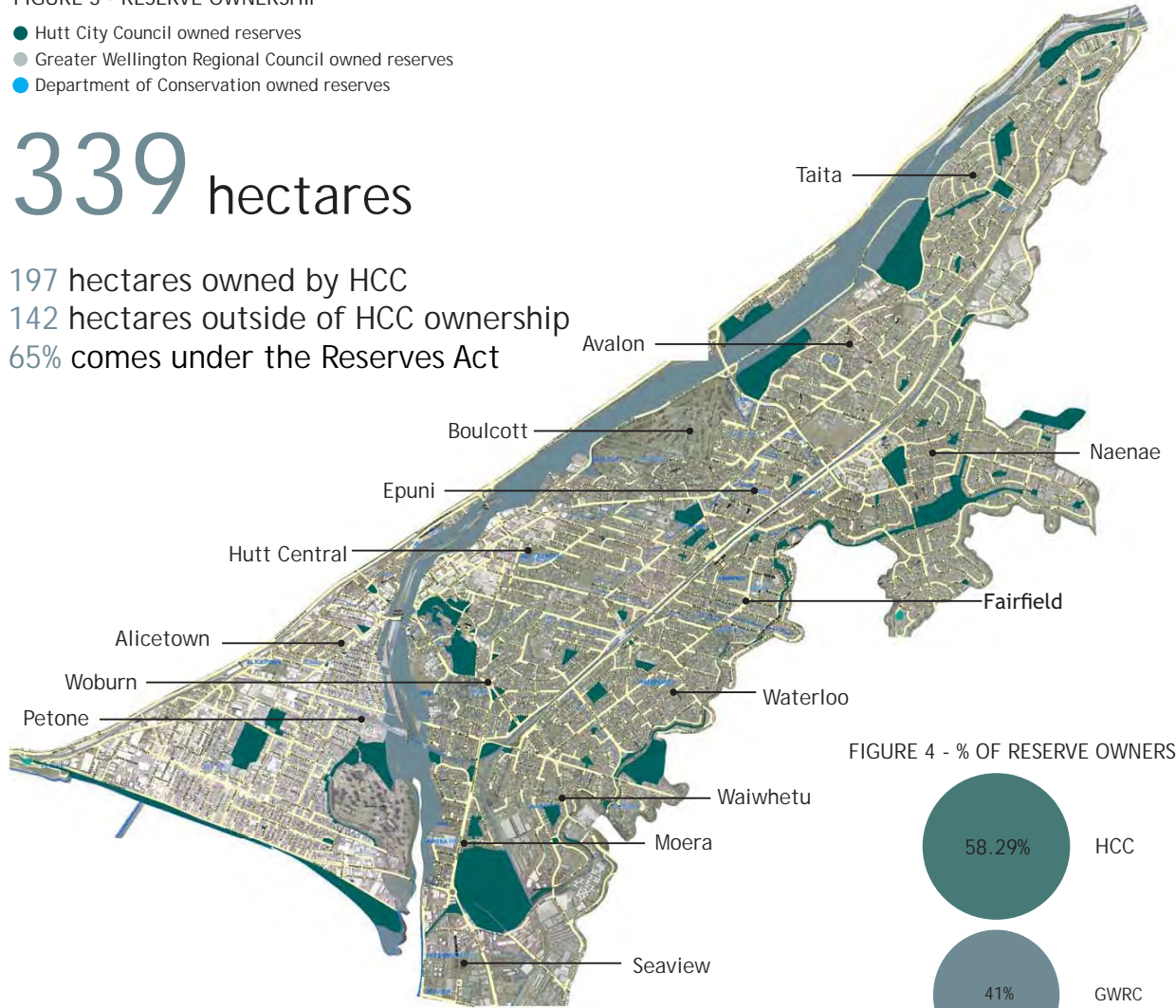
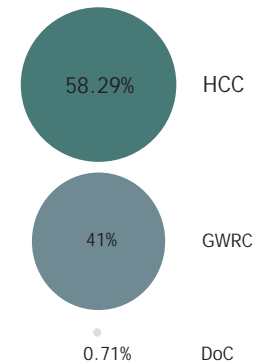


FIGURE 4 - % OF RESERVE OWNERSHIP



A small number of reserves meet all three Key Directions. These are reserves that are multi-purpose with quality services and facilities with recreational and/or ecological linkages or quality amenity planting. Nineteen percent meet two Key Directions and just under 50% of reserves meet one Key Direction. These are generally reserves that serve the immediate neighbourhood or suburb. Just over a quarter do not meet a Key Direction and generally have facilities for a specific use or are small grassed undeveloped areas.

The most common function of reserves is that they provide ecological and recreational linkages along Hutt River. Other reserves also provide ecological and recreational linkages, although many of these could be improved. An example is Naenae Park with access to Waiwhetu Stream, Riddiford and Civic Gardens with access to Opahu Stream and York Park with access to Awamutu Stream.

**2.5 REGIONAL COUNCIL LANDS**

One hundred and forty-two hectares of reserve land on the valley floor is owned by Greater Wellington Regional Council. This means that Hutt City is dependent on the regional council for 41% of valley floor reserve provision. Hutt River reserves are not generally multi-use and their development into multi-use reserves with a wide range of community benefits is limited by their key function of river control and soil conservation.

Most of the land that does not come under the Reserves Act is along the Hutt River. Hutt River reserves are on the western boundary of the valley floor and busy roads and private property are in some cases a barrier to access from many valley floor suburbs. The stopbank along the river on its eastern side is also a visual barrier between the river and suburbs on the valley floor.

FIGURE 5 - % OF RESERVES THAT MEET KEY DIRECTIONS

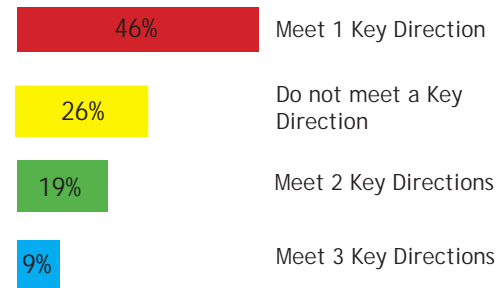
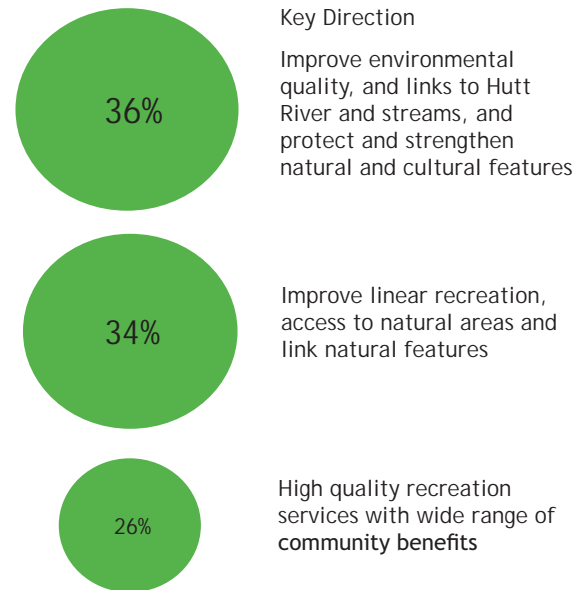


FIGURE 6 - % OF RESERVES PER KEY DIRECTION



Fraser Park - Sports and Recreation



Hutt River Trail - Recreation and Ecological Linkages



Godley Street Reserve - Neighbourhood



Riddiford Gardens - Public Gardens



# 3.0 CATEGORIES OF RESERVES

This section categorises reserves and identifies reserve communities of interest

## 3.1 NEW ZEALAND RECREATION ASSOCIATION CATEGORIES

Not all public open space on the valley floor is a reserve under the Reserves Act with a classification according to their primary purpose. For this reason, the reserves are categorised according to their primary purpose using New Zealand Recreation Association (NZRA) categories (see Figures 7 and 8). These categories were industry developed and are consistently applied throughout the country.

Some reserves have more than one primary purpose. For example, Mitchell Park has a primary purpose as a public garden and because it has bowling and tennis facilities a second primary purpose of recreation and sports. Some important secondary purposes were also identified. The primary purpose of Hutt Park is sports and recreation, but it also has a secondary purpose of providing recreation and ecological linkages along the streams and through the park.

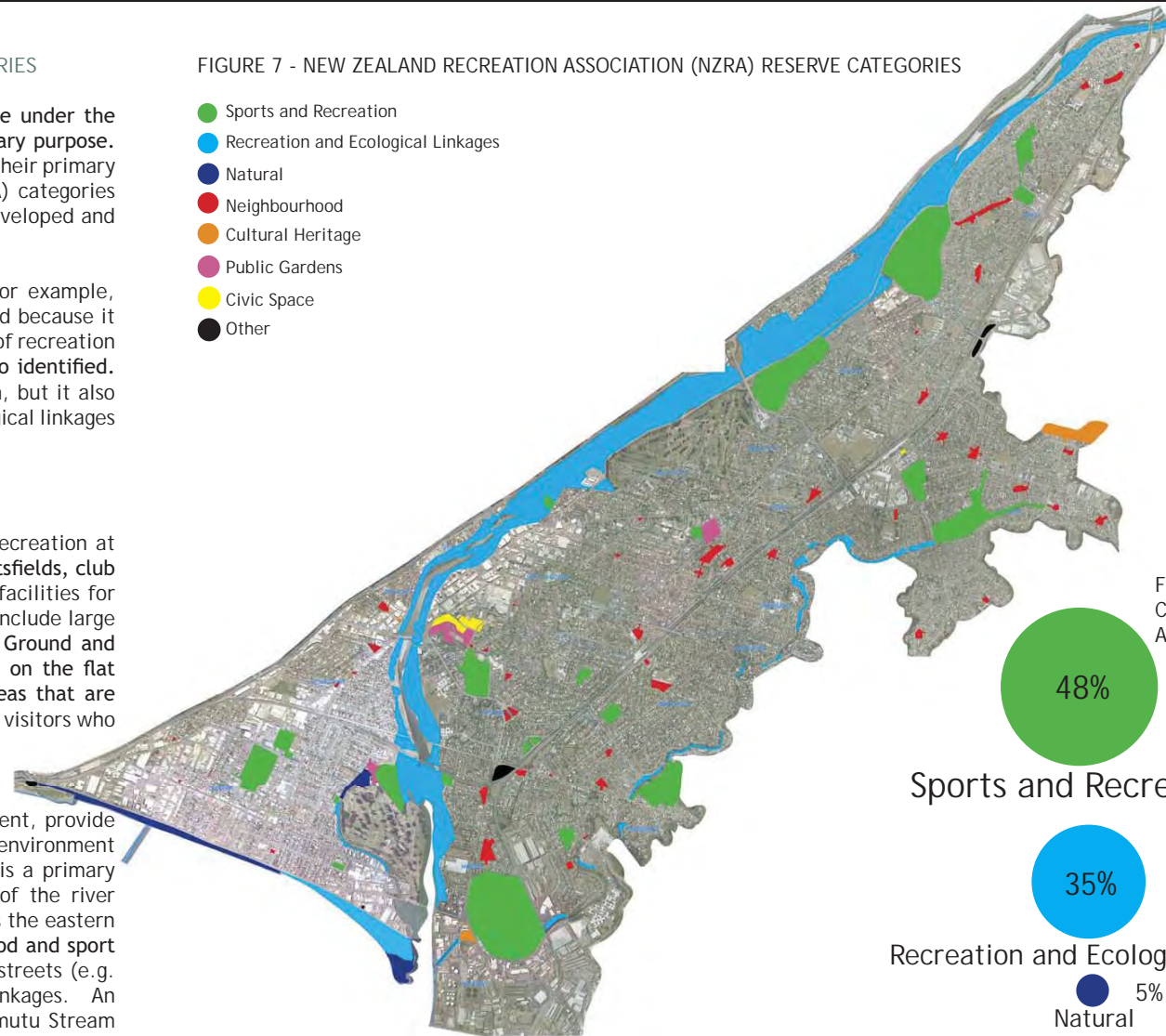
### 3.1.1 SPORTS AND RECREATION RESERVES

The largest area of reserve land is used for Sports and Recreation at 48%. These reserves generally have facilities such as sportsfields, club rooms, hard courts, changing rooms, club facilities and facilities for informal recreation such as children’s playgrounds. They include large quality sportsfields such as Fraser Park, Hutt Recreation Ground and Hutt Park. Providing facilities for sports and recreation on the flat valley floor makes sense in that provision focuses on areas that are accessible for the majority of the population as well as for visitors who come to the City for sport and recreation.

### 3.1.2 RECREATION AND ECOLOGICAL LINKAGES

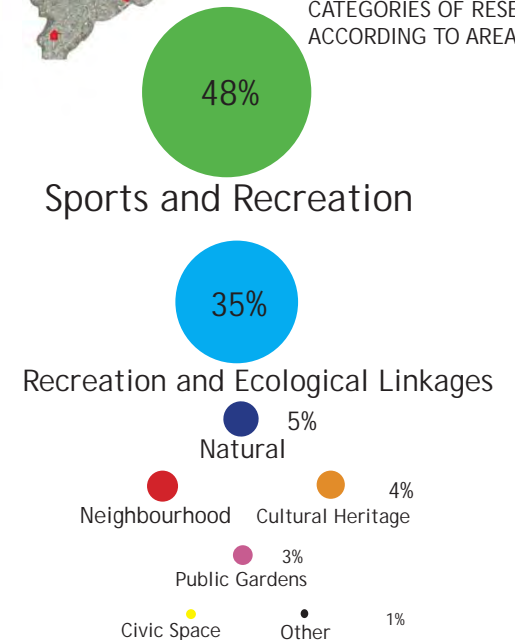
Linear reserve areas, usually with low levels of development, provide recreational and ecological linkages through the urban environment and make up 35% of the total reserve area. Hutt River is a primary ecological and walk and cycle corridor linking the top of the river catchment through to the harbour. Waiwhetu Stream links the eastern valley floor suburbs with the harbour. Some neighbourhood and sport and recreation reserves have a secondary role of linking streets (e.g. in Naenae and Epuni), and others provide ecological linkages. An example is Hutt Park with ecological linkages along Awamutu Stream and Waiwhetu Stream. Some reserves do not currently provide linkages but have potential to do so. An example is York Park along Awamutu Stream.

FIGURE 7 - NEW ZEALAND RECREATION ASSOCIATION (NZRA) RESERVE CATEGORIES



- Sports and Recreation
- Recreation and Ecological Linkages
- Natural
- Neighbourhood
- Cultural Heritage
- Public Gardens
- Civic Space
- Other

FIGURE 8 - COMPARING CATEGORIES OF RESERVES ACCORDING TO AREA





### 3.1.3 NATURAL RESERVES

Reserves on the valley floor where the primary purpose is to protect the natural environment or where people can experience it make up just over 5%. These are along the harbour edge. The Hutt River allows people to experience the natural environment, albeit a highly modified one. Because the primary purpose of this area is to do with river and soil conservation and linear recreation, the Hutt River is categorised as having NZRA 'Natural' category as its secondary purpose.

### 3.1.4 NEIGHBOURHOOD RESERVES

Neighbourhood Reserves make up 4% of the total area of reserves. These are usually small areas in residential areas. Some have facilities like playgrounds or open grassed areas for play and relaxation. Neighbourhood reserves are especially important in areas where there is urban intensification and where individual residential properties have small outdoor spaces, areas with young families and the elderly, and in areas with low socio-economic status where people may not have the resources to travel outside of their suburb. It is important that facilities on neighbourhood reserves serve their immediate community and are easily accessible and appealing.

### 3.1.5 CULTURAL HERITAGE RESERVES

Just over 4% of reserve areas have as their primary purpose 'Cultural Heritage'. Cemeteries and Hikoikoi Reserve which is a pa site come under this category. Reserves with memorial sites come under this category, but generally this is their secondary purpose. An example is Riddiford Gardens.

### 3.1.6 PUBLIC GARDENS

Three reserves are categorised as 'Public Gardens': Riddiford/Civic Gardens, Mitchell Park and the Garden of Remembrance in Memorial Park. Together they have an area of just over 13 hectares, or just over 3% of reserve area on the valley floor.

### 3.1.7 CIVIC SPACES

Civic spaces make up 1% of reserve areas on the valley floor and are defined as open space provided within retail/business areas for casual gatherings, meetings, relaxation, lunchtime, etc. They may also provide for large public gatherings, events and entertainment. Examples are Civic/Riddiford Gardens and Dowse Square.

### 3.1.8 OTHER SPACES

Three reserves do not meet the NZRA categories and are categorised as

'Other'. They are all associated with roading: the Windgate overbridge area and corner of White Line East and Randwick Road with the railway line on one side and fenced with no public access. The remaining reserve categorised as 'other' is an area at the western end of Petone foreshore at the overbridge to The Esplanade (Site 19).

## 3.2 RESERVE SIGNIFICANCE

All reserves are additionally categorised to identify how significant they are. Their significance was calculated by assessing how far people are likely to travel in order to visit the reserve (see Figures 9,10 and 11).

Within the Hutt Valley floor, 47% of reserves are likely to be only visited by people in the immediate neighbourhood. These are reserves which generally have a grassed area for 'kicking a ball around', some have trees and some have seats and play equipment. Generally they can be reached on foot from the surrounding neighbourhood. When the total area of these reserves is considered, they make up only 5% of the total reserve area, although this is not surprising as neighbourhood reserves are generally small.

Thirty-one percent of reserves are likely to be used by residents in the wider suburban neighbourhood. They have facilities such as a community halls, bowling greens and other specialised facilities. As with neighbourhood reserves, when the area of suburban reserves is calculated they make up only a small percentage of the total reserve area at 4%. This is because, like neighbourhood reserves, they are generally small.

Nineteen percent of reserves attract use from wider parts of Hutt City and district. These reserves tend to have sportsgrounds which attract users from further afield. City/District reserves are generally larger in area than suburban or neighbourhood reserves and have developed facilities such as sportsgrounds or are civic centres with events such as Dowse Square. They make up 21% of the total reserve area.

Reserves that people from around the region are likely to travel to make up 3% of reserve provision, although they make up 69% of the total reserve area of the valley floor. This is because they are the large reserve area along the Hutt River Trail and the Petone Foreshore and regionally significant sportsgrounds - Hutt Park, Fraser Park (the largest sportsfield in the region), Hutt Recreation Ground and Petone Recreation Ground.

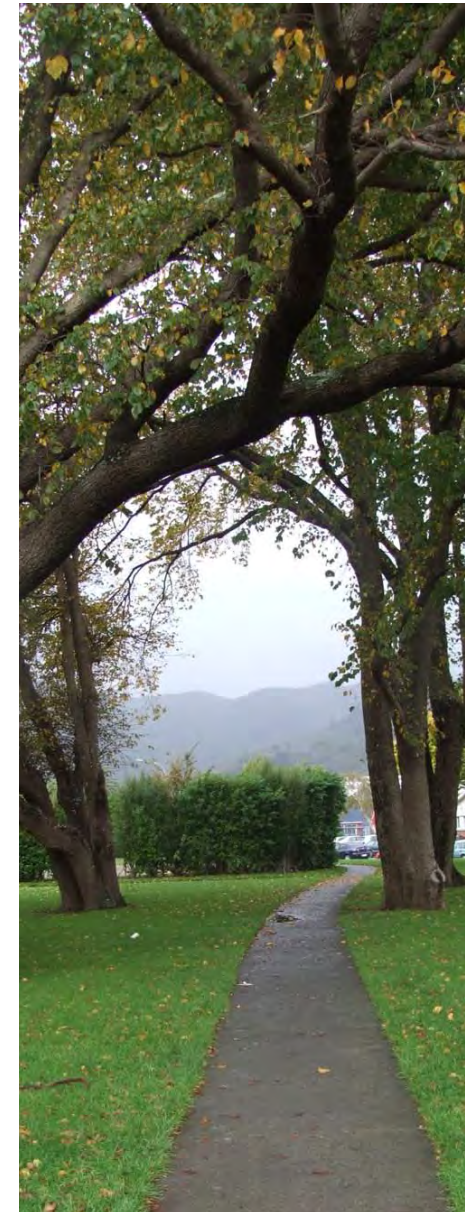


FIGURE 9 - RESERVE SIGNIFICANCE (How far people are likely to travel in order to visit the reserve)

- Region
- City/District
- Community/Suburban
- Local/Neighbourhood

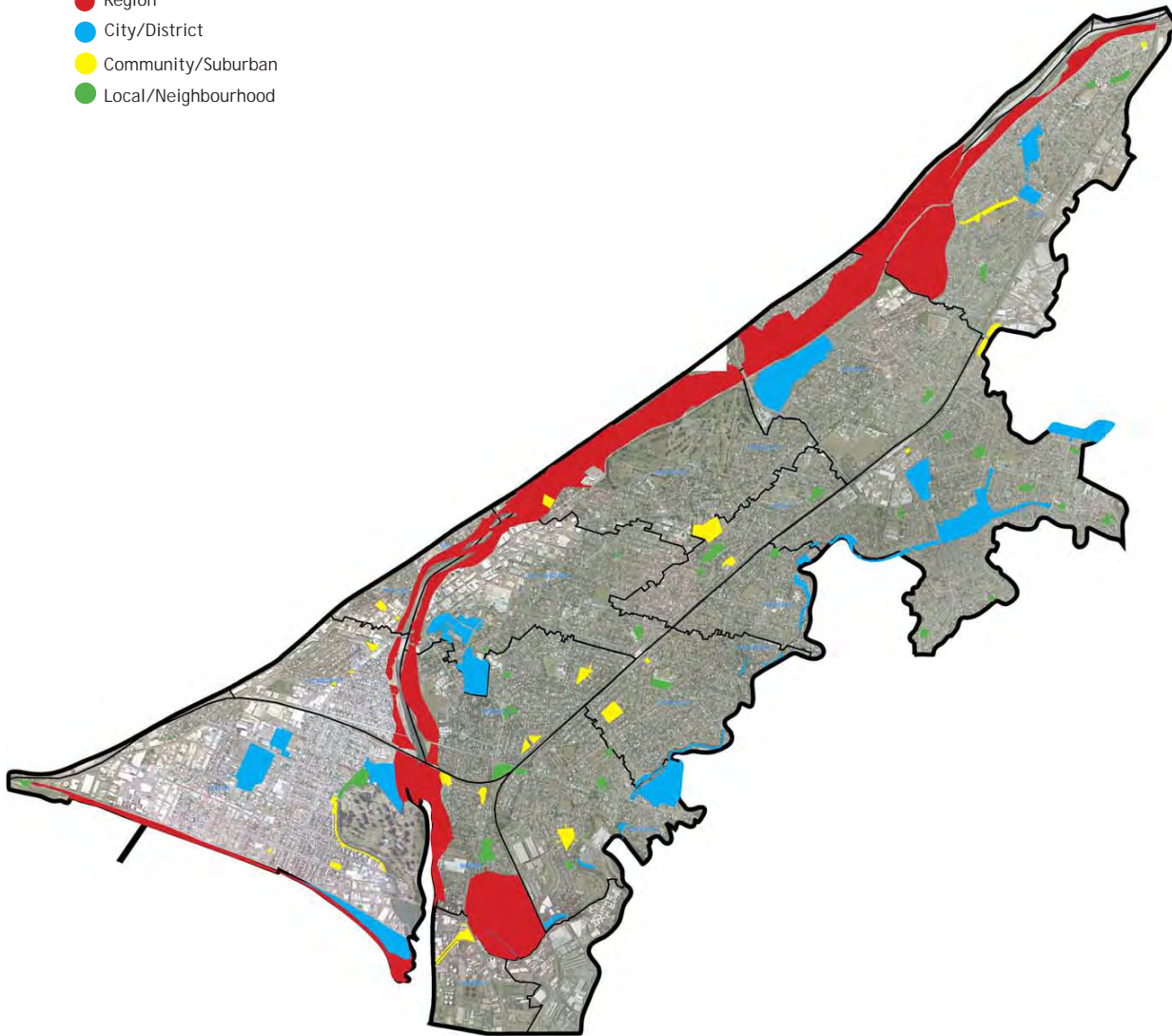


FIGURE 10 - RESERVE SIGNIFICANCE ACCORDING TO CATEGORY OF RESERVE

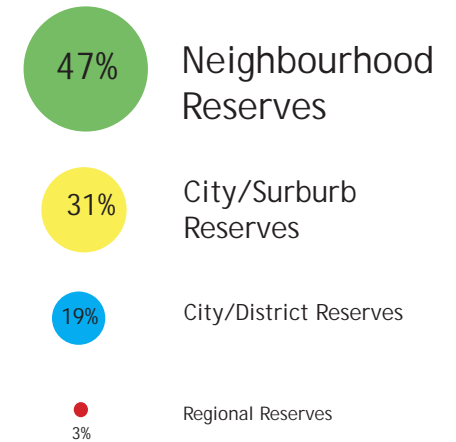
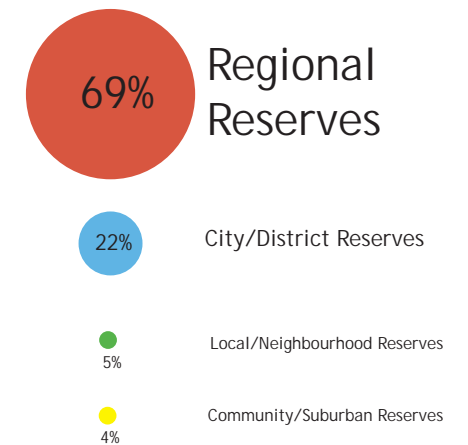


FIGURE 11 - RESERVE SIGNIFICANCE ACCORDING TO AREA OF RESERVE





## 4.0 REVIEW OF NEIGHBOURHOOD RESERVE PROVISION

This section identifies factors that guide decision making on reserve provision: demographic and population trends, housing density, socio-economic status, social housing, transport routes, retirement homes and reserves that need special attention - reserves at the rear of housing with limited street frontage, access and poor visibility

### INTRODUCTION

Changes in demographics, population, numbers of households and their size, socio-economic levels, land use, commercial and industrial activities have implications for the number of reserves needed on the valley floor, their size, types and distribution.

Demographics have implications for the types of reserves. Where there is a **younger active population, sportsfields and other active recreational facilities** are important. Neighbourhood reserves are important where there are young families with young children and elderly people. They will be better used when they are close to people's homes, within walking distance and accessed without crossing busy roads. They also **need to be appealing and fit for purpose, and be places where local people can enjoy the outdoors and watch others enjoying themselves.**

Where there are adults with little time for recreation, it is important to have reserves near homes and workplaces to encourage physical activity and improvement in health and well being as people go about their everyday lives. Reserves on routes to and from work can play a part in the active transport network (walking and biking to and from work and school).

Housing density has implications for reserve provision. The greater the density the smaller the opportunities for private open space and the greater the need for reserves. Smaller private open spaces mean fewer opportunities for large trees which impacts on bird life. Providing reserves in higher housing density areas is therefore important.

However, levels of reserve provision is not just about the quantity of reserve land. **Providing large areas of reserve land on the valley floor or a large number of reserves does not guarantee that the reserves meet the needs of their community.** It is also important to consider:

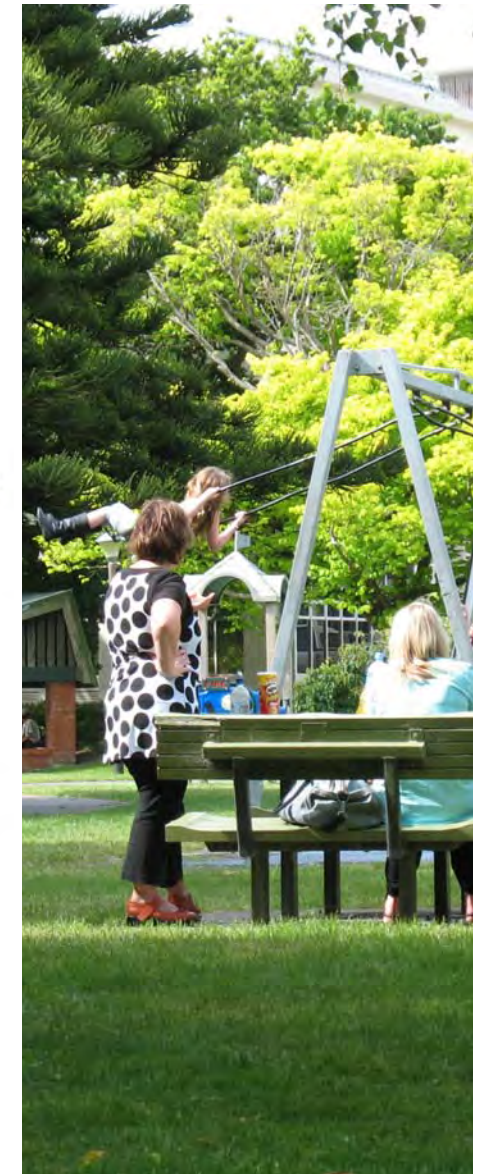
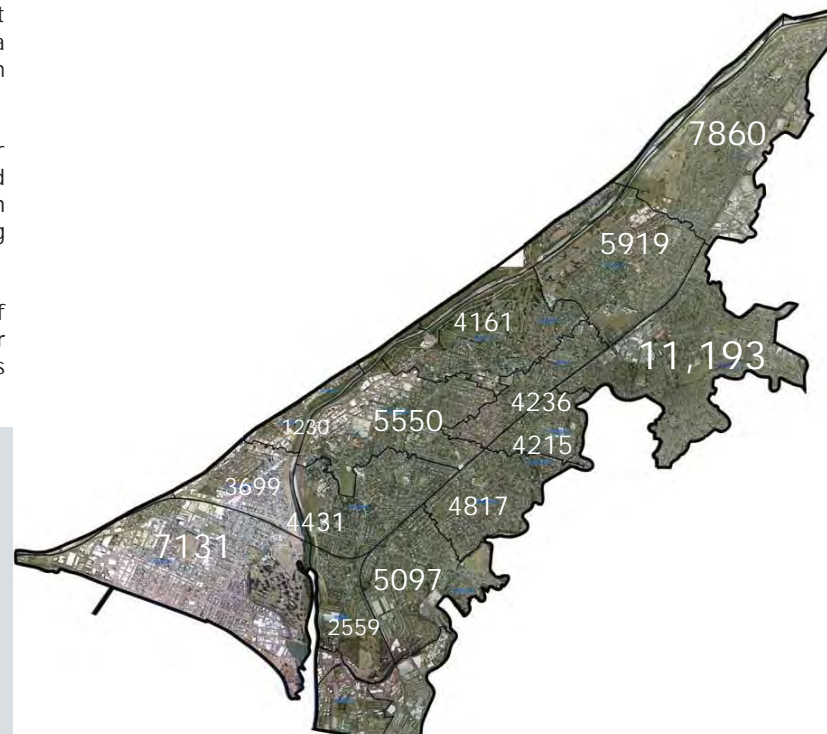
- Reserve quality
- Reserve accessibility and visibility
- Equity of reserve provision
- What communities want from their reserves
- **Identification and appreciation of different values**
- Positive outdoor nature-based recreational experience
- Opportunities for social interaction
- A variety of experiences
- Free or low cost recreation opportunities and experiences, particularly in low socio-economic areas
- Opportunities for causal and spontaneous play and recreation.

### OVERVIEW OF PROJECTED POPULATION CHANGES

Naenae, Taita and Petone are valley floor suburbs with the highest population, followed by Avalon, Hutt Central and Waiwhetu. Other suburbs have fewer than 5000 residents (see Figure 12).

The valley floor is projected to have limited population growth and demographics are projected to change. The proportion of young people is projected to reduce and older people to increase, and the ethnic makeup is projected to diversify. Numbers of households on the valley floor are projected to increase with more housing achieved through **infill housing with reduced lot sizes.** Areas with the highest levels of socio-economic deprivation are projected to continue to have the highest levels of population growth, highest numbers of households and more people per household than in other areas.

FIGURE 12 - POPULATION PER SUBURB (BASED ON THE 2006 CENSUS)



# 4.1 Housing Density

Housing density is increasing in areas of the valley floor zoned Medium Density Residential. This zoning allows smaller sites, greater site coverage, multi-unit housing, low-rise apartments and infill housing.

On the valley floor, Medium Density Residential zoned areas are located around shopping centres and on key transport routes - along the Foreshore and Cuba Street in Petone, in Boulcott, Central Hutt, Avalon East and Taita and on land on both sides of the Hutt Valley railway line in Moera, Waiwhetu, Waterloo, Fairfield, Epuni and Naenae (see Figure 13). West Petone is also proposed for intensification pending a plan change.



Image of possible low rise apartments along the Esplanade, Petone (Sourced from HCC Draft Urban Growth Strategy)





Although infill housing and new subdivision means that more dwellings are being built, this may not necessarily translate into more people living an area. This is because there are likely to be fewer people per household, largely due to the general aging of the population when people are more likely to live as a couple without children or in one-person households. As a result, even areas with a projected decrease in population may have an increase in the number of households.

When housing density, numbers of households and site coverage increase, lot size decreases and households are smaller. In areas with multi-unit housing and apartments, the result is less private outdoor space and significant impacts on a sense of open space in the neighbourhood. Existing large specimen trees may also be felled to make way for housing, reducing the leafy character of some areas.

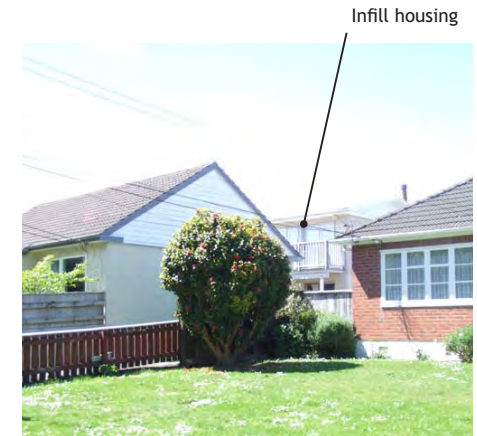
The likely result of higher density housing is growing demand for reserves close to people's homes because of limited space for private gardens, edible or ornamental plants and for quality, large specimen trees. This reduces the benefits and ecosystem services vegetation brings to the urban environment - climate regulation, reduction in stormwater runoff, pollination, air quality, habitat and niches for species, growing of food and aesthetic, amenity and cultural values.

An increase in the number of households and smaller households is also likely to result in demand for opportunities to interact socially. Smaller private open space also means demand for areas for children to run about in and for ball games is likely to grow.

Access to quality local public open and green space to compensate for smaller private open space also makes higher density living more widely acceptable in New Zealand.



Example of intensification with housing on smaller sites and smaller outdoor space (Cressy St, Waterloo)

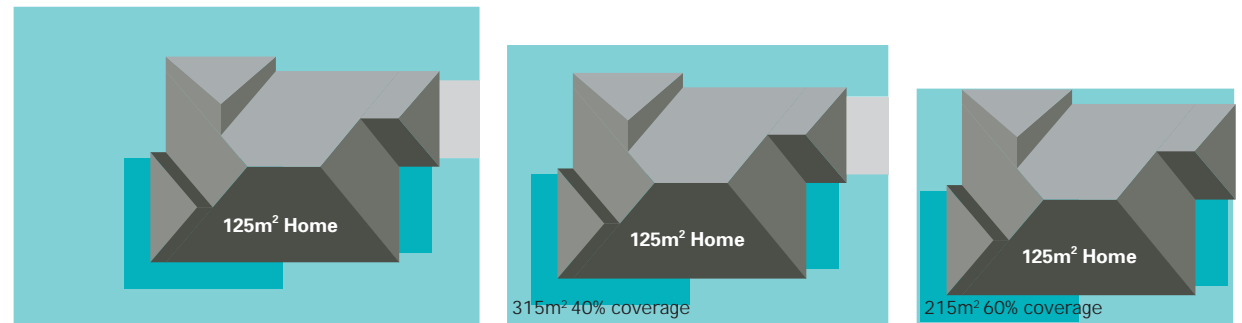


Infill housing at the rear of established housing (Copeland St, Epuni)



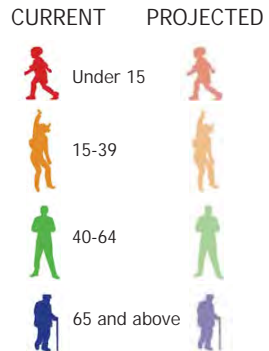
New Infill housing (Copeland St, Epuni)

Examples of allowing smaller Lot sizes and greater site coverage (from Hutt City Council Draft Urban Growth Strategy)

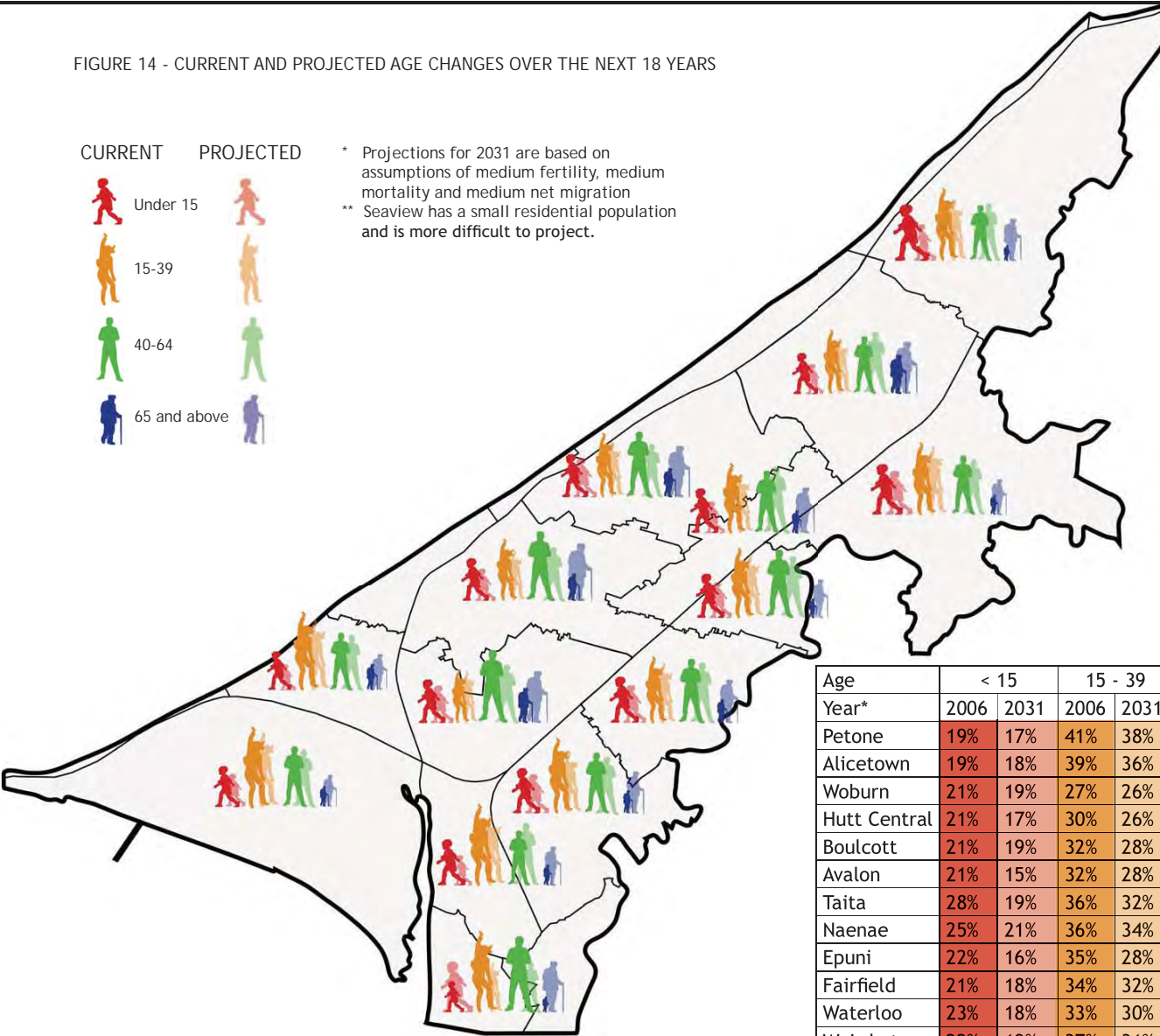


## 4.2 Current and Projected Ages

FIGURE 14 - CURRENT AND PROJECTED AGE CHANGES OVER THE NEXT 18 YEARS



\* Projections for 2031 are based on assumptions of medium fertility, medium mortality and medium net migration  
\*\* Seaview has a small residential population and is more difficult to project.



Age	< 15		15 - 39		40 - 64		> 65	
Year*	2006	2031	2006	2031	2006	2031	2006	2031
Petone	19%	17%	41%	38%	30%	29%	10%	16%
Alicetown	19%	18%	39%	36%	29%	28%	13%	18%
Woburn	21%	19%	27%	26%	35%	29%	17%	26%
Hutt Central	21%	17%	30%	26%	35%	28%	14%	29%
Boulcott	21%	19%	32%	28%	33%	27%	14%	26%
Avalon	21%	15%	32%	28%	28%	31%	19%	26%
Taita	28%	19%	36%	32%	28%	29%	8%	20%
Naenae	25%	21%	36%	34%	29%	28%	10%	17%
Epuni	22%	16%	35%	28%	31%	33%	12%	23%
Fairfield	21%	18%	34%	32%	34%	31%	10%	19%
Waterloo	23%	18%	33%	30%	32%	30%	12%	22%
Waiwhetu	22%	19%	37%	31%	30%	29%	11%	21%
Moera	22%	15%	40%	35%	28%	31%	10%	19%
Seaview**	14%	25%	40%	25%	38%	25%	8%	25%





#### 4.2.1 INTRODUCTION


Over the next 18 years, population on the valley floor is projected to change. The percentage of both children and youth/adults is likely to decline slightly by an average of 4% per suburb. Similarly, the percentage of middle aged adults is also likely to change with a slight increase in some suburbs (3%) and a slight decrease in others (2%) by 2031 (See Figure 14).

In contrast, the percentage change of the elderly is much larger. Following the national trend towards an aging population, the elderly population is projected to increase by an average of 9% across all suburbs by 2031.


By 2031, children living in valley floor suburbs are projected to be 15-21% of the total population, youth and adults under 40 years of age 26-38%, middle aged adults 27-33% and the elderly 16-29%.

#### 4.2.2 SUMMARY OF PROJECTED POPULATION CHANGES


##### Children (under 15 years)

- 
- All suburbs will face an projected average decline of 4% by 2031
  - By 2031, children will make up 15-21% of the population
  - Currently, Taita has the largest percentage of children, however this is projected to reduce by 9% over the next 18 years
  - Avalon, Epuni and Moera are projected to have the smallest percentage of children (15%, 16% and 15% respectively). In contrast, children in Naenae are projected to make up 21% of the population.

##### Youth and Adults (15-39 years)



- 
- All suburbs will face a projected average decline of 4% of this age group by 2031
  - Youth and adults are projected to make up 26-38% of the population in 2031
  - Currently, Petone has the largest percentage of youth and adults (41%) and will continue to do so with a projected 38%. This is followed by projections for Alicetown (36%) and Moera (35%)
  - Woburn and Hutt Central are projected to have the smallest percentage of youth and adults (26% respectively).

##### Middle Aged Adults (40-64 years)

- 
- The majority of suburbs will face an average 3% decline in the number of middle aged adults by 2031. The exception to this is Avalon, Taita, Epuni and Moera, which have a projected average 2% increase in this age group

- Middle aged adults will make up 27-33% of the population
- Currently, Woburn and Hutt Central have the largest percentage of middle aged adults (35%)
- Boulcott is projected to have the smallest percentage of middle aged adults (27%). In contrast, Epuni is projected to have the largest percentage of middle aged adults (33%).


##### Elderly (over 65 years)

- 
- All suburbs will have a projected average increase of 9% by 2031
  - Elderly are projected to make up 16-29% of the population by 2031
  - Currently, Avalon has the largest percentage of elderly (19%)
  - Petone and Naenae are projected to have the smallest percentage of elderly (16% and 17% respectively). In contrast, Hutt Central is projected to have the highest percentage of elderly (29%) followed by Woburn, Boulcott and Avalon at 26%.
- 


#### 4.2.3 RESERVE NEEDS OF DIFFERENT AGES


In order to ensure that reserves accommodate and encourage wide use of public open space by the community, it is helpful to identify the open space needs of different age groups. These are summarised below:

##### CHILDREN

- 
- Be within sight and earshot of home (especially younger children)
  - Be easily accessible (avoid having to cross major roads)
  - Cater for multiple ages and stages of development
  - Provide areas for groups and individuals, undirected and directed play, play that requires cooperation between children and opportunities for individual play
  - Include areas for imaginative and natural play rather than relying on standard play equipment
  - Be interactive for learning and interpretation
  - Places to go to be independent (safe without constant supervision).

##### YOUTH


- 
- Accessible and places to hang out with things to do near malls, schools, shops, food and other youth focused activity areas (Hutt City Youth Study identified a lack of things to do and places to go, free things to do, safe areas, sport and recreation activities and facilities where young people can hang out - 60% identified that major improvements are needed in places to hang out)
  - Play a fundamental role in negating boredom and allow for physical activity and escapism
  - Invite youth to participate in the community

- 
- Allow youth to see and be seen (such as viewing skateboarders doing tricks at a skate park)
  - Provide free activities
  - Be part of the commuting journey to and from school
  - Provide opportunities for sport.

##### ADULTS

- Opportunities to participate in casual sports and recreation as well as organised sport
- Be multi-functional and flexible for a range of passive and active recreation activities - read, meditate, gather, eat, interact, watch, sit, talk, exercise, catch the sun, enjoy the outdoors
- Be part of the commuting journey.

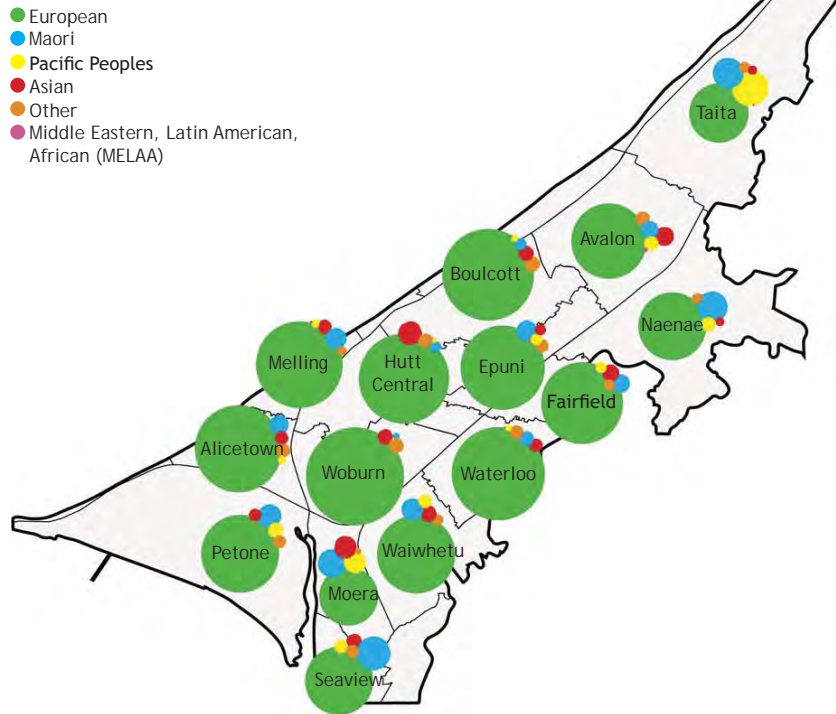
##### ELDERLY

- 
- Accessible on foot or a short ride on public transport from their place of residence (elderly people are often unable to drive and may not be able to walk long distances)
  - Easy to navigate with accessible paths (avoid loose gravel, uneven or slippery surfaces and provide paths wide enough for wheelchairs and mobility scooters, provide paths separate from skaters)
  - Provide for comfort (seating with backs and arms in clusters and individually placed, shelter from sun and wind etc)
  - Multi-functional and flexible (to allow people to meet with friends, be a part of the community, exercise, relax, appreciate and connect with nature, observe activities/views etc).
  - A local 'trip' with a friend or grandchild.



# 4.3 Ethnicity

FIGURE 15 - ETHNIC BREAKDOWN PER SUBURB



### 4.3.1 INTRODUCTION

As our cities diversify and grow there is opportunity to strengthen relationships between people, place and nature. Research shows that these relationships are culturally based - for some the natural world is a provider of food for harvesting and resources to gather, for others it is place for play and exercise or for social and family gatherings.

Quality open space that aims to entice communities into the outdoor world contributes to developing positive associations with the outdoors and its recreational activities, the natural environment and communities with each other. To achieve this, identification and appreciation of the different values and what constitute a positive outdoor nature-based recreational experience is desirable.

Europeans are the dominant ethnic group living on the valley floor, but like New Zealand as a whole Hutt City is increasingly a multi-cultural society. Valley floor population is made up of European, Maori, Pacific, Asian, MELAA (Middle Eastern, Latin American and African) and other ethnicities and cultures. Some areas within the valley floor are more multi-cultural than others.

### 4.3.2 SUMMARY OF ETHNIC BREAKDOWN PER SUBURB

- Both Taita and Moera in particular are culturally diverse. Taita in particular has a higher proportion of Maori and Pacific peoples that other suburbs (21% Maori, 25% Pacific Peoples, 41% European, 6% Asian, 1% MELAA and 7% Other). In Moera, Asian peoples make up 16% of the population which along with 20% Maori, 16% Pacific peoples, 42% European, 1% MELAA and 5% Other, makes Moera the most ethnically diverse suburb
- Waterloo is not as culturally diverse with 65% European, 10% Maori, 4% Pacific Peoples, 9% Asian, 1% MELAA and 10% Other
- The largest percentage of Asians live in Hutt Central (17%)
- The largest percentage of Pacific peoples live in Taita (25%)
- Maori in Naenae, Taita and Moera make up almost one quarter of the population (Naenae and Taita 21%, Moera 20%)
- A large proportion of residents in Boulcott, Hutt Central, Woburn and Waterloo are Europeans (Boulcott 64%, Hutt Central (63%), Woburn (69%) and Waterloo (65%). Europeans make up two thirds of the population of these areas.

### 4.3.3 RESERVE NEEDS OF MULTI-CULTURAL COMMUNITIES/NEW IMMIGRANTS

- Clearly defined and easily interpreted as public open space (defined entrances and pathways, clear way-finding, use of images and welcoming and inviting gestures that do not rely on language and/or use multiple languages)
- Activities to do with food production and food gathering
- A variety of spaces including space for large groups
- Areas for picnicking and food preparation with picnic tables and water
- Comfort - in particular seating, shelter and shade
- Colour (materials and vegetation)
- Quality materials, are well maintained and have signs of stewardship and care
- Opportunity for community participation in planning and design.



Fresh food markets



Community gardens - this one is in Moera



Places to picnic for family/whanau



Places for performances and cultural events

## 4.4 Socio-economic status, social housing and health

FIGURE 16 - DEPRIVATION INDEX

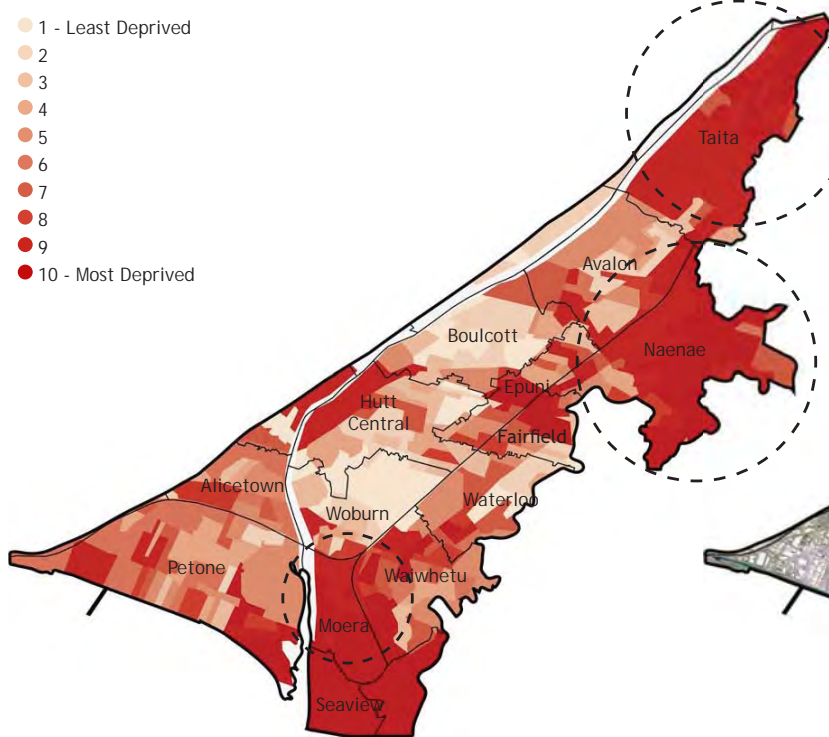
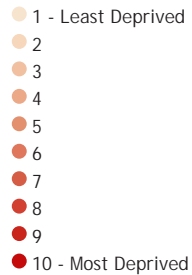
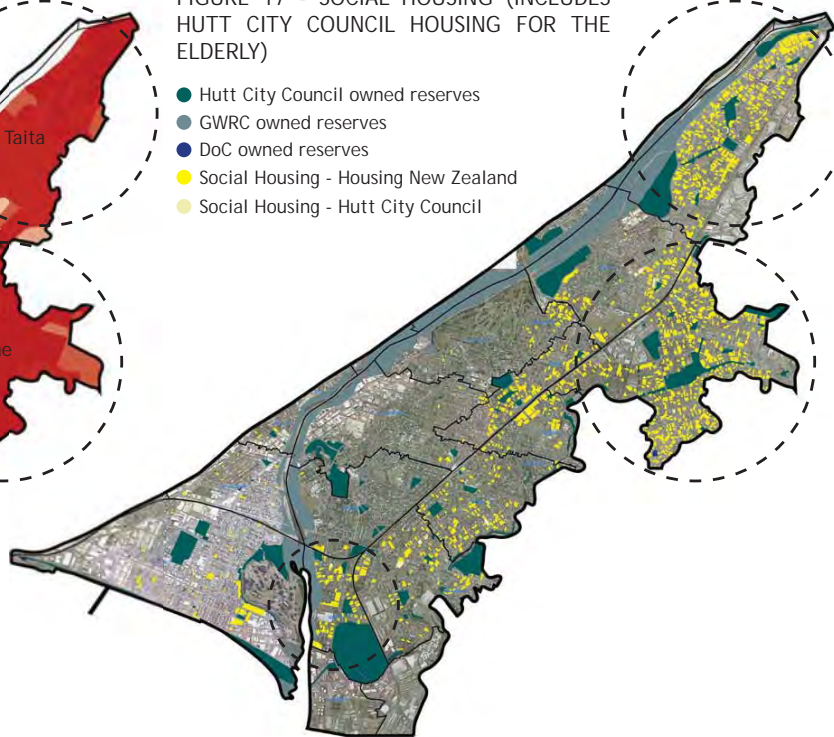
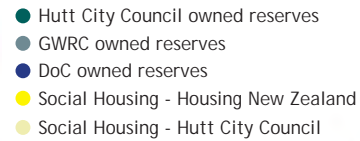


FIGURE 17 - SOCIAL HOUSING (INCLUDES HUTT CITY COUNCIL HOUSING FOR THE ELDERLY)



### 4.4.1 INTRODUCTION

Socio-economic status is calculated using the social deprivation index. This index is a visual representation of nine variables of social deprivation taken from the 2006 census: income (benefit eligibility), employment, income (income threshold per household), communication, transport, support (single parent families), qualifications, living spaces (bedroom occupancy threshold per household) and house ownership (see Figure 16).

Social deprivation and social housing are linked. Where there is social housing there are higher levels of deprivation than in areas where there is a higher proportion of owner occupied or privately rented housing.

### 4.4.2 SUMMARY OF SOCIO-ECONOMIC STATUS PER SUBURB

- Generally the most deprived areas are on the eastern side of the valley floor and near the Hutt Valley railway line
- Taita, Naenae and Moera have the most wide spread social deprivation
- Waiwhetu, Waterloo, Fairfield and Epuni have pockets of most deprived areas
- Petone, Hutt Central and Avalon have mixed levels of deprivation
- The link between deprivation and social housing is particularly evident in Taita and Naenae. These suburbs are the most deprived and have the largest numbers of social housing and the greatest population per suburb. A quarter of the population (26.3%) of the suburbs on the Hutt Valley floor live in these two suburbs alone
- Suburbs with the least deprivation are Woburn and Boulcott. Both of these suburbs have little social housing.





#### 4.4.3 HEALTH, SOCIAL FRAGMENTATION AND RESERVES

**Neighbourhoods have an influence on residents' health and well being.** Low levels of health is linked to social deprivation, social housing and neighbourhoods with low levels of social interaction, fragmentation and attachment to a neighbourhood.

Reserves can provide opportunities for locals to engage with each other in a social context e.g. at a fundamental level a summer evening ball game on a neighbourhood reserve. In this way, reserves and neighbourhood reserves in particular may be common ground where diverse groups can interact and this assists in developing social cohesion.

Neighbourhoods identified as deprived generally have higher levels of poor health. Avoidable hospitalisations across the Hutt Valley floor shows that they increase in more deprived areas and the rate is higher for people living on the valley floor than in other areas of Hutt City (Elizabeth Lucie-Smith, Measuring the Difference - Avoidable Hospitalisations, Hutt Valley DHB, July 2012). Suburbs with the highest rates are in Taita, Naenae and Boulcott/Avalon followed by Waiwhetu (see Figures 16 and 17).

Avoidable hospitalisations are influenced by such things as housing quality, access to services and opportunities for daily physical activity. Where people live affects the amount of physical activity. Daily physical activity can be improved through a walkable street pattern, public transport access and access to local parks and reserves. Evidence also suggests that individual physical activity increases as the number and density of accessible places to exercise increases.

The quality and safety of accessible places and the quality of their settings are important to encourage physical activity. Where there are safe and attractive community facilities that are easy to access, local residents can increase their physical activity levels and reduce their chances of developing adverse health effects associated with inactivity.

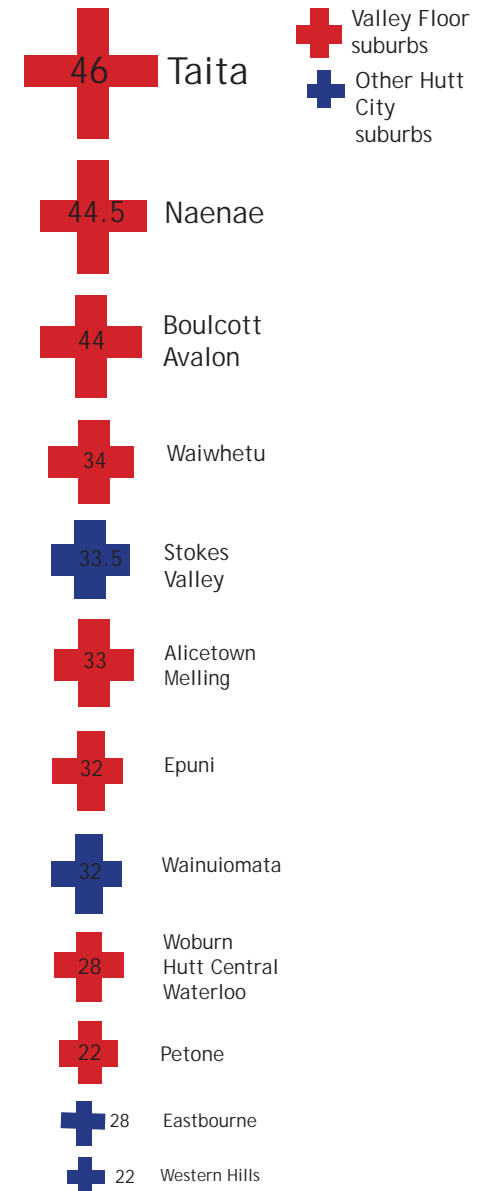
#### 4.4.4 REASONS WHY RESERVES (AND NEIGHBOURHOOD RESERVES IN PARTICULAR) ARE PARTICULARLY IMPORTANT IN LOW SOCIO-ECONOMIC AREAS

- Many social housing areas are made up of adjoining units or multi-storied units with communal shared outdoor spaces
- Others have back and front yards but because of changing tenancy, and limited resources, quality may be low
- Areas of high deprivation generally have less access to private and public transport to access areas outside their suburb for physical activity and their health and wellbeing
- Deprived areas generally have larger households and fewer square metres per person per property.

#### 4.4.5 THE ROLE OF RESERVES IN LOW SOCIO-ECONOMIC AREAS

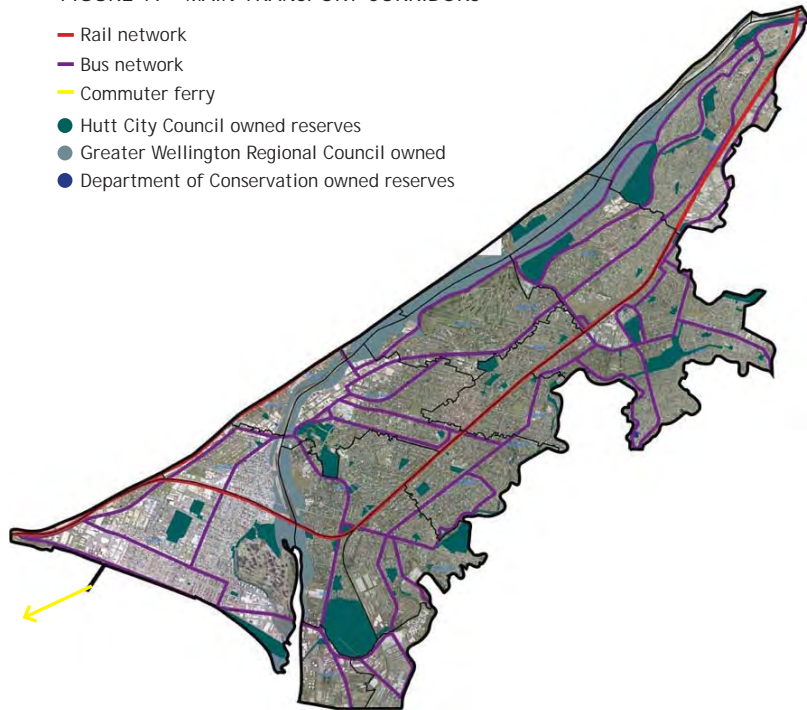
- Aid social, physical and mental well-being
- Opportunities for play and physical activity
- Reserves linked by streets provide direct and leisurely paths to destinations
- Opportunities for locals to engage with each other
- Provide relief from the built environment - there is generally a greater number of people per property so the need for open space is greater
- Opportunities to reflect the various cultures of local residents through design.

FIGURE 18 RATE OF AVOIDABLE HOSPITAL ADMISSIONS PER 1,000 POPULATION BY SUBURB



# 4.5 Main Transport Corridors

FIGURE 19 - MAIN TRANSPORT CORRIDORS



### 4.5.1 INTRODUCTION

Proximity of transportation routes to reserves plays a key role in their accessibility. Accessibility in turn contributes to their success. It makes sense that regional and district or city reserves are near major roads and public transport routes.

**On the valley floor, the regional and district transport spine generally runs up the valley with key routes across the valley floor.** Access to some of the open spaces within the valley floor is restricted by river crossings, major arterial roads, the railway line, private property and reserve entrance locations.

#### Key public transport:

- Train - Melling and Hutt Valley lines. The Hutt Valley line runs the full length of the valley floor. Train routes are generally not near regional and district or key city reserves. The Hutt Valley line also limits east to west access

- Bus - Generally follows main arterial or linking roads
- Ferry - The East by West ferries docks at Petone Wharf.

#### Main road access spines of the valley floor:

- Up the valley (south/north): Western Hutt Road, High Street, Cuba Street, Randwick Road, Cambridge Terrace, Waiwhetu Road, Kings Crescent, Naenae Road, Harcourt Werry Drive, Taita Drive and Eastern Hutt Road
- Across the valley (east/west): The Esplanade/Waione Street, Railway Ave/Woburn Road, Whites Line East, Waterloo Road and Fairway Drive/Daysh Street.

Road access to regional and district reserves from State Highway 2 is generally good e.g. Fraser Park, Hutt River, Petone Foreshore, Hutt and Hutt Park are connected to the wider region via the state highway and The Esplanade/Waione Road along the Petone Foreshore.

Multi modal transport (cycle and pedestrian) on the valley floor giving access to reserves has great potential given the flat terrain and wide roads but is generally not well catered for. Reserves could play a role in providing safe and attractive off-road routes for cyclists and pedestrians for recreation as well as for commuters.

### 4.5.2 ACCESS TO RESERVES USING MAIN TRANSPORT CORRIDORS

Regional reserves need to:

- Be easily accessible from State Highway 2
- On or very near public transport routes
- Provide large areas of car parking
- Have multiple entrances from different roads and streets, be easy to locate and access.

District/City reserves need to:

- Be easy to travel to across the valley floor and from suburbs in the western hills
- Be on or near public transport routes
- Be centrally located.

Community/Suburban and Neighbourhood Reserves need to:

- Be within walking distances of residential areas
- Provide for other forms of transport: mobility scooter, children's bikes etc
- Have a street frontage and be easy to access
- Be reached without having to cross busy roads. Children can then visit spontaneously without supervision.



Two train lines - Hutt Valley and Melling lines



School pedestrian crossing



Biking along the Hutt River Trail



Hutt Valley bus services

## 4.6 Retirement Homes

FIGURE 20 - RETIREMENT HOMES



### 4.6.1 INTRODUCTION

The valley floor has a number of existing and proposed retirement homes, generally centrally located close to services and transport routes (see Figure 20). Hutt City Council also has housing for the elderly and these complexes are mapped as a part of social housing in section 4.4.

Large existing and proposed retirement villages are all located near the Hutt River and the Hutt River trail and many provide open space for gardens, trees and recreation within their complex. An example is Shona Mcfarlane Retirement Village which has gardens, lawns and a bowling green. In these settings public reserves still have a role to play. In contrast to private open space, reserves provide settings

where elderly people can observe, interact with and take part in the wider community and in community activities.

### 4.6.2 RESERVE NEEDS FOR THE ELDERLY

- Be accessible on foot or a short ride on public transport
- A variety of easily accessible entrances
- Be easy to navigate, accessible paths with even, non-slippery surfaces and materials, ramps, wide enough for wheelchairs and mobility scooters, and with some paths separate from activities such as skaters
- Seating with backs and arms in clusters and individually placed
- Shelter from sun and wind
- Be multi-functional and flexible to allow people to meet with friends, socially interactive and part of the community, exercise, relax, appreciate and connect with nature, observe activities/views etc)
- Opportunities for physical activity
- Opportunities to experience the natural environment
- Visual, texture of surfaces, auditory and olfactory clues.





# 4.7 Enclosed neighbourhood Reserves

## 4.7.1 INTRODUCTION

Reserves which this review defines as ‘enclosed’ reserves were developed during the mid twentieth century as part of large scale central government housing schemes.

The schemes aimed to achieve a higher density of population in suburban areas and to use the land saved as open space for safe play areas. A feature was that the houses turned away from through-traffic roads and surrounded a central reserve (see Figure 21). The objective was for pleasant, restful, safe play areas easily supervised from the houses and reached without having to cross roads. These central, communal areas were also to be used as the location for well grown specimen trees which were too large for suburban gardens (E.A. Plischke, Design and Living, Wellington Department of Internal Affairs, 1947, page 78)

These housing schemes were partly implemented in the Hutt Valley, and variations of them are located in the northern and eastern parts of the valley floor in Naenae, Taita, Waiwhetu and Moera, as well as along the central spine on both sides of the railway line in Epuni, Fairfield and Avalon (see Figure 22). All these areas have central common reserve areas.

Over time, use of these communal areas has developed in different ways. While the earlier intention for reserves within residential blocks may have been to develop neighbourhood reserves overlooked by the surrounding community, today this has not eventuated in many cases.

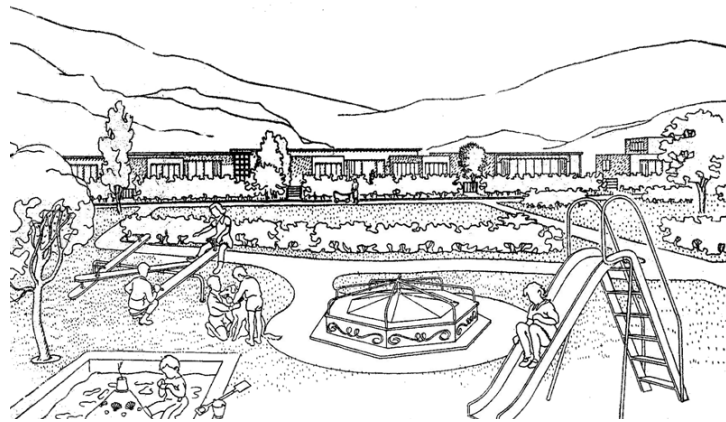


FIGURE 21 - from Design and Living, showing concept of houses facing onto a common open space (page 85)

Surrounding houses often turn their backs on these communal spaces. They often have high solid boundary fences limiting visual surveillance and fewer properties have access onto these communal spaces. Society has also changed and fewer people are at home during the day compared to when these suburban areas were first developed.

## 2.7.2 CHALLENGES TO MANAGING ‘ENCLOSED’ RESERVES

- Houses generally face away from the central reserve areas toward the street often with high solid boundary fences limiting visual surveillance of the reserves
- Few neighbouring properties have direct access onto the public spaces via gates in boundary fences
- Some reserves have little or no street frontage, limited access and are not seen from surrounding streets. This reduces perceptions of safety. For example Glenbrook Grove Reserve in Naenae (site 66) has only one entrance/exit. Having more than one entrance is recommended for safety
- Some entrances are narrow alleyways reducing access, visibility into the reserve and perceptions of safety
- On some reserves the value of multiple street entrances has been lost because sections of the reserve have been fenced off preventing access through the site. An example is Copeland Street Reserve (Site 55)
- Built facilities dominate some reserves or are used for purposes that require membership. This reduces or prevents their use as neighbourhood reserves
- Some reserves have poor drainage or are associated with stormwater infrastructure and are unusable in wet weather e.g. Reynolds Street Reserve, Taita.



Godley Street Reserve, Waiwhetu

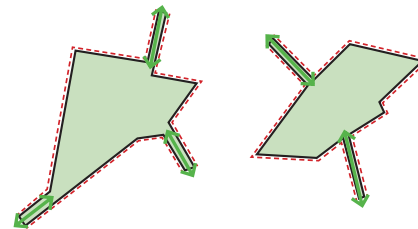


Reynolds Street Reserve, Taita



Hall Crescent Reserve and boundary fences

FIGURE 22: EXAMPLES OF LAYOUT OF ENCLOSED RESERVES



Examples of enclosed reserve layout with no street frontage and access from neighbouring streets



#### 4.7.3 ROLE OF ENCLOSED RESERVES

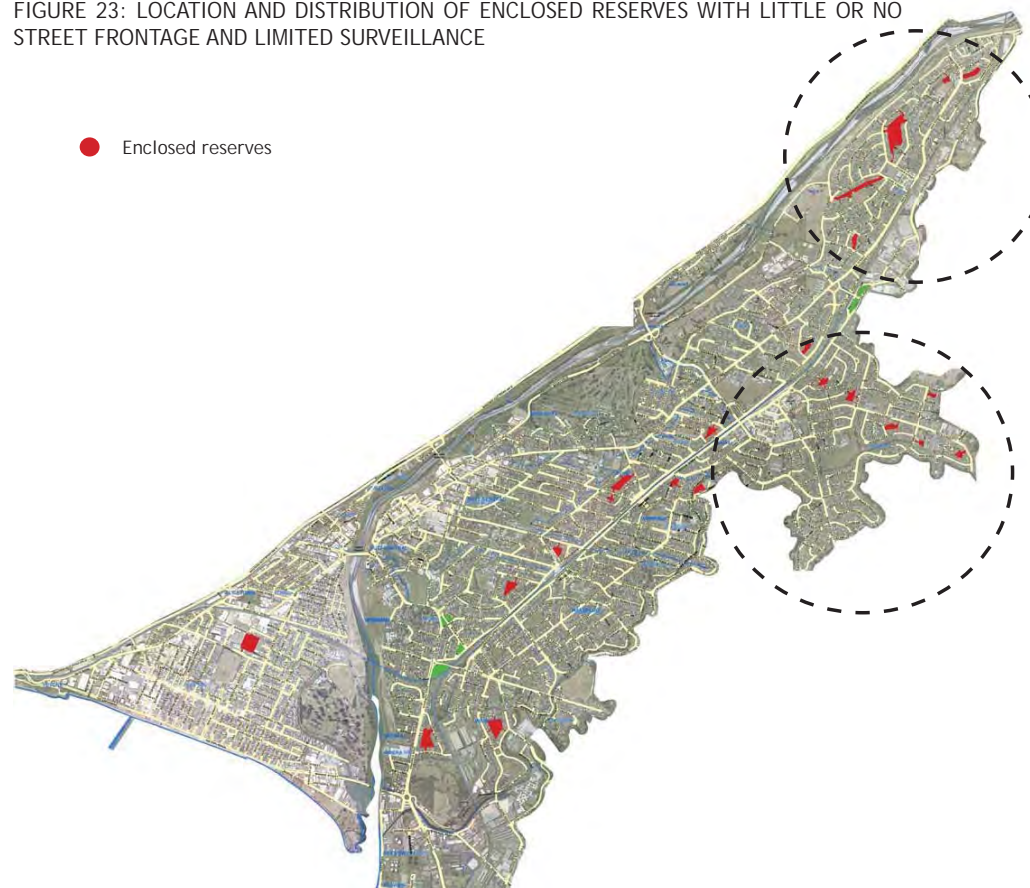
- Can be reached from the neighbourhood without having to cross roads. Children can access the reserves for unsupervised play and are used by the neighbourhood for informal and spontaneous activities e.g. summer evening family cricket e.g. Godley St Reserve Waiwhetu (Site 32)
- Link neighbourhoods with multiple entrances and exits e.g. Barton Grove in Naenae (Site 71)
- Provide off road thoroughways for pedestrians and cyclists
- Have open space for neighbourhood 'kick-a-ball' type activities e.g. Rata Street in Naenae (Site 65)
- Undeveloped open space for adventure and natural play
- Settings for formal playgrounds with play equipment
- Space for large attractive specimen trees e.g. Robert Street Reserve in Epuni North
- Settings for streams and the stormwater network e.g. York Park in Moera (Site 25)
- Settings for specific purposes e.g. Lower Hutt Tennis Club in Woburn (Site 50)
- Facilities e.g. IHC, scout hall and clubrooms in Copeland Street Reserve in Epuni (Site 55), Hutt Theatre School on Phil Evans Reserve in Hutt Central (Site 51).

#### 2.7.4 RECOMMENDATIONS FOR ENCLOSED RESERVES

In order to increase use of enclosed reserves and improve access and safety, the following strategies are recommended:

- No new reserves developed without wide street frontages
- Review fencing on reserve boundaries and redesign and replace solid fencing with a combination of solid and visually permeable fencing. Working with property owners and tenants, identify location of solid fencing for privacy (e.g. from living areas) and visually permeable fencing where visual privacy is less critical
- Review existing reserve vegetation and manage to allow views into and out of the reserve e.g. limb up trees to retain views and locate shrubs where they do not block views
- Orientating new infill housing behind existing housing so that they face toward the reserve
- Purchase properties on street frontages as they become available to extend reserve street boundaries and widen entrances/exits.

FIGURE 23: LOCATION AND DISTRIBUTION OF ENCLOSED RESERVES WITH LITTLE OR NO STREET FRONTAGE AND LIMITED SURVEILLANCE



Copeland Street Reserve fencing preventing access through the site



Hutt Tennis Club with controlled access

## 5.0 SUMMARY OF CURRENT RESERVE SUPPLY

This section summarises the current reserve supply in each suburb according to a reserve's community of interest and identifies the positives and negatives of reserves

SUBURB	COMMUNITY OF INTEREST - RESERVES IN HECTARES				SUMMARY CURRENT RESERVE SUPPLY	
	Local	Suburban	City/ District	Regional	+	-
Petone	4.5078	1.3919	28.9955	7.291	<ul style="list-style-type: none"> <li>Petone has access to extensive reserve areas on the Petone Foreshore and Hutt River on the edges of the suburb</li> <li>Petone Recreation Ground and North Park in the centre of the suburb is used for organised sport, with local use outside of booked use</li> <li>Petone Recreation Ground has a children's playground for neighbourhood use</li> <li>Shandon Golf Course is public land with Hutt River Trail passing through it</li> <li>South eastern corner of the suburb well supplied with local reserves with <b>Hikoikoi and Schoefield Reserves and Hutt River</b></li> <li>Access to the coastline.</li> </ul>	<ul style="list-style-type: none"> <li>North Park partly enclosed - with limited views into the park</li> <li>Petone Foreshore and Hutt River are beyond the 8.5 minute threshold walk to a local or suburban reserve from many parts of the suburb</li> <li>Shandon Golf Course is open for public use nevertheless is a barrier to accessing the river</li> <li>Petone lacks local reserves throughout the suburb</li> <li>Petone has a number of very small reserves which provide a location for vegetation but are too small for use as a neighbourhood reserve.</li> </ul>
Alicetown	.4625				<ul style="list-style-type: none"> <li>Reserves are along Hutt River on the suburb's eastern edge and local reserves along the suburb's central spine.</li> </ul>	<ul style="list-style-type: none"> <li>The western edge of the suburb between SH2 and Victoria Street is outside the 8.5 walking threshold to central local reserves and Hutt River</li> <li>Neighbourhood reserves are less than the minimum recommended size of 2500<sup>2</sup>m.</li> </ul>
Melling		.4975			<ul style="list-style-type: none"> <li>Most residences and workplaces in Melling have access to the Hutt River reserve, and/or The Greenway within the 8.5 minute walking threshold to local reserves.</li> </ul>	
Hutt Central	1.8731	1.6148	12.5289		<ul style="list-style-type: none"> <li><b>Key high profile reserves are Riddiford/Civic Gardens, the Dowse Plaza, Hutt Recreation Ground and Hutt River</b></li> </ul>	<ul style="list-style-type: none"> <li>Lack of local neighbourhood reserves close to people's homes and workplaces</li> <li>Local reserves are very small at road intersections or surrounded by busy roads which limit use and access especially by children and the elderly.</li> </ul>
Woburn	1.8731	1.6148			<ul style="list-style-type: none"> <li>Hutt River on the western edge of the suburb</li> <li>Local reserves with pleasant open space and mature specimen trees</li> <li>Reserves with recreation - bowling and tennis clubs.</li> </ul>	<ul style="list-style-type: none"> <li>Local reserves are surrounded by busy roads which limit use and access</li> <li>Two local reserves dominated by recreation clubs with membership requirements</li> <li>Corner of Randwick Rd/Whites Line East is fenced with no access.</li> </ul>
Boulcott	.0361	.5303			<ul style="list-style-type: none"> <li>Mitchell Park on the edge of the suburb has extensive recreation facilities with green open space and gardens for local use.</li> </ul>	<ul style="list-style-type: none"> <li>Private open space of the golf course separates the suburb from Hutt River and reduces access</li> <li>Mitchell Park on the edge of the suburb is well outside the 8.5 minute walk threshold from much of the suburb</li> <li>Very small grassed area has limited use at corner of two busy roads.</li> </ul>
Epuni	1.9454	3.3803			<ul style="list-style-type: none"> <li>Epuni has local reserves with undeveloped potential</li> <li>Most residents are likely to be able to access a local reserve within 8.5 minutes walking</li> <li>Mitchell Park on the edge of the suburb has extensive recreation facilities with green open space and gardens for local use.</li> </ul>	<ul style="list-style-type: none"> <li>Except for Mitchell park, reserves are undeveloped and do not invite use</li> <li>Four reserves are enclosed with minimal street frontage and access and safety issues</li> <li>A grassed open area around the Epuni Community Centre does not invite use.</li> </ul>
Avalon	.055		15.2676		<ul style="list-style-type: none"> <li>Avalon Park and Hutt River are two key reserves on the western edge of the suburb.</li> </ul>	<ul style="list-style-type: none"> <li>Reserves are located on the edges of the suburb which means residents in the centre of the suburb have a walk of more than 8.5 minutes to a local reserve</li> <li>The railway line on the eastern edge of the suburb is a barrier for residents of eastern Avalon to access reserves in Naenae to the east</li> <li>Harcourt Werry Drive and the stopbank are barriers to accessing the river, especially for children and the elderly - Vehicles travel up to 70kph with no crossing points for pedestrians or cyclists</li> <li>Of the two local reserves one is enclosed on the eastern edge of the suburb with a grassed open area and specimen trees. The other is a small area on the corner of two streets on the suburb's northern edge.</li> </ul>

SUBURB	COMMUNITY OF INTEREST - RESERVES IN HECTARES				SUMMARY CURRENT RESERVE SUPPLY	
	Local	Suburban	City/ District	Regional	+	-
Taita	2.0946	1.6687	7.2166	28.6712	<ul style="list-style-type: none"> <li>Reserves are evenly distributed throughout the suburb. Most residents would reach a reserve within the 8.5 minutes threshold for access to local reserves</li> <li>Fraser Park and Hutt River are major reserves on the western edge of the suburb but the river is difficult to access across Harcourt Werry Drive</li> <li>Changes to social housing is driving positive changes to reserves and street tree planting</li> <li>Good neighbourhood ownership of Walter Nash park as a result of the Great Start initiative</li> <li>Fraser Park sportsfields are available for local use when not booked for formal sports</li> <li>Grassed linear reserves link streets</li> <li>Reynold Street Reserve is a linear reserve in the centre of the suburb connecting key recreation facilities, schools and streets.</li> </ul>	<ul style="list-style-type: none"> <li>Hutt River is difficult to access across Harcourt Werry Drive</li> <li>Most local reserves are enclosed with limited street frontage, access and surveillance for safety</li> <li>Two local/suburban reserves are used for specific activities (outdoor and indoor netball courts and bowling club) with exclusive use and unavailable to the general public</li> <li>Linear reserve in the centre of the suburb (Reynold Street Reserve) unrealised potential</li> <li>12.5 % of neighbourhood reserves are less than the minimum recommended size of 2500<sup>2</sup>m.</li> </ul>
Naenae	3.0712	.2731	18.2007		<ul style="list-style-type: none"> <li>Central and northern Naenae have several local reserves within 8.5 minutes walk from most residences</li> <li>Linear reserves along Waiwhetu Stream through Naenae Park link with suburbs to the south</li> <li>Walter Mildenhall Park and Naenae Park have extensive recreation facilities with potential to improve open space for free community use</li> <li>Naenae Park sportsfield available for community use outside of booked hours.</li> </ul>	<ul style="list-style-type: none"> <li>Most local reserves are enclosed with minimal facilities and road frontage</li> <li>Linear reserves along Waiwhetu Stream under used as a linear connection along the eastern edge of the valley floor</li> <li>Much of Walter Mildenhall Park facilities require membership or payment for entry and the balance requires improvement to maximise the reserve's potential</li> <li>The area south of Naenae Road has fewer options to access local reserves</li> <li>Wingate Reserve on the western edge of the suburb is dominated by roading with safe access on its northern side only</li> <li>36% of neighbourhood reserves are less than the minimum recommended size of 2500<sup>2</sup>m.</li> </ul>
Fairfield Waterloo	.3445 .9129	1.818			<ul style="list-style-type: none"> <li>Te Whiti Park is a major reserve on the eastern side of Waterloo at the foot of the Eastern Hills available for local use and a popular entrance to the Eastern Hills for fitness walkers and runners, although tracks are generally too steep for cyclists</li> <li>Amenity and ecological values of Waiwhetu Stream are improving.</li> </ul>	<ul style="list-style-type: none"> <li>Fairfield and Waterloo are separated from reserves to the west by the railway line</li> <li>Areas earmarked for higher density in southern and eastern Fairfield and northern and eastern Waterloo lack local neighbourhood reserves and residents will need to walk further than the desirable 8.5 minutes walk to a local reserve</li> <li>% of neighbourhood reserves are less than the minimum recommended size of 2500<sup>2</sup>m</li> <li>The eastern hills are</li> <li>Waiwhetu Stream as a linear trail limited by lack of an all weather pathway.</li> </ul>
Waiwhetu Moera	1.3447 1.1645	1.5477 1.5987	12.1007		<ul style="list-style-type: none"> <li>Waiwhetu and Moera in particular have a good supply of local reserves generally within the 8.5 minutes walk threshold, including Hutt River and Hutt Park</li> <li>Good supply of sportsgrounds and facilities for organised sports.</li> </ul>	<ul style="list-style-type: none"> <li>The non residential area east of Hutt Park is a barrier to the park from the Waiwhetu residential area</li> <li>Busy Randwick Road is a barrier for Moera residents to access Hutt Park with very few pedestrian crossings</li> <li>York Park is an enclosed reserve, large grassed area with few trees, shade and shelter and highly modified Awamutu Stream with no stream bank shade for stream life</li> <li>% of neighbourhood reserves are less than the minimum recommended size of 2500<sup>2</sup>m.</li> </ul>
Seaview	OS - June 2	.1808				<ul style="list-style-type: none"> <li>Industrial area with no relief from the industrial form for those working/living in the area</li> <li>Little opportunity for active worker recreation near their workplaces</li> <li>Port Road is part of the cycle connection between the Hutt River Trail and the Eastern bays and the Great Harbour Way</li> <li>Currently a low number of resident population and likely to remain low.</li> </ul>

# 6.0 RECOMMENDED MEASURES OF RESERVE AVAILABILITY

This section outlines factors to consider when assessing reserve availability and recommends a measurement of reserve availability

## 6.1 INTRODUCTION

Levels of provision in urban areas is not just about quantity of reserve land. **Providing large areas of reserve land on the valley floor or a large number of reserves does not guarantee that the reserves meet the needs of their community.**

Provision is to do with:

- Accessibility and visibility
- Equity of provision (reserve provision regardless of where residents live and their circumstances)
- What the community wants from their reserves
- Quality
- Variety of reserves for different uses and experiences.

The connection between quality and type of open space and improved physical, mental, social, economic, environmental and cultural health and wellbeing is increasingly recognised. It is also important to **recognise that different parts of the valley floor have different needs, requirements and types of open space.**

Therefore, when making decisions on whether levels of reserve provision **on the valley floor are sufficient and on measures of reserve availability,** a range of factors need to be considered.

## 6.2 FACTORS TO CONSIDER WHEN ASSESSING RESERVE AVAILABILITY

- **The degree of urban intensification and size of private outdoor areas and space for trees**
- The quality of both private and public open space and facilities
- Accessibility and visibility of reserves. For example the time it takes to walk to a neighbourhood reserve from a residence. Christchurch City Council 'Public Open Space Strategy 2010 - 2014' identified reserves with more than an 8.5 minute walking time as being deficient, based on the time it would take for a child or elderly person to walk 400 metres. Other factors are barriers to access e.g. busy roads that need to be crossed, and how visible and inviting a reserve is (length of street frontage, inviting and well-defined entrances and cared for facilities)
- Degree of pedestrian/cyclist connections and linkages between reserves
- Socio-economic issues and people per household. As a general rule of thumb, provision of high quality open spaces becomes more important as socio-economic deprivation and people per household

increases. Evidence suggests that reducing the amount of open space in lower socio-economic areas has a greater impact on the overall wellbeing of the community

- Growing diversity of population is a signal that it is important to provide diverse types of reserves and multi-functional spaces
- Demographics and projected changes - the proportion of young people and the elderly in particular. A number of suburbs on the valley floor have a high proportion of young people and the elderly population is projected to increase over the next 18 years. The valley floor population is also projected to be increasing in ethnic diversity
- Needs of people - for example Hutt City Youth Study identified that generally there is a lack of things to do and places to go, free things to do, safe areas, sport and recreation activities and facilities where young people can hang out. Sixty per cent identified that major improvements are needed in places to hang out. Evidence shows that open space provides more benefits for children and teenagers, as well as low socio-economic groups, low income ethnic minorities, those who have little free time for exercise and the elderly
- The values placed on reserves by the community and established through surveys and interviews
- Environmental values of reserves, environmental connections/linkages between reserves and the environmental services they provide e.g. the degree reserves reduce hard surfaces, provide habitat for fauna, have space for trees, reduce carbon, reduce air and water pollution.

## 6.3 MEASURES OF RESERVE AVAILABILITY

Measures of reserve availability vary according to the significance of the reserve i.e. whether it is a neighbourhood, suburban, city/district or regional reserve. For example a neighbourhood reserve should be within a comfortable walking distance, while a city, district or regional reserve may require a car journey or reached by public transport.

Other measures are to do with the size of the reserve and the activities that can take place on it. A regional reserve is generally large and has a wide range of activities or special facilities that attract wide use. A neighbourhood reserve on the other hand is small with space for a limited range of activities.

This review proposes measures for reserve availability based on the following:

- Reserve size
- The range of activities that can take place on the reserve
- Whether it can be accessed from a number of directions i.e. the number of entrances it has
- How safe people feel accessing and using the reserve
- The quality of the reserve and its facilities
- Its linkages to neighbouring streets, pedestrian/cyclist routes, key transport routes and public transport.

Measures for reserves based on their **significance are detailed on the following page.**

The key measure for neighbourhood reserves is whether a reserve can be reached on foot from most residences in the immediate area in 8.5 minutes. This is the time it generally takes for a young child or elderly person to walk 400 metres. A neighbourhood reserve should also be reached without having to cross busy roads or, railway lines or rivers and streams.

This measure was used to test availability of **neighbourhood reserves on the valley floor.** Some parts of the valley floor have access to more than one neighbourhood reserve within the 8.5 minute walk threshold. In other areas, people are outside the 8.50 minute walk or 400 metre threshold (see Figure 24).



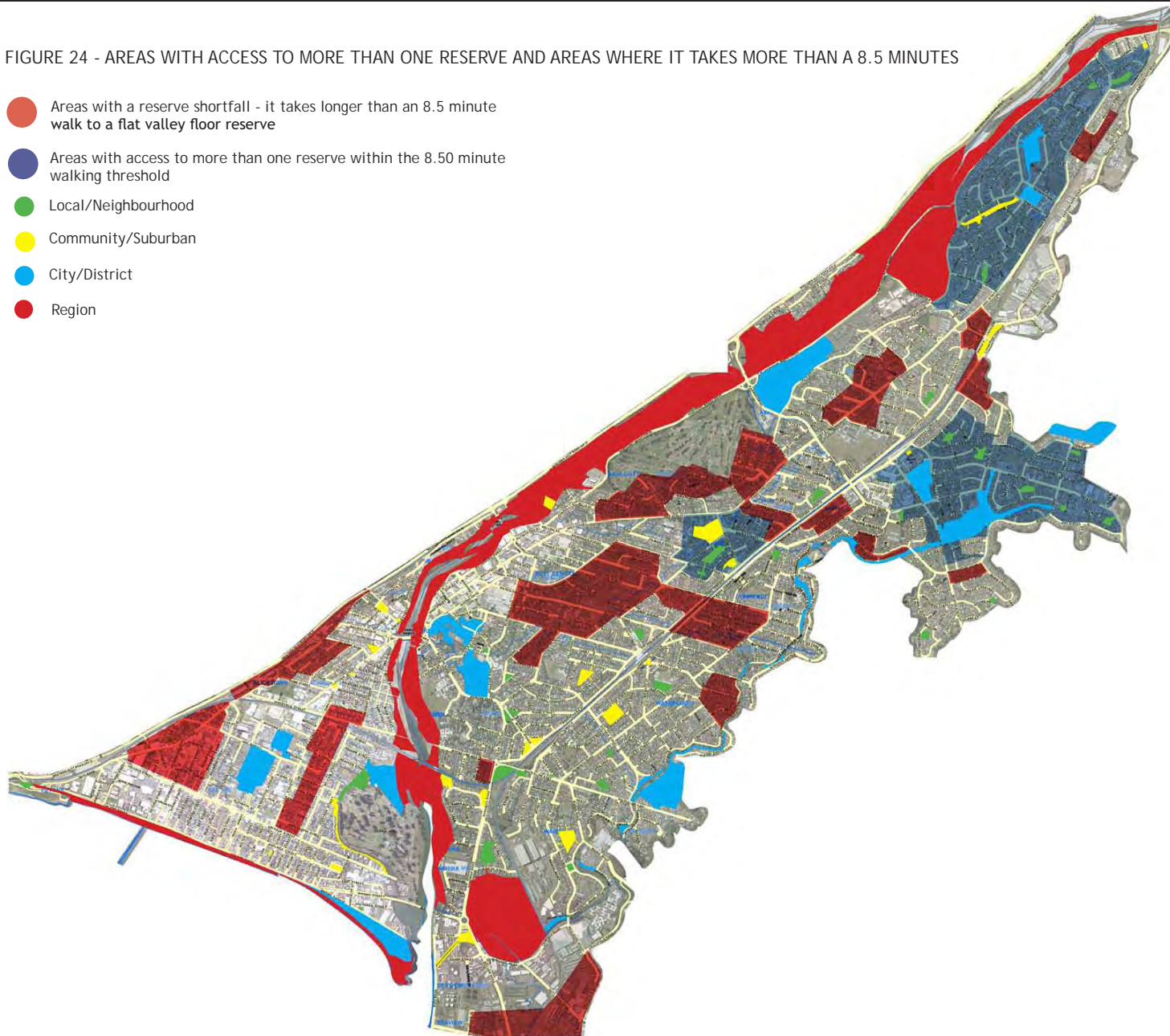
TABLE OF RECOMMENDED MEASURES OF RESERVE AVAILABILITY

RESERVE SIGNIFICANCE	MEASURES
Local Neighbourhood Reserves - 47% of valley floor reserves	<ol style="list-style-type: none"> <li>1. Can be reached on foot from most residences in the immediate area in 8.5 minutes (approximately 400 metres <b>along streets, not as a straight line</b>) <b>without crossing high traffic count roads, railway lines or water courses</b></li> <li>2. Has an area of more than 0.25 hectare (or 2500m<sup>2</sup>).</li> <li>3. Has a minimum of two entrances and preferably three.</li> <li>4. Have a wide street frontage of a minimum of 30% of their perimeter.</li> <li>5. Has a minimum of 50% visually permeable perimeter fencing (this can be combination fencing with solid fencing blocking views into private areas of housing on a reserve boundary).</li> <li>6. Conforms to CPTED principles - surveillance, access management, territorial reinforcement, quality environments.</li> <li>7. Has linkages to street pedestrian/cyclist routes and other reserves.</li> </ol>
Suburban Reserves - 31% of valley floor reserves	<ol style="list-style-type: none"> <li>1. Can be reached on foot within 30 minutes from most residences in the surrounding area (may involve crossing <b>high traffic count roads, railway lines or water courses</b>).</li> <li>2. Can be reached from a suburban transport route and public transport.</li> <li>3. Has a minimum of two entrances and preferably three.</li> <li>4. Has a wide street frontage of a minimum of 30% of their perimeter.</li> <li>5. Have a minimum of 50% visually permeable perimeter fencing (this can be combination fencing with solid fencing blocking views into private areas of housing on a reserve boundary).</li> <li>6. Conforms to CPTED principles - surveillance, access management, territorial reinforcement, quality environments.</li> <li>7. Has linkages to road/street pedestrian and cyclist routes and to other reserves</li> <li>8. Is interesting and varied enough to hold interest for longer than 30 minutes.</li> </ol>
City/District Reserves - 19% of valley floor reserves	<ol style="list-style-type: none"> <li>1. Can be reached from a main transport route and public transport.</li> <li>2. Has linkages to city/district pedestrian/cyclist routes and other reserves.</li> <li>3. Has car parking facilities.</li> <li>4. Conforms to CPTED principles - surveillance, access management, territorial reinforcement, quality environments.</li> </ol>
Regional Reserves - 3% of valley floor reserves	<ol style="list-style-type: none"> <li>1. Can be reached from a main transport route and public transport.</li> <li>2. Has linkages to city/district/regional pedestrian/cyclist routes.</li> <li>3. Has car parking facilities.</li> <li>4. Has an outstanding quality or experience.</li> <li>5. Conforms to CPTED principles - surveillance, access management, territorial reinforcement, quality environments.</li> </ol>



FIGURE 24 - AREAS WITH ACCESS TO MORE THAN ONE RESERVE AND AREAS WHERE IT TAKES MORE THAN A 8.5 MINUTES

- Areas with a reserve shortfall - it takes longer than an 8.5 minute walk to a flat valley floor reserve
- Areas with access to more than one reserve within the 8.50 minute walking threshold
- Local/Neighbourhood
- Community/Suburban
- City/District
- Region



Some parts of the valley floor have access to more than one neighbourhood reserve within the 8.5 minute walk threshold. In other words, people in these areas live within 400 metres of more than one reserve.

Areas with access to more than one reserve within the 8.5 minute walking threshold are in Taita, Naenae and central Epuni. These areas have social housing and high levels of social deprivation. In New Zealand it is not unusual for such areas to have high levels of reserve provision, in contrast to the United Kingdom, Australia, Canada and the United States (Stevenson, Anna et al, NZ Geographer (2009), 'Neighbourhoods and health: a review of the New Zealand literature', pge 219). The parts of Naenae, Taita and Epuni where people live within 400 metres of more than one reserve have high levels of social housing and social deprivation and were planned developments at a time when the value of public open spaces for recreation and health was recognised.

The map also shows areas on the valley where people are outside the 400 metre threshold (more than 8.50 minutes walk) of a reserve with suitable space for a ball game or a playground. This indicates a shortfall in neighbourhood reserve provision.

Jackson Street and the block immediately to its south are just within 400 metres of the Petone foreshore which means it can be reached in 8.50 minutes from most properties. This area is earmarked for intensification including apartments, and given the relatively exposed foreshore, more sheltered neighbourhood reserves may be warranted.



# 7.0 PROPOSED FUTURE RESERVE REQUIREMENTS

This section gives reserve requirements and recommends measures for reserves that do not perform. Reserves are organised according to suburbs or groups of suburbs.

SUBURB	SUBURB PROFILE	REQUIREMENTS AND RECOMMENDATIONS
Petone Alicetown	<ul style="list-style-type: none"> <li>• Third largest population and one of the largest in area</li> <li>• Projected higher housing density area between the foreshore and Jackson Street</li> <li>• Largest current and projected demographic young to middle-aged adults with a projected percentage of 67% of the total population of Petone</li> <li>• <b>Petone projected to have the smallest percentage of elderly of all valley floor suburbs</b></li> <li>• Petone is culturally diverse with Maori second to European</li> <li>• High socio-economic deprivation in the south east corner near Hutt River mouth of the suburb, small patches throughout the suburb, although fewer in the centre and north Petone and in the southern area of Alicetown</li> <li>• Key transport links along the foreshore and western edge</li> <li>• Proposed retirement village on the eastern edge of Petone</li> <li>• Petone Foreshore, Hikoikoi Reserve and sportsground in the centre of the Petone and Hutt River are key reserves</li> <li>• North Park is partly enclosed</li> <li>• Petone Recreation Ground is open to street views and access from Udy Street.</li> </ul>	<p>Requirements:</p> <ol style="list-style-type: none"> <li>1. <b>Multi-functional and flexible reserves with a range of facilities and activities.</b></li> <li>2. Additional local reserves.</li> </ol> <p>Measures to improve performance:</p> <ul style="list-style-type: none"> <li>• Improve connections for pedestrians and cyclists from the suburb to Hutt River and along the river from the harbour</li> <li>• Provide new neighbourhood reserves in central and western Petone, areas earmarked for higher density to offset higher density</li> <li>• Widen North Park perimeter street frontage on Udy Street</li> <li>• Investigate developing a local reserve in west Alicetown.</li> </ul>
Central Suburbs:  Hutt Central Woburn Boulcott	<ul style="list-style-type: none"> <li>• Higher density housing projected in Hutt Central and Boulcott (except for eastern Hutt Central from Waterloo Road north to the hospital)</li> <li>• The population of central suburbs are projected to have a reduction in numbers of children, <b>the smallest percentage of youth and adults of valley floor reserves</b></li> <li>• Woburn and Hutt Central are projected to have the largest percentage of middle aged adults and Hutt Central the highest percentage of elderly followed by Woburn and Boulcott</li> <li>• Central suburbs are less culturally diverse although the largest percentage of Asians live in Hutt Central</li> <li>• Central suburbs have low levels of socio-economic deprivation and very low levels of social housing</li> <li>• Hutt Central has a number of retirement villages with proposals for more homes for the elderly. Boulcott also has a proposal for a retirement village</li> <li>• Key reserves are the civic precinct in Hutt Central, Hutt River and Hutt Recreation ground</li> <li>• Two enclosed reserves are on the eastern sides of the central suburbs</li> <li>• Lacking are easily accessed local neighbourhood reserves.</li> </ul>	<p>Requirements:</p> <ol style="list-style-type: none"> <li>1. Improve access to local neighbourhood reserves across busy roads, Hutt River and civic gardens will become increasingly important as the elderly population grows.</li> </ol> <p>Measures to improve performance:</p> <ul style="list-style-type: none"> <li>• Develop local neighbourhood reserves close to people's homes and workplaces in higher density areas and near retirement villages</li> <li>• Improve pedestrian and cycle connections from central suburbs to the civic gardens and Hutt River</li> <li>• Improve access to local reserves across busy roads in Woburn, paths, seating and amenity in these reserves</li> <li>• Develop the large reserve area at the corner of Randwick Rd/Whites Line East was an urban island nature or wilderness area with trees.</li> </ul>
Epuni	<ul style="list-style-type: none"> <li>• <b>Population has proportionally more children than many areas of the valley floor although projected to decline along with youth and adults to 40 years of age</b></li> <li>• Middle aged and the elderly to increase and make up 56% of the population</li> <li>• Culturally diverse with Maori following Europeans as the dominant ethnicity followed by Pacific, other ethnicities with Asian people <b>the smallest ethnic group</b></li> <li>• Higher housing density projected in Central and north Epuni and the eastern edge along the railway line with reduction in private outdoor space and less space for trees</li> <li>• Central Epuni is a high socio-economic deprivation area with pockets of medium socio-economic deprivation elsewhere in the suburb</li> <li>• High proportion of social housing in central Epuni and on the eastern side of the suburb</li> <li>• Main transport corridors run along the suburb's eastern and western boundaries (railway to the east, road to the west)</li> <li>• <b>Three of the five reserves are enclosed with limited street frontage and surveillance for safety.</b></li> </ul>	<p>Requirements:</p> <ol style="list-style-type: none"> <li>1. Local neighbourhood reserves.</li> </ol> <p>Measures to improve performance:</p> <ul style="list-style-type: none"> <li>• Work with local communities to improve/develop neighbourhood reserves providing free facilities</li> <li>• Improve quality of reserves and safety of users (enclosed reserves and Epuni Community Centre) -</li> <li>• Work with Housing NZ to purchase property and create street frontage on enclosed reserves</li> <li>• Work with owners and tenants of neighbouring properties to review solid fencing on reserve boundaries, redesign and replace with a combination of solid and visually permeable fencing (identify location of solid fencing for privacy)</li> <li>• <b>New infill houses at rear of existing properties face onto reserves</b></li> <li>• Develop linkages for pedestrian and cyclists through reserves to connect neighbouring streets and reserves, and encourage pedestrians and cyclist to use reserves as off road commuter routes</li> <li>• Consider acquiring properties to create wider open reserve frontages.</li> </ul>

SUBURB	SUBURB PROFILE	RECOMMENDATIONS
Avalon	<ul style="list-style-type: none"> <li>Population the fourth largest after Naenae, Taita and Petone</li> <li>Housing density projected to increase in the southern and eastern areas of the suburb and along the central spine (High Street), away from the suburb's key reserve areas with reduction in private outdoor space and less space for trees</li> <li>Projected to have the smallest percentage of children of all valley floor suburbs (15%), youth to decline slightly and the middle aged population to increase slightly</li> <li>A major retirement village in the suburb means it has the largest percentage of elderly of all valley floor suburbs. This demographic is projected to increase to 26%</li> <li>Ethnically diverse with Asian peoples second to Europeans followed by Maori, Pacific and other ethnicities</li> <li>Most socio-economically deprived areas and social housing in the eastern and southern areas of the suburb</li> <li>Public transport and main transport routes run north to south along the suburb's eastern and western boundaries and through the suburb linking major reserves</li> <li>Contains Avalon Park identified as the site of the City's premier playground.</li> </ul>	<p>Requirements:</p> <ol style="list-style-type: none"> <li>Reserve facilities close to homes for easy access and year round appeal use.</li> </ol> <p>Measures to improve performance:</p> <ul style="list-style-type: none"> <li>Improve pedestrian and cycle access to Avalon Park from the northern and eastern areas of the suburb, access to Hutt River across the stop bank and Harcourt Werry Drive and between Naenae and Avalon reserves</li> <li>Investigate opportunities to purchase property suitable for development into a neighbourhood reserve in the centre of the suburb (near High Street) and work with local communities to develop a reserve that meets their needs</li> <li>Develop Colson Street Reserve as a local neighbourhood park, working with the local community to improve quality and safety of users in this enclosed reserve - attractive and welcoming entrances, gestures and signage, quality paths and facilities; widen perimeter street frontage; work with owners and tenants of neighbouring properties to review solid fencing on reserve boundaries, redesigning with a combination of solid and visually permeable fencing</li> <li>Improve Avalon Park for family and all weather use.</li> </ul>
Taita	<ul style="list-style-type: none"> <li>Population second largest of valley floor suburbs</li> <li>Housing density to increase in centre of the suburb, eastern parts of the suburb and along the central spine of High Street with reduction in private outdoor space and less space for trees</li> <li>The most culturally diverse and a high proportion of Maori and Pacific peoples</li> <li>The largest percentage of children of any suburb although projected to reduce over time</li> <li>Elderly population to increase</li> <li>Medium density along the central spine of the suburb with reduction in private outdoor space and less space for trees</li> <li>High socio-economic deprivation area with high levels of old social housing</li> <li>Public transport and key road north/south linking the suburb with key large reserves</li> <li>High proportion of reserves are enclosed with limited street frontage and surveillance for safety.</li> </ul>	<p>Requirements:</p> <ol style="list-style-type: none"> <li>Focus on improving access and free facilities on current reserves to meet the needs of the local culturally diverse communities.</li> <li>Work with Housing NZ and property developers when redeveloping housing on improving public open space and trees.</li> </ol> <p>Measures to improve performance:</p> <ul style="list-style-type: none"> <li>Work closely with local communities to improve/develop reserves and their facilities</li> <li>Improve pedestrian connections between reserves developing linked walkways throughout the suburb</li> <li>Develop enclosed reserves - attractive and welcoming entrances and signage, quality paths and facilities; widen perimeter street frontage; work with owners and tenants of neighbouring properties to review solid fencing on reserve boundaries, redesigning with a combination of solid and visually permeable fencing. Alternatively, dispose of and replace with superior reserves</li> <li>Develop the linear reserve in the centre of the suburb and higher housing density zone (Reynold Street Reserve) as a key pedestrian/cyclist route connecting key recreation facilities, schools and streets; investigate making stormwater infrastructure visible by reintroducing stream and developing as an ecological corridor and feature of the suburb.</li> </ul>
Seaview	<ul style="list-style-type: none"> <li>A large industrial area on the harbour edge</li> <li>A small resident population and the suburb with the largest proportion of Maori is Seaview at 24%, although the actual population is small</li> <li>Port Road is part of the cycle connection between Hutt River Trail and the Eastern Bays and the Great Harbour Way</li> <li>Hutt Park and Waiwhetu Stream are located on the northern side of Park Road with recreational opportunities in an attractive setting, although access is but separated from Seaview by a busy road and the stream.</li> </ul>	<p>Requirements:</p> <ol style="list-style-type: none"> <li>The area has few residents but an increase in population during the day may merit investigating opportunities for open space within the industrial area.</li> </ol> <p>Measures to improve performance:</p> <ul style="list-style-type: none"> <li>Focus on improving amenity along the harbour edge and the Great Harbour Way</li> <li>Improve access to the beach on Park Road on the western side of the marina and integrate into the harbour cycle trail</li> <li>Investigate opportunity for open space for worker recreation.</li> </ul>

SUBURB	SUBURB PROFILE	RECOMMENDATIONS
Eastern suburbs: <b>Fairfield</b> Waterloo Waiwhetu Moera	<ul style="list-style-type: none"> <li>The middle-aged and the elderly in particular are projected to increase and make up 49% of the population in 18 years</li> <li>The percentage of children and adults under 40 is projected to decrease</li> <li>Housing density is projected to increase on the western side of the suburbs and in central Waiwhetu</li> <li><b>Moera is the most ethnically diverse suburb of all valley floor suburbs and along with Hutt Central has the highest percentage of Asian peoples</b></li> <li>Maori make up nearly a quarter of the population in Moera and slightly less in Waiwhetu</li> <li>Waterloo is not as culturally diverse</li> <li>Moera has a high level of socio-economic deprivation and social housing as has north <b>Fairfield and western Waiwhetu with patches in Waterloo</b></li> <li>Waterloo has low levels of socio-economic deprivation and social housing</li> <li><b>Western Fairfield, Waterloo and north Waiwhetu in particular have access to the rail network</b></li> <li><b>Moera and Waiwhetu have one enclosed reserve each and Fairfield two.</b></li> <li>The railway line separates the suburbs from reserves on its western side, Moera is well supplied with reserves although a busy road separates much of the suburb from Hutt Park and residents in southern Fairfield and northern Waterloo have less access to local reserves than other parts of the suburbs.</li> </ul>	Requirements: 1. Given the projected increase in the middle aged and elderly demographic, focus on: <ul style="list-style-type: none"> <li>Improving access to reserves for people on foot or cycling</li> <li>Widen use of existing sportsgrounds such as Te Whiti Park to include wider demographics</li> <li>Develop walk/cycle way and ecological, corridor along Waiwhetu Stream.</li> </ul> Measures to improve performance: <ul style="list-style-type: none"> <li>Develop linear cycle/pedestrian route and ecological corridor along Waiwhetu Stream connecting <b>the eastern suburbs along the edge of the valley floor</b></li> <li>Develop local neighbourhood reserve in projected higher density area so residents in southern and eastern Fairfield and northern and eastern Waterloo can reach a local reserve within the 8.5 minute threshold</li> <li>Develop enclosed reserves - attractive and welcoming entrances and signage, quality paths and facilities; purchase properties to widen perimeter street frontage (some Housing NZ properties bordering York Park); work with owners and tenants of neighbouring properties to review solid fencing on reserve boundaries, redesign and replace with a combination of solid and visually permeable fencing (identify location of solid fencing for privacy e.g. from living areas, with visually permeable fencing where visual privacy is less critical).</li> </ul>
Naenae	<ul style="list-style-type: none"> <li><b>Population largest of valley floor suburbs</b></li> <li>Housing density to increase around civic/shopping centre and Walter Mildenhall Park with reduction in private outdoor space and less space for trees</li> <li>Culturally diverse with Maori making up 21% after Europeans</li> <li><b>Projected to have the highest percentage of children of valley floor suburbs with 55% of the population to be 39 years and younger</b></li> <li>Elderly increase but along with Petone projected to have the lowest percentage of elderly of valley floor reserves</li> <li>High socio-economic deprivation and social housing across the suburb</li> <li>Access to key transport routes (rail, road and bus)</li> <li>A string of enclosed reserves across the suburb</li> <li>Waiwhetu Stream a key connecting element.</li> </ul>	Requirements: 1. Prioritise community facilities for children, youth and young adults and improving linear pedestrian/cycle and ecological connections. 2. Improve the quality of existing reserves. 3. Work with Housing NZ and property developers when redeveloping housing on improving public open space and trees. Measures to improve performance: <ul style="list-style-type: none"> <li>Work closely with local communities to improve/develop reserves and their facilities</li> <li>Link the string of reserves across the suburb as a pedestrian/cyclist route</li> <li>Develop enclosed reserves (see item above re Taita enclosed reserves)</li> <li>Develop linear cycle/pedestrian route and ecological corridor along Waiwhetu Stream connecting <b>the suburb with the harbour along the eastern edge of the valley floor</b></li> <li>Develop open space of Walter Mildenhall Park for free community use with a focus on activities for youth and young adults and children</li> <li>Develop vegetation on Wingate Reserve (trees as part of the eastern hills/valley crossing bird corridor) with pedestrian and cyclist access connecting to Taita.</li> </ul>

# 8.0 CONCLUSIONS

## INTRODUCTION

Seventy-four percent of the population of Hutt City live on the valley floor and others come to valley floor reserves for recreation from the hill suburbs and from elsewhere. The one hundred and seventy-eight valley floor reserves are grouped in this review into 85 reserves, making up a total of 339 hectares.

Levels of reserve provision in urban areas are not just about the area of reserves. Reserves need to meet the needs of their community and be accessible and visible regardless of where residents live and their circumstances. Different parts of the valley floor also have different reserve needs and requirements for types of reserves.

## OWNERSHIP

One hundred and ninety-seven hectares of reserve land or just over 53% of total reserve area on the valley floor are owned by Hutt City Council. Forty-one percent is owned by Greater Wellington Regional Council. This means that nearly half of valley floor reserves are not owned by Hutt City Council. Regional Council reserves are located along the Hutt River. These reserves are not generally multi-use and their development into multi-use reserves with a wide range of community benefits is limited by their key function of river control and soil conservation.

Reserves along the Hutt River are also on the western boundary of the valley floor and separated from valley floor suburbs by busy roads, some with higher speeds than 50kph and private properties. This makes access to the reserves difficult. The stopbank along the river is also a visual barrier between the river and valley floor suburbs.

## SUMMARY OF FACTORS THAT GUIDE DECISION MAKING ON RESERVE PROVISION

### DEMOGRAPHICS AND HOUSING DENSITY

Housing density is likely to result in higher population or more households around shopping centres and on key transport routes in Hutt Central, Moera, Boulcott, Avalon, Naenae, along the Petone Foreshore and Cuba Street in Petone and on both sides of the Hutt Valley railway line. Increased site coverage will reduce the size of private open space in these areas and result in growing demand for reserves close to people's homes. Access to quality local reserves to compensate for smaller private open space makes higher density living more widely acceptable in New Zealand.

Increased site coverage on private open space decreases opportunity for trees. Reserves become important as locations for large trees creating habitat for birds, insects and invertebrates. Some reserves also have potential to become settings for streams with improved habitats for aquatic flora and fauna and opportunities for engagement with natural systems. Along with reserves with trees, they become areas for natural play. Research shows that contact with the natural world is important for general health and wellbeing, as well as making an area attractive and liveable.

Along with higher density living, increased numbers of households and smaller households, projected increases in numbers of the elderly and increasing ethnic diversity will result in people seeking opportunities for social interaction, and reserves have a role to play in providing these. Neighbourhood reserves in particular are likely to grow in importance. Taita and Moera are particularly culturally diverse. The largest percentage of Pacifica people live in Taita (25%), the largest percentage of Asians live in Hutt Central (17%). The largest percentage of Maori live in Naenae and Taita, and the largest percentage of European live in Woburn (69%).

Although all suburbs on the valley floor are projected on average to have lower numbers of children, neighbourhood reserves will continue to be important to meet the needs of this demographic. Naenae is projected to have higher numbers of children than other suburbs, followed by Taita (currently 28%), Woburn, Boulcott, and Waiwhetu.

In Petone, young to middle-aged adults are projected to make up 67% of the population with the smallest percentage of elderly of all valley floor suburbs. The adult demographic requires reserves that are multi-functional and flexible with a range of facilities and functions and opportunities to integrate recreation into their commuting journey to and from work or study and for both informal and formal sport. Petone is also earmarked for housing intensification, yet 31% of its local reserves are very small and unsuitable for active types of recreation.

In contrast, Woburn and Hutt central are projected to have the largest percentage of middle-aged and the elderly at 55%. The elderly in particular need accessible, quality reserves close to home. Yet local reserves in these areas are often accessed across busy roads with limited provision to meet the needs of this demographic.





#### AREAS WITH LOW SOCIO-ECONOMIC STATUS

Provision of reserves for people in areas with lower levels of socio-economic status is important as these areas generally have higher levels of poor health. Reserves aid social, physical and mental well-being.

Households are generally larger in these areas with a greater number of people per property and fewer square metres per person. Housing is often more dense with adjoining or multi-storied units. The quality of back and front yards is typically low because of changing tenancy and limited resources. Areas of higher deprivation generally have less access to private and public transport, therefore reserves within walking distance are important.

Generally areas with higher social and economic deprivation are on the eastern side of the valley floor and near the Hutt Valley railway line. Taita, Naenae and Moera have the greatest and most wide spread social and economic deprivation. Waiwhetu, Waterloo, Fairfield and Eponi have pockets of deprived areas. Petone, Hutt Central and Avalon have mixed levels of deprivation.

The link between deprivation and social housing is particularly evident in Taita and Naenae. These suburbs have not only the highest levels of deprivation but also the largest numbers of social housing and the largest population. A quarter of the population (26.3%) of the suburbs on the Hutt Valley floor live in these two suburbs alone. Reserves, and in particular neighbourhood reserves, are therefore important in these suburbs. Suburbs with the least deprivation are Woburn and Boulcott. Both of these suburbs have little social housing.

#### QUALITY OF RESERVES

Areas earmarked for higher density, areas with ethnic diversity, higher numbers of young families and the elderly, socially deprived areas with higher levels of social housing and areas with retirement villages especially need quality reserves. Opportunity for input into reserve design and types of facilities and activities in them is important in these areas, as are signs of stewardship and care.

#### ACTIVE TRANSPORT

Reserves on the valley floor play a role in providing safe and attractive off-road routes for cyclists and pedestrians for recreation and for commuters. They can be part of commuting routes to and from work and schools. Integrating active recreation as people move about their everyday lives particularly benefits adults and youth.

#### ENCLOSED RESERVES

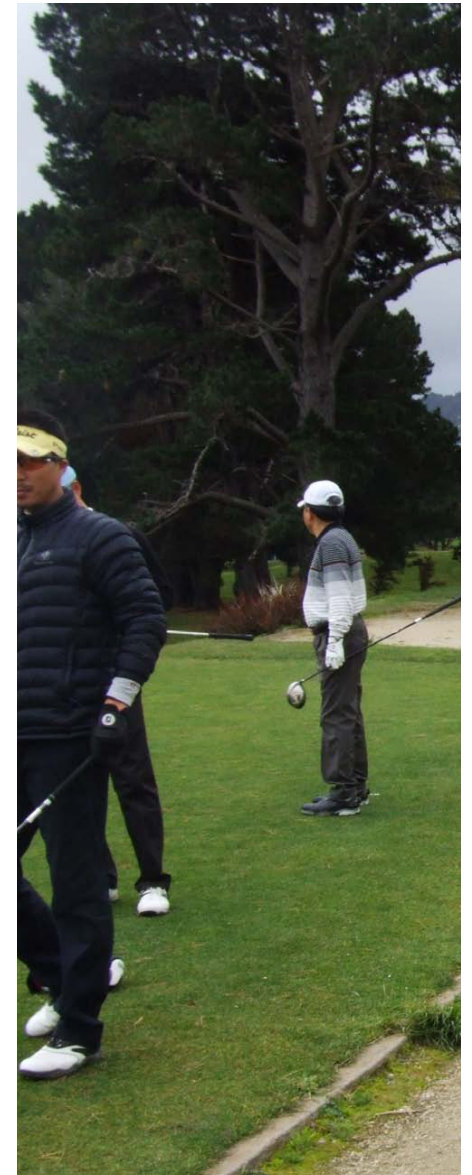
Naenae, Taita, areas along the west side of the main railway line, north Fairfield and Waiwhetu have reserves that have not reached their potential as public open space because they are located at the rear of housing clusters, have little or no street frontage and have poor visibility and access. They are a special type of reserve that requires particular treatment.

#### AREAS WITH A SHORTFALL IN RESERVES

In some parts of the valley floor a reserve cannot be reached within the measure of an 8.5 minute walk from a person's home to a flat valley floor reserve. This is the time it takes for an elderly person or child to walk 400 metres. Petone and central suburbs have residential areas where it takes more than a 8.5 minute walk to a reserve. Residents in parts of Waterloo and Fairfield, central Avalon, smaller areas within Naenae, Taita, Eponi and Woburn and in western parts of Alicetown also cannot reach a reserve within the 8.5 minute threshold. Reserve land in Seaview is limited to the coastal walk and cycleway at the harbour edge with little relief from the industrial form and few opportunities for worker recreation near their workplaces.

#### AREAS WITH ACCESS TO MORE THAN ONE RESERVE WITHIN THE 8.5 MINUTE WALKING THRESHOLD

In parts of Taita, Naenae and central Eponi, people live within 400 metres of more than one reserve. These are the areas with more social housing, higher levels of social deprivation and poorer health than in other parts of the valley floor. The value of public open spaces for recreation and health is well recognised, and reserve supply in these areas is justifiable. Moreover, it is important in these areas to have a variety of reserve facilities for different experiences. It is also important that reserves are high quality and well-maintained, and that people in the neighbourhood have opportunities for input into the design and development of reserves.



## SUMMARY OF CATEGORIES OF RESERVES AND SIGNIFICANCE OF COMMUNITY OF INTEREST

Valley floor reserve provision for sport is important as Hutt City hillside suburbs have limited access to large flat areas. The flat land of the valley floor also means that provision for sportsfields is important regionally given the hilly terrain of much of the region. It is therefore fitting that the largest areas of reserve land on the valley floor (48%) have as their primary purpose sports and recreation.

Recreation on these reserves is formal, such as organised sport, or informal when not used by sports groups. Some visitors travel to the larger sportsfields from around the region. Other sportsfields are used by more local Hutt Valley people.

The second largest areas of reserves are along Hutt River and provide ecological linkages and a walking and cycling corridor. These reserves make up 35% of reserve area and are of regional significance i.e. people are likely to travel some distance to get to the reserve. In the case of Hutt River, this is largely due to the Hutt River Trail. Ecological and recreational linkages along Waiwhetu and Awamutu Streams could become more significant with further development, linking the eastern suburbs.

Together with regional sportsfields and the Petone foreshore, reserves along the river corridor with regional significance make up 69% of the total area of valley floor reserve land.

Forty-seven percent of reserves on the valley floor are likely to be only visited by people in the immediate neighbourhood and are generally small in area. Twenty-five percent of these reserves are small and their size means they are less flexible and their use is constrained. Some of these reserves are too small for any development other than a seat or perhaps a specimen tree or other amenity planting. Some are on street corners or located between roads and their function is more to do with breaks along a pedestrian journey, yet these reserves have a role to play in the urban setting. Most of the 'enclosed' reserves located at the rear of housing clusters are neighbourhood reserves and have little or no street frontage and poor visibility and access.

Public gardens and civic spaces together make up 4% of reserve area. These spaces are important, are generally centrally located and close to key transport routes. They also bring visitors to Hutt City.

## RECOMMENDED MEASURES OF RESERVE AVAILABILITY

Measuring levels of reserve provision in urban areas is to do with accessibility, visibility, equity of provision (reserve provision regardless of where residents live and their circumstances), what the communities value and want from their reserves. It is also to do with the needs of the community. Of importance are quality and accessible reserves as well as a variety of reserves according to needs.

This review recommends measures of reserve availability according to reserve significance (the estimated time a person would be prepared to travel to a reserve). For neighbourhood reserves, important measures of availability are ease of access from local areas, safety and perceptions of safety and linkages. Safety is also an important measure for suburban reserves, along with access on foot but also by public transport.

Measures of the availability of city/district and regional reserves include access from main transport routes and public transport, parking facilities and city/district/regional pedestrian and cycle linkages, as well as conforming to CPTED principles (Crime Prevention through Environmental Design).





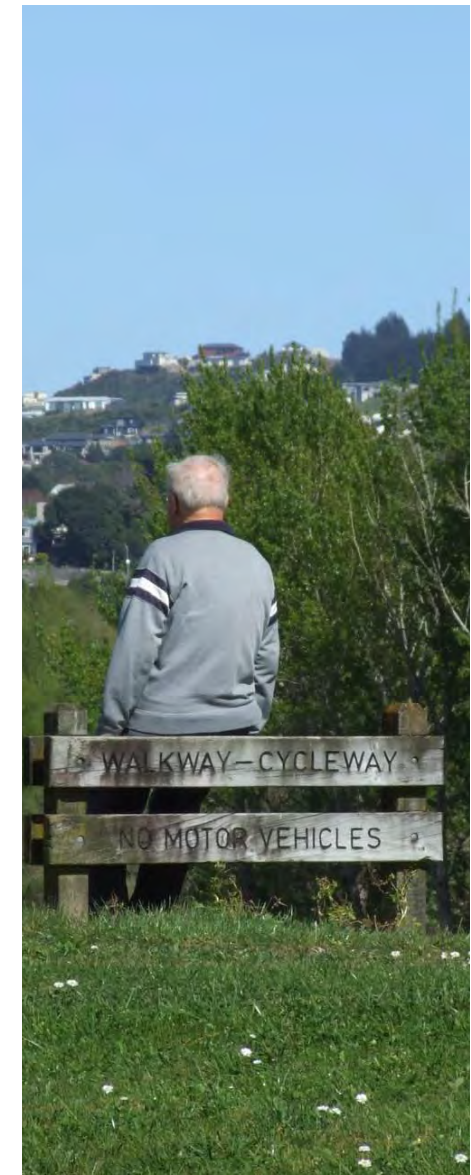
## 9.0 RECOMMENDATIONS

1. Increase provision of local reserve facilities for neighbourhoods by:
  - Improving access
  - Improving drainage on reserves where access in wet weather limits use
  - Developing sports and recreation reserves so that they are multi-use and cater for local informal neighbourhood use as well as wider city/district and regional recreation
  - Setting aside parts of sports grounds for neighbourhood use. This also increases the value of sportsgrounds for families who can enjoy facilities while family members participate in organised sporting activities.
2. Increase use of reserves with little or no street frontage, limited access, poor visibility from surrounding streets and houses and located at the rear of housing clusters by:
  - Improving visibility by a different approach to fencing
  - Managing vegetation
  - Widen reserve street boundaries and entrances
  - Develop policy, guidelines and District Plan measures to encourage housing to face onto reserves.
3. Work with communities to improve and develop reserves with local significance (suburban and neighbourhood reserves). In this way, the reserves will reflect the needs of the local community, local identity, increase reserve use and benefits to community along with environmental health and well-being.
4. Improve connections between reserves developing linked walkways and cycling routes throughout suburbs.
5. Waiwhetu Stream connects the eastern suburbs from Naenae to Hutt Park and Seaview. A pathway along Waiwhetu Stream connecting reserves along the stream has unrealised potential as a key cycle/pedestrian recreational and commuting route.
6. Awamutu Stream is another stream with opportunity to improve, protect and strengthen linear recreational and ecological linkages and increase ecological health and biodiversity, for example where it passes through York Park. This would build on and extend natural and cultural identity.
7. Seek to improve reserve availability in areas identified as having a shortfall in reserve provision:
  - In the first instance this may be by improving connections and access to reserves. An example is better access to Hutt River from residential areas of Boulcott
  - Developing reserves for access and recreation and increasing the size of some very small reserves would make them more flexible and usable. Examples are along Waiwhetu Stream and in Petone
  - In some areas the solution may be to purchase land for neighbourhood reserves of a size that can be developed for uses that meet the needs of the particular local population, such as in areas earmarked for intensification Petone.
8. A major implication of dependence on reserves along the Hutt River to meet the needs of valley floor reserve provision is that regional and city councils work closely together on reserve planning and development, integrating the primary purposes of reserves along the river with recreation.
9. Improve access to Hutt River for local as well as city/district and regional use. For example access to the river is difficult from Avalon and Taita because of the barrier of Harcourt Werry Drive with a 70 km/h speed and lack of crossing points, and from Boulcott due to the large area of private land between the suburb and the river.



# GLOSSARY

Asset	Something of value that the Council owns on behalf of the people of Hutt City, such as roads, drains, parks and buildings	Facilities	Buildings, structures, equipment or resources that enable recreational use and enjoyment of a reserve (Hutt City Council Reserves Strategic Directions 2003)
Asset Management	Strategy which helps with the physical and financial management of Council assets	Informal Recreation	Unorganised or casual recreational use of a space for sports, socializing, exercise or other activities
Active Reserve	An area where more energetic recreational activity takes place, where physical skills are required, often involving organised sporting activities (Hutt City Council Reserves Strategic Directions 2003)	Iwi	Tribe, people (Waitangi Tribunal Report [Wai27] 1991)
Amenity Values	Natural or physical qualities and characteristics of an area that contributes to peoples appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes (Resource Management Act)	Kaitiakitanga	The exercise of guardianship. In relation to a resource, kaitiakitanga includes the ethic of stewardship based on the nature of the resource itself
Biodiversity	The variety of all biological life - plants, animals, fungi and micro organisms (Hutt City Council Reserves Strategic Directions 2003)	Linear Open Space	A long tract of land generally following a natural feature such as a river or coastline and generally containing vegetation and used for recreational purposes such as walking and biking (Hutt City Council Reserves Strategic Directions 2003)
City District Reserve	Serves the whole city or district. Access by driving or public transport	Medium Density Housing	Residential housing development with higher section coverage to allow for smaller sites
Community/ Suburban Reserve	Serves local community or town. Accessed by walking, bike or car	Neighbourhood Reserve	Serves immediate local area. Generally can be accessed by walking
CPTED	Crime Prevention through Environmental Design	Mana Whenua	The exercise of traditional authority over an area of land (whenua). It is the area over which particular iwi and hapū claim historical and contemporary interests
Cultural Heritage	Includes archaeological, traditional, and historic sites, buildings, objects and areas, and/or historic or commemorative trees	Natural Features	Includes features on a reserve that is part of nature and may include individual plant or tree specimens and ecosystems that by their nature require special care and attention for their preservation
Cultural Resources	Includes cultural heritage sites, traditional sites, Wahi Tapu sites	Natural Resources	Includes plants and animals and their habitats, landscape and landforms, geological features, systems of interacting living organisms, and their environment (Conservation Act).
Ecological Corridor	A strip or patch of habitat between otherwise isolated 'islands' of habitat (such as reserves, forests, parks etc) that enable the species living in those islands to pass from one island to another (Hutt City Council Reserves Strategic Directions (2003)	Open Space	Any area of land or water with recreational, ecological, landscape, cultural and/or historic value which provides public access (Wellington Regional Open Space Strategy (WRS), 2009)
Ecosystem services	The term given to the benefits that human populations derive directly or indirectly from functioning ecosystems	Park Elements	Includes picnic tables, seating, rubbish bins, lights and tree protector guards, fences, bollards and wheel stops in car parks (Hutt City Council District Plan, Chapter 3)
Environment	Includes: a) Ecosystems and their constituent parts, including people and communities; and b) All natural and physical resources; and c) Amenity values; and d) The social, economic, aesthetic, and cultural		



Recreation Activity	Any activity whose primary aim is the passive or active enjoyment of leisure, whether competitive or non-competitive, casual or organised
Regional Reserve	Serves the entire region comprising several cities or districts. Access by driving or public transport
Reserve	Any open space, plantation, park, garden or ground set apart for public recreation or enjoyment which is under the management or control of the Council and includes all land administered by the Council under the Reserves Act (Hutt City Council Bylaw: Part 12 - Parks and Reserves)
Reserve Network	All land within the Hutt City Council boundaries that has been set aside for a range of recreational sporting and leisure activities or for cultural, heritage, environmental, landscape or other special purpose (Hutt City Council Reserves Strategic Directions 2003)
Tangata Whenua	In relation to a particular area, tangata whenua means the iwi, or hapū, that holds mana whenua over that area

## REFERENCES

CABE SPACE, 2010. Urban Green nation: building the evidence base. Commission for Architecture and the Built Environment, London. Available from [www.cabe.org.uk/files/urban-green-nation.pdf](http://www.cabe.org.uk/files/urban-green-nation.pdf).

Canterbury District Health Board, Health Promotion and Sustainability through Environmental Design: A Guide for Planning.

Christchurch City Council, 2010. Public Open Space Strategy 2010-2040.

Hutt City Council, District Plan.

Hutt City Council, 2012. An Integrated Vision for Hutt City

Hutt City Council, 2010. Hutt Valley Youth Study.

Hutt City Council, 2012. Go Outside and Play.

Hutt City Council, 2003. Reserves Strategic Directions.

Hutt City Council, 2010. Urban Forest Plan.

Hutt City Council. Draft Urban Growth Strategy.

Hutt City Council. Physical Activity Strategy.

Hutt City Council, Hutt Valley Youth Survey.

Hutt City Council, North East Magic initiative.

NZ Recreation Association, June 2011. Parks Categories and Levels of Service.

Nielson Quality of Life Survey, February 2013.

Stevenson, Anna et al, 2009. Neighbourhoods and health: A review of the New Zealand literature. *New Zealand Geographer* 65,211-221.

Plischke E.A., 1947. Design for Living, Wellington Dept of Internal Affairs.

Regional Public Health, 2010. Healthy Open Spaces: A summary of the impact of open spaces on health and wellbeing. Regional Public Health Information Paper March 2010, Lower Hutt.

South Australian Active Living Coalition, 2010. Creating Active Communities. Prepared by Associate Professor Jon Kellett and Dr Matthew W. Rofe Institute for Sustainable Systems and Technologies, University of South Australia.

Witten, Karen et al, 2008. Neighbourhood access to open spaces and the physical activity of residents: A national study. *Preventative Medicine* 47, 299-303



# APPENDIX 1

## Criteria for assessment of reserve availability for neighbourhood reserves

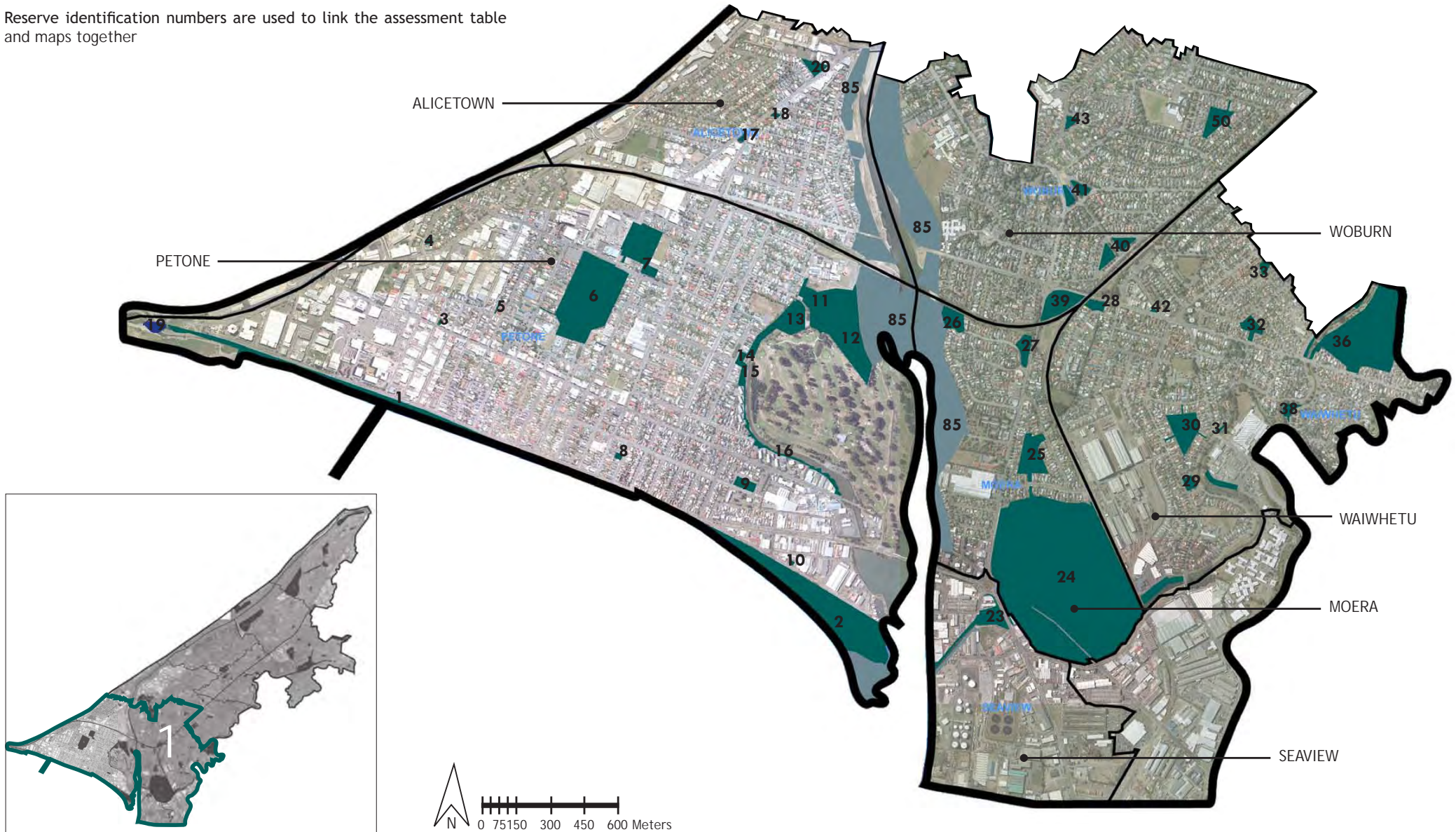
MEASURE OF RESERVE AVAILABILITY	ASSESSMENT OF RESERVE AGAINST MEASURES	CHANGES IN ORDER TO REACH THE STANDARD
Can be reached on foot from most residences in the immediate area in 8.5 minutes (approximately 400 metres along streets, not as a straight line).		
Have a minimum of two entrances and preferably three. <ul style="list-style-type: none"> <li>• Entrances to be inviting and attractive e.g. width ideally a minimum of 5 metres, no visual obstructions along its length with views from the entrance into the reserve and exit route</li> <li>• Paved paths</li> <li>• Planting (specimen trees allowing views under tree crown or low planting along path edge)</li> <li>• Signage.</li> </ul>		
Have a street frontage of a minimum of 30% of their perimeter.		
Have a minimum of 50% visually permeable perimeter fencing (this can be combination fencing with solid fencing blocking views into private areas of housing on a reserve boundary).		
Conform to CPTED principles: <ol style="list-style-type: none"> <li>1. Surveillance</li> <li>2. Access management</li> <li>3. Territorial reinforcement</li> <li>4. Quality environments</li> </ol>		
Linkages to street pedestrian and cyclist routes and other reserves.		



# APPENDIX 2

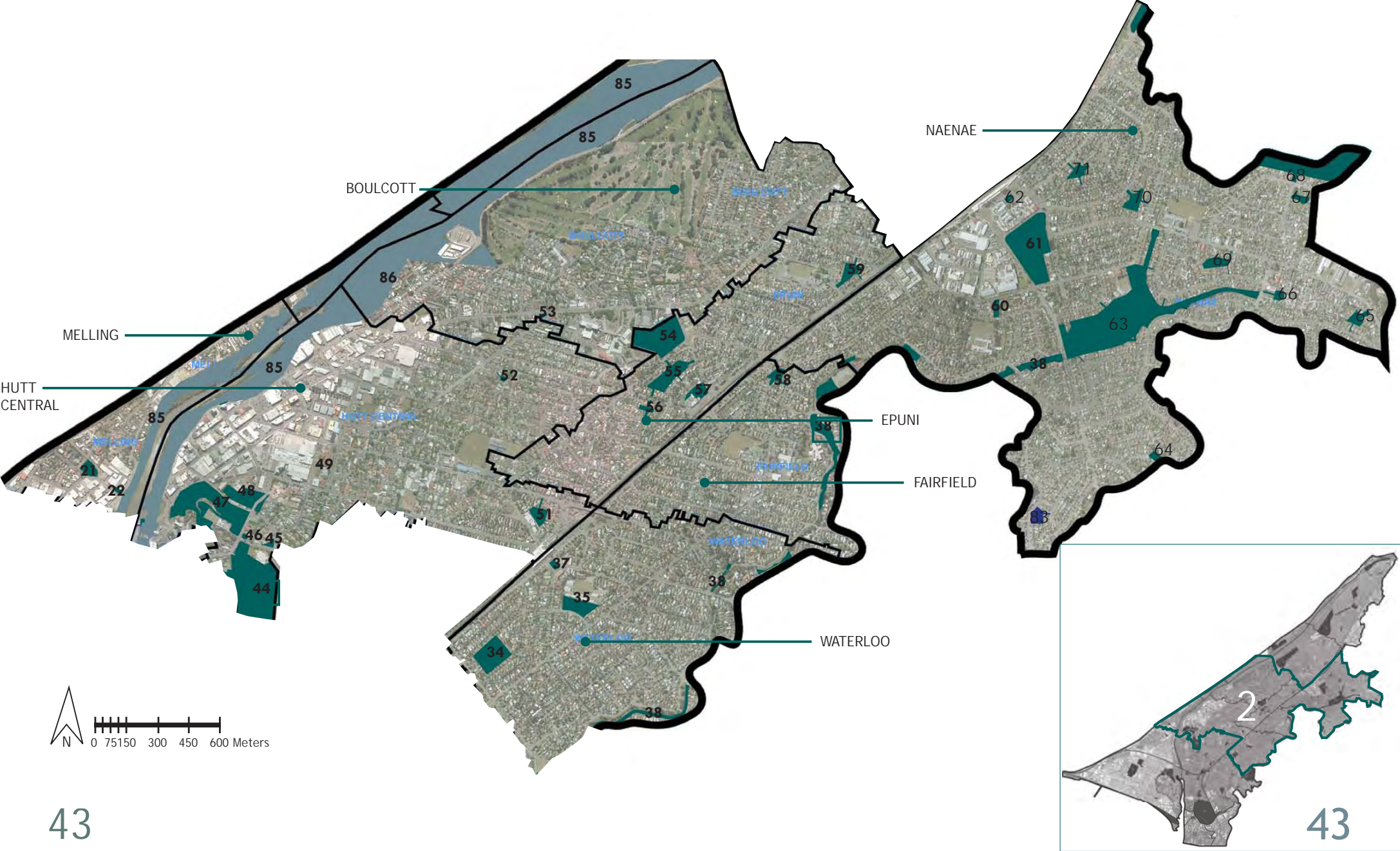
## Location of Reserves - Map 1

Reserve identification numbers are used to link the assessment table and maps together



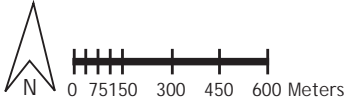
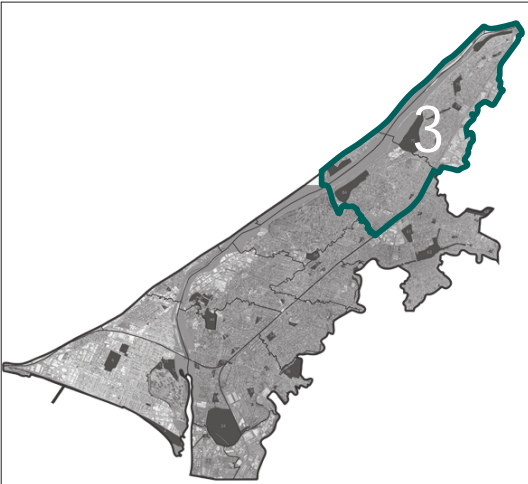


# Location of Reserves - Map 2





# Location of Reserves - Map 3



## APPENDIX 3

### Table of Reserves

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Reserve ID	Reserve Name	Area (Ha)	Map	Suburb	Reserves Act Classification	Primary Purpose - NZRA Park Category											Significance & Community of interest			Contribution to Wider Network of Reserves - Reserves Strategic Directions			Enclosed Reserves	Summary Key values				
						Sport & Recreation	Neighbourhood	Public Gardens	Nature	Cultural Heritage	Outdoor Adventure	Civic Space	Recreation or Ecological Linkages	Other	Local	Community	Suburban	City District	Region	Meets Key Direction 3	Meets Key Direction 4	Meets Key Direction 5						
					n/a = not classified as a reserve under the Reserves Act																							
18	Alicetown Community Centre	0.0492	1	Alicetown	N/a		P											√										Alicetown Community Centre on street corner, single large mature tree on site.
19	1 The Esplanade	2.045	1	Petone	N/a																							Reclaimed land at the far western end of the Petone foreshore. Mouth of the Korokoro Stream.
20	Victoria Street Park	0.3657	1	Alicetown	Recreation Reserve		P											√				√					Triangular shaped area including children's playground, carpark, amenity planting, picnic tables. Street frontage.	
21	The Greenaway	0.438	2	Melling	Recreation Reserve		P	S										√				√					Open grassed area for recreation. Amenity planting, formal pathways and seating. Three street frontages.	
22	Bridge Street Cemetery	0.0595	2	Melling	Local Purpose Reserve (Cemetery)													√									Cemetery on street corner, surrounded by a low fence, dense vegetation.	
23	Port Road	0.1808	1	Seaview	N/a													√				√					Part of the site is an Urupa (burial ground), a significant cultural resource. Waiwhitu Stream runs through the site with riparian planting. Provides off street parking from the main road	
24	Hutt Park and Parkside Road	35.0821	1	Moera	Recreation Reserve	P			S													√	√	√			Large open multi-purpose sportsfield area with sportsville, commercial gym, car parking, regenerating vegetation along riparian stream edge, Hutt Valley Golf Course and holiday park. Awamutu and Waiwhetu streams.	
25	York Park	1.5987	1	Moera	Recreation Reserve		P											√					√		√		Enclosed grass kick-a-ball area surrounded by residential housing and accessed from three streets. Awamutu Stream flows through the centre of the site towards Hutt Park.	

Reserve ID	Reserve Name	Area (Ha)	Map	Suburb	Reserves Act Classification	Primary Purpose - NZRA Park Category											Significance & Community of interest			Contribution to Wider Network of Reserves - Reserves Strategic Directions			Enclosed Reserves	Summary Key values			
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26	Riley Kindergarten	0.7069	1	Moera	Recreation Reserve	P											√							√			Assumed to now be called Moera Kindergarten. Site has a number of buildings, kick-a-ball space, car parking and links to the river promenade beyond. Small street frontage.
27	Moera Reserve Community Centre	0.4576	1	Moera	Local Purpose Reserve (Community Building)	S	P										√						√				Community Centre, library, playground, car parking, mature Pohutukawa, amenity planting and kick-a-ball space located on street corner.
28	Awamutu Grove Reserve	0.3134	1	Waiwhetu	Recreation Reserve		P										√						√			Grassed kick-a-ball type space with amenity planting. Awamutu Stream runs along the east boundary. Street frontage.	
29	Bell Square	0.2218	1	Waiwhetu	Recreation Reserve		P										√						√			Kick-a-ball type space with amenity planting around edges. Square with street frontages on all four sides in residential area.	
30	Bell Park	1.5477	1	Waiwhetu	Recreation Reserve	P											√					√		√		Sportsfields with entrances from three streets. Includes stands, clubroom facilities and amenity planting. Street frontage.	
31	Hinemoa Street/Wainui Road connection	0.0969	1	Waiwhetu	N/a		P										√					√	√			Grassed area linking two streets by a concrete footpath which follows the Waiwhetu Stream.	
32	Godley Street Reserve	0.5028	1	Waiwhetu	Recreation Reserve		P										√					√				Neighbourhood park with playground, seating, amenity planting and kick-a-ball space. Links two streets. Street frontage.	
33	Atiawa Crescent Reserve	0.1795	1	Waiwhetu	Recreation Reserve		P										√									Small kick-a-ball area with street frontage.	
34	Trafalgar Park	1.7034	2	Waterloo	Recreation Reserve	P											√					√				Large kick-a-ball area with two street frontages on opposite sides. Provides for informal and formal organised sports.	
35	Waterloo Reserve	0.9129	2	Waterloo	Local Purpose Reserve (Community Use)		P										√									Kick-a-ball space adjoining Waterloo School, Kindergarten and Playcentre. Street frontage.	







Reserve ID	Reserve Name	Area (Ha)	Map	Suburb	Reserves Act Classification	Primary Purpose - NZRA Park Category											Significance & Community of interest			Contribution to Wider Network of Reserves - Reserves Strategic Directions			Enclosed Reserves	Summary Key values				
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					n/a = not classified as a reserve under the Reserves Act																							
49	Memorial Place	0.0235	2	Hutt Central	N/a		P										√											Short tree-lined pedestrian link between two streets.
50	Lower Hutt Tennis Club	0.881	1	Woburn	Recreation Reserve	P												√				√				√	Lower Hutt Tennis Club predominantly covered with tennis courts and a car park area. Accessible from two streets.	
51	Phil Evans Reserve	0.4631	2	Hutt Central	Local Purpose Reserve		P										√						√		√	Enclosed area amongst a residential and commercial area providing kick-a-ball space with amenity vegetation. Also home to the Hutt Theatre School.		
52	Orr Crescent Reserve	0.0585	2	Hutt Central	Proper Development and use as a Reserve		P										√										Small playground area with walkway access between two streets.	
53	Kings Crescent Reserve	0.0361	2	Boulcott	N/a		P										√										Small grassed area with amenity planting where two streets converge.	
54	Mitchell Park	2.9508	2	Epuni	Recreation Reserve	P		P										√				√	√	√		A formally laid out park for informal passive recreation with rose gardens, specimen trees and pathways. Also home to the Naenae Bowling Club and Tennis Club. Corner site with two street frontages.		
55	Copeland Street Reserve	1.2256	2	Epuni	Recreation Reserve		P										√							√	√	Enclosed area divided into three parts including IHC facilities, redundant bowling club and scouts hall. Access is from the each of the four surrounding residential streets.		
56	Hall Crescent Reserve	0.1864	2	Epuni	Recreation Reserve		P										√						√	√	√	Kick-a-ball area situated in the middle of a residential block providing access between streets.		
57	Epuni Community Centre	0.4295	2	Epuni	Local Purpose Reserve (Community Centre)		P											√								Epuni Community Centre and predominantly mown grass, with a few specimen trees. Located on the street corner with two street		

Reserve ID	Reserve Name	Area (Ha)	Map	Suburb	Reserves Act Classification	Primary Purpose - NZRA Park Category										Significance & Community of interest			Contribution to Wider Network of Reserves - Reserves Strategic Directions			Enclosed Reserves	Summary Key values				
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58	Purser Grove Reserve	0.3445	2	Fairfield	Recreation Reserve		P										√						√			√	Neighbourhood playground and scout hall surrounded by kick-a-ball grassed area. Located at end of cul-de-sac, provides access between two streets. Street frontage.
59	Roberts Street Reserve	0.5334	2	Epuni	Recreation Reserve		P										√						√			√	Enclosed kick-a-ball type space with mature trees. Access from three streets with one small street frontage.
60	Wheatley Street Reserve	0.1541	2	Naenae	Recreation Reserve		P										√						√			Grassed reserve linking two streets.	
61	Walter Mildenhall Park and Naenae Olympic Indoor Pool	4.3988	2	Naenae	Walter Mildenhall Park (Recreation Reserve) Naenae Olympic Indoor Pool (Local Purpose Reserve Community Centre)	P													√			√	√	√		Grassed reserve with mature specimen trees and Hutt Valley Badminton Association, Maota Samoa building, Park Avenue Bowling Club, amenity planting, abandoned tennis courts and some seating. Adjoins RSA. Some areas of park are concealed from road and have limited access, however park does have three primary street frontages. Pool provides for swimming and other water recreational activities.	
62	Naenae Library and Service Centre	0.0905	2	Naenae	Local Purpose Reserve (Community Buildings)												√						√			Public library supported by children's playground, mall, car parking and amenity	
63	Naenae Park	11.1889	2	Naenae	Recreation Reserve	P													√			√	√	√		Large park hosts different sporting codes and clubrooms and has entrances off multiple streets (although does not have large street frontages). Concrete culverted stream runs	
64	Buller Grove Reserve	0.1607	2	Naenae	Recreation Reserve		P										√							√		Open grassed space at the end of a cul-de-sac links streets.	
65	Rata Street	0.4202	2	Naenae	N/a		P										√						√	√		Enclosed kick-a-ball type space between two streets (one with a small street frontage) with amenity planting.	
66	Glenbrook Grove Reserve	0.1733	2	Naenae	Local Purpose Reserve (Neighbourhood)		P										√						√			Open grass area with rehabilitated stream providing kick-a-ball space and links between two streets. Street frontage.	

Reserve ID	Reserve Name	Area (Ha)	Map	Suburb	Reserves Act Classification	Primary Purpose - NZRA Park Category										Significance & Community of interest			Contribution to Wider Network of Reserves - Reserves Strategic Directions			Enclosed Reserves	Summary Key values			
						Sport & Recreation	Neighbourhood	Public Gardens	Nature	Cultural Heritage	Outdoor Adventure	Civic Space	Recreation or Ecological Linkages	Other	Local	Community Suburban	City District	Region	Meets Key Direction 3	Meets Key Direction 4	Meets Key Direction 5					
					n/a = not classified as a reserve under the Reserves Act																					
67	Rimu Street Reserve	0.2347	2	Naenae	Recreation Reserve	P											√							√	√	Kick-a-ball type area with street frontage link to eastern hills. Sparse vegetation.
68	Taita Cemetery	2.613	2	Naenae	Recreation Reserve				P										√					√	√	Includes Taita Cemetery, Native and exotic vegetation and access to the eastern hills.
69	Butler Street Reserve	0.5181	2	Naenae	Recreation Reserve	P											√							√	√	Enclosed kick-a-ball type space with no vegetation. Links three streets. Street
70	Hewer Crescent Reserve	0.6	2	Naenae	Recreation Reserve	P											√							√	√	Large kick-a-ball space partly enclosed in a residential block providing access between two streets. Partial street frontage.
71	Barton Grove Reserve	0.4318	2	Naenae	Recreation Reserve	P											√							√	√	Large kick-a-ball space enclosed within residential block, two points of access.
72	Colson Street Reserve	0.4324	3	Avalon	Recreation Reserve	P											√							√	√	Enclosed kick-a-ball type space with large specimen trees, access between streets.
73	De Menech Grove Reserve	0.0588	3	Avalon	Recreation Reserve	P											√							√		Kick-a-ball type space with amenity planting on street corner.
74	Wingate Overbridge	0.1826	3	Naenae	Local Purpose Reserve (Road)									P		√										Separated from adjacent areas by roading. Grassed, specimen trees, amenity planting.
75	Fraser Park	28.6712	3	Taita	Recreation Reserve, Soil Conservation and River Control and Recreation	P							S							√	√			√		Wellington Regions largest sportsfield catering for multiple sporting codes, supported by a number of facilities, artificial turf, amenity planting and off-street parking.
76	Hughes Crescent Reserve	0.4614	3	Taita	Recreation Reserve	P											√							√	√	Large grassed accessway between streets, kick-a-ball type space.





Reserve ID	Reserve Name	Area (Ha)	Map	Suburb	Reserves Act Classification	Primary Purpose - NZRA Park Category											Significance & Community of interest			Contribution to Wider Network of Reserves - Reserves Strategic Directions			Enclosed Reserves	Summary Key values				
						Sport & Recreation	Neighbourhood	Public Gardens	Nature	Cultural Heritage	Outdoor Adventure	Civic Space	Recreation or Ecological Linkages	Other	Local	Community Suburban	City District	Region	Meets Key Direction 3	Meets Key Direction 4	Meets Key Direction 5							
					n/a = not classified as a reserve under the Reserves Act																							
85	Hutt River Corridor and Floodplain: Hutt River Area, Belmont Domain and Memorial Hall, Riverside Oval, Belmont River Area, Ewen Park, Ewen-Melling River Area, River Bank Car Park Area, Daly Street, Western Ewen - Melling River Area, Govind Bhula Park, Govind Bhula River Bank Area, Ewen Bridge Riverside, Strand Park, Ava Park, Ava Park - Ewen River Area, Sladden Park, Seaview Rd	141.8886	1,2,3	Belmont, Avalon, Boulcott, Hutt Central, Melling, Woburn, Alicetown, Petone, Seaview	Recreation Reserves: Belmont Domain, Local Purpose Reserves - Community Use: Belmont Memorial Hall. Soil Conservation and River Control and Recreation: Hutt River Area, Riverside Oval, Belmont River Area, Ewen Park, Ewen-Melling River Area, Govind Bhula Park, Govind Bhula River Bank Area, Ewen Bridge Riverside, Strand Park, Ava Park, Ava Park - Ewen River Area. Unclassified reserves: Daly Street, Sladden Park, Seaview Rd	P			S																			Part of the Hutt River floodplain with grassed open space, Hutt River trail and amenity vegetation.
86	Waimarie Croquet Club	0.5303	2	Boulcott	Boulcott	P																					Two croquet lawns and clubrooms for members only.	

### **Attachment 3**

GNS Science Consultancy Report 2016/74 (May 2016), *Review of Hazard Information for Hutt City*. Hutt City Council DOC/16/75159.



## **Review of hazard information for Hutt City**

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**GNS Science Consultancy Report 2016/74  
May 2016**



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#### **Use of Data:**

Date that GNS Science can use associated data: October 2016

### **BIBLIOGRAPHIC REFERENCE**

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## CONTENTS

<b>EXECUTIVE SUMMARY.....</b>	<b>V</b>
<b>1.0 INTRODUCTION .....</b>	<b>1</b>
1.1 STRUCTURE OF REPORT.....	1
<b>2.0 SUMMARY OF HAZARD INFORMATION FOR HUTT CITY.....</b>	<b>3</b>
2.1 SURFACE FAULT RUPTURE HAZARD .....	3
2.1.1 Wellington Fault.....	4
2.1.2 Whitemans Valley Fault.....	4
2.1.3 Baring Head Fault .....	4
2.1.4 Akatarawa Fault Zone .....	4
2.1.5 Wairarapa Fault.....	5
2.1.6 Triggered Fault Slip .....	5
2.2 GROUND SHAKING HAZARD – SITE SUBSOIL CLASS .....	6
2.2.1 Methodology – New Zealand Structural Design Standard NZS 1170.5:2004.....	6
2.2.2 Ground Shaking Amplification Hazard .....	7
2.3 SUBSIDENCE DUE TO FUTURE WELLINGTON FAULT DISPLACEMENT .....	9
2.4 LIQUEFACTION .....	11
2.5 LANDSLIDES.....	15
2.6 TSUNAMI.....	18
2.7 FLOODING.....	21
2.7.1 Hutt River.....	21
2.7.2 Hutt River Floodplain Management Plan .....	23
2.7.3 Waiwhetu Stream .....	23
2.7.4 Korokoro and Stokes Valley Streams and Catchments .....	24
2.8 SEA-LEVEL RISE .....	25
2.8.1 Sea-Level Rise Assessments.....	25
2.8.2 Hutt Sea-Level Rise Scenarios .....	26
2.8.3 Groundwater and Surface Flooding .....	29
2.8.4 Location of Assets at Risk.....	29
<b>3.0 CUMULATIVE VS CASCADING HAZARDS .....</b>	<b>31</b>
3.1 CUMULATIVE HAZARDS .....	31
<b>4.0 PLANNING CONTEXT FOR HUTT CITY .....</b>	<b>33</b>
4.1.1 Proposed RMA Reforms .....	34
4.2 THE WELLINGTON REGIONAL POLICY STATEMENT (WRPS).....	34
4.3 HUTT CITY PLAN .....	36
4.3.1 Plan Change 29.....	37
<b>5.0 LAND USE PLANNING OPTIONS FOR MANAGING NATURAL HAZARDS IN HUTT CITY .....</b>	<b>39</b>
5.1 AVOIDANCE.....	39
5.2 LIMIT DEVELOPMENT .....	39



5.3	MANAGED RETREAT .....	39
5.4	EXISTING DEVELOPMENT .....	40
5.5	RISK-BASED PLANNING.....	41
5.6	EMERGENCY MANAGEMENT .....	41
5.7	MONITOR AND REVIEW .....	41
5.8	HAZARD-SPECIFIC PLANNING OPTIONS.....	42
5.8.1	Fault Rupture.....	42
5.8.2	Ground Shaking.....	42
5.8.3	Subsidence.....	42
5.8.4	Liquefaction .....	43
5.8.5	Landslides .....	43
5.8.6	Tsunami.....	43
5.8.7	Flooding.....	45
5.8.8	Sea-Level Rise .....	45
5.8.9	Climate Change.....	46
<b>6.0</b>	<b>DECISION-MAKING CONSIDERATIONS .....</b>	<b>49</b>
<b>7.0</b>	<b>SUMMARY AND RECOMMENDATIONS.....</b>	<b>51</b>
7.1	RECOMMENDATIONS FOR FURTHER INVESTIGATIONS.....	51
7.1.1	Technical .....	51
7.1.2	Planning.....	52
<b>8.0</b>	<b>BIBLIOGRAPHY .....</b>	<b>55</b>

## FIGURES

<b>Figure 1</b>	Active faults of central New Zealand, with the Wellington-Hutt Valley segment of the Wellington Fault highlighted in bold red.....	3
<b>Figure 2</b>	Site subsoil class in Lower Hutt.....	7
<b>Figure 3</b>	Modelled subsidence in the Lower Hutt Valley for an “average” surface rupture Wellington Fault earthquake event.....	10
<b>Figure 4</b>	Map of the Hutt Valley showing the areas if potentially damaging liquefaction, where liquefaction is expected to damage infrastructure if shaking is strong enough.....	13
<b>Figure 5</b>	Distribution of slope angles across the Lower Hutt Valley.....	16
<b>Figure 6</b>	Estimated peak tsunami flow depth distribution (maximum height of water above ground level onshore, maximum height of water above sea level offshore) for one specific scenario of a magnitude 9.0 earthquake on the Hikurangi plate interface.....	19
<b>Figure 7</b>	Hutt River flood extent map with no stopbank breaches for a 2300 cumec flood extent .....	22
<b>Figure 8</b>	Hutt River flood extent map with stopbank breaches for a 2300 cumec flood extent .....	22
<b>Figure 9</b>	Total storm inundation map for Petone and Seaview with 0.5m sea-level rise.....	27
<b>Figure 10</b>	Total storm inundation map for Petone and Seaview with 1.0m sea-level rise.....	28
<b>Figure 11</b>	Total storm inundation map for Petone and Seaview with 1.5m sea-level rise.....	29
<b>Figure 12</b>	Example of cumulative hazards.....	31
<b>Figure 13</b>	Example of a cascading hazard .....	32
<b>Figure 14</b>	Legislative roles and responsibilities for natural hazard management in New Zealand.....	33
<b>Figure 15</b>	Wellington Fault Special Study Area, indicated by the dashed red lines .....	36

## TABLES

<b>Table 1</b>	Site subsoil classes .....	6
<b>Table 2</b>	Annual return periods for different levels of MM shaking intensity at Queensgate Shopping Centre in Lower Hutt. ....	8
<b>Table 3</b>	Decision-making issues to be considered for planning options .....	49

## APPENDICES

<b>A1.0</b>	<b>APPENDIX 1: FAULT RUPTURE HAZARD.....</b>	<b>77</b>
<b>A2.0</b>	<b>APPENDIX 2: NEIGHBOURHOOD SPECIFIC HAZARDS AND MITIGATION OPTIONS.....</b>	<b>81</b>

## APPENDIX FIGURES

<b>Figure A1.1</b>	Subduction interface of the Australian and the Pacific Plates under the North Island, New Zealand. ....	77
<b>Figure A1.2</b>	Wellington Fault surface fault rupture hazard zone, based on Hutt City’s Wellington Special Fault Study Zone. ....	78
<b>Figure A1.3</b>	Approximate location and extent of the Whitemans Valley Fault from GNS Science’s Active Faults Database.....	79
<b>Figure A1.4</b>	Approximate location and extent of the Baring Head Fault from GNS Science’s Active Faults Database .....	80

## APPENDIX TABLES

<b>Table A1.1</b>	Defining fault complexity types .....	79
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## EXECUTIVE SUMMARY

This report reviews the current information available on natural hazards in Lower Hutt, including fault rupture, ground shaking, subsidence, liquefaction, landslide, tsunami, flooding and sea-level rise. This report provides a summary of the current state of knowledge for each of these hazards describing their characteristics and relevance to Lower Hutt. In doing so, the report has noted that some suburbs in Lower Hutt are more susceptible than others, and some are subject to multiple hazards that could include the effects of cumulative or cascading hazards. A summary of the natural hazards various neighbourhoods are susceptible to is provided, with the mitigation options available.

Associated GIS coverage's of the natural hazard extents have been supplied separately from this report.

A number of planning responses are available to the council which include:

- Avoidance;
- Limited development;
- Managed retreat;
- Risk-based planning;
- Emergency management; and
- Monitoring and review and policies to ensure they are reducing risks.

These responses have been explored and from this a number of technical and planning recommendations have been made.



## 1.0 INTRODUCTION

The Hutt City Council has adopted and is now implementing an urban growth strategy to promote and increase the Hutt City's population over the next 20 years. To achieve this, areas of increased population density will be enabled in the district plan. The Council have elected to follow a risk-based planning approach, and aim to collate all available hazard information for the city before further steps are taken. This report collates and reviews existing hazard information and outlines further steps outlining a complete a risk-based planning approach.

The following district hazards have been included in this report:

- Fault rupture hazards;
- Ground shaking hazards – Site Subsoil Class;
- Subsidence;
- Liquefaction;
- Landslide;
- Tsunami;
- Flood Hazards; and
- Sea-level rise.

There are four key technical objectives for this project:

1. To collect and summarise existing natural hazard information for Hutt City;
2. To assess the planning implications of the natural hazard information;
3. To recommend future priorities for natural hazard information; and
4. To provide GIS layers of mapped hazard extents.

### 1.1 STRUCTURE OF REPORT

The first section of this report provides brief summaries of the existing hazard information for each hazard. The key references for each hazard have been included within the chapter.

The second section outlines the land use planning implications and options for managing each of the hazards, including suggestions for the district plan policy approach (covering the approach for developing objectives, policies, rules and other methods).

The third section summaries the information presented, and makes recommendations for further hazard data collection, as well as options for assessing the severity of each hazard, and assigning it a risk profile.

A full bibliography is provided of the documents that have relevance to the natural hazards in the Hutt Valley. The GIS layers are provided on a CD attached to this report.



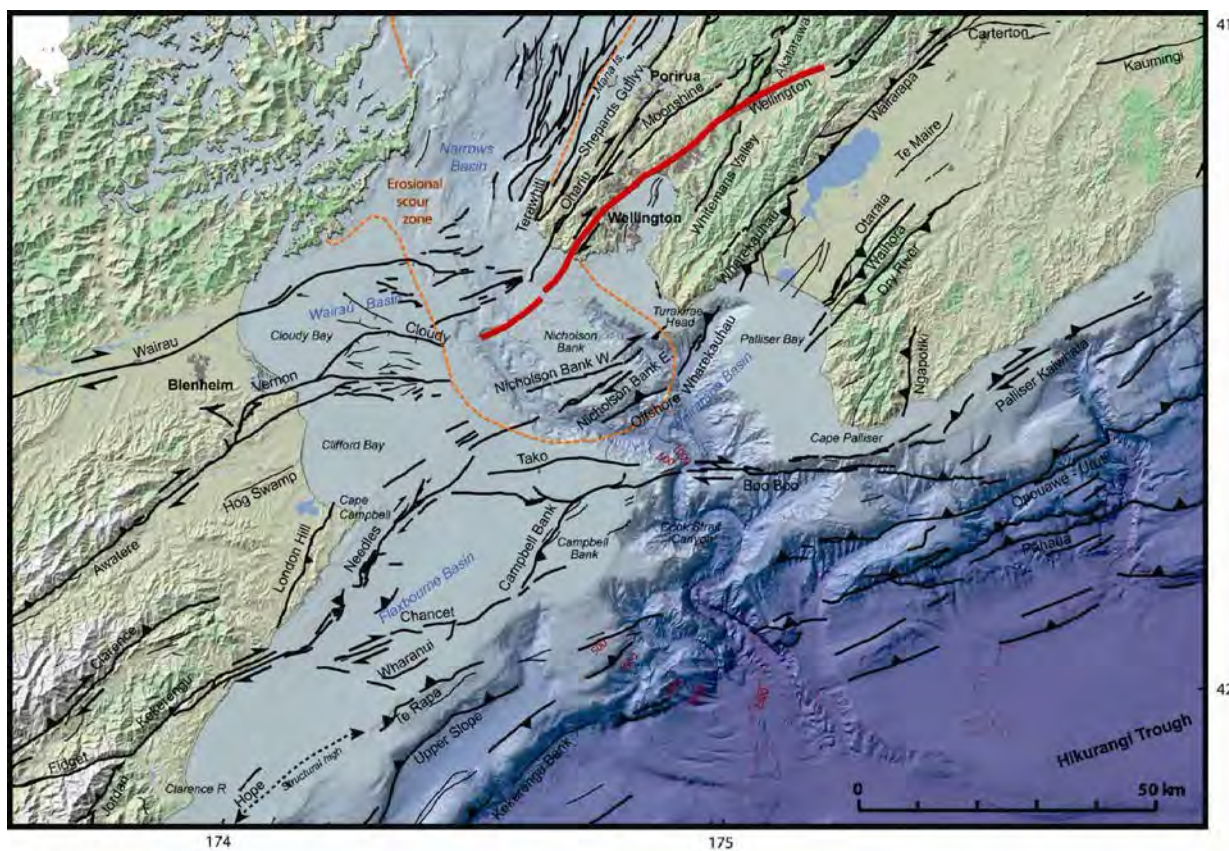
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## 2.0 SUMMARY OF HAZARD INFORMATION FOR HUTT CITY

This section of the report provides brief summaries for each of the natural hazards, and links to additional information, with the key references. Understanding how this information can be used, and not misused, is essential. Guidance on how to use the information provided is outlined in the sections below.

### 2.1 SURFACE FAULT RUPTURE HAZARD

The Wellington Region is cut by a number of active faults (Figure 1), and is underlain by the subduction interface between the Pacific and Australian plates. These active faults are the source of the largest earthquakes to have affected the region in the past and, most likely, to affect the region in the future. Rupture of any of these faults will cause very strong to severe ground shaking in the Wellington Region, including Hutt City. Rupture of three of these known active faults – the Wellington Fault in particular, and also the Whitemans Valley and the Baring Head Faults – pose a surface fault rupture hazard to portions of Hutt City. Characterisation of the surface fault rupture hazard in Hutt City is the focus of the remainder of this section. Figure 1 highlights the main faults in the region, with the Wellington Fault being highlighted in red. The red line represents the Wellington Fault, this fault extends northward through the Tararua Ranges. An earthquake along the northern section of the Wellington Fault is likely to be felt strongly in Lower Hutt.



**Figure 1** Active faults of central New Zealand, with the Wellington-Hutt Valley segment of the Wellington Fault highlighted in bold red (Pondard & Barnes 2010).

### 2.1.1 Wellington Fault

The Wellington Fault is one of the major right-lateral strike-slip faults of New Zealand. As a geological structure, it runs the full length of the country from Cook Strait to the Bay of Plenty. The southern ~80 km long stretch of the Wellington Fault is called the Wellington-Hutt Valley segment of the Wellington Fault, and extends north-eastwards from Cook Strait, through Wellington City, Lower Hutt, and Upper Hutt to Kaitoke (Begg & Mazengarb 1996; Begg & Johnson 2000; Pondard & Barnes 2010). Rupture of the Wellington-Hutt Valley segment is considered to be capable of generating large earthquakes of approximately  $M_w^1$  7.5, and metre-scale surface rupture displacements along the length of the segment's trace (Robinson et al., 2011, Stirling et al., 2012). These surface rupture displacements will comprise both horizontal offset (~5 m right-lateral), and a subordinate and variable amount of vertical displacement up to ~1.9 m (Begg et al., 2008; Little et al., 2010). The likelihood of rupture of the Wellington-Hutt Valley segment has been recently assessed as being ~10-15% within the next 100 years (Rhoades et al., 2011).

Surface fault rupture of the Wellington-Hutt Valley segment of the Wellington Fault will severely damage buildings, roads, pipelines and other engineered structures that cross the fault (or lie within its surface rupture deformation zone). In the Hutt City District Plan, the Wellington Fault Special Study Area has been established in the district plan to facilitate mitigation of surface fault rupture hazard along the Wellington Fault.

### 2.1.2 Whitemans Valley Fault

Prior to the 1990s, the existence of the Whitemans Valley Fault was not known. Fault activity investigations on the Whitemans Valley Fault in Whitemans Valley (Begg & Van Dissen 1998), suggest that the fault is a low activity reverse fault with a long recurrence interval of ~15,000 years or more (i.e. over 15 times longer than that of the Wellington Fault). However, it is capable of generating metre-scale surface rupture displacements (~3 m reverse dip-slip). Regional-scale geological mapping suggests that the Whitemans Valley Fault may extend as far south as Wainuiomata. Given the long recurrence interval and the subdued trace of the Whitemans Valley Fault, there is considerable uncertainty regarding the fault's location and extent in Hutt City.

### 2.1.3 Baring Head Fault

The Baring Head Fault cuts across Baring Head (Ota et al., 1981). It has a north-northwest strike, and vertically displaces an old marine terrace with an estimated age of approximately 125,000 years. Apart from that, little else is known about this fault. It is assumed to be a low activity, low recurrence interval fault.

### 2.1.4 Akatarawa Fault Zone

The Akatarawa Fault Zone consists of a number of faults that splay off of the Wellington fault. For the majority of its 18 km length, the Akatarawa Fault extends through bedrock hills, which making its exact location difficult to ascertain through this section. The Akatarawa Fault extends for around 2 km south of Cloustonville obliquely across the

---

<sup>1</sup> The moment magnitude ( $M_w$ ) scale is based on the concept of a seismic moment, where the measure of the size of an earthquake is based on the area of fault rupture, the average amount slip and the force that is required to overcome the friction that holds the rocks together that has been offset by faulting.

Akatarawa valley. The Akatarawa Fault is known to be active, and it appears to link the Wellington Fault with two other smaller faults in the region, making it an important fault in the Wellington region (Van Dissen, Begg & Robinson, 2001).

### 2.1.5 Wairarapa Fault

The Wairarapa Fault is an oblique-slip fault that bounds the eastern side of the Rimutaka Range, forming a topographic step between the ranges and the alluvial plain of the Wairarapa Valley to its east. Dipping steeply toward the northwest, this dextral reverse fault complex at the surface, consisting of a zone of fault traces and/or deformational bulges up to 250 metres wide (Little & Begg, 2005). In 1855 a magnitude ~8.1 earthquake was associated with the rupture of the Wairarapa Fault. Historic accounts indicate that this 1855 earthquake caused intense ground-shaking and widespread landsliding, especially in the Rimutaka Range. The 1855 earthquake is the largest historical seismic event for New Zealand and caused significant uplift around Wellington City, which was most visible around the harbour (including Petone). This fault has a recurrence interval of 1150-1200 years. The likelihood of rupture of the Wairarapa Fault has recently been assessed as being ~2-4% within the next 100 years (Van Dissen et al., 2013).

### 2.1.6 Triggered Fault Slip

Large surface rupture earthquakes have been known to trigger secondary surface ruptures on near-by faults. It has been postulated that small surface rupture displacements observed in paleo-earthquake investigation trenches across the Akatarawa and Ohariu faults (Litchfield et al., 2010) could have been the result of triggered slips (secondary movements), resulting from large pre-historic earthquakes on near-by faults. Grapes and Holdgate (2014) speculate that the large 1848 earthquake in the Awatere valley and the 1855 Wairarapa earthquake triggered displacement of faults in the Wellington region. The synthetic seismicity modelling of the Wellington region by Robinson et al. (2011) suggests that the Whitemans Valley Fault has an orientation and slip-sense that could possibly make it susceptible to triggered rupture in association with rupture of the Wellington-Hutt Valley segment of the Wellington Fault.

A possible “worst case” scenario for surface fault rupture in Hutt City would be a surface rupture earthquake on the Wellington-Hutt Valley segment of the Wellington Fault that also triggers slip on the Whitemans Valley Fault. This scenario potentially subjects both the Hutt Valley and Wainuiomata to surface fault rupture in a single earthquake. At present, it is not possible to determine the likelihood of such a scenario, or even its viability.

### Key References

- Grapes, R. H., & Holdgate, G. R. (2014). Earthquake clustering and possible fault interactions across Cook Strait, New Zealand during the 1848 and 1855 earthquakes. *New Zealand Journal of Geology and Geophysics*, 57(3), 312-330.
- Litchfield, N., Van Dissen, R., Hemphill-Haley, M., Townsend, D., & Heron, D. (2010). Post c. 300 year rupture of the Ohariu Fault in Ohariu Valley, New Zealand. *New Zealand Journal of Geology and Geophysics*, 53(1), 43-56. doi: 10.1080/00288301003631780.
- Little, T. A., Van Dissen, R., Rieser, U., Smith, E. G. C., & Langridge, R. (2010). Co-seismic strike-slip at a point during the last four earthquakes on the Wellington fault near Wellington, New Zealand. *Journal of Geophysical Research*, 115 (5). B05403. doi: 10.1029/2009JB006589.

## 2.2 GROUND SHAKING HAZARD – SITE SUBSOIL CLASS

The Lower Hutt Valley is a wedge-shaped, sedimentary basin that is widest (and deepest) along the Petone foreshore, and narrowest (and shallowest) to the northeast at Taita Gorge (Boon et al., 2010). It is bounded along its northwest edge by the Wellington Fault. At Petone, the maximum sediment thickness is ~350 m, while to the northeast the greywacke basement progressively shallows, exposing the greywacke in the valley floor at Taita Gorge. On the northwest margin of the Port Nicholson/Lower Hutt basin there is a step in the bedrock caused by displacements on the Wellington Fault. Wainuiomata is comprised of two main sediment-filled valleys, with maximum sediment thickness reaching ~60 m (Dellow et al., 1992). The impact of the variations in the ground characteristics will depend on the location, magnitude and mechanism of the earthquake. During a strong earthquake, shaking strength and duration will vary depending on the characteristics of the properties, distribution and depth of the underlying soils (Begg & Mazengarb, 1996). A variety of soil types and depths are present in the Lower Hutt Valley and Wainuiomata. Small local or large distant earthquake events will have less of an impact on the local active faults than will large close earthquakes. Characterisation of the variation in ground shaking behaviour due to the variation in soil properties (including distribution and depth) is the focus of this section.

### 2.2.1 Methodology – New Zealand Structural Design Standard NZS 1170.5:2004

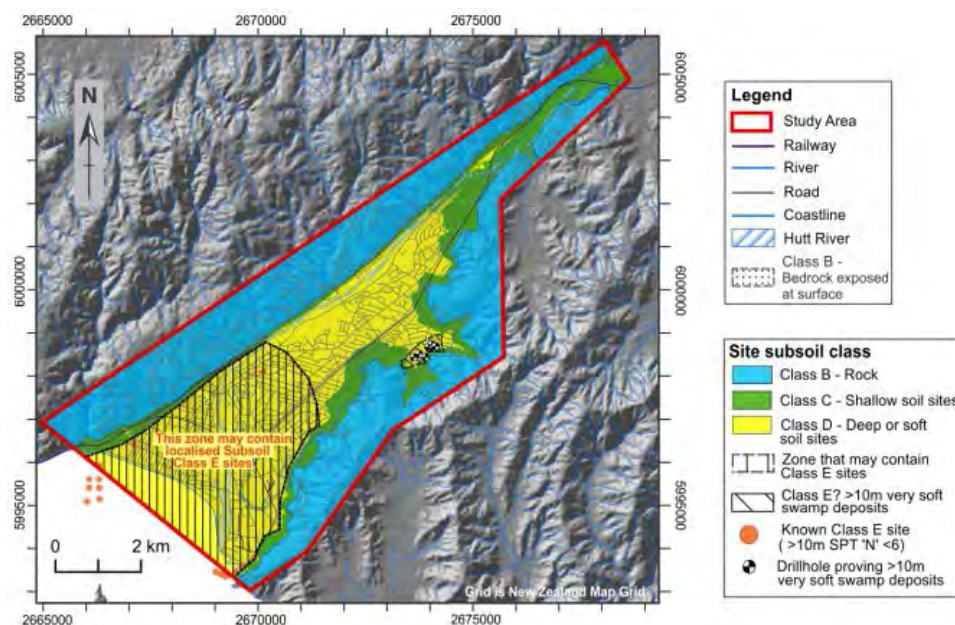
The impact of local geologic (site) conditions on the intensity of ground shaking and earthquake damage is well documented. In New Zealand, site conditions (and their influence on earthquake ground shaking) are taken into consideration largely through the application of the New Zealand loadings standard – NZS 1170.5:2004. The loading standard prescribes structural design actions on the basis of site subsoil class to accommodate likely variations in earthquake loadings due to shaking modification resulting from the properties, distribution and depth of the underlying soils. The NZS 1170.5 defines subsoil classes and specifies the methods for determining the classes (see table 1 for the subsoil classes). It is anticipated that the level of shaking felt in a given earthquake will be greater in areas with subsoil classes **D** and **E**, when compared to ground shaking in areas with subsoil classes **A** and **B**.

**Table 1** Site subsoil classes (adapted from NZS 1170.5, 2014).

Class	Description	Definition
A	Strong Rock	UCS>50MPa & Vs30> 1500m/s & not underlain by 18MPa or Vs 600 m/s materials
B	Rock	1< UCS <50 MPa & Vs30> m/s & not underlain by < 0.8 MPa or Vs 300 m/s materials, a surface layer no more than 3m depth (HW-CW rock/soil)
C	Shallow Soil	Not class A, B or E, low amplitude natural period <0.6s, or depths of soils exceeding 25m in cohesive soil or 45m in cohesionless soil
D	Deep or Soft Soil	Not class A, B, or E, low amplitude natural period > 0.6s, or depths of soils exceeding 20m in cohesive soil or 40m in cohesionless soil
E	Very Soft Soil	>10m soils with undrained shear strength < 12.5KPa, or >10m soils with SPT N <6, or > 10m soils with Vs < 150m/s, >10m combined depth of previous properties.
UCS = Unconfined Compressive Strength Vs30 = The average shear wave velocity in the upper 30 m of material Vs = Shear wave velocity SPT – Standard Penetration Test		



As part of the 'It's Our Fault' project, which aims to better define earthquake hazards and risks in the Wellington Region, site subsoil class maps have been prepared for the Lower Hutt Valley (Boon et al., 2010). The hilly areas surrounding Lower Hutt and Wainuiomata are classified as subsoil class **B**. The fringes of the valley floors, where sediment cover is thin, are classified as subsoil class **C**. The main parts of the valley floors in Lower Hutt and Wainuiomata, where sediment thickness is greatest, are classified as subsoil class **D** or **E**. Figure 2 shows the distributions of the subsoil classes across the Hutt Valley.



**Figure 2** Site subsoil class in Lower Hutt (Boon et al., 2010).

The implications of these subsoil classes in the Hutt Valley are discussed in the following section.

### 2.2.2 Ground Shaking Amplification Hazard

The implications of ground shaking amplification behaviour in Hutt Valley can be evaluated using site subsoil classes. For this purpose, subsoil class **C** is treated as the reference material. The behaviour of subsoil class **B** materials is expected to be marginally better than subsoil class **C** areas (but this does not account for potential amplification of ground shaking owing to topographic effects in the hilly subsoil class **B** areas). With regards to the loading standards and prescribed levels of shaking, the spectra for subsoil class **B** and subsoil class **C** in NZS 1170.5 are only slightly different. In contrast, the levels of ground motion in subsoil class **D** and **E** areas are expected to be considerably greater than subsoil class **C** areas, motions in subsoil class **E** areas are expected to exceed those in subsoil class **D** areas.

When it comes to life-safety considerations, the differing levels of ground shaking hazard implied by the different subsoil classes are accounted for in the loading standard. The Standard requires that buildings sited in higher hazard areas (e.g., subsoil classes **D** and **E**) are built “stronger” than buildings built in lower hazard subsoil class areas (e.g., subsoil classes **B** and **C**).

The map depicted in Figure 2 is intended to be used as a general guide to site subsoil class and should not be used to make site-specific assessments for geotechnical design. The map provides an illustration of likely baseline conditions that can be refined with the results of more detailed ground investigations.



There is an indirect link between the strength of ground shaking and liquefaction, because different rock and soil properties are used to identify the respective hazards. Ground shaking amplification uses soil and rock strength, the shear wave velocity of the soil or rock, and thicknesses of layers no less than ten metres. These properties are used to define the shaking response at a site over a range of shaking strengths (i.e. peak ground accelerations ranging from 0.01 g to 1.0 g).

The expected frequency of different levels of shaking also varies with the strength of shaking, with stronger shaking expected less frequently. As set out in Table 2 this can be expressed either as a return period (generally not recommended as this is often prone to misinterpretation) or as an annual exceedence probability. Alternatively, this can also be expressed as per recent seismic studies by Van Dissen et al. (2009) and Rhoades et al. (2010) who state that there is currently a ~10-15% chance of a >M7 earthquake being generated by a rupture on the Wellington Fault in the next 100 years.

**Table 2** Annual return periods for different levels of MM shaking intensity at Queensgate Shopping Centre in Lower Hutt.

Location	NZMG <sup>2</sup> Easting	NZMG Northing	MM6	MM7	MM8	MM9	MM10
Lower Hutt Central	2669820	5997970	7.7	29.8	120	400	1500

#### Assumptions:

1. MMI attenuation modelling.
2. No adjustments for subsoil class. Assumed subsoil class is Ground Class C – Shallow soil as per New Zealand Standard 1170.5:2004.

Liquefaction occurs at depths of less than twenty metres where the depth to the water table is shallow (e.g. less than five metres), the soil is young in geological terms (it must be less than 10,000 years old), the soil is non-cohesive (i.e. it does not stick together like clay) and the soil is soft (e.g. a cone penetrometer probe can be pushed through the soil to measure its properties). These soils generally form in low energy environments (e.g. settle out of suspension). Thus the places most likely to accumulate sediments prone to liquefaction are lagoons and estuaries near the coastline where sand and silt suspended in flood waters can settle out of suspension. Other locations are overbank silt deposits (again silt settling out of suspension from floodwaters), and point bar and channel deposits in meandering river systems. Liquefiable soils can potentially be found in subsoil class **C**, **D** and **E** areas (see Section 4 above). Generally, peak ground acceleration (PGA) of 0.1 (or MM7) is required before liquefaction occurs. Experience in Christchurch also suggests that liquefaction damage does not increase in severity once a PGA of 0.3 g (MM8 to MM9) is reached (Leeves et al., 2015).

#### Key References

- Begg, J.G., & Mazengarb, C. (1996). Geology of the Wellington area. Institute of Geological and Nuclear Sciences. Geological Map 22. Scale 1:50000
- Boon, D. P., Perrin, N. D., Dellow, G. D., & Lukovic, B. (2010). It's Our Fault – Geological and Geotechnical Characterisation and Site Subsoil Class revision of the Lower Hutt Valley. GNS Science Consultancy Report 2010/163. 71p.
- Standards New Zealand 2004. NZS 1170.5:2004 Structural Design Actions – Earthquake Actions. Section 3 – Site Hazard Spectra, Standards New Zealand. Pp. 81.

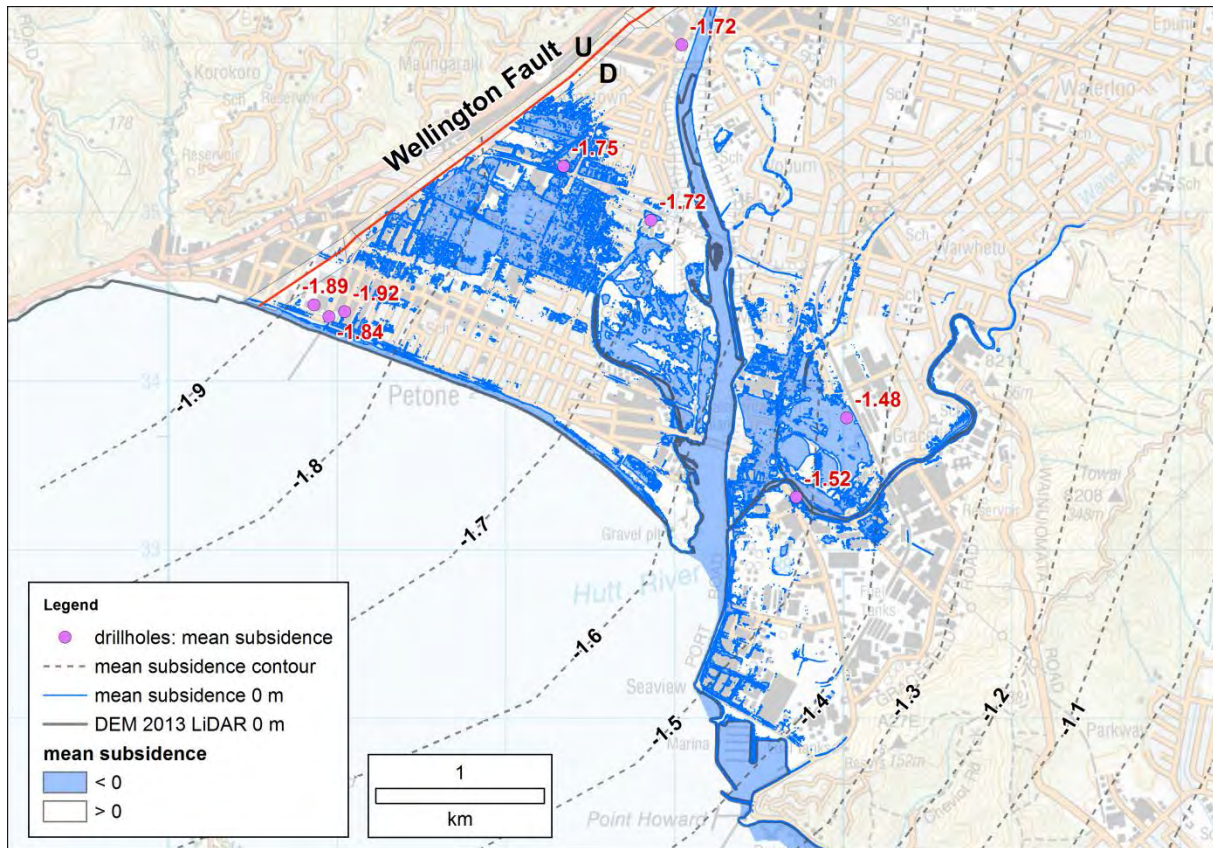
<sup>2</sup> NZMG is New Zealand Map Grid

## 2.3 SUBSIDENCE DUE TO FUTURE WELLINGTON FAULT DISPLACEMENT

The Lower Hutt Valley is part of a sedimentary basin that includes geologically young relatively soft sediment fill, deposited at the mouth of the valley. The active Wellington Fault borders the basin to the northwest. The area was uplifted by about 1.5 m historically, during New Zealand's largest historical earthquake in 1855. The earthquake was associated with rupture of the Wairarapa Fault, and the area was uplifted by about 1.5m. However, the long-term vertical deformation (responsible for basin formation) is subsidence. Therefore, there must be another driver of vertical deformation in this part of the Wellington Peninsula – the Wellington Fault is the most likely candidate. This section is concerned with the co-seismic subsidence in the Lower Hutt Valley associated with the rupture of the Wellington Fault

Townsend et al. (2015) used a database of subsurface drill hole information to calculate subsidence rates (over the last few hundred thousand years) for the Lower Hutt Valley. The calculations incorporated corrections for past variations in sea level, and also a correction for post-depositional sediment consolidation. The methodology for how the subsidence rates in the Lower Hutt Valley have been calculated can be found in the Townsend et al. (2015) report.

The subsidence calculated for an 'average' sized Wellington Fault event is ~1.9 m in the western part of the valley near Petone, ranging to ~1.7 m near Ewen Bridge and ~1.4 m near Seaview. These subsidence values have been contoured, converted into a GIS grid and subtracted from a LiDAR-derived digital elevation model. The resulting modelled elevation reveals that large areas of Alicetown-Petone, Moera-Seaview would subside below sea level, and could be inundated. Potential errors on each value were carried through the calculations using maximum and minimum credible values for each factor, providing minimum and maximum credible subsidence values of future events. In a 'best case' scenario describing the minimum credible per event subsidence, the Petone area would experience ~1 m of subsidence, with smaller amounts up the valley and to the east. In a "worst case" scenario, the Petone area would experience a ~2.8 m drop, with ~2.5 m up the valley and 2.2 m in the east, with large parts of the Lower Hutt Valley subsiding below current sea level. Figure 3 shows the magnitude of subsidence (in metres; red values) expected at the location of each drill hole used in the analysis for an "average" event on the Wellington Fault. The blue area outline parts of the landscape modelled to subside below current sea level for such an event. These modelled areas do not incorporate any local subsidence relating to the effects of liquefaction and/or lateral spreading.



**Figure 3** Modelled subsidence in the Lower Hutt Valley for an “average” surface rupture Wellington Fault earthquake event (Townsend et al., 2015).

### Key Reference

Townsend, D. B., Begg, J. G., Van Dissen, R. J., Rhoades D. A., Saunders, W. S.A., & Little, T. A. (2015). Estimating co-seismic subsidence in the Hutt Valley resulting from rupture of the Wellington Fault. GNS Science consultancy report 2014/49.

## 2.4 LIQUEFACTION

Liquefaction is a process that leads to soil suddenly losing much of its strength, most commonly as a result of strong ground shaking during a large earthquake. Not all soils, however, can liquefy in an earthquake. Saunders and Berryman (2012) list the following criteria as being required for liquefaction:

- Soils composed of loose sand and/or silt with very little or no clay. Such soils do not stick together the way clayey soils do.
- Saturated soils (i.e. located below the water table) so all of the space between the grains of sand and silt are filled with water. Dry soils above the water table do not liquefy.
- An earthquake with peak ground accelerations of 0.1g or greater at the site in question.

In general sediments that are relatively young (less than ~10,000 years old) and deposited in a low energy environment (e.g. settle out of suspension as opposed to bed load) are vulnerable to liquefaction. Thus, the places most likely to accumulate sediments prone to liquefaction are lagoons and estuaries near the coastline where sand and silt suspended in flood waters can settle out of suspension. Other locations are overbank silt deposits (again silt settling out of suspension from floodwaters), and point bar and channel deposits in meandering river systems.

Strong earthquake shaking has unequivocally caused liquefaction in the Lower Hutt Valley on one occasion since 1840. This was as a result of the 1855 Wairarapa earthquake. In the Hutt Valley in 1855 reports of liquefaction were limited to the Lower Hutt area (Grapes & Downes, 1997). The bridge across the Hutt River was destroyed when the abutments on either side of the bridge slid toward an area of lower relief (the river channel) due to liquefaction at depth. Sand boils from 0.6 to 1.2 m high were numerous in the lower part of the valley. Analysis of the contemporary reports in 1855 is limited to the southern end of the Hutt Valley. The fissuring was predominately along the banks of the rivers and creeks according to one account (Grapes & Downes, 1997), which is where it occurred in Christchurch following the 2011 earthquake. Also the effect of cutting drains through the soft sediment is difficult to evaluate as these post-date the 1855 earthquake. A study by Begg et al. (1993) has shown that Wainuiomata is underlain by very soft, weak sediment. Low shear wave velocities suggest elevated liquefaction susceptibility, but fine-grained sediments indicate the possibility of cohesion thereby reducing the liquefaction susceptibility (Stephenson & Barker, 1991).

Publication of a series of map sheets with accompanying booklets in 1993 by the Wellington Regional Council summarised work to locate liquefaction susceptibility in the Hutt Valley (Kingsbury and Hastie, 1993). Recent work by Dellow et al. (2014) has used up-to-date geological information and produced a very similar map to the 1993 work. Figure 4 shows areas susceptible to liquefaction and the spatial variation in liquefaction susceptibility across the Lower Hutt Valley. Although the areas likely to be susceptible to liquefaction have been identified using existing data this is insufficient to properly characterise the liquefaction hazard in Hutt City. Work in Christchurch (Brackley et al., 2012), and more recently Hawke's Bay (Rosser et al., 2014), has shown that a combination of cone penetrometer tests (hundreds), an unconfined groundwater model and detailed geomorphology based on LiDAR topographic data is required to assist in quantifying the extent and potential severity of liquefaction for a range of seismic hazard levels. This recommended method of work will provide robust and quantified evidence to support appropriate risk management strategies.

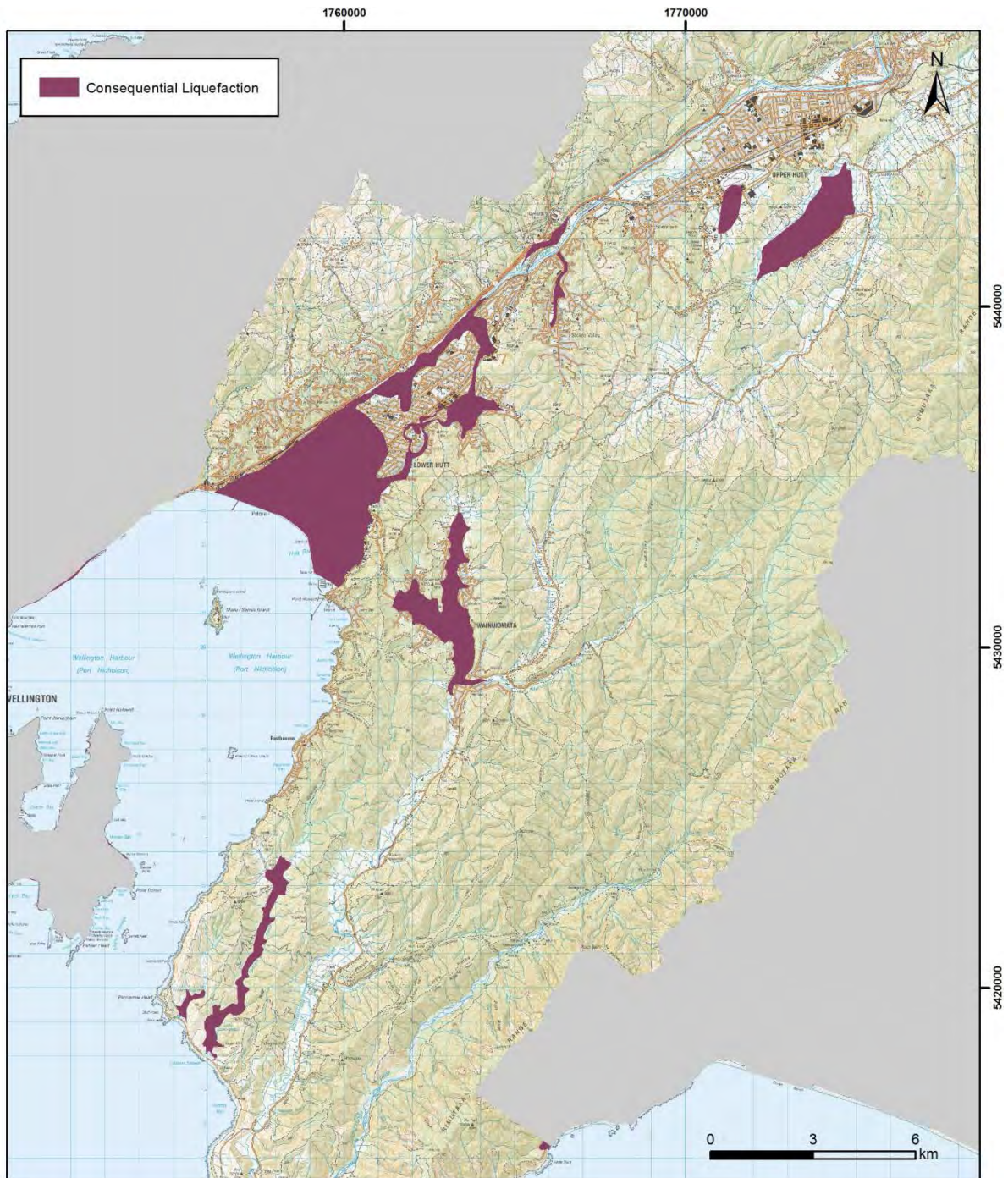
Work to identify areas susceptible to liquefaction in the Lower Hutt Valley include a series of map sheets with accompanying booklets which were published in 1993 by the Wellington Regional Council showing liquefaction hazard in the Hutt Valley (Kingsbury and Hastie, 1993). Recent work by Dellow et al. (2014) has used up-to-date geological information and produced a very similar map to the 1993 work. Figure 4 shows areas susceptible to liquefaction, and the spatial variation in liquefaction susceptibility across the Lower Hutt Valley. Although the areas likely to be susceptible to liquefaction have been identified using existing data, this is insufficient to properly characterise the liquefaction hazard in Lower Hutt Valley. Work in Christchurch, and more recently Hawke's Bay (Rosser & Dellow, 2014), has shown that a combination of cone penetrometer tests (hundreds), a shallow groundwater model, and detailed geomorphology based on LiDAR topographic data is required to quantify the extent and severity of liquefaction for a range of seismic hazard levels. This recommended method of work will provide robust and quantified evidence to support appropriate risk management strategies.

The liquefaction hazard in the Lower Hutt Valley and Wainuiomata (the probability of liquefaction occurring at a given level of shaking) is poorly constrained as it is based principally on historical observations and small scale geological mapping. As such the liquefaction hazard map presented for the Hutt Valley (Figure 4) is essentially a qualitative assessment. Although it is known that liquefaction has occurred, the extent of the area that will be affected by liquefaction and the severity is poorly constrained.

In the Lower Hutt area, an MM8 event is considered the minimum level of ground shaking required before liquefaction is observed. This is based primarily on the 1942 Masterton earthquake which caused extensive chimney damage in Wellington. This indicates at least an MM7 event in Wellington. As Lower Hutt is closer to its epicentre and is mostly on soils more likely to amplify ground shaking than Wellington, it can be concluded that the ground shaking in Lower Hutt was at least MM7 (Downes et al., 2001). No observations of liquefaction were reported in Lower Hutt at the shaking time.

Further quantification of liquefaction hazard in Lower Hutt and Wainuiomata will provide more reliable assessment of liquefaction risk (the probability of damage occurring to buildings and other infrastructure). A scale of assessment of liquefaction susceptibility should be completed to identify appropriate areas where additional information is not required at the resource consent stage. This also allows for building importance categories to be incorporated into the analysis. For example, it may be able to be shown that areas with a moderate liquefaction hazard do not require additional information for domestic housing but it is required for commercial and industrial properties.





**Figure 4** Map of the Hutt Valley showing the areas if potentially damaging liquefaction, where liquefaction is expected to damage infrastructure if shaking is strong enough (MM8 or greater).



## Key References

- Brackley et al. (2012). Review of liquefaction hazard information in eastern Canterbury, including Christchurch City and parts of Selwyn, Waimakariri and Hurunui Districts. Environment Canterbury Report No. R12/83 ISBN: 978-1-927222-37-9.
- Dellow, G. D., Perrin, N. D., & Ries, W. (2014). Liquefaction hazard in the Wellington Region, GNS Science Report 2014/16.
- Grapes, R., & Downes, G. (1997). The 1855 Wairarapa, New Zealand, Earthquake – Analysis of Historical Data. Bulletin of the New Zealand National Society for Earthquake Engineering, 30(4), 271-369.
- Rosser, B. J., & Dellow, S. (2014). Assessment of liquefaction risk in the Hawke's Bay, *GNS Science Consultancy Report 2015/186*.

## 2.5 LANDSLIDES

Using the principles of physics, a slope can be seen as experiencing two sets of stresses, one set holding the slope together (shear strength) and the other (shear stress) acting to move material down-slope under gravity (Crozier et al., 2008). Shear strength is produced by friction on potential failure surfaces (generated by the weight of overlying material), slope angle (the lower the stronger), and cohesion (resulting from cement or attractive forces between particles). Shear stress is produced by the weight of material involved, and slope angle. When a landslide occurs, the balance of shear strength to shear stress (referred to as the factor-of-safety) is altered, either by a decrease of shear strength or an increase of shear stress. When shear strength becomes less than shear stress, the hill-slope fails.

Hill-slopes are stable most of the time. Some inherent conditions (preconditions) of a slope (i.e. steepness, rock type and structure), can make a slope susceptible to failure (predisposing factors). These conditions can exist for hundreds or thousands of years without an actual landslide occurring. However, slopes can be gradually weakened by a range of processes (preparatory factors,) such as deforestation, weathering, erosion and undercutting by river flow or waves. Human activity can affect the slopes stability through the formation of unsupported cuts, slope loading (surcharge) by filling and uncontrolled water discharges onto the slope face. The construction of earth dams, irrigation, building construction, services (i.e. stormwater, wastewater etc.), or pilings for houses can act as preparatory factors in the development of landslides.

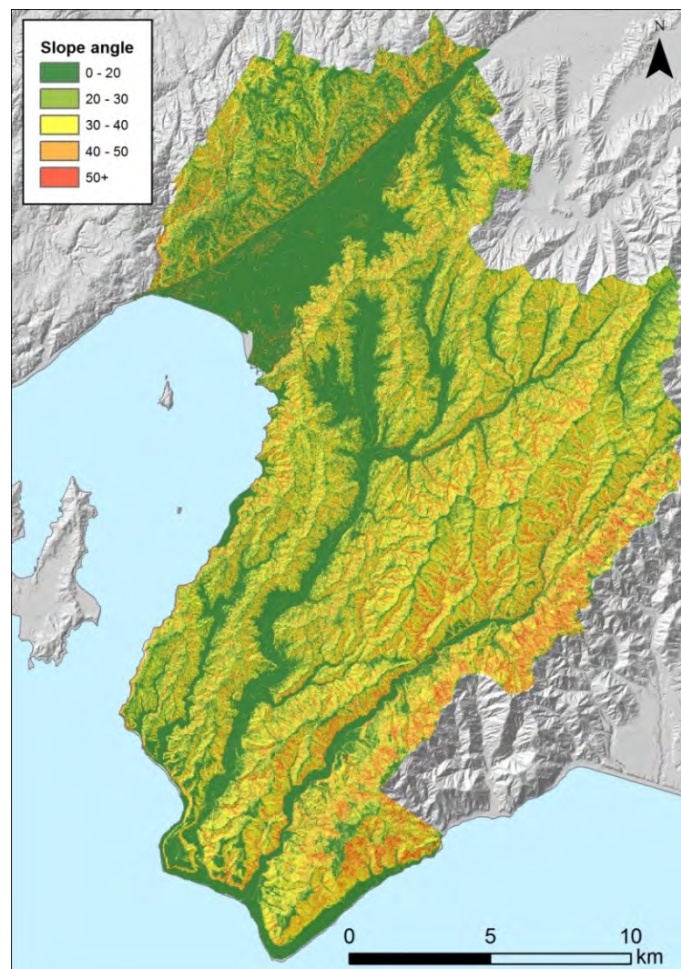
Whilst these preparatory factors may lead to failure, in most instances, a final trigger can be recognised as setting-off the landslide. Landslides can have a wide range of underlying causes, but there are generally two dominant triggers – rainfall and earthquakes. Landslides can be divided into four groups when determining the probability of a landslide occurring on a site. These groups include: rainfall-induced, earthquake-induced, endogenous (no external trigger), and pre-existing landslides. Approximately 90% of all landslides are triggered by a rainfall event (NIWA, MWH, GNS and BRANZ, 2012). As water infiltrates into the ground faster than it can drain, water builds up in the slope. As the pore spaces in the slope become filled with water, a positive pore water pressure develops that produces a hydraulic uplift force, reducing the stabilising affect from the weight of overlying material. It is often the case that intense rainfall events concentrate flows of water along with the collection of colluvial material that creates landslides on the hills around the Hutt Valley. In other situations, the stabilising effect of weight can also be momentarily reduced by ground shaking, making earthquakes the second most common form of landslide triggering in New Zealand.

Riddolls (1977), Lawrence et al. (1982) and Brown and Associates (2005) have all reported on slope stability issues in the Hutt Valley. The reports consistently identified the relationship between the angle of the slope and the landslides – i.e. the steeper the slope the more likely it is that landslides will occur. More recent work looking at climate change adaptation (NIWA, MWH, GNS and BRANZ, 2012) showed a relationship between rainfall and landslide occurrence – the greater the rainfall, the more likely landslides are to occur. This work used a landslide dataset from Wellington City that showed, on average, 400 landslide events per year over a ten-year period. The size of the landslide events ranged from less than one cubic metre to over a thousand cubic metres of debris. The smallest landslides were the most common while the larger landslides were far less common. A similar pattern of landslide occurrence could be expected in Lower Hutt City if the data was routinely collected.

The two primary triggers of landslides in Hutt City are rainstorms and more rarely earthquakes. Recent research from Christchurch (Kaiser et al., 2014) has shown that topographic amplification is a factor in the determining the sites at which landslides will occur.

Brabhakaran et al. (1994) discusses slope stability in the Hutt Valley, highlighting the impact of slope angle and its influence on the susceptibility of slopes to landslides. The greater the slope angle, the more susceptible a slope is. Slope stability is preconditioned by vegetation type, soil or rock type as well as the saturation level. Changes in the balance between these factors in the short or long term can result in a reduction of slope stability and increasing the chances of failure. Figure 5 shows the distribution of slope angles across the Hutt Valley. Brabhakaran et al. (1994) highlights three important influencing factors of human activity on slope stability in the hills around the Hutt Valley:

1. Filling of gullies with poorly compacted materials;
2. Cutting at the toe of the slope and over-steepening slopes to create building platforms; and
3. Inadequate stormwater control, including the diversion of flow from roofs and garden paths onto exposed surfaces.



**Figure 5** Distribution of slope angles across the Lower Hutt Valley.

Understanding the landslide processes and triggers can help identify areas susceptible to landslides, and lead to development of more appropriate land-use strategies. Any future work should identify how landslides can be triggered under different scenarios. This should also include advancements in the understanding of how these triggers affect slope stability and the risks they pose at different hazard levels (Dellow et al., 2010; NIWA, MWH, GNS and BRANZ 2012; Massey et al., 2013a, 2013b). This would advance understanding of slope stability hazards in Hutt City by considering the hazard levels appropriate for different risk profiles. Utilising topographic models from LiDAR data and creating pre- and post-development change models which show the location of both cut and fills would allow more detailed analysis. This would give insights into the likely responses of the slope for both rainfall and earthquake triggered conditions. Having this level of detailed information would enable rules and restrictions to be placed on areas identified in the district plan as being prone to slope stability hazards.

### Key References

- Ian R Brown Associates. 2005. A study of issues affecting the stability of land in Hutt City. Report for Hutt City Council. Ian R Brown Associates Ltd, Wellington.
- Kaiser, A.E.; Holden, C.; Massey, C.I. 2014 Site amplification, polarity and topographic effects in the Port Hills during the Canterbury earthquake sequence. *GNS Science consultancy report 2014/121*. 33 p.
- Massey, C.I.; McSaveney, M.J.; Carey, J.M.; Richards, L.; Yetton, M. 2013 Mass (slope) movements triggered by the 2010/2011 Canterbury earthquake sequence, New Zealand. p. 36 In: *Long term geo-hazard and risk consequences of areas struck by high magnitude earthquakes : Proceeding of the International Symposium in Commemoration of the 5th Anniversary of the 2008 Wenchuan Earthquake*. [Chengdu, China]: [The Symposium].
- Massey, C.I.; McSaveney, M.J.; Heron, D.W. 2013 Canterbury earthquakes 2010/2011 Port Hills slope stability : life-safety risk from cliff collapse in the Port Hills. *GNS Science consultancy report 2012/124*. 23 p. + 2 appendices

## 2.6 TSUNAMI

Tsunami are long duration ocean waves caused by earthquake deformation of the seabed, or by other processes that disturb the sea such as submarine landslides or volcanic eruptions. In contrast to a wind-driven wave, which may last for up to 30 seconds, a tsunami wave may last for several tens of minutes. This long duration is partly why tsunami are more destructive than wind-driven waves of the same height, as they can penetrate much further inland.

Earthquakes are the most frequent cause of tsunamis, and the largest tsunami caused by earthquakes generally occur on 'subduction plate boundaries'. Subduction plate boundaries are where one tectonic plate is being forced to pass underneath another. However tsunami can also be caused by earthquakes that are not on the plate boundary, such as by earthquakes that are entirely within the upper plate or entirely within a subducting plate.

Tsunami waves have the ability to travel long distances across the ocean with relatively little loss of energy and consequently distance to source is an important factor. Tsunami sources can be divided into three:

- Local sources, where the time taken to reach the location of interest is less than one hour;
- Regional sources, where the time taken is between one and three hours; and
- Distant sources, where the time taken is greater than three hours.

The low-lying parts of the Lower Hutt Valley are located near the northern shore of Wellington Harbour. The 5.3 km long shoreline is approximately 12 km from the harbour entrance, ~ 2 km wide at its narrowest point. The narrow harbour entrance causes a 'throttling' effect on tsunami generated outside the harbour, reducing the severity of local source tsunamis at the Hutt shoreline relative to the impacts outside the harbour. The effect is not as marked for distant and regional source tsunami, which may last for a long time and set up oscillations known as 'seiching' within the harbour potentially offsetting the throttling effect.

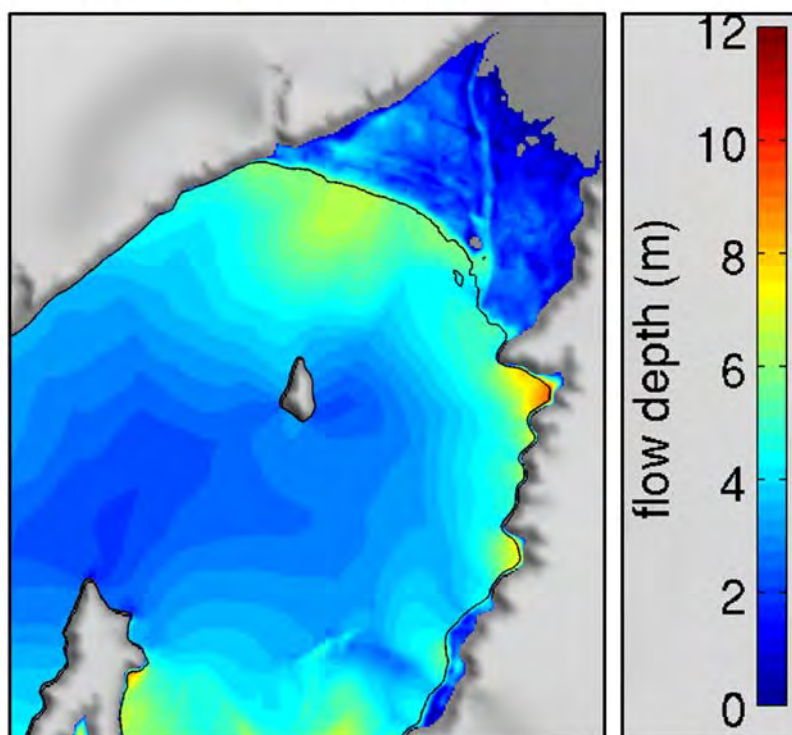
The relatively flat topography of the Hutt Valley coupled with its low elevation increases Lower Hutt's vulnerability to tsunami. Current expert opinion suggests that Lower Hutt's greatest tsunami threat is from a local source, such as that posed by earthquakes on the subduction boundary between the Pacific and Australian plates, known as the Hikurangi margin. This plate boundary passes at depth beneath the southern North Island that is believed to have generated earthquakes of at least magnitude 8, and possibly 9. These earthquakes are believed to have been associated with tsunami in prehistoric times. The largest historical local source tsunami in the Wellington region was the 1855 Wairarapa Fault earthquake. This earthquake is believed to have generated a tsunami of ~10 m elevation on the south Wellington coast, and triggered seiching within Wellington Harbour of up to 4 m elevation over a duration of 24 hours. The maximum elevation in the Petone to Seaview area is thought to have been no more than 2-3 m. This fault is considered the second most significant local tsunami source in the region after the subduction plate boundary. There are a number of other potential sources, such as the Wellington and Boo Boo Fault, but these are not thought to pose as great a threat as the subduction plate interface rupture or Wairarapa Fault rupture. Submarine landslides in the Cook Strait may cause tsunami, although modelling suggests that in all but the most extreme cases, the greatest threat is restricted to locations outside of the harbour, or around the harbour's entrance.

Wellington Harbour and Lower Hutt are thought to be at relatively low risk to a regional source tsunami. The primary sources of such tsunami are the Kermadec Trench, and the northern parts of the Hikurangi margin near the East Cape. The very largest earthquakes on these sources could result in some inundation of Lower Hutt, but their main energy is not directed towards this region.

Distant source tsunami affecting Lower Hutt could potentially come from plate boundaries all around the Pacific 'Rim of Fire'. Of these regions, the west coast of Central and South America, particularly the coast of Peru, are notably effective in directing tsunami energy towards New Zealand. Subduction zones around the Coral Sea, including the Solomon Islands and New Hebrides, are distant sources when defined by travel time and could potentially cause inundation in Lower Hutt in very large tsunamis.

Inundation modelling of local source tsunami in Lower Hutt has been carried out as part of a study by Cousins et al. (2009) for Benfield Insurance, and as part of the 'It's Our Fault' project which is funded by a group of local and national government agencies. These two studies both concluded that the greatest risk to Lower Hutt is likely to come from earthquakes on the Hikurangi margin subduction interface. This could, under a 'worst case' scenario, cause inundation up to a couple of kilometres inland from the Petone shoreline (Figure 6).

### Hikurangi Scenario -11



**Figure 6** Estimated peak tsunami flow depth distribution (maximum height of water above ground level onshore, maximum height of water above sea level offshore) for one specific scenario of a magnitude 9.0 earthquake on the Hikurangi plate interface (adapted from Mueller et al., 2014). This figure is from one of a series of ten earthquake models that assume that earthquake movement is concentrated in the southern part of the Hikurangi interface. The scenarios were made with randomised distributions of earthquake fault movement, and the scenario shown is one of the most severe in its impact on Lower Hutt.



There is currently no published inundation modelling for the Hutt Valley of regional or distant source tsunamis. It is expected that in the largest regional and distant source events, inundation is likely to be confined within the first several hundred metres of the shoreline. The areas most at risk in this situation are the low-lying areas close to the coast. The combination of marina, oil storage tanks, and industrial buildings in the Seaview area suggests a higher risk of secondary tsunami hazards (i.e. fire, chemical spill).

Updated tsunami evacuation zone boundaries for Wellington Harbour, based on significantly revised but currently unpublished modelling by GNS Science, are anticipated to be made public by Greater Wellington in the coming year.

### **Key References**

- Cousins, W. J., Power, W. L., Destegul, U., King, A. B., Trevethick, R., Blong, R., ... & Miliauskas, B. (2009). Earthquake and tsunami losses from major earthquakes affecting the Wellington Region. In Proceedings, Conference of the New Zealand Society for Earthquake Engineering (pp. 3-5).
- Mueller, C., Wang, X. & Power, W.L. (2014). Investigation of the effects of earthquake complexity on tsunami inundation hazard in Wellington Harbour. GNS Science Consultancy Report 2014/198.

## 2.7 FLOODING

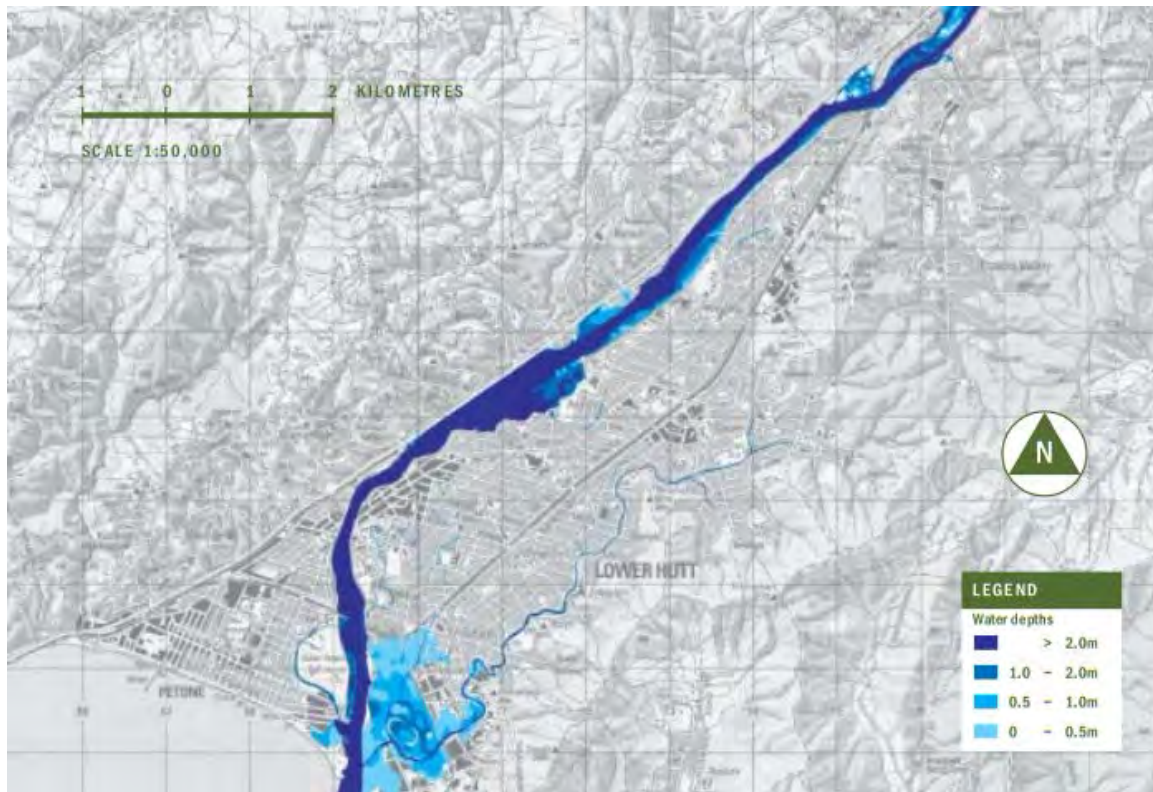
The primary source of riverine flooding for Hutt City is the Hutt River, with secondary flooding in the sub-catchments of Waiwhetu, Korokoro, and Stokes Valley. Each of these is discussed below.

### 2.7.1 Hutt River

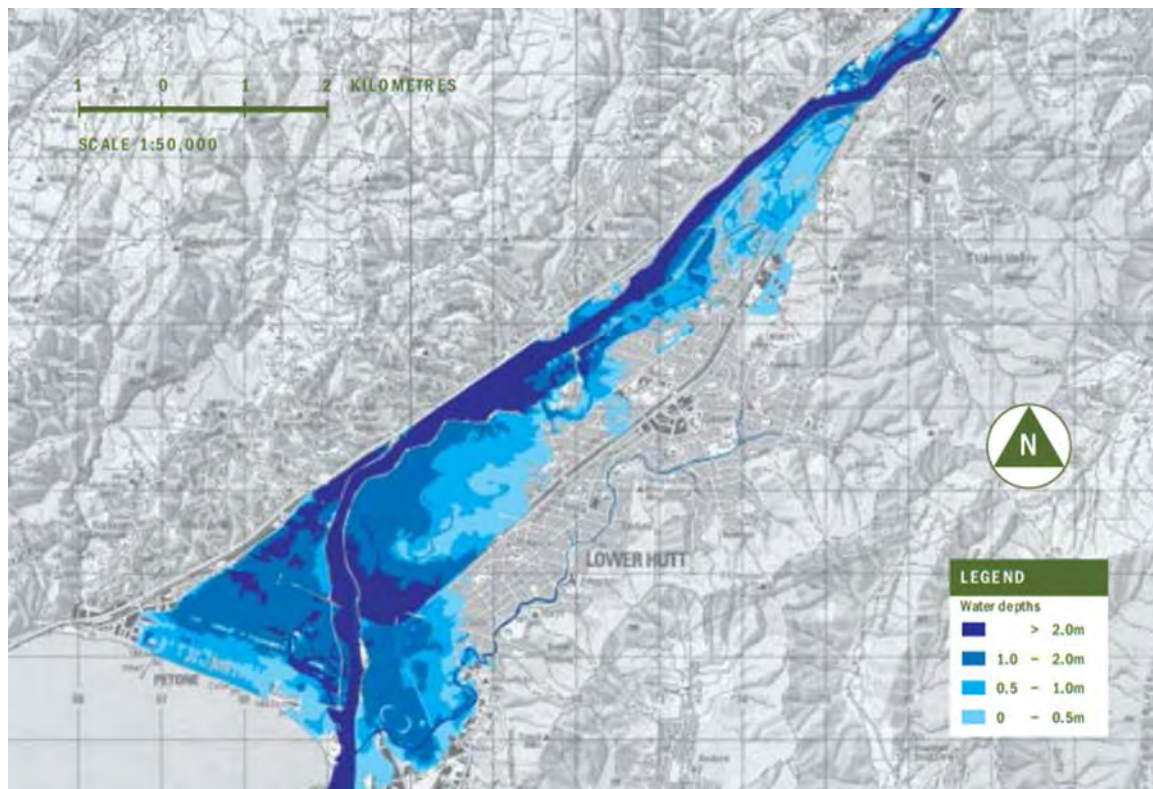
The Hutt River is largest river catchment in the Hutt Valley, and has a long history of flooding. Since the first settlers arrived at the Port Nicholson/Lower Hutt areas. A large flood in 1898 with a flow of 2000 cumecs covered the valley floor, and water was reportedly knee deep around the Lower Hutt Township (GWRC, 2001). A second, but smaller flood that year threatened to cover the valley floor again. The 1898 floods led to the construction of the first major stopbanks in 1901 and 1906 to protect the people and assets in Lower Hutt. As a result, the approach to managing floods has been focused on keeping the river out by constructing physical protection to control flooding. The response has resulted in a flood protection system being progressively built along most of the Hutt River's length (GWRC, 2001). Several floods since the installation of the flood protection system have come close to breaching the stopbanks, and have caused severe erosion affecting bridges, roads and the stopbanks themselves. These events also caused widespread surface flooding across Lower Hutt City due to blockages in the outlets of the urban drainage system.

The Hutt River is a highly constrained river system with little natural form. These factors limit the ability of the river to adapt to changes in sediment supply, which in turn influences the path of the river and height of floods. Overall, there may be an increase in sediment supply linked to extreme rainfall events, which will increase over time as rainfall intensity and frequency increases with climate change (Greater Wellington currently model for a 2-3 degree increase in average temperature, which equates to a 20% increase in rainfall intensity). It is difficult to assess the implications of this uncertainty around sediment supply as large rainfall events are rare (although the 1/100 year event will become more common). Another factor which can influence sediment supply is earthquakes – strong shaking can result in more sediment entering the river system. It is important to note that is a casual - rather than linear- relationship between rainfall intensity and sediment supply. Typically 'slugs' of gravel travel down the river system as a result of particular events. Currently degradation of the Hutt River bed is occurring in Upper Hutt, with aggregation occurring in the Lower Hutt portion of the system. This has implications for stormwater outlets, which have the potential to become blocked with river sediment as the river bed is raised; and flood heights, which will increase with the raising of the river bed.

Figure 7 and Figure 8 show the extent of the flooding for the Hutt River for a 440-year event with no stopbank breaches (with current stopbanks upgraded (Figure 7)), and with stopbank breaches (Figure 8). What can be seen from these two figures is that with no breach, the flooding is generally constrained within the river corridor. The exception is around the Boulcote Farm Golf Course, which will continue to experience flooding of up to 2m in places (including after recent works). In contrast, Figure 8 shows that with breaches, the flooding of Hutt City is substantial and over 2m in places.



**Figure 7** Hutt River flood extent map with no stopbank breaches for a 2300 cumec flood extent (440 year event). Greater Wellington Regional Council, 2001, p.9.



**Figure 8** Hutt River flood extent map with stopbank breaches for a 2300 cumec flood extent (440 year event). Greater Wellington Regional Council, 2001, p.8.

A breach as shown in Figure 8 will have many consequences – life safety risks, evacuations required, compromised infrastructure (e.g. storm water, water, sewerage, power, roading, rail), contaminated water, and flood damaged buildings. Examples of mitigation options for affected neighbourhoods are provided in Appendix 2.

Sea level rise will affect the deposition of sediment in the lower reaches of the Hutt River. As sea level rises, the tidal influence of the sea will move upstream. This in turn will effect where the sediment load of the river is dropped, i.e. further upstream. Sea level rise will also affect the amount the water that can flow into the harbour, particularly during storm events when both the tide and river level is high. The current realistic estimate of sea level rise is ~ 0.3 m by the year 2050 and ~ 0.8 m by 2100.

### 2.7.2 Hutt River Floodplain Management Plan

The Hutt River Flood Management Plan (HRFMP) was published in 2001 as a 40-year blueprint for managing and implementing programmes that will gradually reduce the effects of flooding from the Hutt River. It contains a wide range of information including: areas directly affected by flooding from the Hutt River; selected structural and non-structural measures; environmental enhancement opportunities; work programmes; funding and cost details; land directly affected by the Plan's measures; the policy backing for all measures; and an Environmental Strategy. The Plan presents a 'holistic' approach to managing flood hazard effects, combining: physical protection (structural measures); appropriate ways of using land and preparing communities for flooding (non-structural measures); and opportunities to enhance the river environment (environmental opportunities). The HRFMP's ultimate goal is to improve the community's resilience to flooding, and enable the two cities involved to maintain or enhance their present level of economic vitality and quality of life.

The Plan established an acceptable level of flood protection for the Lower Hutt Valley from flooding. The standard adopted by the HRFMP was risk-based, which meant including some tolerance in the standard to provide for future uncertainties and recognising that these risks may change over time. The 2800 cumec standard was selected for stopbanks protecting major urban areas to respond to the impacts of climate change and the uncertainties of flood behaviour. However, over time as the frequency of flood events has changed alongside a changing climate, the design options have had to be adjusted as well.

**NB: While GWRC have modelled a number of overbank scenarios which include breach scenarios, these use previous hydrology assumptions and do not yet include the most recent set of scenarios currently being downscaled and assessed for the Hutt River by NIWA. Once this information is available there is also the possibility to test other catchments for climate change effects on flood flow.**

### 2.7.3 Waiwhetu Stream

Prior to 2009, the lower reaches of the Waiwhetu Stream suffered from long standing heavy metal pollution and was considered to contain some of the most contaminated sediments in New Zealand. This was a result of historical untreated discharges from local industries. In addition, the Waiwhetu Stream was prone to flooding, with the stream corridor being generally too small to pass even a 1 in 10 year event.

Following a storm in February 2004, Greater Wellington and Hutt City jointly commenced investigation of flood mitigation measures. The Waiwhetu Project looked at the development of a floodplain management plan for the Waiwhetu Stream and a clean-up of historic

sediment contamination. Channel widening and deepening was undertaken to reduce the frequency of flooding. The mapped 1 in 100 year flood hazard extents for the Waiwhetu Stream are available at <http://www.gw.govt.nz/waiwhetustream/>.

A Floodplain Management Plan (FMP) is currently being developed by Greater Wellington with Hutt City for the Waiwhetu Stream. The project has proposed four combinations of options to manage the flood risks, which are currently being detailed and modelled. The Waiwhetu has been split into three areas for development of options. The three areas are:

- Upper Waiwhetu - this encompasses Naenae and ends near the Southern end of Waddington Drive. It also includes Naenae hills
- Mid Waiwhetu - this starts at the Southern end of Waddington Drive and runs all the way to the bridge over the stream at Whites Line East
- Lower Waiwhetu and Awamutu - this starts at the Whites Line East bridge and runs all the way to the Hutt River, and also includes the whole open air section of the Awamutu stream

Further information on the Waiwhetu flood risk management options is available at [www.gw.govt.nz/floodrisk-management-options/](http://www.gw.govt.nz/floodrisk-management-options/).

#### **2.7.4 Korokoro and Stokes Valley Streams and Catchments**

In December 1976, the Korokoro Stream flooded during a storm event and caused flooding in the Petone area, particularly at the Cornish Street/Hutt Road intersection. The Korokoro Stream flooded over State Highway 2 again in 2014, closing the road in both instances.

During this same event in 1976, the Stokes Valley and Waiwhetu Streams also flooded. Three houses in Ngahere Street, Stokes Valley, were destroyed.

While a source of localised flooding, no flood management plans exist or are planned for these two catchments. Options for managing these hazards in the suburbs most affected are outlined in Appendix 2.

#### **Key References**

- IPCC. (2014). Climate change 2014: Mitigation of climate change (AR5). New York, NY: Cambridge University Press
- MfE, 2010. Preparing for future flooding: a guide for local government in New Zealand. Retrieved from <http://www.mfe.govt.nz/publications/climate-change-hazards/preparing-future-flooding-guide-local-government-new-zealand>
- Wellington Regional Council, 2001: Hutt Floodplain Management Plan, Wellington Regional Council, Wellington.

## 2.8 SEA-LEVEL RISE

### 2.8.1 Sea-Level Rise Assessments

The average rise in relative sea-level for the Wellington region over the last 100 years has been  $2.05 \pm 0.15 \text{ mm yr}^{-1}$  (Bell & Hannah 2012). This is an increase from earlier assessments of  $1.73 \text{ mm yr}^{-1}$  in 1988 and  $1.78 \text{ mm yr}^{-1}$  in 2001 (Hannah 1990, 2004). Much of this apparent recent acceleration, however, is due to slow slip tectonic events in the Wellington region that have been occurring possibly since 1997. These slow slip events have caused an average land subsidence of  $1.7 \text{ mm yr}^{-1}$  in Wellington City over the last 10 years (which is commensurate with the rate of absolute rise in ocean levels over the past 100 years). This subsidence compounds relative sea-level rise and therefore will exacerbate the inundation hazard (a combination of high tide plus storm surge) posed by storm-tide to the Wellington region, particularly if it persists long term. Climate-induced (absolute) sea-level rise for the region is projected to reach around 1 m by 2115 (Bell and Hannah 2012), covering the “at least 100 year” period from the present that is required by the New Zealand Coastal Policy Statement, without including an allowance for on-going subsidence.

Lane et al.,(2012) assessed storm inundation along the shoreline in the Wellington region from storm-tide and wave setup inside the wave-breaking zone<sup>3</sup>. The inundation levels and maps in this report do not include tsunami wave run-up or river or stormwater flooding, which will need to be taken into account in more detailed assessments for specific projects. Inundation from storm-tides has been modelled for present day sea levels, and for sea-level rise of 0.5m, 1.0m, and 1.5m (without a specific timeframe for when these values would be reached). The likelihood of present-day inundation (i.e. AEP) will escalate as sea-level rise increases (Lane et al., 2012). The frequency of the present-day coastal inundation events is likely to increase from an average recurrence interval of 100 years (1% AEP) to occurring around once a year on average for sea level rises of only 0.2 to 0.3m, depending on the tide range. As the sea-level rises, total storm inundation levels will threaten potentially large areas of Petone and Seaview, transport routes, and low-lying areas adjacent to the coast, such as the Eastern Bays.

Lane et al. (2012) provide guidance on how to use likelihood statements for extreme-value events. While these may be rare events, they could occur at any time and their frequency is likely to change over time. Their report offers further guidance on how sea-level rise will change the base level for future storm-inundation, and the implications that this will have on the life span of assets and infrastructure in the hazard zone.

The information provided by Bell and Hannah (2012) and Lane et al. (2012) forms the basis of the most recent inundation maps available covering the main components of sea-level rise affecting Lower Hutt City. The information contained in these reports will enable Hutt City to update their sea-level rise maps, which were based on an older report that did not consider the effects of waves on sea levels and inundation. Lane et al. (2012) provide calculations to determine the wave setup and run-up, as well as inundation maps for Petone and Seaview. These latter two components have particular significance for the integrity of stormwater service delivery in low-lying coastal areas. The importance of this was highlighted by Tutulic et al. (2015) in a study that utilises a simple GIS approach to model sea-level rise in the

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<sup>3</sup> The assessment is based on modelling the combined effects of storm-tides and waves for selected storm events with a joint annual exceedance probability (AEP) of 1%.



Lower Hutt Groundwater Zone, both with and without the effects of a storm event. This work was undertaken to prioritise the areas that required further inundation assessments for the sea level rising under 0.5m, 1.0m and 1.5m scenarios.

The modelling of Lane et al. (2012) identified those areas most at risk from inundation during storm events. The results of this modelling can be seen in Figure 7, Figure 8, and Figure 9 listed below with a description of the areas most likely to be affected under each scenario. Note that this analysis does not include wave run-up which means that there is a risk of temporary inundation when wave run-up overtops dunes and seawalls as the sea rises. Temporary inundation is likely to become more permanent as the sea-level rises and will be affected by any changes in the rate of rise over time. This includes the Eastern Bays area.

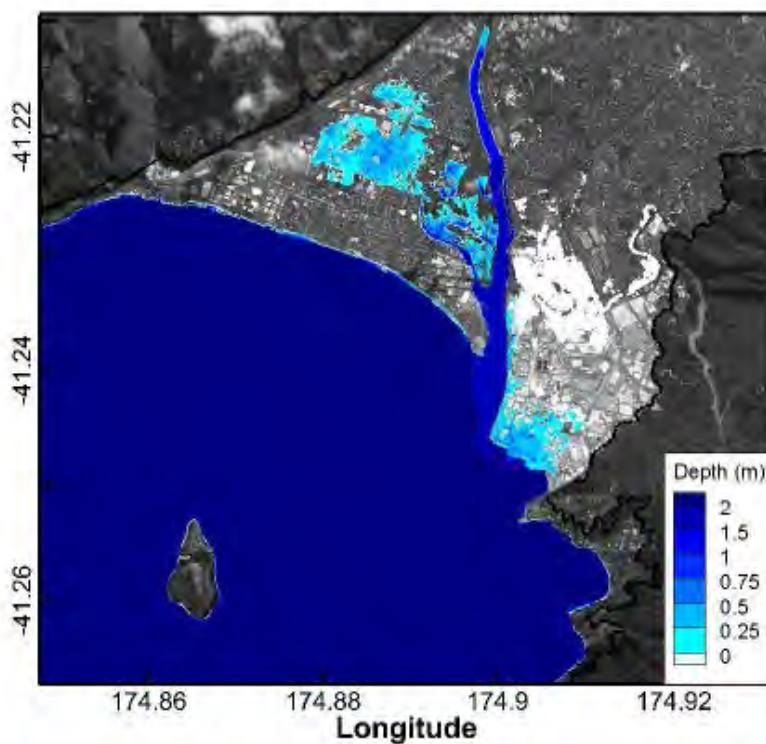
### **2.8.2 Hutt Sea-Level Rise Scenarios**

The following impacts and locations are shown for three different sea level rise scenarios, including rises of 0.5 m, 1.0 m and 1.5 m. These values give a range of levels that will occur over time and at rates which are currently uncertain but which enable the council to consider the likely future impacts when making decisions today for assets and development that will have long lifetimes.

**The flooding spreads in the maps shown for the 0.5 m, 1.0 m and 1.5 m future projections are indicative only. It highlights areas that may become vulnerable to flooding under a range of sea-level rise scenarios but does not take into account future possible changes to the shoreline. Some flooding may occur as a result of impeded drainage from elevated water tables that will rise in tandem with increases in sea level.**

## 0.5 m Rise

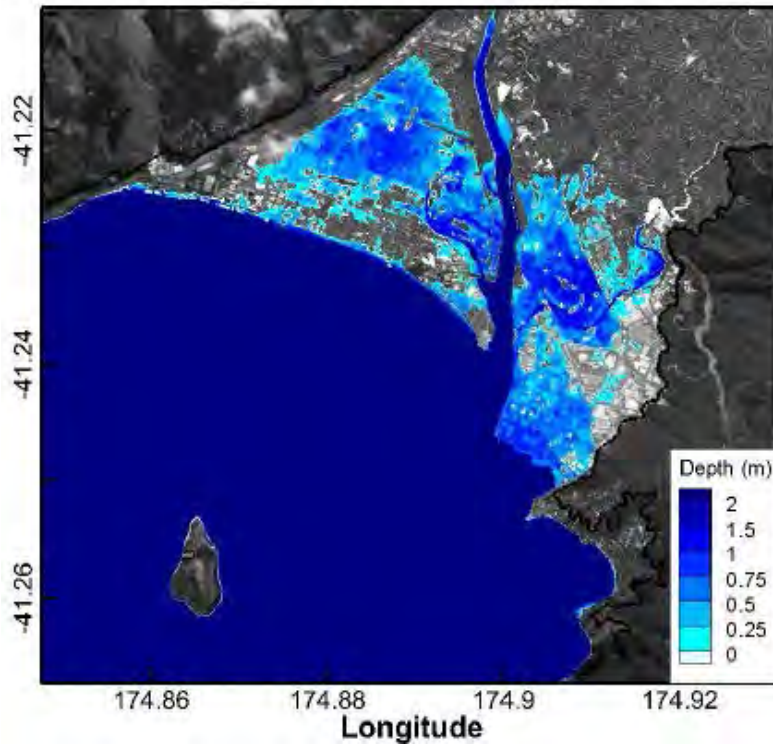
**Hutt Valley:** (Figure 9). Marchbank St and Port Rd in Seaview near the mouth of the Hutt River are inundated. Areas in the vicinity of the Hutt Valley Golf Centre and Raceway have land elevations below the total storm inundation level, as do areas around North Park, Petone. While these were not inundated in the modelling, they may be at risk of flooding through drains and small streams or channels not resolved in the model. The Hutt River stopbanks are likely to provide protection to these low lying areas up to the design standard with no stopbank breach (Lane et al., 2012).



**Figure 9** Total storm inundation map for Petone and Seaview with 0.5m sea-level rise (Lane et al., 2012).

### 1.0m Rise

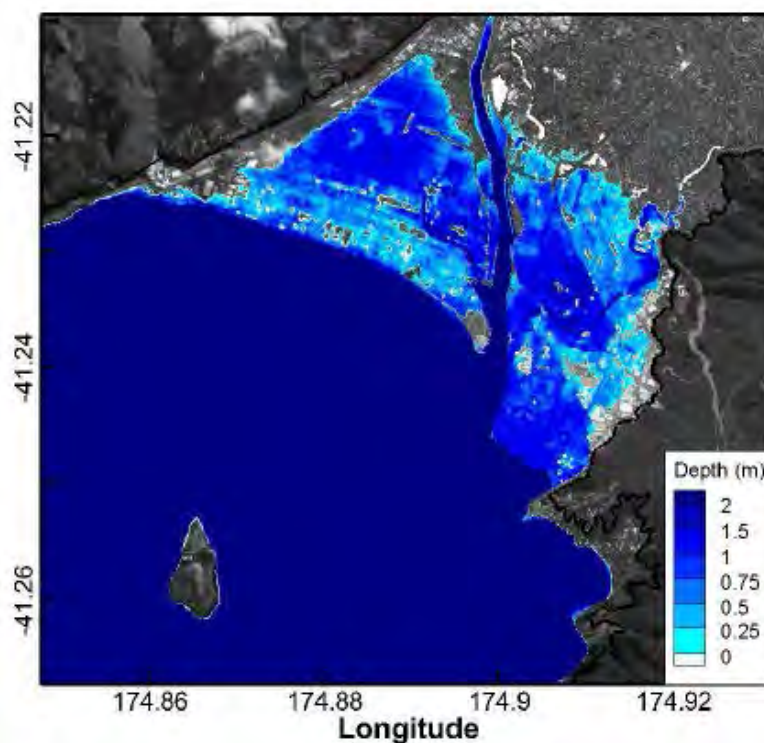
**Hutt Valley:** (Figure 10). Much of Seaview near the mouth of the Hutt River is inundated. Inundation also occurs in Moera in the vicinity of the Hutt Valley Golf Centre and Raceway. On the western side of the Hutt River, the Shandon Golf Club is inundated, and inundation extends in Petone around the North Park area as far to the west as the Hutt Rd, and to the north as far as Kiwi, Moa and Tui streets (Lane et al., 2012).



**Figure 10** Total storm inundation map for Petone and Seaview with 1.0m sea-level rise (Lane et al., 2012).

## 1.5 m Rise

Hutt Valley: (Figure 11) Large areas of Seaview, Moera, Waiwhetu, Petone and Alicetown are inundated and also the low-lying areas in the Eastern Bays Marine Drive, the main access road to the areas. (Lane et al., 2012).



**Figure 11** Total storm inundation map for Petone and Seaview with 1.5m sea-level rise (Lane et al., 2012).

While the effect of slow tectonic subsidence is not included in the sea-level rise estimates noted by Lane et al. (2012), the rates of subsidence are known and have the effect of increasing the estimates of sea-level rise modelled.

### 2.8.3 Groundwater and Surface Flooding

With increased sea-level rise, the ground water levels are likely to rise, leading to increased surface water flooding and ponding in low lying areas. This process will affect a greater area as the sea-level rises.

### 2.8.4 Location of Assets at Risk

Initial identification of the location of assets at risk from river, surface water and sea level/storm surge driven inundation have been identified by Lane et al. (2012). However, a comprehensive 'audit' of all critical infrastructure, including a risk assessment, would provide a good basis from which to assess the performance of the system and under what conditions it might fail to deliver performance levels desired by the community. Once identified this implies consideration of alternative delivery mechanisms and their location and land use planning.

## Key References

Lane, E., Gorman, R., Plew, D., & Stephens, S. (2012). Assessing the storm inundation hazard for coastal margins around the Wellington region. Prepared for Greater Wellington Regional Council, Kapiti Coast. District Council and Wellington City Council. Christchurch: NIWA.

Hannah, J. (1990). Analysis of mean sea level data from New Zealand for the period 1899-1988. *Journal of Geophysical Research*, 95(B8), 12399-12405.

Hannah, J. (2004). An updated analysis of long-term sea level change in New Zealand. *Geophysical Research Letters*, 31(3), 3307-3307.

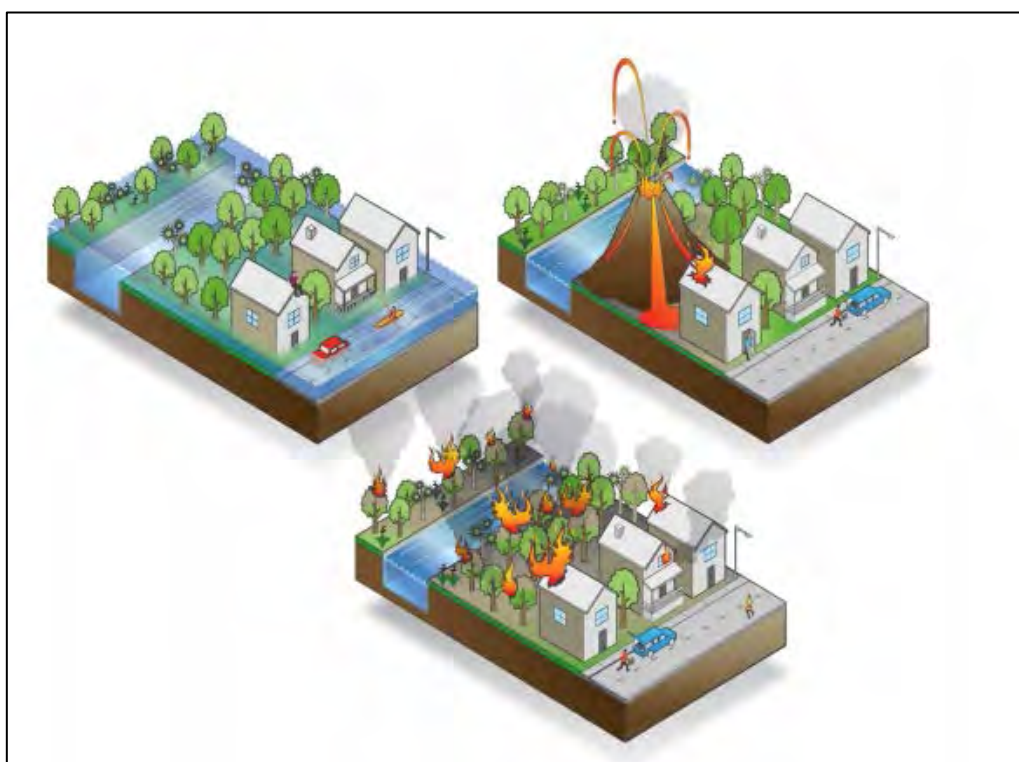
### 3.0 CUMULATIVE VS CASCADING HAZARDS

As there are a multitude of possible natural hazards in Hutt City, it is important to recognise and consider events from a cumulative and cascading perspective, as well as the individual hazards and their consequences. These two concepts are outlined below.

#### 3.1 CUMULATIVE HAZARDS

Cumulative hazards involve multiple unrelated natural hazards which have the potential to affect human life and/or property. For example, an area may be susceptible to flooding, bush fires and fault rupture. The risk in this area is greater than if it were subject to only one hazard. As the natural hazards are unrelated it is unlikely that any given area would be affected by all of the natural hazards at the same time. Areas subject to cumulative hazard events have a higher exposure and likelihood to experience one of the natural hazard events, and therefore a higher risk, than an area that is exposed to one natural hazard (Auckland Council, 2014).

In some locations around Lower Hutt, there will be interactions between hazards that need to be considered, for example, sea-level rise and storm surge in the coastal areas (Petone and the East Coast Bays), and sea-level rise and liquefaction where the resulting rise in groundwater increases the potential for liquefaction). Where there are a number of hazards in the one location, the cumulative nature of these hazards will need to be taken into account.



**Figure 12** Example of cumulative hazards (Auckland Council, 2014, p. 38).



Although this example provided in the image above has been adapted from the Auckland context, and Wellington does not face a direct risk from volcanic eruption, the illustration does provide an example of the effects of cumulative hazards. The Hutt Valley is susceptible to a number of natural hazards, and subsequently has a higher exposure to cumulative risk. An example of cumulative hazard in the Hutt will be where one hazard interacts with other hazards.

### Cascading Hazards

Cascading hazards are where two or more natural hazards resulting from a single trigger event affecting human life and/or property. For example, a storm may result in a specific area experiencing both a tornado and flooding, both of which have been caused by a single event. This means that when the trigger event occurs, the people and property in the cascading hazard zone are likely to be affected by all of, or a combination of, the resulting hazards. Therefore, properties in cascading hazard areas are likely to experience greater damage when the 'trigger event' occurs than properties not located in areas susceptible to cascading hazards during that event. With cascading hazards, the probability of an event occurring is governed by the probability of the trigger event (unlike in a cumulative hazard) (Auckland Council, 2014).



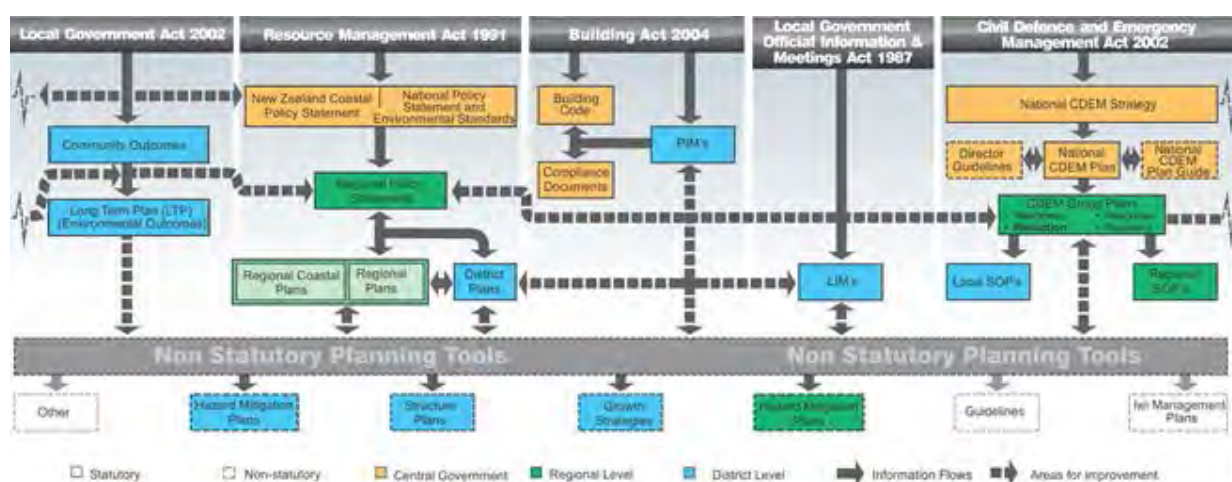
**Figure 13** Example of a cascading hazard (Auckland Council, 2014, p. 39).

Addressing cumulative and cascading hazards in a plan allows a more sophisticated approach to be taken toward the management of risk. However, these concepts are generally not well represented in district plans. There is an opportunity for councils to further develop the means for addressing these issues in the policies, rules and maps of the district plan. Cumulative and cascading hazard zones can be identified on the district plan maps to indicate the areas that are susceptible to multiple natural hazards. These areas are likely to have a higher susceptibility to natural hazard events and a higher level of risk, therefore identifying these areas in the district plan will assist in making better land-use planning decisions.

## 4.0 PLANNING CONTEXT FOR HUTT CITY

The integration of the practice of hazard management can be improved by understanding how the various roles and responsibilities of central government agencies, regional councils, territorial authorities, and non-statutory planning tools can work together to provide a holistic approach.

Figure 14 presents the five main statutes that govern natural hazards planning at different levels of government, including central (orange), regional (green) and district/city (blue) levels. The hierarchy of plans established under each statute provides various regulatory and non-regulatory tools for natural hazards planning. The solid arrows show established relationships in the hierarchy of provisions. The dashed arrows highlight relationships between existing provisions where there is an opportunity for strengthening linkages. The relationships may be one- or two-way. These legislative provisions and the array of tools they provide constitute a robust 'toolkit' for natural hazards planning. However, many of these tools are not well known amongst either planners or emergency management officers, nor used to their full potential to reduce hazard risk and build community resilience (Glavovic et al., 2010; Saunders et al., 2007).



**Figure 14** Legislative roles and responsibilities for natural hazard management in New Zealand (adapted from Saunders et al., 2007).

There are four key pieces of legislation that have a primary influence on natural hazard management in New Zealand: the Resource Management Act (RMA), Building Act 2004, Civil Defence Emergency Management Act 2002 (CDEMA), and Local Government Act 2002 (LGA). The four key statutes are intended to be integrated in their purposes, which all promote sustainability, as shown in Figure 14. Other statutes also contribute to natural hazard management, to a lesser degree. These include the Local Government Official Information and Meetings Act 1987 (LGOIMA), which makes hazard information available for all parcels of land, through a Land Information Memorandum (LIM); Environment Act 1986; Conservation Act 1987; Soil Conservation and Rivers Control Act 1941; Land Drainage Act 1908; and the Forest and Rural Fires Act 1977 (see Tonkin & Taylor, 2006, for further information).

#### 4.1.1 Proposed RMA Reforms

Proposed RMA reforms announced in December 2015 will seek to strengthen the natural hazard provisions in the RMA, as well as the risk linkage to the CDEM Act. These amendments include an addition to Section 6 (matters of national importance), “the management of significant risks from natural hazards”. This amendment will change the focus from the likelihood of natural hazards to their likelihood and consequences, which in turn will strengthen the focus on reducing risks. For up-to-date information on the reforms, refer to <http://www.mfe.govt.nz/rma/rma-reforms-and-amendments>.

#### 4.2 THE WELLINGTON REGIONAL POLICY STATEMENT (WRPS)

The planning framework for natural hazards in the Wellington RPS (WRPS) includes:

- A natural hazards section (Section 3.8) containing three regionally significant natural hazard issues (earthquake, flooding and tsunamis) and three natural hazard objectives (Objectives 19, 20, and 21).
- One policy (Policy 29) on natural hazards within Section 4.1 – regulatory policies providing direction to regional and district plans.
- Two policies (Policies 51 and 52) on natural hazards within Section 4.2 – regulatory policies on matters to be considered when assessing applications for resource consents, designations, and plan changes.
- Methods of implementation in Section 4.5 (both hazard-specific and general).
- Hazard-specific anticipated environmental results in Section 5.2.

The WRPS recognises that people’s actions and on-going development in high risk areas can increase the risk from natural hazards. The WRPS requires that the consequences and risk from natural hazards are considered and that inappropriate subdivision and development in high risk areas is avoided. Several key objectives and policies are set out to reduce the risk from natural hazards, these include:

*Objective 19: The risks and consequences to people, communities, their businesses, property and infrastructure from natural hazards and climate change effects are reduced.*

*Objective 20: Hazard mitigation measures, structural works and other activities do not increase the risk and consequences of natural hazard events*

*Objective 21: Communities are more resilient to natural hazards, including the impacts of climate change, and people are better prepared for the consequences of natural hazard events.*

*Policy 29* of the WRPS uses clear, directive language, providing clear instructions to the developers of regional and district plans. The explanation of policy 29 provides guidance on the process which can be used to identify the areas of high-risk, and how those policies and rules in the regional and district plans could be developed to give effect to the policy. Policy 29 is worded as follows:

Regional and district plans shall:

- a. Identify areas at high risk from natural hazards; and
- b. Include polices and rules to avoid inappropriate subdivision and development in those areas.

*Policy 51: Minimising the risks and consequences of natural hazards*

This policy endorses taking a precautionary and risk-based approach, taking into account the consideration and likelihood of the hazard and the vulnerability of new development. The policy seeks to minimise the risk and consequences of a natural hazard event by ensuring that proper preparation, investigation and planning is undertaken prior to development occurring.

Policy 51 also considers the residual risk of protection works once they are put in place. These hard protection works can create a false sense of security, and can encourage further development. This policy ensures that the residual risk to the assets behind the protection is considered if they fail or the design standard is exceeded.

*Policy 52: Minimising adverse effects of hazard mitigation measures*

Policy 52 promotes objectives 19 (reducing the risk and consequences from natural hazards) and 20 (ensure activities, including hazard mitigation measures, do not increase the risk and consequences from natural hazards). The policy acknowledges that a combination of both soft and hard engineered protection solutions may be required, but emphasises that soft engineered solutions should be explored first.

The WRPS takes a risk based approach to the management of natural hazards by setting out a clear policy framework for councils to follow. Objectives 19 and 20 require risk reduction actions, or no increase to the risk and consequences from natural hazards. Objective 21 then refers to resilience, yet this has not been defined.

The process of identifying 'areas at high risk' from natural hazards must consider the potential natural hazard events that may affect an area and the vulnerability of existing and/or foreseeable subdivision or development. An area should be considered high risk if there is the potential for moderate to high levels of damage to the subdivision or development, including the buildings, infrastructure, or land on which it is situated. The assessment of areas at high risk should factor in the potential for climate change and sea-level rise and any consequential effect that this may have on the frequency or magnitude of related hazard events.

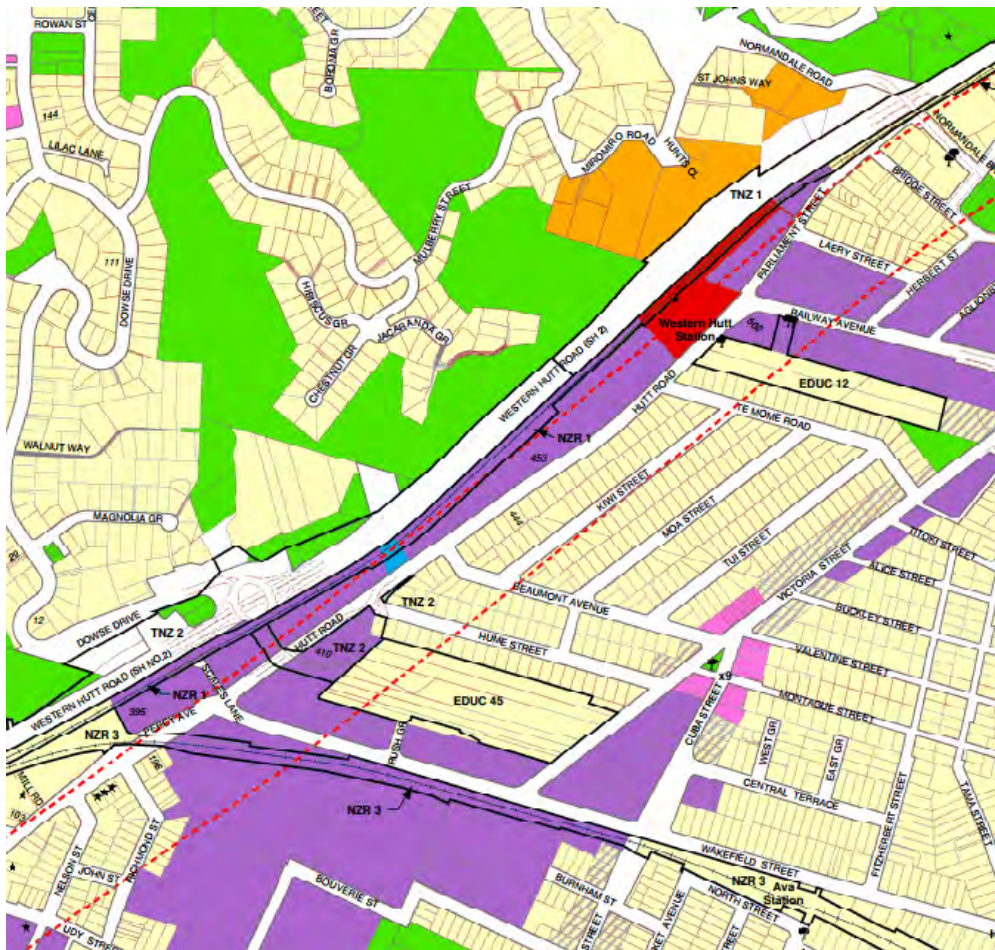
The framework set out by the WRPS allows a reasonable degree of discretion with the regional and city/district councils. For example, the WRPS directs regional and district plans to identify 'areas of high risk'. While the WRPS includes an explanation of what might constitute a high risk area, and recommends a number of guidance documents that may assist in the process (Kerr et al., 2003; Ministry for the Environment, 2008; Saunders & Glassey, 2007; Standards New Zealand, 2004). The process of identifying these areas is open to a case-by-case assessment that may vary from plan to plan.



### 4.3 HUTT CITY PLAN

The natural hazards chapter of the District Plan sets the objective, policies and rules pertaining to the natural hazards in Lower Hutt City. While the objective and policies of the District Plan apply to flooding, seismic hazards, coastal hazards and landslides, the only rule in the natural hazard chapter relates to fault rupture. This is a significant gap in the district plan, along with having no specific provisions to address the climate change risks for either the exacerbation of existing hazards, or from new hazards including sea-level rise and the interaction with groundwater, residual flooding, surface water flooding from high intensity rainfall and from storm surge inundation.

In the District Plan, a 150m wide band identifies the inferred position of the Wellington Fault (Figure 15). This red dashed band identified on the District Plan map is known as the Wellington Fault Special Study Area (WFSPA). The width of the WFSPA was determined by measuring 75m perpendicular either side of the inferred position of the Wellington Fault. In the WFSPA, all new buildings require resource consent as a Restricted Discretionary Activity. The intent is to ensure that new buildings (including additions to existing habitable buildings) are more than 20m from the fault line. If the building is to be closer than 20m, then the applicant needs to demonstrate that suitable engineering precautions have been undertaken to reduce the risks associated with building within this 20m zone. There are no rules currently pertaining to a change of use to buildings within the Wellington Fault Special Study Area or limiting certain activities within this area. There are no rules in the District Plan pertaining to liquefaction, climate change effects, or tsunamis.



**Figure 15** Wellington Fault Special Study Area, indicated by the dashed red lines (Hutt City Planning Map B4, 2011).

While not in the natural hazards chapter of the District Plan, the earthworks rules also allow for the consideration of natural hazards, insofar as the earthworks potentially affecting the stability or flooding. The earthworks rules are only triggered when the volume of material disturbed exceeds 50m<sup>3</sup> or the change in ground level is greater than 1.2m vertically. It is important to note that the earthworks rules do not allow the Council to consider the site stability or flooding effects associated with the construction of new buildings. It only allows for the consideration of the effects of the earthworks on these hazards i.e., earthworks cannot increase the risk of flooding or slope failure.

Again, while not in the natural hazards chapter, there are also rules in the District Plan relating to the 1:100 year flood event from the Hutt River. These rules limit development of habitable buildings in this flood extent, but only apply to a limited number of properties in the suburb of Belmont Domain. Land-use controls had been recommended in the Hutt River Floodplain Management Plan in 2001 to manage the risk of flooding and erosion along the Hutt River. Two 'non-structural' approaches were developed to manage the residual-risk of flood hazard by improving community resilience in areas with a lower level of flood protection. The following principles were considered central to the risk-based approach the plan took:

- Managing land-use and development: implemented through policies and rules in the district plan, or through voluntary actions that deal with constructing buildings and structures, doing earthworks and using land in a wise manner;
- Emergency management: by preparing the community to cope with flooding (Wellington Regional Council, 2001).

The non-structural principles developed within this plan proposed a number of district plan objectives, policies and rules in areas affected by flooding. The Floodplain Management Plan utilised both of these principles in an integrated way to reduce the effects of flood hazards. The focus was on targeting and reducing the development of land and restricting certain types of activities along the Hutt River in areas where there was limited flood protection.

#### **4.3.1 Plan Change 29**

Plan Change 29 sought to increase the types of activities and the intensity of developments through the establishment of a mixed use zone in the south western section of Petone. Prior to the plan change, the land-use had predominately been business and commercial. The plan change proposed to introduce new activities (residential, educational and emergency facilities) into the area.

The plan change area is susceptible to a number of natural hazards including fault rupture, ground shaking, subsidence, liquefaction, landslides, tsunamis, sea-level rise and flooding. Previous district plan provisions for the plan change area had few rules to address and mitigate the risks of natural hazards, and no new rules for natural hazards were proposed as part of the plan change. The objectives and policies were written as standalone provisions for the plan change area, and have not linked to the natural hazards chapter in the district plan. The natural hazards identified are not solely unique to the Petone Mixed Use Zone, where a natural hazard has the potential to affect, and to be affected by a hazard event occurring outside of the plan change area.

The policies for the Petone Mixed Use Zone restrict the establishment of certain activities (residential, educational and emergency facilities) in the plan change area that increased the risk and vulnerability of people and property to an event. A natural hazard specific



objective was included to support the policies in the plan change area, and all assessments for new buildings are done on a case-by-case basis to determine the acceptable level of risk for that activity in relation to a natural hazard event. For example, risks posed by seismic hazards will be accepted if they fall within a 'degree considered acceptable' by the council, although there is no reference as to what the acceptable level of risk is, or how that level has been determined.

For new developments, geotechnical assessments are required to evaluate the ground conditions and to identify the location of any fault trace and/or deformation, location and depth of subsidence, liquefaction risk and the risk of tsunami inundation. All new proposals are required to demonstrate that new buildings are set back from being directly situated over the fault trace. The design, layout and development of new buildings is expected to take into account the risks of sea-level rise, and to account for changes to these levels as a result of climate change.

There is an opportunity to strengthen the provisions for natural hazards in the district plan. This could be achieved by aligning all of the provisions for natural hazards in a way that makes it clear what the risk is in the wider area, with a range of consequences. By aligning the natural hazards objectives and policies throughout all sections of the District Plan more certainty will be provided when making land-use planning decisions in areas that are known to be affected by natural hazards.

## **5.0 LAND USE PLANNING OPTIONS FOR MANAGING NATURAL HAZARDS IN HUTT CITY**

There are a number of options available for managing natural hazards in Hutt City. While the options outlined below are specific to land-use planning, it is essential that these options are combined with emergency management, building and engineering, and information management options, as no one response (i.e. just land-use planning) will adequately manage the risks. The business as usual approach is not recommended.

### **5.1 AVOIDANCE**

Land-use planning decisions will need to consider that some areas around Lower Hutt are not appropriate for some types of activities, and that there is a need to avoid locating these activities in high risk areas. Avoidance of hazard reduces risk by not exposing more people or property to an increased level of risk. In many cases, where there is existing development, avoidance may be impractical, instead a mixture of methods including mitigation and risk reduction may be required to reduce the risk of the hazard.

### **5.2 LIMIT DEVELOPMENT**

Within a known natural hazards area, further developments can be limited to reduce the exposure of people and property to risk. This would apply in the first instance to critical infrastructure and facilities (i.e. electricity substations, fire stations, police stations, main pipelines for water and sewerage). This could then be extended to include infill housing, or changes in land use that would further increase the risk to people's safety (i.e. retirement homes, child care facilities etc.). Applying a risk-based approach, planning policies and consents would become more restrictive as the risk involved in the activity increased. Future impacts and consequences can be modelled through computer programs such as RiskScape to illustrate what types of methods or options will be most appropriate. Other options could include:

- Exchanging at-risk land with land that can be put to some other purpose
- Taking at-risk land as a condition of subdivision consent through reserves contributions
- Educating to raise awareness of the risk and to encourage people to locate buildings away from hazard areas
- Applying rules in the district and regional plans that control aspects of development in hazard-prone areas which include, design, construction, location and density.

### **5.3 MANAGED RETREAT**

Managed retreat will be a strategic decision council will have to make to withdraw or relocate assets that may be at risk. This will need to be recognised in the long-term and annual plan processes, and will require engagement across multiple agencies and the community for the non-council facilities. Where the hazard area has been clearly defined, and impacts clearly understood, there is an opportunity for a retreat plan to be developed for the relocation of critical facilities, infrastructure and residential dwellings over time. A mixture of methods is needed when planning for a managed retreat and these would need to be evaluated on a case-by-case basis. Potential options could include:

- The provision of information through non-statutory means to keep the community informed with the most up-to-date information
- Regulatory rules through district and regional plans that manage existing use rights
- Financial instruments or assistance measures including:
  - Property purchase in at-risk areas
  - Subsidies for relocation
  - Taxation of risk or adverse effects
  - Pre-paid community relocation funds
  - Transferable development rights
- Relocation of infrastructure out of hazard areas
- Insurance incentives or disincentives

Plan rules, property title covenants and financial mechanisms such as subsidies or insurance incentives may all play a part in encouraging a managed retreat. The form of existing developments and infrastructure may preclude some options from being considered as part of a managed retreat (MfE, 2008).

In practice it is likely that the implementation of a managed retreat would require a number of different methods for intervention (Environment Waikato, 2006). Land currently is valued as though it has permanent utility of use, which may not always be the case (e.g. areas that will be affected by sea-level rise and storm surge). This becomes the main barrier to the implementation of any managed retreat plan or strategy.

#### **5.4 EXISTING DEVELOPMENT**

Areas of existing development require prospective and corrective planning to ensure that future risks are not increased. Examples of this could include, but are not limited to:

- Controls on development density and the spatial distribution of that density. Rules should be targeted to either prevent intensification in areas of high risk or promote intensification in areas of least risk, or both.
- No change of use that increases the exposure of people to the hazard i.e. a residential dwelling becoming a child care centre.
- Incentives for raising floor levels.
- No additions/alterations that add to the number of people affected.
- Relocation of critical infrastructure/facilities to areas with lower risk.
- Strengthening buildings and infrastructure to ensure their resilience to future natural hazard events.
- Promoting and helping fund the use of covenants for voluntary protection from development of open space on private land.
- Using the Building Act to ensure that structures are safe and will remain intact throughout the life of the building.
- Including hazard information in PIM and LIM reports.

## **5.5 RISK-BASED PLANNING**

The risk-based approach involves evaluating the consequences of an event, assessing the likelihood, and then having planning and/or engineered ground improvement provisions relevant to the risk, and/or resilient infrastructure. For example, prescribed foundations types in areas of high liquefaction hazard, along with resilient pipe materials which allow for movement within the ground (i.e. from fault rupture, liquefaction, landslides). Where the risk increases, the resource consent category would become more restrictive. The risk-based approach accommodates the potential for cumulative and cascading hazards to be considered within the framework.

With the proposed RMA reforms introducing natural hazards risk into Section 6, coastal risks included in the New Zealand Coastal Policy Statement (NZCPS) and the risk-based planning within the Wellington RPS, a risk-based approach is recommended for the Hutt City Council to implement. An online toolkit which outlines a risk-based framework has been made available on the GNS website (<http://gns.cri.nz/Home/RBP/Risk-based-planning/A-toolbox>). This also includes an example of a risk-based natural hazards section of a district plan, based on the hazards of Lower Hutt City (<http://www.gns.cri.nz/Home/RBP/Risk-based-planning/A-toolbox/Examples/District-Plan>). Central to this approach is a focus on the consequences, rather than just the likelihood of an event occurring.

Key to implementing a risk-based approach is engagement with communities and other key stakeholders (e.g. lifeline utilities, iwi, subject experts), to assess what levels of natural hazard risk are acceptable. An example of how this has been achieved in the Bay of Plenty has been presented in Kilvington & Saunders (2015). With the lifetime of a plan being 10 years, changes in risk perceptions can be managed over time with each plan review. Once a risk-based framework has been applied, hazard specific planning responses can be included into the policy framework, these responses have been outlined in the following sections.

## **5.6 EMERGENCY MANAGEMENT**

In many cases, the existing risk needs to be managed with emergency management preparedness. This would involve developing an emergency management plan to assist in response and recovery following a natural hazard event. This option relies on developing emergency management plans to cope with the disaster once it occurs; for example, response and recovery issues including rescue, evacuation and transportation challenges. This option should be used in conjunction with the other options in this section as it is a response action only, and does not reduce future risks.

## **5.7 MONITOR AND REVIEW**

Plans need to specify the measurable outcomes of natural hazard monitoring to ensure the issues associated with the hazard are being addressed, and that the objectives and policies are being achieved. If the provisions of the district plan are unable to reduce the risk to a hazard, they need to be reviewed as soon as practicable. As new information becomes available, it too should be evaluated and incorporated into the district plan to realign the acceptable levels of risk.

## **5.8 HAZARD-SPECIFIC PLANNING OPTIONS**

### **5.8.1 Fault Rupture**

The first step to planning for fault rupture hazard is to accurately determine the positions of the active faults within the district (Kerr et al., 2003). This information can be gathered through a number of avenues including from the regional council, through geotechnical information provided as part of resource consent applications, from data that has been gathered from site specific investigations, and from Crown Research Institutes or private companies involved in geology and earthquake engineering.

The Wellington Fault Special Study Area extends from Petone through to Silverstream, and is a 150 metre wide band which accommodates the known and inferred position of the fault. Subdivision and development will be managed to ensure that no building is constructed within 20 metres of the fault line. It is not practical or possible to eliminate fault rupture hazard risk completely, but doing nothing is not an option. A mixture of regulatory and non-regulatory methods should be developed that specifically address the effects of fault ruptures.

*Regulatory methods:* Building within a fault avoidance zone should be discouraged where possible, even if the fault has a long recurrence interval. There is always the chance that the fault may move during the lifetime of a building. Rules in the district plan that allow development in a fault avoidance zone, provided resource consent is granted, are beneficial for areas where the fault is well-defined or a distributed fault has been accurately located.

The approach used for existing built-up areas should differ from the approach used in greenfield areas. It is relatively simple to require new subdivisions to plan around fault rupture and buffer zones. Existing developments may have been established without the knowledge of risk posed by fault rupture (Kerr et al., 2003). Existing use rights under the RMA can mean that buildings built over a fault can be rebuilt if damaged for whatever reason, even if the risk has been realised.

Fault hazard avoidance zones will still need to be clearly identified on district plan maps if non-regulatory methods are selected. This is to ensure the risk is communicated, and that landowners and building occupiers are aware of the hazard.

### **5.8.2 Ground Shaking**

The entire Hutt Valley would experience strong ground shaking during an earthquake on any of the faults from inside the Wellington Region. Any large, local and shallow earthquake will cause ground shaking. This could also include features that do not reach the surface, or features that have not yet been identified as active faults. Design standards for all structures and buildings are controlled by the Building Code.

### **5.8.3 Subsidence**

The general planning approach for subsidence is to reduce the risk and to avoid activities in areas prone to this hazard. As this is not always practical, the advice in planning for subsidence is typically general and has been covered in the section above.

#### 5.8.4 Liquefaction

Section 6 of this report identified the liquefaction potential in the southern part of the Hutt Valley, around the Seaview/Gracefield, Petone, Moera and Woburn areas. The subsoil conditions combined with the shallow ground water conditions make the soil susceptible to liquefaction associated with a seismic event. Any proposed structures in areas with liquefaction potential will have to comply with the regulations in the Building Code. There are opportunities to plan for liquefaction hazard and risk in both greenfield and in areas of existing development by limiting the scale of development, and locating critical facilities and infrastructure away from areas that are susceptible to liquefaction (Saunders & Berryman, 2012).

The Ministry for Business Innovation and Employment along with the Ministry for the Environment are currently working to develop land damage assessment guidance for liquefaction.

#### 5.8.5 Landslides

Before losses from landslides can be reduced, the hazard must first be recognised and the risks assessed appropriately. Landslide hazard assessments, typically in the form of a map, provide a practical and cost-effective way to recognise areas where landslides exist or could occur (Saunders & Glassey, 2007). It is important that areas with landslide risk are identified at the planning and resource consenting stage and where possible remain undeveloped. Where it is practicable to develop, the landslide risks can be reduced to an acceptable level by providing detailed information on the topography, contour heights, stormwater disposal, and the cut and fill work. Landslide hazard risk also needs to be identified in areas of existing development. Where development does occur, the building code requires that precautionary measures are taken alongside retaining walls and foundation strengthening.

Landslide prone areas need to be clearly identified in district plan maps if non-regulatory methods are being used. This ensures that the information is being communicated to the public and to landowners so the building occupiers are aware of the hazard. The district plan does not identify landslide prone areas, it manages landslides through subdivision rules requiring development to be sympathetic to the topography and ensuring that earthworks do not increase the vulnerability of people or property to landslides.

#### 5.8.6 Tsunami

The Hutt City District Plan considers the most appropriate method for reducing the impact of tsunami hazard is an early warning system and developing civil defence plans for emergency response procedures.

Currently there is limited guidance available for planning options for tsunami. The National Tsunami Hazard Mitigation program in the U.S. has outlined seven planning principles to provide guidance (Saunders et al., 2011). These options include:

1. Knowing your community's tsunami risk: hazard, vulnerability and exposure;
2. Avoiding new development in tsunami run-up areas to minimise future tsunami losses;
3. Locating and configuring new development that occurs in tsunami run-up areas to minimise future tsunami losses;
4. Designing and constructing new buildings to minimise tsunami damage;



5. Protecting existing development from tsunami losses through redevelopment, retrofit and land reuse plans and projects;
6. Taking special precautions in locating and designing infrastructure and critical facilities to minimise tsunami damage; and
7. Planning for evacuation.

Taking into account these seven principles and the risk-based, precautionary and participatory planning methods, the following regulatory and non-regulatory approaches provide options for land-use planning.

*Regulatory approaches:* Saunders et al. (2011) identify a number of regulatory approaches for high certainty and uncertain tsunami zones. These include, but are not limited to:

- Knowing your tsunami risk (identification of at risk areas), and including tsunami as a coastal hazard if appropriate;
- Consistent risk reduction objectives and policies between CDEM Group Plans, RPSs and district/city plans;
  - Avoid developments in at risk areas
  - Avoid locating critical facilities within tsunami hazard zone
  - Mitigation, i.e. community response plans, integration with emergency management preparedness and building design.
  - Limiting infill development so as not to increase risk to people and property.
- Identify and ensure the integrity of evacuation routes
- Ensuring that tsunami inundation modelling at levels 2-4 is included on LIMs, with an explanation of what each zone means and what actions are required
- Take a risk-based approach to policy and consents
- Encourage low density development to reduce the number of people and properties at risk. Or encourage high-density development with medium to high rise buildings to allow for vertical evacuation
- Include the assessment of tsunami risk within the Assessment of Environmental Affects
- As a consent condition, requiring evacuation and community plans to be drafted and accepted by council. These should include an annually audited evacuation exercise
- Including specific tsunami response plans and information in long-term planning documents.
- Incorporate design standards for buildings in tsunami zones, particularly for those that could be used for vertical evacuations.

*Non-Regulatory approaches:* Non-regulatory approaches for the high certainty and uncertain tsunami zones include, but are not limited to the following options:

- Restoration or enhancement of natural defences, such as dune systems, mangroves and wetlands
- Develop a strategy for relocating at-risk land uses within the community
- Pre planning for land-use recovery post tsunami event
- Ensure tsunami hazards are incorporated in structure plans, master plans and development plans
- Communicate risk to owners and visitors via information boards

### 5.8.7 Flooding

Consideration will need to be given when designing rules to the ability of the rules to be adjusted over time as flood frequency and magnitude increases with climate change. Accordingly, any flood risk management measures will need to be adaptable to changing future circumstances, including flood risk management and land use planning to reduce the risk of future damages. These will apply to rules in the district plan to subdivision and building consents. This could be achieved through:

- Placing controls on developments near stopbanks by establishing rules for new developments or alterations to existing structures that are near stopbanks.
- Controls on developments and land uses in areas of highest risk from stopbank breach, and in low lying areas where ponding occurs.

The district plan accepts that development needs to be able to continue in areas that have already been developed, although landowners and developers will be expected to mitigate flood risk to a specified level. Activities such as schools, emergency services, hospitals and rest homes have been identified as inappropriate along primary or secondary river corridors or in areas not protected from major flooding. These types of activities can expose people and assets to an unacceptable level of risk, or can impose high costs on the community. Physical protection works along the Hutt River are planned to be upgraded under The Hutt River Floodplain Management Plan (HRFMP) but residual risk will always remain of breach or overtopping.

### 5.8.8 Sea-Level Rise

The NZCPS requires the consideration of climate change effects through Policies 3 (precautionary approach), 24, 25, 27 (hazards and coastal development) covering **at least** a 100-year planning horizon. Adapting to sea-level rise will require substantially different approaches to land use planning depending on whether the coastal margin comprises existing urban developments, or largely undeveloped land that has been earmarked for future development, or is undeveloped.

#### *Existing and Greenfield developments*

Existing coastal development, including infrastructure, will require incremental and staged plans to adapt to rising sea levels to keep hazard risk at tolerable levels. In some cases incremental approaches will be ineffective depending on the nature and rate of change and its interaction with other hazards. Land uses have different timeframes and spatial scales that will need to be considered in planning out to at least 100 years: the lifetime of individual buildings or assets will be different. This means that different approaches will be appropriate for upgrading or redevelopment; it could mean long-term strategic adaptation plans will be required for an entire suburb or community (Bell & Hannah, 2012). A point will eventually be reached when managed retreat becomes the only sustainable option for buildings and infrastructure. This is a situation that is faced by most of the urbanised and developed fringes around the Wellington region and elsewhere around New Zealand.

In contrast, risk avoidance is promoted by the NZCPS (Objective 5 and Policy 25) for greenfield developments such as new subdivisions. Given the inevitability of sea-level rise, the opportunity should be taken to avoid areas of high risk of sea-level rise and associated hazards. Long-term adaptive plans that can be adjusted over time to account for current uncertainty will avoid adding to the risk that exists in areas already developed. Measures

such as judicious siting of lots and minimum areas, building platforms and infrastructure levels to avoid foreseeable inundation and coastal erosion should be considered. Therefore a higher magnitude of sea-level rise for an extended timeframe (not just the minimum 100 years) should be considered.

Risk-based approach: Bell and Hannah (2012) recommend that a flexible risk-based approach is taken toward managing sea-level rise where appropriate. A one size fits all approach does provide regional consistency and can be easier to communicate, but it does not provide any flexibility to consider the scale of future consequences. Objective 5 of the NZCPS signals that different approaches should be applied to greenfield and existing development, implying that a range of sea-level rise scenarios be considered as well as different timeframes are considered in each situation to avoid or mitigate risk respectively.

The MfE guidance on sea-level rise recommends considering the consequences over a range of sea-level rise scenarios to determine what levels might be accommodated proportionate with adaptation costs. For planning purposes, particularly for existing developments, principally the timing of incremental staging of adaptation options through regular sea-level rise monitoring and planning/policy reviews. But, also to provide a range of sea-level rise values where:

- a. The risk or consequences of sea-level rise on an activity can be demonstrated to be limited in time, small in magnitude, or the asset can be readily relocated, then a slightly lower sea-level rise value could be applied.
- b. Applying higher sea-level rise values where future consequences are high, future adaptation options are limited or future-proofing is needed for foundations or ground improvements of major infrastructure, such as roads that can be raised in stages.

However, it should be noted that these are at the best temporary measures and unlikely to be effective over the 'at least 100 years' timeframe required for consideration by the NZCPS.

*Monitoring:* Regular monitoring of sea-level rise by national agencies will inform updates by council every 5 years, with more rigorous assessments every 10 years to maintain an understanding on how changing sea-levels are tracking in relation to council-set tolerability levels, and how they may do so over the following 100 years. This will help to better inform planning and management strategies. The assessments will include both an absolute sea-level rise and local variations in relative sea levels, such as tectonic uplift or subsidence from GPS records.

### **5.8.9 Climate Change**

Climate change will have a number of effects for the Hutt City district, similar to other parts of New Zealand (Reisinger et al., 2014), but with some local differences. These include an increase in the frequency of heavy rainfall events and the frequency of flood events in the Hutt River; coastal inundation associated with sea-level rise and storm surge and associated groundwater levels further inland in some places. Some of these effects will exacerbate existing hazard risks whilst others are new, like rising groundwater; others will combine with a number of new hazards. Increases in rates and magnitudes of the changes are characteristic of the impacts that will require new ways of managing the risks as they will challenge current coping capacities.

As noted in section 9 (flooding), new approaches are necessary for the assessment and planning for the effects of climate change as required under the RMA to enable decisions to be robust over whatever climate scenarios may emerge. Several reports for the Hutt city district by the New Zealand Climate Change Research Institute at Victoria University Wellington have used model simulations for assessing the effect of climate change on flood frequency and magnitude and identified community perceptions of risk and the implications for local government decision making. This work has been integrated into decisions taken by Greater Wellington Regional Council as it relates to the Hutt City flood risk management plan within the Hutt district. The dynamic adaptive pathways planning approach for managing uncertainty and climate change was used to assess the options for decisions on the upgrade of the CBD reach of the Hutt River flood management scheme. (See section 2.7, flooding hazards) and is now being rolled out throughout New Zealand.

In assessing the implications of climate change effects on a district, and for managing and reducing the risks of climate change and coastal hazard risk the following steps should be considered (MfE, 2008):

- The precautionary approach from the NZCPS is adopted when making land-use planning decisions for existing and greenfield areas in the coastal environment that could potentially be affected by coastal hazards, with priority given to the areas at high risk of being affected.
- New developments are not exposed to, or do not increase the levels of risk of adverse effects from coastal hazards over their serviceable lifetime. While, progressively reducing the level of risk over time, noting that sea-level rise will continue to affect existing land-uses.
- The role of natural coastal margins is recognised in decision-making processes, and consequently coastal margins are secured and promoted as the fundamental form of coastal defence and as an economic, environmental, social, and cultural resource (Ministry for the Environment, 2008).
- An integrated and sustainable approach to the management of development and coastal hazard risk is adopted, which contributes to the environmental, cultural, social and economic well-being of people and communities. Recognising that over time the coast will continually be readjusting, that sea-level rise will continue for centuries and there are limits to defence.

The current methods for managing the present-day and future risk of coastal hazards has been achieved through policy development, planning, and resource consenting. This involves a combination of interrelated risk-avoidance and risk-reduction activities and consideration of measures that can be adapted over time depending on how the effects of climate change affect risk profiles. However, such an incremental adaptive approach will be temporary at best. Sea-level rise is certain while the rates of change are not.

Because of the complex planning involved in existing developments located in areas already identified as being exposed to climate change impacts, a mixture of mechanisms will be needed to support planning and building control measures such as:

- Information and education
- Financial mechanisms, e.g. funding for land purchases
- Transitional measures (both soft and hard) where 'holding the line' is necessary before readjustment.

Whatever measures are used, they will need to be designed so they can be flexible allowing adjustments over time. These are only options and further cost benefit assessments and analyses will be required before any decisions are made alongside assessments of the environmental, social, economic and social impacts before any of these options are selected.

## 6.0 DECISION-MAKING CONSIDERATIONS

Whichever options(s) are chosen, any decision making should consider the issues shown in Table 3, as outlined in Standards New Zealand (2004, p82). This ensures that even for the most highly contested risk, decisions can be shown to be based on the consideration of various issues, although how much weighting is given to each (e.g. leverage versus effects on the environment) can be questioned.

**Table 3** Decision-making issues to be considered for planning options (adopted from Standards New Zealand, 2004, p. 82).

Acceptability	Has the tolerability of the risk reduction option by stakeholders been assessed?
Administrative efficiency	Is this risk reduction option easy to implement or will it be neglected because of difficulty of administration or lack of expertise?
Compatibility	How compatible is the risk reduction option with others that may be adopted?
Continuity of effects	Will the effects be continuous or only short term? Will the effects of this risk reduction option be sustainable? At what cost? Who pays?
Cost effectiveness	Is it cost effective, could the same results be achieved at a lower cost by other means?
Economic and social effects	What will be the economic and social impacts of this risk reduction option over generations?
Effects on the environment	What will be the environmental impacts of this risk reduction option?
Equity	Are risks and benefits distributed fairly and over generation, e.g. do those responsible for creating the risk pay for its reduction?
Individual freedom	Does the risk reduction option deny any basic rights?
Jurisdictional authority	Does this level of organisation or government have the authority to apply this option? If not, can higher levels be encouraged to do so? Does a higher level have a part to play in implementation?
Leverage	Will the risk reduction option lead to additional benefits in other areas? Or will the risk reduction option reduce the flexibility to change course in the future as the climate changes?
Objectives	Are organisational objectives advanced by this risk reduction option?
Regulatory	Does the risk reduction option (or lack of option) breach any regulatory requirements? Does the risk reduction option enhance achievement of regulatory purposes?
Political acceptability	Is it likely to be endorsed by the relevant government authority? Will it be acceptable to communities? Have communities been consulted?
Risk creation	Will this risk reduction option introduce new risks or exacerbate current ones?
Timing	Has the timeframe of the activity been considered for future effects of climate change (some climate change related hazards such as sea-level rise will evolve rather than occur as an extreme event like storm surge or flooding for example)? Consideration of the timing and timeframes of land uses implies that an adaptive approach that enables course correction at points over time will need to be designed.



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## 7.0 SUMMARY AND RECOMMENDATIONS

This report has outlined how the Hutt Valley is subject to a number of natural hazards, including fault rupture, ground shaking, subsidence, liquefaction, landslide, tsunami, flooding and sea-level rise. This report has provided a summary of the current state of knowledge for each of these hazards describing their characteristics and relevance to Lower Hutt. In doing so, the report has noted that some suburbs in Lower Hutt are more susceptible than others, and some are subject to multiple hazards that could include the effects of cumulative or cascading hazards. Appendix 2 provides a summary of the neighbourhoods, the hazards they face and the mitigation options available.

A number of planning responses are available to the council which include:

- Avoidance
- Limited development
- Managed retreat
- Risk-based planning
- Emergency management
- Monitoring and review

These responses have been explored and from this a number of technical and planning recommendations have been made.

### 7.1 RECOMMENDATIONS FOR FURTHER INVESTIGATIONS

There are a number of gaps in the natural hazard information for Lower Hutt City. The following sections outline what further investigations are required to fill these gaps.

#### 7.1.1 Technical

- That a combination of cone penetrometer tests (hundreds), an unconfined groundwater model and detailed geomorphology map based on LiDAR topographic data is required to quantify the extent and severity of liquefaction for a range of seismic hazard levels. This recommended work will provide robust and quantified evidence to support appropriate risk management strategies.
- Future work should take into account the advances in understanding slope stability and the risks it poses at different hazard levels (Dellow et al., 2010; NIWA, MWH, GNS and BRANZ 2012; Massey et al., 2013a, 2013b). This would advance the understanding of slope stability hazards in Lower Hutt City by considering the hazard levels appropriate for different risk profiles. Advances in technology, such as LiDAR can provide a topographical model that can be interpreted and manipulated digitally. This would allow the model to be stripped of vegetation and buildings to create a topographic map which shows the location of both cuts and fills, allowing for a more detailed analysis of the likely response of slopes under both rainfall and earthquake triggering conditions.
- There is an opportunity to strengthen the provisions for natural hazards in the district plan. This could be achieved by aligning all of the provisions for natural hazards in a way that makes it clear what the risk is in the wider area, with a range of consequences. By aligning the natural hazards objectives and policies throughout all

sections of the District Plan more certainty will be provided when making land-use planning decisions in areas that are known to be affected by natural hazards.

- There are still a number of important gaps that need to be addressed, for example, an update of LiDAR information is needed to understand the effects on groundwater table inundation and surface water flooding associated with high intensity rainfall events which are expected to become more frequent. Low-lying areas affected by surface and groundwater flooding have been identified inland from the coast on the Hutt River floodplain at a coarse resolution.
- Further updates of LiDAR information in conjunction with NIWA modelling and adjustments for tectonic subsidence would enable more specific planning advice to be provided. It is therefore recommended that the LiDAR be updated and tectonic subsidence included within all sea-level rise estimates.
- Modelling of high intensity storms and their effect on ponding in low-lying areas would also improve the specificity of the available information. However, the high level of information and knowledge of Hutt City Council and Greater Wellington Regional Council staff could identify the areas that are most at risk from surface flooding. The modelling should be extended to include the resilience and capacity of the pumping stations around, and their ability to cope with increased rainfall.
- The effect of increased heavy rainfall events on landslide risk is a knowledge gap. Such information could inform the location of at-risk areas and therefore the nature of development controls that could reduce that risk over time. This has significance for hillside stability, increased sediment and debris transport, and runoff rates affecting downstream flood risk.

### 7.1.2 Planning

- With proposed RMA reforms introducing natural hazard risk into Section 6, coastal risks included in the New Zealand Coastal Policy Statement (NZCPS), and risk-based planning within the Wellington RPS, a risk-based approach is the recommended approach for Hutt City to implement.
- That an 'adaptive pathways' planning approach is used for assessing response options and that an adaptive plan with decision triggers be developed enabling course correction whatever the future risk profiles that evolve from changing climate.
- That an engagement strategy with communities and other key stakeholders (e.g. lifeline utilities, iwi, subject experts), is developed to assess what levels of natural hazard risk are acceptable. With the lifetime of a plan being 10 years, changes in risk perceptions and climate change impacts can be managed over time with each plan review.
- There is currently no information about the interaction between tsunami risk and sea-level rise, or how wave run-up, river or storm-water flooding interact with sea-level rise. Modelling of these effects to determine their significance in terms of the overall and cumulative risks is an important element for planning to consider as it has practical implications for how policies are developed.
- A greater understanding the interactions between ground and surface water, and how both of these will be impacted by sea-level rise is needed. Understanding the potential effects of this process and the locations where it may occur could inform areas where development is inappropriate, or where specific design measures are needed to reduce the risks to tolerable.

- Given the future risk for Hutt City associated with infrastructure, a comprehensive assessment of the location of underground and above-ground assets with respect to sea-level rise over at least 100 years (NZCPS requirement) would be prudent. This could also include an assessment of private/commercial property at risk from the exacerbation effect of sea-level rise on coastal inundation, and groundwater levels, heavy rainfall, riverine flooding and increased runoff from hillside development and sediment transport.
- Assessment of the tolerability thresholds should be made as part of an 'audit' process of the risks.

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## 8.0 BIBLIOGRAPHY

- Adams, B. M. 2000. Basin-edge effects from SH-wave modelling with reference to the Lower Hutt Valley, New Zealand. PhD (Civil engineering) Thesis. University of Canterbury.
- Adams, B. 1999. A report to EQC on two-dimensional site effects in Wellington and the Hutt Valley – similarities to Kobe Christchurch, N.Z. Research report University of Canterbury. Department of Civil Engineering, 99/3, 91p.
- Allan, S. 1991. Ewen Floodway Project: river works and Ewen Bridge replacement: assessment of impacts: report. Wellington: Boffa Miskell. 105 p.
- Ammenson, B., Manhardt, D. et al., 2015. Investigating flood and climate change perception in the Hutt Valley. Retrieved from [https://www.wpi.edu/Pubs/E-project/Available/E-project-030415-234532/unrestricted/NZ15Flood\\_Final\\_Paper.pdf](https://www.wpi.edu/Pubs/E-project/Available/E-project-030415-234532/unrestricted/NZ15Flood_Final_Paper.pdf)
- Anderson, L. 2010. The Ava Rail Bridge challenge. *Water* (Wellington, NZ) 166 (Sept): 54-55.
- Association of Bay Area Governments, 1990. Hazardous materials problems in earthquakes: executive summary. 6p.
- Asten, M.W., Stephenson, W.R., Davenport, P.N. 2005. Shear-wave velocity profile for Holocene sediments measured from micro-tremor array studies, SCPT, and seismic refraction. *Journal of environmental and engineering geophysics* 10(3): 235-242.
- Auckland Council. (2014). Natural Hazard risk communication toolbox: Natural hazard risk management action plan. Auckland Council, New Zealand.
- Ballinger, J., Jackson, B., Stokes, K., & Reisinger, A. 2011. The potential effects of climate change on flood frequency in the Hutt River. Wellington, NZ: School of Geography, the Environment, and Earth Sciences, Victoria University of Wellington.
- Ballinger, J., Jackson, B., Pechlivanidis, I., & Ries, W. (2010). Potential flooding and inundation on the Hutt River. Wellington, NZ: School of Geography, the Environment, and Earth Sciences, Victoria University of Wellington.
- Barriers to effective climate change adaptation. Productivity Commission inquiry report no. 59 September 2012. Retrieved from <http://www.pc.gov.au/inquiries/completed/climate-change-adaptation/report/climate-change-adaptation.pdf>
- Barker, P.R., Stephenson, W.R. 2003. Wainuiomata "local effects" seismograph network: micro-tremor and geotechnical investigations. Lower Hutt, N.Z.: Institute of Geological and Nuclear Sciences. Institute of Geological & Nuclear Sciences science report 2003/21. 53 p.
- Beban, J.G., Stewart, C., Kim, N., Cousins, W.J., Leonard, G.S., Wright, K.C., Johnston, D.M. 2015. Challenges of installing and maintaining 200-litre emergency rainwater tanks in the Wellington region. Lower Hutt, N.Z.: GNS Science. GNS Science report 2015/21. iii, 37 p.
- Beban, J.G., Saunders, W.S.A. 2013. Planning for risk: incorporating risk-based land use planning into a district plan. Lower Hutt: GNS Science. GNS Science miscellaneous series 63. 52 p.
- Beban, J.G., Cousins, W.J., Mason, K.M., Parnell, A. 2014. Potential for ground water bores to meet Lower Hutt's emergency water needs after large earthquakes. Lower Hutt, NZ: GNS Science. GNS Science report 2014/61. 41 p.
- Beban, J.G., Coomer, M.A., McBride, S. 2012. Addressing earthquake hazards: a review of council policies and plans within the Wellington region: Institute of Geological and Nuclear Sciences. GNS Science report 2012/31. 52 p.



- BECA, 2014. Site 10 – Kumutoto – Natural Hazards Assessment. Retrieved from <http://www.gw.govt.nz/assets/Resource-Consents/North-Kumutoto-Project---Wellington-Waterfront/Document-35-Appendix-21-Natural-Hazards-Assessment.pdf>
- BECA, 2015. Pinehaven Stream – Flood Mapping Audit. Retrieved from [http://www.gw.govt.nz/assets/council-reports/Report\\_PDFs/2015.359a1.pdf](http://www.gw.govt.nz/assets/council-reports/Report_PDFs/2015.359a1.pdf)
- Becker, J.S., Beban, J.G., Saunders, W.S.A., Van Dissen, R.J., King, A.B. 2013. Land use planning and policy for earthquakes in the Wellington Region, New Zealand (2001-2011). *Australasian Journal of Disaster and Trauma Studies* 2013-1: 3-16.
- Becker, J.S., Beban, J.G. 2013. Paper, seismic, rock – paper beats rock : a review of how earthquake hazards are recognised and addressed in council plans and policies for the Wellington Region. 8 p. In: *Same risks, new realities: New Zealand Society for Earthquake Engineering Technical Conference and AGM, April 26-28, 2013, Wellington*. Wellington: New Zealand Society for Earthquake Engineering.
- Becker, J.S., Saunders, W.S.A., Van Dissen, R.J. 2005 Planning for the development of land on or close to active faults : a study of the adoption and use of the Active Fault Guidelines. Lower Hutt: Institute of Geological & Nuclear Sciences Limited. Institute of Geological & Nuclear Sciences science report 2005/16. 63 p.
- Becker, J.S., & Houghton, R. 2005. February 2004 flooding: tabulated results of the survey of Lower Hutt businesses. Lower Hutt, N.Z.: Institute of Geological and Nuclear Sciences. Institute of Geological & Nuclear Sciences science report 2005/17. 65 p.
- Becker, J.S., & Johnston, D.M. 2002. Planning for earthquake hazards in New Zealand: a study of four regions. *Australian journal of emergency management*. Autumn 2002: 2-8.
- Becker, J.S., Saunders, W.S.A., Hopkins, L., Wright, K.C., & Kerr, J.E. 2008 Pre-event recovery planning for land-use in New Zealand : an updated methodology. Lower Hutt: GNS Science. GNS Science report 2008/11. 36 p.
- Beetham, R.D. 1999. Microzoning project Parkway Basin subsurface investigations, Wainuiomata. Lower Hutt, N.Z.: Institute of Geological and Nuclear Sciences. Institute of Geological & Nuclear Sciences science report 99/14. 1 v.
- Beetham, R.D, Cousins, W.J., Craig, M., Dellow, G.D., & Van Dissen, R.J. 2012 Hutt Valley trunk wastewater earthquake vulnerability study. GNS Science consultancy report 2012/234. 51 p. [September 2012]
- Begg, J.G. Langridge, R.M., Van Dissen, R.J., & Little, T. 2008. Wellington Fault: neotectonics and earthquake geology of the Wellington – Hutt Valley segment. p. 5-67 In: Little, T. A. (convener). Geological Society of New Zealand, New Zealand Geophysical Society, New Zealand Geochemical & Mineralogical Society joint annual conference: field trip guides. Geological Society of New Zealand miscellaneous publication 125B. Lower Hutt: Geological Society of New Zealand.
- Begg, J.G., Van Dissen, R.J., & Rhoades, D.A. 2004. Subsidence in the Lower Hutt Valley and the interplay between Wellington and Wairarapa Fault earthquakes. 9 p. In: Gregory, G. (convener). *New Zealand Society for Earthquake Engineering. Technical Conference (2004: Rotorua, NZ)*. Wellington. NZ: New Zealand Society for Earthquake Engineering.
- Begg, J.G., Van Dissen, R.J., Rhoades, D.A., Lukovic, B., Heron, D.W., Darby, D.J., & Brown, L.J. 2002. Coseismic subsidence in the Lower Hutt Valley resulting from rupture of the Wellington Fault. Wellington, N.Z.: Earthquake Commission [EQC funded project] ; 01/456. 45 p.

- Begg, J.G., & Johnston, M.R. 2000. Geology of the Wellington area: scale 1:250,000: Institute of Geological and Nuclear Sciences. Institute of Geological & Nuclear Sciences 1:250,000 geological map 10. 64 p. + 1 fold. map.
- Begg, J.G. 1999. Quaternary geology of the Hutt Valley. p. 33-57 In: Speden, I. G., & Skinner, D. N. B. (conveners). 8th International Symposium on Antarctic Earth Sciences: field trip guides. Wellington, NZ: Royal Society of New Zealand.
- Begg, J.G., & Van Dissen, R.J. 1998. Whitemans Valley Fault: a newly discovered active second order fault near Wellington, New Zealand : implications for regional seismic hazard. New Zealand Journal of Geology and Geophysics 41(4): 441-448.
- Begg, J.G., Perrin, N.D., & Van Dissen, R.J. 1997. The Wellington-Hutt Valley segment of the Wellington Fault: including hazard, engineering and planning implications: Geological Society of New Zealand. Geological Society of New Zealand Inc. 1997 Annual Conference: 25-27 November. Wellington: field trip guides. Geological Society of New Zealand miscellaneous publication 95B. 27 p.
- Begg, J.G., & Mazengarb, C. 1996. Geology of the Wellington area: sheets R27, R28, and part Q27, scale 1:50,000. 128 p. + 1 fold. map.
- Begg, J.G., Mildenhall, D.C., Lyon, G.L., Stephenson, W.R., Funnell, R.H., Van Dissen, R.J., Bannister, S.C, Brown, L.J., Pillans, B., Harper, M.A., & Whitten, J. 1993. A paleoenvironmental study of subsurface Quaternary sediments at Wainuiomata, Wellington, New Zealand, and tectonic implications. New Zealand Journal of Geology and Geophysics 36(4): 461-473.
- Bell, R. 1983. Ways sought to deal with bush fires in summer. Forest & bird 230: 32-34.
- Bell, R.G. & Hannah, J. 2012. Sea-level variability and trends: Wellington Region. Report prepared for Greater Wellington Regional Council. Retrieved from <https://static1.squarespace.com/static/5006875e24ac21f35d8de8d2/t/537be995e4b0785074d387b1/1400629653906/Sea+Level+Variability+and+Trends+in+the+Wellington+Region+2012+NIWA+Report.pdf>
- Benites, R.A., & Olsen, K.B. 2005. Modelling strong ground motion in the Wellington metropolitan area, New Zealand. *Bulletin of the Seismological Society of America*, 95(6): 2180-2196.
- Berryman, K.R., Van Dissen, R.J., & Mouslopoulou, V. 2002. Recent rupture of the Tararua section of the Wellington Fault and relationships to other fault sections and rupture segments. Wellington: Earthquake Commission. EQC research report 97/248. 22 p.
- Blick, G.H. 1973. Wellington – Hutt Valley geodetic chain site report (Wellington fault), New Zealand Geological Survey. New Zealand Geological Survey report EDS 25. 25 p.
- Boffa Miskell Ltd (2015). Hutt River City Centre Section Upgrade Project: Options Evaluation Report prepared by Boffa Miskell Ltd. Retrieved from <http://www.gw.govt.nz/assets/floodprotection/Hutt-River-FMGM/OptionsEvaluationReport.pdf>
- Boon, D., Perrin, N.D., Dellow, G.D., Van Dissen, R.J., & Lukovic, B. 2011. NZS1170.5:2004 site subsoil classification of Lower Hutt. Paper 013 In: Pacific Conference on Earthquake Engineering (9th : 2011 : University of Auckland). Auckland, NZ: 9PCEE.
- Boon, D.P., Perrin, N.D., Dellow, G.D., & Lukovic, B. 2010. It's Our Fault: geological and geotechnical characterisation and site class revision of the Lower Hutt Valley. GNS Science consultancy report 2010/163. 56 p.

- Brabhaharan, P. (nd). Lessons from liquefaction in the Canterbury earthquakes for enhancing the resilience of the built environment. Retrieved from <https://static1.squarespace.com/static/5006875e24ac21f35d8de8d2/t/516240cee4b0c98010ac3e92/1365393614624/Lessons+from+Liquefaction+in+the+Canterbury+Eqs+for+Enhancing+resilience+of+built+env%27t.pdf>
- Brabhaharan, P., Hastie, W.J., & Kingsbury, P.A. 1994. Liquefaction hazard mapping techniques developed for the Wellington region, New Zealand. p. 140-149 In: Conference technical papers : New Zealand National Society for Earthquake Engineering technical conference and AGM, Wairakei Hotel, Taupo, 18-20 March 1994. Waikanae: New Zealand National Society for Earthquake Engineering.
- Brabhaharan, P., Hancox, G.T., Perrin, N.D., & Dellow, G.D. 1994. Earthquake induced slope failure hazard study, Wellington Region: study area 2, Hutt Valley. Wellington: Wellington Regional Council. 35 p.
- Brabhaharan, P., Bharathy, G.K., Prentice, D., & Lynch, R. 2003. Natural hazards risk associated with petroleum storage in the Wellington Region, New Zealand. Paper no. 087. In: Pacific Conference on Earthquake Engineering (7th: 2003: University of Canterbury): New Zealand Society for Earthquake Engineering.
- Brackley et al. (2012). Review of liquefaction hazard information in eastern Canterbury, including Christchurch City and parts of Selwyn, Waimakariri and Hurunui Districts. Environment Canterbury Report No. R12/83 ISBN: 978-1-927222-37-9.
- Brown and Associates Ltd. 1991. Seismic hazard assessment of Lower Hutt City. Wellington: Ian R Brown Associates. 25 p.
- Brown and Associates Ltd. 1995. An investigation of latest displacement events on the Wellington Fault in the Lower Hutt area. Wellington, Earthquake Commission. Research project / Earthquake Commission 93/128. 1v.
- Brown and Associates. (2005). A study of issues affecting the stability of land in Hutt City. Report for Hutt City Council. Ian R Brown Associates Ltd, Wellington.
- Burby, R.J. (1998). Natural hazards and land use: An introduction. In R.J. Burby(Ed.). Cooperating with nature: Confronting natural hazards with land-use planning for sustainable communities (pp. 1-26). Washington, D.C, Joseph Henry Press.
- Earthquakes Royal Commission. 2012. Summary and Recommendations Final Report Part one (Volumes 1, 2, and 3)
- Changing climate and rising seas: understanding the science. Parliamentary Commissioner for the Environment. Retrieved from <http://www.pce.parliament.nz/media/1257/climatefaqfinal.pdf>
- Chilton Saint James School students. 2001. A pilot study to identify strategies to assess vegetation fire hazards. [Wellington, N.Z.] : New Zealand Fire Service Commission. New Zealand Fire Service Commission research report; no. 10. 63 p.
- Christchurch City Council. n. d. Operative variation 48: management of the flood hazard in Christchurch. Retrieved from <http://resources.ccc.govt.nz/files/Variation48-Operative Document.pdf>
- CERA. 2015. Overview of TC1, TC2 and tC3 technical categories. Retrieved from <http://cera.govt.nz/residential-green-zone-technical-categories/overview>
- Coad, J.N.O., & Pham, L.T. 1993. The earthquake strengthening of high voltage electrical equipment. p. 321-330 In: Institution of Professional Engineers New Zealand (convener). Proceedings IPENZ annual conference: sustainable development: papers prepared for the conference. University of Waikato, Hamilton, 5-9 February 1993. Hamilton: IPENZ.

- Coomer, M.A., Johnston, D.M., Edmonson, L., Monks, D., Pedersen, S., & Rodger, A. 2008. Emergency management in schools: Wellington survey. Lower Hutt, N.Z.: GNS Science. GNS Science report 2008/04. 28 p.
- Costly, N. 2013. It's Our Fault. *Engineering insight*, 14(1): 34-36.
- Cotton, C.A. 1960. Hutt Valley fault scarps. *New Zealand Journal of Geology and Geophysics*, 3(2): 218-221.
- Cousins, W.J., Nayerloo, M., & Van Dissen, R.J. 2014. Estimated earthquake and tsunami losses from large earthquakes affecting Wellington Region. Lower Hutt, N.Z.: Institute of Geological and Nuclear Sciences. GNS Science report 2014/42. 110 p.
- Cousins, W.J., Power, W.L., Destegul, U., King, A.B., Trevethick, R., Blong, R., Weir, B., & Miliauskas, B. 2009. Earthquake and tsunami losses from major earthquakes affecting the Wellington region. paper 24 In: New Zealand Society for Earthquake Engineering. Conference (2009: Christchurch, NZ). Wellington, NZ: New Zealand Society for Earthquake Engineering.
- Cousins, W.J. 2013. Wellington without water: impacts of large earthquakes. Lower Hutt, N.Z.: Institute of Geological and Nuclear Sciences. GNS Science report 2012/30. 124 p.
- Cross, A., & Atapattu, D. 2001. The Hutt River floodplain management plan : issues for utility organisations. p. 4:1-4:8. In: Wellington Lifelines Group. International Workshop (2001: Wellington, NZ). Wellington, N.Z.: Wellington Lifelines Group.
- Crozier, M. J., Hancox, G. T., Dellow, G. D., & Perrin, N. D. (2008). Slip sliding away. In I. J. Graham (Ed.), *A Continent on the Move: New Zealand Geoscience into the 21st Century* (pp. 198-201). Wellington, New Zealand: Geological Society of New Zealand in association with GNS Science.
- Davenport, P.N., Cousins, W.J., & Lukovic, B. 2005. Seismic impact on water distribution systems. 9 p. In: *EnviroNZ05: Water matters: Conference proceedings: 28th-30th September 2005*, Aotea Centre, Auckland, New Zealand. Wellington: New Zealand Water & Wastes Association.
- Davey, R.A., & Shephard, R.B. 1995. Earthquake Risk Assessment study: Study area 1 – Wellington City. WRC/PP-T-95/22. Works Consultancy Services Limited.
- Davey, R.A., & Shephard, R. B. 1995. Earthquake Risk Assessment Study. Study Area 2- Hutt Valley. Wellington: Works Consultancy Services and Wellington Regional Council.
- Dellow, G.D. 1988. Earthquake generated landslides in the Wellington-Lower Hutt area. MSc (Engineering Geology) Thesis. University of Canterbury.
- Dellow, G. D., Buxton, R., Joyce, K. E. & Matcham, I. R. (2010). A probabilistic rainfall-induced landslide hazard model for New Zealand. In A. L. Williams, G. M. Pinches, C. Y. Chin, T. J. McMorran, & Massey, C.I. (Eds.). *Geologically active: delegate papers 11th Congress of the International Association for Engineering Geology and the Environment* (pp. 1069-1076). Auckland, New Zealand: CRC Press.
- Dellow, G.D., Read, S.A.L., Begg, J.G., Van Dissen, R.J., & Perrin, N.D. 1992. Distribution of geological materials in Lower Hutt and Porirua, New Zealand: a component of a ground shaking hazard assessment. *Bulletin of the New Zealand National Society for Earthquake Engineering* 25(4): 332-344.
- Dellow, G. D., Perrin, N. D., & Ries, W. (2014). Liquefaction hazard in the Wellington Region, *GNS Science Report* 2014/16.
- Downes, G. L., & Stirling, M. W. (2001). Groundwork for development of a probabilistic tsunami hazard model for New Zealand. In *International Tsunami Symposium 2001* (pp. 293-301).
- Geoff Dick. 2005. Flood Damage, Western Rivers – January 2005 (Report 05.24 for GWRC). Retrieved from [http://www.gw.govt.nz/assets/council-reports/Report\\_PDFs/2005\\_24\\_1\\_Report.pdf](http://www.gw.govt.nz/assets/council-reports/Report_PDFs/2005_24_1_Report.pdf)

- Dunbar, G.B., Barrett, P.J., Goff, J.R., Harper, M.A., & Irwin, S.L. 1997. Estimating vertical tectonic movement using sediment texture. *The Holocene*, 7(2): 213-221.
- Eastbourne Community Board. Eastbourne Community Survey 2014. Retrieved from <http://iportal.huttcity.govt.nz/Record/ReadOnly?Uri=3688777>
- Edge Environment. 2013. A Report on Development Guidelines for Resilient Housing for Lake Macquarie (NSW) prepared for Lake Macquarie City Council. Retrieved from <http://www.lakemac.com.au/downloads/0B733F46599114EC97CA5148540EDDDDC3782A23.PDF>
- Environment Waikato. (2006). Managed retreat from coastal hazards: Options for implementation. Hamilton, New Zealand. Retrieved from <http://www.waikatoregion.govt.nz/PageFiles/5405/tr06-48.pdf>
- Ericksen, N.J., 1986. Creating flood disasters? New Zealand's need for a new approach to urban flood hazard (Water & soil miscellaneous publication no 77)
- Ewen Bridge Gateway Study Task Group 1989. Ewen Bridge Gateway Study Report / prepared for Lower Hutt City Council and Wellington Regional Council by Ewen Bridge Gateway Study Task Group. Wellington: WORKS Consultancy Services. 62p.
- Eyles, R. J., Crozier, M. J., & Wheeler, R. H. (1978). Landslips in Wellington city. *New Zealand Geographer*, 34(2), 58-74.
- Fry, B.M. 1985. A late Quaternary history of the Hutt Valley: a tool for town planning. BSc(Hons) (Geology) Thesis. Victoria University of Wellington.
- Grant, H., 2005. Natural hazards – background report. Retrieved from [http://www.gw.govt.nz/assets/council-hazards/2564\\_NaturalHazardsBas4824.pdf](http://www.gw.govt.nz/assets/council-hazards/2564_NaturalHazardsBas4824.pdf)
- Glavovic, B. C., Saunders, W.S.A., & Becker, J. S. (2010). Land-use planning for natural hazards in New Zealand: The setting, barriers 'burning issues' and priority actions. *Natural hazards*, 54(3), 679-706.
- Grant-Taylor, T.L. 1959. Geology of the Hutt Valley. Proceedings / New Zealand Ecological Society 6: 31-35.
- Grant-Taylor, T.L. 1971. Report on the geological considerations affecting the Ngauranga-Maungaraki motorway, New Zealand Geological Survey. New Zealand Geological Survey report EG 121. 10 p.
- Grapes, R., & Downes, G. (1997). The 1855 Wairarapa, New Zealand, Earthquake – Analysis of Historical Data. *Bulletin of the New Zealand National Society for Earthquake Engineering*, 30(4), 271-369.
- Grapes, R. H., & Holdgate, G. R. (2014). Earthquake clustering and possible fault interactions across Cook Strait, New Zealand during the 1848 and 1855 earthquakes. *New Zealand Journal of Geology and Geophysics*, 57(3), 312-330
- Green, M. 1998. Research: the basis of hazard policy and its implementation: research into wildfire hazard at the Wellington Regional Council. p. 29-32 In: Johnston, D. M.; Kingsbury, P. A. (conveners). Natural Hazards Management Workshop (1998: Christchurch, NZ). Lower Hutt: Institute of Geological & Nuclear Sciences.
- Gross, R., Horstmeyer, H., Green, A.G., & Begg, J.G. 2004. Geometry of the Wellington Fault (New Zealand) defined by 3-D georadar data. p. 559-562 In: International Conference on Ground Penetrating Radar (10th: 2004: Delft, The Netherlands).
- Gross, R.; Green, A.G.; Horstmeyer, H.; Begg, J.G. 2004. Location and geometry of the Wellington Fault (New Zealand) defined by detailed three-dimensional georadar data. *Journal of Geophysical Research. Solid Earth* 109(B5): B05401.



- Godschalk, D.R. (2002). Urban hazard mitigation: Creating resilient cities. Paper presented at the Urban Hazards Forum.
- GWRC (2001, October). Hutt River flood management plan: For the Hutt River and its environment. Retrieved from <http://www.gw.govt.nz/assets/Our-Services/Flood-Protection/Hutt/FP-Hutt-River-FMP.pdf>
- GWRC. 2000. Report 00.593: Wainuiomata River Flood Hazard Assessment.
- GWRC. 2011. Wainuiomata River Flood Hazard Assessment – Hydraulic Modelling and Floodplain morphology
- GWRC. 2004. Proposed district plan change – Hutt River higher risk flood hazard areas. Wellington: Greater Wellington Regional Council. GW/FP-G-04/103. 30p.
- GWRC. 2004. Flooding hazard: Hutt Valley. Wellington: Greater Wellington Regional Council (1 folded sheet ([4] p.).
- GWRC. 2004. Earthquake hazard: Hutt Valley. Wellington: Greater Wellington Regional Council (1 sheet ([2] p.).
- GWRC. 2013. City Centre Section Scoping Report: Hutt River floodplain management plan. Retrieved from <http://www.gw.govt.nz/assets/Our-Services/Flood-Protection/Hutt/City-Centre/City-centre-ScopingREportFinalFinal10Sep13.pdf>
- GWRC. 1996. Hutt Valley Combined Earthquake Hazard Map. Retrieved from [http://www.shakeout.govt.nz/downloads/Combined\\_earthquake\\_hazard\\_map\\_Hutt\\_Valley-Greater\\_Wellington\\_Regional\\_Council.pdf](http://www.shakeout.govt.nz/downloads/Combined_earthquake_hazard_map_Hutt_Valley-Greater_Wellington_Regional_Council.pdf)
- GWRC. 1993. Liquefaction hazard study: Wellington Region: Study area 2 – Hutt Valley.
- GWRC. 2015. Proposed District Plan Change 37. Hugh Sinclair Park, Wainuiomata: summary of submissions. Retrieved from <http://portal.huttcity.govt.nz/Record/ReadOnly?Tab=3&Uri=3811543>
- GWRC. Information Sheet 15: Waiwhetu/Awamutu Streams. Retrieved from <http://www.gw.govt.nz/assets/Our-Services/Flood-Protection/Waiwhetu-project/Waiwhetu---Flood-Hazard-Sheets/15-Waiwehtu-Awamutu-Stream-Flood-Hazard-Sheet-15.pdf>
- GWRC. 2014. Draft Climate Change Strategy: A strategy to guide the Wellington Region's climate resilience activities. Retrieved from <http://www.gw.govt.nz/assets/Climate-change/WGNDPCS-1439979-v1-GWRCDraftClimateChangeStrategy.PDF>
- GWRC. 2015. Hutt River city centre upgrade project: river corridor options report. Retrieved from <http://www.gw.govt.nz/assets/floodprotection/Hutt-River-FMGM/HuttRiverCityCentre-RiverCorridorOptionReport.pdf>
- GWRC. 2015. Selected Land Use Register (SLUR). Retrieved from <http://www.gw.govt.nz/selected-land-use-register-slur-register-search/>
- GWRC. 2015. Landslide hazard fact sheet. Retrieved from [http://www.gw.govt.nz/assets/Emergencies--Hazards/landslide\\_hazard.pdf](http://www.gw.govt.nz/assets/Emergencies--Hazards/landslide_hazard.pdf)
- GWRC. 2015. It's easy know your tsunami zone. Retrieved from <http://www.getprepared.org.nz/sites/default/files/uploads/It%27s%20Easy%20Prepared%20Households.pdf>
- GWRC. 2015. Combined earthquake hazard map: Hutt Valley. Retrieved from [http://www.shakeout.govt.nz/downloads/Combined\\_earthquake\\_hazard\\_map\\_Hutt\\_Valley-Greater\\_Wellington\\_Regional\\_Council.pdf](http://www.shakeout.govt.nz/downloads/Combined_earthquake_hazard_map_Hutt_Valley-Greater_Wellington_Regional_Council.pdf)
- GWRC. 2015. Wildfire Hazards fact sheet. Retrieved from [http://www.gw.govt.nz/assets/Emergencies--Hazards/wildfire\\_hazard.pdf](http://www.gw.govt.nz/assets/Emergencies--Hazards/wildfire_hazard.pdf)



- Hancox, G.T., & Perrin, N.D. 2010. Sites of potential landslides that could damage water pipelines in the Greater Wellington Region during a Wellington Fault earthquake. Lower Hutt, N.Z.: GNS Science. GNS Science report 2010/12. 35 p.
- Hancox, G.T., Dellow, G.D., Massey, C.I., & Perrin, N.D. 2007. Reconnaissance studies of landslides caused by the July-October 2006 rainstorms in southern North Island, New Zealand. Lower Hutt, N.Z.: Institute of Geological and Nuclear Sciences. GNS Science report 2006/26. 37p.
- Hancox, G.T. 1977. Mt Hector water utilization and conservation scheme: interim report on reconnaissance engineering geological investigations, New Zealand Geological Survey. New Zealand Geological Survey report EG 282. 17 p.
- Hancox, G.T. 1979. Preliminary engineering geological investigations for a flood detention dam in Korokoro Stream, Petone, New Zealand Geological Survey. New Zealand Geological Survey report EG 321. 22 p.
- Hancox, G.T.; Wright, K.C. 2005 Landslides caused by the February 2004 rainstorms and floods in southern North Island, New Zealand. Lower Hutt: Institute of Geological & Nuclear Sciences Limited. Institute of Geological & Nuclear Sciences science report 2005/10. 32 p.
- Hannah, J. (1990). Analysis of mean sea level data from New Zealand for the period 1899-1988. *Journal of Geophysical Research*, 95(B8), 12399-12405
- Hannah, J. (2004). An updated analysis of long-term sea level change in New Zealand. *Geophysical Research Letters*, 31(3), 3307-3307.
- Hastie, W.J., & Van Dissen, R.J. 1991. Assessment of seismic hazard in the Wellington region, New Zealand. p. 2:135-145. In: Pacific Conference on Earthquake Engineering: New Zealand, 20-23 November 1991. Auckland: New Zealand Society for Earthquake Engineering.
- Hodder, S.B. 1984. High-damping response spectra for Haywards 1968 and El Centro 1940 strong-motion accelerograms. Report / Physics and Engineering Laboratory 903. 66 p.
- Hopkins, D.C., Brown, I.R., Cahill, J., & Aggett, G. 1997. Combined earthquake hazard maps for the Wellington region. p. 10-17. In: New Zealand National Society for Earthquake Engineering Technical Conference and AGM: Wairakei Resort, Taupo, Friday/Sunday 14-16 March 1997. Waikanae: New Zealand National Society for Earthquake Engineering.
- Hopkins, D.C. 1987. General Interest: Earthquake fault movement and town planning. *Local Authority Engineering in New Zealand*, 2(4): 21-25.
- Hopkins, D.C. 1987. Earthquake fault movement and town planning. *Bulletin of the New Zealand National Society for Earthquake Engineering*, 20(2): 79-83.
- Hufschmidt, G., & Crozier, M.J. 2008. Evolution of natural risk: analysing changing landslide hazard in Wellington, Aotearoa/New Zealand. *Natural hazards*, 45(2): 255-276.
- Hutt City Council. 2012. Storm-water Plan 2012-2017. Retrieved from [https://www.google.co.nz/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwiv-9\\_P7eHJAhUDKaYKHdKoD9wQFggaMAA&url=http%3A%2F%2Fwellingtonwater.co.nz%2FDocuments%2F43&usq=AFQjCNHt5KyAzrLKJppdYmYaRGKGBHHWQw&bvm=bv.110151844,d.dGY](https://www.google.co.nz/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwiv-9_P7eHJAhUDKaYKHdKoD9wQFggaMAA&url=http%3A%2F%2Fwellingtonwater.co.nz%2FDocuments%2F43&usq=AFQjCNHt5KyAzrLKJppdYmYaRGKGBHHWQw&bvm=bv.110151844,d.dGY)
- Hutt City Council. Environmental sustainability strategy 2015-2045. 2015. Retrieved from [http://psm.huttcity.govt.nz/Documents/az/Environmental%20Sustainability%20Strategy\\_Part2.pdf](http://psm.huttcity.govt.nz/Documents/az/Environmental%20Sustainability%20Strategy_Part2.pdf)
- Hutt News, 31 October 2006. Fallen logs may be culprits in another slip-smashed home.
- Hutt News, 21 July 2015. Site of the Hutt City Hall and Events Centre.

- Infometrics. 2015. Flood protection: option flexibility and its value (report for GWRC). Retrieved from [http://www.gw.govt.nz/assets/floodprotection/Hutt-River-FMGM/Option\\_flexibilityanditsvalue.pdf](http://www.gw.govt.nz/assets/floodprotection/Hutt-River-FMGM/Option_flexibilityanditsvalue.pdf)
- Insurance Council of New Zealand. (2014, October). Protecting New Zealand from Natural Hazards. Retrieved from <https://assets.documentcloud.org/documents/1353125/protecting-new-zealand-from-natural-hazards.pdf>
- IPCC. (2014). Climate change 2014: Mitigation of climate change (AR5). New York, NY: Cambridge University Press
- Kaiser, A.E., Holden, C., Massey, C.I. (2014). Site amplification, polarity and topographic effects in the Port Hills during the Canterbury earthquake sequence. *GNS Science consultancy report 2014/121*. 33 p.
- Kerr, J. Nathan, S., Van Dissen, R., Webb, P., Brunsdon, D., & King A. (2003). Planning for development of land on or close to active faults: an interim guideline to assist resource management planners in New Zealand.
- Key flooding lessons from Australia and abroad fact sheet, 2013. Retrieved from <https://www.nccarf.edu.au/publications/key-flooding-lessons-australia-and-abroad>
- Kilvington, M., & Saunders, W.S.A. 2015. "I can live with this". The Bay of Plenty Regional Council public engagement on acceptable risk, GNS Science Miscellaneous Series 86. 71 p.
- King, D., 2013. Presentation – Planning, building and insuring: Adaptation of built environment to climate change induced increased intensity of natural hazards. Retrieved from <https://www.nccarf.edu.au/publications/presentation-planning-building-insuring-climate-change>
- Kingett Mitchell. 2000. Ecological health of the Waiwhetu Stream. Wellington Regional Council, Wellington.
- Kingsbury, P.A., Hastie, W.J., & Heatherington, M.D. 1992. Map sheet 3. Lower Hutt In: Seismic hazard map series: Ground shaking hazard. Wellington: Wellington Regional Council. Policy and Planning Department.
- Kingsbury, P.A., & Hastie, W.J. 1993. Map Sheet 3. Hutt Valley In: Seismic hazard map series: Liquefaction hazard. Wellington: Wellington Regional Council. Policy and Planning Department.
- Kingsbury, P. A. & Hastie, W.J. 1995. Seismic Hazard Map Series: Earthquake Induced Slope Failure. Map sheets and notes for Wellington City, Porirua, Hutt Valley and Kapiti. GWRC.
- Kingsbury, P.A., & Brunsdon, D.R. 1996. Earthquake and geological hazard mitigation strategy: A framework for public education and community involvement. p. 138-143 In: New Zealand National Society for Earthquake Engineering technical conference and AGM. Waikanae: New Zealand Society for Earthquake Engineering.
- Ladson, T. 2015. The 100 year flood. Retrieved from <https://tonyladson.wordpress.com/2015/06/07/the-100-year-flood/>
- Land Stability Assessment Areas: Ikitara Road, Bastia Hill and Durie Hill Risk Study Report, 2014. Retrieved from <http://www.wanganui.govt.nz/our-district/district-plan-text/phase-6/Documents/LandStabilityAssessmentAreas.pdf>
- Lane, E., Gorman, R., Plew, D., & Stephens, S. (2012). Assessing the storm inundation hazard for coastal margins around the Wellington region. Prepared for Greater Wellington Regional Council, Kapiti Coast. District Council and Wellington City Council. Christchurch: NIWA

- Lawrence, J.H., Depledge, D.R., Oakley, D.J., Eyles, R.J., & Salinger, M.J. 1982. Landslip and flooding hazards in Eastbourne Borough: A guide for planning. Wellington: Water and Soil Division, MOWD. Water and Soil miscellaneous publication 37. 46 p.
- Lawrence, J., Reisinger, A., Mullan, B., & Jackson, B. (2013). Exploring climate change uncertainties to support adaptive management of changing flood-risk. *Environmental Science & Policy*, 33(0), 133-142.
- Lawrence, J., Tegg, S., Reisinger, A., & Quade, D. (2011). Vulnerability and adaptation to increased flood risk with climate change – Hutt Valley summary (NZCCRI Report 2). Victoria University of Wellington, School of Geography, Environment and Earth Sciences, New Zealand Climate Change Research Institute.
- Lawrence, J., & Quade, D. (2011). Perspectives on flood-risk management and climate change—implications for local government decision making. NZCCRI Report 07 (Vol. NZCCRI-11-07, pp. 49). Wellington: New Zealand Climate Change Research Institute, Victoria University of Wellington
- Lawrence, J., Quade, D., & Becker, J.S. 2014. Integrating the effects of flood experience on risk perception with responses to changing climate risk. *Natural hazards*, 74(3): 1773-1794.
- Leeves, J., van Ballegooy, S., Lees, J., Wentz, F., 2015: Effect of fines content correlations and liquefaction susceptibility thresholds on liquefaction consequence. Proceedings of the 6th International Conference on Earthquake Geotechnical Engineering. Christchurch, New Zealand: ISSMGE
- Leonard, G.S., Kelman, I., & Johnston, D.M. 2004. Residential impacts, perceptions and preparedness related to the Lower Hutt City February 2004 flooding: preliminary results. Lower Hutt, N.Z.: Institute of Geological and Nuclear Sciences. Institute of Geological & Nuclear Sciences science report 2004/38. 50 p.
- Leonard, G.S., Power, W.L., Lukovic, B., Smith, W.D., Langridge, R.M., Johnston, D.M., & Downes, G.L. 2009 Interim tsunami evacuation planning zone boundary mapping for the Wellington and Horizons regions defined by a GIS-calculated attenuation rule. Lower Hutt: GNS Science. GNS Science report 2008/30. 18 p.
- Litchfield, N., Van Dissen, R., Hemphill-Haley, M., Townsend, D., & Heron, D. (2010). Post c. 300 year rupture of the Ohariu Fault in Ohariu Valley, New Zealand. *New Zealand Journal of Geology and Geophysics*, 53(1), 43-56. doi: 10.1080/00288301003631780.
- Little, T. A., Van Dissen, R., Rieser, U., Smith, E. G. C., & Langridge, R. (2010). Co-seismic strike-slip at a point during the last four earthquakes on the Wellington fault near Wellington, New Zealand. *Journal of Geophysical Research*, 115 (5). B05403. doi: 10.1029/2009JB006589.
- Little, T., & Begg, J. (2005). 1855 Wairarapa Earthquake Symposium: All-day Field-trip to the Wairarapa Fault and 1855 Rupture Sites. Greater Wellington Regional Council.
- Local government New Zealand. (2014). Managing hazard and risk in New Zealand. Retrieved from <http://www.lgnz.co.nz/assets/Publications/Managing-natural-hazards-LGNZ-think-piece.pdf>
- Lumsden, J.L.; Hopkins, D.C. 1992. Lifelines in earthquakes: a case study based on Wellington. p. 497-507 In: Proceedings: IPENZ Annual Conference 1992: Economic growth : a professional engineer's contribution. Volume 1, General and civil. Wellington: Institution of Professional Engineers NZ.
- Lower Hutt City Plan. (2011). Planning Map B4. Retrieved from <http://portal.huttcity.govt.nz/Record/ReadOnly?Tab=3&Uri=3686819>
- Ma, S.Q., Savage, M., & Yu, J. 2007. Modelling ground motion in the Hutt Valley, New Zealand. *Bulletin of the New Zealand Society for Earthquake Engineering*, 40(4): 190-199.

- Manning, M., & Lawrence, J. 2012. Climate Change Risk Management. Presentation to HCC. Retrieved from <http://www.victoria.ac.nz/sgees/research-centres/ccri/research/presentations-on-community-vulnerability-and-resilience-to-local-and-central-government2/9-Manning-Lawrence-HuttCity-2012-Jul19.pdf>
- Manning, M., & Lawrence, J. (n.d.). Framing the Issues: Changing climate risk and flexible decision-making. NS Climate Change Research Institute Victoria University of Wellington. Retrieved from [http://www.victoria.ac.nz/sgees/research-centres/ccri/research/presentations-on-community-vulnerability-and-resilience-to-local-and-central-government2/4-Manning-Lawrence-NZCCC\\_Sea-Level\\_Rise\\_Conference-May10.pdf](http://www.victoria.ac.nz/sgees/research-centres/ccri/research/presentations-on-community-vulnerability-and-resilience-to-local-and-central-government2/4-Manning-Lawrence-NZCCC_Sea-Level_Rise_Conference-May10.pdf)
- Mason, D., & Brabharan, P. 2013. Resilience of transportation lifelines in the greater Wellington area. p. 407-414 In: Chin, C. Y. (convener). New Zealand Geotechnical Society. Symposium (19th: 2013: Queenstown, N.Z.). Wellington, NZ: Institute of Professional Engineers New Zealand.
- Massey, C.I., McSaveney, M.J., Carey, J.M., Richards, L., Yetton, M. (2013a) Mass (slope) movements triggered by the 2010/2011 Canterbury earthquake sequence, New Zealand. p. 36 In: *Long term geo-hazard and risk consequences of areas struck by high magnitude earthquakes: Proceeding of the International Symposium in Commemoration of the 5th Anniversary of the 2008 Wenchuan Earthquake*. [Chengdu, China]: [The Symposium].
- Massey, C.I., McSaveney, M.J., Heron, D.W. (2013b). Canterbury earthquakes 2010/2011 Port Hills slope stability: Life-safety risk from cliff collapse in the Port Hills. *GNS Science consultancy report 2012/124*. 23 p. + 2 appendices
- MBIE. 2015. Geotechnical earthquake engineering practice. Retrieved from <http://www.nzgs.org/resources/pdfs/Geotechnical-Module%205A-PROOF6.pdf>
- MBIE. 2015. Assessing, repairing and rebuilding foundations in TC3. Retrieved from <http://www.building.govt.nz/UserFiles/File/Publications/Building/Guidance-information/pdf/canterbury-technical-guidance-foundations-part-c.pdf>
- MCDEM (2008a). National Civil Defence Emergency Management Strategy 2007. Wellington, Department of Internal Affairs.
- MCDEM (2008b). National tsunami signage: technical standard for the CDEM sector [TS01/08]. Wellington, Ministry of Civil Defence and Emergency Management.
- MCDEM (2008c). National Civil Defence Emergency Management Strategy 2007. Wellington, Department of Internal Affairs.
- MCDEM. 2015. National Civil Defence emergency management strategy. Retrieved from <http://www.civildefence.govt.nz/cdem-sector/cdem-framework/national-civil-defence-emergency-management-strategy/>
- McConchie, J.A. 1982. Landslip prediction from precedent. p. 112-117 In *Geography and Development Policy: Proceedings of the Eleventh New Zealand Geography Conference*, Wellington, Aug 1981. Wellington: New Zealand Geographical Society.
- McMinn, J., Brabharan, P., & Jennings, D.N. 1993. Liquefaction hazard study Wellington region: A review of historical records of liquefaction. Wellington: Wellington Regional Council. 34 p.
- McSaveney, M.J., & Davies, T.R. 2004. Does the big question have an answer? Potential landslide size. p. 134-140 In: Abdrakhmatov, K., Evans, S. G., Hermanns, R., Mugnozsa, G. S., & Strom, A. L. (convener). NATO Advanced Research Workshop on Security of Natural and Artificial Rockslide Dams (2004: Bishkek, Kyrgyzstan). [Bishkek]: NATO.

- McVerry, G.H., & Sritharan, S. 1991. Earthquake site response effects demonstrated by New Zealand strong-motion records. p. 205-216 In: Pacific Conference on Earthquake Engineering, Auckland, New Zealand, 20-23 November 1991: proceedings. 3. Wellington: New Zealand National Society for Earthquake Engineering.
- McVerry, G.H., & Holden, C. 2014. Incorporating simulated Hikurangi subduction interface spectra into probabilistic hazard calculations for Wellington. Paper no. O54 In: New Zealand Society for Earthquake Engineering. Conference (2014: Auckland, NZ): New Zealand Society for Earthquake Engineering.
- MfE, 2008. Coastal Hazards and climate Change: a guidance manual for local government in New Zealand. Retrieved from <https://www.mfe.govt.nz/sites/default/files/coastal-hazards-climate-change-guidance-manual.pdf>
- MfE, 2010. Preparing for future flooding: a guide for local government in New Zealand. Retrieved from <http://www.mfe.govt.nz/publications/climate-change-hazards/preparing-future-flooding-guide-local-government-new-zealand>
- Mieler, D.H., Beban, J.G., & Saunders, W.S.A. 2014. Land use planning policies and initiatives in San Francisco for earthquake: what can Wellington learn? Lower Hutt, NZ: GNS Science. GNS Science report 2014/47. 52 p.
- Mileti, D. S. (1999). Disasters by design: a reassessment of natural hazards in the United States. Washington, D.C., Joseph Henry Press.
- Mueller, C., Wang, X. & Power, W.L. (2014). Investigation of the effects of earthquake complexity on tsunami inundation hazard in Wellington Harbour. GNS Science Consultancy Report 2014/198.
- MW., 2013. Survey – asset management activities Wellington region local authorities.
- New Zealand Insurance Council. 2015. Costs of storms between 13-15 May in Wellington region. Retrieved from <http://www.icnz.org.nz/statistics-data/cost-of-disaster-events-in-new-zealand/>
- New Zealand Geotechnical Society. 2010. Geotechnical earthquake engineering practice: Module 1 – guideline for the identification, assessment and mitigation of liquefaction hazards. Retrieved from <http://www.nzgs.org/publications/guidelines/geoequakeengineer.pdf>
- NIWA, 2011. Coastal adaptation to climate change: pathways to change. Retrieved from [https://www.niwa.co.nz/sites/niwa.co.nz/files/pathways\\_to\\_change\\_nov2011.pdf](https://www.niwa.co.nz/sites/niwa.co.nz/files/pathways_to_change_nov2011.pdf)
- NIWA, MWH, GNS and BRANZ. 2012. Impacts of Climate Change on Urban Infrastructure and the Built Environment: Toolbox Handbook. Retrieved from <http://www.niwa.co.nz/climate/urban-impacts-toolbox>
- Oborn, L.E. 1972. Liverton Stream culvert SH2 Western Hutt Road: blockage by stream debris 11-12 July 1972, New Zealand Geological Survey. New Zealand Geological Survey report EG 141. 7 p.
- O'Connell, M.; Hargreaves, R., 2004. Study Report 130 'Climate change adaptation: Guidance on adapting New Zealand's built environment for the impacts of climate change' BRANZ. Retrieved from [http://www.branz.co.nz/cms\\_show\\_download.php?id=74ff9e276a9ba9e0daa9209e70711bea4c844bb4](http://www.branz.co.nz/cms_show_download.php?id=74ff9e276a9ba9e0daa9209e70711bea4c844bb4)
- OPUS. 2012. Blenheim urban growth study: geotechnical evaluation. Interpretive report. Retrieved from [http://www.marlborough.govt.nz/Your-Council/Growing-Marlborough/~/\\_media/Files/MDC/Home/Environment/Natural%20Hazards/Earthquake/Interpretive%20Report%20Blenheim%20Urban%20Growth%20Study%20%20Issue%201%20ver%202.ashx](http://www.marlborough.govt.nz/Your-Council/Growing-Marlborough/~/_media/Files/MDC/Home/Environment/Natural%20Hazards/Earthquake/Interpretive%20Report%20Blenheim%20Urban%20Growth%20Study%20%20Issue%201%20ver%202.ashx)



- Ota, Y., Williams, D. N., & Berryman, K. R. (1981). Part sheets Q27, R27 & R28 – Wellington (1st ed.). Late Quaternary tectonic map of New Zealand, 1:50,000 scale. Wellington, New Zealand: Department of Science and Industrial Research.
- Palmer, G. 2015. New Zealand's Defective Law on Climate Change. Retrieved from <http://www.victoria.ac.nz/law/about/news/new-zealands-defective-law-on-climate-change/ClimateChangeSpeech16Feb2015Final.pdf>
- Parliamentary Commissioner for the Environment (2015, November). Preparing New Zealand for rising seas: Certainty and Uncertainty. Parliamentary Commissioner for the Environment. Wellington, New Zealand.
- Planning Horizons No. 2 Future-Proofing Society June 2014: Why planners need to be at the forefront of responses to climate change and demographic change, 2014. RPTI Britain. Retrieved from [http://www.rpti.org.uk/media/1025151/rpti\\_planning\\_horizons\\_2\\_future-proofing\\_society\\_june\\_2014.pdf](http://www.rpti.org.uk/media/1025151/rpti_planning_horizons_2_future-proofing_society_june_2014.pdf)
- Pondard, N., & Barnes, P. M. (2010). Structure and paleoearthquake records of active submarine faults, Cook Strait, New Zealand: Implications for fault interactions, stress loading, and seismic hazard. *Journal of Geophysical Research*, 115(B12), doi: 10.1029/2010JB 007781
- Quade, D., & Lawrence, J. (2011). Vulnerability and Adaptation to Increased Flood Risk with Climate Change: Hutt Valley household survey NZCCRI-2011-06. Wellington: The New Zealand Climate Change Research Institute, Victoria University of Wellington.
- Quality Planning. (n.d.) Relationship between the Local Government Act 2002 and the Resource Management Act 1991. Retrieved from <http://www.qualityplanning.org.nz/index.php/related-laws/relationship-between-the-local-government-act-and-the-resource-management-act>
- Queensland Reconstruction Authority (n.d.). Planning for stronger and more resilient floodplains. Retrieved from <http://qldreconstruction.org.au/u/lib/cms2/resilient-floodplains-part1-full.pdf>
- Rae, Gary et al. Waiwhetu Stream diversion scoping study, 2002, Wellington: Montgomery Watson Harza (MWH) New Zealand Ltd, prepared for WRC.
- Read, S.A.L., Begg, J.G., Van Dissen, R.J., Perrin, N.D., & Dellow, G.D. 1991. Regional natural disaster reduction plan – seismic hazard. Geological setting of the Lower Hutt Valley and Wainuiomata, including distribution of materials and geotechnical properties (Part 7 of 1990 study). DSIR Geology and Geophysics contract report 1991/45. 23 p.
- Reisinger, A., Kitching, R. L., Chiew, F., Hughes, L., Newton, P. C. D., Schuster, S., & Whetton, P. (2014). Australasia climate change 2014: Impacts, adaptation and vulnerability. Part B: Regional aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. In V. R. [Barros, C.B. Field, D.J. Dokken, M.D. Mastrandrea, K.J. Mach, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds)] (Ed.), (pp. 1371-1438). Cambridge, UK and New York, USA: Cambridge University Press
- Rhoades, D.A., Stirling, M.W., Schweig, E.S., & Van Dissen, R.J. 2004. Time-varying earthquake hazard in the Wellington region. Wellington: Earthquake Commission. 46 p.
- Rhoades, D.A., Van Dissen, R.J., Langridge, R.M., Little, T.A., Ninis, D., Smith, E.G.C., & Robinson, R. 2010. It's our fault: re-evaluation of Wellington Fault conditional probability of rupture. paper 23 In: New Zealand Society for Earthquake Engineering. Conference (2010: Wellington, NZ). Wellington: New Zealand Society for Earthquake Engineering.
- Rhoades, D.A., Van Dissen, R.J., & Dowrick, D.J. 1994. On the handling of uncertainties in estimating the hazard of rupture on a fault segment. *Journal of Geophysical Research. Solid Earth* 99(B7): 13701-13712.



- Rhoades, D.A., Van Dissen, R.J., Langridge, R.M., Little, T.A., Ninis, D., Smith, E.G.C., & Robinson, R. 2011. Re-evaluation of conditional probability of rupture of the Wellington-Hutt Valley segment of the Wellington Fault. *Bulletin of the New Zealand Society for Earthquake Engineering*, 44(2): 77-86.
- Riddolls, B.W. 1977. Slope stability of western hills, Hutt Valley: an aid to town planning, New Zealand Geological Survey. New Zealand Geological Survey report EG 271. 24 p.
- Rivers Buchan and Associates 1992. Ewen Floodway Project: social impact assessment. Wellington, Rivers Buchan Associates. 2v.
- Robinson, R., Benites, R.A., & Van Dissen, R.J. 1998. Evidence for temporal clustering of large earthquakes in the Wellington Region from computer models of seismicity. *Bulletin of the New Zealand National Society for Earthquake Engineering*, 31(1): 24-32.
- Robinson, R., Van Dissen, R.J., & Litchfield, N.J. 2011. Using synthetic seismicity to evaluate seismic hazard in the Wellington region, New Zealand. *Geophysical Journal International*, 187(1): 510-528.
- Rosser, B. J., & Dellow, S. (2014). Assessment of liquefaction risk in the Hawke's Bay, *GNS Science Consultancy Report 2015/186*.
- Saunders, W.S.A., & Beban, J.G. 2014. Petone Plan Change 29: an example of science influencing land use planning policy. Lower Hutt, N.Z.: Institute of Geological and Nuclear Sciences. GNS Science report 2014/23. 56 p.
- Saunders, W.S.A. 2012 Innovative land-use planning for natural hazard risk reduction in New Zealand. PhD (Resource and Environmental Planning) thesis, Massey University. 229 p.
- Saunders, W.S.A., & Beban, J.G. 2014 Petone Plan Change 29: an example of science influencing land use planning policy. Lower Hutt, NZ: GNS Science. GNS Science report 2014/23. 56 p. [May 2014]
- Saunders, W.S.A., & Glassey, P.J. 2007 Guidelines for assessing planning policy and consent requirements for landslide prone land. Lower Hutt: GNS Science. GNS Science miscellaneous series 7. 71 p.
- Saunders, W. S. A., Forsyth, J., Johnston, D., & Becker, J. (2007). "Strengthening linkages between land-use planning and emergency management in New Zealand". *Australian Journal of Emergency Management*, 22(1), 36-43.
- Saunders, W.S.A., & Beban, J.S. 2012 Putting R(isk) in the RMA: Technical Advisory Group recommendations on the Resource Management Act 1991 and implications for natural hazards planning. Lower Hutt: GNS Science. GNS Science miscellaneous series 48. 52 p. [August 2012]
- Saunders, W.S.A., & Berryman, K.R. 2012 Just add water: when should liquefaction be considered in land use planning? Lower Hutt: GNS Science. GNS Science miscellaneous series 47. 13 p.
- Saunders, W.S.A., Beban, J.G., & Kilvington, M. 2013. Risk-based land use planning for natural hazard risk reduction. Lower Hutt: GNS Science. GNS Science miscellaneous series 67. vi, 97 p.
- Saunders, W. S. A., Prasetya, G., & Leonard, G. (2011). New Zealand's Next Top Model: incorporating tsunami inundation modelling into land use planning GNS Miscellaneous Report. Lower Hutt: GNS Science.
- Savage, M.K., Benites, R.A., Yu, J., Taber, J., & Ma, S.Q. 2004. Calibration of Wellington 3D ground shaking model: final report to the Earthquake Commission on project no. 01/462. Wellington: Earthquake Commission. 164 p.

- Semmens, S., Perrin, N. D., Dellow, G., & Van Dissen, R. (2011). NZS 1170.5:2004 Site subsoil classification of Wellington City. Proceedings of the Ninth Pacific Conference on Earthquake Engineering, Building an Earthquake-Resilient Society. Auckland, New Zealand.
- Smith, E., & Berryman, K.R. 1990 Regional natural disaster reduction plan – seismic hazard. Return times of strong shaking in the Wellington Region. DSIR Geology and Geophysics contract report 1990/14. 33 p.
- Smith, W.D. 2001. Useful ways to express earthquake hazard and risk estimates. p. 2:7-2:14 In: Wellington Lifelines Group. International Workshop (2001: Wellington, NZ). Wellington, N.Z.: Wellington Lifelines Group.
- Smith, W.D., & Maunder, R.D. 1980. Microseismic noise survey in Lower Hutt. Report / Geophysics Division 142. 15 p.
- Smith, W.D., King, A.B., & Cousins, W.J. 2004. Earthquake risk assessment for insurance purposes. 7 p. In: Gregory, G. (convener). New Zealand Society for Earthquake Engineering. Technical Conference (2004: Rotorua, NZ). Wellington. NZ: New Zealand Society for Earthquake Engineering.
- Sriitharan, S., & McVerry, G.H. 1992. Microzone effects in the Hutt Valley in records from a strong-motion accelerometer array. *Bulletin of the New Zealand National Society for Earthquake Engineering*, 25(4): 246-264.
- Sriitharan, S., & McVerry, G.H. 1991 Regional Natural Disaster Reduction Plan – seismic hazard. Quantifying microzoning effects in the Hutt Valley using strong motion earthquake records (Part 2 of 1990 Study). Institute of Geological & Nuclear Sciences client report. 105 p.
- Standards New Zealand 2004. NZS 1170.5:2004 Structural Design Actions – Earthquake Actions. Section 3 – Site Hazard Spectra, Standards New Zealand. Pp. 81.
- State Planning Policy – state interest guideline – Natural hazards, risk and resilience, 2014. Queensland Government. Retrieved from <http://www.dilgp.qld.gov.au/resources/guideline/spp/spp-guideline-natural-hazards-risk-resilience.pdf>
- Stephens, S., Lane, E., & Gorman, R. (2011). Joint-probability of storm tide and waves on open coast of Wellington. NIWA Client Report HAM: 2011-095 prepared for GWRC Client Report HAM: 2011-095 prepared for GWRC. Wellington: NIWA.
- Stephenson, W.R., & Barker, P.R. 1992. Evaluation of sediment properties in the Lower Hutt and Porirua areas by means of cone and seismic cone penetration tests. *Bulletin of the New Zealand National Society for Earthquake Engineering*, 25(4): 265-285.
- Stephenson, W.R., & Barker, P.R. (1991). Regional Natural Disaster Reduction Plan – Seismic Hazard. Report on cone penetrometer probing in Wainuiomata, Eastern Harbour Bays, Stokes Valley, Kura Park (Titahi Bay) and Whitby (Parts 4 and 5 of 1990 study). DSIR Geology and Geophysics contract report 91/21. 20 p. + figs
- Stephenson, W.R. 2010. Microtremor coherency: simultaneous recording with arrays having different apertures. *Bulletin of the New Zealand Society for Earthquake Engineering*, 43(1): 1-6.
- Stevens, G.R. 1991. On shaky ground : a geological guide to the Wellington metropolitan region. Lower Hutt: Geological Society of New Zealand. Geological Society of New Zealand guidebook 10. 112 p.
- Stevens, G.R. 1990. Notes for a geological field trip, Western Hutt Hills & Upper Hutt Valley, 5 May 1990. Horizons of knowledge: the DSIR Physical Environment Conference 34pp, maps.
- Stevens, G.R. 1973 Quaternary geology, tectonics & geomorphology of Wellington Peninsula. Lower Hutt: New Zealand Geological Survey. p. 153-252, [11] p.

- Stevens, G.R. 1990. Notes for a field trip. Lower Hutt Valley, 1 May 1990. Horizons of Knowledge: the DSIR Physical Environment Conference 28p, maps.
- Stevens, G.R. 1956. Stratigraphy of the Hutt Valley, New Zealand. *New Zealand journal of science and technology. B, General section*, 38(3): 201-235
- Stewart, M. 2012. Plan now for future floods, urge scientists. *Dominion Post* (Wellington, NZ) 27 Oct 2012: A15.
- Stirling, M.W. 1992. Late Holocene beach ridges displaced by the Wellington Fault in the Lower Hutt area, New Zealand. *New Zealand Journal of Geology and Geophysics*, 35(4): 447-453.
- Stirling, M.W., Leask, W.L., & Brown, I.R. (n.d.). Seismic Hazard Assessment of Lower Hutt City – draft.
- Stirling, M., McVerry, G., Gerstenberger, M., Litchfield, N., Van Dissen, R., Berryman, K., Barnes, P., Wallace, L., Villamor, P., Langridge, R., Lamarche, G., Nodder, S., Reyners, M., Bradley, B., Rhoades, D., Smith, W., Nicol, A., Pettinga, J., Clark, K., & Jacobs, K. (2012). National seismic hazard model for New Zealand: 2010 update. *Bulletin of the Seismological Society of America*, 102(4), 1514-1542. doi: 10.1785/0120110170.
- Taber, J.J., & Smith, E.G.C. 1992. Frequency dependent amplification of weak ground motions in Porirua and Lower Hutt, New Zealand. *Bulletin of the New Zealand National Society for Earthquake Engineering*, 25(4): 303-331.
- Taber, J.J. 1991 Regional Natural Disaster Reduction Plan – seismic hazard – frequency dependent amplification of seismic waves at characteristic sites in the Lower Hutt area (Part 3 of 1990 Study). Institute of Geological & Nuclear Sciences client report. 27 p
- Tarrant, R.A.C., & Johnston, D.M. 2010. An investigation of the relationship between socio-economic status and hazards-preparedness in intermediate school children. Lower Hutt, N.Z.: GNS Science. GNS Science report 2010/19. 15 p.
- Tarrant, R.A.C., & Johnston, D.M. 2010. Preparedness to cope with hazards: a survey of Wellington Intermediate schools. Lower Hutt, N.Z.: GNS Science. GNS Science report 2010/02. 31 p.
- Timar, L., Grimes, A., & Fabling, R. 2015. The changing price of disaster risk following an earthquake. *Asymmetric information*, 52: 15-16.
- Timar, L., Grimes, A., & Fabling, R. 2014. That sinking feeling: the changing price of disaster risk following an earthquake. Wellington, N.Z.: Motu Economic and Public Policy Research. Motu working paper 14-13. iii, 33 p.
- Tipler, K., Tarrant, R.A.C., Coomer, M.A., & Johnston, D.M. 2010. School children's access to hazard education: An investigation according to socio-economic status. Lower Hutt, N.Z.: GNS Science. GNS Science report 2010/35. 25 p.
- Tomlinson, A.I. 1977. The Wellington and Hutt Valley flood of 20 December 1976. Technical information circular (New Zealand Meteorological Service) 154. 9p.
- Tonkin & Taylor, 2002. Options for managing risks from tsunami in the Wellington region. Wellington Regional Council (SRC Publication no. WRC/RP-T-02/17).
- Tonkin & Taylor, 2014. Sea level rise options analysis. (report prepared for Wellington City Council). Retrieved from <http://wellington.govt.nz/services/environment-and-waste/environment/climate-change/sea-level-rise-options-analysis>
- Tonkin & Taylor, 2002. Options for managing risks from tsunami in the Wellington Region. Retrieved from [http://www.gw.govt.nz/assets/council-publications/Environment%20Management\\_20020829\\_091412.pdf](http://www.gw.govt.nz/assets/council-publications/Environment%20Management_20020829_091412.pdf)

- Tonkin & Taylor, 2013. Effects of Sea Level Rise for Christchurch City. Retrieved from <http://www.ccc.govt.nz/assets/Documents/Environment/Land/EffectsOfSeaLevelRiseForChristchurchCity.pdf>
- Tonkin & Taylor, 2015. Report Coastal hazard assessment: Stage Two. Christchurch City Council. Retrieved from <http://www.ccc.govt.nz/assets/Documents/Environment/Land/Tonkin-Taylor-Coastal-Hazard-Assessment-Report-2015.pdf>
- Townsend, D.B., Begg, J.G., Van Dissen, R.J., Rhoades, D.A., Saunders, W.S.A., & Little, T.A. 2015. Estimating co-seismic subsidence in the Hutt Valley associated with rupture of the Wellington Fault. Lower Hutt, N.Z.: GNS Science. GNS Science report 2015/02. 73 p.
- Townsend, D.B., Begg, J.G., Van Dissen, R.J., Rhoades, D.A., Saunders, W.S.A., & Little, T.A. 2015. Estimating co-seismic subsidence in the Hutt Valley resulting from rupture of the Wellington Fault, New Zealand. p. 1152-1160. In: Cubrinovski, M., Bradley, B.A., Price, C., & Chin, C.Y. (et al) (Organising Committee) 6th International Conference on Earthquake Geotechnical Engineering, 1-4 November 2015, Christchurch, New Zealand. N.Z.: New Zealand Geotechnical Society (NZGS) [November 2015]
- Townsend, D.B., Begg, J.G., Van Dissen, R.J., Rhoades, D.A., & Saunders, W.S.A. 2015. Going down II: estimating co-seismic subsidence in the Hutt Valley resulting from rupture of the Wellington Fault. Paper no. O-39 In: New dimensions in earthquake resilience: 2015 New Zealand Society for Earthquake Engineering Technical Conference and AGM, 10-12 April 2015, Energy Events Centre, Rotorua.: New Zealand Society for Earthquake Engineering.
- Tutulic, M., Shamseldin, A., Liefing, R., & De Costa, G. S., 2015. Changes to water resources resulting from sea level rise and climate change – case of the Waiwhetu aquifer Wellington. Retrieved from <http://89.31.100.18/~iahrpapers/78847.pdf>
- Van Dissen, R. J., Begg, J. G., & Robinson, R. (2001). The Akatarawa fault: A newly discovered fault in the Wellington region and implications for increased hazard on the Wellington fault. In proceedings, New Zealand Society for Earthquake Engineering Technical Conference, Wairakei, New Zealand. Paper No. 4.06.01, 8 p.
- Van Dissen, R.J., Berryman, K.R., King, A.B., Webb, T.H., Brackley, H.L., Barnes, P., Beavan, R.J., Benites, R.A., Barker, P.R., Carne, R., Cochran, U.A., Dellow, G.D., Fry, B., Hemphill-Haley, M., Holden, C., Lamarche, G., Langridge, R.M., Litchfield, N.J., Little, T., McVerry, G.H., Ninis, D., Palmer, N.G., Perrin, N.D., Pondard, N., Semmens, S., Stephenson, W.R., Robinson, R., Villamor, P., Wallace, L.M., & Wilson, K.J. 2009. It's our fault: Better defining the earthquake risk in Wellington: results to date & a look to the future. Paper 48 In: New Zealand Society for Earthquake Engineering. Conference (2009: Christchurch, NZ). Wellington, NZ: New Zealand Society for Earthquake Engineering.
- Van Dissen, R.J., Taber, J.J., Stephenson, W.R., Sritherani, S., Read, S.A.L., McVerry, G.H., Dellow, G.D., & Barker, P.R. 1992. Earthquake ground shaking hazard assessment for the Lower Hutt and Porirua areas, New Zealand. *Bulletin of the New Zealand National Society for Earthquake Engineering*, 25(4): 286-302.

- Van Dissen, R.J., Barnes, P., Beavan, R.J., Cousins, W.J., Dellow, G.D., Holden, C., Fry, B., Langridge, R.M., Litchfield, N.J., Little, T., McVerry, G.H., Ninis, D., Rhoades, D.A., Robinson, R., Saunders, W.S.A., Villamor, P., Wilson, K.J., Barker, P.R., Berryman, K.R., Benites, R.A., Brackley, H.L., Bradley, B.A., Carne, R., Cochran, U.A., Hemphill-Haley, M., King, A.B., Lamarche, G., Palmer, N.G., Perrin, N.D., Pondard, N., Rattenbury, M.S., Read, S.A.L., Semmens, S., Smith, E., Stephenson, W.R., Wallace, L.M., Webb, T.H., & Zhao, J.X. 2010. It's our fault : better defining earthquake risk in Wellington. p. 26-27 IN: 11th Congress of the International Association for Engineering Geology and the Environment: 5-10 September 2010: extended abstracts to the proceedings. [Auckland, NZ]: New Zealand Geotechnical Society
- Van Dissen, R.J., & Berryman, K.R. 1990. Regional natural disaster reduction plan – seismic hazard. Seismic hazard assessment of the Wellington-Hutt Valley segment of the Wellington Fault (Part 5 of 1989 study). New Zealand Geological Survey Client report 90/24. 54 p.
- Van Dissen, R.J., Berryman, K.R., Pettinga, J.R., & Hill, N.L. 1992. Paleoseismicity of the Wellington - Hutt Valley Segment of the Wellington Fault, North Island, New Zealand. *New Zealand Journal of Geology and Geophysics*, 35(2): 165-176.
- Van Dissen, R.J., & Berryman, K.R. 1996. Surface rupture earthquakes over the last ~1000 years in the Wellington region, New Zealand, and implications for ground shaking hazard. *Journal of Geophysical Research. Solid Earth*, 101(B3): 5999-6019.
- van Schalkwyk, R. 2005. Managing the event: a regional CDEM Group perspective. p. 200-206 In: Townend, J., Langridge, R. M., & Jones, A. (conveners). 1855 Wairarapa Earthquake Symposium (2005: Wellington, NZ). [Wellington, NZ]: Greater Wellington Regional Council.
- Wallace, P. 1990. Protecting the Taita stopbank from erosion damage. *Planwell* 9(2): 8-10.
- Watts, L., 2005. The 5-6 January storm in the Wellington region. Greater Wellington Regional Council publication GW/RINV-G-05/08, Greater Wellington Regional Council, Wellington.
- Wellington Regional Council 1996. Map sheet 3. Hutt Valley In: Seismic hazard map series : combined earthquake hazard map. Wellington: Wellington Regional Council.
- Wellington Regional Council (2001, July). Hutt River Floodplain Management Plan: For the Hutt River and its Environment. Wellington, New Zealand: Wellington Regional Council. Retrieved from <http://www.gw.govt.nz/assets/Our-Services/Flood-Protection/Hutt/FP-Hutt-River-FMP.pdf>
- Wenger, C., Hussey, K., & Pittock, J., 2013. Living with floods: Key lessons from Australian and abroad. Retrieved from [https://www.nccarf.edu.au/sites/default/files/attached\\_files\\_publications/Wenger\\_2013\\_Living\\_with\\_floods.pdf](https://www.nccarf.edu.au/sites/default/files/attached_files_publications/Wenger_2013_Living_with_floods.pdf)
- Westlake, S., Bharathy, G., Brabhakaran, P., Keller, P., & Lynch, R. 2001. Risk associated with hazardous substances in the Wellington Region: Scoping Study Report. OPUS International Consultants Limited for WRC.
- Woodward, D.J. 1991. Location of Wellington Fault at Gear site Petone. DSIR Geology and Geophysics contract report 1991/2. 11 p., figs
- Works Consultancy Services Ltd. 1993. Liquefaction hazard study: Wellington Region – Study Area 2 – Hutt Valley (report for GWRC).
- Wright, K.C., & Cousins, W.J. 2014. Evacuation numbers and current evacuation planning in Wellington Region for a tsunami generated by a large Hikurangi subduction zone earthquake. Lower Hutt, N.Z.: Institute of Geological and Nuclear Sciences. GNS Science report 2014/44. 45p.
- Zhao, J.X., Cousins, W.J., Lukovic, B., & Smith, W.D. 2008. Critical factors for restoration of water supply pipelines in the Hutt City, New Zealand after a magnitude 7.5 earthquake from the Wellington Fault. Paper 06-0025 In: World Conference on Earthquake Engineering (14th: 2008 : Beijing, China). Beijing, China: World Conference on Earthquake Engineering.

Zhao, J.X., Cousins, W.J., Lukovic, B., & Smith, W.D. 2008. Preliminary analysis on critical factors for repair process of water distribution pipelines in the Hutt City, New Zealand after a magnitude 7.5 earthquake from the Wellington fault. paper 51 In: New Zealand Society for Earthquake Engineering. Conference (2008 : Wairakei, NZ). [Wellington, NZ]: New Zealand Society for Earthquake Engineering.

Zare, M.R., & Wilkinson, S. 2013. Wastewater pipeline vulnerability to earthquakes. Retrieved from <http://www.aees.org.au/wp-content/uploads/2013/11/Zare-Wilkinson.pdf>



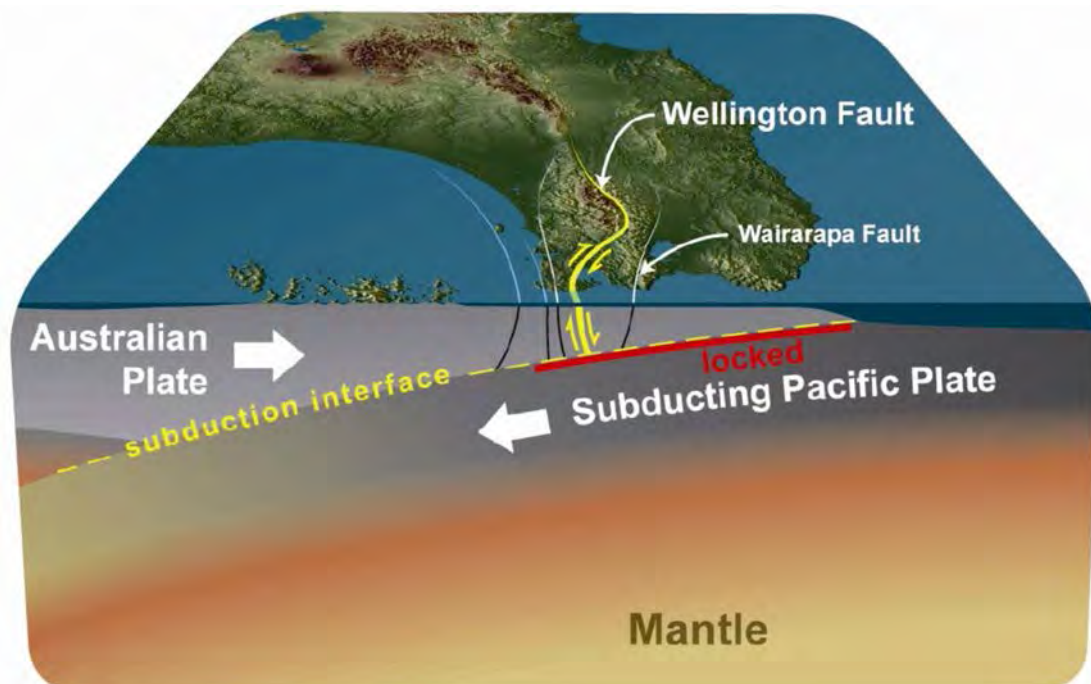
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## **APPENDICES**

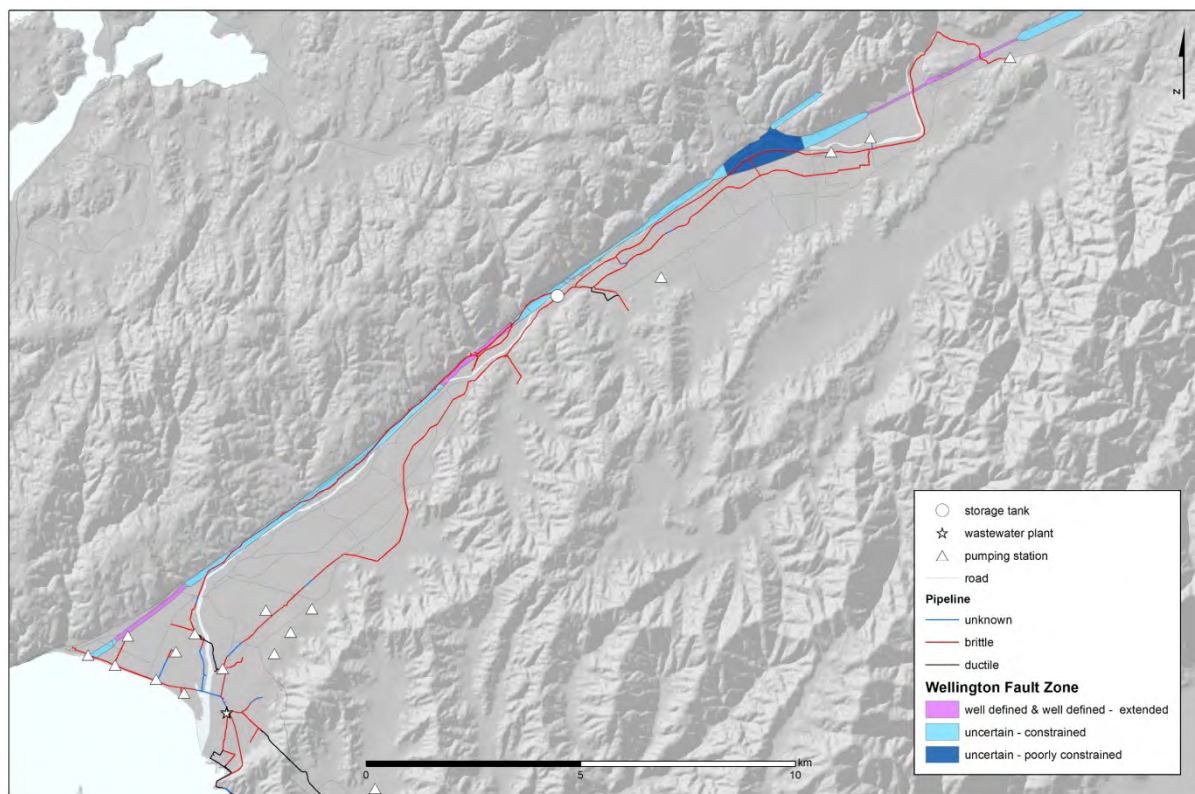
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## A1.0 APPENDIX 1: FAULT RUPTURE HAZARD

Wellington sits atop of the boundary between two of Earth's great tectonic plates – the Pacific and the Australian Plates, shown in Figure A1.1. The two plates move into and against each other at a rate of about four cm per year, it is this movement that drives the Wellington region's earthquake engine. The sideways motion of the plates is taken up by lateral slip (large earthquakes) on, for example, the Wellington and Wairarapa Faults, where the contractional motion is accounted for mainly as slip on the subduction interface between the two plates. The portion of the subduction interface that is currently accumulating significant strain, and will presumably be released as future earthquakes, is highlighted in red in Figure A1.1. Deeper portions of the subduction interface, where it is hotter and more ductile, are freely sliding and do not accumulate strain.



**Figure A1.1** Subduction interface of the Australian and the Pacific Plates under the North Island, New Zealand.



**Figure A1.2** Wellington Fault surface fault rupture hazard zone, based on Hutt City's Wellington Special Fault Study Zone.

Figure A1.2 displays the location of the Wellington Fault Special Study Area, with a modification in the Hutt Road and Pharazyn Street area. Detailed LiDAR-derived topographic data shows the fault scarp with more certainty, which has enabled a reduced width of the surface fault rupture hazard zone when compared with the Lower Hutt District Plan maps. This area depicts the zone in which surface rupture displacement along the Wellington Fault is likely to lie within. The width of the surface fault rupture hazard zone is a measure of the certainty, or uncertainty, within which the fault can be located. For example, in areas where the fault is clearly expressed at the ground surface as a single well-defined topographic scarp, its location can be assessed (mapped) within a relatively narrow zone with a high degree of certainty. Conversely, where evidence of the fault is buried by young sediments, or has been eroded by the Hutt River, there is greater uncertainty regarding the fault's location, consequently the zone that defines the fault's location has to be wider.

The certainty/uncertainty about the fault location is supported by the Ministry for the Environment's 'Active Fault Guidelines' (Kerr et al., 2003). The two levels of certainty can be differentiated as:

- **Well defined and well defined – extended:** fault rupture deformation is well defined and of limited geographic width (e.g. metres to tens of metres wide), including areas where fault rupture deformation has been either buried or eroded over short distances but its position is tightly constrained by the presence of nearby distinct fault features or detailed subsurface investigations. In this study, when fault location can be constrained to within ~100 m we have mapped it as *well defined and well defined – extended*.

- **Uncertain – constrained:** The location of fault rupture deformation can be constrained to lie within a relatively broad geographic width (e.g. tens to hundreds of metres wide). *Uncertain – constrained* applies to areas where the location of fault rupture is uncertain because evidence has been either buried or eroded but where the location of fault rupture can be constrained to a reasonable geographic extent ( $\leq 300$  m). In the current study, we chose 300 m as the maximum width of a region that is mapped as *Uncertain – constrained*.

Fault complexity refers to the width and distribution of the deformed land around the fault trace. Table A1.1 describes the attributes for the classification of fault complexity. Recent fault location studies have shown that certain faults can demonstrate all three levels of fault complexity along different parts of the fault.

**Table A1.1** Defining fault complexity types (adopted from Kerr et al., 2003).

<b>A</b> Well-defined	A <b>well-defined</b> fault trace of limited geographic width Typically metre to tens of metres apart
<b>B</b> Distributed	Deformation is <b>distributed</b> over a relatively broad geographic width Typically tens to hundreds of meters wide Usually comprised of multiple fault traces and/or folds
<b>C</b> Uncertain	The location of fault trace(s) is <b>uncertain</b> as it either has not been mapped or it cannot be identified. This is typically a result of gaps in the trace(s), or erosion or coverage of the trace(s).



**Figure A1.3** Approximate location and extent of the Whitemans Valley Fault from GNS Science's Active Faults Database (Langridge et al., 2016, <http://data.gns.cri.nz/af/>)





**Figure A1.4** Approximate location and extent of the Baring Head Fault from GNS Science's Active Faults Database (Langridge et al., 2016, <http://data.gns.cri.nz/af/>)

## A2.0 APPENDIX 2: NEIGHBOURHOOD SPECIFIC HAZARDS AND MITIGATION OPTIONS

Neighbourhood	Hazard	Mitigation Options				
		Engineering	Building	Planning	Emergency Management	Infrastructure
Alicetown	Flooding	Stop banks Pumping stations	Raised floor level Raised ground level	Policies for raised floor and ground levels	Monitoring Warning systems Evacuation plans Road closures	Pumping stations Relocation of utilities
	Active Fault		Foundation requirements Compliance with building standards	Fault hazard avoidance zone	Response and recovery plans	Design of utilities
	Sea level rise	Sea wall Pumping stations	Raised floor level Retreat	Free board Education	Event awareness Road closures	Non-return valves Flexible design Relocation of underground utilities
	Subsidence	Remedy land		Limit development Managed retreat	Response plans	Relocation
	Liquefaction	Remedy land	Foundation requirements	Land-use activity status	Response and recovery plans	Flexible pipelines
Avalon	Fault		Foundation requirements Compliance with building standards	Fault hazard avoidance zone	Response and Recovery plans	Design of utilities
	Flooding	Stop banks Pumping stations	Raised floor level Raised ground level	Policies for raised floor and ground levels	Monitoring Warning systems Evacuation plans Road closures	Pumping stations Relocation of utilities
	Liquefaction	Remedy land	Foundation requirements	Land-use status/activity		Flexible pipelines

Neighbourhood	Hazard	Mitigation Options				
		Engineering	Building	Planning	Emergency Management	Infrastructure
Boulcott/Epuni	Fault		Foundation requirements Compliance with building standards	Fault hazard avoidance zone	Response and Recovery plans	Design of utilities
	Flooding	Stop banks Pumping stations	Raised floor level Raised ground level	Policies for raised floor and ground levels	Monitoring Warning systems Evacuation plans Road closures	Pumping stations Relocation of utilities
	Liquefaction	Remedy land	Foundation requirements	Land-use status/activity		Flexible pipelines
Eastbourne	Ground Shaking	Foundation requirements Compliance with building standards	Foundation requirements Compliance with building standards		Response and Recovery plans	Design of utilities
	Flooding	Stop banks Pumping stations	Raised floor level Raised ground level	Policies for raised floor and ground levels	Monitoring Warning systems Evacuation plans Road closures	Pumping stations Relocation of utilities
	Sea level rise	Sea wall Pumping stations	Raised floor level Retreat	Free board Education	Event awareness Road closures	Non-return valves Flexible design Relocation of underground utilities
	Tsunami	Sea wall Vertical evacuation	Design criteria/standards for new buildings Retrofit plans for existing	Hazard avoidance maps Limit development Encourage low density	Response and Recovery plans Monitoring Warning systems Evacuation plans	Locate critical facilities outside of run-up zones
	Landslide	Slope reinforcement Drainage Rock-bolting Shot-crete	Foundation design Storm-water design	Plan to avoid development in landslide prone areas Measuring and monitoring	Recovery plans Road closures Evacuation plans	Storm-water design Location of utilities

Neighbourhood	Hazard	Mitigation Options				
		Engineering	Building	Planning	Emergency Management	Infrastructure
Fairfield	Landslide	Slope reinforcement Drainage Rock-bolting Shot-crete Revegetation	Foundation design Storm-water design	Plan to avoid development in landslide prone areas Measuring and monitoring	Recovery plans Road closures Evacuation plans	Storm-water design Location of facilities
Lower Hutt CBD	Fault		Foundation requirements Compliance with building standards	Fault hazard avoidance zone	Response and Recovery plans	Design of utilities
	Flood	Stop banks Pumping stations	Raised floor level Raised ground level	Policies for the raised floor and ground levels	Monitoring Warning systems Evacuation plans Road closures	Pumping Relocation of utilities
	Liquefaction	Remedy land	Foundation requirements	Land-use status/activity		Flexible pipelines
Moera	Flood	Stop banks Pumping stations	Raised floor level Raised ground level	Policies for raised floor and ground levels	Monitoring Warning systems Evacuation plans Road closures	Pumping Relocation of utilities
	Liquefaction	Remedy land	Foundation requirements	Land-use status/activity		Flexible pipelines
	Sea level rise	Sea wall Pumping stations	Raised floor level Retreat	Free board Education	Event awareness Road closures	Non-return valves Relocation of underground utilities
	Subsidence	Remedy land		Limit development Managed retreat	Response plans	
	Tsunami	Sea wall Vertical evacuation	Design criteria/standards for new buildings Retrofit plans for existing	Hazard avoidance maps Limit development Encourage low density	Response and Recovery plans Monitoring Warning systems Evacuation plans	Locate critical facilities outside of run-up zones

Neighbourhood	Hazard	Mitigation Options				
		Engineering	Building	Planning	Emergency Management	Infrastructure
Naenae	Landslide	Slope reinforcement Drainage Rock-bolting Shot-crete Revegetation	Foundation design Storm-water design	Plan to avoid development in landslide prone areas Measuring and monitoring	Recovery plans Road closures Evacuation plans	Storm-water design Location of utilities
Petone	Fault		Foundation requirements Compliance with building standards	Fault hazard avoidance zone	Response and Recovery plans	Design of utilities
	Flood	Stop banks Pumping stations	Raised floor level Raised ground level	Policies for raised floor and ground levels	Monitoring Warning systems Evacuation plans Road closures	Pumping Relocation of utilities
	Sea Level	Sea wall Pumping stations	Raised floor level Retreat	Free board Education	Event awareness Road closures	Non-return valves Relocation of underground utilities
	Liquefaction	Remedy land	Foundation requirements	Land-use activity status		Flexible pipelines
	Subsidence	Remedy land		Limit development Managed retreat	Response plans	
	Tsunami	Sea wall Vertical evacuation	Design criteria/standards for new buildings Retrofit plans for existing	Hazard avoidance maps Limit development Encourage low density	Response and Recovery plans Monitoring Warning systems Evacuation plans	Locate critical facilities outside of run-up zones
	Landslide	Slope reinforcement Drainage Rock-bolting Shot-crete Revegetation	Foundation design Storm-water design	Plan to avoid development in landslide prone areas Measuring and monitoring	Recovery plans Road closures Evacuation plans	Storm-water design Location of utilities

Neighbourhood	Hazard	Mitigation Options				
		Engineering	Building	Planning	Emergency Management	Infrastructure
Stokes Valley	Flood	Stop banks Pumping stations	Raised floor level Raised ground level	Policies for raised floor and ground levels	Monitoring Warning systems Evacuation plans Road closures	Pumping Relocation of utilities
	Landslide	Slope reinforcement Drainage Rock-bolting Shot-crete Revegetation	Foundation design Storm-water design	Plan to avoid development in landslide prone areas Measuring and monitoring	Recovery plans Road closures Evacuation plans	Storm-water design Location of utilities
Taita/Pomare	Ground Shaking	Foundation requirements Compliance with building standards	Foundation requirements Compliance with building standards	Fault hazard avoidance zone	Response and Recovery plans	Design of utilities
	Flood	Stop banks Pumping stations	Raised floor level Raised ground level	Policies for raised floor and ground levels	Monitoring Warning systems Evacuation plans Road closures	Pumping Relocation of utilities
	Landslide	Slope reinforcement Drainage Rock-bolting Shot-crete Revegetation	Foundation design Storm-water design	Plan to avoid development in landslide prone areas Measuring and monitoring	Recovery plans Road closures Evacuation plans	Storm-water design Location of utilities



Neighbourhood	Hazard	Mitigation Options				
		Engineering	Building	Planning	Emergency Management	Infrastructure
Wainuiomata	Landslide	Slope reinforcement Drainage Rock-bolting Shot-crete Revegetation	Foundation design Storm-water design	Plan to avoid development in landslide prone areas Measuring and monitoring	Recovery plans Road closures Evacuation plans	Storm-water design Location of utilities
	Subsidence	Remedy land		Limit development Managed retreat	Response plans	
Waterloo	Ground Shaking	Foundation requirements Compliance with building standards	Foundation requirements Compliance with building standards		Response and Recovery plans	Design of utilities
Western Hills	Fault		Foundation requirements Compliance with building standards	Fault hazard avoidance zone	Response and Recovery plans	Design of utilities
	Landslide	Slope reinforcement Drainage Rock-bolting Shot-crete	Foundation design Storm-water design	Plan to avoid development in landslide prone areas Measuring and monitoring	Recovery plans Road closures Evacuation plans	Storm-water design Location of utilities
Woburn/Waiwhetu	Flood	Stop banks Pumping stations	Raised floor level Raised ground level	Policies for the raised floor and ground levels	Monitoring Warning systems Evacuation plans Road closures	Pumping Relocation of utilities
	Liquefaction	Remedy land	Foundation requirements	Land-use status/activity		Flexible pipelines
	Tsunami	Sea wall Vertical evacuation	Design criteria/standards for new buildings Retrofit plans for existing	Hazard avoidance maps Limit development Encourage low density	Response and Recovery plans Monitoring Warning systems Evacuation plans	Locate critical facilities outside of run-up zones
	Subsidence	Remedy land		Limit development Managed retreat	Response plans	





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#### **Attachment 4**

Harriet Fraser Traffic Engineering & Transportation Planning (June 2017), *Hutt City Council – Transport Assessment for Plan Change 43*. Hutt City Council DOC/17/90174.



# Hutt City Council – Transport Assessment for Plan Change 43

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## Table of Contents

<b>1.</b>	<b>Executive Summary</b>	<b>3</b>
<b>2.</b>	<b>Introduction</b>	<b>6</b>
<b>3.</b>	<b>Background</b>	<b>7</b>
<b>4.</b>	<b>Methodology</b>	<b>8</b>
<b>5.</b>	<b>Existing Transport Infrastructure and Services</b>	<b>9</b>
5.1	Roads – State Highways	9
5.2	Roads – Hutt City Council Roads	13
5.3	Parking	15
5.4	Rail	16
5.5	Bus	18
5.6	Ferry	19
5.7	Cycling	19
<b>6.</b>	<b>Existing Travel Patterns and Characteristics</b>	<b>21</b>
6.1	Census Data	24
6.2	Targeted Areas Traffic Characteristics	35
<b>7.</b>	<b>Planned Transport Infrastructure Projects</b>	<b>35</b>
7.1	Cross Valley Link	36
7.2	Melling Interchange	36
7.3	Melling Station Repositioning & New CBD Hutt River Footbridge	36
7.4	CBD East Access Route & Intersection Improvement Programme	36
7.5	Petone to Grenada Link	37
7.6	SH58/ SH2 Interchange and Improvements to SH58	37
7.7	Petone to Ngauranga Cycleway	38
7.8	Beltway Shared Path	38
7.9	Eastern Bays Shared Path	38
7.10	Wainuiomata Hill Shared Path	38
7.11	Ramp Metering for Petone On-Ramp	38
7.12	Rail Capacity Improvements	39
7.13	Comparison of Transport Benefits of Future Infrastructure Projects	39
<b>8.</b>	<b>Forecast Traffic Activity</b>	<b>41</b>
8.1	City-Wide	41
8.2	Target Areas	43
<b>9.</b>	<b>Traffic Effects</b>	<b>44</b>
9.1	City-Wide	44
9.2	Target Areas	46
<b>10.</b>	<b>Summary</b>	<b>52</b>
<b>11.</b>	<b>Recommendations</b>	<b>55</b>
<b>12.</b>	<b>Conclusion</b>	<b>56</b>

## 1. Executive Summary

Council is considering different approaches for achieving residential growth within the principle residential zone in Hutt City, known as the General Residential Activity Area and identified suburban centre zones. The approaches being considered include:

- (i) targeted areas for residential growth based within suburban centre zones and around shopping centres and transport nodes in the General Residential Activity Area;
- (ii) changes to existing provisions for larger sites within the General Residential Activity Area to encourage additional multiple housing development; and
- (iii) changes to existing provisions for smaller sites within the General Residential Activity Area.

This Transport Assessment has assessed the traffic and transport implications associated with the desired residential growth and has included:

- (i) an overview of the existing transport infrastructure including road, rail, ferry, cycling and public parking;
- (ii) an overview of key existing transport movements, travel patterns and transport trends;
- (iii) identification of existing transport infrastructure constraints;
- (iv) forecasting of additional traffic volumes and parking demands associated with the potential residential growth;
- (v) identification of traffic effects associated with potential residential growth that would trigger the need for significant new transport infrastructure;
- (vi) comment on the traffic effects associated with potential residential growth on key transport network through Hutt City; and
- (vii) recommendations for how Council might respond to traffic effects associated with the additional traffic and parking forecast to result from the potential residential growth.

Forecast traffic effects associated with a 12% growth in population, provided by the potential changes sought by the HCC Urban Growth Strategy and associated traffic activity by 2032 can be summarised as follows:

- (i) capacity improvements on State Highway 2 and the Hutt Valley Train Line are needed to address existing pressures;
- (ii) it is estimated that the Petone to Grenada Link would result in a reduction of around 550vph in the southbound direction on State Highway 2 south of Petone during the busiest hour of the weekday morning commuter period. As such the Petone to Grenada Link is expected to generate the necessary capacity to accommodate the increased traffic associated with the proposed residential growth in Hutt City. For each increment of 100 vehicle movements increased capacity on State Highway 2 southbound during the weekday commuter peak, 1.8% population growth city-wide can be supported. This is equivalent to 1,850 people or 710 households (at 2.6 people per household);
- (iii) the proposed residential growth could result in up to 540 additional rail passengers during the weekday morning peak with an associated increase for park and ride. Planned capacity improvements to the Hutt Valley and Melling train services are expected to readily accommodate the forecast additional demands;
- (iv) increased traffic activity will add to existing pressures at the Waione Street Bridge. If a Cross Valley Link is developed there would be additional capacity provided across the Hutt River in this location either through capacity improvements to the bridge or a new river crossing. Traffic flows across the city's other river bridges are likely to continue to be constrained by the intersections at either end of the bridges;

- (v) the layout of the CBD streets with at least 12 entry/exit points means that the traffic is usefully distributed throughout the local road network minimising the risk of serious congestion; and
- (vi) forecast occupancies for the Queens Drive carpark reach 80% on a weekday and kerbside parking demands in the CBD reach 91% on a Saturday with a 12% increase in demands. These forecasts do not include the effect of Council relocating back to Laings Road, future operation of the Hutt Conference Centre, changes to the Riverbank parking availability or seasonal retail peaks.

The forecast traffic effects associated with the individual target areas are as follows:

- (i) residents of the wider **Epuni** area already make good use of the train with 14.6% travelling to work by train and 6.9% walking to work. Accordingly **Epuni** is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle;
- (ii) residents of the wider **Waterloo** area already make good use of the train with 20.0% travelling to work by train and 4.4% walking to work. Subject to ensuring that there is sufficient traffic capacity at the Waterloo Road intersections and ensuring that any residential development close to the train station does not create significant adverse parking effects, **Waterloo** is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle;
- (iii) residents of the wider **Naenae** North area already make good use of public transport with 8.8% travelling to work by train and 5.6% by bus with a further 4.8% walking to work. Accordingly subject to achieving some additional capacity at the intersection of High Street with Daysh Street and Fairway Drive, **Naenae** is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle;
- (iv) residents of the wider **Taita** area already make good use of public transport with 9.8% travelling to work by train and 5.7% by bus. Accordingly subject to achieving some additional capacity at the intersection of High Street with Daysh Street and Fairway Drive, **Taita** is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle;
- (v) residents of the wider Gracefield – Seaview – Waiwhetu area already make good use of the train with 16.6% travelling to work by train. Accordingly subject to achieving some additional capacity at the intersection of Whites Line East with Waiwhetu Road and Bell Road, **Woburn** is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle;
- (vi) on its own the forecast additional traffic associated with the **Stokes Valley** target area is not expected to trigger the need for any local roading improvements. In combination with growth outside the target area there may be a future need to increase capacity at the local Eastern Hutt Road intersections. Residents of the wider Delaney area have the second highest car use for the journey to work of the twelve target areas with 68.3% travelling to work by car. Given that the **Stokes Valley** target area is around 3km from Pomare station, any new residents wanting to access the train would drive to Pomare station and park. While the park and ride carpark was at capacity there were kerbside spaces available at the time of the parking inspection;
- (vii) no significant traffic congestion is expected as a result of residential growth within the **Wainuiomata** target area. In combination with growth outside the target area capacity improvements may be needed at the intersections of each of Parkway and Fitzherbert Roads with Wainuiomata Road and also in Waiwhetu where traffic from Wainuiomata and Hutt Valley traffic meets. An increase in demand for park and ride by residents of Wainuiomata could increase parking pressures at or near Woburn station and possibly also at Petone station;
- (viii) forecast additional traffic associated with residential growth in the **CBD Edge** target area can be readily accommodated within the immediate road network. Residents of the wider

Hutt Central area already make good use of the train with 11.4% travelling to work by train and 9.8% walk to work, the highest walking proportion of the twelve target areas. Hutt Central also has the second highest proportion of residents working from home of the twelve target areas at 7.3%. The target area is located close to the limit of comfortable walking distances to local train stations with the outer extent of the target area being at least 700m from each of Woburn, Waterloo and Melling stations. As such future residents accessing train services may put extra pressure on the local park and ride facilities. Especially on weekdays there is little all-day parking available close to the CBD with the spare capacity being for spaces with time restrictions of P120 or less. There are also weekday kerbside parking pressures for all-day parking close to each of the nearby train stations;

- (ix) forecast additional traffic associated with residential growth in the **Alicetown** target area can be readily accommodated within the immediate road network. **Alicetown** is well placed to accommodate additional residential capacity with strong options for travel modes other than private vehicle; and
- (x) it is anticipated that Council may need to include the investigation of capacity improvements at the roundabout intersection between High Street, Daysh Street and Fairway Drive as a future project in the Council's asset management plans in response to traffic growth in **Avalon** and other nearby target areas.

Recommendations are set out below with regard to accommodating traffic associated with an overall 12% increase in traffic activity resulting from a 12% increase in the Hutt City population and also meeting the more localised effects of traffic growth within the individual target areas. This covers potential traffic effects arising from concentrating residential growth within selected target areas, as well as general roll-out provisions which could apply to smaller and larger lots across the General Residential Activity Area.

- (i) Hutt City Council to continue to advocate for increased capacity along the transport corridor to the south of Petone including road, rail and cycle projects;
- (ii) Hutt City Council to support the Petone to Grenada Link while ensuring that access through the local road network to the new link has sufficient capacity;
- (iii) Hutt City Council to advocate for or fund an investigation of the potential of ramp metering on the Petone southbound on-ramp as a short term interim capacity improvement prior to the opening of the Petone to Grenada link and associated improvements to the Petone Interchange;
- (iv) Hutt City Council to investigate, advocate for or provide additional park and ride capacity either in the form of new or expanded park and ride facilities or allocated areas of kerbside parking;
- (v) prior to capacity improvements at the Petone Interchange, either in the short term as a result of ramp metering or in the medium term as a result of the Petone to Grenada Link, and in the absence of any increased capacity for park and ride parking, new residential development should be focussed in areas that are within an easy walk of a train station or with existing strong usage of the train for commuting, which includes the target areas of Epuni, Waterloo, Naenae, Taita, Woburn, Alicetown and the CBD Edge;
- (vi) Hutt City Council to investigate options for providing increased CBD public parking to accommodate forecast Saturday demands. Much of the existing Saturday CBD parking demands are a result of the market in the Riverbank Carpark and accordingly the future of the market should be a key part of the investigation;
- (vii) limit residential growth in areas that will add additional traffic onto the Waione Street bridge until such time as either the capacity of the bridge is increased or a new river crossing is provided (potentially as part of the Cross Valley Link). The main target area affected is Wainuiomata and to a lesser degree Woburn;

- (viii) in the short term amend the Council's Asset Management Plan to investigate and if necessary increase improve the capacity at the following intersections which are beginning to reach capacity at the busiest times of the day:
  - a. High Street/ Daysh Street/ Fairway Drive
  - b. Railway Avenue/ Woburn Road/ Queens Drive
  - c. Rutherford Street/ Melling Road/ Connolly Street (Connolly Street approach)
  - d. Waiwhetu Road/ Whites Line East (capacity of right turns)
- (ix) in the medium term a number of other intersections may well need investigating and can be added into the Asset Management Plan as needed. Given the uncertain timing and location of residential development any intersection improvement works are best added to the Asset Management Plan on an as needed basis; and
- (x) Council should ensure that residential developments in areas close to train stations where there is significant reliance on kerbside parking by train commuters, provide sufficient on-site parking to meet residents' needs. This is particularly the case in the area around Waterloo train station.

The most significant future transportation projects in terms of relieving existing and addressing future traffic congestion in order of likelihood, are improvements to the rail services, the construction of the Petone to Grenada Link and associated improvements to the Petone Interchange, and the Cross Valley Link. As such it is considered that target areas which are within a convenient walking distance of a train station or that have a demonstrated strong train use for commuting can reasonably support intensified residential development in the short term. This includes the target areas of Epuni, Waterloo, Naenae, Taita, Woburn, the CBD Edge and Alicetown.

The small scale of forecast residential growth and associated traffic activity in each of the Stokes Valley and Wainuiomata target areas means that these target areas could also be reasonably included in the short term.

The Avalon target area and comprehensive residential development applications that may be sought following the plan change may have a different level of impact as they are potentially further away from the public transport nodes. Once all designations and planning approvals are in place for the Petone to Grenada Link and associated improvements to the Petone Interchange, it is considered that the transport network would be able to support the gradual take up of residential development opportunities in the Avalon target area, along with the general roll-out provisions which could apply to smaller and larger lots across the General Residential Activity Area.

## **2. Introduction**

Council is considering different approaches for achieving residential growth within the principle residential zone in Hutt City, known as the General Residential Activity Area and identified suburban centre zones. The approaches being considered include:

- (i) targeted areas for residential growth based within suburban centre zones and around shopping centres and transport nodes in the General Residential Activity Area;
- (ii) changes to existing provisions for larger sites within the General Residential Activity Area to encourage additional multiple housing development; and
- (iii) changes to existing provisions for smaller sites within the General Residential Activity Area.

This Transport Assessment has assessed the traffic and transport implications associated with the desired residential growth and has included:

- (i) an overview of the existing transport infrastructure including road, rail, ferry, cycling and public parking;
- (ii) an overview of key existing transport movements, travel patterns and transport trends;
- (iii) identification of existing transport infrastructure constraints;
- (iv) forecasting of additional traffic volumes and parking demands associated with the potential residential growth;
- (v) identification of traffic effects associated with potential residential growth that would trigger the need for significant new transport infrastructure;
- (vi) comment on the traffic effects associated with potential residential growth on key transport network through Hutt City; and
- (vii) recommendations for how Council might respond to traffic effects associated with the additional traffic and parking forecast to result from the potential residential growth.

### 3. Background

The Hutt City Council 2012-2032 Urban Growth Strategy contains a target of increasing the population of Hutt City to at least 110,000 people by 2032 (an increase of approximately 12,000 persons from the 2013 census) with an associated target of increasing the number of new homes in the City by at least 6,000 over the same period. The Urban Growth Strategy sets out the intention to provide this level of population and housing growth through:

- (i) residential intensification in existing urban areas including Waterloo, Epuni, residential areas adjacent to Lower Hutt CBD, Eastbourne, Petone and around suburban shopping centres;
- (ii) new greenfield development in Kelson, Wainuiomata and Stokes Valley; and
- (iii) additional residential development in rural areas.

As part of this review Council commissioned the development of a whole of city review of residential and medium density zoned areas to give effect to this strategy. This culminated in the production of the report titled Hutt City Planning for the Future A Long Term Vision for Future Housing Growth and Choice, which is known as the Urban Development Plan. The Urban Development Plan considers different approaches for achieving some of this residential growth within the principle residential zone in Hutt City, known as the General Residential Activity Area. The approaches being considered include:

- (i) targeted areas for residential growth based around shopping centres and transport nodes;
- (ii) changes to existing provisions for larger sites within the General Residential Activity Area to encourage additional multiple housing development; and
- (iii) changes to existing provisions for smaller sites within the General Residential Activity Area.

These changes have been evaluated through the Urban Development Plan, including additional technical reports completed to inform this Plan and the Proposed Plan Change 43 Section 32 evaluation. This technical transport report has also informed the selection of sites and understanding of effects from proposed activities.

The **targeted areas** are based around the following commercial areas and nodes:

- (i) Alicetown
- (ii) Avalon
- (iii) Edge of Lower Hutt CBD
- (iv) Epuni
- (v) Naenae
- (vi) Stokes Valley



- (vii) Taita
- (viii) Waterloo
- (ix) Wainuiomata
- (x) Woburn (southern side of Woburn Railway Station)

The core of each of these targeted areas is based on existing commercial areas currently zoned Suburban Commercial, Petone Commercial, Central Commercial and General Business Activity Areas, located around an existing transport node. The intention is that the core areas would provide for mixed-use development in buildings up to 10m high and that surrounding the core there would be a 'ring' of residential buildings with heights of up to 10m. These areas would generally be within a 400m radius of railway stations and major bus stops.

Possible changes to **larger sites**, that is sites with a minimum area of 1,400m<sup>2</sup>, would allow residential development up to 10m in the remaining General Residential Activity Areas. This zone covers a large proportion of the valley floor and some hillside locations. It is anticipated that larger sites could be created through the purchase of several adjoining smaller sites.

#### 4. Methodology

The key premise of the methodology to assess the traffic effects of the potential residential growth has been to identify whether the level of forecast residential growth and associated traffic activity can be safely and efficiently accommodated at:

- (i) the periphery of the City's transport network;
- (ii) at the periphery of and within the Lower Hutt CBD;
- (iii) within each of the identified target areas for intensified residential development; and
- (iv) at key locations of busy traffic flows and parking demands within the City.

The assessment includes:

- (viii) an overview of the existing transport infrastructure including road, rail, ferry, cycling and public parking;
- (ix) an overview of key existing transport movements, travel patterns and transport trends;
- (x) identification of existing transport infrastructure constraints;
- (xi) forecasting of additional traffic volumes and parking demands associated with the potential residential growth;
- (xii) identification of traffic effects associated with potential residential growth that would trigger the need for significant new transport infrastructure;
- (xiii) comment on the traffic effects associated with potential residential growth on key transport network through Hutt City; and
- (xiv) developing recommendations for how Council might respond to any significant adverse traffic effects associated with the additional traffic and parking forecast to result from the potential residential growth.

The assessment is based on:

- (i) a literature review of both Hutt City and Regional Council transport documents;
- (ii) examination of Census data;
- (iii) a search of the NZTA crash database;
- (iv) inspection of the busiest parts of the transport network during the weekday morning and Saturday midday peak periods of traffic activity; and
- (v) spot checks of parking supply and demands at each of the targeted areas, park and ride carparks, Riverbank Carpark, Queens Drive Carpark and CBD kerbside parking on both weekdays and Saturdays.

## 5. Existing Transport Infrastructure and Services

### 5.1 Roads – State Highways

State Highway 2 is a Primary Distributor as defined in the Hutt City road hierarchy. It runs along the foot of the Western Hills and provides a roading connection between Upper Hutt, the Wairarapa and beyond, to Wellington. Along with State Highway 58 (also a Primary Distributor) it provides a connection between Pauatahanui and the Kapiti Coast and the Hutt Valley. Connections onto State Highway 58 in Hutt City are limited to the State Highway 2 intersection and the nearby intersection with Hebden Crescent. Opportunities for Hutt City traffic to access or leave State Highway 2 exist at the following locations going from south to north:

- (i) Petone interchange;
- (ii) Priests Avenue and McKenzie Avenue;
- (iii) Dowse interchange;
- (iv) Melling interchange including Block Road and Tirohanga Road;
- (v) Pomare Road and Wairere Road;
- (vi) Grounsell Crescent;
- (vii) Kennedy Good interchange including Major Drive;
- (viii) Owen Street;
- (ix) Hebden Crescent; and
- (x) Haywards Interchange including Manor Park Road.

Traffic counts provided by NZTA and Hutt City Council for SH2 and SH58 and their approaches along with reported crashes during the five year period 2011 to 2015 inclusive are summarised in Table 1.

Interchange/ Intersection with SH2	Side Road Traffic Flows (vpd)	SH2 2014 Two-way Flows South of Intersection (vpd)	SH2 Reported Crashes on Section South of Intersection*
Petone	Southbound on ramp 13,401 Northbound off ramp 14,407	67,224	1 Fatal 3 Serious injury 12 Minor injury
Priests Ave & McKenzie Ave	Figure not available	39,416	9 Minor injury
Dowse	Southbound on ramp 5,226 Southbound off ramp 4,213 Northbound on ramp 3,275 Northbound off ramp 4,958	38,541	1 Serious injury 3 Minor injury
Melling	Melling Bridge 23,921 Block Rd 7,105 Harbour View Rd 2,307 Tirohanga Rd 2,262	35,845	2 Serious injury 10 Minor injury
Pomare Rd & Wairere Rd	Pomare Rd 225	34,629	2 Serious injury 7 Minor injury
Grounsell Cres	Grounsell Cres 4,218	Figure not available	1 Serious injury 4 Minor injury
Kennedy Good	Kennedy Good Bridge 19,695 Major Drive 5,948	Figure not available	3 Serious injury 6 Minor injury
Owen St	Owen St 768	Figure not available	3 Serious injury 5 Minor injury
Hebden Cres	Figure not available	Figure not available	1 Serious injury 3 Minor injury
Haywards	SH58 13,470	33,419	8 Minor injury

Note: \* Within Hutt City boundary

**Table 1 : State Highway Traffic Flows and Crash Data**

As shown in Table 1, two-way traffic flows along State Highway 2 through Hutt City increase from 33,400 vehicle movements per day (vpd) south of State Highway 58 to 67,200vpd south of Petone, an increase of 33,800vpd. In terms of directional flows there is an increase of 16,600vpd in the southbound direction and a decrease in the northbound direction of 17,200vpd. Most of this increase in traffic flows is attributable to traffic accessing or leaving State Highway 2 at Petone. The distribution of traffic flows throughout the day on State Highway 2 to the south of Petone are shown in Figures 1 and 2.

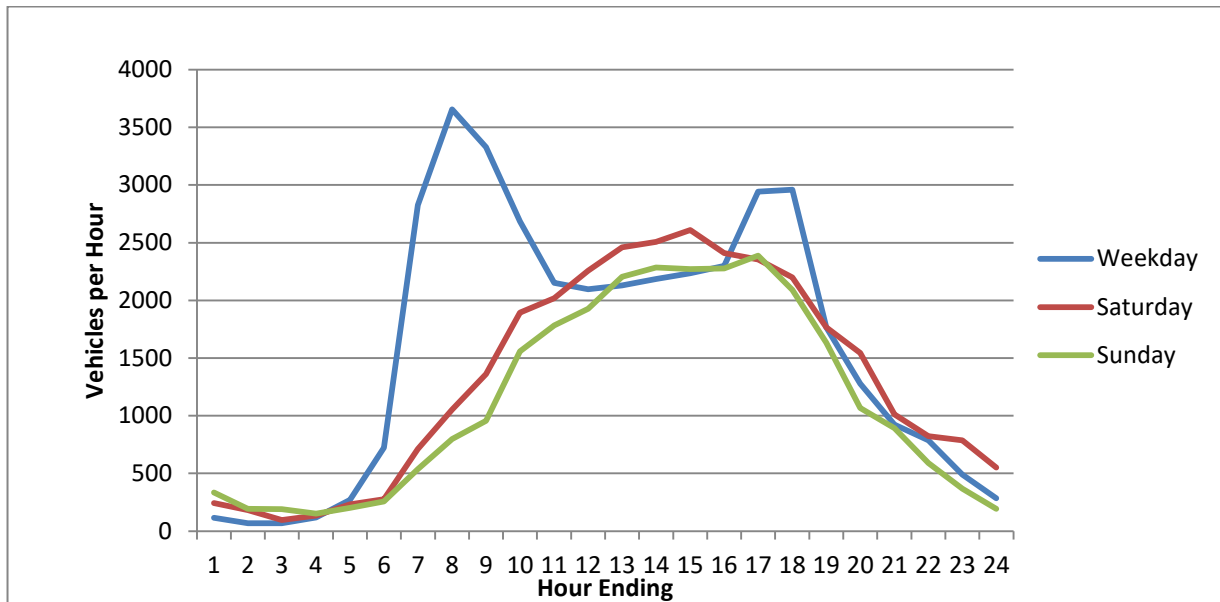


Figure 1: Southbound Traffic Flow Profile on SH2 South of Petone – 17 to 23 March 2014

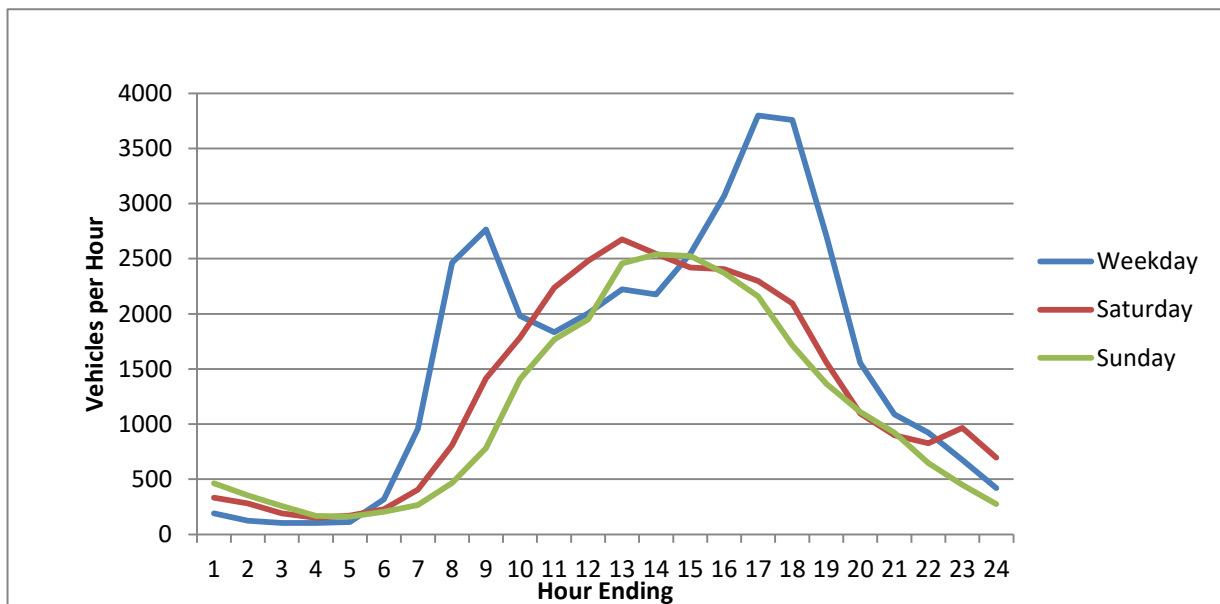


Figure 2: Northbound Traffic Flow Profile on SH2 South of Petone – 17 to 23 March 2014

As shown above, the peak periods of traffic activity on State Highway 2 are dominated by the weekday morning southbound peak and the weekday evening northbound peak. Saturday and Sunday flows typically remain below the weekday non-peak direction traffic flows. As part of this assessment spot checks were made of traffic congestion on SH2 and its approaches during the weekday morning peak period on 10 February 2016 (between 6.30am and 9.30am) and Saturday midday traffic peak on 6 February 2016 (between 11am and 2pm). Observations made as part of these checks can be summarised as follows:

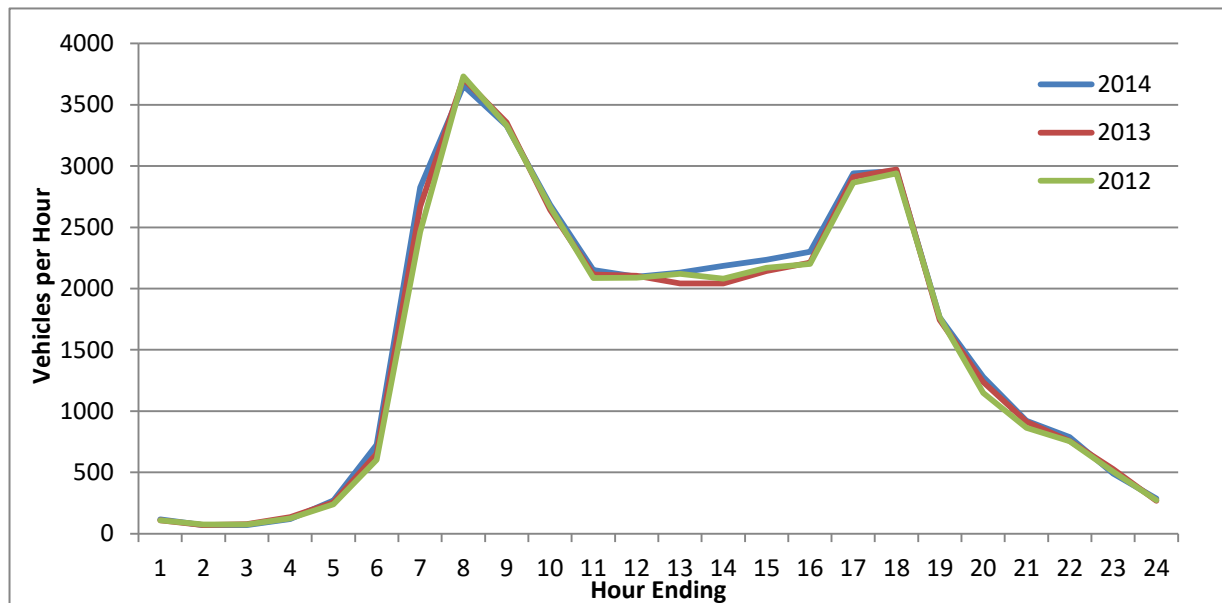
#### Saturday Midday

- (i) no significant congestion observed on State Highway 2; and
- (ii) some minor queuing for right turns from northbound State Highway 2 at Melling and Kennedy Good intersections.

### Weekday Morning

- (i) no queuing at the Hutt Road intersection with The Esplanade at 6.40am but queues building by 6.50am and remaining congested until at least 9.30am;
- (ii) westbound queues on The Esplanade extended as far back as Buick Street;
- (iii) Hutt Road queues extended back from The Esplanade to and through the Jackson Street intersection at times;
- (iv) Hutt Road queues extended back from the Dowse Interchange to Railway Avenue at the busiest times;
- (v) The Esplanade was the last of the roads to clear with SH2 north of Petone and Hutt Road clearing first;
- (vi) slow moving and queuing southbound traffic on State Highway as far back as Kennedy Good interchange; and
- (vii) the Melling interchange remained congested even when the main southbound State Highway 2 queue had cleared to the south.

As such, there is significant traffic congestion on weekday mornings for southbound traffic heading towards Wellington as a result of the limited capacity of State Highway 2 to the south of Petone. Figure 3 shows average weekday morning southbound traffic flows on State Highway 2 south of Petone for a week in March in each of 2012, 2013 and 2014. As shown there is very little difference in the traffic profiles with the 2014 flow being only 3% bigger than the 2012 flow. There has been some slight spreading of the weekday morning peak between 2012 and 2014 with an increase of 33vph, 121vph, and 364vph during the hours ending 5am, 6am and 7am respectively.



**Figure 3: Historic Southbound Traffic Flows on State Highway 2 South of Petone**

During the five year period 2011 to 2015 inclusive there have been some 84 reported injury accidents along the length of State Highway 2 from the State Highway 58 intersection to the Hutt City boundary with Wellington City immediately to the south of Petone. These comprised one fatal, 16 serious injury and 67 minor injury accidents. Of these the fatal accident, three serious injury and 12 minor injury crashes occurred along the 600m length of State Highway 2 to the south of Petone.

The key features of the State Highway road network within Hutt City can be summarised as follows:

- (i) ten local intersections or interchanges on State Highway 2, with the Petone Interchange having the busiest traffic flows;
- (ii) during the five year period 2011 to 2015 inclusive there have been some 84 reported injury accidents along the length of State Highway 2. Several of these accidents have occurred along the 600m length of State Highway 2 to the south of Petone;
- (iii) two-way traffic flows along State Highway 2 through Hutt City increase from 33,400 vehicle movements per day (vpd) south of State Highway 58 to 67,200vpd south of Petone, an increase of 33,800vpd;
- (iv) peak periods of traffic activity are on weekdays between 6am and 10am southbound and 4pm to 7pm northbound;
- (v) no significant congestion observed on the state highway network during the Saturday survey period;
- (vi) congestion observed from 6.50am through to after 9.30am on weekday mornings as a result of capacity being exceeded at the Petone southbound ramp onto State Highway 2. Associated queuing and slow moving traffic observed as far back as Buick Street on The Esplanade, to Jackson Street on Hutt Road, to Railway Avenue along Hutt Road from the Dowse Interchange and to the Kennedy Good Interchange on State Highway 2;
- (vii) very little change in traffic flows between 2012 and 2014; and
- (viii) additional spreading in peak traffic period with around 500 additional vehicles travelling southbound towards Wellington between 4am and 7am in 2014 compared with in 2012.

## 5.2 Roads – Hutt City Council Roads

The Hutt City road hierarchy is set out in the District Plan. The Primary, Major District and Minor District Distributors are shown in attached Drawing No.28967SCH2 Sheet 11 in Appendix 2. These form the main traffic routes through Hutt City with the intersections of these routes being the most likely locations to experience traffic congestion.

During the five year period 2011 to 2015 inclusive there have been four fatal crashes on the Hutt City road network. The locations of these fatal crashes were Hebden Crescent 800m south of State Highway 58, Kauri Street in Eastbourne, the intersection of Main Road and Moohan Street in Wainuiomata and Marine Drive in Lowry Bay.

Serious injury crashes during the same five year period are also shown on the network of distributor roads in Drawing No.28967SCH2 Sheet 11. Beyond the extent of the drawing there have been three serious injury crashes on Wainui Hill Road, two serious injury crashes on Wainuiomata Road between Parkway and Fitzherbert Street and one serious injury on Marine Drive to the north of Rangiora Road. Accordingly, the serious injury crashes are distributed across the network with no particular clusters.

Hutt City Council have a number of permanent traffic count locations. Traffic count data for the years from 2009 to 2014 for the four road bridges over the Hutt River are shown in Table 2.



Year	Kennedy Good Bridge (vpd)	Melling Bridge (vpd)	Ewen Bridge (vpd)	Waione Street Bridge (vpd)	Total (vpd)
2009	20,918	23,297	35,181	26,314	105,711
2010	20,903	22,891	34,809	26,074	104,677
2011	20,356	23,484	34,600	25,571	104,011
2012	20,020	23,715	33,925	25,494	103,154
2013	20,132	23,671	33,586	25,736	103,125
2014	20,341	23,921	33,143	25,325	102,729

**Table 2: Hutt City Permanent Count Data for River Crossings**

As shown traffic flows on each of the bridges has been very stable over the last few years with an overall reduction in flows of 3% or an average of 0.6% per annum between 2009 and 2014.

A number of traffic counts have been selected from the Hutt City traffic count database for an approximate cordon around the CBD. These counts are shown in Table 3.

Count Location	Year	AADT (vpd)	Weekday AM Peak Hour (vph)	Saturday Midday Peak Hour (vph)
Melling Bridge	2014	23,921	1,827	1,605
Connolly Street	2012	8,916	952	840
High Street	2008	12,757	1,019	1,156
Downer Street	2012	1,573	125	126
Pretoria Street	2014	2,829	398	259
Kings Crescent	2013	7,180	723	637
Waterloo Road	2009	9,800	788	934
Knights Road	2010	11,946	1,164	1,168
Bloomfield Terrace	2014	6,031	510	575
Myrtle Street	2014	2,357	338	226
Woburn Road	2009	15,863	1,217	1,323
Ewen Bridge	2014	33,142	2,270	2,346

**Table 3: Hutt CBD – Cordon Traffic Counts**

As shown, apart from the bridges across the Hutt River, the main entry/exit points for the CBD are Connolly Street, High Street, Knights Road and Woburn Road. Weekday morning and Saturday midday peak hour traffic activity across the cordon (excluding the bridges) ranges between 125 and 1,323vph. Given the very limited population growth in recent years, while the traffic counts span a number of years they are likely to be reasonably representative of existing traffic conditions. Given that the traffic counts are all two-way flows, the mid-block sections of each of the streets included in the cordon are operating comfortably within their available capacities.

As part of this assessment spot checks were made of traffic congestion on the main Hutt City road network during each of the weekday mornings of 9 and 10 February 2016 and Saturday midday traffic peaks on 6 February 2016. The spot checks included all the Major and Minor Distributor Roads and their intersections with each other, with the observations summarised as follows:

### **Saturday Midday**

- (i) some queuing on each of the approaches to the Daysh Street intersection with High Street but little delay;
- (ii) congestion as traffic from State Highway 2 approaches Queensgate with queue reaching back to the Queens Drive intersection with Rutherford Street; and
- (iii) delays and queuing associated with visitors to the Riverbank Market crossing in a constant stream across Rutherford Street at the pedestrian crossing near to the Countdown supermarket.

### **Weekday Morning**

- (i) some queueing for short duration of time but no major congestion on the local Major and Minor District Distributor road network;
- (ii) queuing on all approaches to the Daysh Street intersection with High Street, Avalon at the busiest times between 8am and 9am; and
- (iii) some queuing for right turns into and out of Waiwhetu Road at the intersection with White Line East, with right turning traffic not always clearing on the first green light.

The local Hutt road network is relatively uncongested at peak times with little significant congestion detected. The key features of the Hutt City road network can be summarised as follows:

- (i) there is no pattern of fatal or serious injury road crashes that indicates a particular safety issue with any one part of the Hutt City road network;
- (ii) traffic flows over the Hutt River road bridges have decreased overall by 3% between 2009 and 2014, with only Melling Bridge experiencing a slight increase in traffic flows;
- (iii) traffic flows into and out of the Hutt CBD are distributed across at least 12 different routes;
- (iv) some queuing was observed on the approaches to the High Street intersection with Daysh Street and Fairway Drive during both the weekday morning and Saturday midday spot checks;
- (v) some congestion was observed within the CBD during the Saturday midday peak associated with traffic accessing Queensgate and the Riverbank carpark; and
- (vi) some queuing of vehicles turning right into and out of Waiwhetu Road at the intersection with Whites Line East observed during the weekday morning peak.

### **5.3 Parking**

There are two main public pay and display carparks in Hutt City being the Riverbank Carpark operated by Hutt City Council and the Queens Drive Carpark operated by Wilsons Parking. The Riverbank Carpark has some 846 spaces of which 469 were occupied during a weekday midday spot check in February with an associated occupancy of 55%. With the carpark being used for a market on Saturdays no parking survey was done on a Saturday.

The Queens Drive Carpark is a multi-storey carpark accessed off Queens Drive and has some 273 spaces. Of these 195 (71%) and 35 (13%) were occupied during midday spot checks on a weekday and Saturday in February 2016 respectively. Queensgate Shopping Centre provides a large private carpark for its customers.

As part of planned Hutt River stopbank improvement works by the Greater Wellington Regional Council approximately half of the Riverbank Carpark spaces will be removed. Hutt City Council is investigating how these spaces can be replaced with options including riverbank parking accessed from the no exit end of Melling Road to the north of the CBD and Market Grove to the south of the CBD. The 2015 to 2025 Long Term Plan includes \$800,000 in each of the years

2018-2019 and 2020-2021 for the replacement of parking at the CBD Riverbank Carpark. Hutt City Council aims to maintain the overall existing level of public parking. Both options for providing future Riverbank parking will result in increased walking distances for users accessing the CBD.

As part of this assessment a parking inventory and spot checks of parking demands were undertaken of kerbside public parking available in the CBD, the area included is shown in Figure 4. Within this area there are some 666 kerbside parking spaces. These spaces all have time limits of 120 minutes or less on weekdays with some also having time restrictions on Saturdays. Spot check parking surveys undertaken during the middle of the day on a weekday (March 9<sup>th</sup>) and a Saturday (March 5<sup>th</sup>) showed 286 and 540 spaces being occupied with associated occupancy rates of 43% and 81% respectively.



**Figure 4: Hutt CBD Kerbside Parking Area**

It should be noted that all the parking surveys were undertaken prior to Council moving back to the Laings Road building and also prior to the Hutt Conference Centre being completed and operational. As such in the short term and into the future there will be an increase in both short and long stay parking demands within the CBD.

#### 5.4 Rail

Most of the rail routes and stations in Hutt City are shown in attached Drawing No.28967SCH2 Sheet 11. The Melling Line has services which run between Wellington and Melling Stations with stops in Hutt City at Petone, Western Hutt and Melling Stations. There are regional council park and ride facilities at both Petone and Melling. The Hutt Valley route has services that run between Wellington and Upper Hutt with stations in Hutt City at Petone, Ava, Woburn, Waterloo, Epuni, Naenae, Wingate, Taita and Pomare. Of these stations Petone, Woburn, Waterloo, Taita and Pomare have regional council park and ride facilities. An express train service is available on the Hutt Valley Line at peak travel times on weekdays, with trains bypassing Petone, Ava, Woburn, Epuni, Naenae and Wingate Stations. The commuter services running on the Hutt Valley and Melling lines can be summarised as follows:

### Hutt Valley Line

- (i) on weekdays three trains per hour departing Upper Hutt for Wellington between 6am and 8am;
- (ii) on weekdays an additional two or three trains per hour departing Taita and Waterloo for Wellington between 6am and 8am;
- (iii) on weekdays three trains per hour leaving Wellington between 4pm and 6pm for all stations from Petone to Taita;
- (iv) on weekdays an additional three trains per hour to Taita and Waterloo, leaving Wellington between 4pm and 6pm; and
- (v) on Saturdays, Sundays and public holidays half hourly service throughout the day and throughout the evenings.

### Melling Line

- (i) on weekdays nine services from Melling to Wellington departing between 6.35am and 9.49am;
- (ii) on weekdays nine services from Wellington to Melling departing between 3.25pm and 6.07pm;
- (iii) hourly service on weekdays between the commuter services; and
- (iv) no services on weekends, public holidays or weekday evenings.

As part of this assessment a parking inventory and spot checks of parking demands at each of the Park and Ride carparks were undertaken during the middle of the day on a weekday in February 2016. The results of these surveys are shown in Table 4. As shown, all of the official park and ride carparks were effectively at or exceeding their capacity at the inspection and in Petone, Woburn and Waterloo there was considerable reliance on nearby sections of all-day kerbside parking.

It should be noted that on the day that the Petone Park and Ride facility was surveyed the new formalised area of parking on the southern side of Pito-One Road was not open. The number of spaces surveyed therefore does not include spaces in this new section of park and ride parking. The expanded area of car parking is anticipated to provide in the order of 285 spaces, of which 172 spaces are reserved for exclusive use of a new church (with a gross floor area of 2,200m<sup>2</sup> and seating capacity for 1,200 people) outside of peak parking times (i.e. weekends, and before 6am and after 7pm on weekdays).

On Thursday February 11<sup>th</sup> 2016 observations were made of the passenger loadings of trains stopping at Petone Station between 6.30am and 9.00am. Up until around 7.15am there were seats available for passengers joining the train at Petone and heading towards Wellington. From 7.15am through to 8.30am there was standing room only for passengers joining at Petone with seats available on services after 8.30am. At around 8.15am a very full train stopped at the station and some of the waiting passengers chose to wait for the following train. The trains coming from Melling generally had more spare capacity than the Hutt Valley trains.

Accordingly, the official park and ride carparks throughout Hutt City are fully utilised and at peak times during the weekday commuter period there is little if any spare capacity for seated passengers on the trains as they depart from Petone heading towards Wellington.

<b>Park and Ride</b>	<b>No. of Spaces</b>	<b>No. of Spaces Occupied</b>	<b>Comment</b>
<b>Petone<sup>1</sup></b> Pito-One Rd McKenzie Ave	124 + 2 mobility  200	126 + 0 mobility  204	81 cars parked kerbside on Pito-One Rd 52 cars parked kerbside on lower sections of Korokoro Rd and London Rd Further commuter parking kerbside on southern side of railway
<b>Woburn</b>	119	119	47 cars parked on Pohutukawa St and others parked further into residential area
<b>Waterloo</b> West of Railway East of Railway	74  533	74  531 (2 unusable due to poor parking)	Commuter parking along Cambridge Terrace and extending into residential streets on both sides of the railway by around 300m
<b>Taita</b>	61	57	Further 11 cars parked along nearby kerbside
<b>Pomare</b>	39 + 2 mobility	43 + 0 mobility	Further 16 cars parked along nearby sections of kerbside
<b>Melling</b>	200	202	Further 26 cars parked on Block Road and parking fully occupied along nearby sections of Pharazyn St

Note: 1. Does not include the 285 spaces in the GWRC park and ride carpark on the southern side of Pito-One Road and the yet to be completed adjacent church carpark.

**Table 4: Park and Ride Survey Results**

## 5.5 Bus

The Hutt Valley has a comprehensive network of bus routes with bus services connecting the residential suburbs to local train stations, Hutt CBD, Petone, Upper Hutt, Wellington and the airport. The availability of bus services between each of the targeted areas and local and regional destinations is summarised in Table 5.

A regular direct bus service also operates between Hutt CBD, Wainuiomata, Epuni and Waterloo train station. A direct bus service also runs between Stokes Valley and Taita train station.

Targeted Area	Direct Bus Services To				
	Hutt CBD	Central Petone	Petone Train Station	Wellington	Upper Hutt
Alicetown	✓	✓	✓	✓	✓
Avalon	✓	✓	✓		✓
CBD Edge	✓	✓	✓	✓	✓
Epuni	✓	✓	✓		
Naenae	✓				
Stokes Valley	✓			✓	
Taita	✓	✓	✓		✓
Waterloo	✓	✓	✓		
Wainuiomata	✓			✓	
Woburn	✓				

**Table 5: Summary of Bus Service Connectivity for Areas Targeted for Residential Growth**

## 5.6 Ferry

There is a ferry service between Days Bay and Wellington. On weekdays there are sixteen services a day in each direction between 6.25am and 7.20pm, operating at approximately half hour intervals during the morning and afternoon peak. Two boats operate this service, one has capacity for 99 passengers and the other for 91 passengers. The ferry company have indicated that the existing weekday morning peak loadings for the 7.45am service from Days Bay is reaching capacity but that there is spare capacity on other sailings. It was also indicated that with the current trend towards increased ferry usage throughout the year that the company are considering adding a third boat onto the service.

A less frequent service operates at the weekends with eight services running in each direction between 10am and 5.30pm. There is all day parking along the Days Bay waterfront which serve both ferry passengers and visitors to the beach. During a weekday spot check on February 12th 2016 there were only seven vacant spaces. Accordingly in the event of increased demand for the ferry, consideration will need to be given to balancing the parking demands for ferry passengers and visitors to the beach.

## 5.7 Cycling

Figure 5 shows existing cycleways and Urban Cycleways funded projects in Hutt City. Existing cycleways run along the Hutt River from the Hutt River Mouth to the Upper Hutt border and beyond. A cycle path also runs along the Petone Foreshore between the State Highway 2 corridor and Lowry Bay.

Construction of cycleways along the Hutt Valley rail corridor and between Hutt CBD and Waterloo train station are anticipated to commence in 2016 and be completed in 2018. An Eastern Bays Shared Path is also proposed around Lowry and York Bays with construction expected to start later this year.

Hutt City Council undertake regular cyclist counts in Moera and at Kennedy Good Bridge. Figure 6 shows the combined average daily totals of the two sites for each month for the years 2010 to 2014. As shown, there is no clear trend of either growth or decline in cycling activity. As would be expected the counts are higher during the summer than in the winter.



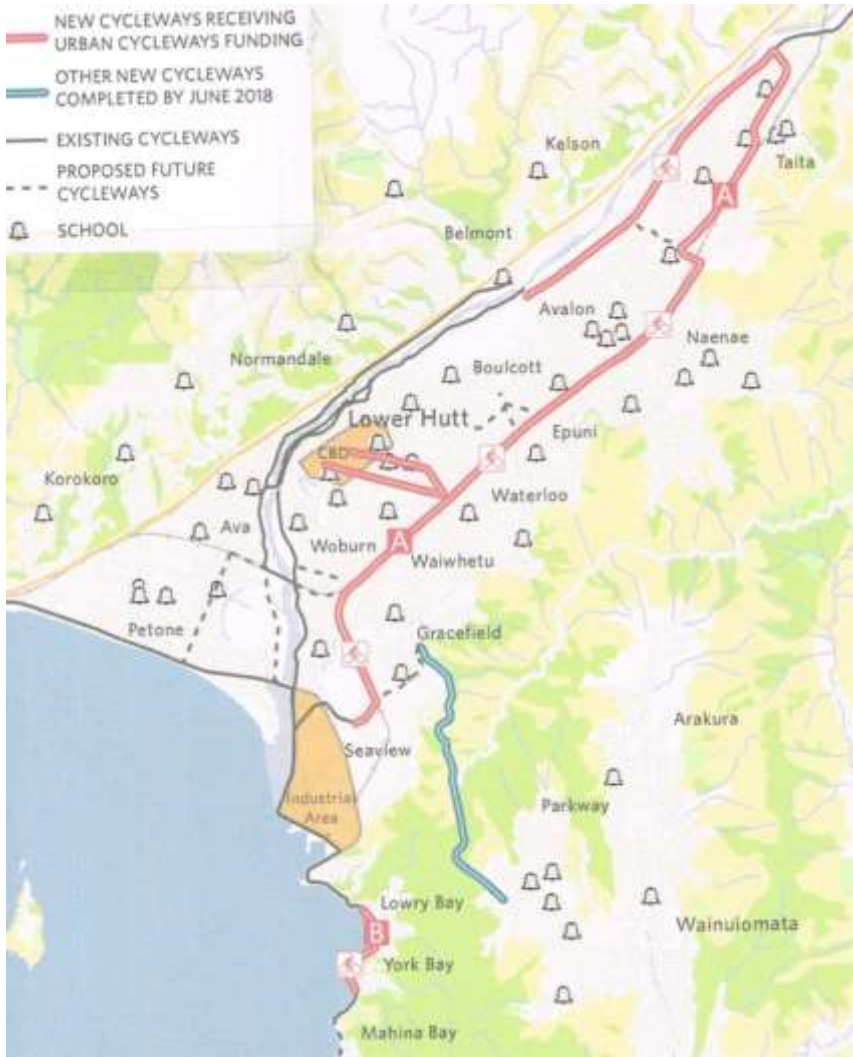


Figure 5: Existing Cycleways and Urban Cycleways Funded Projects in Hutt City

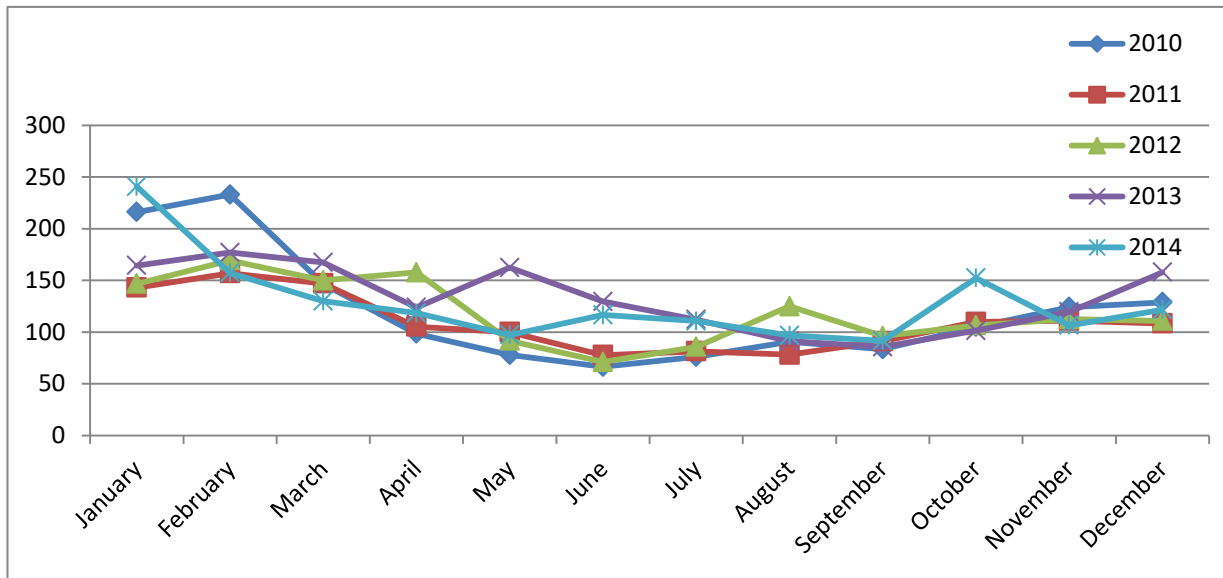


Figure 6: Combined Moera and Kennedy Good Bridge Cyclist Counts

## 6. Existing Travel Patterns and Characteristics

### 6.1 Census Data

Population, household numbers and size, and vehicle ownership census data for 2001, 2006 and 2013 for Hutt City are summarised in Table 6. As shown, there has been a small increase in population and households between 2001 and 2013 amounting to 0.2% and 0.4% per annum respectively. Household sizes are stable at an average of 2.6-2.7 people per household with an average of 1.6 vehicles owned per household.

Data category	2001	2006	2013
Population	95,490	97,704	98,241
No. of Households	34,338	35,364	35,985
Average Household Size <sup>1</sup>	2.7	2.7	2.6
Vehicle Ownership <sup>2</sup>	1.5	1.6	1.6

Note: 1. Assuming six people in households where six or more stated  
2. Assuming three cars in households where three or more stated

**Table 6: Hutt City – Historic Census Data**

The website profile.idnz.co.nz groups census data into suburbs and small areas designed to match official boundaries as close as possible, and represent geographic areas which people can relate to on the ground. Tables 7 and 8 include a citywide summary as well as data for each of the suburbs which include a targeted area for residential growth. As shown in Table 7, average household size varies between 2.4 and 3.0 people per household and average vehicle ownership varies between 1.1 and 1.6 vehicles per household. There does not appear to be any clear relationship between average household size and the number of vehicles owned per household.

Area	2013 Census Data			
	Population	No. of Households	Average Household Size <sup>1</sup>	Average Vehicle Ownership per Household <sup>2</sup>
Citywide	98,241	35,985	2.6	1.6
Alicetown – Melling	2,616	999	2.4	1.4
Avalon	4,800	1,911	2.4	1.3
Delaney	2,412	804	3.0	1.4
Epuni East & West	5,892	2,280	2.5	1.4
Gracefield – Seaview - Waiwhetu	4,062	1,572	2.5	1.3
Hutt Central	3,954	1,425	2.6	1.6
Naenae North	4,659	1,608	2.8	1.1
Parkway	3,138	1,122	2.8	1.5
Taita North & South	5,538	1,878	2.9	1.2
Waterloo East & West	5,127	1,977	2.5	1.5

Note: 1. Assuming six people in households where six or more stated  
2. Assuming three cars in households where three or more stated

**Table 7: 2013 Population, Household and Vehicle Ownership Data**

Table 8 provides a summary of which travel modes Hutt City residents used to travel to work on census day in 2013.

Area	Car (driver or passenger) (%)	Motorbike (%)	Train (%)	Bus (%)	Bicycle (%)	Walked (%)	Worked at Home (%)
<b>Citywide</b>	58.7	0.9	9.8	5.0	1.8	3.8	4.8
<b>Alicetown – Melling</b>	50.4	1.3	14.4	6.4	2.8	6.2	4.9
<b>Avalon</b>	58.7	0.3	12.3	4.6	1.5	3.3	3.4
<b>Delaney</b>	68.3	0.7	5.3	5.6	-	1.4	3.2
<b>Epuni East &amp; West</b>	53.0	0.4	14.6	2.4	2.1	6.9	5.2
<b>Gracefield – Seaview - Waiwhetu</b>	54.1	0.5	16.6	3.2	2.9	5.1	4.0
<b>Hutt Central</b>	51.9	0.5	11.4	3.7	2.6	9.8	7.3
<b>Naenae North</b>	56.6	1.1	8.8	5.6	2.3	4.8	3.4
<b>Parkway</b>	68.5	0.6	5.6	6.2	0.6	2.1	2.3
<b>Taita North &amp; South</b>	59.2	0.3	9.8	5.7	0.9	3.4	2.5
<b>Waterloo East &amp; West</b>	52.5	0.7	20.0	1.3	2.7	4.4	5.3

**Table 8: Journey to Work Census Data**

The table excludes responses for did not go to work on census day, other or not stated/ included. Key features of the journey to work travel mode data shown in Table 8 are:

- (i) significantly lower than average car usage to access employment by residents of the Alicetown-Melling and Hutt Central;
- (ii) noticeably higher than average car usage to access employment by residents of Delaney and Parkway;
- (iii) higher levels of train usage (14.4 to 20.0%) to access workplaces by residents of Alicetown-Melling, Epuni, Gracefield-Seaview-Waiwhetu and Waterloo;
- (iv) 9.8% of Hutt Central residents walked to work; and
- (v) above average proportions of residents who worked from home in Hutt Central (7.3%).

Table 9 shows the changes in the split between the various travel modes for the journey to work between the 2006 and 2013 census for the City as a whole. As shown, changes in split between the various travel modes have been small, less than 1% for each mode. A 1.5% decrease in the proportion of residents using a car to travel to work either as the driver or as a passenger is partially balanced by a 1.3% increase in public transport usage.

<b>Journey to Work Travel Mode</b>	<b>2006 (%)</b>	<b>2013 (%)</b>	<b>Change 2006-2013 (%)</b>
<b>Drove a car, truck or van</b>	54.5	53.8	-0.7
<b>Passenger in a car, truck, van or company bus</b>	5.7	4.9	-0.8
<b>Motorbike or power cycle</b>	0.6	0.9	+0.3
<b>Train</b>	9.0	9.8	+0.8
<b>Public bus</b>	4.5	5.0	+0.5
<b>Bicycle</b>	1.3	1.8	+0.5
<b>Walked or jogged</b>	3.9	3.8	-0.1
<b>Worked at home</b>	4.4	4.8	+0.4
<b>Did not go to work on census day</b>	9.7	10.2	+0.5
<b>Other or not stated/ included</b>	6.5	4.9	-1.6

**Table 9: Journey to Work Census Data 2006 to 2013**

Table 10 summarises the workplace locations for Hutt City residents from the 2013 census data.

<b>Work Location</b>	<b>No. of Hutt City Residents</b>	<b>Percentage of Hutt City Residents (%)</b>
<b>Hutt City</b>	24,366	52.0
<b>Wellington</b>	15,042	32.1
<b>Upper Hutt</b>	1,584	3.4
<b>Porirua</b>	699	1.5
<b>Other stated locations</b>	396	1.2
<b>Unknown</b>	4,572	9.8

**Table 10: Hutt City Residents Employment Location in 2013**

As shown, over half the working residents in Hutt City work within the city and almost one third work in Wellington. Statistics New Zealand data shows a growth in employment (based on workplace addresses) of 10.4%, 2.7%, 0.7% and 14.2% between 2006 and 2013 for Porirua, Upper Hutt, Lower Hutt and Wellington respectively. As such and if this trend continues there will be a growing proportion of Lower Hutt residents travelling to Wellington and to a lesser extent Porirua for work.

Statistics New Zealand have developed an online tool called Commuter View which shows commuter movements into and out of each area unit based on the 2013 census data. The eight area units with the highest employment densities within Hutt City accommodate around 60% of employment within the city as summarised in Table 11.

Employment Location	No. of workers	Percentage of total workforce employed in Hutt City (%)
Hutt City	37,176	100
Petone Central	5,052	13.6
Esplanade	1,206	3.2
Gracefield	4,002	10.8
Alicetown	1,050	2.8
Melling	756	2.0
Hutt Central	8,007	21.5
Epuni West	2,253	6.1
Waterloo West	282	0.8

**Table 11: Main Centres of Employment in Hutt City**

To summarise, the main points highlighted by the census data are:

- (i) the average household size in Hutt City is 2.6 people with an average of 1.6 vehicles per household;
- (ii) the average number of people per household varies from 2.4 to 3.0 and the average car ownership from 1.1 to 1.6 vehicles per household across the various suburbs which may contain targeted areas for residential growth;
- (iii) there is a lot of variation in the journey to work travel mode between the different suburbs;
- (iv) city-wide there has been a small reduction in the proportion of residents travelling to work by car between 2006 and 2013 which is largely balanced by increases in train, bus and bicycle use;
- (v) based on forecast employment data it seems likely that the proportion of Hutt residents working in Wellington and to a lesser extent Porirua will continue to grow, with a corresponding loss in the proportion of residents working within Hutt City; and
- (vi) the main centres of employment within Hutt City are the Hutt CBD, Petone Central and Gracefield.

## 6.2 Targeted Areas Traffic Characteristics

As described previously, ten targeted areas have been identified for possible residential growth as part of the implementation of the Urban Growth Strategy. Each of these areas and the surrounding local transport network are shown in the drawings included in Appendix 1. Local traffic flows obtained from the Council's traffic count database and reported injury crashes sourced from the NZTA crash database are shown for each of the targeted areas in drawings included in Appendix 2. The traffic characteristics of each of the target areas are summarised in the following sections of this report. As part of this assessment, a parking inventory and spot checks of weekday and Saturday parking demands were undertaken of public parking within each of the target areas. Where kerbside parking is not marked it has been assumed that one space would require a length of 6 to 7m.

## Epuni

<b><u>Public Parking in Target Area</u></b>	
<b>Inventory (includes time restricted parking)</b>	1,082
<b>Weekday Occupancy</b>	278 (26%)
<b>Saturday Occupancy</b>	160 (15%)
<b>Nearest Train Station</b>	Epuni (within target area)
<b><u>Park and Ride</u></b>	
<b>Inventory</b>	No GWRC facility
<b>Weekday Occupancy</b>	No GWRC facility
<b><u>Bus Services</u></b>	
<b>No. of bus stops in or close to target area</b>	8
<b>Services available</b>	120, 121, 130, 150
<b>Main destinations served</b>	Hutt CBD, Gracefield, Stokes Valley, Petone (including train station)
<b>Distance to Days Bay Ferry (Eastbourne only)</b>	Not relevant
<b><u>Road Access</u></b>	
<b>Main local access points</b>	Cambridge Terrace, Oxford Terrace, Waiwhetu Road
<b>Main access point(s) to SH2</b>	Melling
<b>Main access points to Hutt CBD</b>	Rutherford Street, High Street, Pretoria Street, Kings Crescent, Waterloo Road, Knights Road
<b><u>Traffic Congestion</u></b>	
<b>Existing local congestion spots</b>	None observed
<b>Potential future local congestion spots</b>	Intersections of each of Oxford Terrace, Cambridge Terrace and Waiwhetu Road with Waterloo Road
<b>No. of reported injury crashes within target area</b>	No fatal crashes, two serious injury crashes and no clusters of 4 or more minor injury crashes

Table 12: Epuni Traffic Characteristics

In summary, there is plenty of spare kerbside parking on both weekdays and Saturdays including within a short walking distance of the train station. Epuni is well served by public transport and the road layout is such that there is a good distribution of traffic flows both locally and on the approaches to the CBD. There are no existing safety or capacity concerns but there is potential for future congestion at local intersections with Waterloo Road.



## Waterloo

<b><u>Public Parking in Target Area</u></b>	
<b>Inventory (includes time restricted parking)</b>	592
<b>Weekday Occupancy</b>	262 (44%)
<b>Saturday Occupancy</b>	147 (25%)
<b>Nearest Train Station</b>	Waterloo (within target area)
<b><u>Park and Ride</u></b>	
<b>Inventory</b>	607
<b>Weekday Occupancy</b>	605 (2 spaces unavailable for use)
<b><u>Bus Services</u></b>	
<b>No. of bus stops in or close to target area</b>	5
<b>Services available</b>	121, 130, 160, 170
<b>Main destinations served</b>	Hutt CBD, Gracefield, Stokes Valley, Petone (including train station)
<b>Distance to Days Bay Ferry (Eastbourne only)</b>	Not relevant
<b><u>Road Access</u></b>	
<b>Main local access points</b>	Waterloo Road, Knights Road, Cambridge Terrace, Oxford Terrace, Waiwhetu Road
<b>Main access point(s) to SH2</b>	Melling and Dowse
<b>Main access points to Hutt CBD</b>	Waterloo Road, Knights Road
<b><u>Traffic Congestion</u></b>	
<b>Existing local congestion spots</b>	None observed
<b>Potential future local congestion spots</b>	Intersections of each of Oxford Terrace, Cambridge Terrace and Waiwhetu Road with Waterloo Road
<b>No. of reported injury crashes within target area</b>	No fatal crashes, two serious injury crashes and no clusters of 4 or more minor injury crashes

**Table 13: Waterloo Traffic Characteristics**

In summary, overall there is spare kerbside parking on both weekdays and Saturdays within the target area. However on weekdays most of this parking demand is accommodated close to the train station with little all-day spare capacity within a short walking distance (200m) of the train station. Waterloo is well served by public transport and the road layout is such that there is a good distribution of traffic flows locally. Traffic accessing the CBD and State Highway 2 is likely to use Waterloo Road and Knights Road. There are no existing significant safety or capacity concerns but there is potential for future congestion at local intersections with Waterloo Road.

**Naenae**

<b><u>Public Parking in Target Area</u></b>	
<b>Inventory (includes time restricted parking)</b>	703
<b>Weekday Occupancy</b>	204 (29%)
<b>Saturday Occupancy</b>	174 (25%)
<b>Nearest Train Station</b>	Naenae (within target area)
<b><u>Park and Ride</u></b>	
<b>Inventory</b>	No GWRC facility
<b>Weekday Occupancy</b>	No GWRC facility
<b><u>Bus Services</u></b>	
<b>No. of bus stops in or close to target area</b>	4
<b>Services available</b>	121, 130
<b>Main destinations served</b>	Hutt CBD, Gracefield, Stokes Valley
<b>Distance to Days Bay Ferry (Eastbourne only)</b>	Not relevant
<b><u>Road Access</u></b>	
<b>Main local access points</b>	Cambridge Terrace, Naenae Road
<b>Main access point(s) to SH2</b>	Kennedy Good
<b>Main access points to Hutt CBD</b>	Rutherford Street, High Street, Pretoria Street, Kings Crescent, Waterloo Road
<b><u>Traffic Congestion</u></b>	
<b>Existing local congestion spots</b>	Minor congestion observed during both the weekday morning and Saturday midday peaks at the intersection of High Street with Daysh Street and Fairway Drive
<b>Potential future local congestion spots</b>	Intersection of Naenae Road and Daysh Street
<b>No. of reported injury crashes within target area</b>	No fatal crashes, two serious injury crashes and no clusters of 4 or more minor injury crashes

**Table 14: Naenae Traffic Characteristics**

In summary, there is plenty of spare kerbside parking on both weekdays and Saturdays including within a short walking distance of the train station. The Naenae target area is located to the east of the railway line and is well served by public transport. The road layout is such that local traffic distributes via either Naenae Road or Cambridge Terrace with good distribution of traffic flows on the approaches to the CBD. There are no existing safety concerns but the intersection of Daysh Street with High Street and Fairway Drive is showing signs of getting congested at the busiest times and there is potential for future congestion at intersection of Daysh Street and Naenae Road.

**Taita**

<b><u>Public Parking in Target Area</u></b>	
<b>Inventory (includes time restricted parking)</b>	740
<b>Weekday Occupancy</b>	107 (14%)
<b>Saturday Occupancy</b>	69 (9%)
<b>Nearest Train Station</b>	Taita (within target area)
<b><u>Park and Ride</u></b>	
<b>Inventory</b>	61
<b>Weekday Occupancy</b>	57
<b><u>Bus Services</u></b>	
<b>No. of bus stops in or close to target area</b>	4
<b>Services available</b>	110,120
<b>Main destinations served</b>	Hutt CBD, Petone (including train station), Stokes Valley, Upper Hutt
<b>Distance to Days Bay Ferry (Eastbourne only)</b>	Not relevant
<b><u>Road Access</u></b>	
<b>Main local access points</b>	High Street, Reynolds Street
<b>Main access point(s) to SH2</b>	Kennedy Good
<b>Main access points to Hutt CBD</b>	Rutherford Street, High Street
<b><u>Traffic Congestion</u></b>	
<b>Existing local congestion spots</b>	None observed
<b>Potential future local congestion spots</b>	None obvious
<b>No. of reported injury crashes within target area</b>	No fatal crashes, two serious injury crashes and no clusters of 4 or more minor injury crashes

**Table 15: Taita Traffic Characteristics**

In summary, there is plenty of spare kerbside parking on both weekdays and Saturdays including within a short walking distance of the train station. Taita is well served by public transport and the road layout is such that there is a good distribution of traffic flows both locally and on the approaches to the CBD. There are no existing or potential safety or capacity concerns. With the target area located to the west of the railway line there is unlikely to be any significant increase in pressure on the nearby Wingate road bridge over the railway.

## Woburn

<b><u>Public Parking in Target Area</u></b>	
<b>Inventory (includes time restricted parking)</b>	368
<b>Weekday Occupancy</b>	149 (40%)
<b>Saturday Occupancy</b>	70 (19%)
<b>Nearest Train Station</b>	Woburn (within target area)
<b><u>Park and Ride</u></b>	
<b>Inventory</b>	119
<b>Weekday Occupancy</b>	119
<b><u>Bus Services</u></b>	
<b>No. of bus stops in or close to target area</b>	5
<b>Services available</b>	83,121, 130,160,170
<b>Main destinations served</b>	Hutt CBD, Petone (including train station), Gracefield, Stokes Valley
<b>Distance to Days Bay Ferry (Eastbourne only)</b>	Not relevant
<b><u>Road Access</u></b>	
<b>Main local access points</b>	Cambridge Terrace, Waiwhetu Road, Wainui Road, White Line East
<b>Main access point(s) to SH2</b>	Dowse and Petone
<b>Main access points to Hutt CBD</b>	Woburn Road, Laings Road, Myrtle Street, Bellevue Road
<b><u>Traffic Congestion</u></b>	
<b>Existing local congestion spots</b>	Queues observed for right turns into and out of Waiwhetu Road at the intersection with Whites Line East during the weekday morning peak
<b>Potential future local congestion spots</b>	Intersections of Whites Line East with each of Randwick Road and Cambridge Terrace
<b>No. of reported injury crashes within target area</b>	No fatal crashes, two serious injury crashes located at the intersection of Wainui Road and Whites Line East, no clusters of 4 or more minor injury crashes

Table 16: Woburn Traffic Characteristics

In summary, overall there is plenty of spare kerbside parking within the target area on both weekdays and Saturdays. On weekdays most of this parking demand is accommodated close to the train station. Woburn is well served by public transport and the road layout is such that there is a good distribution of traffic flows both locally and on the approaches to the CBD. There are no existing safety concerns but there is some congestion at the busiest times at the intersection of Waiwhetu Road and Whites Line East. With the target area mostly located to the east of the railway line there is potential for future congestion at the intersections of Whites Line East with each of Randwick Road and Cambridge Terrace.

## Stokes Valley

<b><u>Public Parking in Target Area</u></b>	
<b>Inventory (includes times restricted parking)</b>	385
<b>Weekday Occupancy</b>	120 (31%)
<b>Saturday Occupancy</b>	154 (40%)
<b>Nearest Train Station</b>	Pomare (3km)
<b><u>Park and Ride</u></b>	
<b>Inventory</b>	Pomare 41
<b>Weekday Occupancy</b>	Pomare 43
<b><u>Bus Services</u></b>	
<b>No. of bus stops in or close to target area</b>	4
<b>Services available</b>	90, 120, 121
<b>Main destinations served</b>	Hutt CBD, Wellington, Gracefield
<b>Distance to Days Bay Ferry (Eastbourne only)</b>	Not relevant
<b><u>Road Access</u></b>	
<b>Main local access points</b>	Stokes Valley Road, Eastern Hutt Road
<b>Main access point(s) to SH2</b>	Kennedy Good Bridge to south, Fergusson Drive to north
<b>Main access points to Hutt CBD</b>	High Street, Rutherford Street
<b><u>Traffic Congestion</u></b>	
<b>Existing local congestion spots</b>	None observed
<b>Potential future local congestion spots</b>	Intersections of Eastern Hutt Road with each of Stokes Valley Road and High Street (see below)
<b>No. of reported injury crashes within target area</b>	No fatal crashes, no serious injury crashes and no clusters of 4 or more minor injury crashes

Table 17: Stokes Valley Traffic Characteristics

In summary, overall there is plenty of spare kerbside parking within the target area on both weekdays and Saturdays. The Stokes Valley target area is well served by bus services and is 3km from Pomare train station. With the Pomare park and ride carpark at capacity any additional demand for park and ride would need to be accommodated kerbside either on Eastern Hutt Road or on Farmers Crescent. There are no existing safety or congestion concerns.

Anticipated future residential growth in Stokes Valley outside the targeted area as outlined in the Urban Growth Strategy will increase local traffic flows with the potential for congestion at the intersections of Eastern Hutt Road with each of Stokes Valley Road and High Street.

**Wainuiomata**

<b><u>Public Parking in Target Area</u></b>	
<b>Inventory (includes times restricted parking)</b>	206
<b>Weekday Occupancy</b>	13 (6%)
<b>Saturday Occupancy</b>	4 (2%)
<b>Nearest Train Station</b>	Woburn (6.5km)
<b><u>Park and Ride</u></b>	
<b>Inventory</b>	Woburn 119
<b>Weekday Occupancy</b>	Woburn 119
<b><u>Bus Services</u></b>	
<b>No. of bus stops in or close to target area</b>	2
<b>Services available</b>	80, 160, 170
<b>Main destinations served</b>	Hutt CBD, Wellington, Gracefield, Petone, Waterloo train station
<b>Distance to Days Bay Ferry (Eastbourne only)</b>	Not relevant
<b><u>Road Access</u></b>	
<b>Main local access points</b>	Wainuiomata Road
<b>Main access point(s) to SH2</b>	Petone
<b>Main access points to Hutt CBD</b>	Woburn Road, Laings Road, Myrtle Street, Bellevue Road
<b><u>Traffic Congestion</u></b>	
<b>Existing local congestion spots</b>	None observed
<b>Potential future local congestion spots</b>	Intersections of Wainuiomata Road with each of Fitzherbert Road and Parkway (see below)
<b>No. of reported injury crashes within target area</b>	No fatal crashes, one serious injury crash and no clusters of 4 or more minor injury crashes

**Table 18: Wainuiomata Traffic Characteristics**

In summary, overall there is plenty of spare kerbside parking within the target area on both weekdays and Saturdays. The Wainuiomata target area is well served by bus services and is 6.5km from Woburn train station. With the Woburn park and ride carpark at capacity any additional demand for park and ride will need to be accommodated kerbside, noting that there are already some parking pressures close to Woburn Station. There are no existing safety or congestion concerns.

Anticipated future residential growth in Wainuiomata outside the targeted area as outlined in the Urban Growth Strategy will increase local traffic flows with the potential for congestion at the intersections of Wainuiomata Road with each of Fitzherbert Road and Parkway.

## CBD Edge

<b><u>Public Parking in Target Area</u></b>	
<b>Inventory (includes time restricted parking)</b>	1,031
<b>Weekday Occupancy</b>	613 (59%)
<b>Saturday Occupancy</b>	399 (39%)
<b>Nearest Train Station</b>	Woburn (>750m), Waterloo (>700m), Melling (>750)
<b><u>Park and Ride</u></b>	
<b>Inventory</b>	Woburn 119, Waterloo 607, Melling 200
<b>Weekday Occupancy</b>	Woburn 119, Waterloo 605, Melling 202
<b><u>Bus Services</u></b>	
<b>No. of bus stops in or close to target area</b>	7
<b>Services available</b>	83, 91, 110, 130, 145, 150, 154, 160, 170
<b>Main destinations served</b>	Hutt CBD, Wellington (including airport), Petone (including train station), Upper Hutt
<b>Distance to Days Bay Ferry (Eastbourne only)</b>	Not relevant
<b><u>Road Access</u></b>	
<b>Main local access points</b>	Ludlam Crescent, Ewen Bridge, Knights Road, Waterloo Road, Queens Drive
<b>Main access point(s) to SH2</b>	Melling and Dowse
<b>Main access points to Hutt CBD</b>	Laings Road, Myrtle Street, Bellevue Road, Knights Road, Waterloo Road, Kings Crescent
<b><u>Traffic Congestion</u></b>	
<b>Existing local congestion spots</b>	No significant congestion observed
<b>Potential future local congestion spots</b>	Knights Road intersection with Cornwall Street
<b>No. of reported injury crashes within target area</b>	No fatal crashes, no serious injury crashes and three clusters of 4 or more minor injury crashes

Table 19: CBD Edge Traffic Characteristics

In summary, overall there is spare kerbside parking on both weekdays and Saturdays within the target area. However especially on weekdays there is little all-day parking available close to the CBD, with the spare capacity being for spaces with time restrictions of two hours or less. There are also weekday kerbside parking pressures for all-day parking close to each of the nearby train stations. While access to bus services is very good, most of the target area is outside a comfortable walking distance (more than 800m or 10 minutes) to the nearest train stations. Furthermore no train services currently operate on the Melling Line in the later evenings or at weekends.

The road layout is such that there is a good distribution of traffic flows locally and to and from the CBD and State Highway 2. There are no existing significant safety or capacity concerns but there is potential for future congestion at the intersection of Knights Road and Cornwall Street. Existing traffic congestion has been observed just outside the target area, in the vicinity of Melling Bridge and at the intersection of Connolly Street and Rutherford Street. This existing traffic congestion should be relieved by future Improvements to the capacity of the SH2 Melling Interchange.



## Alicetown

<b><u>Public Parking in Target Area</u></b>	
<b>Inventory (includes time restricted parking)</b>	513
<b>Weekday Occupancy</b>	227 (44%)
<b>Saturday Occupancy</b>	131 (26%)
<b>Nearest Train Station</b>	Ava (within target area)
<b><u>Park and Ride</u></b>	
<b>Inventory</b>	No GWRC facility
<b>Weekday Occupancy</b>	No GWRC facility
<b><u>Bus Services</u></b>	
<b>No. of bus stops in or close to target area</b>	3
<b>Services available</b>	83, 91, 110, 154
<b>Main destinations served</b>	Hutt CBD, Wellington (including airport), Petone (including train station)
<b>Distance to Days Bay Ferry (Eastbourne only)</b>	Not relevant
<b><u>Road Access</u></b>	
<b>Main local access points</b>	Cuba Street, Victoria Street
<b>Main access point(s) to SH2</b>	Dowse Interchange to the north and Petone Interchange to the south
<b>Main access points to Hutt CBD</b>	Ewen Bridge
<b><u>Traffic Congestion</u></b>	
<b>Existing local congestion spots</b>	None observed
<b>Potential future local congestion spots</b>	Cuba Street intersection with Montague Street
<b>No. of reported injury crashes within target area</b>	No fatal crashes, one serious injury crash and no clusters of 4 or more minor injury crashes

Table 20: Alicetown Traffic Characteristics

In summary, overall there is plenty of spare kerbside parking within the target area on both weekdays and Saturdays, including areas within a short walk of Ava station. Alicetown is well served by public transport and the road layout is such that there is a good distribution of traffic flows both locally and to and from State Highway 2. Being on western side of the Hutt River all access to the Hutt CBD is reliant on using the Ewen Bridge. There are no existing safety or congestion concerns but there is potential for future congestion at the existing signalised intersection of Cuba Street with Montague Street.

## Avalon

<b><u>Public Parking in Target Area</u></b>	
<b>Inventory (includes time restricted parking)</b>	937
<b>Weekday Occupancy</b>	144 (15%)
<b>Saturday Occupancy</b>	181 (19%)
<b>Nearest Train Station</b>	Epuni (outside target area)
<b><u>Park and Ride</u></b>	
<b>Inventory</b>	No GWRC facility
<b>Weekday Occupancy</b>	No GWRC facility
<b><u>Bus Services</u></b>	
<b>No. of bus stops in or close to target area</b>	4
<b>Services available</b>	110, 120, 121, 150
<b>Main destinations served</b>	Hutt CBD, Upper Hutt, Petone (including train station)
<b>Distance to Days Bay Ferry (Eastbourne only)</b>	Not relevant
<b><u>Road Access</u></b>	
<b>Main local access points</b>	Cambridge Terrace, Oxford Terrace, High Street, Fairway Drive, Daysh Street
<b>Main access point(s) to SH2</b>	Kennedy Good
<b>Main access points to Hutt CBD</b>	Rutherford Street, High Street, Pretoria Street, Kings Crescent
<b><u>Traffic Congestion</u></b>	
<b>Existing local congestion spots</b>	Minor congestion observed during both the weekday morning and Saturday midday peaks at the intersection of High Street with Daysh Street and Fairway Drive
<b>Potential future local congestion spots</b>	Local High Street intersections with Park Avenue, Lincoln Avenue, Kingston Street and Stellan Street
<b>No. of reported injury crashes within target area</b>	No fatal crashes, one serious injury crash and no clusters of 4 or more minor injury crashes

Table 21: Avalon Traffic Characteristics

In summary, there is plenty of spare kerbside parking on both weekdays and Saturdays. There are no direct public transport services, bus or train, from Avalon to Wellington. The area of Avalon to the north of High Street has ready access to State Highway 2 via Fairway Drive and Kennedy Good Bridge. Harcourt Werry Drive also provides an alternative route to High Street for accessing Hutt CBD. The area of Avalon to the south of High Street relies on access to High Street and travelling through the already congested intersection between High Street, Daysh Street and Fairway Drive to access State Highway 2. There is the potential for local traffic to find it increasingly difficult to access High Street at peak times either as a result of residential growth within the Avalon or adjacent target areas.

## 7. Planned Transport Infrastructure Projects

There are a number of transport infrastructure projects at various stages of planning from concept ideas through to funded and scheduled projects which may influence travel patterns and behaviour on the Hutt City road network. These projects include:

- (i) the Cross Valley Link;
- (ii) the Melling Interchange with new four lane bridge;
- (iii) repositioning of Melling train station;
- (iv) CBD Eastern Access Route;
- (v) CBD intersection improvement programme;
- (vi) Petone to Grenada Link;
- (vii) upgrade of Petone Interchange;
- (viii) SH58/ SH2 Interchange and improvements to SH58;
- (ix) Petone to Ngauranga Cycleway;
- (x) Beltway shared path;
- (xi) New footbridge over Hutt River linking Margaret Street with Melling Station; and
- (xii) Wainuiomata Hill off-road shared path.

Each of these projects is described briefly in turn below and then a summary provided to compare the benefits of the different projects.

### 7.1 Cross Valley Link

The timing of the construction of the Cross Valley Link is dependent on whether a transport subsidy can be secured from NZTA through the National Land Transport Program. The 2015-2018 National Land Transport Program identifies this project as expected to enter a design stage in 2017-2018 with funding from NZTA proposed but not yet secured. HCC funding is allocated in the long term plan for investigation. The Regional Land Transport Plan 2015 identifies the road as a medium to long term option, with construction potentially starting as early as 2020/21.

The alignment of a Cross Valley Link and the location of its connection with State Highway 2 is as yet undecided with a number of options having been considered over recent years. The link would likely be a two-lane divided road with provision for cyclists that connects Seaview and Gracefield to State Highway 2. Benefits of the Cross Valley Link are cited, in the Ngauranga Triangle Strategic Study: Technical Report Summary 2010, as being:

- (i) reduced congestion on The Esplanade;
- (ii) improved connectivity between the Seaview – Gracefield industrial area and SH2;
- (iii) improved amenity along the Petone foreshore;
- (iv) would accommodate some of the additional traffic delivered by the Petone – Grenada Link that would otherwise use The Esplanade; and
- (v) improved connectivity to Wainuiomata.

The NZTA Ngauranga Triangle Strategy Study : Detailed Technical Report 2010 includes the following forecasts with regard to changes in traffic flows:

*'If the Cross Valley Link is provided, traffic volumes on it are forecast to be 21,000vpd in 2016 and 22,500vpd in 2026. With the link in place, traffic volumes on The Esplanade are forecast to be 22,000vpd in 2016 and 25,500vpd in 2026. If traffic calming is applied on The Esplanade west of Cuba Street consistent with a 30km/h operating speed, then the traffic volumes on the Cross Valley Link increase to 23,000vpd in 2016 and 24,500vpd in 2026 and reduce to 17,500vpd in 2016 and 20,500vpd in 2026 on The Esplanade.'*

The Cross Valley Link would provide significant additional traffic capacity across the valley floor which would in part be taken up by traffic growth associated with growth in the residential,

commercial and industrial sectors. With regard to the State Highway 2 corridor, any improvements to the Petone Interchange as part of the Petone to Grenada Link would need to be able to accommodate the additional cross-valley traffic accessing either State Highway 2 to the south or the Petone to Grenada Link.

It should be noted that without capacity improvements on State Highway 2 to the south of Petone the existing congestion on State Highway 2 will be exacerbated by the provision of additional capacity across the valley floor.

## **7.2 Melling Interchange**

NZTA are considering options for providing grade separated intersections at both the Melling and Kennedy Good intersections with State Highway 2 as well as restricting local road access to State Highway 2 between Melling and the Haywards Interchange. The 2015-2025 Long Term Plan includes \$6.5M in the year 2025-2026 for the Melling Bridge renewal.

The grade separation of the Melling intersection along with the four-laning of the bridge would improve capacity for vehicles joining and leaving State Highway 2 as well as for through traffic on this road. Without capacity improvements to State Highway 2 to the south of Petone, residents accessing State Highway 2 at Melling to travel to Wellington or Porirua for work will continue to experience delays during the weekday morning commuter peak.

## **7.3 Melling Station Repositioning & New CBD Hutt River Footbridge**

The CBD Making Places Project which was reported on in 2009 introduced the possibility of either relocating Melling train station 500m to the south or adding a new Hutt Central station in this location. This project is considered unlikely to occur in the short to medium term, with no funding indicated for this project in the Council's Long Term Plan.

In combination with direct pedestrian access to the CBD (either via a new footbridge or a new road bridge with footpaths) the 2009 report included the following comment regarding the rail catchment:

*'If a 800m circle was drawn around the Melling Station (to represent an average 10 minute walking distance), the catchment includes the industrial and commercial activities in the northern CBD precinct dominated by large format 'big box' retail, car parking and car yards. Taking the proposed catchment of a Hutt Central station, 800m takes commuters into the central, southern and civic precincts bringing people into the heart of the CBD retail and civic area. This has a major sustainability benefit as people are encouraged to walk and use more sustainable transport modes (rail) with less carbon emissions to reach the CBD.'*

While the relocation of the existing station or addition of a new station would most likely mainly serve commuters and recreational visitors travelling into the city, primarily from outside the Hutt City, access to train services for existing and potential future residents of the CBD and immediately adjoining areas would be improved during the weekdays.

## **7.4 CBD East Access Route & Intersection Improvement Programme**

The 2015 to 2025 Long Term Plan includes \$3.5M in the year 2020-2021 for the East Access Route. From south to north the route follows Queens Drive, Knights Road and into Cornwall Street and is intended to encourage drivers who do not have a destination in the CBD to bypass it rather than travel through it. Designs have yet to be developed but a concept included in the Making Places 2030 report indicates the project involves the signalisation of the following intersections:

- (i) Queens Drive/ High Street;
- (ii) Knights Road/ Bunny Street;
- (iii) Knights Road/ Bloomfield Terrace;

- (iv) Knights Road/ Cornwall Street;
- (v) High Street/ Pretoria Street; and
- (vi) Melling Link/ Rutherford Street.

The signalling of these intersections will improve safety and amenity for both cyclists and pedestrians who are travelling along and across the route. The scale of any potential capacity benefits will depend on whether the signals are coordinated to optimise flow along the route.

### **7.5 Petone to Grenada Link**

In November 2015 NZTA announced a preferred option for the Petone to Grenada Link Road. The proposed new route will provide a four-lane route between Petone and Tawa via Horokiwi Crest, plus crawler lanes on the Petone side. The existing Petone Interchange will be redesigned to accommodate the proposed link road along with providing improved pedestrian and cyclist facilities. At this stage NZTA expect to lodge applications to build this road in late 2016 and, if consent is granted and funding approved, begin construction in 2019 with completion anticipated in 2023.

Traffic modelling of the Petone to Grenada Link Road as part of the Ngauranga Triangle Strategy Study included the following findings:

- (i) the new link road would carry approximately 25,000vpd in 2016 and 28,000vpd in 2026;
- (ii) State Highway 2 flows to the south of Petone are forecast to reduce by 11,000vpd in 2016 and 13,000vpd in 2026;
- (iii) the time savings generated by the new link road are offset by the additional delay between Petone and Dowse due to increased traffic volumes on this segment of road;
- (iv) the overall combined effect of Transmission Gully and the Petone to Grenada Link Road on State Highway 58 traffic flows is neutral with additional traffic forecast with Transmission Gully being balanced by forecast reductions with the Petone to Grenada Link Road;
- (v) a forecast increase in travel between State Highway 1 and the Hutt Valley, that is new traffic, of 9,000vpd in 2016 as a result of the improved connectivity provided by the Petone to Grenada Link Road; and
- (vi) an anticipated increase of 3,000vpd on The Esplanade following the building of the Petone to Grenada Link Road in 2016.

Based on the 2014 traffic profile for traffic flows on State Highway 2 to the south of Petone a reduction in two-way daily flows of 11,000vpd would likely amount to a reduction of around 550vph during the busiest hour of the weekday morning commuter period. It should however be noted that because of existing peak spreading it is likely that some of this capacity would be taken up by a contraction of the weekday morning peak. Also in the absence of significant improved capacity along State Highway 2 (from Melling to Petone) and through the local road network to access the new link road, existing traffic congestion on State Highway 2 and its approaches will be exacerbated by the forecast new additional 9,000vpd that will be seeking to access the new link road at Petone.

### **7.6 SH58/ SH2 Interchange and Improvements to SH58**

Construction has started on a grade-separated interchange at the intersection of State Highway 2 and State Highway 58. The project includes a new park and ride carpark for approximately 40 cars to replace the existing informal carpark at Manor Park Station and replacement of the existing underpass below State Highway 2 with a footbridge across State Highway 2 to Manor Park Road and Manor Park Station. The main benefits of the project are associated with improved safety, traffic flows and access to Manor Park train station, as well as providing a dedicated bus stop and

park and ride carpark. It will also provide improved access to Hebden Crescent and Belmont Regional Park, safer access to Manor Park Road, McDougall and Annabell Groves, and a safer and less severe alignment for motorists descending to State Highway 2 from State Highway 58.

### **7.7 Petone to Ngauranga Cycleway**

This project is currently at the investigation stage with NZTA confirming in November 2015 that its preference for the new cycle and pedestrian path between Petone and Ngauranga is the seaward option. The proposed cycleway path will be 3m wide, with 1m wide shoulders on either side. The project will connect with other proposed cycling improvements between Melling and Wellington CBD. Within Hutt City, the section between Petone and Melling is expected to be constructed first between 2016 and 2018, with funding secured through the Urban Cycleways Programme.

Construction on the Petone to Ngauranga section of this project is due to begin in 2019.

### **7.8 Beltway Shared Path**

The Beltway shared path is shown earlier in Figure 5. It is a 16km off-road shared path that will connect residential areas to workplaces and employment hubs, the Hutt Hospital, schools, the CBD and shopping areas. It is a loop track and will also link to the Wainuiomata Hill cycleway and form an improved section of the Rimutaka Cycle Trail through the city. The Beltway route will also provide connections to major public transport hubs, including Waterloo and Melling train stations.

Benefits of the project include providing safer and more attractive connected routes for residents wishing to cycle throughout the city. It will provide a separated route for around 7,000 students to cycle to school, and offers more comfortable routes that will encourage people to cycle to work, shops and recreational facilities throughout the city. It is forecast to attract over 1,000 people each day. Construction is scheduled for between 2016 and 2018.

### **7.9 Eastern Bays Shared Path**

The Eastern Bays Shared Path is shown earlier in Figure 5. It is a 1.25km shared path along the primary corridor and will connect residents in the Eastern Bays to workplaces, schools, shops and public transport facilities in the rest of Hutt City, and further through to the Wellington CBD in the future when connected with existing and future cycleways. It is hoped that it will attract new people to commute by bike, especially those who currently lack confidence or perceive the route as unsafe. The route is forecast to attract over 300 people each day and is scheduled for construction between 2016 and 2018.

### **7.10 Wainuiomata Hill Shared Path**

The Wainuiomata Hill Cycleway is shown earlier in Figure 5. It is a new, separated shared cycling and pedestrian path connecting Wainuiomata to workplaces and educational institutions in the wider Hutt Valley. It is anticipated that the project will significantly improve both cyclist and pedestrian safety, reducing injuries and attracting new users. The route is scheduled for completion in 2017.

### **7.11 Ramp Metering for Petone On-Ramp**

The option of ramp metering for the Petone on-ramp onto State Highway 2 was considered as part of the 2010 Ngauranga Triangle Strategy Study. No specific mention of this option is raised in the 2015 Regional Land Transport Plan or the Council's Long term Plan 2015-2025. Consequently this project is considered unlikely to occur in the short term.

The Ngauranga Triangle Strategy Study: Detailed Technical Report includes the metering of the Petone southbound ramp onto State Highway 2 as a possible option for the management of traffic on State Highway 2. The report includes the following statement:

*'The time period where this project is likely to have benefit is the am peak. The traffic flow on the on-ramp during the am peak hour is expected to be 1,000vph in the 2016 modelling year under a do-minimum scenario. The congestion at this on-ramp is primarily due to the large through volume on SH2 and the weaving that follows after the merge. Ramp signalling at a rate of two vehicles every five seconds provides a capacity of 1,440vph permitted to enter the traffic stream.'*

Table 22 shows the recorded weekday morning peak Petone on-ramp flows for 2012, 2013 and 2014 for a week in March. As expected with this part of the network being congested for much of this time period there is very little difference in the traffic flows. Given the length of queues on both The Esplanade and Hutt Road these ramp flows do not properly represent the travel demands either in terms of traffic volumes per hour or time of travel. That is, in a less congested environment larger hourly traffic volumes over a shorter duration of time could reasonably be expected. An improvement in the ramp flows to 1,200vph or 1,440vph would likely increase the throughput of the ramp during the weekday morning peak by some 180 to 310vph and 420 to 550vph respectively.

Year	6-7am	7-8am	8-9am	9-10am
2012	825	1,014	897	1,018
2013	851	951	891	1,025
2014	851	941	885	1,018

**Table 22: Petone Southbound On-Ramp Flows**

## 7.12 Rail Capacity Improvements

The Wellington Regional Public Transport Plan 2014 confirms the implementation of Rail Scenario 1 outlined in the Wellington Regional Rail Plan and the continued implementation of the Park and Ride Strategy. Rail Scenario 1 aims to deliver a significant increase in the electric rail fleet peak seat capacity and provide at least four trains per hour to Wellington on all electrified lines during the two-hour morning peak. Rail Scenario 2, a longer term option, would provide a regular 10 minute service between Upper Hutt and Wellington at peak times.

The Wellington Regional Rail Plan includes a forecast increase in passenger capacity (seated and standing) of 9%, or 435 passengers during the weekday morning peak hour on the combined Melling and Hutt Valley Lines as a result of the implementation of Rail Scenario 1. The plan indicates that projects included in Rail Scenario 1 would need to be implemented by 2019/2020 to enable the new rail services to begin in 2020/2021.

The spot checks completed as part of this assessment showed that all the Park and Ride parking spaces available within Hutt City were effectively fully occupied on weekdays. The Regional Rail Plan includes forecasts for passenger growth of 2% per annum. As such there will be increasing demands for park and ride parking. The Park and Ride Capacity Strategy which is appended to the Regional Rail Plan identifies potential for increased Park and Ride parking at Taita and possibly at Waterloo (along Cambridge Terrace). No timeframe is provided for these works and implementation is expected to be dependent on funding from NZTA.

## 7.13 Comparison of Transport Benefits of Future Infrastructure Projects

Table 23 provides a summary and comparison of the transport benefits of the various possible future infrastructure projects in particular with regard to addressing existing traffic congestion issues within the City.



Future Infrastructure Project	Improves Capacity on Transport Corridor South of Petone	Improves Capacity onto and/or along SH2 (at or N of Petone)	Improves Traffic Flow into and around the CBD	Reduces Car Usage for Journey to Work	Improves Access to Public Transport & Especially Trains
Cross Valley Link	X	Depends on where and how intersects with SH2	X	X	X
Melling Interchange	X	✓	✓	X	X
Melling Station & CBD Hutt River Footbridge	X	X	✓	✓	✓
East Access Route & CBD Intersection Improvements	X	X	✓	X	X
Petone to Grenada Link	✓	X	X	X	X
SH58/ SH2 Interchange	X	✓	X	X	X
Petone to Ngauranga Cycleway	✓	X	X	✓	X
Beltway Shared Path	X	X	✓	✓	✓
Eastern Bays Shared Path	X	X	X	✓	✓
Wainuiomata Hill Shared Path	X	X	X	✓	✓
Ramp Metering for Petone On-Ramp	Unknown at this point	Southbound SH2 through flows might benefit	X	X	X
Rail Capacity Improvements	✓	X	X	✓	✓

**Table 23: Summary of Transport Benefits of Future Transport Infrastructure**

As shown projects with the potential to increase the traffic carrying capacity of the transport corridor to the south of Petone include the Petone to Grenada Link, the Petone to Ngauranga Cycleway and increasing the rail passenger capacity on the Hutt Valley Line. All these projects are considered to have a high probability of occurring in the short to medium term. Ramp metering of the Petone southbound on-ramp could also lead to improvements, although this project has less certainty as to if and when it will occur. The effect of a future Cross Valley Link on the capacity of the State Highway 2 corridor depends on where and how it connects with State Highway 2. If the Cross Valley Link intersects with State Highway 2 to the north of Petone without providing additional capacity between the intersection point and the Petone Interchange the existing congestion observed along this stretch will be exacerbated. While the Petone to Grenada Link will reduce traffic flows on State Highway 2 to the south of Petone it will attract additional traffic into this already congested southwest corner of the Hutt City road network.

## 8. Forecast Traffic Activity

The Urban Growth Strategy 2012-2032 includes growth targets of accommodating a population of at least 110,000 people in Hutt City by 2032 with an associated increase in homes of at least 6,000. The Strategy includes targets for how these additional homes could be provided by an equal balance of greenfield development and residential intensification.

In order to assess the traffic effects of the increased residential activity a city-wide assessment of 12% growth in traffic activity based on a forecast 12% increase in overall population by 2032 has been undertaken. This has been informed by growth forecast's undertaken subsequent to the development of the Urban Development Plan, but only taking account of growth up to 2032. Three forecasts were produced, all of which had a development feasibility scenario where growth was projected out to 2047:

- (i) a high growth scenario that was visionary and subject to change in traditional development assumptions achieved in the Hutt City previously, which was prepared for the Urban Development Plan. This scenario did not have a market feasibility assessment added to the assumptions;
- (ii) a medium growth scenario that excluded existing sites under 300m<sup>2</sup>. This assessment was completed by Grey Partners Limited Residential Development Report; and
- (iii) a low growth scenario that excluded existing sites under 300m<sup>2</sup> and also had an economic feasibility assessment added. This forecast was completed by Grey Partners Limited and included in the Residential Development Report.

These forecasts are included in Appendix X of the Section 32 report.

Based on the Grey Partners Limited low and medium growth forecasts, the traffic effects within and close to each of the target areas have been assessed for localised residential growth up to 2032 as follows:

- (i) 20 to 313 additional homes in Avalon;
- (ii) 30 to 50 additional homes in Alicetown;
- (iii) 178 to 700 additional homes in the CBD Edge;
- (iv) 75 to 425 additional homes in Epuni;
- (v) 60 to 173 additional homes in Naenae;
- (vi) 15 to 31 additional homes in Stokes Valley;
- (vii) 75 to 143 additional homes in Taita;
- (viii) 38 to 65 additional homes in Wainuiomata;
- (ix) 150 to 300 additional homes in Waterloo; and
- (x) 60 to 111 additional homes in Woburn.

### 8.1 City-Wide

The forecast 12% traffic growth has been applied to each of the following:

- (i) weekday morning southbound vehicle trips on State Highway 2;
- (ii) weekday morning rail patronage;
- (iii) park and ride usage;
- (iv) the four Hutt River road bridges;
- (v) the CBD cordon; and
- (vi) CBD parking demands.

This calculation is expected to cover a worst case scenario that travel patterns follow existing travel patterns (i.e. no increased modal shift towards more sustainable forms of travel occurs).

Should changes in travel patterns occur, predicted traffic growth and parking demands would be less than that estimated.

As included previously there is currently a net gain in traffic travelling southbound along State Highway 2 through the Hutt City section of around 16,600vpd on weekdays. With a 12% increase in traffic activity this would grow to 18,600vpd by 2032. Based on the daily traffic profile shown in Figure 1 there would be an increase of 147vph, 190vph, 173vph and 140vph between 6-7am, 7-8am, 8-9am and 9-10am respectively. In practice and without any capacity improvements this additional 650 southbound vehicle movements during the weekday morning peak will result in the extending of the weekday morning traffic peak to before 6.30am and after 9.30am.

The 2013 census data shows that on average 9.8% of employed Hutt City residents travel to work by train. It can reasonably be assumed that most of these trips are to Wellington and as such it is estimated that around 4,500 Hutt City residents travel to Wellington by train each day. An increase of 12% would result in an additional 540 rail passengers with most of these trips being expected to be made during the weekday morning peak. Depending on how these new residents access the various train stations throughout Hutt City there could be a demand for up to 550 additional park and ride parking spaces within the city in the event that residential growth is scattered around the City and not concentrated on areas within a comfortable walking distance to train stations.

Table 24 shows the forecast traffic flows across each of the bridges over the Hutt River within the city with an increase in traffic flows of 12% between 2014 and 2032. Table 25 shows the forecast traffic flows across each of the CBD cordon points with an increase in traffic flows of 12% between 2014 and 2032.

Year/ Time Period	Kennedy Good Bridge	Melling Bridge	Ewen Bridge	Waione Street Bridge
2014 AADT (vpd)	20,341	23,921	33,143	25,325
2032 AADT (vpd)	22,782	26,792	37,120	28,364
2032 Weekday AM Peak Hour (vph)	+170-220	+200-260	+280-360	+210-270
2032 Saturday Peak Hour (vph)	+170-220	+200-260	+280-360	+210-270

**Table 24: Forecast Traffic Volumes on the Hutt River Bridges**

Count Location	Most Recent Count (vpd)	2032 AADT (vpd)	2032 Weekday AM Peak Hour (vph)	2032 Saturday Midday Peak Hour (vph)
Melling Bridge	23,921	26,792	+200-260	+200-260
Connolly Street	8,916	9,986	+75-95	+75-95
High Street	12,757	14,288	+105-140	+105-140
Downer Street	1,573	1,762	+15-17	+15-17
Pretoria Street	2,829	3,168	+25-30	+25-30
Kings Crescent	7,180	8,042	+60-80	+60-80
Waterloo Road	9,800	10,976	+80-105	+80-105
Knights Road	11,946	13,380	+100-130	+100-130
Bloomfield Terrace	6,031	6,755	+50-65	+50-65
Myrtle Street	2,357	2,640	+20-25	+20-25
Woburn Road	15,863	17,767	+135-170	+135-170
Ewen Bridge	33,143	37,120	+280-360	+280-360

**Table 25: Forecast Traffic Volumes at CBD Cordon Points**

Table 26 shows the forecast city centre parking demands with a 12% increase in existing observed demands.

Inventory	Riverbank Carpark	Queens Drive Carpark	CBD Kerbside Parking
		846 <sup>1</sup>	273
Existing Weekday	469 (55%)	195 (71%)	286 (43%)
Forecast Weekday	525 (62%)	218 (80%)	320 (48%)
Existing Saturday	-	35 (13%)	540 (81%)
Forecast Saturday	-	39 (14%)	605 (91%)

Note: 1. Assuming no net loss in Riverbank Carpark spaces.

**Table 26: Forecast City Centre Parking Demands**

As shown no future reliance has been included for Saturday parking within any existing or future areas of parking along the Riverbank.

Parking demand could be less if a greater extent of new residential development occurs within easy walking distance to the Hutt CBD, if new cycleways encourage increased cycling or if suburban centres become more self-sufficient in terms of retail and recreation facilities for instance including supermarkets.

## 8.2 Target Areas

Given that the suburbs of Eastbourne, Stokes Valley and Wainuiomata are each accessed via a single road it is possible to use census household number data along with Council traffic counts to determine traffic generation rates per household for each of these suburbs as summarised in Table 27.

Suburb	2013 Households	Council Traffic Count	Trip Generation Rate		
			AADT (vpd/hh)	Weekday AM (vph/hh)	Saturday Midday (vph/hh)
Wainuiomata	5,976	21,010	3.5	0.3	0.3
Eastbourne	1,845	8,800	4.8	0.4	0.4
Stokes Valley	3,369	16,940	5.0	0.5	0.4

**Table 27: Local Residential Trip Generation Rates**

These traffic generation rates are for trips into and out of each of the suburbs and exclude internal trips within the suburb, for instance to local shops, schools or employment locations. These rates have been used to estimate the forecast additional traffic activity for each of the target areas as shown in Table 28. Being the most conservative, the Stokes Valley rates have been applied to the nine other target areas.

Suburb	Additional Households	Additional Vehicle Movements		
		AADT (vpd)	Weekday AM (vph)	Saturday Midday (vph)
Wainuiomata	38-65	135-230	10-20	10-20
Stokes Valley	15-31	75-155	10-15	5-15
Alicetown	30-50	150-250	15-25	10-20
CBD Edge	178-700	890-3,500	90-350	70-280
Epuni	75-425	375-2,125	35-215	30-170
Naenae	60-173	300-865	30-90	25-70
Taita	75-143	375-715	40-75	30-60
Waterloo	150-300	750-1,500	75-150	60-120
Woburn	60-111	300-555	30-55	25-45
Avalon	20-313	100-1,565	10-160	10-125

**Table 28: Target Areas Forecast Additional Traffic Activity**

The traffic effects of the forecast additional traffic activity is assessed in the following section of this report.

## 9. Traffic Effects

### 9.1 City-Wide

Based on existing travel behaviours a 12% increase in demand for car travel from Hutt City to Wellington during the weekday morning peak would result in some 650 additional southbound vehicle movements between 6am and 10am. The existing demands for weekday morning travel on State Highway 2 southbound from Petone already exceed capacity with significant congestion both in terms of the length of queues and the duration of congestion on the local road network, in particular on The Esplanade, Hutt Road to the north of the Petone Interchange and Hutt Road to the north of the Dowse Interchange. The lack of growth in traffic flows on State Highway 2 to the south of Petone over recent years is not a reflection of the lack of demand but a lack of capacity. Capacity improvements on State Highway 2 to the south of Petone and on the Hutt Valley Train Line are needed to address existing pressures. In order for this additional traffic to be accommodated the overall capacity of the transport corridor, that is road, rail and bicycle, to the south of Petone needs to be improved.

The Petone to Grenada Link is forecast to reduce traffic flows on State Highway 2 to the south of Petone by 11,000vpd. It is estimated that this would result in a reduction of around 550vph in the southbound direction during the busiest hour of the weekday morning commuter period. As such the Petone to Grenada Link will generate the necessary capacity to accommodate the increased traffic associated with the proposed residential growth in Hutt City. It should however be noted that if either the Petone to Grenada Link or the Cross Valley Link are implemented without proper consideration to how traffic flows will be maintained or improved through the State Highway 2 corridor as it passes through the southern part of the city, traffic congestion immediately to the north of Petone will be exacerbated as a result of the additional traffic activity trying to access the new roading routes. This is a matter for consideration at the detailed design stage for both the Petone to Grenada Link and the Cross Valley Link and will need to be addressed regardless of whether local residential growth continues. In the event that traffic congestion gets worse on State Highway 2 and its approaches, a shift to increased rail use can be expected by commuters travelling from Hutt City into Wellington.

Based on existing travel behaviours and in particular travel mode choice, it is forecast that an increase of 12% in rail use by Hutt residents would result in up to 540 new rail passengers during

the weekday morning peak. Assuming no significant growth in travel demand during the same period for Upper Hutt residents, this level of additional demand can most likely be absorbed within existing spare capacity albeit with increased need for passengers to stand during the busiest hour of travel. With the park and ride carparks throughout the city close to or at capacity, apart from Petone which has recently been expanded with more spaces to be made available once the construction of the church is completed, there is an expectation that commuter parking will further extend into residential and business areas adjacent to train stations.

If there is either a significant increase in demand for rail travel by Upper Hutt residents or a congestion related travel mode shift towards increased rail usage, increased rail passenger capacity will be needed. This can be provided either through the provision of additional services or with more capacity on existing services at peak times.

With the Kennedy Good Bridge and Waione Street Bridges each having two lanes, the Melling Bridge three lanes and the Ewen Bridge four lanes, the Waione Street Bridge has the least spare capacity. The 2014 count shows that there are times during the week when there are more than 1,300vph in one of the traffic lanes. With a 12% increase this would increase to around 1,450vph which would likely exceed the capacity of the bridge and its approaches resulting in a breakdown in traffic flow and associated congestion. With regard to the other bridges the capacities are typically constrained by the adjoining intersections rather than the bridge cross-section itself. The key intersections are:

- (i) the State Highway 2 intersections at Melling and Kennedy Good;
- (ii) the merges between Harcourt Werry Drive and Fairway Drive;
- (iii) the intersection between High Street, Fairway Drive and Daysh Street;
- (iv) the Rutherford Street intersection with Melling Bridge; and
- (v) the Railway Avenue intersection with Woburn Road and Queens Drive.

Based on the inclusion of efficiency and safety improvements for the Melling Interchange as well as looking at the wider section of State Highway 2 from Ngauranga to Te Marua in the National Land Transport Programme 2015-2018, it is considered likely that prior to 2032, NZTA will have made capacity improvements at both the Melling and Kennedy Good intersections with State Highway 2. Such improvements can reasonably be expected to include flow on improvements at the nearby Rutherford Street intersection with Melling Road and the Harcourt Werry Drive intersection with Fairway Drive. Given that there is some existing congestion at busy times at the High Street intersection with Fairway Drive and Daysh Street in Avalon, it is likely that this intersection will need increased capacity to efficiently accommodate a 12% increase in growth. While the spot checks made at the Railway Avenue intersection with Woburn Road and Queens Drive (near Ewen Bridge in the Hutt CBD) did not show any significant existing congestion this is already a busy intersection at peak times and the intersection could usefully be tested to see how much additional traffic it can accommodate. Capacity improvements to these local intersections can reasonably be investigated and included as a future project in Council's asset management plans as needed.

With regard to increased flows across the CBD cordon, the layout of the CBD streets with at least twelve entry/exit points means that the traffic is usefully distributed throughout the road network minimising the risk of congestion. As described previously, it has been assumed that improvements to the Melling intersection will ensure that there is sufficient future capacity across the bridge and at the adjacent intersection with Rutherford Street. As above and given the forecast additional flows on both the Railway Avenue (Ewen Bridge) and Woburn Road approaches, the Railway Avenue intersection with Woburn Road and Queens Drive should be assessed to see how much additional capacity it can accommodate. The remaining nine cordon points have forecast increases in traffic flow of between 15 and 130vph at the busiest times, given

the lack of observed congestion on these roads, with the exception of Connolly Street, it is anticipated that the forecast additional traffic flows can be readily accommodated.

Queues are sometimes observed on weekday mornings at the Connolly Street approach to the intersection with Rutherford Street and Melling Road. There are a number of factors involved including the use of Kennedy Good Bridge, Harcourt Werry Drive and Connolly Street as an alternative to travelling south on State Highway 2 to Hutt Central, vehicles turning into the childcare centres and kerbside parking along the southern end of Connolly Street disrupting through traffic flows. This situation may be mitigated by the upgrade of the Melling Interchange or could easily be improved with the removal of some of the kerbside parking close to the intersection along with providing two lanes at the Connolly Street give way line.

The forecast occupancies of the Queens Drive carpark reaches 80% on a weekday and the CBD kerbside parking reaches 91% on a Saturday with a 12% increase in parking demands. These forecasts do not include the effect of Hutt Council relocating back to Laings Road, the future opening of the Hutt Conference Centre or any changes to the number and location of riverbank parking spaces. As such and given that the surveys were not undertaken during the seasonal retail peak, it is likely that a 12% increase in parking demands could put unreasonable pressure on CBD parking especially on Saturdays. While increased parking pressure can usefully help to trigger shifts to alternative modes or shifts to travel at times when parking demands are less busy, with no train station within easy walk of Hutt CBD and no services to Melling at the weekends, Council should consider investigating potential sites for a public parking building either in or on the periphery of the CBD.

## 9.2 Target Areas

The traffic effects associated with the forecast increased traffic activity within each of the target areas is discussed in turn below. The historic road safety data for each of the target areas shows no particular safety concerns and as such the increased traffic volumes have been assessed more from an efficiency perspective than one of adversely affecting road safety.

### Epuni

With some 75 to 425 additional households in the Epuni target area it is forecast that there will be some additional 45 to 215vph and 30 to 170vph two-way flows into and out of the target area during the weekday morning and Saturday midday peaks respectively. These flows will primarily get distributed between Oxford Terrace, Cambridge Terrace and Waiwhetu Road to the south of the target area being the main routes to and from the CBD, State Highway 2 and the other main Hutt City employment areas. There are however also the main routes to and from the north of Oxford Terrace, Cambridge Terrace and Naenae Road and at least a further seven local streets that directly distribute traffic to and from the target area. As such the increase in traffic flows on any one of the streets is estimated to be in the order of 0 to 40 vehicle movements per hour. This level of additional traffic activity can be readily accommodated within the immediate local road network.

When considered in combination with the Waterloo target area it is recommended that the spare capacity at the intersections of each of Oxford Terrace, Cambridge Terrace and Waiwhetu Road with Waterloo Road are investigated as a future project in the Council's asset management plans.

There is currently plenty of spare kerbside parking on both weekdays and Saturdays including within a short walking distance of the train station. This spare capacity can readily accommodate the additional parking demands associated with up to 425 additional households.



Residents of the wider Epuni area already make good use of the train with 14.6% travelling to work by train and 6.9% walking to work. Accordingly Epuni is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle.

### **Waterloo**

With some 150 to 300 additional households in the Waterloo target area it is forecast that there will be some additional 75 to 150vph and 60 to 120vph two-way flows into and out of the target area during the weekday morning and Saturday midday peaks respectively. These flows will primarily get distributed between Waterloo Road, Knights Road, Pohutukawa Street, Cambridge Terrace and Waiwhetu Road to the south and west of the target area being the main routes to and from the CBD, State Highway 2 and the other main Hutt City employment areas. There are however also the main routes to and from the north of Oxford Terrace, Cambridge Terrace and Waiwhetu Road and at least a further ten local streets that directly distribute traffic to and from the target area. As such the increase in traffic flows on any one of the streets is estimated to be in the order of 0 to 40 vehicle movements per hour. This level of additional traffic activity can be readily accommodated within the immediate local road network.

When considered in combination with the Epuni target area it is recommended that the spare capacity at the intersections of each of Oxford Terrace, Cambridge Terrace and Waiwhetu Road with Waterloo Road are investigated as a future project in the Council's asset management plans.

Overall there is currently plenty of spare kerbside parking within the target area on both weekdays and Saturdays. On weekdays most of the parking demand is accommodated within 200m of the train station leaving little all-day spare capacity within a short walking distance of the train station.

It is recommended that new residential properties built close to the train station be largely self-sufficient in terms of resident parking, to avoid new residents adding to kerbside parking demand and contributing to a spread in commuter parking further into surrounding residential areas.

Residents of the wider Waterloo area already make good use of the train with 20.0% travelling to work by train and 4.4% walking to work. Subject to ensuring that there is sufficient traffic capacity at the Waterloo Road intersections and ensuring that any residential development close to the train station does not create significant adverse parking effects, Waterloo is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle.

### **Naenae**

With some 60 to 173 additional households in the Naenae target area it is forecast that there will be some additional 30 to 90vph and 25 to 70vph two-way flows into and out of the target area during the weekday morning and Saturday midday peaks respectively. These flows will primarily get distributed between Naenae Road and Cambridge Terrace to the west of the target area being the main routes to and from the CBD, State Highway 2 and the other main Hutt City employment areas. There are however also the main routes to and from the north of Cambridge Terrace and Naenae Road and also Rata Street and Vogel Street that directly distribute traffic to and from the target area. As such the increase in traffic flows on any one of the streets is estimated to be in the order of 0 to 30 vehicle movements per hour. This level of additional traffic activity can be readily accommodated within the immediate local road network.

Within the wider network the additional traffic will increase the pressure on the already busy intersection between High Street, Fairway Drive and Daysh Street in Avalon.

There is currently plenty of spare kerbside parking on both weekdays and Saturdays including within a short walking distance of the train station. This spare capacity can readily accommodate the additional parking demands associated with 60 to 173 additional households.

Residents of the wider Naenae North area already make good use of public transport with 8.8% travelling to work by train and 5.6% by bus with a further 4.8% walking to work. Accordingly subject to achieving some additional capacity at the intersection of High Street with Daysh Street and Fairway Drive, Naenae is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle.

### **Taita**

With some 75 to 143 additional households in the Taita target area it is forecast that there will be some additional 40 to 75vph and 30 to 60vph two-way flows into and out of the target area during the weekday morning and Saturday midday peaks respectively. These flows will primarily get distributed between High Street and Reynolds Street to the southwest of the target area being the main routes to and from the CBD, State Highway 2 and the other main Hutt City employment areas. There are however also the routes to and from the north of High Street and Reynolds Street and also Molesworth Street, Churton Crescent and Poole Street that directly distribute traffic to and from the target area. As such the increase in traffic flows on any one of the streets is estimated to be in the order of 0 to 25 vehicle movements per hour. This level of additional traffic activity can be readily accommodated within the immediate local road network.

Within the wider network there will be a small amount of additional traffic through the already busy intersection between High Street, Fairway Drive and Daysh Street in Avalon.

There is currently plenty of spare kerbside parking on both weekdays and Saturdays including within a short walking distance of the train station. This spare capacity can readily accommodate the additional parking demands associated with up to 143 additional households.

Residents of the wider Taita area already make good use of public transport with 9.8% travelling to work by train and 5.7% by bus. Accordingly subject to achieving some additional capacity at the intersection of High Street with Daysh Street and Fairway Drive, Taita is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle.

### **Woburn**

With some 60 to 111 additional households in the Woburn target area it is forecast that there will be some additional 30 to 55vph and 25 to 45vph two-way flows into and out of the target area during the weekday morning and Saturday midday peaks respectively. These flows will primarily get distributed onto Whites Line East to the west of the target area being the main route to and from the CBD, State Highway 2 and the other main Hutt City employment areas. Some smaller amounts of traffic will get distributed onto Cambridge Terrace, Waiwhetu Road, Whites Line East to the east of the target area, Godley Street, Wainui Road and Bell Road. As such the increase in traffic flows onto Whites Line East to the west of the target area is estimated to be up to around 30vph with some 0 to 10vph on each of the other routes.

Given that some congestion was observed during the weekday morning peak at the intersection between Whites Line East and Waiwhetu Road and Bell Road, and in particular with regard to the right turns into and out of Waiwhetu Road, it is recommended that in the short term the phasing of the signals is checked to ensure that they are performing optimally. In the longer term and in combination with additional traffic from Wainuiomata it may be necessary to investigate ways of

providing more capacity at this intersection as a future project in Council's asset management plans.

Overall there is currently plenty of spare kerbside parking within the target area on both weekdays and Saturdays but on weekdays most of the parking demand is accommodated close to the train station. As such any new residential properties built close to the train station will need to be largely self-sufficient with regard to residents parking to avoid pushing all day commuter parking further into the surrounding residential areas.

Residents of the wider Gracefield – Seaview – Waiwhetu area already make good use of the train with 16.6% travelling to work by train. Accordingly subject to achieving some additional capacity at the intersection of Whites Line East with Waiwhetu Road and Bell Road, Waiwhetu is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle.

### **Stokes Valley**

With some 15 to 31 additional households in the Stokes Valley target area it is forecast that there will be some additional 10 to 15vph and 5 to 15vph two-way flows into and out of the target area during the weekday morning and Saturday midday peaks respectively. These flows will connect with the wider city network via Stokes Valley Road and the intersection with Eastern Hutt Road. Given that the Hutt CBD, State Highway 2 access and almost all the employment locations are to the south of Stokes Valley it is reasonable to expect that almost all the additional traffic will travel to and from the south dividing between Eastern Hutt Road, High Street and Taita Drive. This part of the road network operates without any significant congestion even at the busiest times and the forecast level of additional traffic activity will not trigger the need for any local roading improvements.

Anticipated future residential growth in Stokes Valley outside the target area as outlined in the Urban Growth Strategy will increase local traffic flows and in combination with residential growth in the target area could potentially result in traffic congestion at the intersections of Eastern Hutt Road with each of Stokes Valley Road and High Street. If needed, the Council can investigate the performance of these intersections as future projects in the asset management plans.

Residents of the wider Delaney area have the second highest car use for the journey to work of the twelve target areas with 68.3% travelling to work by car. Given that the Stokes Valley target area is around 3km from Pomare station, any new residents wanting to access the train would drive to Pomare station and park. While the park and ride carpark was at capacity there were kerbside spaces available at the time of the parking inspection.

There is currently plenty of spare kerbside parking on both weekdays and Saturdays within the Stokes Valley target area. This spare capacity can readily accommodate the additional parking demands associated with 15 to 31 additional households within the target area.

### **Wainuiomata**

With some 38 to 65 additional households in the Wainuiomata target area it is forecast that there will be some additional 10 to 20vph into and out of the target area during each of the weekday morning and Saturday midday peaks. These flows will connect with the wider city network via Wainuiomata Hill Road dividing between Gracefield Road to access Seaview, Gracefield, Petone and State Highway 2 and Whites Line East to access the Hutt CBD.

Given that some congestion was observed during the weekday morning peak at the intersection between Whites Line East and Waiwhetu Road and Bell Road, and in particular with regard to the right turns into and out of Waiwhetu Road, it is recommended that in the short term the phasing of

the signals is checked to ensure that they are performing optimally. In the longer term and in combination with additional traffic from the Woburn target area it may be necessary to investigate ways of providing more capacity at this intersection as a future project in Council's asset management plans.

Residents of the wider Parkway area have the highest car use for the journey to work of the twelve target areas with 68.5% travelling to work by car. However the combined traffic count and population data indicate that Wainuiomata is more self-sufficient than the other suburbs. This will be largely due to its size with there being a shopping centre and schools, including the College, along with some work opportunities within the suburb.

Given that the Wainuiomata target area is around 6.5km from Woburn station any new residents wanting to access the train are likely to drive to Woburn station and park. Woburn park and ride carpark is at capacity and there is limited all-day kerbside parking available within a short walk of the train station. An increase for park and ride by Wainuiomata residents could exacerbate parking pressures at and near Woburn station and possibly also at Petone station. A direct bus service runs between Wainuiomata and Waterloo train station, although the level of use of this service is unknown.

There is currently plenty of spare kerbside parking on both weekdays and Saturdays within the Wainuiomata target area. This spare capacity can readily accommodate the additional parking demands associated with up to 65 additional households.

### **CBD Edge**

With some 178 to 700 additional households in the CBD Edge target area it is forecast that there will be some additional 90 to 350vph and 70 to 280vph two-way flows into and out of the target area during the weekday morning and Saturday midday peaks respectively. These flows will primarily get distributed between Cornwall Street to the north, Kings Crescent, Waterloo Road, Knights Road, Myrtle Street and Woburn Road to the west and Ludlam Road to the south of the target area being the main routes to and from the CBD, State Highway 2 and the other main Hutt City employment areas. There are however also secondary distribution routes via Kings Crescent, Waterloo Road and Hinau Street to the east of the target area. As such the increase in traffic flows on any one of the streets is estimated to be in the order of 0 to 70 vehicle movements per hour. This level of additional traffic activity can be readily accommodated within the immediate local road network. The planned East Access Route around the eastern periphery of the CBD should also help ease the flow of traffic from this area to and from State Highway 2 at Melling.

Residents of the wider Hutt Central area already make good use of the train with 11.4% travelling to work by train and 9.8% walk to work, the highest walking proportion of the twelve target areas. Hutt Central also has the second highest proportion of residents working from home of the twelve target areas at 7.3%. The target area is located close to the limit of comfortable walking distances to local train stations with the outer extent of the target area being at least 700m from each of Woburn, Waterloo and Melling stations. As such future residents accessing train services may put extra pressure on the local park and ride facilities.

There is spare kerbside parking on both weekdays and Saturdays within the target area. However especially on weekdays there is little all-day parking available close to the CBD with the spare capacity being for spaces with time restrictions of P120 or less. It should also be noted that there will be an increase in local all-day parking demands associated with the relocation of Council back to Laings Road and the opening of the Hutt Conference Centre. There are also weekday kerbside parking pressures for all-day parking close to each of the nearby train stations.

**Alicetown**

With some 30 to 50 additional households in the Alicetown target area it is forecast that there will be some additional 15 to 25vph and 10 to 20vph two-way flows into and out of the target area during the weekday morning and Saturday midday peaks respectively. These flows will primarily get distributed between Victoria Street to the north, Cuba Street to the south and Beaumont Avenue and Wakefield Street to the west of the target area being the main routes to and from the Hutt CBD, State Highway 2, central Petone and the other main Hutt City employment areas. As such the increase in traffic flows on any one of the streets is estimated to be in the order of 0 to 10 vehicle movements per hour. This level of additional traffic activity can be readily accommodated within the immediate local road network.

Residents of the wider Alicetown - Melling area already make good use of public transport with 14.4% travelling to work by train and 6.4% by bus with a further 6.2% walking to work. With most of the target area being within an 800m walk of Ava station, future new residents will be within reasonable walking distance of the station. There is plenty of spare kerbside parking within the target area on both weekdays and Saturdays including within a short walk of Ava station. This spare capacity can readily accommodate the additional parking demands associated with up to 50 additional households.

Accordingly Alicetown is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle.

**Avalon**

There is currently plenty of spare kerbside parking on both weekdays and Saturdays. This spare capacity can readily accommodate the additional parking demands associated with up to 317 additional households.

With some 23 to 317 additional households in the Avalon target area it is forecast that there will be some additional 15 to 160vph and 10 to 130vph two-way flows into and out of the target area during the weekday morning and Saturday midday peaks respectively. These flows will primarily get distributed onto High Street (west of Fairway Drive) and Fairway Drive being the main routes to and from the CBD, State Highway 2 and the other main Hutt City employment areas. Secondary distribution routes will be Daysh Street, Cambridge Terrace, Oxford Terrace and High Street (east of Fairway Drive).

A significant proportion of the additional traffic can be expected to travel through the roundabout intersection between High Street, Fairway Drive and Daysh Street. This intersection is showing existing signs of congestion during the weekday peaks and Saturday midday period. As such it can reasonably be expected that capacity improvements at the roundabout may need to be investigated as a future project in the Council's asset management plans.

## 10. Summary

The findings of this assessment can be summarised as follows:

### State Highway 2 Existing Performance

- (i) there is significant existing congestion on weekday mornings for southbound traffic heading towards Wellington as a result of the limited capacity of State Highway 2 to the south of Petone;
- (ii) the congestion has resulted in little change in recent years in the daily traffic profile of southbound traffic on State Highway 2 to the south of Petone although there has been a small increase in commuters travelling southbound between 4am and 7am; and
- (iii) the greatest concentration of accidents on State Highway 2 within the Hutt City boundary is along the 600m section to the south of Petone.

### Hutt City Road Transport Network Existing Performance

- (i) there is no pattern of fatal or serious injury road crashes that indicates a particular safety issue with any one part of the Hutt City road network;
- (ii) traffic flows over the Hutt River road bridges have decreased overall by 3% between 2009 and 2014, with only Melling Bridge experiencing a slight increase in traffic flows;
- (iii) traffic flows into and out of the Hutt CBD are distributed across at least 12 different routes;
- (iv) some queuing was observed on the approaches to the High Street intersection with Daysh Street and Fairway Drive during both the weekday morning and Saturday midday spot checks;
- (v) some congestion was observed within the CBD during the Saturday midday peak associated with traffic accessing Queensgate and the Riverbank carpark;
- (vi) some queuing of vehicles turning right into and out of Waiwhetu Road at the intersection with Whites Line East observed during the weekday morning peak;
- (vii) existing CBD kerbside parking occupancies of 81% observed on Saturdays;
- (viii) all of the Regional Council park and ride carparks were effectively at or exceeding capacity when surveyed;
- (ix) at peak times during the weekday morning commuter period there is little if any spare capacity for seated passengers from Petone to Wellington; and
- (x) one of the Days Bay ferry services is reaching capacity but there is spare capacity on other sailings.

### Census Data

- (i) the average household size in Hutt City is 2.6 people with an average of 1.6 vehicles per household;
- (ii) the average number of people per household varies from 2.4 to 3.0 and the average car ownership from 1.1 to 1.6 vehicles per household across the various suburbs which may contain targeted areas for residential growth;
- (iii) there is a lot of variation in the journey to work travel mode between the different suburbs;
- (iv) city-wide there has been a small reduction in the proportion of residents travelling to work by car between 2006 and 2013 which is largely balanced by increases in train, bus and bicycle use;
- (v) based on forecast employment data it seems likely that the proportion of Hutt residents working in Wellington and to a lesser extent Porirua will continue to grow, with a corresponding loss in the proportion of residents working within Hutt City; and
- (vi) the main centres of employment within Hutt City are the Hutt CBD, Petone Central and Gracefield.

### **Target Areas Existing Traffic Performance**

- (i) within all of the target areas there is existing spare kerbside parking on both weekdays and Saturdays and no significant existing traffic safety or capacity concerns; and
- (ii) there is the potential for future traffic congestion at some local intersections in or close to the target areas but it is expected that this can be addressed as needed as future projects in Council's asset management plans.

### **Future Transport Infrastructure**

- (i) projects with the potential to increase the traffic carrying capacity of the transport corridor to the south of Petone include the Petone to Grenada Link, the Petone to Ngauranga Cycleway and increasing the rail passenger capacity on the Hutt Valley Line. All these projects are considered to have a high probability of occurring in the short to medium term;
- (ii) ramp metering of the Petone southbound on-ramp could also lead to improvements, although this project has less certainty as to if and when it will occur;
- (iii) the effect of a future Cross Valley Link on the capacity of the State Highway 2 corridor depends on where and how it connects with State Highway 2. If the Cross Valley Link intersects with State Highway 2 to the north of Petone without providing additional capacity between the intersection point and the Petone Interchange the existing congestion observed along this stretch will be exacerbated; and
- (iv) while the Petone to Grenada Link will reduce traffic flows on State Highway 2 to the south of Petone it will attract additional traffic into this already congested southwest corner of the Hutt City road network.

### **Forecast Traffic Activity**

- (i) capacity improvements on State Highway 2 and the Hutt Valley Train Line are needed to address existing pressures;
- (ii) it is estimated that the Petone to Grenada Link would result in a reduction of around 550vph in the southbound direction on State Highway 2 south of Petone during the busiest hour of the weekday morning commuter period. As such the Petone to Grenada Link is expected to generate the necessary capacity to accommodate the increased traffic associated with the proposed residential growth in Hutt City. For each increment of 100 vehicle movements increased capacity on State Highway 2 southbound during the weekday commuter peak, 1.8% population growth city-wide can be supported. This is equivalent to 1,850 people or 710 households (at 2.6 people per household);
- (iii) the proposed residential growth could result in up to 540 additional rail passengers during the weekday morning peak with an associated increase for park and ride. Planned capacity improvements to the Hutt Valley and Melling train services are expected to readily accommodate the forecast additional demands;
- (iv) increased traffic activity will add to existing pressures at the Waione Street Bridge. If a Cross Valley Link is developed there would be additional capacity provided across the Hutt River in this location either through capacity improvements to the bridge or a new river crossing. Traffic flows across the city's other river bridges are likely to continue to be constrained by the intersections at either end of the bridges;
- (v) the layout of the CBD streets with at least 12 entry/exit points means that the traffic is usefully distributed throughout the local road network minimising the risk of serious congestion; and
- (vi) forecast occupancies for the Queens Drive carpark reach 80% on a weekday and kerbside parking demands in the CBD reach 91% on a Saturday with a 12% increase in demands. These forecasts do not include the effect of Council relocating back to Laings Road, future operation of the Hutt Conference Centre, changes to the Riverbank parking availability or seasonal retail peaks.



## Target Areas Forecast Traffic Performance

- (i) residents of the wider **Epuni** area already make good use of the train with 14.6% travelling to work by train and 6.9% walking to work. Accordingly **Epuni** is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle;
- (ii) residents of the wider **Waterloo** area already make good use of the train with 20.0% travelling to work by train and 4.4% walking to work. Subject to ensuring that there is sufficient traffic capacity at the Waterloo Road intersections and ensuring that any residential development close to the train station does not create significant adverse parking effects, **Waterloo** is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle;
- (iii) residents of the wider **Naenae** North area already make good use of public transport with 8.8% travelling to work by train and 5.6% by bus with a further 4.8% walking to work. Accordingly subject to achieving some additional capacity at the intersection of High Street with Daysh Street and Fairway Drive, **Naenae** is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle;
- (iv) residents of the wider **Taita** area already make good use of public transport with 9.8% travelling to work by train and 5.7% by bus. Accordingly subject to achieving some additional capacity at the intersection of High Street with Daysh Street and Fairway Drive, **Taita** is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle;
- (v) residents of the wider Gracefield – Seaview – Waiwhetu area already make good use of the train with 16.6% travelling to work by train. Accordingly subject to achieving some additional capacity at the intersection of Whites Line East with Waiwhetu Road and Bell Road, **Woburn** is well placed to accommodate additional residential activity with strong options for travel by modes other than by private vehicle;
- (vi) on its own the forecast additional traffic associated with the **Stokes Valley** target area is not expected to trigger the need for any local roading improvements. In combination with growth outside the target area there may be a future need to increase capacity at the local Eastern Hutt Road intersections. Residents of the wider Delaney area have the second highest car use for the journey to work of the twelve target areas with 68.3% travelling to work by car. Given that the **Stokes Valley** target area is around 3km from Pomare station, any new residents wanting to access the train would drive to Pomare station and park. While the park and ride carpark was at capacity there were kerbside spaces available at the time of the parking inspection;
- (vii) no significant traffic congestion is expected as a result of residential growth within the **Wainuiomata** target area. In combination with growth outside the target area capacity improvements may be needed at the intersections of each of Parkway and Fitzherbert Roads with Wainuiomata Road and also in Waiwhetu where traffic from Wainuiomata and Hutt Valley traffic meets. An increase in demand for park and ride by residents of Wainuiomata could increase parking pressures at or near Woburn station and possibly also at Petone station;
- (viii) forecast additional traffic associated with residential growth in the **CBD Edge** target area can be readily accommodated within the immediate road network. Residents of the wider Hutt Central area already make good use of the train with 11.4% travelling to work by train and 9.8% walk to work, the highest walking proportion of the twelve target areas. Hutt Central also has the second highest proportion of residents working from home of the twelve target areas at 7.3%. The target area is located close to the limit of comfortable walking distances to local train stations with the outer extent of the target area being at least 700m from each of Woburn, Waterloo and Melling stations. As such future residents accessing train services may put extra pressure on the local park and ride facilities. Especially on weekdays there is little all-day parking available close to the CBD with the spare capacity being for spaces with time restrictions of P120 or less. There are also

weekday kerbside parking pressures for all-day parking close to each of the nearby train stations;

- (ix) forecast additional traffic associated with residential growth in the **Alicetown** target area can be readily accommodated within the immediate road network. **Alicetown** is well placed to accommodate additional residential capacity with strong options for travel modes other than private vehicle; and
- (x) it is anticipated that Council may need to include the investigation of capacity improvements at the roundabout intersection between High Street, Daysh Street and Fairway Drive as a future project in the Council's asset management plans in response to traffic growth in **Avalon** and other nearby target areas.

## 11. Recommendations

Recommendations are set out below with regard to accommodating traffic associated with an overall 12% increase in traffic activity resulting from a 12% increase in the Hutt City population and also meeting the more localised effects of traffic growth within the individual target areas. This covers potential traffic effects arising from concentrating residential growth within selected target areas, as well as general roll-out provisions which could apply to smaller and larger lots across the General Residential Activity Area.

- (i) Hutt City Council to continue to advocate for increased capacity along the transport corridor to the south of Petone including road, rail and cycle projects;
- (ii) Hutt City Council to support the Petone to Grenada Link while ensuring that access through the local road network to the new link has sufficient capacity;
- (iii) Hutt City Council to advocate for or fund an investigation of the potential of ramp metering on the Petone southbound on-ramp as a short term interim capacity improvement prior to the opening of the Petone to Grenada link and associated improvements to the Petone Interchange;
- (iv) Hutt City Council to investigate, advocate for or provide additional park and ride capacity either in the form of new or expanded park and ride facilities or allocated areas of kerbside parking;
- (v) prior to capacity improvements at the Petone Interchange, either in the short term as a result of ramp metering or in the medium term as a result of the Petone to Grenada Link, and in the absence of any increased capacity for park and ride parking, new residential development should be focussed in areas that are within an easy walk of a train station or with existing strong usage of the train for commuting, which includes the target areas of Epuni, Waterloo, Naenae, Taita, Woburn, Alicetown and the CBD Edge;
- (vi) Hutt City Council to investigate options for providing increased CBD public parking to accommodate forecast Saturday demands. Much of the existing Saturday CBD parking demands are a result of the market in the Riverbank Carpark and accordingly the future of the market should be a key part of the investigation;
- (vii) limit residential growth in areas that will add additional traffic onto the Waione Street bridge until such time as either the capacity of the bridge is increased or a new river crossing is provided (potentially as part of the Cross Valley Link). The main target area affected is Wainuiomata and to a lesser degree Woburn;
- (viii) in the short term amend the Council's Asset Management Plan to investigate and if necessary increase improve the capacity at the following intersections which are beginning to reach capacity at the busiest times of the day:
  - (ix) High Street/ Daysh Street/ Fairway Drive
  - (x) Railway Avenue/ Woburn Road/ Queens Drive
  - (xi) Rutherford Street/ Melling Road/ Connolly Street (Connolly Street approach)
  - (xii) Waiwhetu Road/ Whites Line East (capacity of right turns)
- (xiii) in the medium term a number of other intersections may well need investigating and can be added into the Asset Management Plan as needed. Given the uncertain timing and

location of residential development any intersection improvement works are best added to the Asset Management Plan on an as needed basis; and

- (xiv) at the resource consent stage, Council should ensure that residential developments in areas close to train stations where there is significant reliance on kerbside parking by train commuters, provide sufficient on-site parking to meet residents' needs. This is particularly the case in the area around Waterloo train station.

## **12. Conclusion**

The most significant future transportation projects in terms of relieving existing and addressing future traffic congestion in order of likelihood, are improvements to the rail services, the construction of the Petone to Grenada Link and associated improvements to the Petone Interchange, and the Cross Valley Link. As such it is considered that target areas which are within a convenient walking distance of a train station or that have a demonstrated strong train use for commuting can reasonably support intensified residential development in the short term. This includes the target areas of Epuni, Waterloo, Naenae, Taita, Woburn, the CBD Edge and Alicetown.

The small scale of forecast residential growth and associated traffic activity in each of the Stokes Valley and Wainuiomata target areas means that these target areas could also be reasonably included in the short term.

The Avalon target area and comprehensive residential development applications that may be sought following the plan change may have a different level of impact as they are potentially further away from the public transport nodes. Once all designations and planning approvals are in place for the Petone to Grenada Link and associated improvements to the Petone Interchange, it is considered that the transport network would be able to support the gradual take up of residential development opportunities in the Avalon target area, along with the general roll-out provisions which could apply to smaller and larger lots across the General Residential Activity Area.

Harriet Fraser

June 2017

# Appendix 1 – Targeted Areas – Transport Networks

## **Appendix 2 – Targeted Areas – Traffic Flows and Reported Injury Crashes**

**Attachment 5**

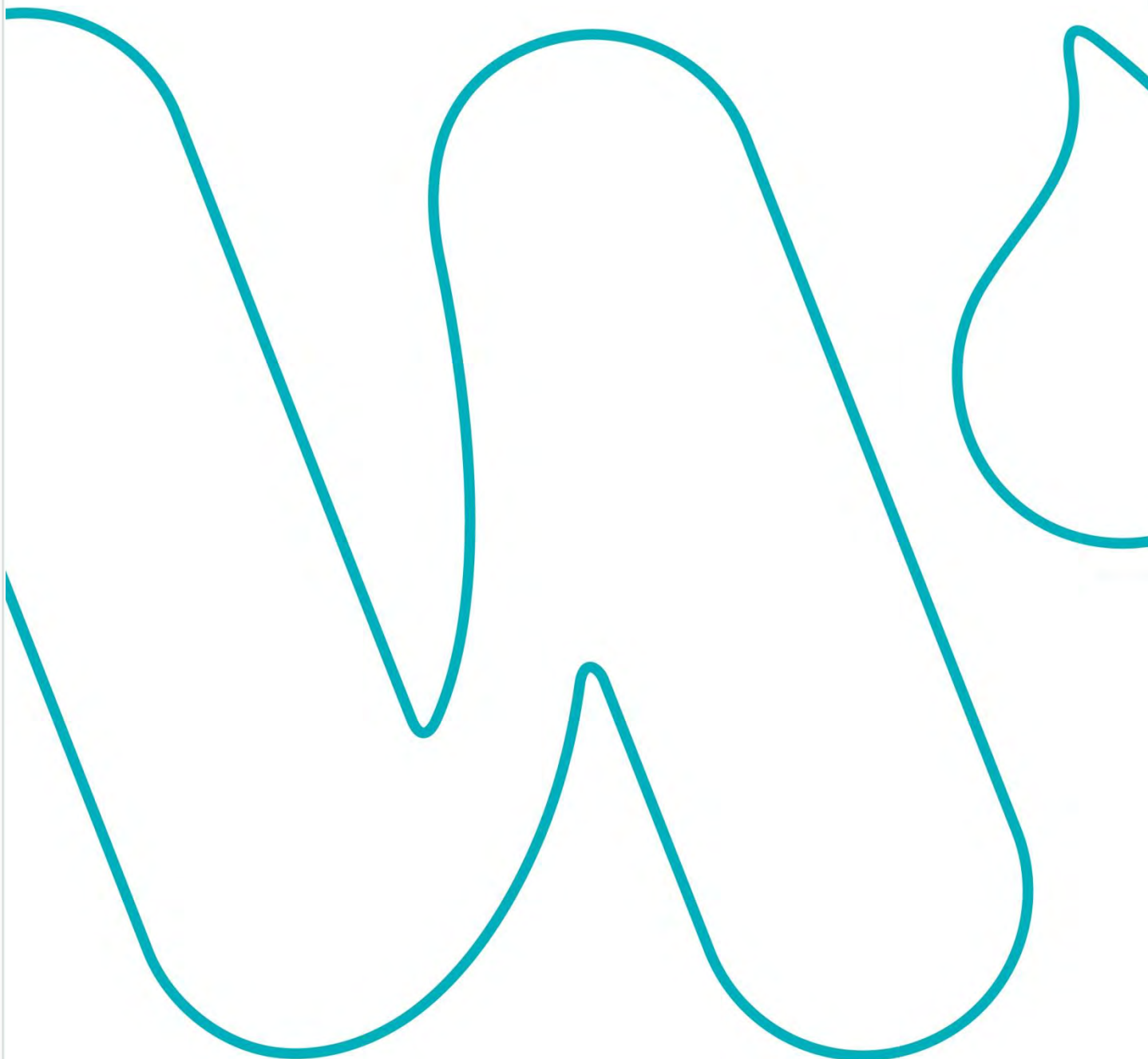
Wellington Water Limited (August 2017) *Hutt City Plan Change 43 Residential 3 Waters Summary Report*. Hutt City Council DOC/17/127547.





# Hutt City Plan Change 43 Residential

3 Waters Summary Report  
August 2017



1.	Introduction.....	3
2.	Residential Intensification Areas and Growth Scenarios .....	5
	Methodology for identifying intensification areas .....	5
	Methodology for determining growth scenarios.....	5
	Growth Scenarios .....	5
	Residential Intensification Areas.....	6
	Growth scenarios and total yield.....	8
3.	Summary of 3W Constraints .....	10
	Overview .....	10
	Stormwater and Flood Hazard Constraints.....	11
	Wastewater Constraints.....	13
	Water Supply Constraints .....	14
4.	Integrated Approach to 3W Investigations .....	16
	Combined scope for 3W investigations .....	16
	Deferred approach to detailed investigations .....	16
5.	Water Supply Investigations.....	17
	Methodology.....	17
	Need for Network Upgrades .....	18
	Required storage upgrades .....	18
	Cost Estimates .....	19
	Summary of work to support Plan Change .....	19
6.	Waste Water Investigations .....	21
	Modelling Approach .....	21
	Wastewater Network Overflows .....	21
	Summary of work to support plan change.....	22
7.	Stormwater Investigations .....	23
	Policy Approach .....	23
	Modelling Approach .....	24
	Summary of work to support plan change.....	24
8.	Conclusion .....	25

# 1. Introduction

The Hutt City Council (HCC) Urban Growth Strategy 2012-2032 identified the need to provide suitable housing for a growing population, and the need for additional housing to be provided in varying typologies to meet market demand. A further study completed in September 2016 *Hutt City – Planning for the Future*<sup>1</sup> sought to identify areas where further residential intensification could be provided. The study took a whole of city approach to spatially identify where increased levels of intensification would be appropriate, and assessed areas and development typologies against a range of criteria. The outcome was the identification of 10 areas, both suburban and CBD-edge, that could provide housing at various yields. The methodology used for the study is included as Figure 1 below. HCC propose to formally provide for and enable residential growth in these areas through a change to the Hutt City District Plan – Proposed Plan Change 43 Residential (the Plan Change).

Wellington Water responded to *Planning for the Future* by preparing a report entitled *HCC Network Constraints Analysis (2016)* (Constraints Analysis) for each of the three waters (3W) (stormwater, wastewater and water supply) in Hutt City, incorporating both suburb specific and city-wide analysis and findings. The Constraints analysis was supplemented by mapping of critical aspects of the 3W network. The Constraints Analysis by itself does not provide sufficient technical 3W evidence to support or shape the Plan Change however, and there is a need for further investigation and reporting, and identification of physical interventions (in some instances) required to support the residential intensification proposed by the Plan Change. It's crucial that the findings and recommendations from 3W investigation and assessment work underpins the Plan Change process going forward.

This report summarises the constraints analysis and also sets out the scope for 3W technical investigations, reporting, and investment to support residential intensification as proposed by the Plan Change. It also set out the findings and recommendations from recent investigations into the water supply and local storage network in Hutt City. Wellington Water is able to support Plan Change subject to a future commitment by HCC to the deferred 3W investigations as set out.

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<sup>1</sup> The full title of the report is 'Hutt City – Planning for the Future – A long-term vision for future housing growth and choice' (Jacobs). It has also been named 'Urban Development Plan for Hutt City Residential Intensification' and 'Urban Development Plan'

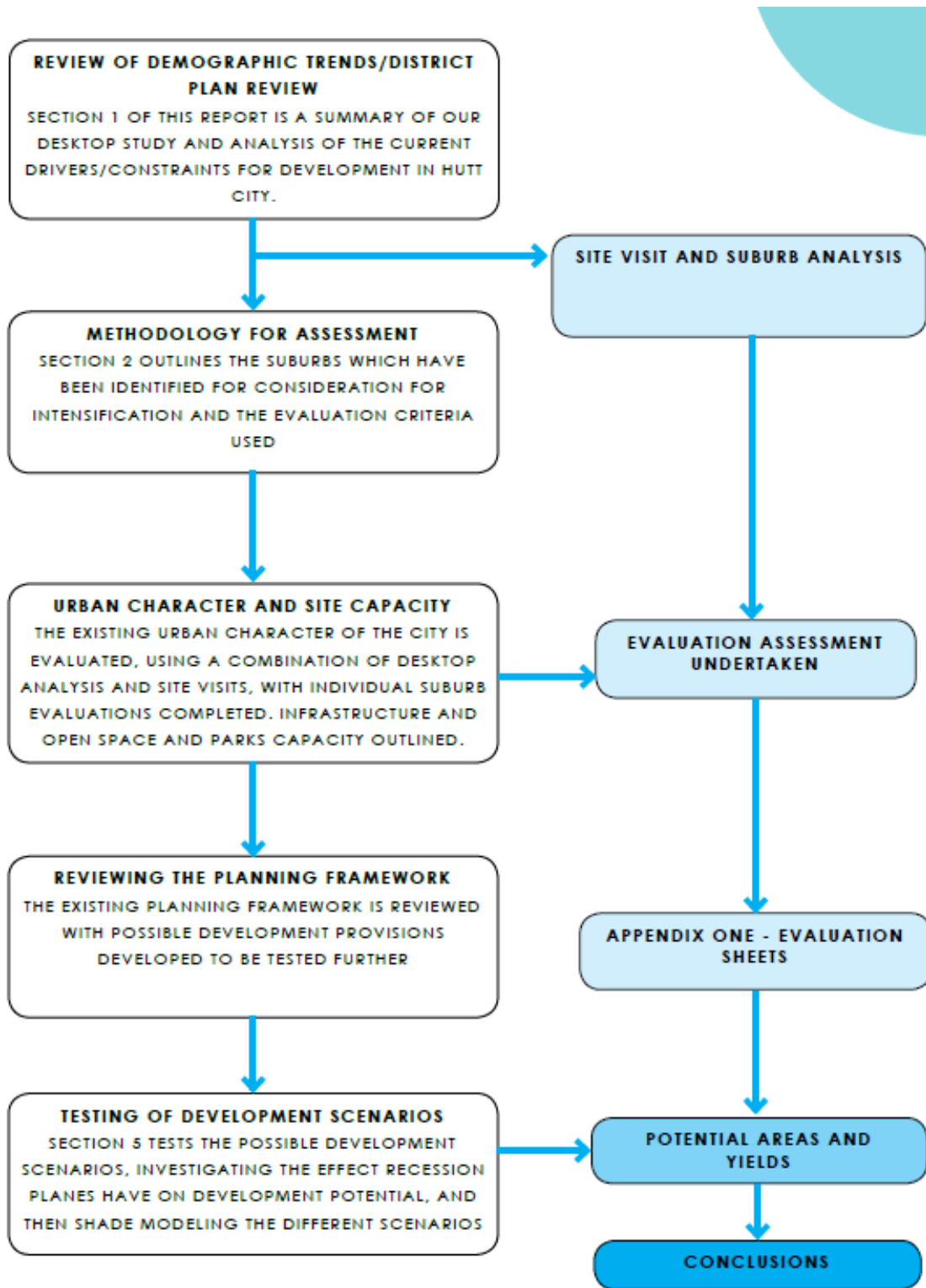


Figure 1 Hutt City Planning for the Future - report structure and assessment methodology

# 2. Residential Intensification Areas and Growth Scenarios

## Methodology for identifying intensification areas

3W infrastructure capacity was not explicitly recognised in the selection criteria used to identify areas for residential intensification, which this scoping exercise and subsequent investigation work seeks to address. The high level assessment criteria for identifying residential intensification areas were as follows:

- Consolidation of activity - providing for intensity and interaction within communities;
- Integration and connectivity - with movement networks and building interfaces;
- Diversity and adaptability - providing for mixed use and flexibility of spaces and buildings within an urban area; and
- Environmental responsiveness - providing for increased activity within the existing urban footprint providing for efficiency of networks, while not further impinging on green networks and public open space.

## Methodology for determining growth scenarios

Following discussions between HCC and Wellington Water in March 2017, HCC further refined the areas proposed for residential intensification. HCC also further refined the assumptions used to derive growth scenarios in these areas. The findings of *Planning for the Future* along with an assessment of market demand by Gray Partners, *Planning for Growth, Drivers for Residential Intensification in Hutt City over the next 30 years*, were used to develop scenarios and identify residential yields.

The growth scenarios have been reviewed by Wellington Water, and the methodology used to develop growth scenarios is considered sound. The estimate of residential yield under each scenario is considered plausible. The incorporation of a market demand assessment to develop the growth scenarios and overall yield estimates has also helped validate the growth assumptions.

## Growth Scenarios

Three growth scenarios for deriving residential yield were developed for each intensification area. The scenarios determine overall yield over a 30-year period, and are as follows:

- **High Growth Scenario** – primarily based on the full uptake of areas identified in *Planning for the Future*;
- **Medium Growth Scenario** – primarily based on Gray Partners development scenario assumptions without adding a market assessment of potential development yield; and
- **Low Growth Scenario** – primarily based on Gray Partners development scenario of potential development yield after considering currently known market demands.

The three scenarios are based on the following assumed residential typologies:

- **Type A** - mixed use development (up to 10m height, as fully described in *Planning for the Future*)

- **Type B** - primarily townhouse development providing for a more intensive residential land use

A type C typology, comprising infill and greenfield subdivision and development, has not been included. This typology is not able to be accommodated within the intensification areas.

## Residential Intensification Areas

The following areas have been identified for residential intensification:

1. Avalon
2. CBD Edge
3. Eponi
4. Naenae
5. Stokes Valley
6. Taita
7. Wainuiomata
8. Waterloo
9. Waiwhetu/Woburn
10. Alicetown

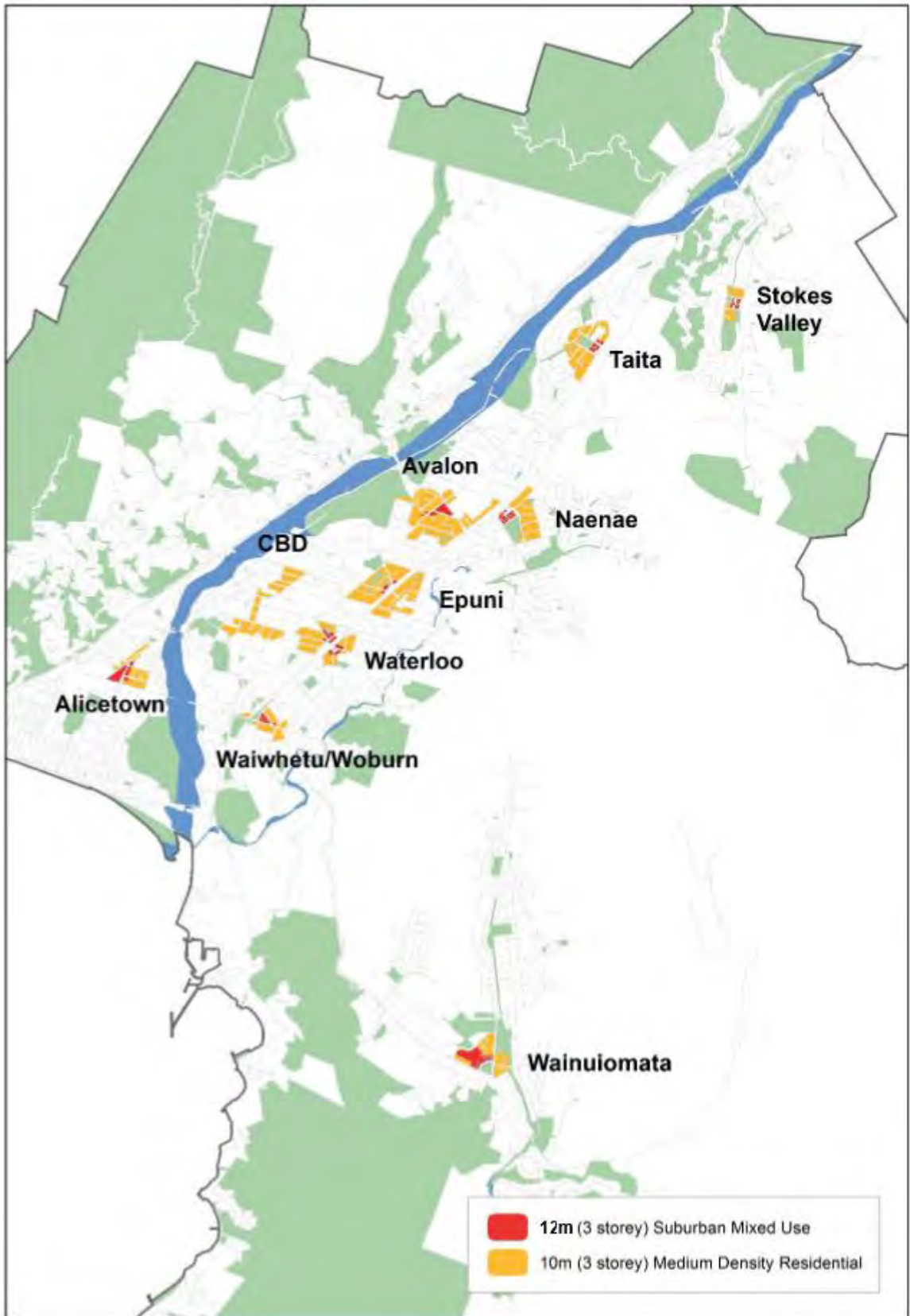


Figure 2 Areas identified for residential intensification in Plan Change 43



## Growth scenarios and total yield

The following tables present estimates of total residential units in intensification areas for each scenario. All scenarios assume that between 2017-2022 no additional units are provided to the market due to the following:

- Notification of the proposed Plan Change in 2017, allowing time to resolve potential appeals;
- Timeframes for finalising modelling of scenarios to identify required infrastructure to enable growth; and
- Developer feasibility assessments, detailed design, resource consents, building consents and construction timeframes.

### High Growth Scenario

Total Yield 2017 to 2047 = **7733 units**

Suburb	Type	2017 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	Total Growth (High Growth Scenario)
Avalon	10m Residential	0	151	227	378	378	378	1514
Avalon	10m Mixed Use	0	0	27	27	27	27	107
Alicetown	10m Residential	0	34	34	68	68	68	272
Alicetown	10m Mixed Use	0	9	9	38	38	38	151
CBD Edge	10m Residential	0	451	450	502	502	104	2010
Epuni	10m Residential	0	115	172	287	287	287	1146
Epuni	10m Mixed Use	0	9	14	23	23	23	94
Naenae	10m Residential	0	34	100	134	134	134	535
Naenae	10m Mixed Use	0	0	20	20	20	20	81
Stokes Valley	10m Residential	0	11	21	43	54	86	215
Stokes Valley	10m Mixed Use	0	2	4	8	10	16	41
Taita	10m Residential	0	0	149	149	149	149	596
Taita	10m Mixed Use	0	0	1	27	14	14	55
Wainuiomata	10m Mixed Use	0	0	24	54	75	119	272
Wainuiomata	10m Residential	0	17	35	69	86	138	346
Waterloo	10m Residential	0	339	123	154	0	0	617
Waterloo	10m Mixed Use	0	16	22	27	27	16	110
Woburn	10m Residential	0	55	53	54	54	0	217
Woburn	10m Mixed Use	0	5	8	13	13	13	50
<b>Total</b>		0	1249	1494	2077	1960	1630	<b>8427</b>
Total (%)			14.8	17.7	24.6	23.3	19.3	100.0

### Medium Growth Scenario

Total yield 2017 to 2047 = **7194 units**

Suburb	Type	2017 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	Total Growth (Medium Growth Scenario)
Avalon	10m Residential	0	125	188	313	313	313	1250
Avalon	10m Mixed Use	0	0	4	4	3	3	14
Alicetown	10m Residential	0	20	30	40	80	80	250
Alicetown	10m Mixed Use	0	0	4	5	10	10	29
CBD Edge	10m Residential	0	420	280	350	350	0	1400
Epuni	10m Residential	0	130	295	325	325	225	1300
Epuni	10m Mixed Use	0	0	15	15	15	15	60
Naenae	10m Residential	0	69	104	173	173	173	690
Naenae	10m Mixed Use	0	3	5	8	8	8	33
Stokes Valley	10m Residential	0	10	20	40	50	80	200
Stokes Valley	10m Mixed Use	0	0	1	2	2	3	8
Taita	10m Residential	0	57	86	143	143	143	570
Taita	10m Mixed Use	0	3	4	7	7	7	27
Wainuiomata	10m Mixed Use	0	22	43	86	108	172	430
Wainuiomata	10m Residential	0	10	19	39	49	78	194
Waterloo	10m Residential	0	180	120	150	150	0	600
Waterloo	10m Mixed Use	0	13	8	11	11	0	42
Woburn	10m Residential	0	49	59	49	38	0	195
Woburn	10m Mixed Use	0	1	2	3	3	3	11
<b>Total</b>		0	1112	1286	1760	1835	1311	<b>7303</b>
Total (%)			15.2	17.6	24.1	25.1	18.0	100.0

## Low Growth Scenario

Total yield 2017 to 2047 = **2120 units**

Suburb	Type	2017 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	Total Growth (Low Growth Scenario)
Avalon	10m Residential	0	8	12	20	20	20	80
Avalon	10m Mixed Use	0	1	2	4	4	4	14
Alicetown	10m Residential		10	20	30	30	30	120
Alicetown	10m Mixed Use		0	4	5	10	10	29
CBD Edge	10m Residential	0	108	70	88	84	0	350
Epuni	10m Residential	0	25	50	75	75	75	300
Epuni	10m Mixed Use	0	1	2	3	3	3	13
Naenae	10m Residential	0	15	45	75	75	90	300
Naenae	10m Mixed Use	0	0	3	3	3	2	10
Stokes Valley	10m Residential	0	0	15	20	25	40	100
Stokes Valley	10m Mixed Use	0	0	0	0	1	1	2
Taita	10m Residential	0	15	60	75	75	75	300
Taita	10m Mixed Use	0	1	1	2	2	2	7
Wainuiomata	10m Mixed Use	0	13	25	50	63	100	250
Wainuiomata	10m Residential	0	1	2	3	4	6	16
Waterloo	10m Residential	0	98	52	65	25	0	240
Waterloo	10m Mixed Use	0	2	3	4	4	2	16
Woburn	10m Residential	0	42	18	30	30	0	120
Woburn	10m Mixed Use	0	0	0	1	1	1	2
<b>Total</b>		0	340	384	552	532	461	<b>2269</b>
Total (%)			15.0	16.9	24.3	23.4	20.3	100.0

# 3. Summary of 3W Constraints

## Overview

Wellington Water's initial focus was on reviewing the available information on 3W networks in Hutt City to assess their potential to support residential intensification. The analysis and subsequent assessment work established a baseline of information of 3W networks along with identifying information gaps. This work was carried out in late 2016, and a spatial approach was followed for the analysis.

The methodology for undertaking the constraints analysis involved compiling readily available information on the capacity of 3W networks on an area-by-area basis and highlighting known constraints and issues that could restrict intensification. Where hydraulic models were available these were used to inform the constraints analysis and helped provide an increased level of certainty. Some areas have not been modelled and only limited analysis can therefore be provided based on historical condition and operational records. In some locations there is little or no readily accessible information on network constraints.

Wellington Water has also sourced information relating to stream and river flooding from Greater Wellington Regional Council (GWRC). Flood risks from local stormwater drainage networks are often related to or influenced by larger streams and rivers and therefore an integrated approach provides more holistic guidance. The completeness, accuracy and quality of the GWRC information is not always known however and assumptions have been applied in its application.

### Matters not included within constraints analysis

Although the constraints analysis focussed on information relating to 3W network capacity, there are a number of further related potential constraints to intensification that have not been assessed. These include:

- **Network condition**

The expected remaining life of 3W infrastructure has not been assessed. An assumption has been made that programmed renewals and maintenance will keep 3W networks functioning as intended for the foreseeable future.

- **Coastal and Tsunami hazards**

Flood risk associated with streams, rivers and stormwater networks are reasonably well understood, however there are other flood hazards such as tsunamis resulting from earthquakes and coastal inundation resulting from sea level rise and storm surge events have not been considered. These risks, particularly to low lying coastal areas of Hutt City, need to be considered in long term land use planning. GWRC have recently produced a Natural Hazards Management Strategy which deals with these matters on a regional basis.

- **Network Resilience**

3W infrastructure that supports the city has varying levels of resilience to a range of hazards such as earthquakes and liquefaction. The risk varies depending on factors such as proximity to the hazard, asset material, asset vulnerability, and ground conditions. Consideration of the resilience of parts of the water supply network in Hutt City is currently being investigated.

- **Groundwater**

High ground water levels can increase flood hazard potential but also has health and quality of life implications. It is understood that there are areas of Hutt City that are impacted by high groundwater and sea level rise could exacerbate these issues however this is also beyond the scope of this analysis.

## Stormwater and Flood Hazard Constraints

### Information Sources

Overall, flooding risk in Hutt City is reasonably well understood, although most stormwater networks and streams in Hutt City have not been hydraulically modelled and therefore information is incomplete. Information has been sourced from:

- Wellington Water modelling results for Wainuiomata and Stokes Valley;
- HCC's Flood History Database, which has been compiled based on observations during flood events from 1976; and
- Flood hazard information provided by GWRC for the Hutt River, Waiwhetu Stream, Korokoro Stream and the Wainuiomata River.

Flooding resulting from a 100-year rainfall event has been predicted where information is available, including the possible extent and depth of flooding. Larger rainfall events can occur however and exacerbate property damage and threat to life. The Hutt River presents the major flooding risk in such events as flood defences have the potential to fail or be over topped leading to widespread flooding in the City. GWRC have provided scenarios for this hazard and this has increased the understanding of flooding risk in relation to the Hutt River.

An overview of known flood hazards in Hutt City is provided in Figures 1, 2 and 3 in the map book attached as **Appendix 1**. Deeper flooding (greater than 0.5m) predicted by GWRC in the event of stop bank failure or overtopping of the Hutt River defences are shown in Figure 4. The low lying coastal areas are shown in Figure 5. Observed historical flooding since 1976 is summarised in Figure 9.

Further information on stormwater and flooding risk in areas subject to the Plan Change is summarised below:

### Stokes Valley

During the 1976 floods that impacted much of the region, the stream channel in Stokes Valley was particularly badly hit. Major improvements have since been made to increase its capacity. While the channel does have considerable capacity there are still ongoing flooding issues in Stokes Valley.

In 2005 an assessment of the piped stormwater networks in Stokes Valley identified that many pipes lacked capacity and upgrades were needed. This has resulted in over \$14M being included in the Long Term Plan (LTP) to upgrade this asset over the next 10-years. Detailed modelling is currently being undertaken in Stokes Valley that will provide more detail on the location of potential flood risk and what can be done to mitigate it.

### Central Hutt Area

The flood risk in Central Hutt has not been hydraulically modelled and therefore only general comments can be made. Historically, flooding has been recorded in low lying areas around Whites Line West and Hutt Valley High School, as well as in a number of locations in Melling and Alicetown. These areas are also predicted by GWRC to experience deep flooding in excess of 1m if the Hutt River defences are breached. Although the western and central areas of Naenae have not been

hydraulically modelled they appear to have considerably less flood risk compared to other areas of Hutt City on the valley floor.

### Wainuiomata

Over the last decade considerable effort and expense has been put into increasing the capacity of Black Creek and the main water channels that flow through Wainuiomata. This has provided a solid base level of flood protection to much of the area. However when the waterways are full the connected pipe networks are unable to efficiently discharge into the streams. This results in surface flooding particularly in the flatter areas adjacent to the main channels.

The recent hydraulic modelling of the Wainuiomata stormwater drainage network indicates that in heavy rainfall, such as 50 or 100 year events, there will be widespread flooding on the flatter areas. While much of the flooding will be less than 0.5m deep it is predicted to be around residential dwellings and commercial areas. The model also indicates that in the 100 year flood some locations such as around Moohan and Hyde Streets the flooding can get deep enough to be a threat to life as well as to property.

Further development in the catchment will need to be undertaken in a way that does not increase the flooding risk.

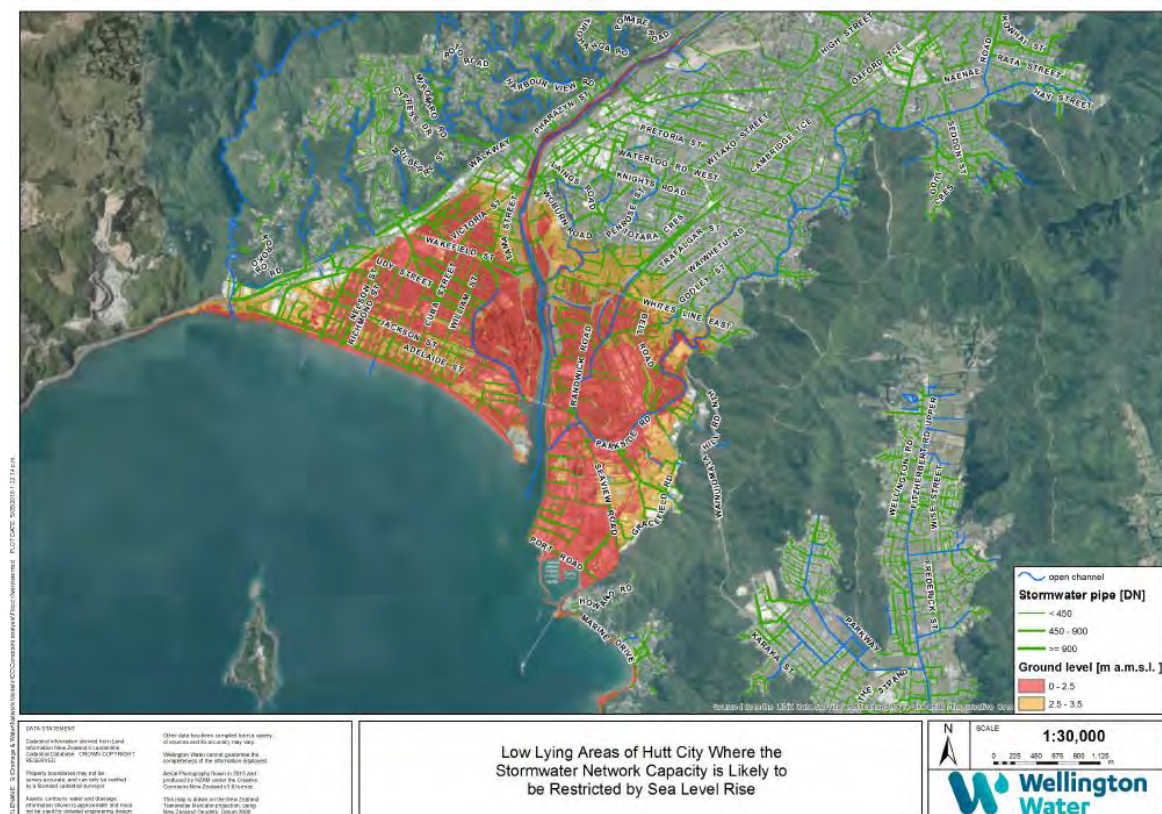


Figure 3 Hutt City – stormwater susceptibility to sea level rise



# Wastewater Constraints

## Wastewater pipe network

The analysis of wastewater constraints identified systemic issues with under capacity pipes throughout the Hutt City wastewater network, as summarized in the map book in Appendix 1. The analysis was based on the operational knowledge of staff at Wellington Water as well as an asset level analysis of Hutt City wastewater network data.

In the absence of a detailed hydraulic model, an asset level capacity assessment was undertaken by comparing an estimate of the peak wet weather flow based on the upstream contributing catchment (using the standard HCC methodology) against the theoretical pipe full capacity using the asset data of slope and diameter of the pipe. This high level assessment has not been calibrated and therefore the results are indicative only. A detailed hydraulic model is required to accurately assess the capacity of the pipe network at a local level and determine what investment is required to enable intensification in line with medium and high growth scenarios.

In the absence of a hydraulic model, a more detailed assessment of known capacity constraints in relation to intensification areas taking into account the growth scenarios has been carried out.

## Seaview Wastewater Treatment Plant

The constraints analysis also considered the capacity of the Seaview Wastewater Treatment Plant (WWTP) which treats all of the Hutt Valley's wastewater. There has been a steady reduction over recent years in wastewater flows from industrial areas of Hutt City to the WWTP, and it is estimated that the WWTP has the capacity to treat 5-10% additional dry weather flows. Furthermore, the HCC 2018-2021 Long Term Plan (LTP) includes significant investment in upgrades over the next few years. The ability for the treatment plant to accommodate increased flows associated with urban growth has therefore been assessed as being adequate.

## Wainuiomata

Since the decommissioning of the Wainuiomata WWTP in 2001, under normal operation wastewater from Wainuiomata passes through a series of pump stations and trunk sewers and eventually through the Wainuiomata water tunnel to the Seaview WWTP. The main trunk pipe through the tunnel is a 315mm OD pipe.

Within Wainuiomata there are frequent wet weather overflows from the current system. While there is an ongoing programme of targeted renewals these have been focused on wider network capacity to better cater for current demand. A major restriction on intensification in Wainuiomata is the cost to upgrade the pump stations, trunk sewers and particularly the pipe capacity through the tunnel.

## Central Hutt Region

The asset level analysis indicates that local upgrades may be needed if residential intensification were to occur in Alicetown but if planned for these are unlikely to restrict growth.

Over the last decade in the areas surrounding the Waiwhetu and Awamutu Streams there has been considerable investment in the wastewater network to reduce the once frequent overflows. Approximately \$10M has been spent by council and the community on a combination of major upgrades and private lateral renewals. This has resulted in overflows now occurring rarely. However intensification in these areas could compromise the success of these upgrades.

The asset level analysis of the waste water network in Hutt Central indicates that the network is constrained in many locations. This suburb is currently programmed for detailed investigation in the 17/18 financial year.

### Naenae

Much of the Naenae wastewater network is known to be in poor condition with high levels of inflow and infiltration.

### Northern Hutt Region and Stokes Valley

Both Avalon and Taita have no significant capacity issues based on current information. However the wastewater network in Stokes Valley is generally considered to be in poor condition. Inflow and infiltration problems are common and network overflows are frequent.

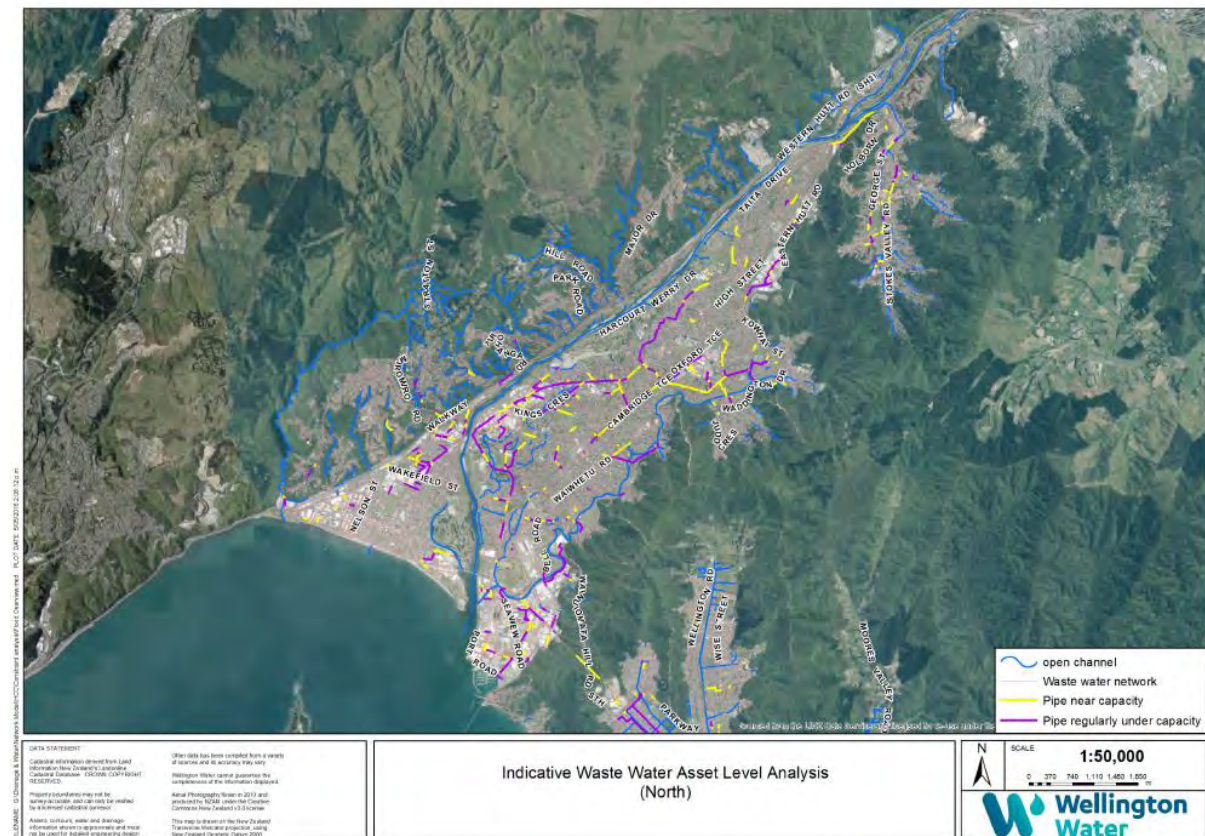


Figure 4 Hutt City wastewater asset level capacity analysis

## Water Supply Constraints

### Overview

The Constraints Analysis focussed on the capacity of the zone reservoirs that supply Hutt City. The Hutt City water supply network comprises 33 district metered areas (DMA's) which are located within six water supply zones (Delaney, Eastbourne, Manor Park, Petone, Lower Hutt Central and Wainuiomata). The Wellington Water Regional Standard for Water Services, Nov 2012, sets the required storage capacity based on a combination of firefighting requirements as well as population demand. Using this standard, an assessment of storage in the existing network was made for all zones in the City based on 2014 population estimates. This constraints analysis for



zone reservoir supply will need to be revisited in the future focussing on the targeted residential intensification areas and taking into account low, medium and high growth scenarios. A small part of the northern suburbs in Hutt City are fed from the Upper Hutt Te Marua Treatment Plant. All other zones are fed from either the Waterloo Treatment Plant or the Wainuiomata Treatment Plant. In total there are 26 reservoirs with total capacity of 72,000 m<sup>3</sup> within the Hutt City water network.

### Pipe Capacity

Pipe capacity is also a restriction to future growth, although is more localised than zone storage supply. Water supply network investigations have recently been completed and identify where network upgrades are required to provide for future demand as a result of residential intensification. The findings of these investigations are summarised in Section 4 and the full report has been provided separately to HCC.

# 4. Integrated Approach to 3W Investigations

## Combined scope for 3W investigations

An integrated approach to 3W technical reporting and investigation is crucial to ensure that each of the 3W networks are recognized and provided for, as each performs a critical function as a growth enabler. An integrated approach also helps ensure efficiencies are realised in the investigation process given the interrelated nature of 3W networks. Ultimately it will also help ensure a coordinated approach to 3W infrastructure provision, and the prioritisation of investment to enable growth in the intensification areas.

In recognition of the multi-disciplinary skill set required to deliver the investigations, the co-ordination and scoping of the 3W technical reporting and investigations is being led by the Wellington Water Network Strategy & Planning team (NS&P), with chief advisors and other specialists (principally from the Network Development & Delivery Team (ND&D)) leading the reporting and investigations.

The gap between the current consideration of 3W infrastructure and the level of detail typically required to support a plan change will assist in determining the scope of Wellington Water's technical investigations. The role of 3W infrastructure was not explicitly recognized in the selection criteria as noted above so there is a need for technical reporting and investigations to be comprehensive in nature.

The reporting also needs to be evidence based, fit for purpose and defensible in the Environment Court. This does not require commitment to comprehensive upfront investigations however, with a deferred approach considered appropriate where growth is forecast in the medium to long term (10 years+) (as further discussed below).

There is also a general need for further modelling of 3W networks in Hutt City to make more informed decisions. The scope of modelling is set out in relation to each of the 3W below.

## Deferred approach to detailed investigations

Further clarification of growth scenarios allows reporting and investigations to be targeted at areas likely to come forward in the short term (5-10 years), and defer investigation of those areas that are likely to come forward in the medium/long term (10 years +). This deferred approach to investigations also recognizes the incremental nature of development and the high cost of committing to detailed investigations for all intensification areas upfront.

Although the Plan Change targets intensification in certain areas, there is also a need to identify and consider areas that are experiencing growth that aren't subject to the Plan Change. Petone is one such area. Growth in such locations, including projections based on market assessment, will need to be captured to ensure total growth in Hutt City is factored into 3W investigations.

# 5. Water Supply Investigations

## Methodology

Wellington Water engaged MWH (now Stantec) to estimate the impact of the three growth scenarios on the water supply network in Hutt City. The Investigation also identified required upgrades to maintain the current level of service with respect to water supply in Hutt City, and the final report has been provided to HCC<sup>2</sup>,

The general approach for the investigation was as follows:

- Simulate the performance of the intended system without unmetered feeds, under current design demand conditions, and without the growth scenario demand;
- Identify network changes required to achieve a satisfactory performance under these conditions;
- Identify which elements are particularly sensitive, whether these elements could have been affected by calibration issues in the Lower Hutt Central system;
- Simulate the intensification demand; and
- Identify possible network upgrades required to meet the performance criteria or achieve the pre-intensification system performance.

## Assumptions

The investigation was based on the following key assumptions:

- The RSWS indicates that the pressure in Hutt City should be between 30m and 90m at all times at the point of supply for each property. However, the purpose of the investigation was to assess the upgrades required to maintain the pre-intensification performance with the growth scenarios. Where the RSWS criteria are not met before the proposed intensification, it is not expected that upgrades will be proposed to address that.
- To set the demand outside of the intensification areas to reflect annual peak demand, an analysis of historical demand was undertaken (“Historical Peak Demand in Hutt City, Rev 1”, April 2017). As per the Water Supply Modelling Specifications it was assumed that commercial demand and leakage remained unchanged throughout the year, and is therefore identical between average yearly and peak yearly demand.

For the residential component of the intensification, the Regional Water Standard assumptions were also applied to determine demand for the three scenarios, namely:

- 700 l/person/day peak daily residential demand.
- 0.0162 l/s/person instant residential demand.
- This leads to a peaking factor of  $(0.0162 \times 24 \times 3600) / 700 = 2.0$ .
- 3 people per unit.

The high growth scenario includes a total of 8,427 units, or a population of 25,281, which is approximately 25% of the current population of Hutt City. The daily design demand of the intensification areas alone is 18MLD in the high growth scenario, which is 40% of the yearly peak demand in Hutt City.

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<sup>2</sup> Hutt City Residential Intensification, Assessment of Effect on Water Supply, Stantec, May 2017

## Need for Network Upgrades

Based on the assumptions set out above, the demand for drinking water for each of the scenarios has been predicted and is set out in Figure 5 below:

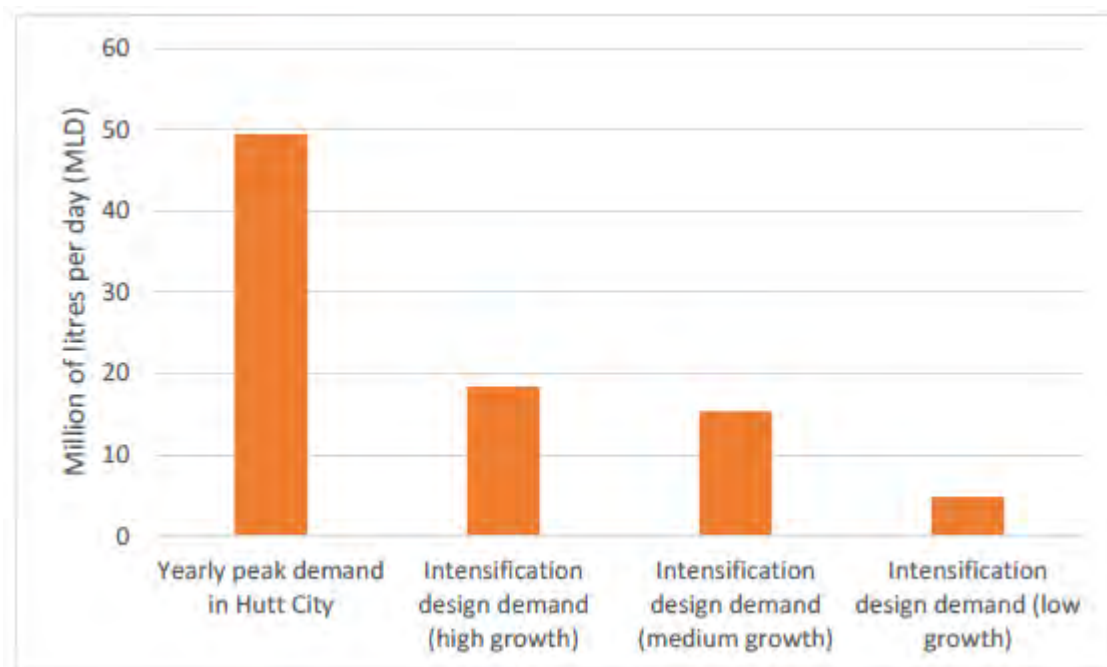


Figure 2 Water supply peak demand for each of the three growth scenarios

The performance in the low growth scenario is comparable to that of the benchmark, with only 1m minimum pressure difference. No further upgrades are therefore recommended for the low growth scenario.

Given the significant intensification proposed under the medium and high growth scenarios, widespread areas of substandard pressure are predicted, with pressures as low as 14m in some parts of Lower Hutt Central. Pressures in the high growth scenario are predictably worse. The investigation highlighted a number of deficiencies with the existing network that would need to be rectified in order to provide the expected level of service in accordance with the RSWS for the medium and high growth scenarios. The various deficiencies and the work required to rectify these is set out in Section 3 of the report in Appendix 2.

## Required storage upgrades

In addition to the identified need for water supply network upgrades, there will also be an impact on reservoir storage associated with the three growth scenarios. Reservoir storage is split into different water supply zones in Hutt City, three of which are impacted by the residential intensification:

- Delaney (Delaney Reservoir and Kingsley Reservoir)
- Gawler (Gawler Reservoir and Konini Reservoir)
- Lower Hutt Central (Naenae Reservoir and Gracefield Reservoir)

Reservoir storage is deemed sufficient by Wellington Water if it is greater than both:

- Two times average day demand
- 1.2 times annual peak day demand + fire-fighting storage.

For the purpose of storage calculations, average demand was assumed to be:

- 350 l/person/day for residential users
- The same as peak demand for office and retail users

The assessment indicates that the storage in the Lower Hutt central zone currently does not meet Wellington Water's requirements, albeit by a small margin. This is exacerbated by the proposed residential intensification, with as much as 20ML missing in the high growth scenario under the "two times average day demand" criteria. Notwithstanding recent investigations, a further detailed assessment will be required to confirm the actual storage shortfall and optimised location for a new reservoir.

## Cost Estimates

A high level cost estimate was prepared based on rates compiled for the critical networks project (MWH, 2016). The pipeline rates are based on construction projects tendered around 2014 to 2015. The rates assume that the proposed pipe material is PE and that the central/CBD location of the alignment increases the construction cost.

In addition to the pipeline, an allowance of \$100,000 was considered for the proposed metered connection at High Street, going east. Note that this is the connection required for the intensification scenarios, not for the benchmark scenario. The high level out-turn cost includes:

- Construction tendered rates estimates.
- 7% for design, procurement, administration.
- 10% for management.
- 30% for contingency, risks and variations.

The high level out-turn cost is estimated to be:

- Low growth: no upgrade required
- Medium growth: \$3.3M
- High growth: \$7.0M

Cost estimates have not been provided at this stage for increasing local storage. The requirement for new storage has been noted in the LTP however, although the cost will depend on the size of the reservoir which will be determined by detailed investigations.

## Summary of work to support Plan Change

### Network Capacity

- The low growth scenario has a relatively small impact on the system performance, and does not require any specific network upgrade.
- The medium and high growth scenarios constitute a significant increase in the demand for drinking water in Hutt City, particularly in Lower Hutt Central. While the model is considered un-calibrated for Lower Hutt Central, the expected pressure changes following the anticipated level of increased demand is way beyond the margin of error of the model. The model in its current form is therefore sufficient to outline the scale of the upgrades required.
- To accommodate this additional demand, approximately 3km of pipes need to be upgraded, with the costs associated with each scenario outlined above.

## Storage Capacity

- The storage in the Lower Hutt central zone currently does not meet Wellington Water's requirements, albeit by a small margin. This is exacerbated by the proposed medium and high growth scenarios, with as much as 20ML missing in the high growth scenario based on current criteria. There is an overall need to further investigate and better understand the local and bulk water supply needs associated with the medium and high growth scenarios, with investment in new storage assets over and above those already identified for upgrade in the LTP deferred.

# 6. Waste Water Investigations

## Modelling Approach

Development of a City wide hydraulic wastewater model is required in the medium term. This will enable an accurate assessment of the capacity of the pipe network at the local level, and determine what investment is required to enable the intensification areas to come forward in line with growth scenarios.

The cost of a full hydraulic model for the entire Hutt City wastewater network has been coarsely estimated at \$2M. This would need to be spread over three years to allow for the temporary flow monitoring that is needed to calibrate the model and quantify rainfall induced inflow and infiltration and tidal influence.

Further discussion around the scope, timing, procurement, cost and funding of the hydraulic model is required and will need to be progressed by HCC and WELLINGTON WATER. Ideally the model will be in place by 20/21.

## Wastewater Network Overflows

There are approximately 60 non-consented wastewater overflow points in the Hutt Valley, and more than 30 in Hutt City (see figure 5 below). Most of these are from pump stations during heavy rainfall events, resulting in untreated wastewater overflows entering streams and coastal water. Further residential intensification resulting in increased overall wastewater flows will further exacerbate wastewater network overflows.

Wastewater discharges to fresh water and coastal waters are a non-complying activity in accordance with Rule 62 of the Proposed Natural Resources Plan (PNRP). The PNRP was notified in July 2015 and had immediate legal effect from that date. More broadly, the objective and policy framework of the PNRP determines that 'new' (including existing unconsented) wastewater discharges to freshwater are to be avoided, so simply consenting existing overflows will not be acceptable. Investigations and a consenting strategy for dealing with unconsented overflows needs to get underway, with the objective of permanently eliminating or reducing the incidence of wastewater network overflows during heavy rainfall events.

	Hutt City		
Site	Consented	Non-consented	Events (13-14, 14-15)
Pump stations	6	40	25, 38
Network (+ treatment plant)	3	9	71, 28
Monitored	9	49	96, 66

Figure 6 Hutt City wastewater network overflows in 2013/14 and 2014/15



## Summary of work to support plan change

- An assessment of known capacity constraints in relation to intensification areas taking into account the growth scenarios.
- Identification of essential localised capacity upgrades and/or renewals that will need to be brought forward in the medium/long term to provide for medium and high growth scenarios in intensification areas.
- Investigations and a consenting strategy for dealing with unconsented network overflows to get underway in 17/18, with the objective of permanently eliminating or reducing the incidence of wet-weather wastewater overflows in the long term.
- Development of a City wide hydraulic model for wastewater, deferred until funding etc. are agreed as discussed above.

# 7. Stormwater Investigations

## Policy Approach – Future City-Wide Plan Change

The impact of residential intensification on stormwater networks and flows is difficult to assess at a macro level as they are heavily influenced by site specific considerations such as topography and development typology. Rather than relying on ad-hoc, site specific interventions in intensification areas, an upfront policy response is necessary, namely binding provisions included within the District Plan to achieve sustainable outcomes with regard to stormwater management and flooding. These provisions can also enable other desirable outcomes such as enhanced amenity, improved urban design, habitat for terrestrial and aquatic ecology and increased biodiversity.

Both Wellington Water and HCC planning officers are in agreement that such provisions are best advanced at a City-wide level through a separate plan change. When such provisions are only targeted at specific spatial areas such as the proposed intensification areas, they may have the unintended consequence of discouraging development in these areas and encouraging development in neighbouring areas where these provisions do not apply.

Such provisions should also be advanced at a Regional level. Wellington Water is co-ordinating efforts with the four territorial authorities (HCC, WCC, UHCC and PCC) to develop a region wide, consistent and integrated approach to the adoption of such provisions. Given the long-term timeframe for residential intensification, any City-wide plan change should also be developed in co-ordination with Whaitua provisions to be included within the Proposed Natural Resources Plan (PNRP). The Whaitua chapter of the PNRP will give effect to the National Policy Statement for Freshwater (NPS-FM) at a regional level, and will establish environmental bottom lines for each catchment in the region that will need to be met.

Measures to be considered in any City-wide plan change are included below for reference. Opportunities for these measures to be integrated into developments within residential intensification areas should be identified and encouraged irrespective of any future City-wide plan change.

### Avoiding intensification in areas of high flood risk

- **Protecting and reinstating overland flow paths** - within Hutt City the piped stormwater networks have capacity for only regular rainfall events. In heavy rain events much of the runoff will flow overland. Maintaining and restoring natural overland flow paths is an essential mechanism to effectively managing flood risk. This is particularly important when considering multi-unit, medium density housing that has potential to block or divert overland flow paths.
- **Protecting ponding and attenuation areas** - infill housing and medium density development in locations of deep flood ponding (>300mm) can result in a loss of floodplain storage which increases pressure on the surrounding drainage network and can transfer flooding to other areas.
- **Identifying areas prone to sea level rise** - Hutt City has low lying areas close to sea level. Many of these areas are also below the level of the land immediately adjacent to the sea and therefore form depressions or basins in a flood. This means that during heavy rain that coincides with high tides water ponds in these low lying areas, and without overland flow paths the ponding can

become deep. Sea level rise will exacerbate this issue. Without detailed hydraulic modelling of the pipe networks it is difficult to quantify the risks. However as a general rule areas with ground levels below 2.5m above mean sea level (aMSL) are at high risk of flooding if the seas rise as projected. Currently high tides in Wellington Harbour peak at about 1.1m aMSL.

### Achieving Hydraulic Neutrality

- Hydraulic neutrality can be defined as new development that does not increase the runoff from the site above pre development levels. The change in land use associated with intensification often results in increased areas of impervious surfaces such as driveways, car parks and roofs. This results in increased runoff that reduces the effectiveness of the existing drainage network and therefore increasing the flood risk. There are many areas where flooding is now a regular occurrence as a result of development in the upstream catchment.
- To avoid expensive upgrades to maintain the current level of service provided by the stormwater network, new development should strive to be hydraulically neutral. This can be achieved through a combination of onsite detention/attenuation and design measures that minimise the loss of permeable surfaces. Measures may include soakage pits, semi-permeable surfacing for driveways and footpaths, vegetated swales, rain gardens, green roofs, and rain water capture and harvesting.

## Modelling Approach

An assessment of intensification areas against most recent flood mapping and sea level rise scenarios is required. This will involve a continuation of modelling and an update of the flood constraint mapping undertaken last year in relation to intensification areas and summarised in the Map Book in Appendix 1.

Wellington Water's current stormwater flood modelling budget in HCC is \$150k per year and this will result in modelling of the entire city over the next 10-years. Although a long-term approach to completing the modelling in line with current funding could continue, ideally this could be brought forward and be completed in a 6-year timeframe for \$250K per year. This means it could also be targeted to cover all intensification areas in the short to medium term.

## Summary of work to support plan change

- Bring forward stormwater modelling so that a complete model is built for Hutt City within 6 years (by 22/23).
- Identification and prioritisation of stormwater improvements to provide for growth scenarios in intensification areas in the short/medium term following adoption of the Plan Change.
- Commitment to a future City-wide plan change containing provisions that require incorporation of sustainable stormwater measures into developments, protection of overland flowpaths and achieving hydraulic neutrality.

# 8. Conclusion

## Constraints Analysis

3W constraints in the areas subject to the Plan Change have been identified and summarised, with an assessment of the capacity of strategic, network and local assets undertaken in terms of their ability to accommodate residential intensification. The three growth scenarios provided by Hutt City have provided context for this assessment. These constraints have been mapped as much as current information has allowed, and are provided in Appendix 1.

## Water Supply Network

An investigation into the capacity of the water supply network and local reservoir storage has recently been completed. The investigations conclude that the current network would be able to accommodate the low growth scenario, however if the medium growth or high growth scenarios are realised further investment will be required. The medium and high growth scenarios will result in a significant increase in the demand for drinking water in Hutt City, particularly in Lower Hutt Central. To accommodate this additional demand, approximately 3km of pipes need to be upgraded, with the costs associated with the medium growth scenario estimated at \$3.3m and the high growth scenario at \$7m.

## Local Reservoir Capacity

An increase in local reservoir storage capacity, especially for the Central Lower Hutt area, will also be required for the medium or high growth scenarios. The storage in the Lower Hutt central zone currently does not meet regional criteria which will be exacerbated by the proposed medium and high growth scenarios. Further investigations into local and bulk water supply associated with the medium and high growth scenarios are required. Investment into new storage assets over and above those already identified for upgrade in the 2018-2021 LTP can be deferred however until after 2021.

## Wastewater Investigations

It is proposed to defer detailed wastewater investigations until beyond 2021. Currently the wastewater pipe network and Seaview WWTP are generally able to accommodate the low growth scenario; however creation of a hydraulic model to allow the detailed assessment of network capacity constraints in relation to the medium and high growth scenarios will be required. Identification of essential localised capacity upgrades and/or renewals will be required in the medium/long term to provide for medium and high growth scenarios. Investigations and a consenting strategy for dealing with unconsented network overflows needs to get underway in the short term however, as even the low growth scenario will exacerbate these existing overflows.

## Stormwater Investigations

A future policy response is recommended for stormwater. Rather than relying on ad-hoc, site specific interventions in intensification areas, an integrated policy response is necessary, namely binding provisions included within a future City-wide plan change to achieve sustainable outcomes with regard to stormwater management and flooding.

An assessment of intensification areas against most recent flood mapping and sea level rise scenarios is also required. This will involve a continuation of current modelling and an update of the flood constraint mapping in relation to intensification areas.

## Summary

In summary, for each of the 3W, no new investment over and above that already identified in the 2018-2021 LTP will be required to accommodate the low growth scenario, however residential

intensification associated with medium and high growth scenarios will require investment over and above that already identified.

Wellington Water is able to support the Plan Change subject to a commitment from HCC to future 3W investigations and other measures as set out in this report. Future investigations will help determine the level of investment in 3W infrastructure required to accommodate residential intensification in the identified areas in line with the medium and high growth scenarios.

**Attachment 6**

Gray Partners Limited (December 2016), *Planning for Growth, Drivers for Residential Intensification in Hutt City over the next 30 years*. Hutt City Council DOC/17/17118.





# PLANNING FOR GROWTH

## DRIVERS FOR RESIDENTIAL INTENSIFICATION IN HUTT CITY OVER THE NEXT 30 YEARS



Discussion paper prepared by Gray Partners Limited  
For the Environmental Policy Group, Hutt City Council

December 2016

## Disclaimer

This report has been prepared expressly for the Environmental Policy Group within Hutt City Council. Any views expressed in the report are those of the author, and should not be taken to reflect the policies or intentions of the Hutt City Council or Gray Partners Limited. All population and household projections, income and yield estimates, and conclusions about commercial viability, are derived from the author's own research (E&OE). Gray Partners Limited accepts no responsibility for unauthorised uses of this report.

## Table of Contents

1	Executive Summary.....	1
2	Introduction .....	3
2.1	Preamble.....	3
2.2	Background .....	3
2.3	Our Approach.....	5
2.4	Housing Typologies and Values.....	7
3	Market Considerations.....	12
3.1	Demand Considerations - Who is the Customer?.....	12
3.2	Supply Considerations.....	15
3.3	Emerging Intensive Housing models.....	16
4	Population and Household Trends.....	19
4.1	Population.....	19
4.2	Households .....	22
4.3	Housing Supply.....	29
4.4	Summary Comment .....	34
5	Forecasting Future Demand.....	35
5.1	Population.....	35
5.2	Households .....	36
5.3	Meeting Future Housing Demand.....	38
5.4	Summary comment.....	39
6	Development Capacity and Feasibility Assessment.....	41
6.1	Residential 'A' Intensification Areas .....	41
6.2	Residential 'B' Intensification Areas .....	46
6.3	Residential 'C' Intensification Areas .....	52
6.4	Development Capacity and Feasibility – Concluding Comment .....	54

# 1 Executive Summary

This report has been prepared at the request of the Manager Environmental Policy at Hutt City Council, and looks at the potential for residential intensification in fourteen selected suburban locations (the study areas) across Hutt City over the next thirty years.

## The Brief

HCC has asked Gray Partners Limited to provide an evidence-based report that includes:

- An estimate of future demand for housing in each study area that meets the housing assessment requirements of the recently-released National Policy Statement on Urban Development Capacity (NPS).
- A discussion of the 'triggers' that could increase the supply of medium density housing in the selected locations, and the forms of medium density housing that are likely to emerge.
- An informed view on whether there will be sufficient demand in each of the study areas over the next thirty years to support the introduction of Type 'A' 'B' and 'C' rules, which have been specifically designed to promote different forms of residential intensification..

## Housing Demand

To meet the brief, we have first attempted to establish who the customer for intensive housing product is likely to be in Hutt City over the short term (the next three years), medium term (ten years) and longer term (thirty years):

- Based on recent population and household trends, and future housing projections, we expect a different mix of intensive housing consumers to emerge in lower, middle and higher-priced housing markets, ranging from first home buyers to downsizers, private investors and social housing providers.
- Non-family households are likely to be the main consumers of more intensive forms of housing. This is because over 80% of net household growth over the next 30 years will be single person and couple households, many of whom will be in the post-family phases of their life cycle.
- According to recent Census-based forecasts, total housing demand in Hutt City is expected to grow by about 4,800 units between 2016 and 2043, about 4,100 of which are expected to be in the study areas. This is substantially lower than the housing growth projections used for Hutt City's *Urban Growth Strategy 2012-31*, which aimed to see 6,000 new housing units added to the City's housing stock over a twenty year period.

In our view, the latest census-based growth forecasts understate Hutt City's future growth potential because they are based on abnormally slow growth over the inter-census period 2006-13, and also do not take into account the impact of recent state housing clearances on net household growth rates.

In line with the Urban Growth Strategy's more aspirational approach, we suggest the adoption of a new housing target for planning purposes, (say) 6,000 units over the next 30 years, which would help to cushion the City from any future surges in migration levels, and compensate for distortions in the current forecasts.

To achieve this target, at least 5,000 of the units would need to be sourced from within the selected locations, or from apartment development in the CBD and Petone Central, over the next thirty years.

### **Planning for Growth**

What contribution can be expected from the proposed new Type 'A', 'B' and 'C' residential intensification zones? Our analysis suggests that each will make a positive contribution, although there will be challenges:

- Commercial considerations, existing patterns of subdivision, and complex ownership structures will constrain the number of properties likely to become available for redevelopment over the next thirty years.
- The resilience of existing uses in these areas will also be a factor, especially on smaller parcels where improvement values make up a significant proportion of property value, and in higher value areas where purchasers are prepared to pay a premium for large-lot housing.

In our view, Type 'A' provisions are likely to work best in high-value areas that adjoin the existing CBD and Petone commercial areas, and in Eastbourne, Alicetown and (over time) Waterloo. Type 'B' zoning rules are likely to find favour with developers in most of the proposed areas.

Based on current market conditions, there are about 1,000 properties in the proposed Type 'A' and 'B' areas with commercially-viable redevelopment potential, with a maximum potential net yield of about 3,000 units. Type 'C' provisions could deliver a further 1,000 units over the planning period on sites of more than 2,000 m<sup>2</sup>.

Type 'C' rules could be far more effective, however, if the minimum lot size for qualifying developments was scaled back from the proposed minimum of 2,000 m<sup>2</sup> to (say) 1,400 m<sup>2</sup>. At these levels, a developer would only need to amalgamate two or three standard-sized lots (depending on area) for a viable development. Pre-development holding costs would thus be more manageable, and the overall scale of development more likely to attract smaller builder-developers and investors.

### **Concluding Comments**

The key message from this assessment is that the proposed Type 'A' 'B' and 'C' intensification area provisions are likely to make a positive contribution to meeting HCC's growth targets, but are unlikely in themselves likely to deliver enough new housing to meet the shortfall between the City's currently-planned development pipeline (mostly greenfields and already-consented projects), and expected housing demand.

To achieve a target of 6,000 new housing units over the next 30 years, the CBD and Petone Central will also need to deliver apartment numbers in line with earlier expectations. Risks associated with flooding and other natural events will also need to be mitigated if high-growth areas like Petone East are to have an opportunity to contribute at previously-forecast levels.

Other forms of intensification will also be needed, for instance increasing densities in future greenfields development areas, and growing the number of infill housing and small lot redevelopment opportunities in the wider general residential zone.

## 2 Introduction

### 2.1 Preamble

This paper has been prepared at the request of the Manager Environmental Policy at Hutt City Council (HCC). The paper summarises findings from the Residential Intensification Supply and Demand Research Project.

### 2.2 Background

Hutt City Council (HCC) is considering changes to the District Plan with a view to encouraging residential intensification in selected suburban locations. This is in partial response to Council's *Urban Growth Strategy*, which called for 6,000 new homes to be constructed in the City over the next twenty years, to cater for a projected population increase (2006 Census base) of almost 12,000 between 2012 and 2032.

A number of larger greenfields sites in the Urban Growth Strategy were also identified that could support future comprehensive redevelopment without having a substantial impact on the suburban character of adjoining housing.

In order to implement these changes a planning review prepared by the Environmental Policy Group in conjunction with Jacobs (NZ) Ltd and released under the title *Planning for the Future* in September 2016<sup>1</sup> has been completed. In brief, the review assessed the redevelopment potential of Hutt City's suburbs against a shared set of evaluation criteria, including proximity to public transport nodes, attributes of the local commercial centre, availability of land for future comprehensive development, and access to public amenities like schools and parks.

Fourteen suburban locations were assessed as having potential to support residential intensification:

<b>Alicetown</b>	<b>Avalon</b>	<b>Boulcott</b>	<b>CBD edge</b>	<b>Eastbourne</b>
<b>Epuni</b>	<b>Moera</b>	<b>Naenae</b>	<b>Petone East</b>	<b>Stokes Valley</b>
<b>Taita</b>	<b>Waiwhetu</b>	<b>Waterloo</b>	<b>Wainuiomata</b>	

The review's preliminary recommendations are for the City's existing medium density housing zone to be replaced by two new zones and revisions of the existing residential District Plan provisions, each designed to encourage different forms of residential intensification in designated areas:

**Type 'A' Intensification** areas would permit mixed-use development up to 12 metres high (four levels) primarily in existing suburban centres and extending outside some suburban centre zones. These zones were identified primarily around existing suburban centres and within 400 metres of suburban railway stations. Key features of this typology are a focus on commercial and retail activity on the ground floor, with apartment-style living above. Other features include no minimum lot size or maximum site coverage requirements, liberal height plane and yard rules, and communal car parking in preference to a per-unit requirement.

The Type 'A' Intensification approach is seen as a longer-term option, providing for further capacity and flexibility in design approaches and is largely dependent

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<sup>1</sup> Ref. Hutt City/*Planning for the Future/A long term vision for future housing growth and choice*, HCC September 2016

on demand growth for apartment-style housing (and corresponding growth in local economic activity) in each of the selected suburbs.

Rules governing **Type 'B' Intensification** areas would permit intensive residential development up to 10 metres (three levels) high in designated areas that lie within 400 metres of local suburban centres and major transport nodes. These zones are primarily in the existing medium density zone but provide for a higher intensity of development. The aim is to encourage multi-unit townhouse and apartment development in these areas in preference to infill housing. Features of the proposed zones include no minimum site area, up to 60% permitted site coverage, minimal setback requirements and communal car parking away from the street front.

**Type 'C' Intensification** rules are designed for larger (2,000 m<sup>2</sup> or more) sites located outside of the two new intensification zones in the residential zone. Key features are an ability to build up to 10 metres (3 levels) increasing maximum site coverage to 60%, smaller outside space requirements and provision for one park per unit. Recession planes to the existing general residential zone would be in place for non-street boundaries to maintain amenity of adjoining general residential properties and a minimum site area of 150m<sup>2</sup> would be provided, with an overall average net site area of no more than 200m<sup>2</sup> per residential building. .

The review estimated that approximately 8000 new residential units could be delivered under the proposed Type A and B rules, of which about 3,000 would be needed to replace existing housing lost to comprehensive redevelopment.

### The Brief

HCC is now looking for an informed view on whether there will be sufficient demand in each area over the next thirty years to support the introduction of Type 'A' 'B' and 'C' rules. HCC has also asked for comment on whether the assumptions in the earlier document are a reasonable basis for determining potential yields from the proposed intensification areas. Also, whether the changes proposed make commercial sense and thus have a reasonable chance of success.

HCC has asked Gray Partners Limited to provide an evidence-based report that includes:

- An estimate of future demand for medium density housing, along lines required under the NPS, for housing in each location.
- A discussion of the 'triggers' that will increase the supply of medium density housing in the selected locations, and the forms of medium density housing that are likely to emerge as a result of the proposed provisions.

In particular, HCC is looking for the research to provide estimates that meet the housing assessment requirements of the new National Policy Statement on Urban Development Capacity (NPS):

*PB1: Local authorities must, by the end of 2018, or within 12 months of becoming a Medium or High Growth Urban Area, and thereafter on at least a three-yearly basis, carry out:*

*A Housing Assessment that estimates the demand for dwellings, including the demand of different groups in the population for different types of dwellings, locations and price points, and the supply of development capacity to meet that demand, in the short, medium and long-terms...*



*PB2: In carrying out the assessments required under policy PB1, local authorities must have particular regard to ...demographic change, including population growth and household size projections.*

For the avoidance of doubt, the researcher has not been asked to provide business land assessments or comment on future changes in the sectoral composition of the local economy. These are also required for medium and high growth areas under the new NPS, but are outside of the scope of this study

## 2.3 Our Approach

Our approach to this project is built around four research phases:

### 1. Housing Market Profile

The first step is to build a picture of the local housing market. Who, for instance is likely to be the customer for intensive housing in each study area? What forms of intensive housing are finding favour amongst developers and house-hunters? What price points are realistic in each location?

Commentary is based on feedback from local agents and development professionals, and a scan of recent property sales and consents data. The main research outputs from this phase are a set of housing typologies to be used in later commercial modelling, including a pricing schedule, which sets out a nominal market value for each housing type in each of the fourteen sub-markets analysed for this report.

We have also compiled a commentary on different market segments, and developer thinking about what type of new housing delivers the best results in the current housing market.

### 2. Study Area Profiles

Secondly, we have compiled a population and household profile for each of the fourteen study areas, based on data from the 2013 Census. This provides us with an evidence-based understanding of the forces shaping demand for housing in each study area, for instance the impact of aging, changing household composition, income and tenure trends.

The main research outputs from this phase are a detailed set of household projections for each area over the short, medium and longer term, disaggregated by age and household type<sup>2</sup>.

### 3. Redevelopment Potential within Each Study Area

This phase involves a finer-grained assessment of all properties within the fourteen study areas, to come up with an independent view on potential yields through intensification. Data is sourced largely from HCC's rating database, filtered to take out those properties that we regard as too small for 'sensible' redevelopment and/or priced too high to support commercially-viable redevelopment activity.

The main research output from this phase is a comparison of the yield calculations from the *Planning for the Future* report, with those based on our own input assumptions.

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<sup>2</sup> In some cases, the boundaries between projections data and historical trend data do not fully align,

## 4. Commercial Analysis

The commercial analysis is based on a simplified development feasibility assessment tool to identify what a developer could afford to pay for development land in each area, and what forms of higher-density housing are likely to deliver a reasonable margin.

### Modelling Assumptions

Because each case study covers (on average) about 2,000 dwellings, our analysis is necessarily 'broad brush', designed to illustrate the housing potential of each study area, rather than represent actual returns a developer could expect from a specific project.

- Each analysis is based on a standard set of housing typologies
- Estimates of the value of completed developments are based on recent selling prices for similar housing, and advice from real estate and valuation professionals working in the area.
- Rental costs are derived from MBIE market rental data.
- Cost estimates for civil works are based on a site with a favourable contour and good access to the street and to services.
- In the interests of good urban design we have adopted a minimum average lot size of 120 m<sup>2</sup> for townhouse-style units (depending on location), and 200 m<sup>2</sup> per footprint in cases where there is more than one dwelling per building footprint (e.g. one and two bedroom apartments built over two or three levels).
- Car parking space requirements for townhouse developments are based on a single park for all units that do not have attached garages. No allowance has been made for visitor parking. For apartment's we have also adopted one park per unit, but varied this where necessary to achieve better yields.
- A wastage provision of 5-10% of land area has been included to reflect parts of the site that cannot be practically used for construction or personal open space or vehicle access/parking.
- Construction costs are based on our understanding of what is being paid by developers for similar housing forms. We have assumed stick and slab construction for all townhouse and duplex-style housing up to three levels, and adopted a \$2,000- \$2,200 psm (excl. GST) base build cost, depending on unit size and quality, excluding professional fees and consents, decks and carports, landscaping and contingency.
- For Area 'A' units, we have a higher psm rate (\$2,800-\$3,000 psm) to reflect more expensive construction methods required.
- Discussions on profitability are based on a 10-15% margin of net realisations for smaller developments, rising to 20% for larger, higher risk developments.
- Professional fees, selling fees etc include a level of discount that a developer would normally negotiate for a multi-unit project.
- We have adopted a one to three year development timeframe (depending on project size and complexity) including sell down.
- Other costs (including development contributions, consents and finance costs) are nominal based on current practice.

## 2.4 Housing Typologies and Values

The tables overleaf summarise the housing typologies, sale and rental values used for the analysis. A more detailed discussion of each typology is included in the next section (ref. *Emerging Medium Density Housing Models* below).

In brief, we have selected a range of building forms that are consistent with the proposed Residential Intensification Area objectives, and would appeal to a wide range of owner-occupiers, investors and rental housing consumers. For intensification Type 'A' areas, buildings are assumed to be three or four levels containing a mix of commercial and residential uses, with concrete and steel frame construction. Pricing assumptions for commercial and office units are based on sales and leasing activity in the six months to September 2016. For apartments, pricing is somewhat nominal given the lack of recent exemplars across the study areas.

**Table 2.1: Hutt City Proposed residential Intensification 'A' Areas - Unit Typologies**

			Net living area per unit m <sup>2</sup>	Stairs & common areas Multiplier	Gross area p/unit m <sup>2</sup>	Decks or patio areas m <sup>2</sup>	Maximum building height m	Specification and parking
<b>Level 2- 4 Apartments</b>								
1	Bdr	Single level apartment	50	15%	58	4	12	1 bath open plan living, communal parking
2	Bdr	Single level apartment	60	15%	69	6	12	
2	Bdr	Higher spec apartment	70	15%	81	8	12	1.5bath open plan living, communal parking
<b>Level 1-2 Commercial Office Space</b>								
50	m <sup>2</sup>	Small office space	50	10%	55	0	12	No parking provided for first 500 m <sup>2</sup>
100	m <sup>2</sup>	Office incl. lift & fitout	100	10%	110	0	12	No parking provided for first 500 m <sup>2</sup>
200	m <sup>2</sup>	Office incl. lift & fitout	200	10%	220	0	12	No parking provided for first 500 m <sup>2</sup>
<b>Level 1 Commercial/Retail</b>								
50	m <sup>2</sup>	Ground floor retail	50	0%	50	0	12	No parking provided for first 500 m <sup>2</sup>
75	m <sup>2</sup>	Ground floor retail	75	0%	75	0	12	No parking provided for first 500 m <sup>2</sup>
100	m <sup>2</sup>	Ground floor retail	100	0%	100	0	12	No parking provided for first 500 m <sup>2</sup>

\* Allow 30-50 m<sup>2</sup> for entry foyer depending on scale

For 'B' and 'C' areas, all buildings are assumed to be residential, built over two or three levels and configured as attached townhouses or apartments in small blocks. Provision for car parking is either via communal parking areas, dedicated external parks or internal garaging for higher-spec housing.

**Table 2.2: Hutt City Proposed residential Intensification 'B' and 'C' Areas – Housing Typologies**

			Net living area per unit m <sup>2</sup>	Gross floor area p/unit m <sup>2</sup>	Decks or patio areas m <sup>2</sup>	Average footprint p/unit m <sup>2</sup>	Average land area p/unit m <sup>2</sup>	Maximum building height m	Unit spec
1	Bdr	Single level walk-up apartment (in 2-3 level block)	50	55	4	20-30	100	10	1 bath open plan living
2	Bdr	Single level walk-up apartment (in 2-3 level block)	60	66	6	25-35	100	10	
2	Bdr	Apartment with lift (in 2-3 level block)	66	73	6	30-40	100	10	1.5 bath open plan living
2	Bdr	Standard Townhouse (2 level) - No Garage	80	80	8	40	150-200	10	1 or 1.5 bath , open plan incl. small study area
3	Bdr	Standard Townhouse (2 level) - No Garage	100	100	8	50	150-200	10	
2 - 3	Bdr	Townhouse (2-3 level) - Single Garage	95	125	10	70	150-200	10	Open plan 1.5 bath
3 - 4	Bdr	Executive Townhouse (3 level) - Double Garage	115	150	10	60	150-200	10	Open plan 2 bath
4	Bdr	Investment Townhouse (3 level) - No Garage	120	120	8	40	150-200	10	Open plan 2 bath

Sale values for 'B' and 'C' zones are based on an analysis of recent sales of new-build housing, augmented by discussions with agents working across the study areas. Pricing has also been informed by sale values in other markets (for instance Wellington City) where there is already a buoyant market for apartments and townhouses. Rental values are based on average MBIE upper quartile rents for each area in the six months to September 2016.

While our assumptions have been peer reviewed by a registered valuer, they may be up or down in different locations. Overall, however, they should provide enough points-of-difference to consider the impact of variables like location on the commercial viability of medium density development.

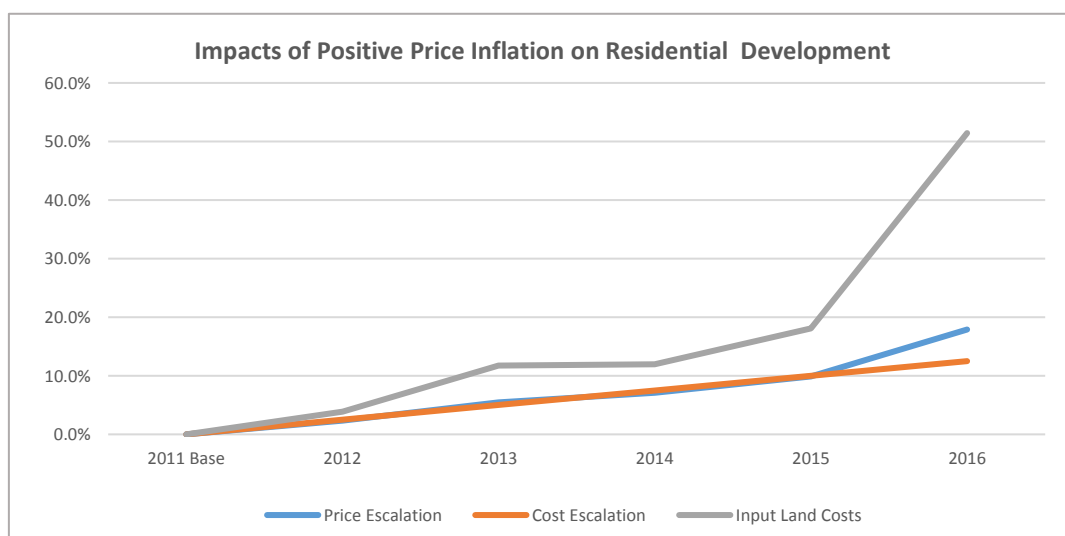
### A Note on Pricing

Arguably, our pricing assumptions are somewhat bullish compared to recent sales evidence (at least on a per square metre basis). We live in a constantly changing market environment, however.

At the time of writing, Hutt City market was experiencing a 'perfect storm' of low interest rates, Reserve Bank deposit incentives for new home building, reduced inventory (compared to previous years) and a small increase in investor purchasers from outside the region. This mix has already contributed to price inflation over the first half of 2016, and may continue into 2017.

Price escalation can substantially change the viability of multi-unit development, especially the input value of land within each of the proposed residential Intensification Areas. This is illustrated in the table below, which is based on applying recent changes in the residential price index to a standard six townhouse development built under Wellington City's Medium Density Residential Area (MDRA) rules in 2011 on an 800 m<sup>2</sup> site. The analysis assumes development cost inflation of 3% per year, and a target development margin of 15%.

- The 2011 market price for new units was \$400,000 (incl. GST). Based on the residential price index, each new unit would now have a sale value of about \$500,000 (incl. GST).
- The developer paid \$390,000 for the development site in 2011, but could now afford to pay about 50% more, and still achieve the same 15% development margin.



The net effect is that, for the greater proportion of larger residential sites within Hutt City's proposed Residential Intensification Areas, comprehensive redevelopment could become more commercially attractive as values rise - and developers gain confidence that there is a market for attached housing product. Conversely, prices for standard-sized sections may rise faster than for townhouses and apartments which would make it more difficult to deliver a commercially-viable intensive housing development.

Even under favourable market conditions, however, there is unlikely to be a flood of new development in our study areas. Suitable sites for redevelopment are generally owned by people whose decision to sell may be driven by other-than-commercial considerations, such as work transfer, trading up or trading down on retirement.

Table 2.3: Hutt City Study Areas – Pricing Assumptions for 'A' Areas

			Stokes Valley	Taita	Naenae	Avalon	Epuni	Waterloo	CBD Edge	Alicetown - Melling	Waiwhetu	Moera	East-bourne	Wainui-omata
<b>Level 3 &amp; 4 Apartments (MBIE uper quartile) p/wk</b>														
1	Bdr	Single level apartment (in 3-4 level block)	\$250	\$225	\$225	\$275	\$300	\$300	\$350	\$300	\$275	\$250	\$350	\$250
2	Bdr	Single level apartment (in 3-4 level block)	\$350	\$300	\$300	\$375	\$400	\$400	\$450	\$400	\$350	\$300	\$425	\$300
2	Bdr	Apartment (in 3-4 level block)	\$350	\$325	\$325	\$400	\$425	\$425	\$475	\$425	\$350	\$300	\$450	\$300
<b>Level 2 Commercial Office Space (psm net)</b>														
50	m2	Standard comercial space	\$175	\$175	\$175	\$175	\$175	\$175	\$250	\$175	\$175	\$175	\$225	\$175
100	m2	Office space incl lift & fitout	\$175	\$175	\$175	\$175	\$175	\$200	\$250	\$200	\$175	\$175	\$250	\$175
200	m2	Office space incl lift & fitout	\$175	\$175	\$175	\$175	\$175	\$175	\$225	\$175	\$175	\$175	\$225	\$175
<b>Level One Commercial Retail (psm net)</b>														
50	m2	Ground floor retail	\$175	\$175	\$175	\$250	\$250	\$300	\$250	\$250	\$200	\$200	\$300	\$175
75	m2	Ground floor retail	\$175	\$175	\$175	\$225	\$225	\$250	\$225	\$225	\$175	\$175	\$250	\$150
100	m2	Ground floor retail	\$160	\$160	\$160	\$200	\$200	\$250	\$225	\$200	\$160	\$160	\$250	\$160
<b>Target Yields (Net)</b>														
<b>Level 3 &amp; 4 Apartments</b>														
1	Bdr	Single level apartment (in 3-4 level block)	5.0%	5.0%	5.0%	5.0%	5.0%	4.0%	4.0%	4.0%	5.0%	5.0%	4.0%	4.0%
2	Bdr	Single level apartment (in 3-4 level block)	5.0%	5.0%	5.0%	5.0%	5.0%	4.0%	4.0%	4.0%	5.0%	5.0%	4.0%	4.0%
2	Bdr	Apartment (in 3-4 level block)	5.0%	5.0%	5.0%	5.0%	5.0%	4.0%	4.0%	4.0%	5.0%	5.0%	4.0%	4.0%
<b>Level 2 Office Space</b>														
50	m2	Standard comercial space	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
100	m2	Office space incl lift & fitout	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
200	m2	Office space incl lift & fitout	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
<b>Level One Retail</b>														
50	m2	Ground floor retail	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
75	m2	Ground floor retail	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
100	m2	Ground floor retail	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
<b>Nominal Sale Value by Type</b>														
<b>Level 3 &amp; 4 Apartments</b>														
1	Bdr	Single level apartment (in 3-4 level block)	\$197,500	\$177,750	\$177,750	\$217,250	\$237,000	\$296,250	\$345,625	\$296,250	\$217,250	\$197,500	\$345,625	\$246,875
2	Bdr	Single level apartment (in 3-4 level block)	\$276,500	\$237,000	\$237,000	\$296,250	\$316,000	\$395,000	\$444,375	\$395,000	\$276,500	\$237,000	\$419,688	\$296,250
2	Bdr	Apartment (in 3-4 level block)	\$276,500	\$256,750	\$256,750	\$316,000	\$335,750	\$419,688	\$469,063	\$419,688	\$276,500	\$237,000	\$444,375	\$296,250
<b>Level 2 Office Space</b>														
50	m2	Standard comercial space	\$145,833	\$145,833	\$145,833	\$145,833	\$145,833	\$145,833	\$208,333	\$145,833	\$145,833	\$145,833	\$187,500	\$145,833
100	m2	Office space incl lift & fitout	\$269,231	\$269,231	\$269,231	\$269,231	\$269,231	\$307,692	\$384,615	\$307,692	\$269,231	\$269,231	\$384,615	\$269,231
200	m2	Office space incl lift & fitout	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$642,857	\$500,000	\$500,000	\$500,000	\$642,857	\$500,000
<b>Level One Retail</b>														
50	m2	Ground floor retail	\$175,000	\$175,000	\$175,000	\$250,000	\$250,000	\$300,000	\$250,000	\$250,000	\$200,000	\$200,000	\$300,000	\$175,000
75	m2	Ground floor retail	\$218,750	\$218,750	\$218,750	\$281,250	\$281,250	\$312,500	\$281,250	\$281,250	\$218,750	\$218,750	\$312,500	\$187,500
100	m2	Ground floor retail	\$246,154	\$246,154	\$246,154	\$307,692	\$307,692	\$384,615	\$346,154	\$307,692	\$246,154	\$246,154	\$384,615	\$246,154

**Table 2.4: Hutt City Study Areas – Pricing Assumptions for 'B' and 'C' Areas**

			Nominal Price Points													
			Stokes Valley	Taita	Naenae	Avalon	Epuni	Waterloo	Boulcott	CBD Edge	Alicetown / Melling	Waiwhetu	Moera	Petone East	East-bourne	Wainui-omata
1	Bdr	Single level walk-up apartment (in 3 level block)	\$220,000	\$220,000	\$220,000	\$275,000	\$275,000	\$275,000	\$302,500	\$385,000	\$316,250	\$275,000	\$247,500	\$385,000	\$385,000	\$233,750
2	Bdr	Single level walk-up apartment (in 3 level block)	\$264,000	\$280,500	\$264,000	\$330,000	\$330,000	\$330,000	\$363,000	\$462,000	\$379,500	\$330,000	\$297,000	\$462,000	\$462,000	\$280,500
2	Bdr	Apartment with lift (in 3-4 level block)	\$319,440	\$339,405	\$339,405	\$399,300	\$439,230	\$439,230	\$439,230	\$559,020	\$459,195	\$439,230	\$359,370	\$559,020	\$559,020	\$339,405
2	Bdr	Standard Townhouse (2 level) - No Garage	\$360,000	\$400,000	\$400,000	\$440,000	\$480,000	\$500,000	\$520,000	\$600,000	\$550,000	\$500,000	\$450,000	\$550,000	\$540,000	\$380,000
3	Bdr	Standard Townhouse (2 level) - No Garage	\$425,000	\$450,000	\$450,000	\$525,000	\$550,000	\$575,000	\$595,000	\$650,000	\$600,000	\$550,000	\$500,000	\$625,000	\$650,000	\$450,000
2 - 3	Bdr	Townhouse (2-3 level) - Single Garage	\$437,500	\$500,000	\$500,000	\$562,500	\$625,000	\$650,000	\$687,500	\$687,500	\$650,000	\$600,000	\$540,000	\$687,500	\$700,000	\$437,500
3 - 4	Bdr	Executive Townhouse (3 level) - Double Garage	\$525,000	\$562,500	\$562,500	\$600,000	\$675,000	\$700,000	\$750,000	\$825,000	\$725,000	\$650,000	\$600,000	\$825,000	\$800,000	\$525,000
4+	Bdr	Investment Townhouse (3 level) - No Garage	\$480,000	\$450,000	\$450,000	\$480,000	\$540,000	\$570,000	\$600,000	\$660,000	\$610,000	\$560,000	\$480,000	\$660,000	\$660,000	\$450,000

			Indicative market rentals (MBIE market rent upper quartile base)													
			Stokes Valley	Taita	Naenae	Avalon	Epuni	Waterloo	Boulcott	CBD Edge	Alicetown / Melling	Waiwhetu	Moera	Petone East	East-bourne	Wainui-omata
1	Bdr	Single level walk-up apartment (in 3 level block)	\$250	\$225	\$225	\$275	\$300	\$300	\$300	\$350	\$300	\$275	\$250	\$350	\$350	\$250
2	Bdr	Single level walk-up apartment (in 3 level block)	\$350	\$300	\$300	\$375	\$400	\$400	\$400	\$450	\$400	\$350	\$300	\$450	\$425	\$300
2	Bdr	Downsizer apartment with lift (in 3 level block)	\$350	\$325	\$325	\$400	\$425	\$425	\$425	\$475	\$425	\$350	\$300	\$475	\$450	\$325
2	Bdr	Standard Townhouse (2 level) - No Garage	\$400	\$400	\$400	\$450	\$450	\$450	\$475	\$500	\$450	\$400	\$375	\$500	\$475	\$350
3	Bdr	Standard Townhouse (2 level) - No Garage	\$500	\$450	\$450	\$500	\$500	\$500	\$575	\$600	\$550	\$500	\$450	\$600	\$575	\$400
2 - 3	Bdr	Townhouse (2-3 level) - Single Garage	\$500	\$450	\$450	\$500	\$500	\$500	\$575	\$600	\$575	\$525	\$400	\$550	\$550	\$400
3 - 4	Bdr	Executive Townhouse (3 level) - Double Garage	\$600	\$500	\$500	\$600	\$600	\$600	\$625	\$650	\$600	\$550	\$500	\$650	\$650	\$450
4+	Bdr	Investment Townhouse (3 level) - No Garage	\$650	\$500	\$500	\$600	\$600	\$600	\$625	\$650	\$650	\$575	\$525	\$700	\$650	\$450

			Indicative Net Yields at Nominal Rental and Capital Values (allow 25% for direct and indirect expenses)													
			Stokes Valley	Taita	Naenae	Avalon	Epuni	Waterloo	Boulcott	CBD Edge	Alicetown / Melling	Waiwhetu	Moera	Petone East	East-bourne	Wainui-omata
1	Bdr	Single level walk-up apartment (in 3 level block)	4.5%	4.0%	4.0%	4.0%	4.3%	4.3%	3.9%	3.6%	3.7%	4.0%	4.0%	3.6%	3.6%	4.2%
2	Bdr	Single level walk-up apartment (in 3 level block)	5.2%	4.2%	4.5%	4.5%	4.8%	4.8%	4.4%	3.8%	4.2%	4.2%	4.0%	3.8%	3.6%	4.2%
2	Bdr	Downsizer apartment with lift (in 3 level block)	4.3%	3.8%	3.8%	4.0%	3.8%	3.8%	3.8%	3.4%	3.7%	3.1%	3.3%	3.4%	3.2%	3.8%
2	Bdr	Standard Townhouse (2 level) - No Garage	4.4%	4.0%	4.0%	4.0%	3.7%	3.6%	3.6%	3.3%	3.2%	3.2%	3.3%	3.6%	3.5%	3.6%
3	Bdr	Standard Townhouse (2 level) - No Garage	4.6%	4.0%	4.0%	3.8%	3.6%	3.4%	3.8%	3.6%	3.6%	3.6%	3.6%	3.8%	3.5%	3.5%
2 - 3	Bdr	Townhouse (2-3 level) - Single Garage	4.5%	3.6%	3.6%	3.5%	3.2%	3.0%	3.3%	3.4%	3.5%	3.5%	2.9%	3.2%	3.1%	3.6%
3 - 4	Bdr	Executive Townhouse (3 level) - Double Garage	4.5%	3.5%	3.5%	4.0%	3.5%	3.4%	3.3%	3.1%	3.3%	3.3%	3.3%	3.1%	3.2%	3.4%
4+	Bdr	Investment Townhouse (3 level) - No Garage	5.3%	4.4%	4.4%	4.9%	4.4%	4.2%	4.1%	3.9%	4.2%	4.1%	4.3%	4.2%	3.9%	4.0%

**Net yields at nominal values**



### 3 Market Considerations

This section looks at some of the drivers for choosing higher-density housing over more traditional suburban housing forms. To inform the discussion we have canvassed real estate agents and developers with suburban multi-unit experience, and reviewed the composition and ownership profile of some recently-completed developments. We have also reviewed recent research into demand for medium density housing in other cities in the Wellington region.<sup>3</sup>

#### 3.1 Demand Considerations - Who is the Customer?

Based on feedback, we can expect a different customer mix in each of the study areas.

##### First Home-Buyer Couples

Throughout the Wellington regional market, first home buyer couples have been a mainstay of the higher-density housing market, attracted by a range of lifestyle and affordability factors. For higher end purchasers, the locational benefits of living closer to work and enjoying higher public amenity levels are important. For suburban first time buyers, affordability is a key driver, along with being able to access a newer, better quality housing compared to other entry level housing product.

The attractiveness of new housing to first home buyers has been reinforced in recent years by the Reserve Bank's decision to exempt new housing from its 20% deposit requirement, which means that first home buyers can access new townhouses and apartments with a deposit of only 10%.

Typically, working couples looking to buy their first home have built up a KiwiSaver nest-egg of \$30-40,000 or more, and have family members that can stand as guarantors for larger loans. Working couples earning up to \$130,000 can also access a Kiwisaver subsidy of \$20,000 on new housing (\$10,000 for singles), compared to only \$10,000 for existing housing (\$5,000 for singles).

These factors have had a major influence on price-setting in recent years, with some developers working to deliver properties at prices around the first home buyer 'sweet spot' of \$450-650,000 (depending on location).

Lower interest rates have also helped to sustain demand and price growth for new housing from working couples. This is illustrated in the table below, based on a thirty year table mortgage.

**Table 3.1: Impact of Interest Rates on New Housing Affordability (indic.)**

Weekly affordable mortgage payment	Maximum affordable home @ interest rate of					
	4.5%	5.0%	5.5%	6.0%	7.0%	8.0%
\$500	\$475,000	\$450,000	\$425,000	\$400,000	\$360,000	\$330,000
\$600	\$570,000	\$540,000	\$510,000	\$485,000	\$440,000	\$395,000
\$700	\$670,000	\$620,000	\$595,000	\$565,000	\$510,000	\$460,000
\$800	\$780,000	\$720,000	\$680,000	\$645,000	\$580,000	\$530,000

Current mortgage rates mean that dual income households with a joint income of around \$80-90,000 (gross) have been able to purchase new housing in minimum sized standard residential lots

<sup>3</sup> Ref. for instance The Wellington *Housing Forces Report* (2014) which provides an informed commentary of the drivers for change in the wider Wellington housing market to 2031, and the *Housing Viewpoints Report* which summarises feedback from consumers and the development community about future housing preferences. Both these reports are available on Wellington City Council's website.

(i.e. around 400 m<sup>2</sup>) developments in Taita (Riverside gardens), Stokes Valley (Poppy Watts and Speldhurst Grove) and Wainuiomata.

For developments in higher-priced areas like Petone, Eastbourne and locations closer to the CBD, the income threshold rises to \$110,000 and more.

The table above also serves to highlight how an upward shift in interest rates would quickly constrain the first home buyer market. For instance, we would expect a two per cent increase in mortgage rates to price out households with an income of under \$100,000 (gross) unless they had a substantially higher deposit than the current 10% base.

### Single People

A higher proportion of single people buying into multi-unit suburban developments appear to be women, including women downsizing after a separation or the death of a partner, and professional singles with a similar profile to working couple and young family first time buyers. Open space parking/garaging and suburban amenity values are considerations amongst this segment, along with security and the benefits of 'newness' such as low maintenance and better insulation.

### Small Family Households

Family purchasers are yet to become a significant part of the Wellington region's townhouse and apartment market, but do make up a sizeable proportion of owner-occupier purchasers in small-lot housing developments targeted towards the general market (for instance Riverside Gardens in Taita).

Family purchasers of compact housing are most likely to have one or two pre-school or early school age children. Feedback suggests that changing lifestyles and a preference for modernity have become more important to younger families than larger floor areas and sections. In our view, we expect standalone housing to remain the preferred (and in areas like Wainuiomata the most affordable) form of housing for families for some time to come.

### Downsizers

Agents report growing demand from older people (say 55 years and over) who have sold a larger home in favour of owning a smaller low maintenance townhouse or unit. In some cases, buyers are looking to remain in the same location, while others trade down to live in a preferred suburb.

As a general rule, older downsizers are looking to move house for the penultimate or final time, and will generally place security and accessibility high on the list of priorities. Tenure is also an issue for older purchasers, with most downsizers expressing a strong preference for freehold, and sharing space with other owner-occupiers rather than investor-owned rental housing.

As discussed below, the traditional downsizer unit in Lower Hutt is currently based on a compact version of standalone housing - single level standalone or duplex housing with an attached garage with bedrooms on the same level as living areas. Cooper Street (Taita) and Woodland Mews (Wainuiomata) are recent examples of traditional downsizer housing models, which are likely to continue to flourish in areas where low land values do not warrant the extra cost of building up.

In higher-cost areas some developers have begun to change their standard townhouse and apartment models to accommodate the needs of older people, by including lifts, garages with internal access, and fee simple titles. Kensington Green in Petone (25 units sold in 2013/14) is

perhaps the best local example, where 85% of the two-level units were sold to older purchasers, half of whom opted to install a small domestic lift.

### New New Zealanders?

Based on agent feedback, a significant percentage of those purchasing medium density housing product (50% or more in some developments) are first or second-generation New Zealanders, which reflects both the relatively high levels of inward migration from people from South and East Asia in recent years, and strong interest in property ownership. It may also reflect a willingness of people with a more urban and international background to accept less open space and floor area.

### Social Housing Providers

In recent years, the largest single consumers of compact new housing in Hutt City have been social housing providers, including Housing New Zealand, Accessible Properties Ltd, and HCC's own housing company Urban Plus Limited, which collectively account for about 20% of all new dwellings under 100 m<sup>2</sup> built since 2001.

### Private Investors

Based on agent feedback, investors are currently in the minority when it comes to purchasing new compact housing product. The bulk of investor-purchasers in Hutt City appear to be smaller investors with portfolios of 1-5 properties. We expect the 'Mum and Dad' segment to remain active, along with property partnerships - small local investor groups that spread their capital and risk over a number of properties and locations.

Hutt City is also becoming a destination for out-of-town investors, although analysts still view the 'Auckland Investor' impact as relatively minor<sup>4</sup>. That may be changing, however. One agent noted that about 25-30% of contracts in two recent lower-value developments in northern Wellington were taken up by outside investors, mostly from Auckland or offshore buyers attracted by better yields and prospects of capital growth than Auckland. We expect this trend to continue.

We are also seeing an increase in the number of 'new New Zealanders' participating in the property market as investors. These investors bring with them a different philosophy which is less about income growth in the medium term, and more about longer (in some cases inter-generational) value growth. It remains to be seen how competing investor philosophies will play out in the market.

As a general rule, projects favoured by rental investors will deliver an initial net yield in excess of 4%, with strong prospects for both rental income and capital growth. Bedroom numbers and ease of management are favoured over other amenities.

### Amenity Considerations

There is a general consensus that, in the longer term, investors and social housing providers will strongly influence the type of higher-density housing developed in lower-value suburbs. In these locations, developments with pared-back private amenity values are likely to be the norm, for instance no garages or ensuites, smaller room sizes and minimum open space areas. Lower-value developments are also likely to appeal to first home-buyers if they can be delivered at a lower price point than older standalone housing in the same location.

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<sup>4</sup> Ref QV analyst Jono Ingerson's comments in the May 2016 QV property update

By contrast, cashed-up owner-occupiers are more likely to pay a premium for higher amenity levels like useable open space, larger floor plates and better design and building quality.

Agents and developers note that indoor-outdoor living is preferred by all owner-occupier segments, which suggests that kitchen/living areas at ground level are more likely to find favour than (say) units with the ground floor taken up by garaging and an entryway.

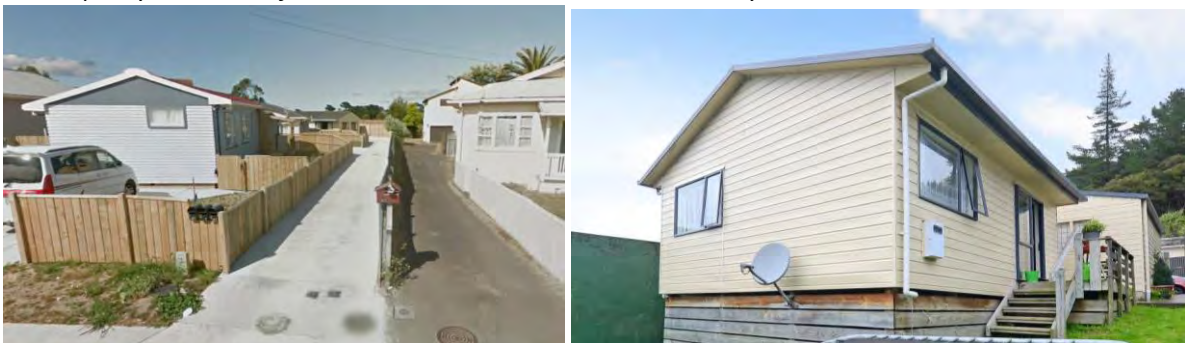
Investors will generally favour rental yield over amenity, so housing product with more bedrooms should find favour provided it is priced right. There is a limit to this logic however, as most investors look to augment rental yield with capital gain. A property that is too focused on the rental market (say 5 bedrooms spread over three levels with no garaging and limited outdoor space), is unlikely to find favour amongst owner-occupier purchasers, so its future marketability would be limited.

### 3.2 Supply Considerations

With the exception of retirement village operators and a handful of larger, established players, most recent participants in the Hutt City housing supply chain are small companies or partnerships, builder/developers and individual investors that manage their risks and cash-flows by focusing on smaller projects. Based on recent consents data, only a few of these have attempted multi-unit developments in recent years and it remains to be seen whether the community has the capacity to 'step up' and deliver expected volumes of higher density housing anticipated under the proposed planning rules.

As a general rule, recent multi-unit developments have been based around a single site purchase, ranging from several hectares for larger projects (built on ex school sites, cleared HNZN land or non-residential land rezoned for retirement villages), to single lot infill housing development. Development projects spread over two or more adjoining lots are rare, reflecting the fact that few smaller developers have pockets deep enough to permit long-term land banking, or the patience required to incrementally build development opportunities by purchasing adjoining lots over time.

*Lower-quality, small lot infill in Randwick Crescent Moera and Delaney Drive Taita*



The City's larger developers on the other hand, take a long-term view, and have recently purchased a number of larger (5,000 m<sup>2</sup> plus) land parcels in the study areas to support future development activity, including sports clubs, church and education properties.

For most developers, the key drivers are a proven market, manageable risk and an uncomplicated development platform. Lower development risk also means a willingness to accept lower margins than larger-scale developers. A threshold margin of 10%, for example, can be enough to green-light single lot for a small-scale developer, although professional investors would normally bank on higher



rate of returns, say 20% and upwards for larger projects. Smaller developers generally operate on a gut feeling of what works and what doesn't. Others take a more calculated approach, and factor in things like the deposit gap and 'sweet spot' in their development planning.

### 3.3 Emerging Intensive Housing models

Although three or more bedroom housing still makes up the bulk of new dwelling construction in the fourteen study areas, two bedroom housing has begun to feature in recent developments.

#### Small lot, single level housing

The current norm for new-build 'higher density' housing in the study areas is a single level standalone or duplex dwelling of 75-100 m<sup>2</sup> built on a 200-300 m<sup>2</sup> site. This can be contrasted with more traditional 'standard density' housing forms which tend to have bigger floorplates (120 m<sup>2</sup> or more) built over one or two levels on sites seldom less than 400m<sup>2</sup>.

*Duplex Housing in Cooper Street Taita (top) and Shona McFarlane Retirement Village, Avalon*



Based on a scan of the national property database, we estimate that at least 90% of higher density housing built in Hutt City over the past fifteen years has been single-level or duplex, mostly delivered via larger developments released into the general market (Woodland Grove, Riverside Gardens, Cooper Street) or specifically targeted at older purchasers (Molesworth Street Taita, Shona McFarlane Avalon, Pattie Street Petone). The balance is made up of infill and some single lot redevelopment.

## Townhouses

Modern townhouse developments are also rare in the fourteen study areas, and confined largely to higher value locations like Petone and Eastbourne. Latimer Way is perhaps the most successful recent example of a multi-unit suburban townhouse development built over more than one level, although the form (two levels with attached garage) is quite conservative by modern standards.

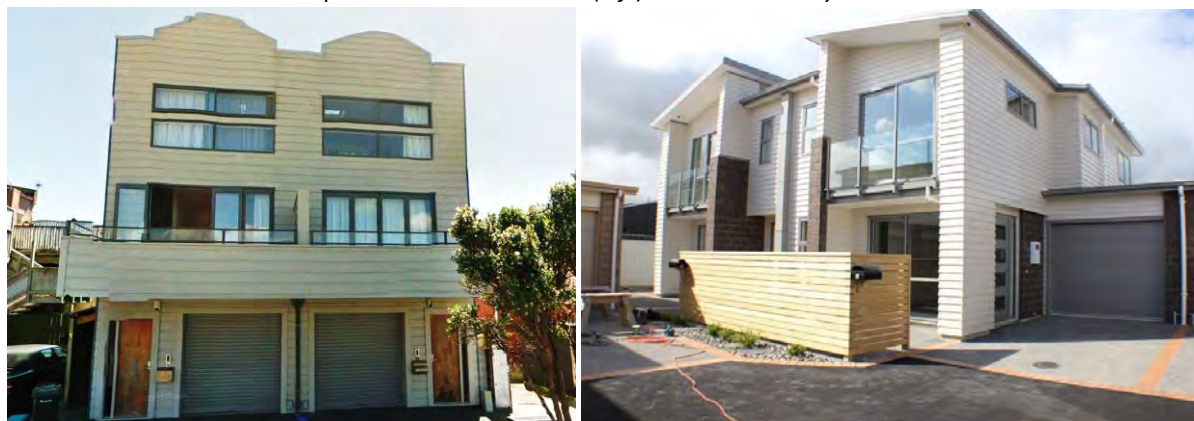
The only townhouse developments with three or more levels over the past fifteen years have been in Petone or on contoured sites in Eastbourne, where topography has constrained development yield.

Notwithstanding this, we expect that townhouse-style development will become the main form of delivering medium density housing in most study areas in the coming years, especially if guided by a planning regime that encourages development at less than the current minimum site areas of 300 and 400m<sup>2</sup> per unit in medium density and general residential zones. Emerging models in the wider Wellington marketplace include:

- Two bedroom townhouse-style units (70-80 m<sup>2</sup>) built over two levels, with car parking but no garage. These are proving popular amongst single people and couples (and to a lesser extent investors) in lower and higher value markets.
- Similar-style three bedroom townhouse units (90-100 m<sup>2</sup>) without garaging is finding favour with investor-purchasers.
- Larger two or three bedroom townhouse-style units with garaging and preferably some living space at lower ground level. These units generally sell for a premium and are likely to become the new norm in higher-value locations where down-sizers make up a significant proportion of the local market.

The exception is likely to be in areas like Wainuiomata and Stokes Valley, where low input land values are likely to favour standalone and duplex housing built over one level.

*Multi-level townhouse development in Petone Central (left) and Latimer Way*



## Apartments, units and single person housing

Outside of Petone Central and the CBD periphery, there appears to be strong market resistance to new suburban one bedroom and apartment-style housing, unless it is in a care-based retirement village setting. This is somewhat surprising given the high proportion of smaller flats and home units in most of our study areas<sup>5</sup>.

<sup>5</sup> There are numerous examples of small multi-unit complexes in suburban locations, generally built as affordable rentals or 'company share'. While popular in the 1960's and 1970's, more recent residential rules and living preferences have reduced their appeal to developers.

Perhaps current resistance is due to the lack of recent exemplars, the availability of new models like retirement villages, or negative perceptions fed by the diminishing quality of older multi-unit properties in our study areas. Whatever the reason, the effect on the supply chain is clearly evident. A scan of the national property database suggests that only a handful of new dwellings built in suburban areas over the past twenty years have featured densities greater than the standard duplex model. Pattie Street (Petone) being the most notable example.

*Recent apartment-style developments in Kensington Ave (left) and Jackson Street Petone*



In our view, the combination of aging and affordability issues will lead to a resurgence in multi-unit dwelling construction – provided that projects can deliver a comparable return to other building forms. Social housing providers are also likely to turn to smaller multi-unit construction as they work to align their portfolios with an aging customer base.

#### Other forms of residential intensification.

There are other, less visible forms of residential intensification that seldom feature in ‘planning for growth’ discussions but have the potential to make a substantial impact on future housing need. These include any increase in the supply of multiple-occupancy dwellings such as boarding houses, conversion of standalone dwellings into one or more flats, ‘granny flats’ and other changes to the building fabric to accommodate extended family households.

#### Market Considerations Summary

While two-level (and in some cases three) townhouse development have become the norm for new housing development elsewhere in the Wellington region (at least outside of main greenfields subdivisions), they have barely registered in Hutt City. The reasons behind this are probably multi-faceted, with such factors as strong residual preferences for traditional ‘valley-style housing’ and development economics playing their part.



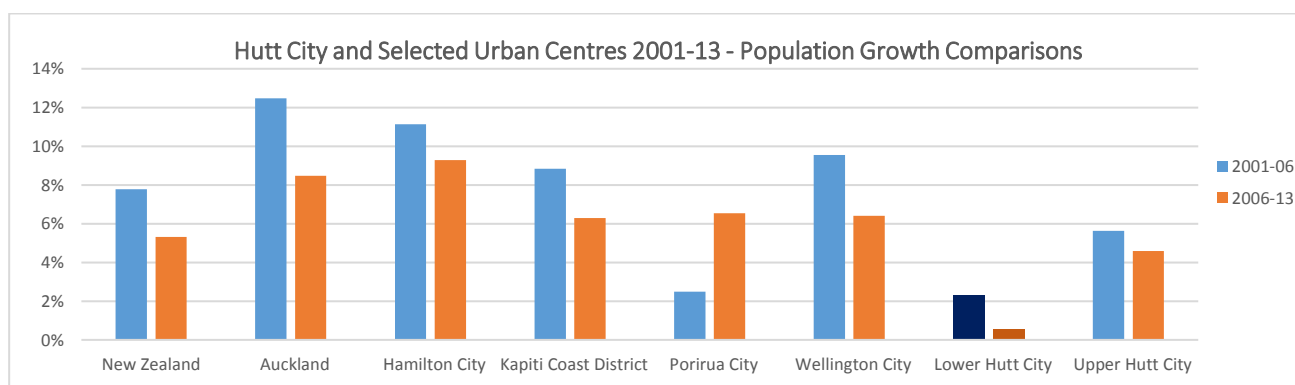
## 4 Population and Household Trends

In this section, we provide a summary overview of population and household movements in Hutt City and each of the study areas over the past fifteen years, and ask the question “... are the forces shaping local housing markets likely to support higher levels of residential intensification over the planning period?”

Data is largely sourced from the 2013 Census and based on Census Area Unit (CAU) boundaries in place at the time. Where possible, these have been reconciled with the boundaries used by HCC and Forecast.ID for their longer term growth projections.

### 4.1 Population

Hutt City currently has a population of about 101,000, more than 80% of whom live within the fourteen study areas. Somewhat surprisingly, the City has experienced substantially lower levels of population growth over the past 10-15 years compared to other urban centres in the Wellington region.



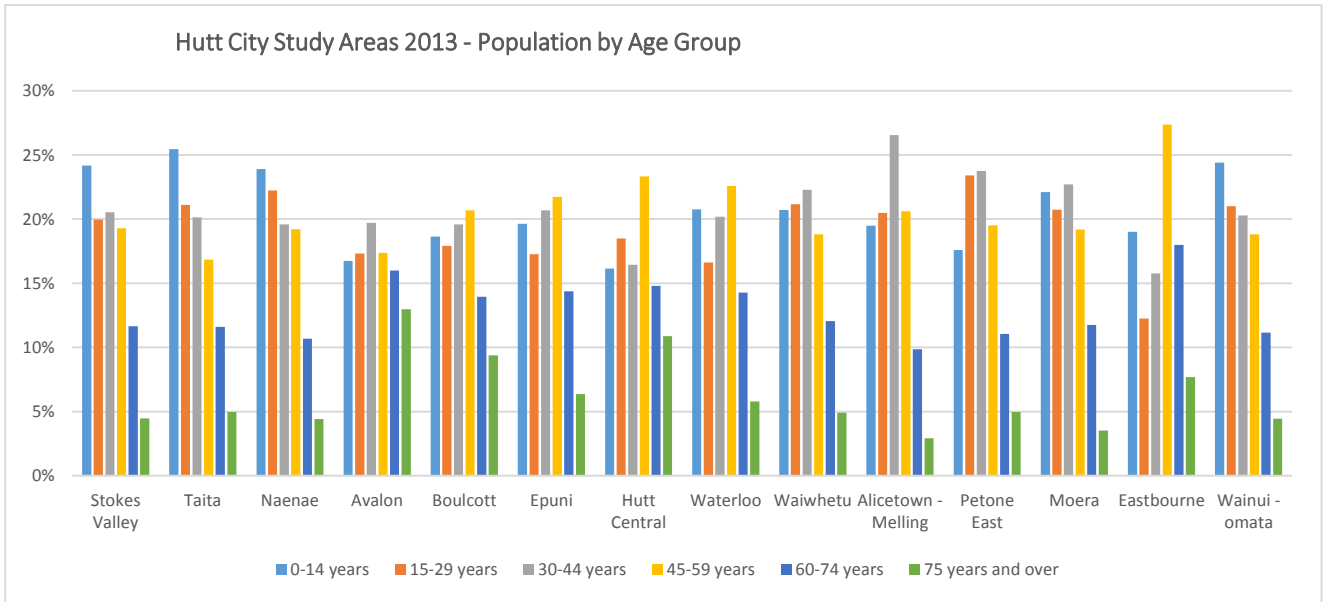
Within some of our study areas themselves, population growth is more in line with regional norms, while other locations have experienced negative growth due to aging - and as a consequence of Housing New Zealand’s decision to mothball or demolish upwards of 500 units in lower-value suburbs.

**Table 4.1: Hutt City Study Areas 2001-13 – Population Growth by Area**

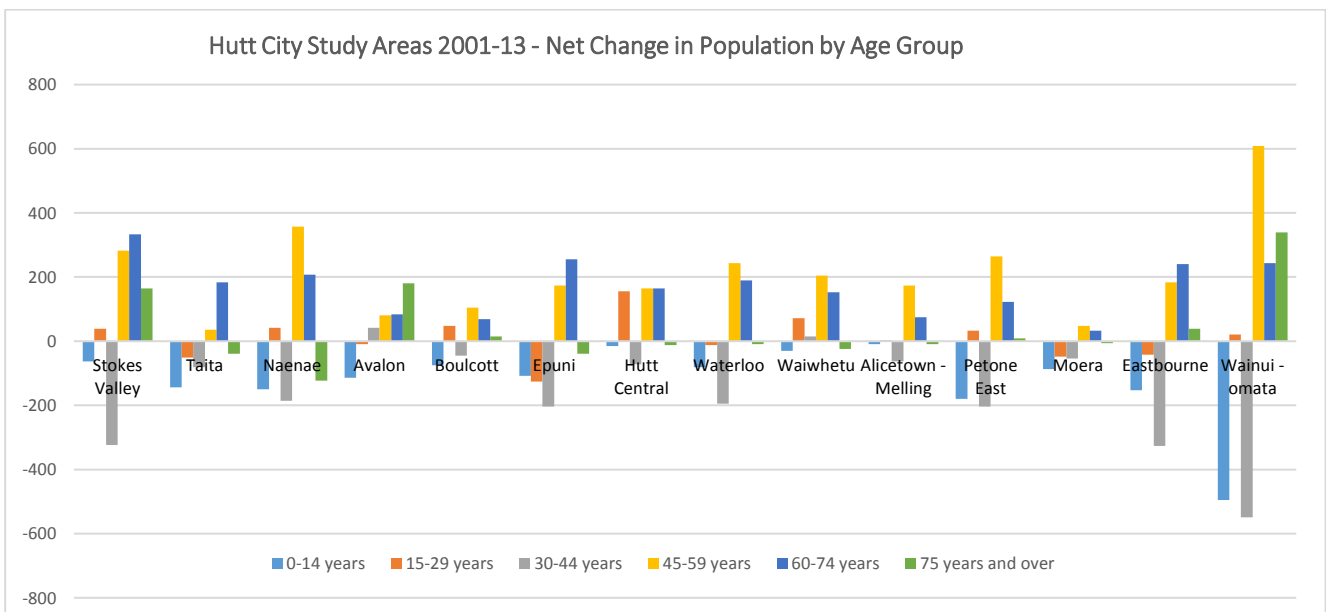
	2001	2006	Change 2001-06	2013	Change 2006-13	Change 2001-13	
						No.	%
Stokes Valley	9066	9213	2%	9510	3%	444	5%
Taita	5586	6039	8%	5484	-9%	-102	-2%
Naenae	7935	8268	4%	8085	-2%	150	2%
Avalon	4524	4635	2%	4782	3%	258	6%
Boulcott	2373	2424	2%	2496	3%	123	5%
Epuni	6039	6303	4%	5991	-5%	-48	-1%
Hutt Central	3591	3768	5%	3975	5%	384	11%
Waterloo	5004	5124	2%	5130	0%	126	3%
Waiwhetu	3576	3954	11%	3957	0%	381	11%
Alicetown -Melling	2496	2571	3%	2679	4%	183	7%
Petone East	5871	5730	-2%	5922	3%	51	1%
Moera	1641	1590	-3%	1533	-4%	-108	-7%
Eastbourne	4656	4713	1%	4605	-2%	-51	-1%
Wainuiomata	16362	16365	0%	16527	1%	165	1%
<b>Study Area Total</b>	<b>78720</b>	<b>80697</b>	<b>3%</b>	<b>80676</b>	<b>0%</b>	<b>1956</b>	<b>3%</b>
<b>Hutt City</b>	<b>95490</b>	<b>97704</b>	<b>2.3%</b>	<b>98238</b>	<b>0.5%</b>	<b>2748</b>	<b>3%</b>

### Age-related trends

The figure below illustrates age distribution patterns within each study area, reflecting local differences in family formation rates, ethnic and tenure mix, and access to post-family housing. Established areas with higher proportions of older (60 plus) residents (for instance Avalon and Eastbourne) tend to have higher rates of home ownership and/or retirement housing within their boundaries.



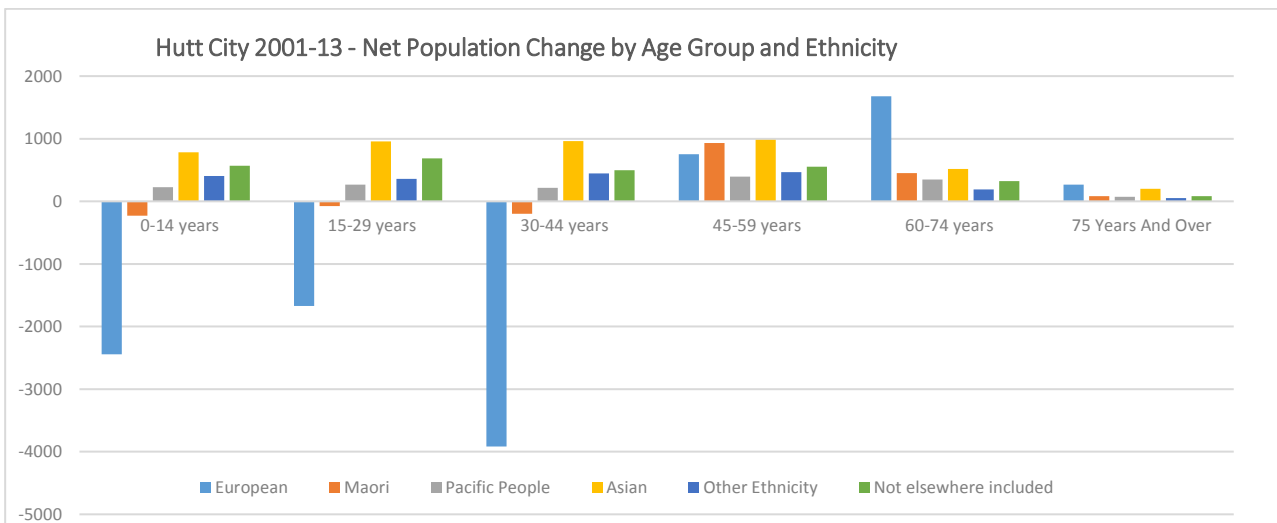
Perhaps the most noticeable age-related trend across all study areas is an overall decline in the number of adults in the family formation phase of their life cycles (30-44 years), and consequential reductions in numbers of dependent children (0-14). This is consistent with the wider aging profile for New Zealand as the baby boomer 'bubble' moves through the life cycle. The trend is most noticeable in suburbs that experienced substantial growth in the 1970's and 80's (for instance Wainuiomata and Stokes Valley) as the original residents begin to 'age in place'.



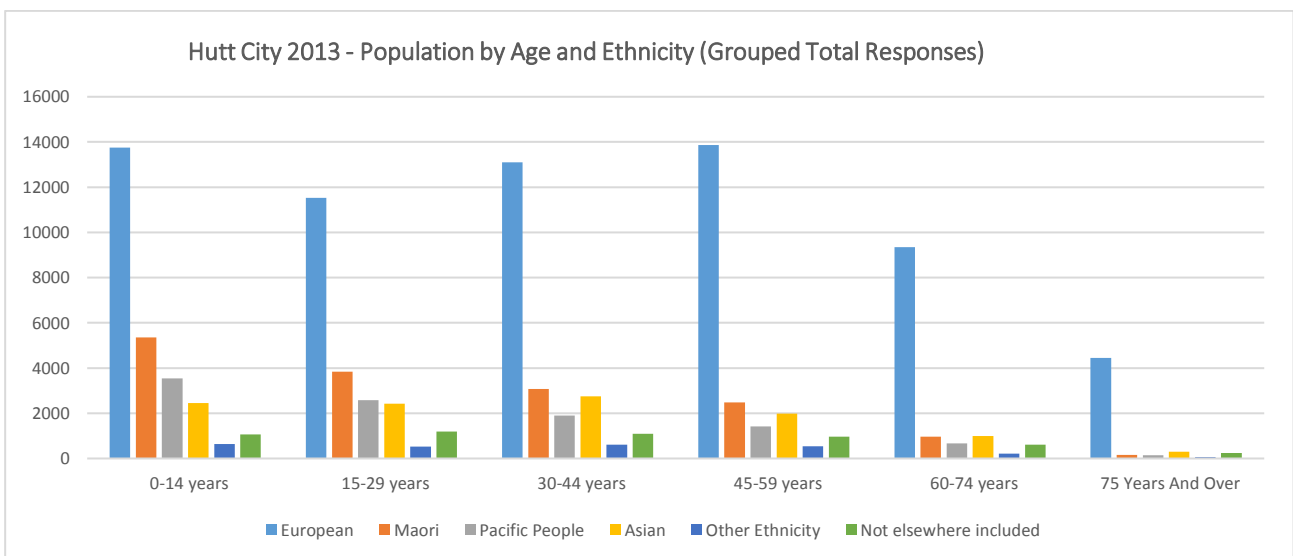
## Ethnicity

A review of city-wide data suggests that the reduction in younger age groups is largely amongst those people identifying as European, although this may be overstated due to changes in classification between censuses<sup>6</sup>. Hutt City residents who identified as European declined by about 10% between 2001 and 2013, and by 20% for those aged 30-44 years. This is partially offset by a 16% increase in those aged 60 and over.

By contrast, the number of people who identified as Asian increased by 70% between 2001 and 2013, thanks to increased regional migration in the early 2000's. Many of these 'new New Zealanders' have recently become active participants in the local housing market as they move into first home ownership and (as investors) build rental property portfolios.



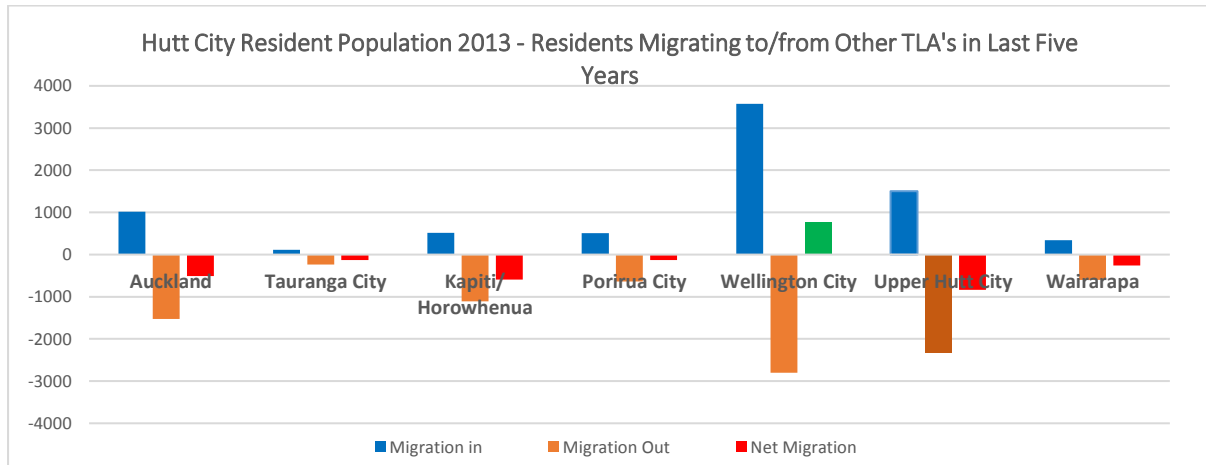
Notwithstanding these changes, Pakeha New Zealanders remain the most statistically significant ethnic group across all age groups, ranging from about 50% of all people aged under 29 years, to almost 80% of those aged 60 years and over. Maori and Pacifica populations have a higher proportion of people in younger age groups, and are likely to grow at a faster rate over the study period.



<sup>6</sup> The 2001 Census, for instance, offered a wider range of options for European New Zealanders

## Migration Trends

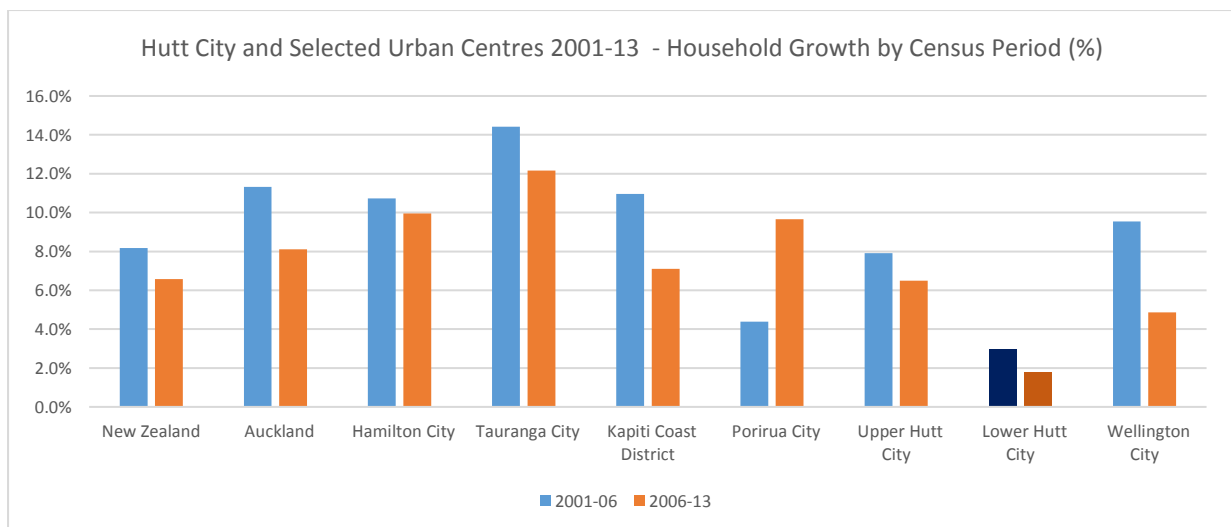
Hutt City is part of a wider regional (and in some cases national) housing market, so its fortunes are also influenced by growing opportunities outside the City boundaries. As the table below illustrates, Hutt City's losses have generally been reflected by population gains for other urban centres within the wider Wellington region and further afield – especially locations offering affordable retirement living and/or a greater number of new-build housing choices. Employment growth in Auckland and further north has also helped to limit population growth in the City in recent years.



Wellington City attracts the largest number of Hutt City residents, including tertiary students and younger workers<sup>7</sup>, although data from the 2013 census shows a *net inflow* of about 800 people from Wellington City into Hutt City between 2001 and 2013 – perhaps supporting anecdotal evidence that younger family households priced out of the Wellington City housing market are looking at more affordable options nearby?

## 4.2 Households

There are currently about 36,000 households in Hutt City, an increase of only 5% since 2001. Hutt City continues to lag behind other urban centres within the Wellington region and elsewhere.



<sup>7</sup> About two-thirds of all jobs in the wider Wellington region are located in Wellington City.

Within the study areas themselves, a number of locations experienced a net loss in household numbers between 2001 and 2013, mostly as a consequence of Housing New Zealand property management decisions. By contrast, suburbs with greenfields development capacity maintained a steady rate of growth (6% for both Stokes Valley and Wainuiomata). Waiwhetu, Hutt Central and Avalon/Boulcott also experienced above-average levels of positive growth, in part due to the release of non-residential land for new family housing and retirement village development.

**Table 4.2: Hutt City and Study Areas 2001-13 – Households by Location**

	2001	2006	Change 2001-06	2013	Change 2006-13	Change 2001-13	
						No.	%
Stokes Valley	3168	3237	2%	3366	4%	198	6%
Taita	1887	1980	5%	1875	-5%	-12	-1%
Naenae	2787	2829	2%	2835	0%	48	2%
Avalon	1782	1878	5%	1908	2%	126	7%
Boulcott	885	906	2%	906	0%	21	2%
Epuni	2274	2307	1%	2280	-1%	6	0.5%
Hutt Central	1287	1347	5%	1413	5%	126	10%
Waterloo	1917	1959	2%	1974	1%	57	3%
Waiwhetu	1392	1521	9%	1521	0%	129	9%
Alicetown -Melling	981	1014	3%	999	-1%	18	2%
Petone East	2292	2268	-1%	2322	2%	30	1%
Moera	606	597	-1%	612	3%	6	1%
Eastbourne	1836	1842	0%	1845	0%	9	0.5%
Wainuiomata	5439	5574	2%	5778	4%	339	6%
<b>Study Area Total</b>	<b>28533</b>	<b>29259</b>	<b>2.5%</b>	<b>29634</b>	<b>1.5%</b>	<b>1101</b>	<b>4.0%</b>
<b>Hutt City</b>	<b>34341</b>	<b>35361</b>	<b>3.0%</b>	<b>35988</b>	<b>1.8%</b>	<b>1647</b>	<b>4.8%</b>

About 50% of all Hutt City households are single person or couple-based, while around 40% are family with children households. Single person and couple households account for the bulk of household growth over the 2001-13 period.

**Table 4.3: Hutt City 2001-13 – Households by Household Type**

	2001	2006	2013	As % of 2013	Change 2001-13	
					No.	%
One-person household	8124	8376	8526	24%	402	5%
Couple only*	8172	8400	8592	24%	420	5%
Couple with child(ren)*	10947	11100	10908	30%	-39	0%
One parent with child(ren)*	4515	4677	4512	13%	-3	0%
Two-family household*	696	975	1128	3%	432	62%
Three or more family household*	30	60	60	0%	30	0%
Other multi-person household	1428	1455	1356	4%	-72	-5%
Household composition unidentifiable	432	321	909	3%	477	110%
<b>Total households</b>	<b>34341</b>	<b>35361</b>	<b>35988</b>		<b>1647</b>	<b>5%</b>

\* with or without other people

It is also worth noting positive growth in the number of households with two or more families living under the same roof, although this may be overstated due to classification changes. Such growth in is a useful reminder that household growth does not necessarily equate to a 1:1 increase in demand for new housing units, especially in lower income suburbs where affordability is a key driver of housing choice.

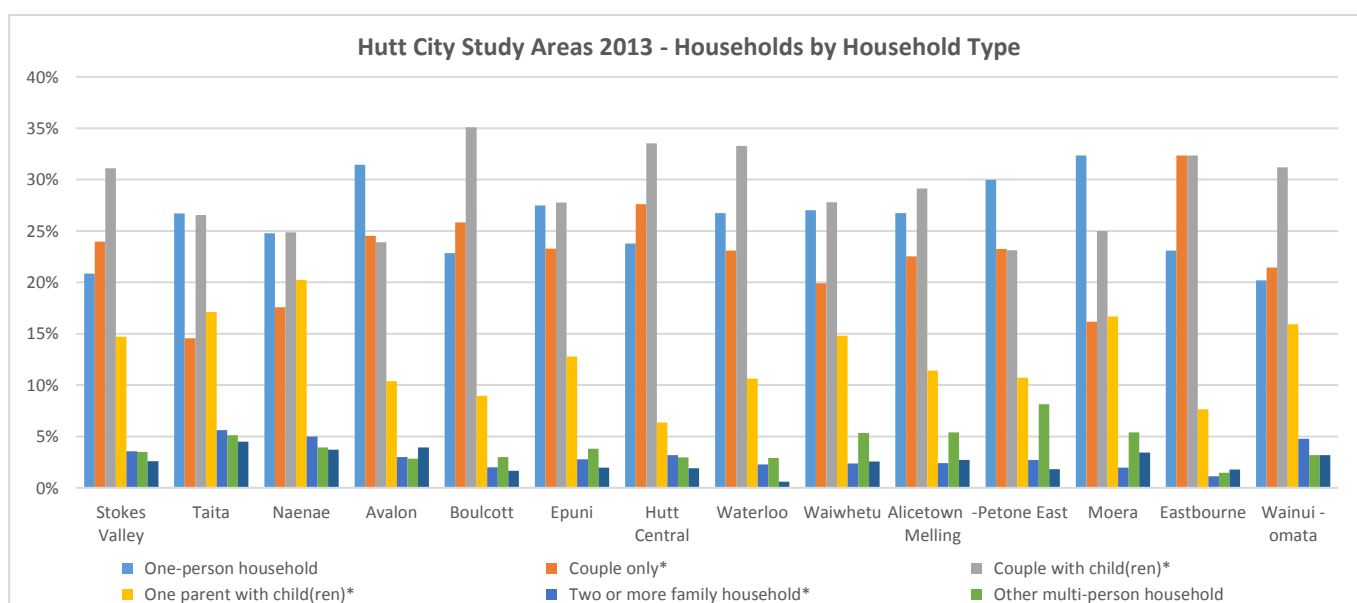
Notwithstanding this, the majority of Hutt City's residents continue to live in family-based households, with about two-thirds of all people living with children and/or other family members.

**Table 4.4: Hutt City 2001-13 – People living in Households by Household Type**

	2001	2006	2013	As % of 2013	Change 2001-13	
					No	%
One-person household	8124	8376	8526	9%	402	5%
Couple-based households*	17055	17445	17955	19%	900	5%
Couple with child(ren) households*	45192	45339	43782	46%	-1410	-3%
One parent with child(ren)households*	13557	13806	13071	14%	-486	-4%
Two or more family household*	4278	6084	6819	7%	2541	59%
Other multi-person household	3339	3453	3207	3%	-132	-4%
Household composition unidentifiable	1458	990	2844	3%	1386	95%
<b>Total people in households</b>	<b>93006</b>	<b>95496</b>	<b>96207</b>		<b>3201</b>	<b>3%</b>

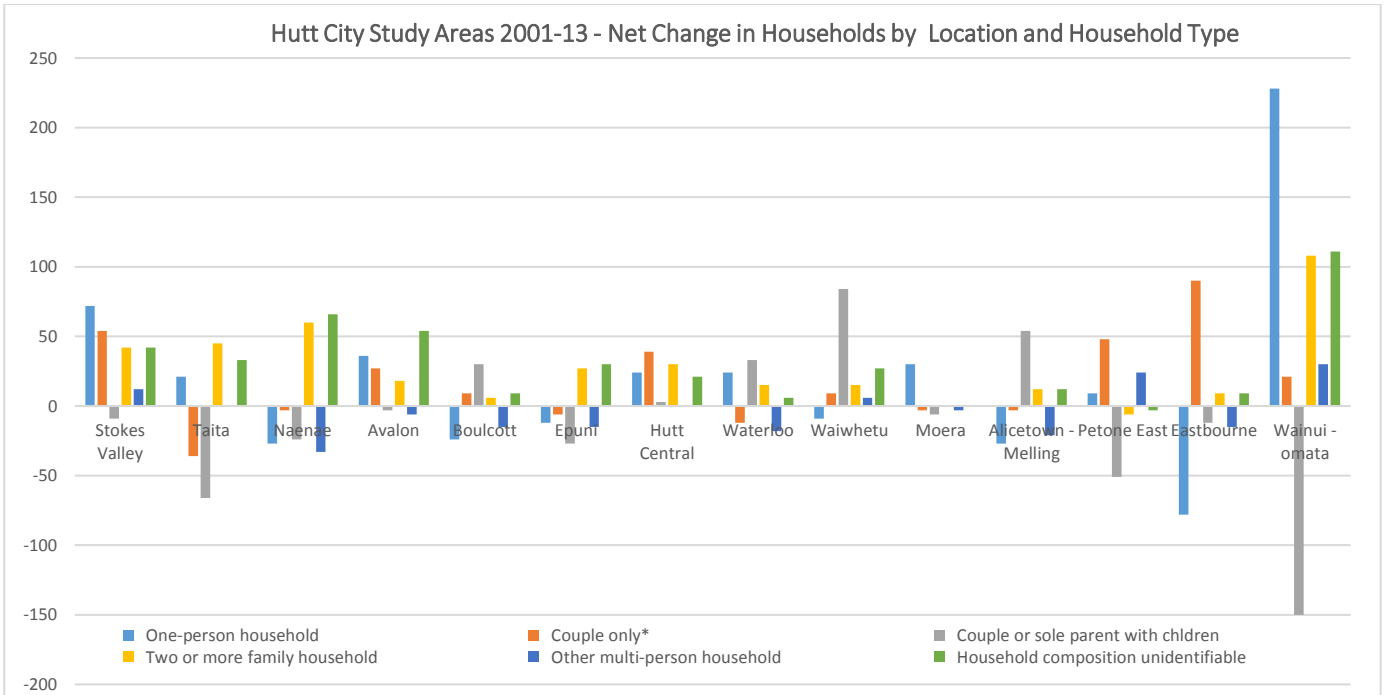
\* with or without other people

The figure below paints a more detailed picture of household composition in each study area. Note in particular the higher proportion of single person and couple households in formerly family-dominated suburbs like Taita, Stokes Valley, Avalon and Eastbourne,



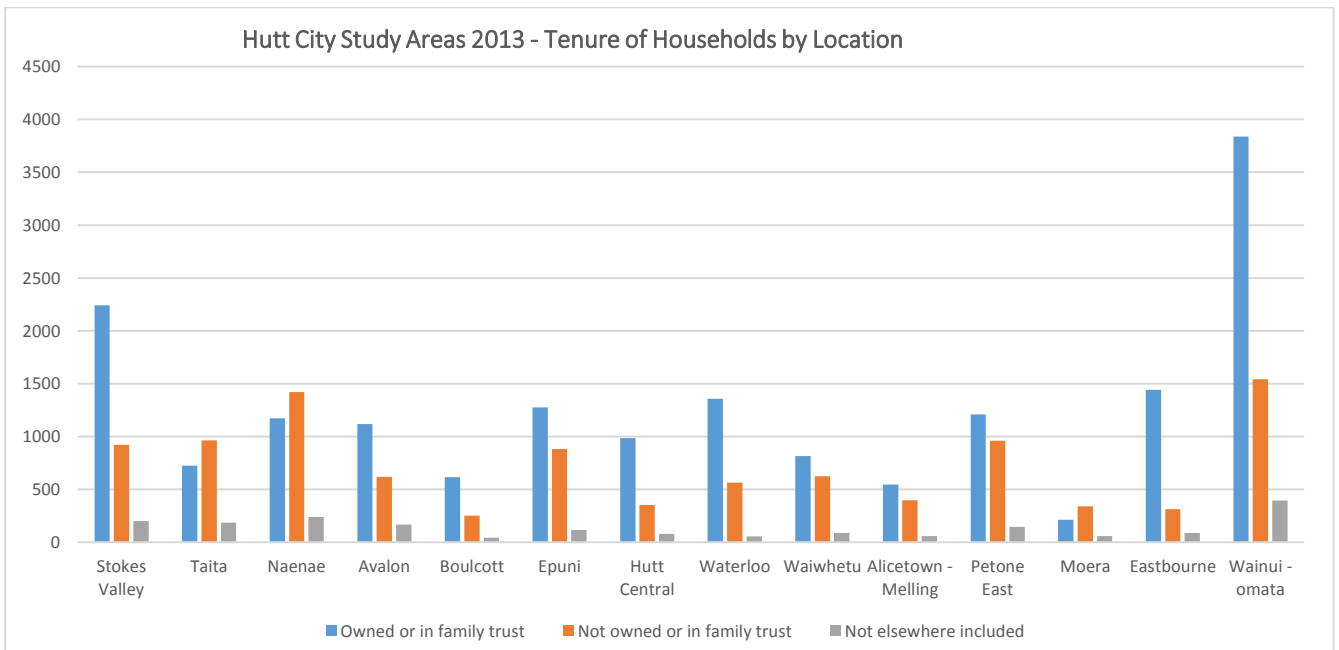
Changes over the past 10-15 years show different patterns emerging in different locations, with Waiwhetu, Alicetown and Boulcott bucking the trend by growing the number of family-with children households living in each location between 2001 and 2013. In part, this can be explained by new construction activity, and housing transfers between older, single people moving out of the family home (and the location) in the final stages of their life cycles, to be replaced by new families.

In Eastbourne, net growth is dominated by couple-based households, perhaps reflecting the higher costs of buying into the location.



### Tenure Trends

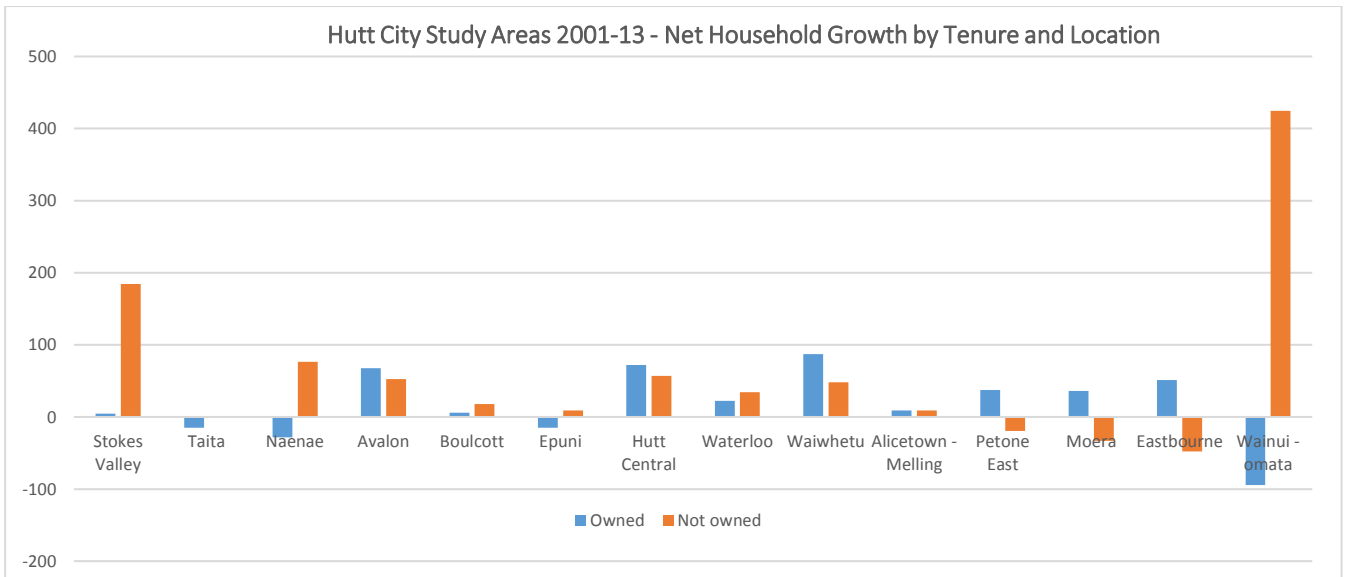
In common with all major urban centres, home ownership rates in Hutt City have been steadily declining in recent years, from 65% to 62% between 2001 and 2013. Within the study areas, home ownership rates currently range from about 80% in higher-cost locations like Eastbourne and the CBD edge, to 40% in lower-cost areas like Taita, Naenae and Moera.



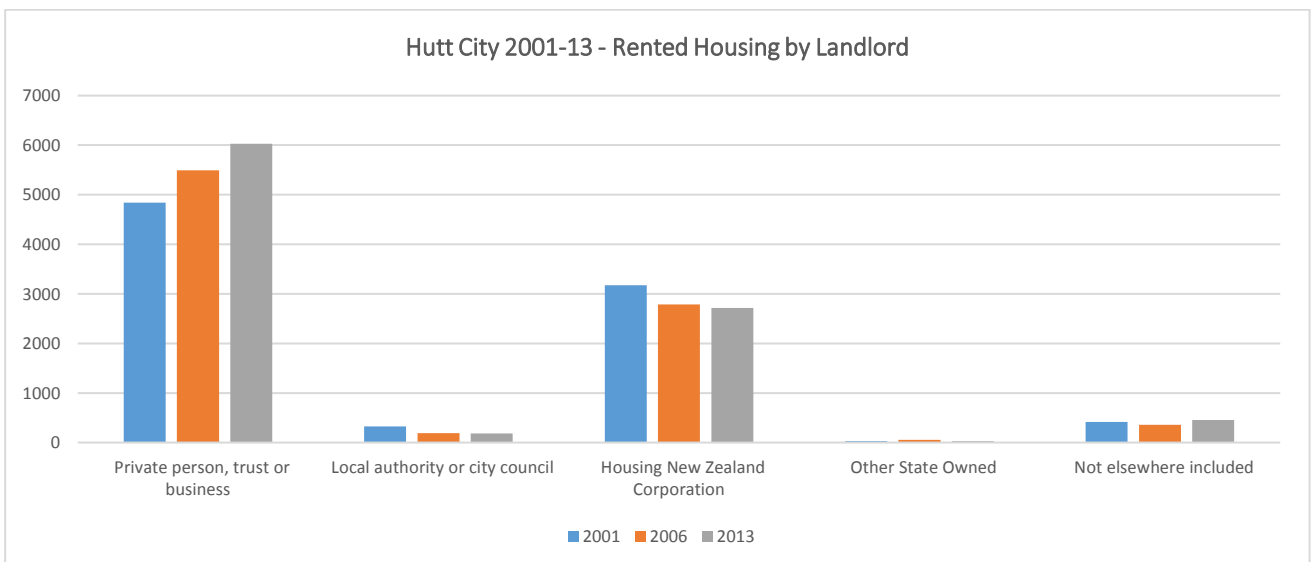
The 2001-13 period has seen rental housing numbers steadily increasing in traditional lower-cost home ownership strongholds like Wainuiomata and Stokes Valley, and also Hutt Central as a result of new developments in and around the CBD built specifically for the rental market.



Naenae, Waterloo and Epuni have also experienced a net increase in rental numbers, albeit diluted by the loss of Housing New Zealand stock in these locations. By contrast, rental numbers in Petone East, Moera and Eastbourne have declined as a result of sale of rental housing stock to owner-occupiers, or demolition.



The last 30 years have also marked a shift in the Hutt City rental market towards private-sector housing providers. In the 1970's, for instance, more than 50% of all the City's rental housing was owned by state agencies or local government. By 2001 this had reduced to 40%, thanks largely to growth in private sector provision and static state housing levels. Between 2001 and 2013, social housing numbers suffered a net decline of about 600 units and now make up only about 30% of all occupied rental housing in the City. Over the same period, private rental housing provision has grown by about 1,200 units (25%).



Rental investors have been most active in the lower cost housing areas, essentially picking up housing previously targeted by first home buyers under supported lending arrangements of the 1990's. We expect private investors to remain significant players in lower-cost housing markets over the study period.

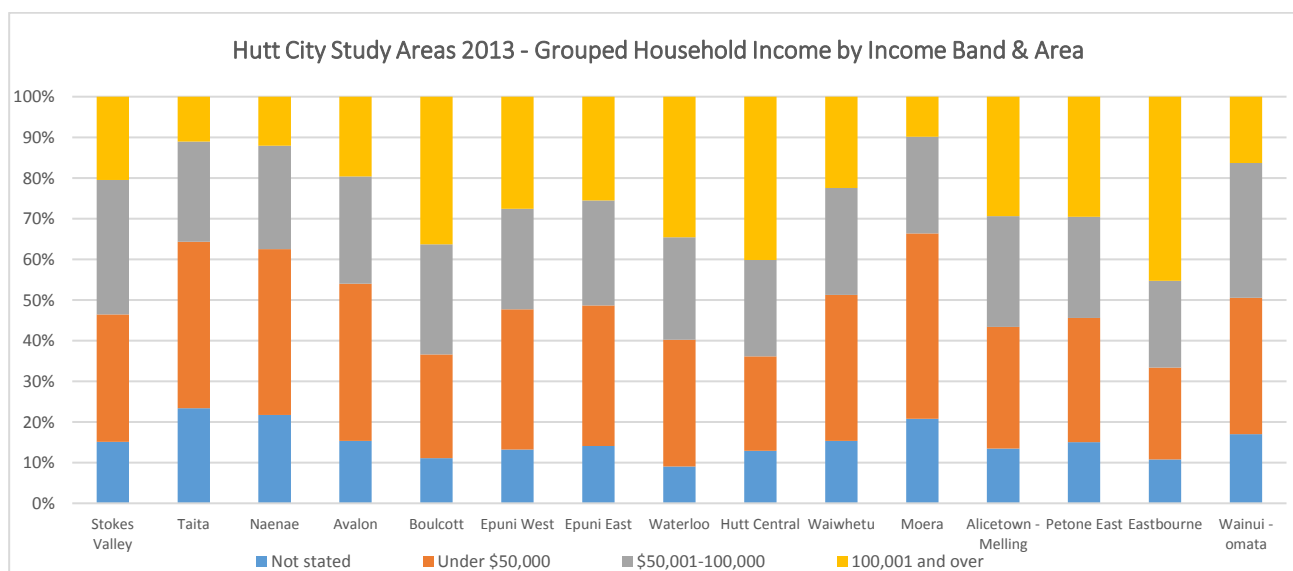
For those reliant on subsidised rentals, the biggest decline in subsidised rental accommodation has come in traditional state housing areas, largely due to HNZC's clearance policy. This is illustrated in the table below which summarises occupied dwelling data for central or local government-owned housing between 2001 and 2013.

**Table 4.5: Hutt City Study Areas 2001-13 – Occupied Housing owned by HNZ and HCC**

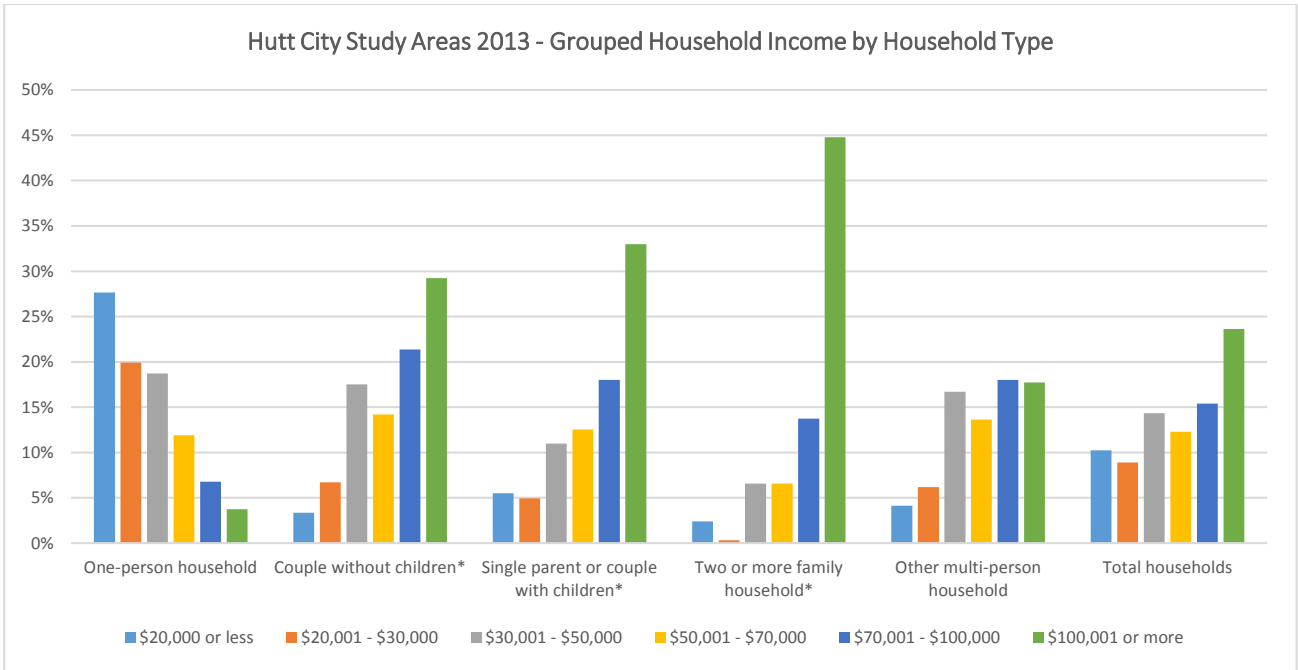
	2001	2006	2013	As % of 2013 tot	Change 2001-13	
					No.	%
Stokes Valley	225	204	207	7%	-18	-8%
Taita	642	594	522	18%	-120	-19%
Naenae	819	669	696	24%	-123	-15%
Avalon	255	204	198	7%	-57	-22%
Boulcott	54	51	54	2%	0	0%
Epuni	378	339	306	10%	-72	-19%
Waterloo	192	177	174	6%	-18	-9%
Waiwhetu	246	222	210	7%	-36	-15%
Hutt Central	12	9	6	0%	-6	-50%
Alicetown - Melling	45	45	48	2%	3	7%
Petone (Esplanade - Wilford)	333	264	225	8%	-108	-32%
Moera	180	129	171	6%	-9	-5%
Eastbourne	15	6	3	0%	-12	-80%
Wainuiomata	132	123	111	4%	-21	-16%
<b>Total</b>	<b>3528</b>	<b>3036</b>	<b>2931</b>		<b>-597</b>	<b>-17%</b>

## Household Incomes

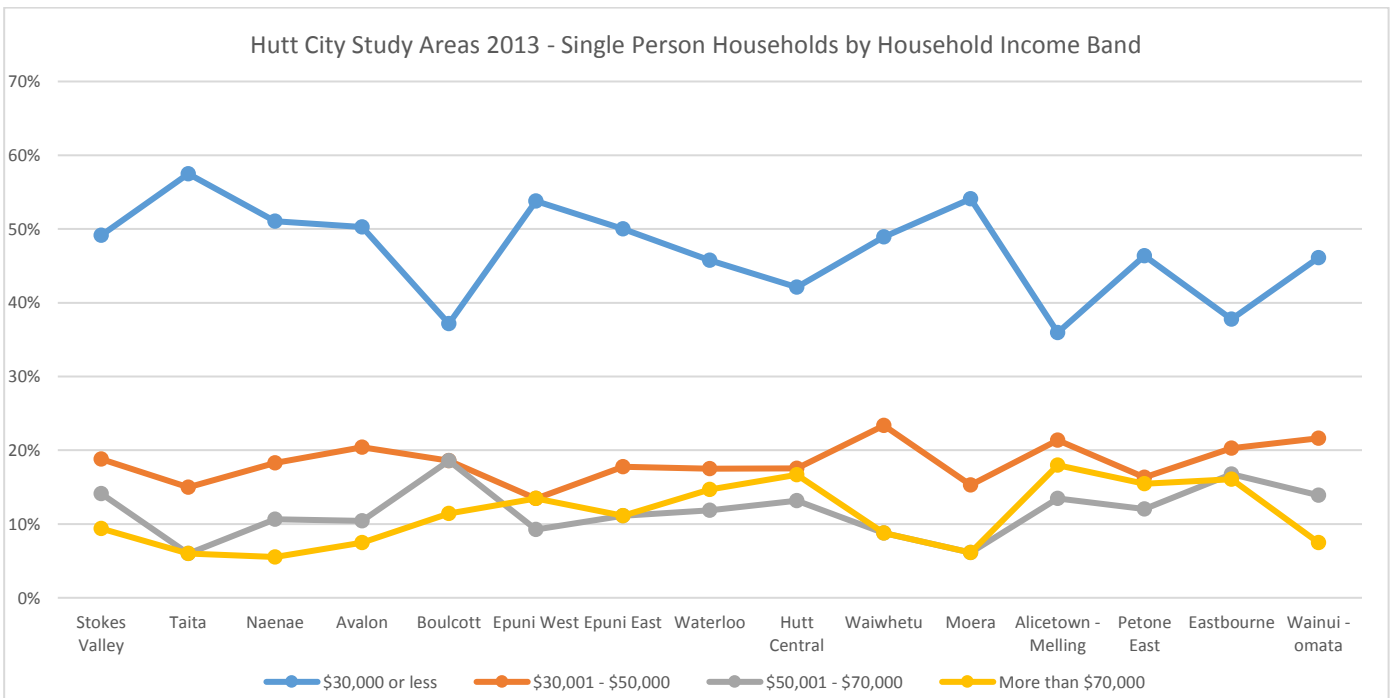
Household income profiles for each study area generally follow the trend implied by tenure trends. Areas with the highest income levels also have the highest home ownership rates, while lower household incomes are generally found in areas with the highest concentrations of social rental housing.



Those households in the lowest income brackets are generally single people and older couples, single parent with children households or larger households reliant on a single wage or benefit income. Almost 70% all single person households living in the study areas have an annual income of less than \$50,000, compared to about 20% for family households.

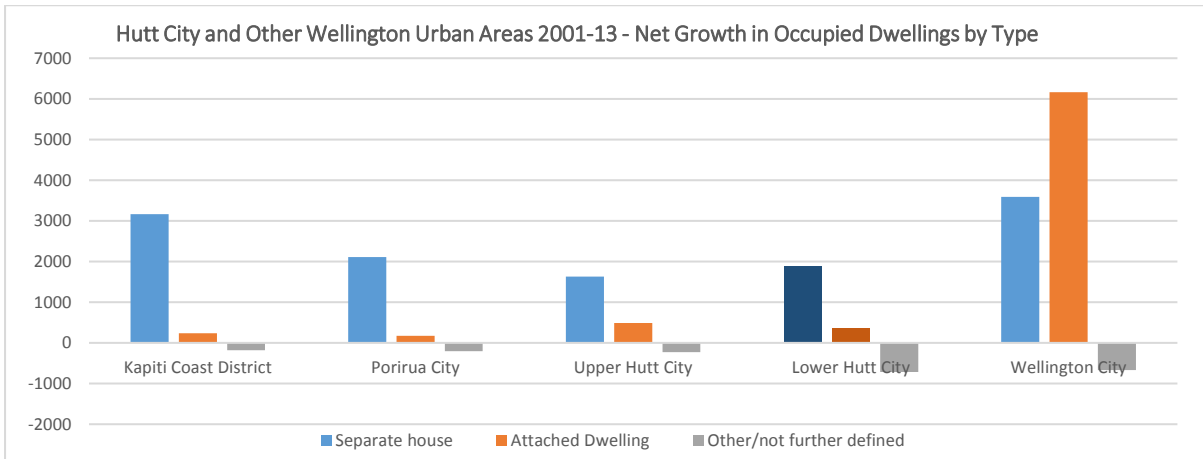


Single people living in lower-value suburbs with a high proportion of rental housing are most likely to be suffering from housing stress, due to lower average incomes and higher housing costs - unless they have been able to access subsidised state or local-authority-owned housing.



### 4.3 Housing Supply

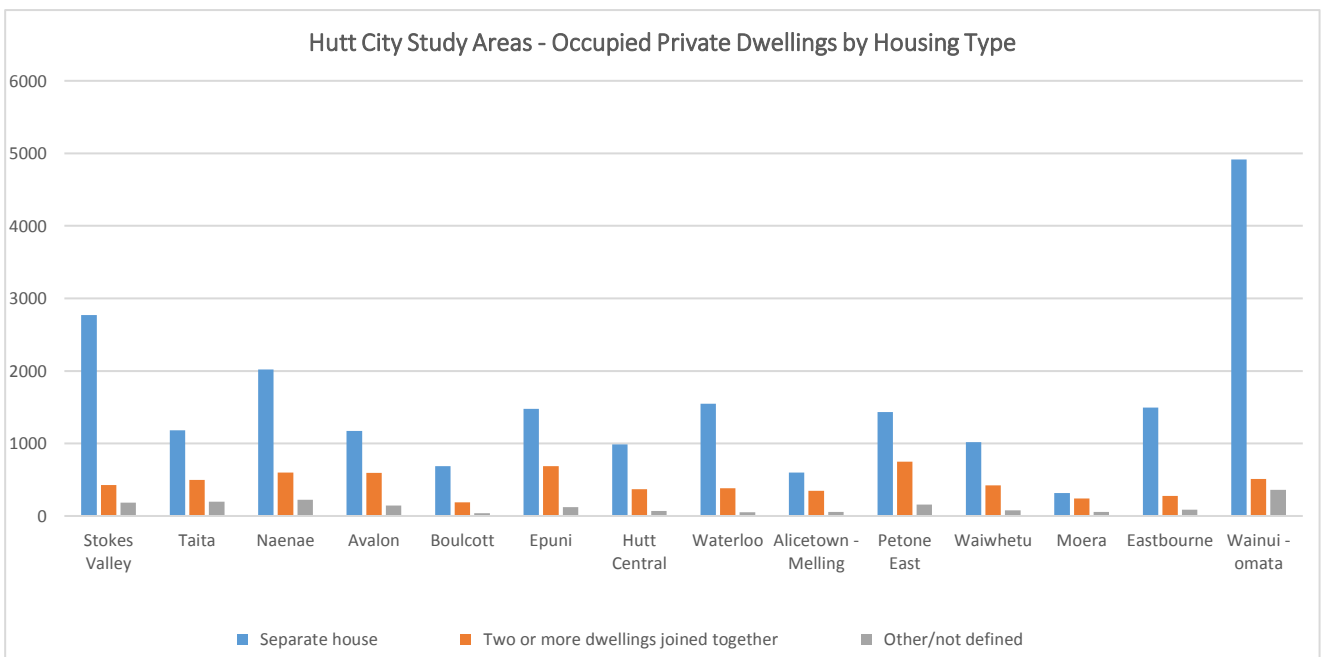
Growth in the number of occupied private dwellings in Hutt City between 2001 and 2013 has largely mirrored household growth. The Census reports an increase of 1,500 new dwellings and an average growth rate of 0.5% per annum – less than on third of the growth rate enjoyed by other urban areas in the Wellington region.



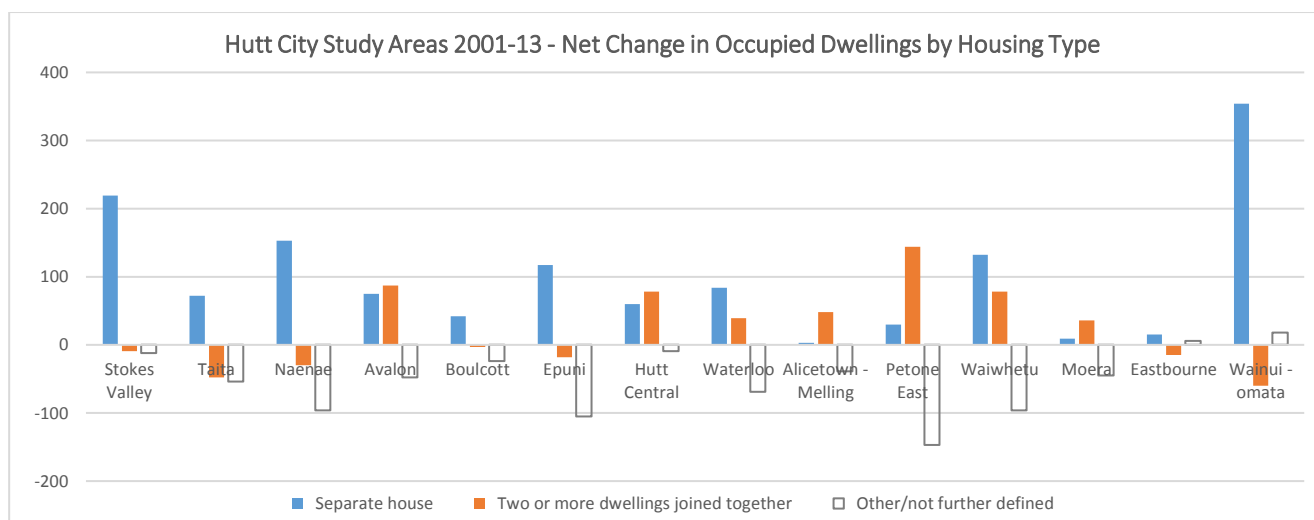
Within the fourteen study areas, occupied dwelling numbers grew by about 1,000 - an annual growth rate of less than 0.3%. For 2006-13 household growth averaged only 0.1% per year, reflecting higher levels of HNZ clearance activity of this period, and a general slowdown in regional migration.

#### Housing Type

Census data supports our earlier view that standalone housing remains the most common form of new housing in Hutt City. Detached family housing remains the predominant housing form in across most of the study areas, ranging from more than 80% of all occupied dwellings in Stokes Valley, Wainuiomata and Eastbourne, to about 50% in Moera.



Recent Census data confirms our view that most new housing built outside of Petone and the CBD has been standalone housing. More intensive housing forms in other study areas have tended to be purpose-built retirement housing, conversion of existing buildings along with some more intensive developments<sup>8</sup>.



To explore this point in more detail, we have analysed recent multi-unit dwelling consents data granted within the fourteen study areas between July 2006 and 2016. The consents cover about 1,000 housing units and suggest that, outside of Petone and the CBD, there is very little interest in higher density housing targeted towards the general owner-occupier or rental investor market. It is also worth noting that about 50% of the consented apartment units are unlikely to proceed as the companies behind them have either folded or on-sold subject land to other parties.

**Table 4.7: Hutt City Study Areas July 2006-16 – Multi-Unit New Dwelling Consents**

	New construction			Conversion of existing building			Total by Study area		
	Standalone	Attached townhouse	Apartment	Retirement unit and/or residential care unit	Convert commercial to apartment	Convert residential into flats			Bedsit/ Boarding house
Stokes Valley		3			1			4	0%
Taita	13				3			16	3%
Naenae	2	4		20				26	3%
Avalon				2				2	0%
Boulcott								0	0%
Hutt Central	2	12	157	98	35	6	10	320	31%
Eponi	3				1		10	14	1%
Waterloo	5	3						8	1%
Waiwhetu								0	0%
Alicetown-Melling								0	0%
Petone	10	40	238	229	25	2	9	553	53%
Moera	4			4				8	1%
Eastbourne	9	7						16	2%
Wainuiomata	52							52	5%
Total by type	100	69	395	353	65	8	29	1019	
	10%	7%	39%	35%	6%	1%	3%		

Source: HCC (2016)

Our overall assessment is that lingering preferences for standalone housing, a relatively flat housing market and low overall household growth rates since the mid 2000's have played a part in limiting the supply chain's appetite for intensive housing projects in suburban locations.

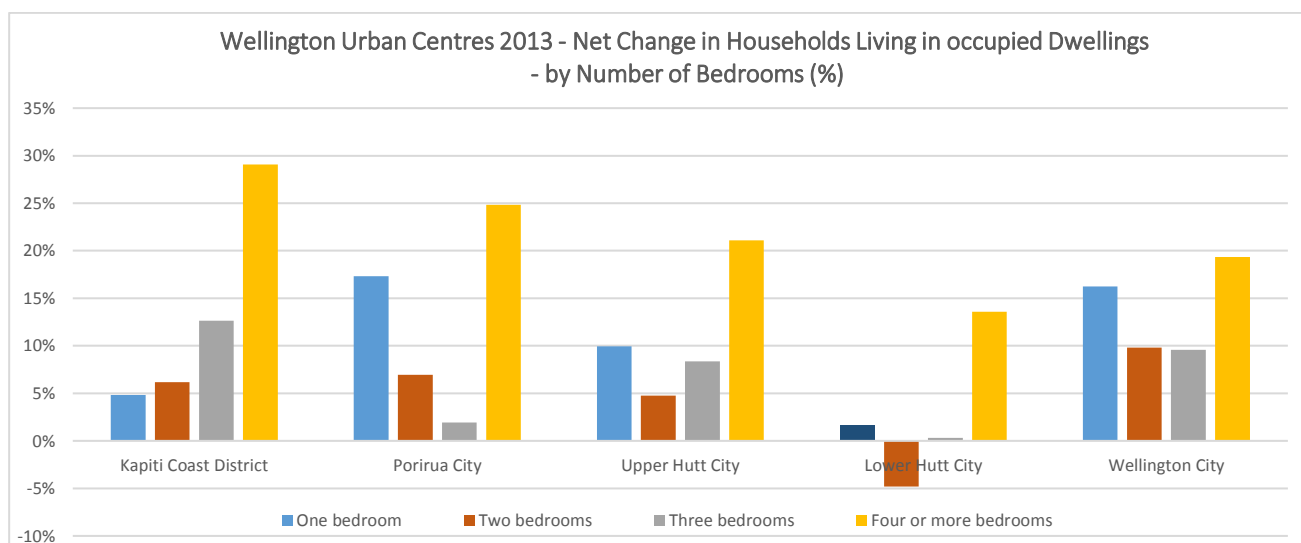
<sup>8</sup> Note that the comparison between 2001 and 2013 should be regarded as illustrative at best, given the net decrease in the 'not further defined' category in most study areas.

HCC's District Plan rules may also have played a part in limiting commercial viability of such developments, and we are aware of a number of larger properties that have been 'land-banked' by developers in anticipation of future rule changes.

### Dwelling Size

Hutt City's reluctance to adopt more intensive housing forms is illustrated in the figure below, which looks at growth in the number of occupied dwellings in Wellington's five main urban centres by dwelling size. In summary, Hutt City has suffered a net loss in compact housing numbers (two bedrooms or less), while other areas within the region have increased supply. The Hutt situation is primarily due to HNZC clearance activity.

Across the region, the most notable feature is growth in larger housing units (four bedrooms or more) within traditional greenfields subdivisions and infill housing developments.

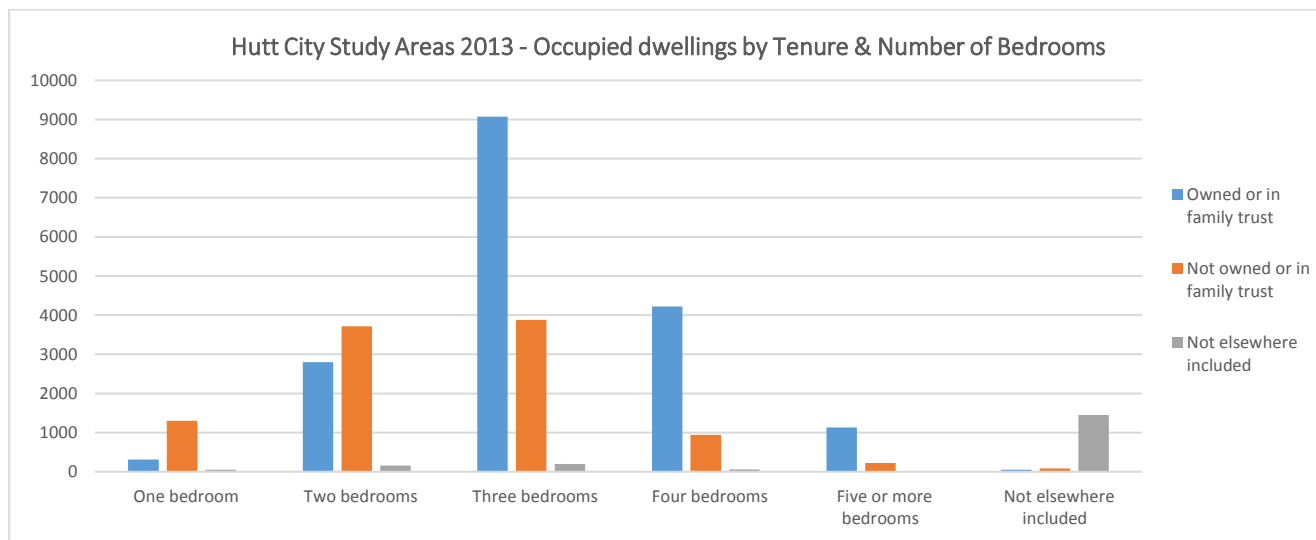


In the fourteen study areas, about 30% or all occupied housing has two bedrooms or less, compared to almost 50% for three bedroom housing, and 20% for larger housing (four bedrooms or more). The highest concentrations of compact housing are generally found in central locations or areas with a high proportion of social housing.

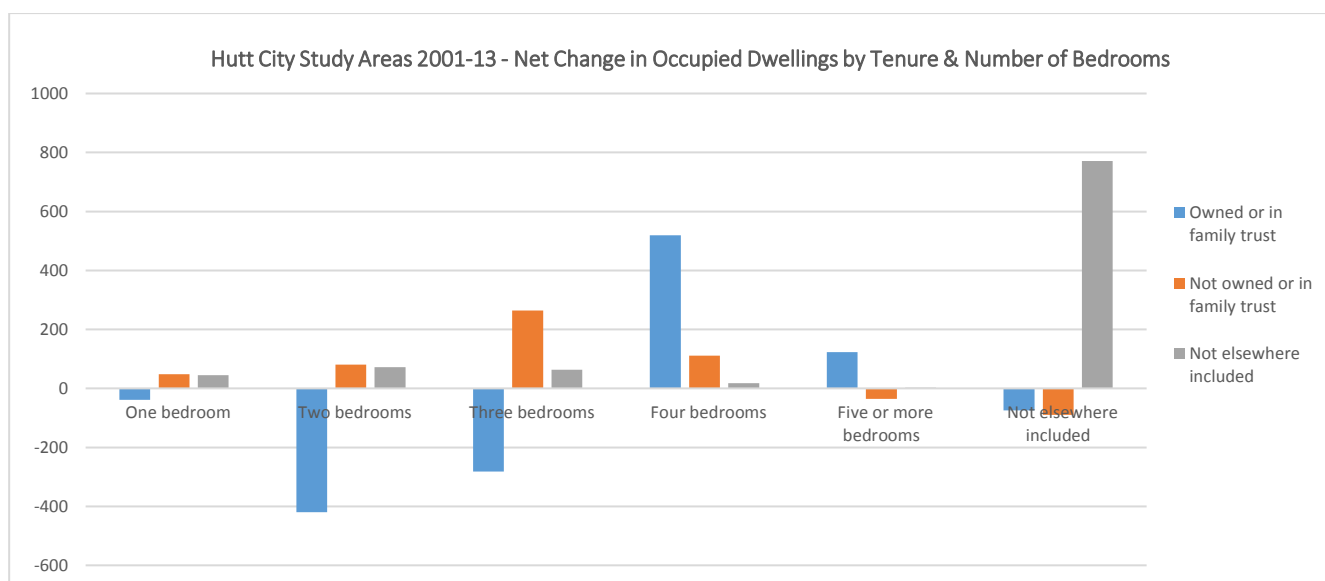
**Table 4.8: Hutt City Study Areas 2013 – Households Living in Occupied Dwellings - by Number of Bedrooms**

	One bedroom	Two bedrooms	1 & 2 bdr as % of area tot	Three bedrooms	Four bedrooms	3 & 4 bdr as % of area tot	Five or more bedrooms	Not elsewhere included	Total households
Stokes Valley	84	498	17%	1743	687	72%	180	168	3366
Taita	156	492	35%	822	210	55%	42	159	1875
Naenae	150	816	34%	1239	336	56%	75	213	2835
Avalon	90	606	36%	735	279	53%	72	132	1911
Boulcott	48	198	27%	366	201	62%	63	33	909
Epuni	159	660	36%	849	405	55%	105	93	2280
Hutt Central	108	246	25%	441	399	59%	156	63	1413
Waterloo	99	501	30%	801	435	63%	99	48	1974
Alicetown-Melling	120	273	39%	393	138	53%	24	48	999
Petone East	246	672	40%	897	315	52%	75	117	2322
Waiwhetu	123	432	36%	657	195	56%	45	69	1524
Moera	87	195	46%	198	66	43%	9	51	609
Eastbourne	111	345	25%	642	513	63%	159	75	1842
Wainuiomata	84	687	13%	3363	1047	76%	261	327	5772
<b>Total</b>	<b>1665</b>	<b>6621</b>	<b>28%</b>	<b>13146</b>	<b>5226</b>	<b>62%</b>	<b>1365</b>	<b>1596</b>	<b>29631</b>

About 60% of all households in the study areas who live in smaller (two bedrooms or less) housing units are renters, ranging from less than 40% in Eastbourne, to more than 75% in Moera, Naenae and Taita.



In spite of HNZC clearance activity, the study areas have experienced net growth in rental housing numbers, while the number of owner-occupier units with three or less bedrooms has declined by about 5%.



For renters, the supply of smaller housing is more equally divided between the social and market rental sectors, while larger housing is dominated by private sector provision.

**Table 4.9: Hutt City Study Areas 2013 - Rental Housing by Landlord and Number of Bedrooms**

	One bedroom	Two bedrooms	Three bedrooms	Four bedrooms	Five+ bedrooms	Not elsewhere included	Total households	As % of all rentals	Change 2001-13	
									No.	%
Private person, trust or business	699	1956	2523	660	129	24	6024	64%	1176	24%
Local or Central Government	461	1368	858	147	45	945	2930	31%	-598	-17%
Not elsewhere included	99	138	165	27	6	12	450	5%	42	10%
<b>Total households</b>	<b>1254</b>	<b>3492</b>	<b>3555</b>	<b>834</b>	<b>195</b>	<b>66</b>	<b>9405</b>	<b>100%</b>	<b>639</b>	<b>7%</b>
<b>Change 2001-13</b>	<b>54</b>	<b>63</b>	<b>369</b>	<b>201</b>	<b>12</b>	<b>-63</b>	<b>639</b>			
<b>%</b>	<b>5%</b>	<b>2%</b>	<b>12%</b>	<b>32%</b>	<b>7%</b>	<b>-49%</b>	<b>7%</b>			



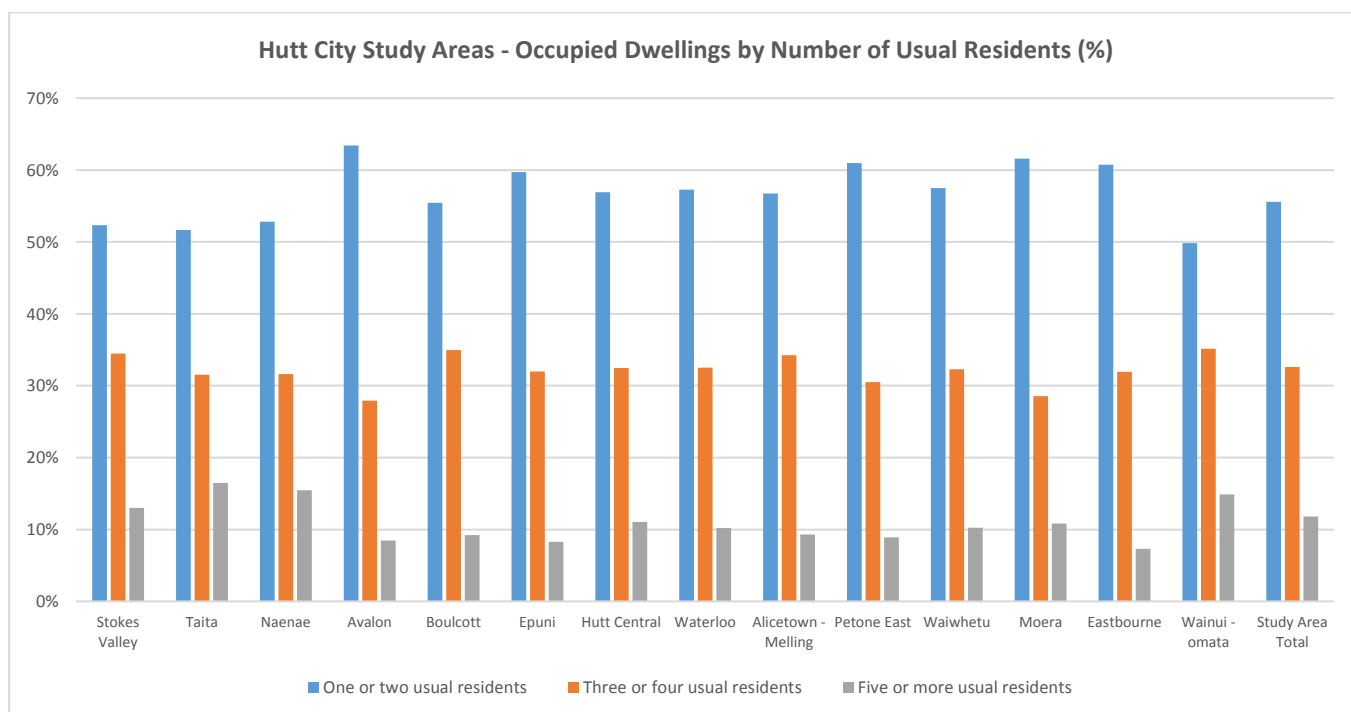
## Housing Utilisation Rates

The table below provides a summary overview of how occupied housing stock was being utilised across the fourteen study areas at the time of the 2013 Census. Upwards of 40% of all occupied housing appears to be underutilised on a residents per bedroom basis (pink shading), while about 5% of all occupies housing units may be overcrowded (yellow)<sup>9</sup>.

**Table 4.10: Hutt City Study Areas 2013 - Occupied Private Housing by Household Size and No. Bedrooms**

	One bedroom	Two bedrooms	Three bedrooms	Four bedrooms	Five or more bedrooms	Not elsewhere included	Total households
One usual resident	1278	2826	2283	369	63	540	7386
Two usual residents	312	2367	4365	1371	258	408	9084
As % of cat	95%	78%	51%	33%	24%	59%	56%
Three usual residents	57	876	2712	1008	222	261	5130
Four usual residents	3	405	2388	1251	267	213	4533
As % of cat	4%	19%	39%	43%	36%	30%	33%
Five usual residents	3	99	912	723	249	96	2085
Six usual residents	0	36	330	297	132	51	816
Seven usual residents	0	12	102	111	81	3	306
Eight+ usual residents	0	9	87	87	87	15	285
As % of cat	0%	2%	11%	23%	40%	10%	12%
<b>Total households</b>	<b>1665</b>	<b>6621</b>	<b>13146</b>	<b>5226</b>	<b>1365</b>	<b>1596</b>	<b>29631</b>
As % of tot.	6%	22%	44%	18%	5%	5%	

About 55% of all households living in the study area are made up of two persons or less, ranging from 50% in lower-cost housing areas on the urban periphery to more than 60% in Avalon and Eastbourne.



<sup>9</sup> As a general rule, social housing definitions of overcrowding are based on occupancy rates of no more than two per room, although this may vary depending on the age and gender makeup of the household.

#### 4.4 Summary Comment

This scan of recent population and household trends in Hutt City highlights some key issues for planners moving forwards. Firstly, Hutt City has not benefitted substantially from regional growth over the past fifteen years, at least not as much as other urban centres within the region.

Despite the trend towards smaller households, Hutt City has experienced a net loss in the number of smaller housing units (one or two bedrooms), with new housing construction outside commercial centres and dedicated retirement complexes being overwhelmingly larger standalone housing.

Outside of retirement village developments and Petone Central, the bulk of new housing development has been traditional family housing delivered via infill, the occasional new multi-unit housing development on the valley floor, or in periphery suburbs.

The net effect is that Hutt City's housing system has become less efficient, as more of the City's existing family housing stock is occupied by non-family households.

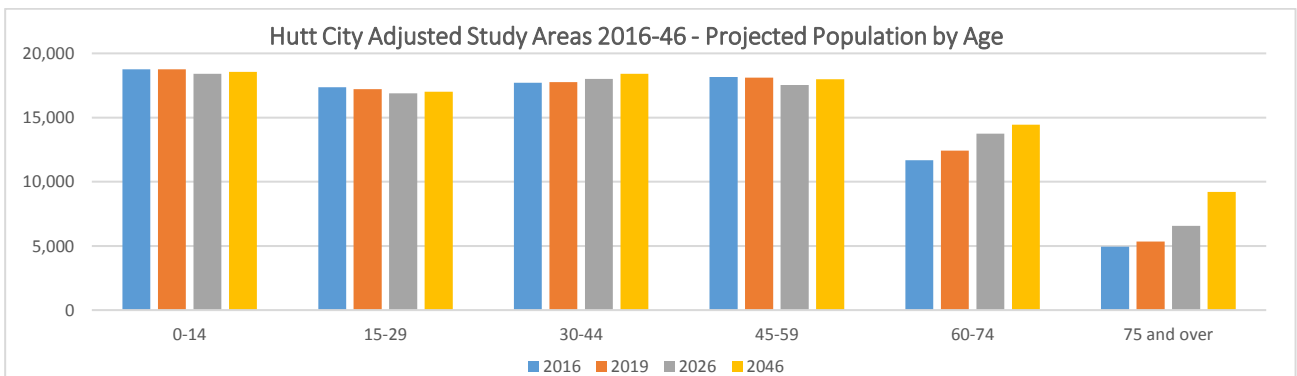
## 5 Forecasting Future Demand

This section summarises expected population and household growth over the next 30 years. Projections are derived from HCC’s own forecasts, which were developed in conjunction with Forecast.ID Limited. These are based on 2013 Census data, which has been adjusted to account for local variables such as the impact of future greenfields and brownfields development projects on household growth.

Note that, in some cases, the areas cited are not directly comparable with 2001-13 trend data because of different boundaries adopted by Forecast.ID to represent local communities. In Petone, for instance, Wilford CAU has been amalgamated with Petone Central and Korokoro while the Esplanade CAU has been treated as a separate location. For this paper, we have combined the two data sets.

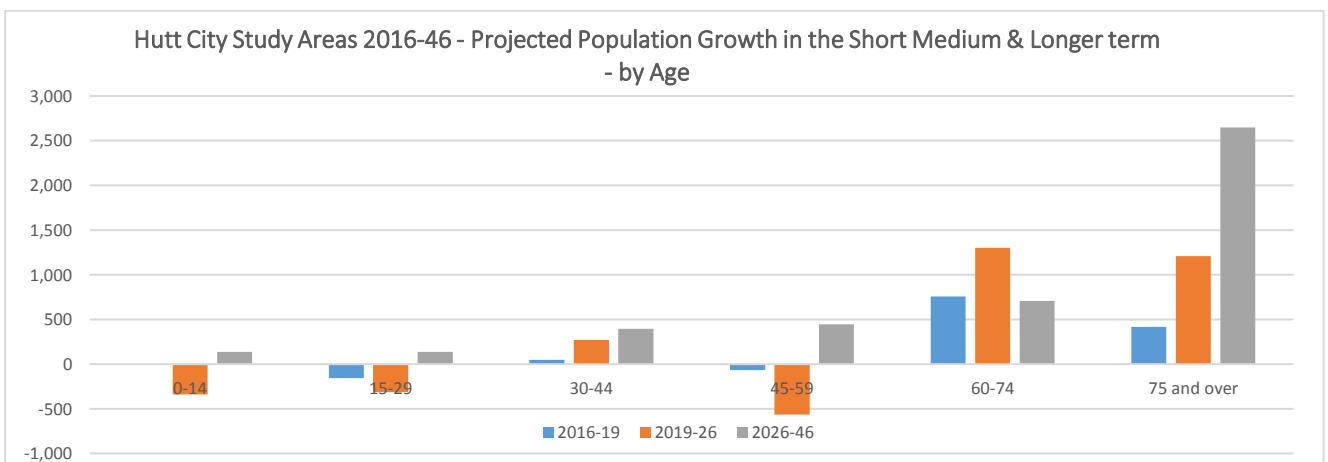
### 5.1 Population

Based on HCC’s current projections, the resident population of the fourteen study areas is expected to grow by about 7,000 (8%) over the 30-year planning period, from 88,700 to 95,600 – an average annual growth rate of less than 0.3%. Only Petone and the CBD/Waterloo East are projected to grow by more than one per cent per year.



Source HCC/Forecast.id

Net population growth is projected to occur mainly in older age cohorts, as the impact of aging and declining fertility rates is felt across all study areas. A reduction in older working-age adults and younger age groups is also expected over the medium term, mirroring the decline in younger family households over the previous 10 years.



Source HCC/Forecast.id

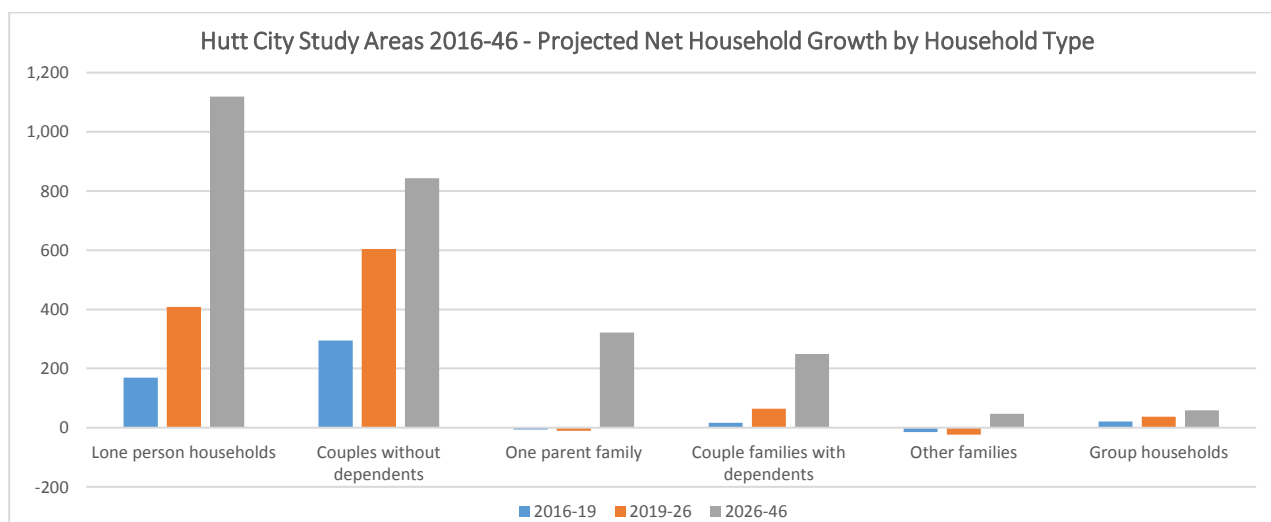
## 5.2 Households

Across the whole of Hutt City, the number of households living in discrete dwellings is expected to increase by about 4,800 between 2016 and 2043, about 4,100 of which are expected to be in our study areas.

**Table 5.1: Hutt City 2016-43 – Total Projected Households by Household Type (HCC/Forecast.id)**

	2016	2019	Change 2016-19	2026	Change 2019-26	2043	Change 2026-43	Change 2016-43	Change 2016-2043
Lone person households	8,819	9,017	198	9,435	418	10,615	1,180	1,796	20.4%
Couples without dependents	9,684	10,033	349	10,803	770	11,885	1,082	2,201	22.7%
One parent family	4,651	4,666	15	4,762	96	5,055	293	404	8.7%
Couple families with dependents	11,735	11,700	-35	11,609	-91	11,990	381	255	2.2%
Other families	1,252	1,235	-17	1,214	-21	1,263	49	11	0.9%
Group households	1,077	1,103	26	1,151	48	1,217	66	140	13.0%
<b>Total Households</b>	<b>37,218</b>	<b>37,754</b>	<b>536</b>	<b>38,974</b>	<b>1,220</b>	<b>42,025</b>	<b>3,051</b>	<b>4,807</b>	
Annual growth rate			0.5%		0.5%		0.5%		

Net growth in the medium term is expected to be almost exclusively single person and couple households. This trend continues until the latter stages of the planning period, when family households should increase in line with the demographic profile discussed in 3.1 above.



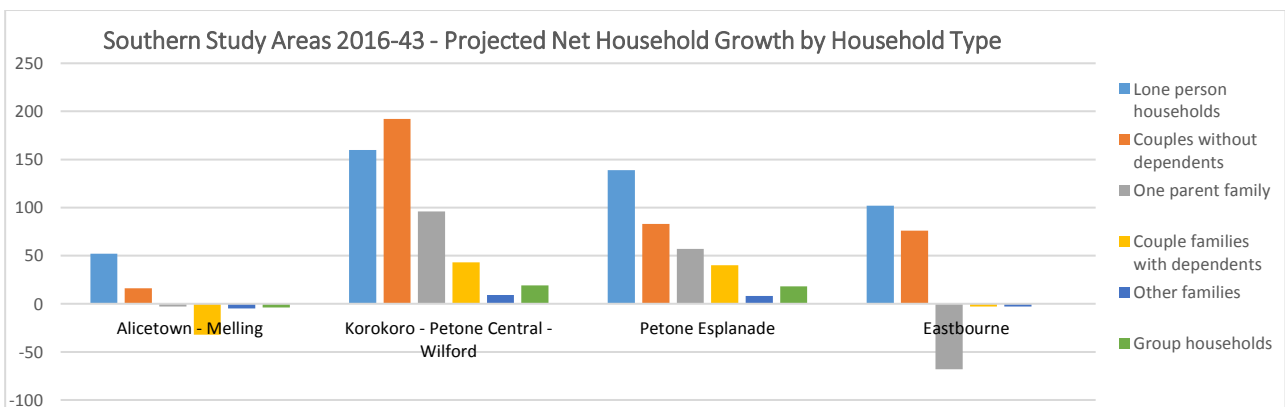
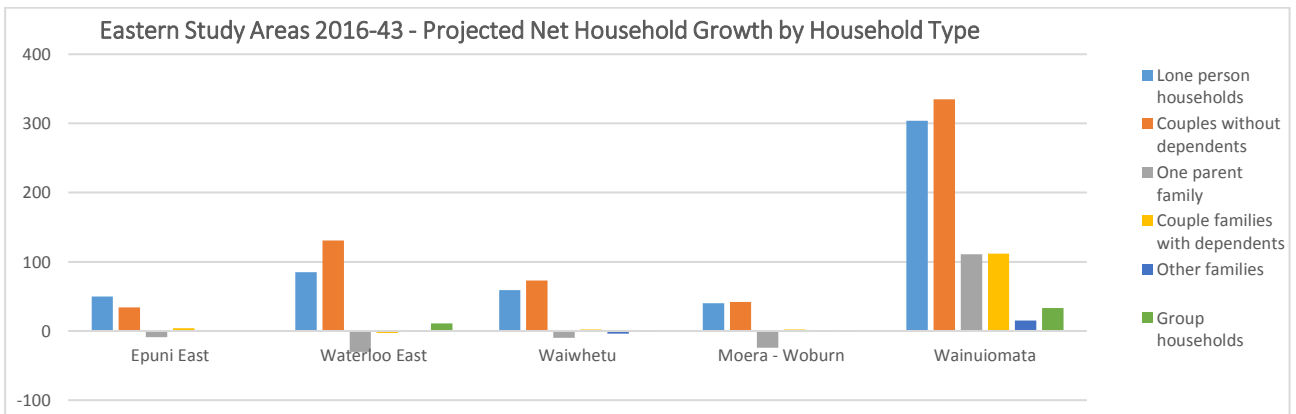
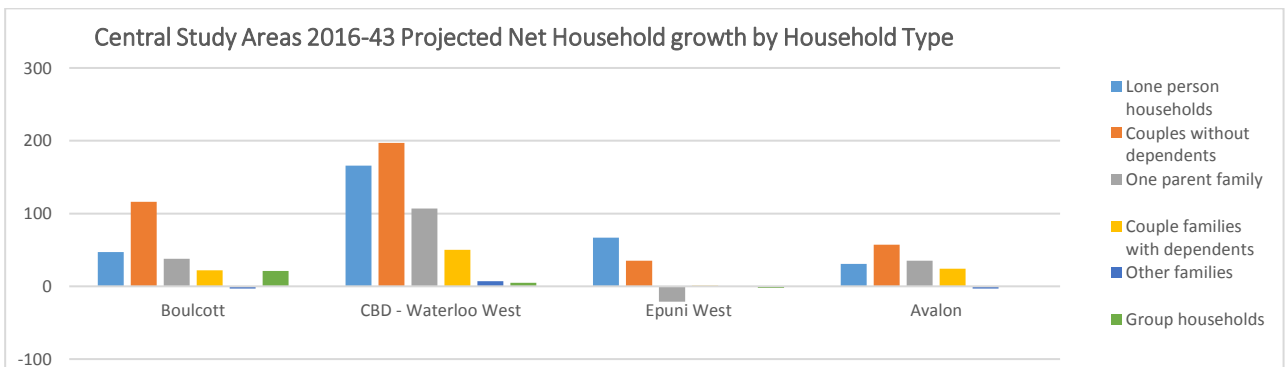
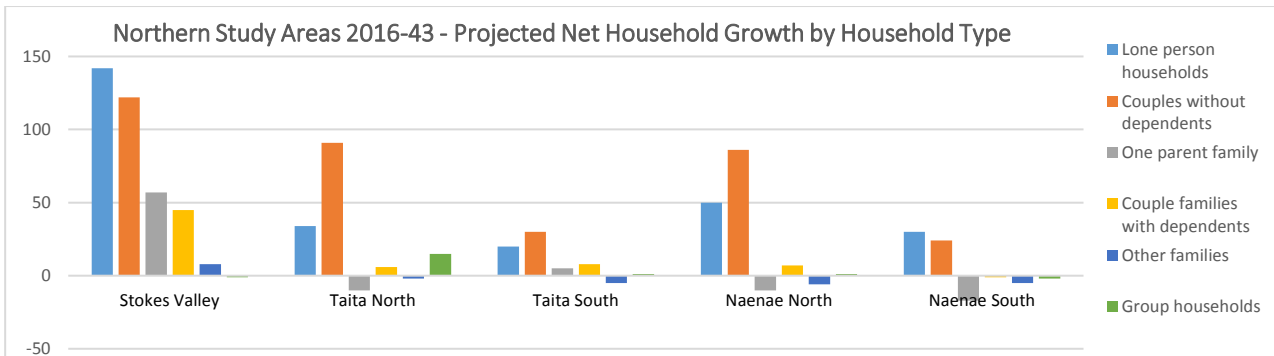
Source HCC/Forecast.id

The table below looks at expected household growth in each of the study areas (adjusted to reflect HCC/Forecast.ID community boundaries) over the short, medium and longer-term.

**Table 5.2: Hutt City Study Areas 2016-43 – Projected Households by Study Area (HCC/Forecast.id)**

	2016	2019	Change 2016-19	2026	Change 2019-26	2043	Change 2026-43	Change 2016-43
Stokes Valley	3496	3515	19	3618	103	3869	251	373
Taita	1963	2023	60	2065	42	2156	91	193
Naenae	2883	2894	11	2925	31	3040	115	157
Avalon	1941	1953	12	1979	26	2085	106	144
Boulcott	942	961	19	1100	139	1183	83	241
Epuni	2302	2309	7	2339	30	2434	95	132
CBD- Waterloo West	1914	1956	42	2065	109	2446	381	532
Alicetown -Melling	1039	1044	5	1003	-41	1063	60	24
Petone incl. Esplanade	3251	3443	192	3653	210	4115	462	864
Waterloo East	1696	1708	12	1751	43	1889	138	193
Waiwhetu	1650	1661	11	1688	27	1769	81	119
Moera -Woburn	1289	1294	5	1305	11	1347	42	58
Eastbourne	1933	1945	12	1980	35	2037	57	104
Wainuiomata	6147	6220	73	6535	315	7057	522	910
<b>Total Study Areas</b>	<b>32446</b>	<b>32926</b>	<b>480</b>	<b>34006</b>	<b>1080</b>	<b>36490</b>	<b>2484</b>	<b>4044</b>

The figures below provide a summary overview of net changes in household composition for each of the study areas over the 30 year planning period, including a more detailed breakdown for Naenae, Taita, Waterloo and Epuni. As a proxy for future housing demand growth, the projections suggest a growing market for non-family housing forms – especially those targeted at older people.



Source HCC/Forecast.id

### 5.3 Meeting Future Housing Demand

As part of the Forecast.ID housing projections series, the forecasters worked with HCC staff to align their Census-based household growth projections, with Council's own assessment of the city's development capacity. This 'supply response' includes provision for losses as a result of HNZN clearances and riverbank reconstruction, but otherwise assumes that every new household will need a new dwelling. The response is based on future developments already consented or known to HCC planners, current and planned greenfields locations, and the expected contribution from proposed new planning rules at the time the forecasts were compiled, including low-rise apartment areas, urban intensification areas and general infill.

Detailed supply-side assumptions for each of the study areas can be found on the forecast.ID website<sup>10</sup>. In summary, Council currently expects about 30% of all new housing will be built on already-planned greenfields sites in Wainuiomata and Stokes Valley, or in pipeline developments scheduled for delivery over the next ten years. The balance of 2,910 units (70%) is expected to be infill housing, or more intensive housing forms within the CBD or new intensification zones.

**Table 5.3: Hutt City Study Areas 2016-43 – HCC's Planned Response to Household Growth (HCC/Forecast.id)**

	2016-19	2019-26	2026-43	2016-43	As % of tot
Losses	-54	-70	0	-124	-3%
Greenfields development	16	146	475	637	15%
Specified developments	270	395	34	699	17%
Low-rise apartment areas	12	150	568	730	18%
Urban intensification areas	0	60	348	408	10%
Low-level infill	164	420	1188	1772	43%
<b>Est. new housing requirement</b>	<b>408</b>	<b>1101</b>	<b>2613</b>	<b>4122</b>	
<b>New housing requirement p/yr.</b>	<b>136</b>	<b>157</b>	<b>131</b>	<b>137</b>	
<b>Unspecified infill/intensification</b>	<b>176</b>	<b>630</b>	<b>2104</b>	<b>2910</b>	
<b>Unallocated requirement p/yr.</b>	<b>59</b>	<b>90</b>	<b>105</b>	<b>97</b>	

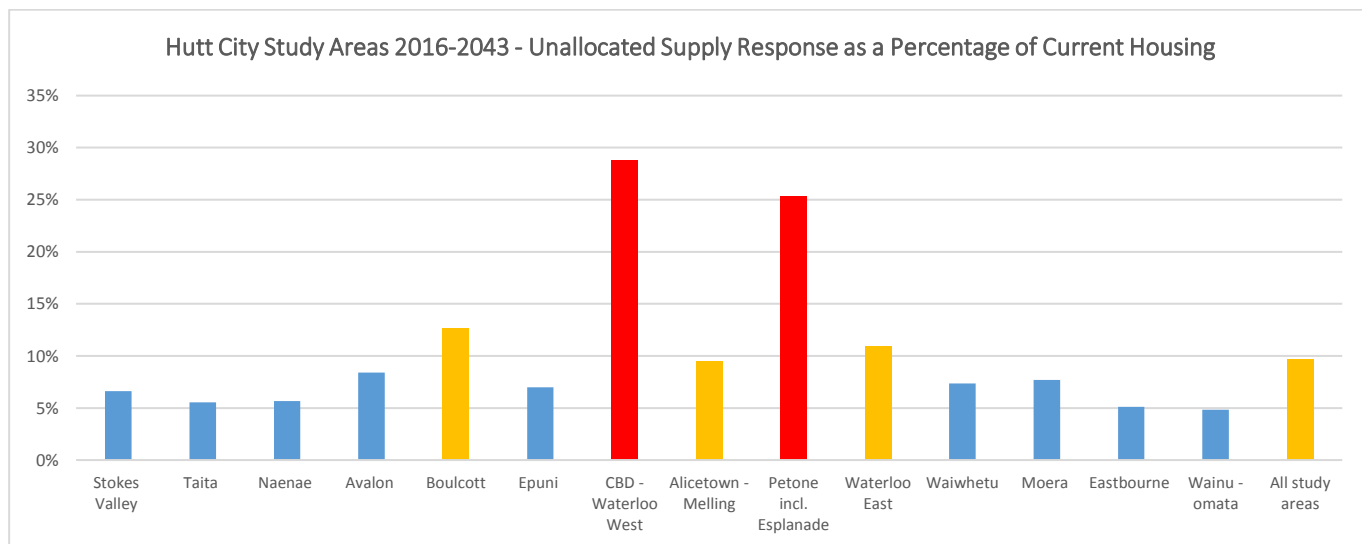
The table below looks at how supply that is reliant on as-yet unspecified infill or intensification is expected to be spread across each of the study areas. In most locations, the numbers required are relatively modest, and should be easily achievable within a 'tweaked' planning framework (for instance relaxed rules for infill). Areas like Petone East and the CBD edge, however, are likely to require a more assertive planning approach.

**Table 5.4: Hutt City Study Areas 2016-43 - Unallocated Demand by Study Area**

	2016-2019	2019-26	2026-43	2016-43	As % of tot
Stokes Valley	24	56	144	224	8%
Taita	9	23	72	104	4%
Naenae	9	26	116	151	5%
Avalon	12	28	121	161	6%
Boulcott	9	21	85	115	4%
Epuni	9	27	124	160	5%
CBD - Waterloo West	12	101	394	507	17%
Alicetown -Melling	6	23	66	95	3%
Petone incl. Esplanade	27	157	497	681	23%
Waterloo East	8	34	136	178	6%
Waiwhetu	9	24	79	112	4%
Moera -Woburn	3	8	36	47	2%
Wainuiomata	30	70	180	280	10%
Eastbourne	9	32	54	95	3%
<b>Total</b>	<b>176</b>	<b>630</b>	<b>2104</b>	<b>2910</b>	<b>100%</b>

<sup>10</sup> New housing assumptions for Hutt City for the period 2013-43 can be found by following the attached link: <http://forecast.idnz.co.nz/hutt/residential-development?WebID=10>

To illustrate this point, the figure overleaf expresses the unallocated supply response in each study area as a percentage of existing housing stock. For most areas, current growth projections would translate into a modest (5-7%) increase in total housing numbers over the next 30 years. In Petone and the CBD, however, HCC envisages increases of at least 25%. Projections for Boulcott, Alicetown-Melling are also above the norm.



#### 5.4 Summary comment

Based on HCC's current projections, Hutt City can expect to grow by about 4,800 households in the 30 years 2013 to 2043. This suggests perhaps, that the *Urban Growth Strategy's* target of growing housing numbers Hutt City by 6,000 between 2012 and 2032 period was somewhat optimistic. In mitigation, the Strategy used 2006 Census data as a base, which captured higher rates of growth experienced across the Wellington region in the late 1990's and early 2000's. The strategy also did not anticipate the impact of HNZN clearances.

From a planning perspective, the issue is whether currently-projected growth rates provide an adequate basis for setting housing growth targets. In our view, a housing target at least 20% higher than current projections should be considered, providing for net housing growth of at least 6,000 units over the thirty year planning period. The following points are worth considering:

- Current projections have been negatively affected by events like state housing clearances and historically low migration rates after 2006.
- The city has a pool of brownfields land available for development in the short to medium term, including cleared state housing land, which presents an opportunity for larger-scale development for both social and market housing purposes
- The growing price differential between Wellington City and Hutt City will enhance Hutt's reputation as an affordable housing destination
- Growing critical mass in centres like Petone and the CBD should also support increased demand from those seeking a more urban lifestyle.
- The "Planning for Growth" report suggests that Hutt City will have better tools to promote development compared to recent years where the status quo has perhaps acted to constrain development.



Given these factors, we believe a planning target of (say) 6,000 new households over the next thirty years is appropriate, upwards of 5,000 of which would need to be delivered in the fourteen study areas.

## 6 Development Capacity and Feasibility Assessment

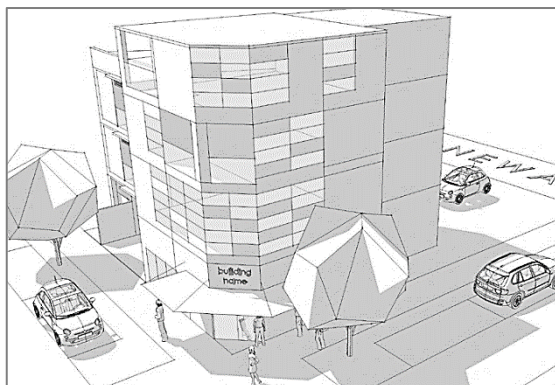
In this section we look more closely at the *Planning for the Future* (September 2016) report's assessment of potential yields in each of the study areas, and also explore the commercial feasibility of developing housing in the proposed new intensification 'A' 'B' and 'C' areas.

We recognise that the yield assessments in the September report were based on only one or two development scenarios, but they are a useful starting point for considering how commercial factors might act to enable or constrain development opportunity in different locations.

### 6.1 Residential 'A' Intensification Areas

The main change proposed in Type 'A' intensification provisions is an increase in allowable building height to twelve metres compared to eight metres for the existing suburban commercial zone. This would allow for two or three levels of apartment-style accommodation to be built atop retail and commercial activity at ground and on the first floor. No maximum site coverage rule is proposed. Communal car parking is also proposed to provide flexibility around car parking numbers if a site has suitable access provisions. This study has assumed coverage will be less than 100% to allow for communal parking and laneways on site.

*Pics show three-level mixed use currently consented for Tawa, and (right) four level concept on corner site*



The *Planning for the Future* review identified eleven suburban commercial centres that could benefit from a Type 'A' approach. The main scenario outlined in the review report suggested that, based on a range of input assumptions, the new zones could deliver a gross yield of 1,682 new apartments, 438 new retail units and upwards of 180,000 m<sup>2</sup> of commercial office space.

**Table 6.1: Potential Yield from Proposed Type 'A' Intensification Areas (*Planning for the Future* Report 2016)**

	Number of Parcels	Sum Area (m <sup>2</sup> )	Expected Maximum Yield		
			Retail (units)	Office (m <sup>2</sup> )	Apartment (no.)
Stokes Valley	42	8225	17	7197	66
Taita	34	10996	23	9622	88
Naenae	61	16134	34	14117	129
Avalon	28	21331	44	18665	171
Epuni	37	18707	39	16369	150
Waterloo	26	21900	46	19163	175
Waiwhetu	34	10035	21	8781	80
Moera	16	8657	18	7576	69
Alicetown	52	30103	63	26340	241
Eastbourne	28	9776	20	8554	78
Wainuiomata	57	54345	113	47551	435
	<b>415</b>	<b>210209</b>	<b>438</b>	<b>183935</b>	<b>1682</b>

Type 'A' is seen as a longer term vision, and is unlikely to be realised in the short to medium term. We also expect that balance between different uses is unlikely to mirror the scenario presented in *Planning for the Future*, as it provides for a substantial increase in suburban commercial office space – unlikely unless there is a substantial increase in suburban service-based activity? Other scenarios explored during the review focused more on residential yield, and/or development occurring at lower average densities (i.e. over two or three levels rather than a mix of three of four).

### Other Variables Likely to Impact on Yield

As a test of potential yields for Type 'A' areas, we have modelled a number of development scenarios for different-sized lots in a selected locations, using the assumptions outlined in 2.3 and 2.4 above.

The modelling suggests that existing commercial uses and configurations are likely to remain a 'highest and best' use for many properties within suburban commercial zones for some time to come, thus reducing the quantum of land likely to become available for Type 'A' mixed-use redevelopment. For example:

- Supermarkets are substantial consumers of suburban commercial land and, as a general rule, have a long term commitment to their locations, and a substantial investment in buildings and plant.
- Service stations also feature prominently in many suburban centres, although future technologies may reduce the need for large footprint facilities
- Smaller properties (say up to 300m<sup>2</sup>) are common in many of Hutt City's suburban centres, comprising one or two retail outlets with (in some cases) commercial or residential space above. Such properties are favoured by smaller investors and owner-operators, and generally command prices far higher than their redevelopment value.

The table below attempts to illustrate the impact of existing uses and configurations on redevelopment potential using information from HCC's rating database. For each of the proposed Type 'A' areas, we have excluded properties less than 300 m<sup>2</sup>, as a proxy for properties that cannot reasonably be redeveloped on size grounds. We have also excluded properties where the value of improvements is more than 60% of current (2013) capital value, as a proxy for current commercial uses that are likely to remain a 'highest and best' over the next 30 years.

**Table 6.2: Revised Yield within Type 'A' Areas after Adjustment**

	No. properties	Total Land Area	Avg land area per property	Avg. Floor area per property	Avg capital value (2013)	Avg CV psm land (2013)	Avg. LV/CV ratio (2013)
Stokes Valley	2	1622	811	2,712	\$194,500	\$240	97%
Taita	7	5323	760	708	\$390,429	\$513	50%
Naenae	10	6521	652	1,367	\$568,000	\$871	49%
Avalon	14	930	449	326	\$510,357	\$549	55%
Epuni	13	12084	930	348	\$343,769	\$370	75%
Waterloo	16	8408	526	733	\$439,375	\$836	57%
Waiwhetu	2	2224	1112	3,149	\$1,055,000	\$949	52%
Moera	4	4392	1098	1,113	\$572,500	\$521	50%
Alicetown	29	27173	937	667	\$907,586	\$969	55%
Eastbourne	11	5540	504	597	\$665,909	\$1,322	66%
Wainuiomata	16	38824	2426	1,438	\$946,250	\$390	54%
	<b>124</b>	<b>113040</b>					

These filters reduce the number of properties available for mixed use redevelopment by more than two thirds - containing about half of the total land available within the proposed Type 'A' areas.

### Commercial Considerations

In addition to the resilience of existing commercial uses, achieving apartment yields in Type 'A' areas will require an increase in demand and consequential price growth before commercial yields can compare favourably with other residential development options in the same area.

The following points are a worthy of note:

- Although there are already a few apartment-style units in nominated Type 'A' areas (mostly accommodation over shops or converted first floor office space) a wider market for apartment-style housing has yet to be established outside of the CBD and Petone.
- Whether the nominated Type 'A' areas would also support an increase in commercial and retail space is also unproven in most locations, especially in periphery suburbs where centres are struggling to maintain existing business levels.
- The additional cost associated with multi-level, mixed use buildings (higher construction costs, higher compliance costs, lifts and non-saleable areas) is likely to wipe out any benefits of being able to build at higher densities in any area where land makes up only a small proportion of value<sup>11</sup>.
- For the most part, any requirement for a developer to provide on-site parking on site would largely erode the benefits of building higher.

To explore these points in more detail, we have modelled a range of mixed-use developments in selected suburban centres.

### Higher value areas

Based on current prices, Eastbourne may see some multi-level housing development in the proposed Type 'A' area in the medium term to longer term. It appears to have favourable demand-side conditions, and a number of reasonably-priced larger-footplate sites in the proposed zone with redevelopment potential.

The question is whether new development should include a retail/commercial component, or be built on surplus commercial land as non-residential activities are pared back in response to low overall growth levels and changing retail behaviour.

The table overleaf summarises three different development scenarios for an 828 m<sup>2</sup> site in Rimu Road, Eastbourne, all based on a mix of one and two bedroom premium apartments with lift access. The analysis suggests that a three-level multi-use development, or residential-only development over three or four levels, is likely to perform best.

Because this is a high-value location the scenarios assume one car park per unit (residential and commercial) which exacerbates the impact of car parking on other development variables. A four level complex without internal parking for instance, would struggle to achieve even 40% site coverage without discounting parking and laneway provision and minimising landscaping.

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<sup>11</sup> Conventional wisdom suggests that building to higher densities is unlikely to be commercially successful if land makes up less than (say) 50-60% of the value of a redevelopment site because of the impact of writing down the value of existing improvements.

The table also illustrates the different financial and marketing risk profile of different developments. Attempting to maximise density under Type 'A' provisions (e.g. building to four levels with maximum site coverage) effectively doubles the costs and risks compared to less ambitious forms of development, without significantly enhancing margin.

**Table 6.3: Type 'A' Hypothetical Development Scenarios - Eastbourne<sup>12</sup>**

	Single level multi-use ( four shops and offices)		
	Four level building incl. three levels apartments built above level one garage and entry. Lift access	Three level building with two levels apartments plus level one office/retail. Lift access	Four level building with three levels apartments plus level one office/retail. Lift access
Current use	Single level multi-use ( four shops and offices)		
Proposed Use			
Parking	External	External	External
Current market value	\$660,000		
Current land value	\$630,000		
land area (m2)	828		
Land as % of CV	95%		
Assumed Sale Price	\$900,000	\$900,000	\$900,000
Total Yield (units)	32	16	21
- Apartments	32	12	16
- Commercial	0	4	5
Land needed incl. parking	84%	98%	111%
Site coverage	84%	44%	41%
Gross realisations	\$13,559,000	\$6,107,000	\$7,864,000
Net realisations	\$11,528,538	\$5,337,909	\$6,833,934
Net realisations per m2	\$6,405	\$4,894	\$5,022
Total development cost incl. land	\$11,399,208	\$5,237,769	\$7,430,209
Net profit	\$129,330	\$100,140	-\$596,275
As % of net realisations	1%	2%	-9%

Alicetown and Waterloo may also support apartment-style living in proposed Type 'A' areas over time, although current price points are too low to confidently predict future trends. Alicetown in particular is a popular higher value rental location that can expect to leverage off excess demand in neighbouring Petone.

### Lower value areas

Our feasibility analysis for lower-value locations suggests that suburbs like Epuni, Taita and Naenae are unlikely to support commercial redevelopment at upper levels of density allowable under Type 'A' rules – at least not within the planning period. Current realisation rates are about 50% of what would be required to enable a commercially-successful multi-level mixed use development.

The analysis below is based on three and four-level variants of the Type 'A' ideal in Naenae and Taita with retail/commercial space on the lower level and a mix of one and two bedroom basic amenity apartments above. The objective of the modelling in this case is to deliver about 60% site coverage by minimising car parking requirements. No commercial parking has been allowed for, and parking provision for apartments has been set at 0.5 per bedroom per level. Even at these levels, the analysis suggests that an even lower parking requirement would be required to achieve the site coverage target of 60%.

<sup>12</sup> Note that our analysis is intended to illustrate the impact of different commercial settings in selected areas, and consequential impacts on yield and profitability. Our analysis is based on a range of assumptions that are intended to reflect current market conditions and procurement approaches. They may or may not accurately reflect the costs and margins anticipated by individual developers.

**Table 6.4: Type 'A' Hypothetical Development Scenarios – Taita and Naenae**

Current use	Naenae small two level retail/commercial above		Taita mini-market site	
	Three level building with retail on level one, walk up apartments above	Four level building with retail on level one, three levels of apartments above. Lift access	Three level building with retail on level one, walk up apartments above	Four level building with retail on level one, three levels of apartments above. Lift access
Proposed Use				
Parking	External, re. only, one per 2 bdr, 0.5 per 1 bdr		External, re. only, one per 2 bdr, 0.5 per 1 bdr	
Current market value	\$265,000		\$575,000	
Current land value	\$98,000		\$230,000	
land area (m2)	300		500	
Land as % of CV	37%		40%	
Assumed Sale Price	\$190,000		\$500,000	
Total Yield (units)	8	10	13	18
- Apartments	6	8	10	15
- Commercial	2	2	3	3
Land needed incl. parking	116%	111%	104%	125%
Site coverage	60%	55%	61%	61%
Gross realisations	\$1,732,500	\$2,160,000	\$2,862,500	\$3,957,500
Net realisations	\$1,531,514	\$1,890,904	\$2,517,788	\$3,438,483
Net realisations per m2	\$2,820	\$2,848	\$2,767	\$2,823
Total development cost incl. land	\$2,083,325	\$2,958,920	\$3,608,572	\$5,402,281
Net profit	-\$551,811	-\$1,068,017	-\$1,090,784	-\$1,963,798
As % of net realisations	-36%	-57%	-44%	-57%

In the absence of commercially-viable comprehensive redevelopment, we believe that the investment focus in commercial centres like Tawa and Naenae is likely to be on improving the performance of existing buildings by converting them to residential uses and/or shifting leasing emphasis towards service-based and convenience retail activity.

Some buildings could be converted into multiple occupancy units, which generally fly under the strategic planning radar as a means of accommodating household growth. In our view, boarding houses and bedsits are likely to become a more visible housing form in the coming years, especially in areas with a growing proportion of low-income single people trapped in the rental marketplace.

An alternative future for lower-cost suburban centres is contraction of commercial activity, which suggests smaller centres with surplus land being used for terrace townhouse and other lesser density forms of intensification. In the case of the expanded Epuni Type 'A' area (which comprises mostly cleared residentially-zoned land owned by HNZC), a more likely scenario is that this will be developed as townhouses or lesser density apartments. On this basis, a Type 'B' zoning approach would appear more appropriate.

Because of the size and strategic location of HNZC's holdings in Epuni and other clearance locations, we strongly recommend that HCC work closely with HNZC or any subsequent purchaser to ensure that Council's intensification objectives in these locations are not set aside.

### Periphery Suburbs

Of the 1,682 potential apartment units in Type 'A' areas identified in the *Planning for the Future* report, about a third were in Wainuiomata (435) or Stokes Valley (66). In our view, a Type 'A' zoning may be a step too far in these areas given low underlying land values in the immediate vicinity of each centre. There seems little point in pursuing a height-based intensification agenda in areas where lesser forms of intensification are likely to meet market requirements, and deliver better margins at lower risks for developers.

This is particularly the case for Wainuiomata, where the existing commercial centre faces a challenging future<sup>13</sup>. As we see it, the most likely scenario is for the centre to contract over time and surplus land freed up for residential use.

### Type 'A' Concluding comment

The proposed Type 'A' intensification area provisions are part of a longer term planning vision for Hutt City, and not expected to make a substantial contribution to new housing number over the planning period.

Our overall view is that they should be adopted only in those areas where they have a reasonable chance of success, in particular those parts of the CBD Edge and Petone East study areas that adjoin main commercial centres, Eastbourne, Alicetown and (over time) Waterloo.

In other study areas, the possibility of using mixed use redevelopment to revitalise suburban commercial centres is likely to be limited because (at least based on current market settings) it doesn't make commercial sense. A finer-grained assessment the residential potential of lower-value suburban commercial centres is needed before HCC commits to Type 'A' policies in these locations.

## 6.2 Residential 'B' Intensification Areas

The thirteen locations proposed in *Planning for the Future* for Residential 'B' zoning contain almost 200 hectares and 3,500 properties, and are intended to act as a transition zone between highest density Type 'A' areas and the general residential zone. The main features of the proposed Type 'B' zones are an increase maximum allowable building height to 10 metres to permit an extra level, a requirement to build towards the front of any site with communal parking at the rear. There would be no minimum lot size, and site coverage of up to 60% would be permitted. More liberal height recession planes also apply where development does not border onto the general residential zone. Expected housing outputs are two to three level townhouses, and small blocks of apartments.

The table below summarises area and potential yield information for each of the proposed Type 'B' zones:

**Table 6.5: Potential Yield within Proposed Type 'B' Intensification Areas (*Planning for the Future* 2016)**

	Number of Parcels	Land Area (m <sup>2</sup> )	Expected Gross Yield (units)
Stokes Valley	53	42,884	286
Taita	203	128,459	856
Naenae	179	115,381	769
Avalon	495	313,320	2089
Epuni	447	250,515	1,670
Waterloo	236	137,903	919
CBD Edge	458	376,282	2,509
Alicetown	134	67,070	447
Petone East	724	295,297	1,969
Waiwhetu	94	63,520	423
Moera	87	63,557	424
Eastbourne	79	28,760	192
Wainuiomata	155	91,768	612
	<b>3344</b>	<b>1,974,716</b>	<b>13,165</b>

<sup>13</sup> Wainuiomata centre has lost a number of anchor tenants, including New World (2012) and The warehouse (scheduled for closure in Feb 2017) and has a number of long term retail vacancies



As for Type 'A' areas, we have carried out an alternative yield assessment for each area. Our assessment is based on a sample of the HCC rating database, supplied by HCC and intended to replicate the areas covered by the *Planning for the Future* study.

The database covers 3,600 properties containing about 4,200 residential units of use. The difference between properties and use units is due to the presence of two or more dwellings (or in some cases commercial uses) within a single rateable property. The apartment building in Rimu Street, Eastbourne, for instance, contains more than 20 residential uses on a single site, while other single properties have been divided into flats and are not separately rated.

As an alternative basis for calculating yields, we have firstly 'filtered' the HCC database by excluding sites where the average site area per unit of use is less than 300 m<sup>2</sup>. Below this level, the net gain (units added to the City's housing stock) is likely to be marginal, and the cost of amortising existing improvement values would be likely to reduce a site's attractiveness to developers. Large non-residential sites with sustainable uses (for instance WELTEC in Petone East and HCC's wastewater plant in Barber Street Moera) have also been excluded along with sites owned by foreign governments, and sites with significant heritage value (Vogel House).

The use unit filter also serves to exclude most company-share developments in the study areas, which we believe are unlikely to become available for redevelopment because of their complicated legal and underlying ownership structures.

**Table 6.6: HCC Study Areas - Summary of HCC Rating database for properties in Type 'B' areas**

	No. properties	Units of Use	Average uses per property	Average land area per use unit	Average built area per use unit	Average capital value per use unit (2013)	Average capital value psm land (2013)
Stokes Valley	53	71	1.3	597	128	\$196,746	\$329
Taita	198	260	1.3	475	93	\$187,773	\$396
Naenae	199	234	1.2	493	97	\$218,645	\$377
Avalon	570	575	1.0	529	131	\$364,696	\$690
Epuni	460	524	1.1	475	126	\$298,941	\$629
Waterloo	277	302	1.1	458	127	\$430,861	\$941
CBD Edge	478	499	1.0	637	131	\$696,974	\$1,093
Alicetown	146	175	1.2	383	106	\$332,663	\$869
Petone East	719	884	1.2	327	114	\$386,462	\$1,183
Waiwhetu	129	206	1.6	308	85	227416	\$740
Moera	169	199	1.2	311	80	\$204,050	\$656
Eastbourne	66	105	1.6	270	126	\$490,667	\$1,821
Wainuiomata	152	153	1.0	598	128	\$285,627	\$478
	<b>3616</b>	<b>4187</b>					

An additional 'commercial threshold' filter has then been applied, based on feasibility modelling for different types of development in each of the study areas. The filter serves as a proxy for what a developer would be prepared to pay for a development site (on a per square metre basis including land and any improvements) in the current market. To establish the threshold for individual areas, we have applied a multiplier to 2013 valuation data available at the time of writing, based on recent sale values in each area (generally between 10% and 30%).

The residual pool of properties are adopted as a proxy for development potential in the current market. In line with 'Planning for Growth' assumptions, yield calculations are based on an average of one unit per 150 m<sup>2</sup> of the total land area.

The table and figures overleaf summarise our main findings. In brief:

- After applying the minimum land area filter, there are about 3,000 properties across the fourteen Type 'B' areas that might be suitable for redevelopment under the *Planning for the Future* report's recommended Type 'B' provisions.
- Based on our pricing and development cost assumptions, however, only about 800 of these could support a commercially-viable development in today's market.
- The impact of commercial factors would reduce total development potential from 13,165 new units (under the scenario explored in the earlier *Planning for Growth* report) to about 3,300, with a net growth maximum of about 2,500 units.

These are crude measures, but they do serve to illustrate the importance of taking commercial considerations into account when planning for future urban growth

### What Type of Housing?

The brief calls for us to discuss what sort of housing is likely to be developed within Type 'B' areas under the proposed new zoning provisions over the short, medium and longer term, including. In our view, the rules will be one of a number of influences on the eventual supply of new housing. Other factors include:

**Development scale:** As per our earlier discussion on the supply chain, most current redevelopment projects are likely to be based on single or (at best) dual lot redevelopment, so opportunities to maximise the benefits of height plane rules will be more limited than the earlier report's ideal outcomes.

**Ownership:** For the most part, adjoining land parcels within Type 'B' areas are not held in common ownership, apart from in lower value locations (in particular Taita, Naenae Eponi, Stokes valley and Waiwhetu) where Housing New Zealand is a substantial landowner. In these locations non-commercial considerations may drive development activity, as HNZC (or their successors) focus new development on housing that is a better fit with the affordable housing customer base.

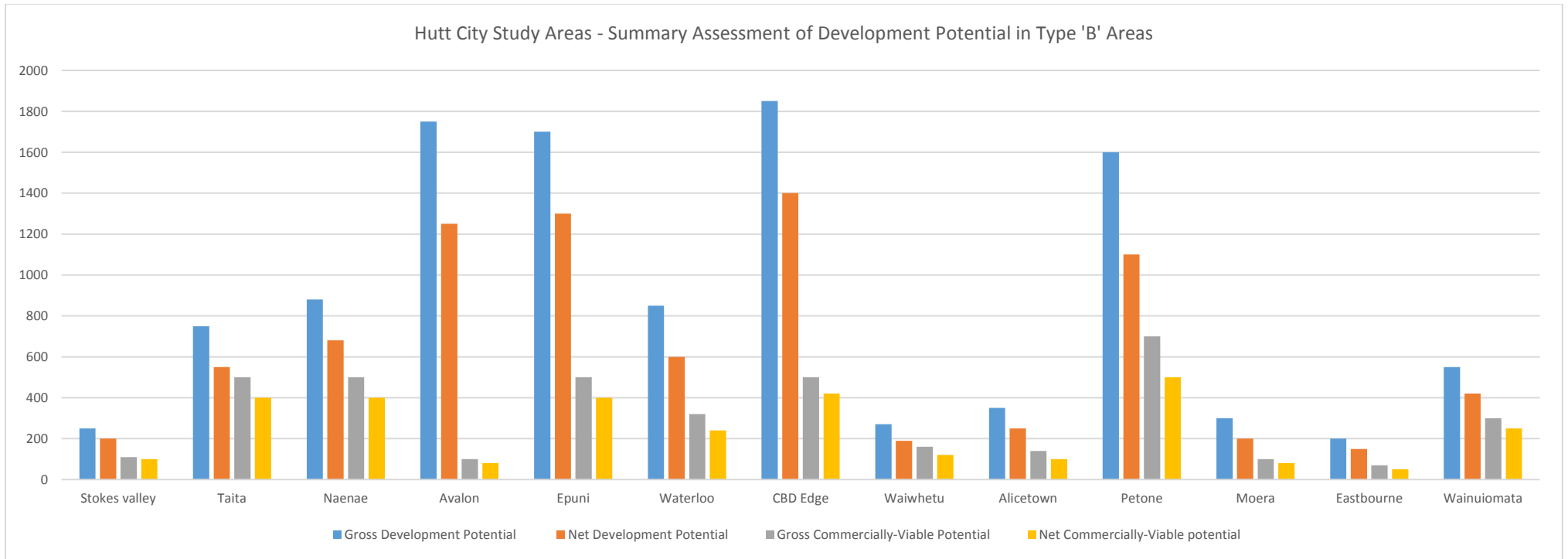
**Customer-driven development:** We cannot expect housing forms in different areas that are not a match with demand. For example, three level townhouses with garages, apartments with lifts and higher specifications are unlikely to be affordable in lower-cost locations, while lesser-amenity housing is unlikely to find a market in higher-priced locations.

**Expected demand:** For the purposes of this paper, we have used current and projected household information to paint a picture of the expected customer base for intensive housing in each area. The reality may be quite different, especially if post-family households are unable to afford new housing product, and opt to stay in place and increase the underutilisation of existing housing stock in the study areas

**Commercial feasibility:** In the final analysis, the supply of new housing over the planning period will be determined by what forms of development deliver the best returns for the least risk.

**Table 6.7: HCC Study Areas - Summary Assessment of HCC Rating database for properties in Type 'B' areas**

	Stokes valley	Taita	Naenae	Avalon	Epuni	Waterloo	CBD Edge	Waiwhetu	Alicetown	Petone	Moera	Eastbourne	Wainuiomata	Totals
Properties with over 300 m2 of land per use unit	50	180	190	500	400	250	450	75	100	500	80	50	120	2945
Gross Development Potential @ 150m2 per unit	250	750	880	1750	1700	850	1850	270	350	1600	300	200	550	11300
Net Potential New units if fully developed	200	550	680	1250	1300	600	1400	190	250	1100	200	150	420	8290
Threshold (\$/psm)	\$400	\$600	\$600	\$700	\$700	\$800-1000	\$1,000+	\$800	\$1,000	\$12-1500	\$600	\$1,500	\$400	
Properties 300 m2+ at or Below Threshold	10	100	100	20	100	80	70	40	60	100	20	20	50	770
Gross Potential New Units @ Threshold	110	400	400	100	400	320	420	160	180	400	100	70	300	3360
Net Potential New Units @ Threshold	100	300	300	80	300	240	350	120	120	300	80	50	250	2590



Other factors such as site configuration (length width and contour), access to infrastructure and geotechnical considerations also come into play, but are beyond the scope of this paper.

### Higher value housing areas

From a commercial feasibility perspective, our analysis suggests that Type 'B' zoned areas in higher-value areas should be able to quickly support a range of different housing typologies, including three level apartments, and townhouse developments with garaging. The market in high value suburban locations is likely to favour higher amenity levels and additional outside space, so we are unlikely to see densities approaching the permitted maximum of 60% in the short to medium term.

Based on modelling results, it could be possible to achieve densities as low as 100 m<sup>2</sup> per unit (gross), for townhouses built over three levels under Type 'B' provisions, although a more likely scenario is about 150 m<sup>2</sup>. Consumer preferences are also likely to continue to favour housing built over (say) two levels with secure garaging and indoor/outdoor amenity at ground level – at least for a transitional period until land values and living preferences begin support three levels with lift access as the norm.

Areas closer to the CBD are more likely to support three level apartments in the short to medium term with open space amenity above ground, and possibly without garaging. In these areas, suburban values have already begun to give way to other consumer preferences such as proximity to work and urban recreation. The images below provide an illustration what might be possible in higher-value Type 'B' zones in the medium to longer term.

*High Value Areas: three level apartments on a dual lot (left) and wider frontage site*



### Mid-value areas

As we move down the suburban value chain, the modelling results suggest that commercial redevelopment is more likely to favour townhouse developments in mid-priced Type 'B' areas like Avalon, Waterloo and Eponi West. In the short to medium term, the as-yet unproven market for suburban apartments is unlikely to achieve price points required to absorb the higher cost of construction, and lesser-amenity variants are unlikely to attract owner-occupier purchasers.

As for townhouses, recent experience in Wellington MDRA areas suggests that two-level housing with or without garaging is becoming the norm for mid-priced townhouse development, as it substantially avoids height plane issues and customer resistance to the loss of personal open space at ground level, and walking up more one flight of stairs.

As noted earlier, the new norm for such housing is based on building footprints of about 38-50 m<sup>2</sup> per unit, which is sufficient to deliver a compact two and three bedroom dwelling. More height means more cost, and spatial benefits that are largely wasted on single person and small non-family

households. The exception is housing targeted at investors, where additional bedrooms equate to higher yields.

### **Lower value areas**

For lower value Type 'B' areas on the valley floor such as Taita and Naenae, the key issue is whether values will increase to a point where widespread townhouse redevelopment is commercially feasible. In the current market, our analysis suggests that a developer would struggle to achieve an acceptable margin based on a single or dual lot redevelopment, unless a development site could be purchased at a substantial discount compared to the current sale prices for existing housing<sup>14</sup>.

This means that larger-scale redevelopment of higher density housing is likely to depend on non-commercial development, for instance new social housing in the proposed Type 'B' areas. Alternately, infill development in these locations might become more commercially viable if developers were able to use Type 'B' provisions to add an extra unit or two while still retaining existing improvements.

### **Periphery Suburbs**

Turning to proposed Type 'B' areas outside of the valley floor, we believe that the prospect of fully-exploiting the height and site coverage elements of the proposed Type 'B' provisions are remote, even in the longer term. This is because the price of development land in these locations is unlikely to increase to a point where three level housing becomes a 'highest and best' use.

In Stokes Valley, large footprint sites in the eastern sector of the area proposed for Type 'B' zoning are mostly owned by Housing New Zealand. The improvements are old, and likely to need replacement within the next 30-40 years. In our view, the best opportunity for increasing yields and generating better urban design outcomes would be to work with HNZ on a master plan for the sector – perhaps including owners of large privately-owned or church-owned land in the same sector? As for properties within the proposed zone to the west of the commercial centre, we see no compelling logic for intensive redevelopment of these areas in preference to other properties within 400 metres of the existing commercial centre.

In Wainuiomata, the analysis suggests there is scant commercial logic for incurring the additional costs of *building up* in the short to medium term, and that future pricing is unlikely to support more than two-level development over the longer term. There is, however ample logic for housing of more modest densities, as illustrated by the success of Woodland Mews.

The main problem is a surplus of potential development land within the wider 400 metre zone that is either currently vacant, or contains industrial and commercial improvements that are expected to become redundant over the 30 year planning period.

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<sup>14</sup> This may be possible if, for instance, Housing New Zealand chooses to on-sell its condemned building sites in preference to carrying out its own redevelopment programme.

### 6.3 Residential 'C' Intensification Areas

As currently proposed, residential intensification 'C' zone rules are designed to encourage terrace townhouse and semi-detached housing development on contiguous sites greater than 2,000 m<sup>2</sup> that lie outside of the designated Type 'A' and 'B' zones. The rules include provision for 60% site coverage and a minimum lot size of 150 m<sup>2</sup>. Across the whole development, developments are expected to average at least 200 m<sup>2</sup> per unit, and manage yard and shading impacts where they adjoin properties in the general residential area.

Our initial view is that a residential Intensification 'C' rule will have a relatively minor impact on future housing supply. This is because:

- There are few land parcels of 2,000 m<sup>2</sup> along the valley floor that have not already been developed and/or can be acquired at a price that would make development commercially feasible over the planning period. Many already-developed large lots are also held in multiple ownership (company share or cross lease), which makes it very difficult for a future developer to purchase a controlling share.
- On the suburban periphery, there are a larger number of large lot properties, often containing only one or two dwellings. They are, however, more likely to be on steeper land, and in locations where the cost of creating townhouses would probably exceed their market value.
- The alternative of compiling smaller lots may be possible in certain cases but as a general rule, a developer would need to acquire at least three adjoining housing lots to achieve the 2,000 m<sup>2</sup> threshold – beyond the patience and financial appetite of most smaller-scale developers?

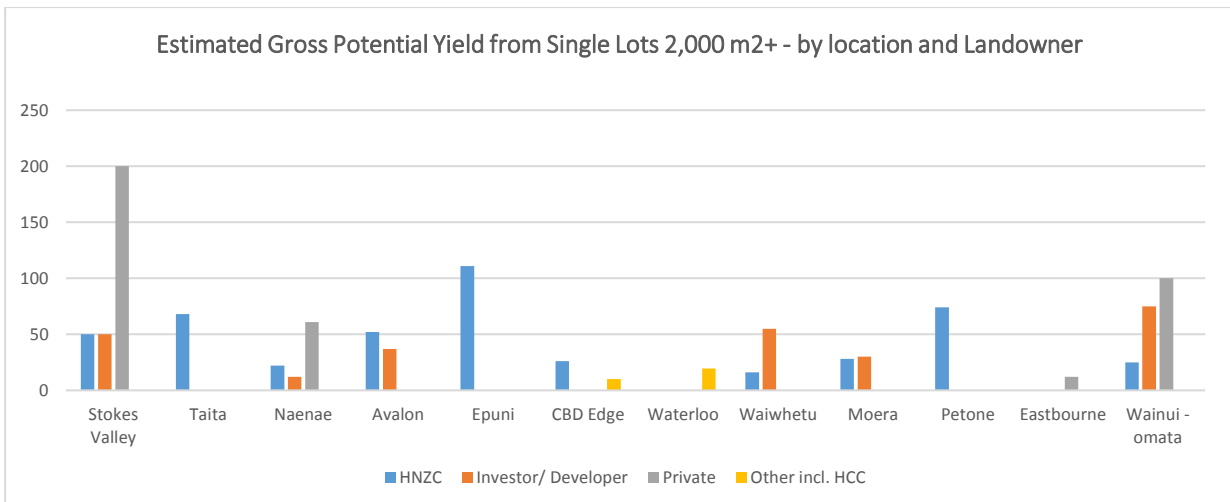
To illustrate the first two points, we have compiled a schedule of all land holdings of more than 2,000 m<sup>2</sup> within the fourteen study areas<sup>15</sup>. The schedule has been filtered to remove those properties that are held in multiple ownership, or have a moderate to steep contour. Also excluded are higher value properties (particularly in Woburn) whose value or ownership makes it unlikely that they would become available for development over the next 30 years. The schedule is further disaggregated by site ownership.

In brief, our analysis suggests that about 40 lots (13 hectares) in Valley floor suburbs have Type 'C' development potential, and could yield around 1,000 units. Some of these are multi-unit housing lots where the improvements are at end-of-life, others have either been cleared (HNZC) or were previously used for other activities like sports clubs.

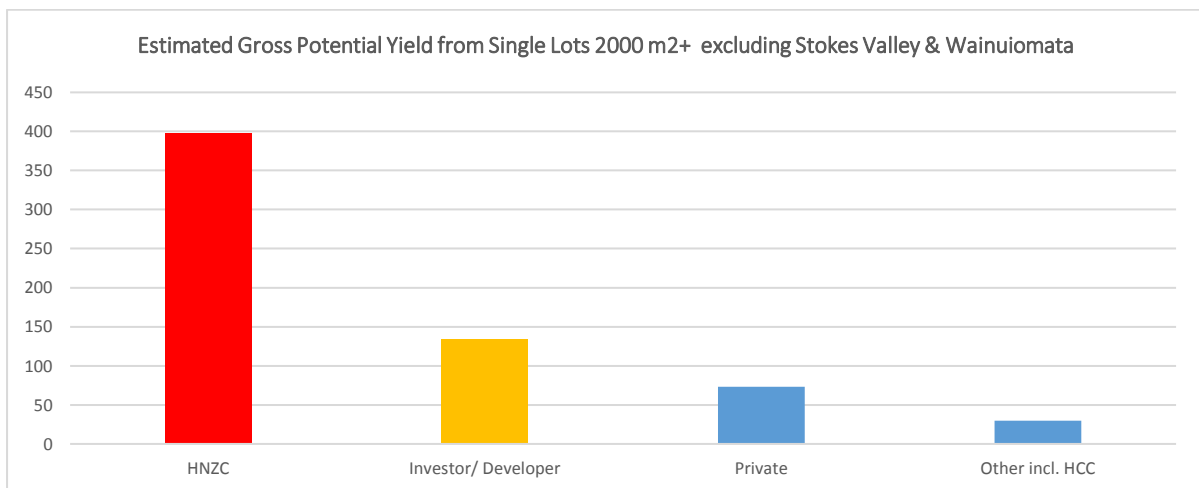
About one hundred lots in Wainuiomata and Stokes valley also contain more than 2,000 m<sup>2</sup>, are reasonably centrally located, and meet our contour and price thresholds. In our view, however, most of these are unlikely to be used for intensive housing development over the planning period. A combination of 'C' rules and local demand may promote the occasional new higher-density single-lot or duplex development, but this is more likely to be built along more traditional lines (single or two level duplex-type with attached garage) unless there is a significant local upsurge in land values.

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<sup>15</sup> HNZC's cleared land adjacent to Epuni Station (Cambridge Terrace/Hampton Court/Durham Street) included in the earlier review's 'A' zone has also been included as a single large 'C' lot as (in our view) it would be ideally-suited for an integrated development along lines suggested by Type 'C' provisions.



It is worth noting how much of the City's Type 'C' potential currently sits with Housing New Zealand (generally as a result of its ongoing clearance policy). Only four investor-landowners are included in the schedule (Avalon and Waiwhetu), while private ownership of large lots within the Valley floor is mainly in Naenae and the CBD edge (Woburn). Sites of 2,000 m2 or more are more common in Stokes Valley and Wainuiomata although it is unlikely that intensive housing development on the suburban periphery was a consideration when the Type 'C' provisions were first proposed<sup>16</sup>.



Based who currently owns Type 'C' land, we expect the benefits of any plan change would be accrued primarily by Housing New Zealand (or their successor) and one or two developers in the short term. Longer term, the rules might also help to facilitate redevelopment of other underutilised properties, for instance church land and redundant sporting and community service facilities.

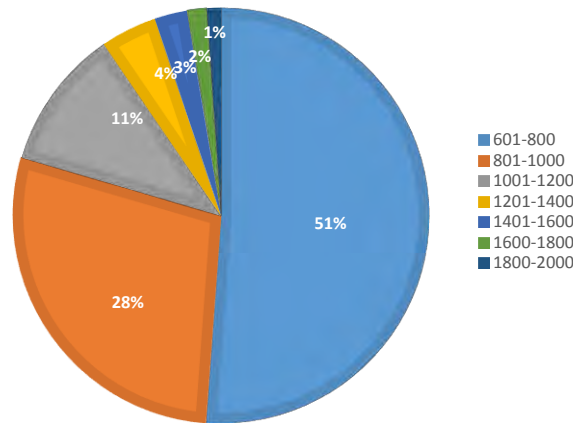
On our view, the 2,000 m2 threshold presents an unnecessary and arbitrary barrier. Is there any reason, for instance, why a Type 'C' development could not be delivered on a smaller site, say 1,400 m2? At this level, a developer would only need to amalgamate two adjoining properties, thereby reducing pre-development holding costs, and opening up more opportunities for smaller builder-developers and neighbours wishing to collaborate on small-sale development.

<sup>16</sup> Indeed, the rules may present a perverse incentive for developer to pursue more intensive developments on the suburban periphery, in preference to locations closer to suburban centres and transport nodes. Such excesses, however, would be subject to the sanction of market forces.



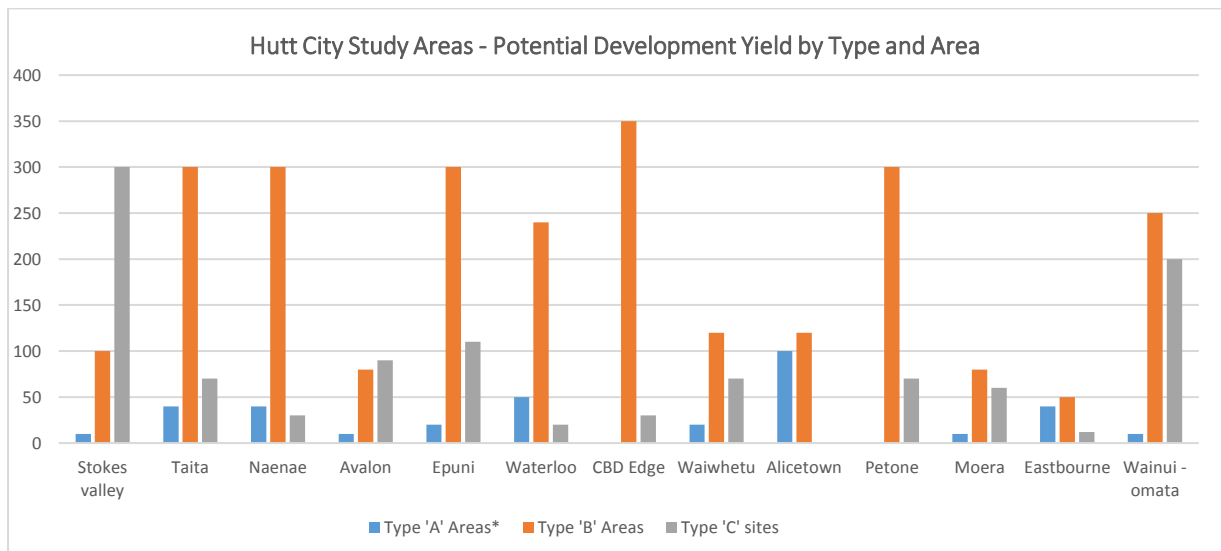
Should consideration be given to lowering the threshold, we suggest that 1,400 m<sup>2</sup> is an optimal balance between practicality and supply, and would be particularly suitable for established mid-century suburbs where original section sizes generally range from about 600 m<sup>2</sup> to 1,000 m<sup>2</sup> and average about 700 m<sup>2</sup>. Such sites make up more than 75% of the 17,000 larger-lot residential properties in Hutt City that fall below the currently-proposed threshold, and are more likely to be within the valley floor and on level land. Larger lots within the sample are more likely to have contour issues and/or be in outlying suburbs.

Hutt City 2016 – Residential Properties 600-2,000 m<sup>2</sup> Total Land Area (PropertyGuru)



### 6.4 Development Capacity and Feasibility – Concluding Comment

The figure below summarises our assessment of overall yields likely to be delivered under the proposed new residential intensification provisions:



The key message from this assessment is that HCC will not be able to rely solely on the proposed Type 'A' 'B' and 'C' intensification area provisions to deliver required levels of housing growth. To achieve a target of 6,000 new units over the next 30 years, the CBD and Petone Central will also need to deliver apartment levels in line with earlier expectations. Risks associated with flooding and other natural events will also need to be mitigated if high-growth areas like Petone East are to be available for redevelopment over the planning period.

Other opportunities for intensification could also be explored, including how to increase the contribution of infill housing development and other redevelopment activity outside of the proposed residential intensification zones.

A better understanding of how 'invisible' forms of intensification are contribute over the planning period would also be useful, especially if boarding houses and other dwelling conversions become the private sector's default response to housing low income singles.

Gray Partners limited  
December 2016

**Attachment 7**

Public Voice Limited (May 2017). *Hutt City Council – Residential Intensification Survey*. Hutt City Council DOC/17/97507.



# **HCC - Residential Intensification Survey**

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## **Welcome**

**Welcome to the Hutt City Council Residential Intensification Survey.**

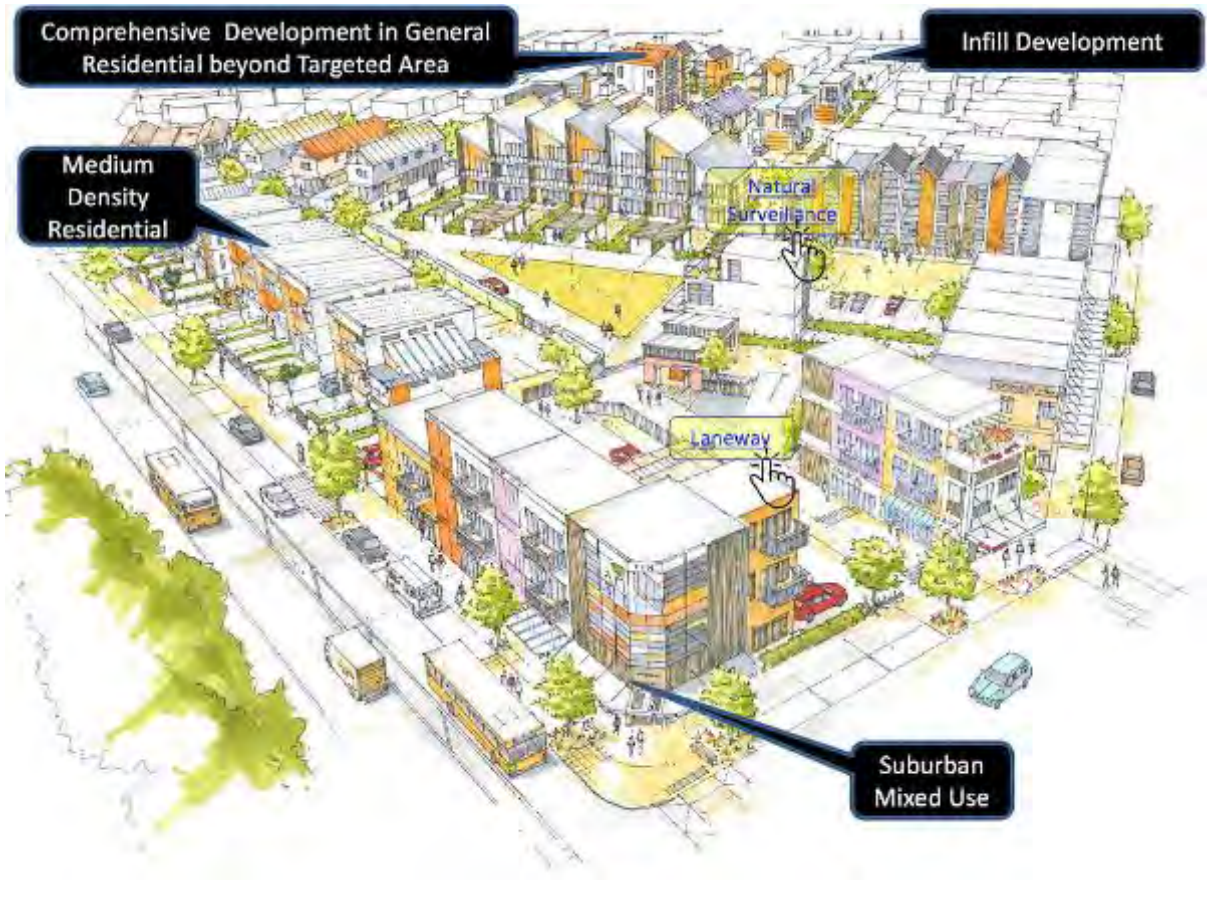
**Hutt City Council is considering changes to the District Plan to enable residential intensification in Targeted Areas – around transport hubs and shopping centres - as well as on larger sites throughout the General Residential Activity Area (zone).**

**The changes would provide for:**

- more houses to cater for population growth and**
- more variety of housing styles and sizes to cater for changing needs and aspirations in different sectors of the community.**

**This survey shows you the types of development being considered for Targeted Areas and larger sites and infill in General Residential and asks whether or not you support them. In addition, it shows you where Targeted Areas could be and asks whether or not you support them.**

**The picture below shows how a targeted area could develop over time. The different types of development are discussed on the following pages.**



## Design Guide

Hutt City's population is growing. Demand for housing is high. Traditional infill development does not always lead to high-quality living spaces (see the 2 examples above). Council proposes to require intensive development that needs resource consent to follow a design guide.



Large blank walls at the end of a row are unappealing

Narrow sides yards can waste space without benefitting the neighbouring houses





**1) Do you agree that intensive development that needs resource consent should have to follow a design guide?**

Strongly disagree     Disagree     Neutral     Agree     Strongly agree

**2) Comments/Reasons**

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# Mixed Use Development



## Suburban Mixed Use Development

In targeted areas, a new Suburban Mixed Use zone would replace the existing Suburban Commercial local shopping zone. The new zone would enable 10 metre high buildings (3 storeys) compared to the current 8 metre high buildings (2 storeys). The ground floor would continue to be shops and cafes linking to public spaces. The 2nd and 3rd floors would be offices or residential. A design guide would apply to new development that needs resource consent.

### 3) What do you think?

- I support the Suburban Mixed Use zone
- I don't support the Suburban Mixed Use zone
- Don't know

### 4) Comments/Reasons

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## Medium Density Residential Zone



## Medium Density Residential Zone

The Medium Density Residential zone would be a new zone next to the proposed Suburban Mixed Use zone. Residential development would be enabled to go to 10 metres in height (3 storeys). Existing requirements for yards and [recession planes](#) would continue to separate Medium Density Residential buildings from buildings in adjoining residential zones. A design guide would apply to new development that needs resource consent.

### 5) What do you think?

- I support the Medium Density Residential zone
- I don't support the Medium Density Residential zone
- Don't know

**6) Comments/Reasons**

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## Residential Intensification Zone



### Medium Density Residential Zone New Development in Relation to Existing Development

The question on the next page refers to the Medium Density Residential zone that provides for 3 storey medium density housing in targeted areas at transport and shopping centres.

The question is about how Council should allow new development or redevelopment in the zone to affect existing houses that are also within the zone.

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# Transition Options

Option A



Transition Option A requires yard separation and recession planes for new development.

These protect the existing single storey house in the same zone but constrain redevelopment so the full potential of the zone may not be realised.



## Option B



Transition Option B requires yard separation but allows full building height.

This is a compromise position constraining some development potential and providing some protection to the existing house in the same zone.

## Option C



Transition Option C has no yard separation and allows full building height. This allows development to take full advantage of the new zone, and expects that neighbouring sites within the zone will, over time, also redevelop to the zone's maximum potential.

Buildings on the boundary may have a common wall.

***[Click to see 3 options A, B and C](#)***

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# Transition Options

7) Which option do you support?

Click one of the following images

Option A



Option B



( ) Option C



( ) Don't know

**Don't know**

**8) Comments/Reasons**

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## Comprehensive Residential Development on General Residential sites 1400m<sup>2</sup> or larger



## Comprehensive Residential Development on General Residential sites 1400m<sup>2</sup> or larger

In General Residential, site-specific comprehensive development would be enabled to maximise use of the sites. Large sites could be in more than one property title. A design guide would apply to new development. At the external boundary of the overall site existing requirements for yards and [recession planes](#) would continue to provide separation for neighbouring properties. Within the site there would be scope for design solutions such as 3 storey houses, row houses, clustered houses and shared parking and outdoor areas as long as standards including outdoor living space were achieved. Comprehensive Residential Development promotes intensification within the site as long as effects beyond the overall site boundary are managed.

**9) What do you think?**

I support Comprehensive Residential Development on larger sites in the General Residential zone

I don't support Comprehensive Residential Development on larger sites in the General Residential zone

Don't know

**10) Comments/Reasons**

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# Infill Development in General Residential



## **Infill Development in General Residential**

**Traditional Infill Development (see the 2 examples above) is already provided for and would continue as long as standards including outdoor living space were achieved.**

### **11) What do you think?**

- I support traditional Infill Development in General Residential
- I don't support traditional Infill Development in General Residential
- Don't know

### **12) Comments/Reasons**

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## Infill Development in General Residential – Small Houses



## Infill Development in General Residential – Small Houses

**This is Infill Development that enables an additional small house (think granny flat or tiny house) to be added to a relatively small section that would not be big enough for traditional infill development. Specific standards would have to be met.**

### **13) What do you think?**

- I support Infill Development of small houses (such as granny flats or tiny houses) in General Residential
- I don't support Infill Development of small houses (such as granny flats or tiny houses) in General Residential
- Don't know

**14) Comments/Reasons**

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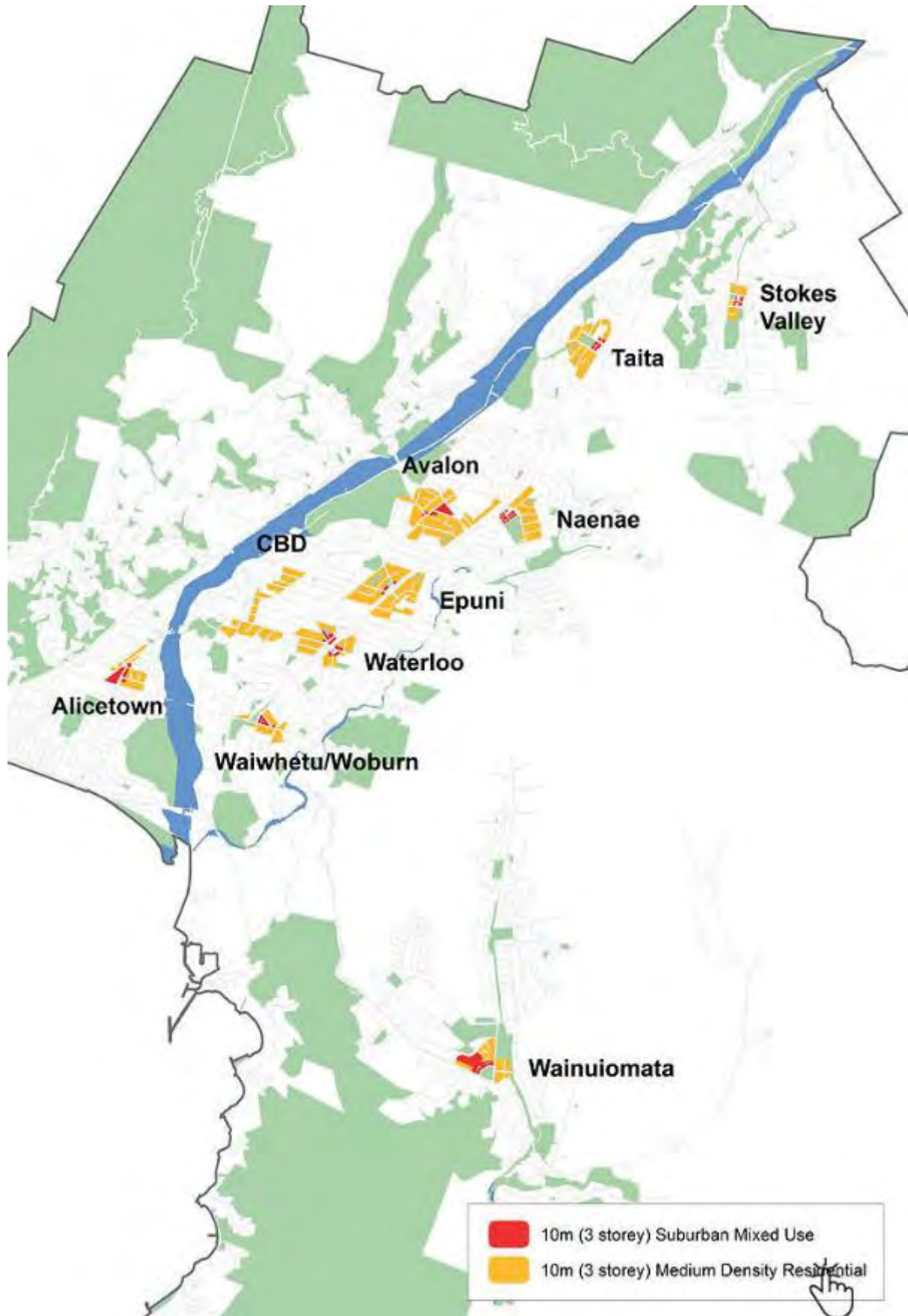
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# Location of Targeted Areas



## **Location of Targeted Areas**

**The targeted areas have been selected because they are close to public transport, local commercial centres, reserves and schools.**

**Lower Hutt CBD is already enabled for apartment development. Only the CBD Edge is part of this project.**

**Petone, Moera and Eastbourne have natural hazards or infrastructure constraints that need to be considered before enabling residential intensification. Those areas are not targeted in this project but will be looked at in a future project.**

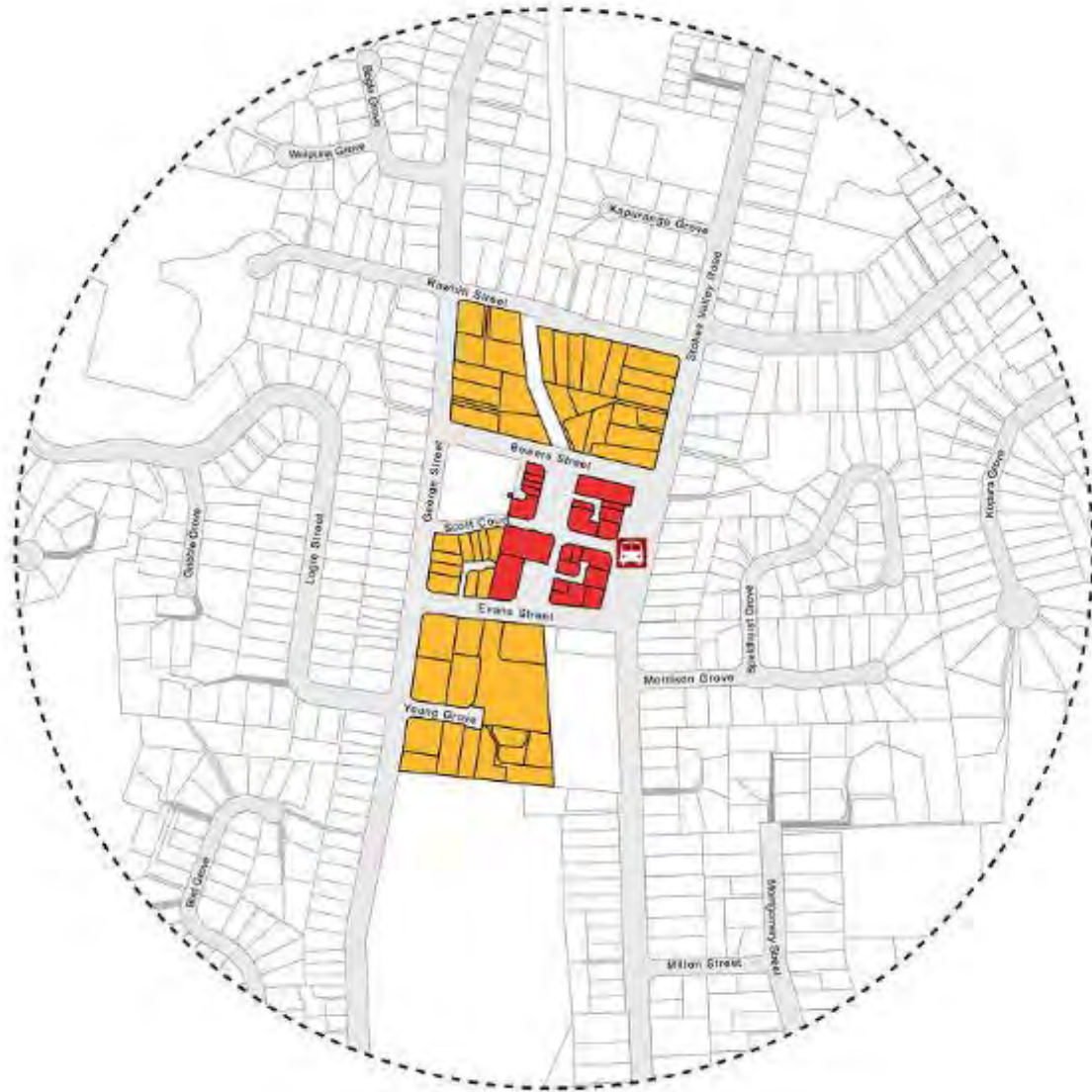
**The following pages show each targeted area and ask for your feedback.**

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# Stokes Valley

# Stokes Valley





**15) The Stokes Valley targeted area is**

Too small

About right

Too big

Don't know

**16) Comments/Reasons**

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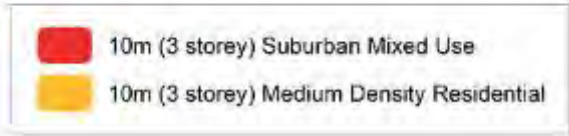
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# Taita

# Taita



**17) The Taita targeted area is**

Too small

About right

Too big

Don't know

**18) Comments/Reasons**

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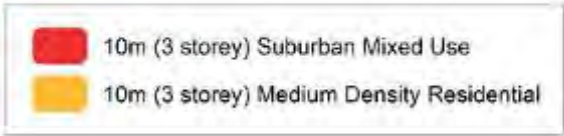
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# Naenae

# Naenae



**19) The Naenae targeted area is**

Too small

About right

Too big

Don't know

**20) Comments/Reasons**

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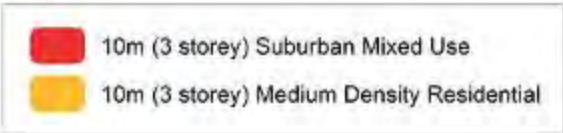
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# Avalon

# Avalon



**21) The Avalon targeted area is**

Too small

About right

Too big

Don't know

**22) Comments/Reasons**

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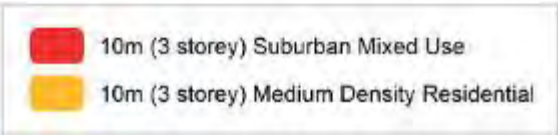
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# Epuni

# Epuni



**23) The Epuni targeted area is**

Too small

About right

Too big

Don't know

**24) Comments/Reasons**

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**25) The Waterloo targeted area is**

Too small

About right

Too big

Don't know

**26) Comments/Reasons**

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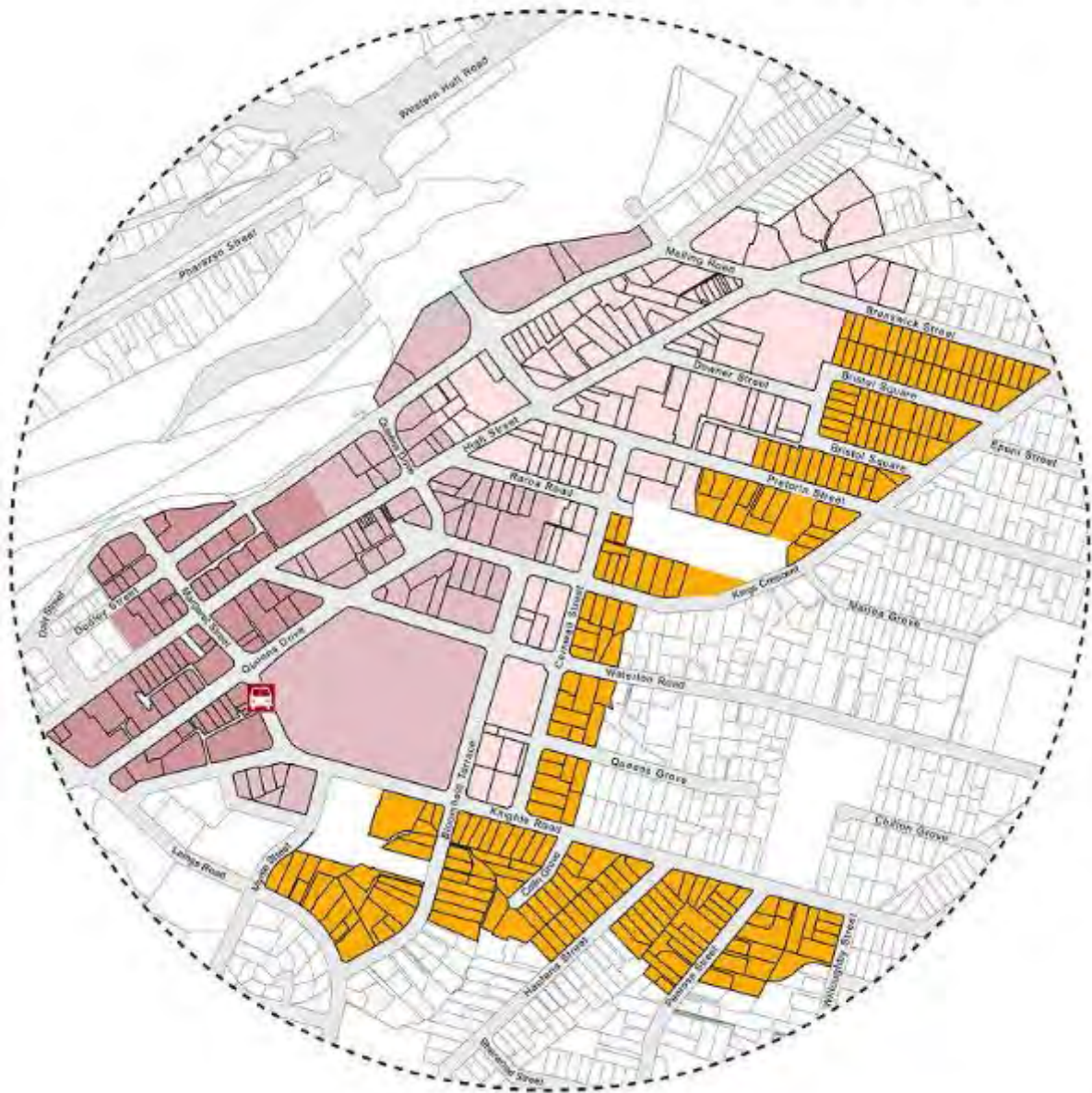
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# Lower Hutt CBD Edge

# Lower Hutt CBD Edge



**27) The Lower Hutt CBD Edge targeted area is**

Too small

About right

Too big

Don't know

**28) Comments/Reasons**

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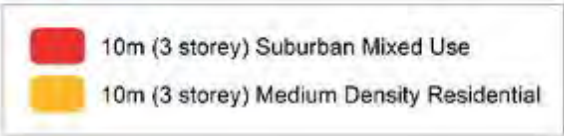
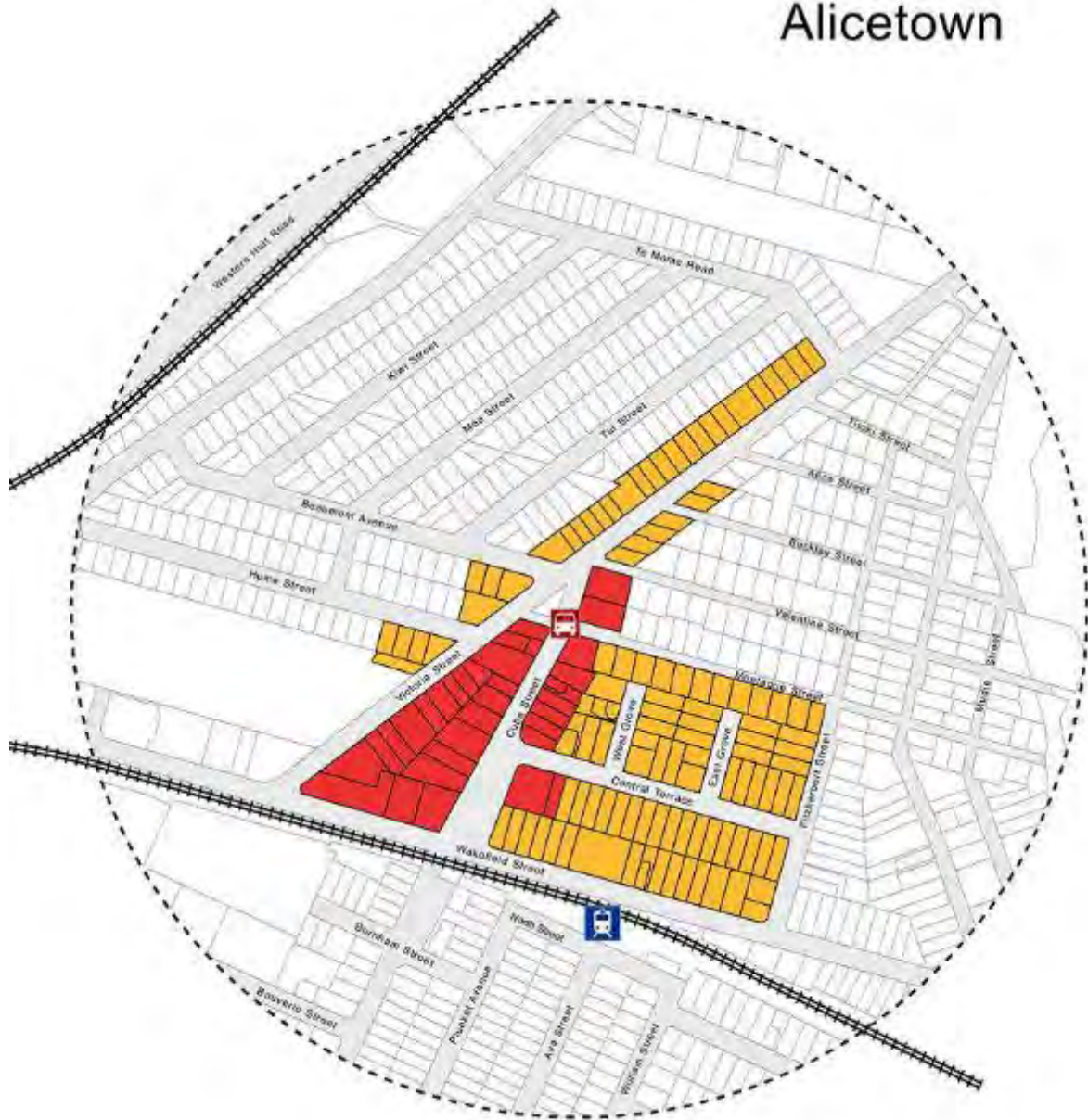
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# Alicetown

# Alicetown





**29) The Alicetown targeted area is**

Too small

About right

Too big

Don't know

**30) Comments/Reasons**

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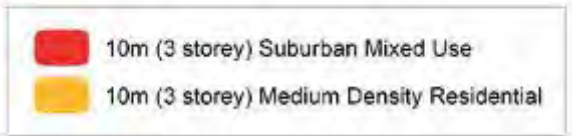
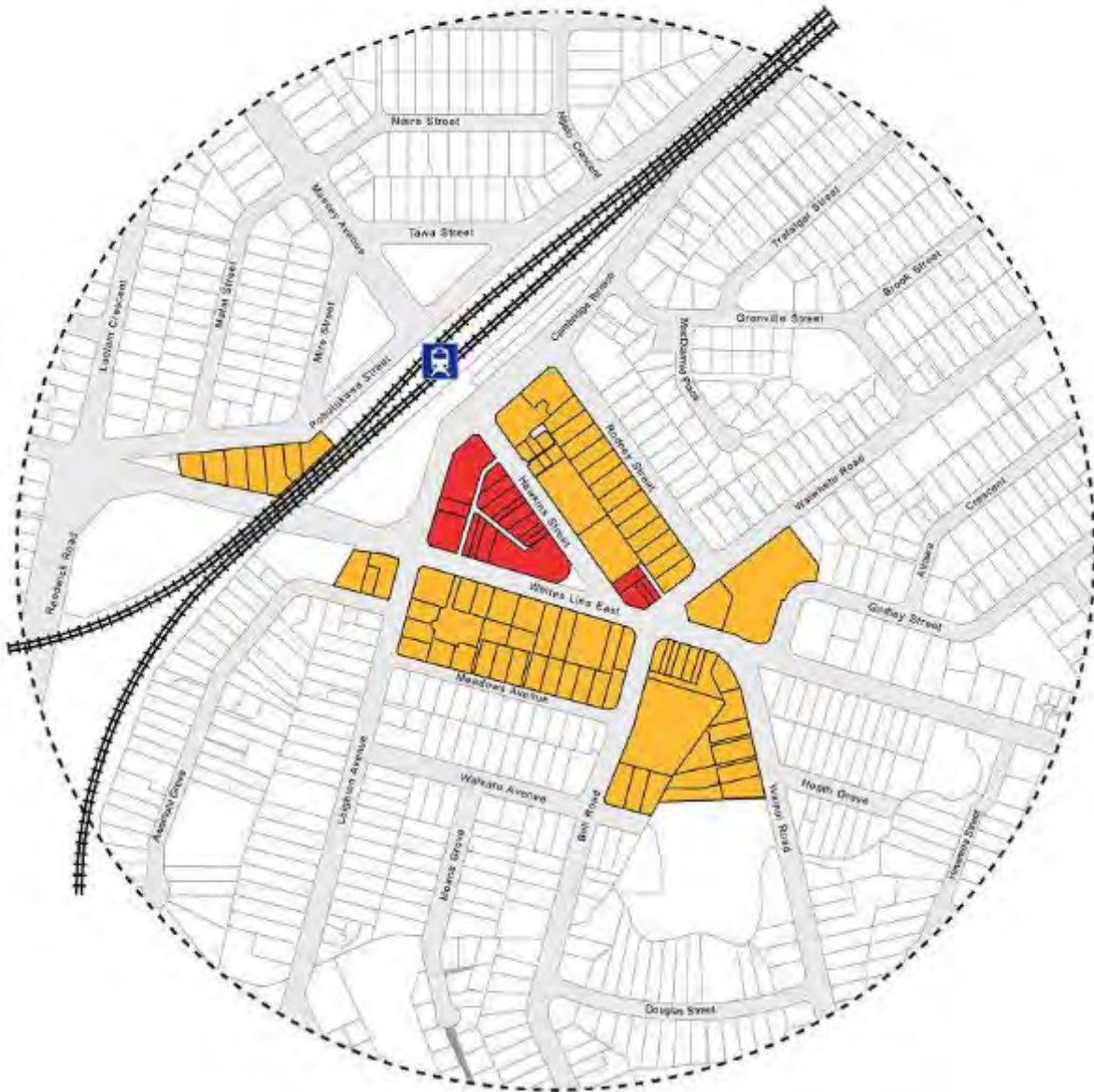
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# Waiwhetu/Woburn

## Waiwhetu/Woburn



**31) The Waiwhetu/Woburn targeted area is**

Too small

About right

Too big

Don't know

**32) Comments/Reasons**

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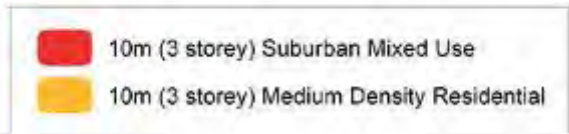
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# Wainuiomata

# Wainuiomata



**33) The Wainuiomata targeted area is**

Too small

About right

Too big

Don't know

**34) Comments/Reasons**

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# Hutt City Views

## Hutt City Views

To make it easier and faster to provide feedback to Council, we have built an online research panel called Hutt City Views. Hutt City Views enables you to give your feedback to council online.

If you join Hutt City Views, every now and again you will be asked to complete short online surveys about different issues affecting the city. It's a quick and easy way to make sure your voice is heard. Plus everyone who signs up goes into the draw to win a \$50 NZ Post Prezzy Card.

35) Would you like to join Hutt City Views and be kept up to date with the results of this and other surveys?

Yes

No

36) Please enter your first name.

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37) Please enter your email.

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## Demographics

The following demographic questions are to ensure we have a cross section of people from Lower Hutt. This information is kept strictly confidential and is not used to identify any individual response.

**38) Your gender?**

- Male
  - Female
  - Gender diverse
  - Prefer not to say
- 

## Age

**39) Which of the following age groups do you fall into?**

- 16 – 19 years
  - 20 - 29 Years
  - 30 - 39 Years
  - 40 - 49 Years
  - 50 - 59 Years
  - 60 - 69 Years
  - 70 Years and over
- 

## Demographics - Suburb

**40) Which suburb do you live in?**

- Alicetown



- Avalon
- Belmont
- Boulcott
- Days Bay
- Eastbourne
- Epuni
- Fairfield
- Gracefield
- Harbour View
- Haywards
- Hutt Central
- Kelson
- Korokoro
- Lowry Bay
- Mahina Bay
- Manor Park
- Maungaraki
- Melling
- Moera
- Naenae
- Normandale
- Petone
- Point Howard
- Seaview
- Stokes Valley
- Sunshine Bay
- Taita
- Tirohanga
- Wainuiomata
- Wainuiomata Coast
- Waiwhetu
- Waterloo
- Woburn
- York Bay
- Prefer not to say

( ) Other - (Please specify):

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## Demographics - Ethnicity

**41) Which ethnic group do you belong to?**

*(Select those that apply to you)*

- African
  - Chinese
  - Cook Islands Maori
  - Indian
  - Latin American
  - Māori
  - Middle Eastern
  - New Zealand European
  - Niuean
  - Samoan
  - Tongan
  - Other (Please specify):
- 

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## Thank You!

**Thank you for taking our survey. Your response is important to us and will help to shape a plan change proposal that will go through a formal public consultation process. You can also share this survey with your friends on Facebook by clicking the button below.**



**Attachment 8**

Public Voice Limited (June 2017) *Hutt City Council – Residential Intensification Survey Results*.  
Hutt City Council DOC/17/97058.



# Hutt City Council – Residential Intensification Survey

June 2017



The Hutt City Council Residential Intensification survey was conducted online from 15<sup>th</sup> of May 2017 to 5<sup>th</sup> of June 2017. Survey invitations were sent to all Hutt City Views members (*online research panel*), a total of 2,002 contacts. 528 responses were received from panel members.

The survey was also open to the general public via a variety of online channels. This included the Council website, Facebook, and Neighbourly. The survey was also publicised in the Hutt News. A total of 1,012 responses were received from the general public.

Responses were received from:



The survey has been managed by PublicVoice Ltd. Any queries regarding this report can be addressed to:

Jared Bothwell  
PublicVoice  
Account Director  
04 - 589 5552  
jared@publicvoice.co.nz

## Interpreting The Results

Hutt City Views is the Council's online research panel. It contains over 2,000 people who live in Hutt City and have agreed to take part in online surveys about issues facing the City. The aim of the panel is to provide the Council with a representative sample of people.

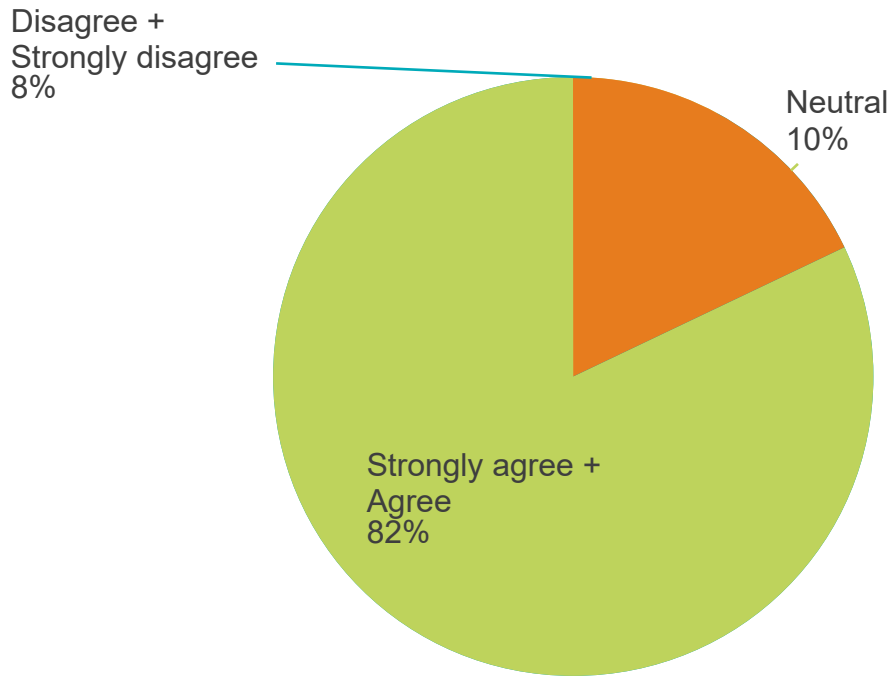
For this survey, weighting has been applied to the results of panel members to remove any potential bias for age or gender.



A close-up photograph of a survey form. The form features several rows of checkboxes and smiley faces. The smiley faces are in red (sad), orange (neutral), and green (happy). A hand holding a red pen is marking a checkbox. The background is white with a blue gradient at the bottom.

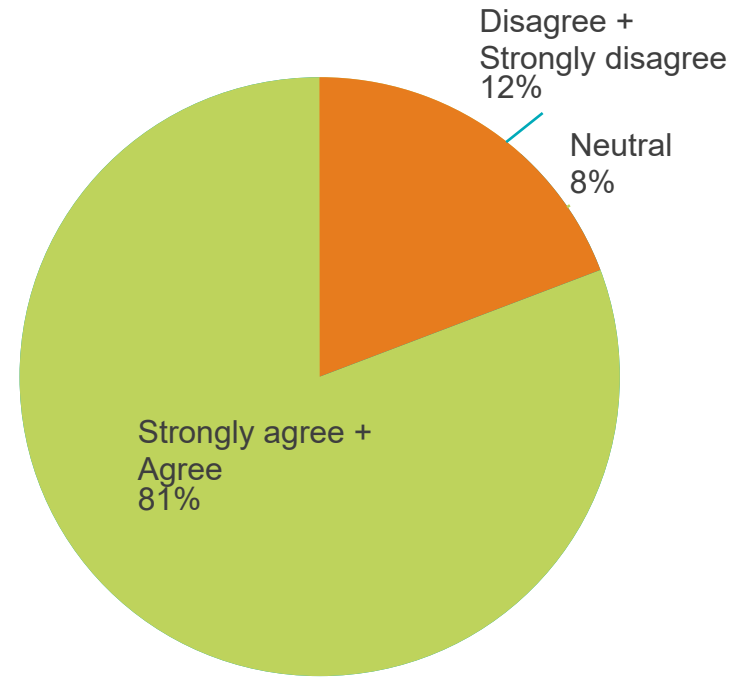
# Survey Summary

# Do you agree that intensive development that needs resource consent should have to follow a design guide?



Panel Members

Filter: Panel Members; Weight: Age and Gender; base n = 446; total n = 528



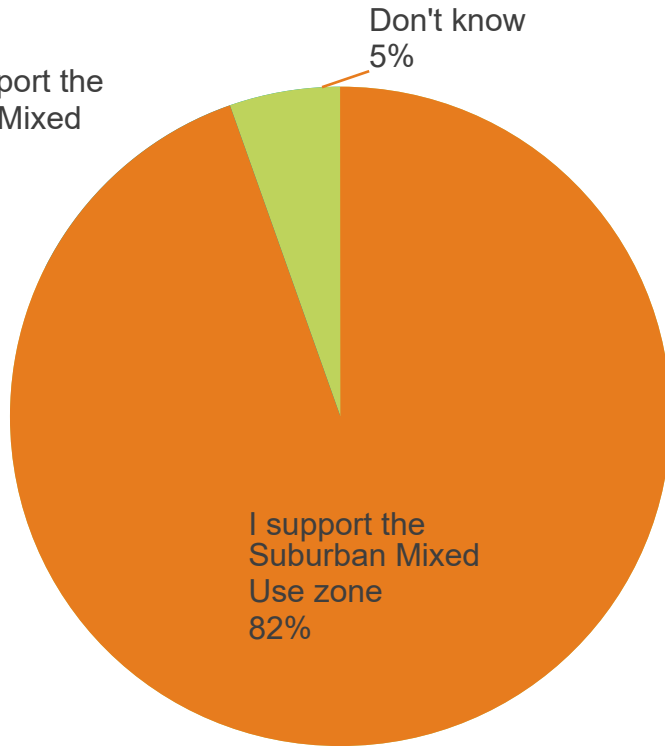
General Public

Filter: General Public; Unweighted; base n = 979; total n = 1012



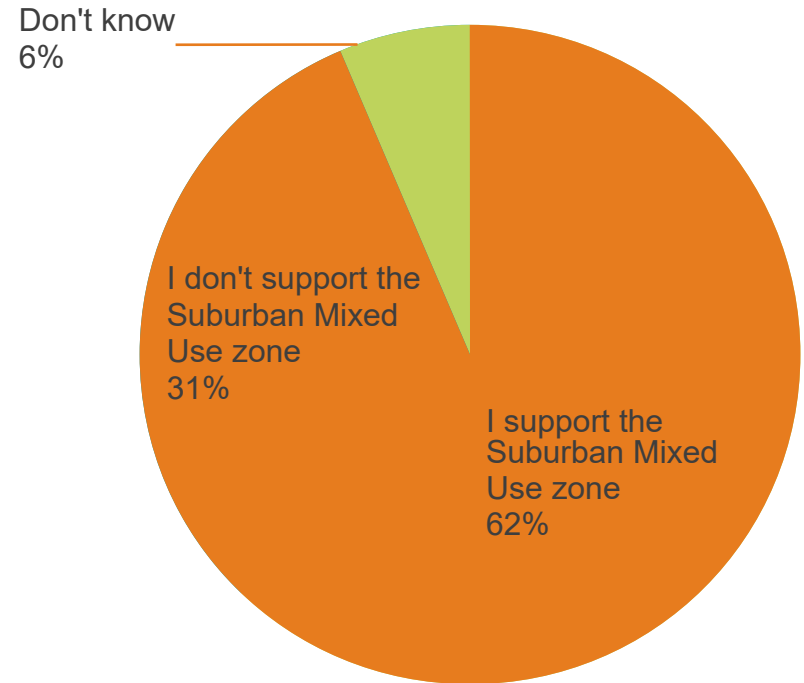
# Suburban Mixed Use Development





Panel Members

Filter: Panel Members; Weight: Age and Gender; base n = 444; total n = 528

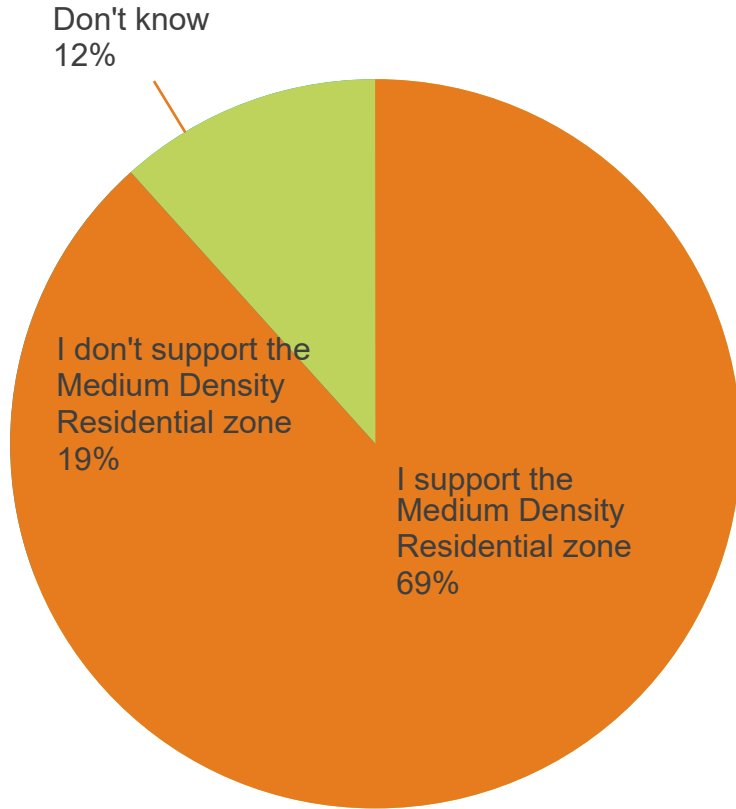


General Public

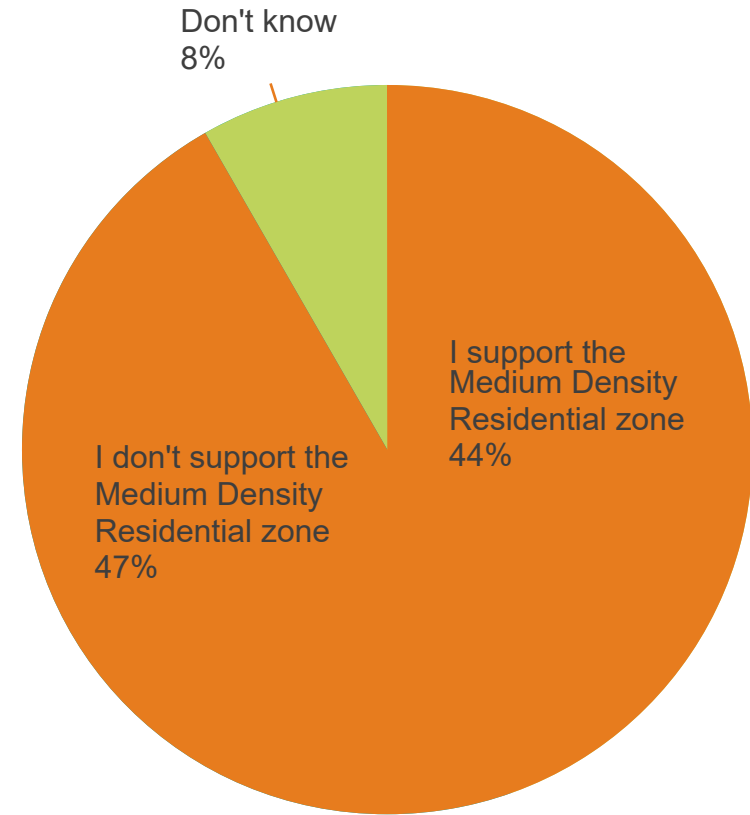
Filter: General Public; Unweighted; base n = 967; total n = 1012



# Medium Density Residential Zone



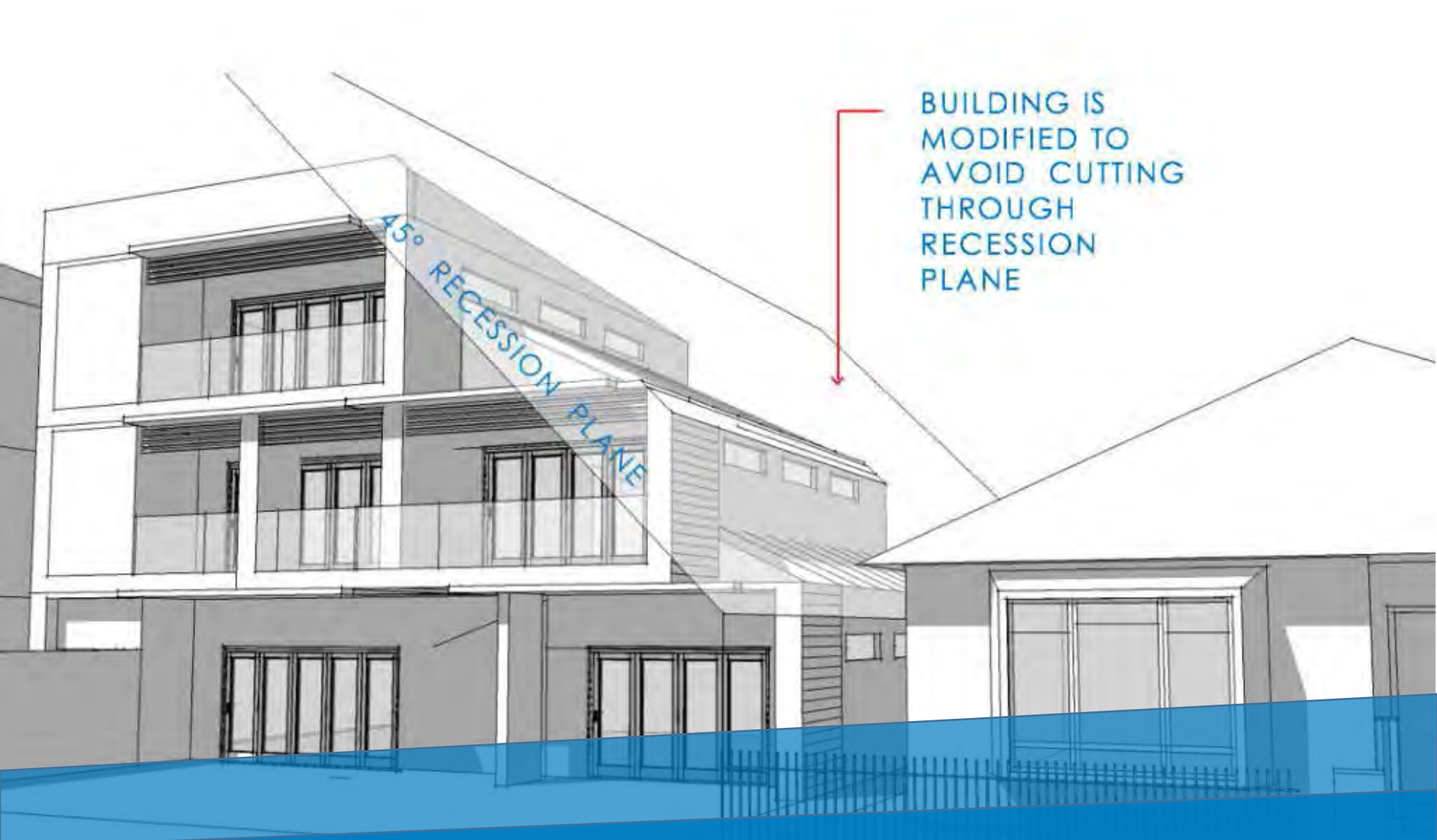
Panel Members



General Public

Filter: Panel Members; Weight: Age and Gender; base n = 445; total n = 528

Filter: General Public; Unweighted; base n = 929; total n = 1012



BUILDING IS  
MODIFIED TO  
AVOID CUTTING  
THROUGH  
RECESSION  
PLANE

# Transition Options



# Transition Options - Which option do you support?

## Option A



## Option B

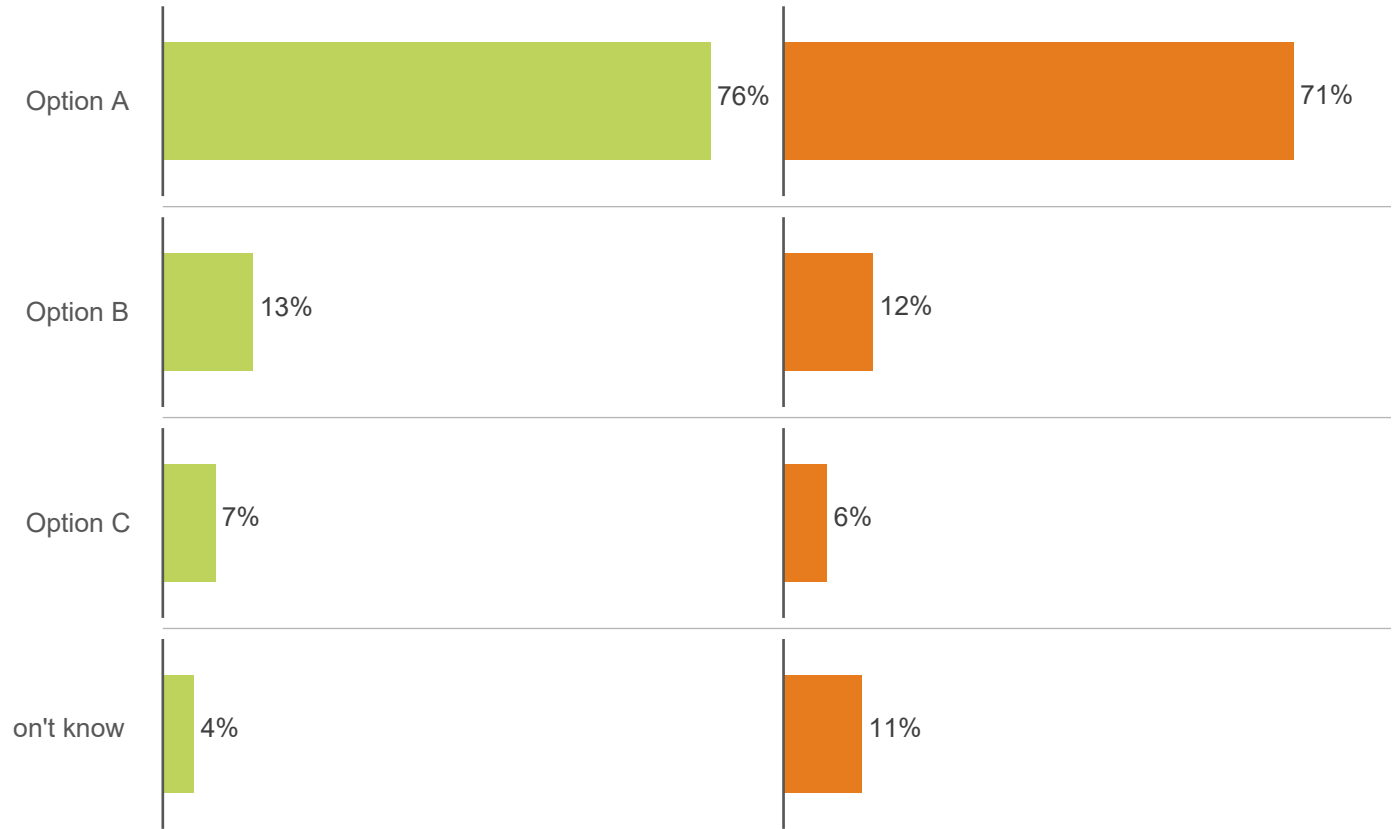


## Option C



Panel Members

General Public



base n = 1250; total n = 1540; Panel Members weighted by Age and Gender

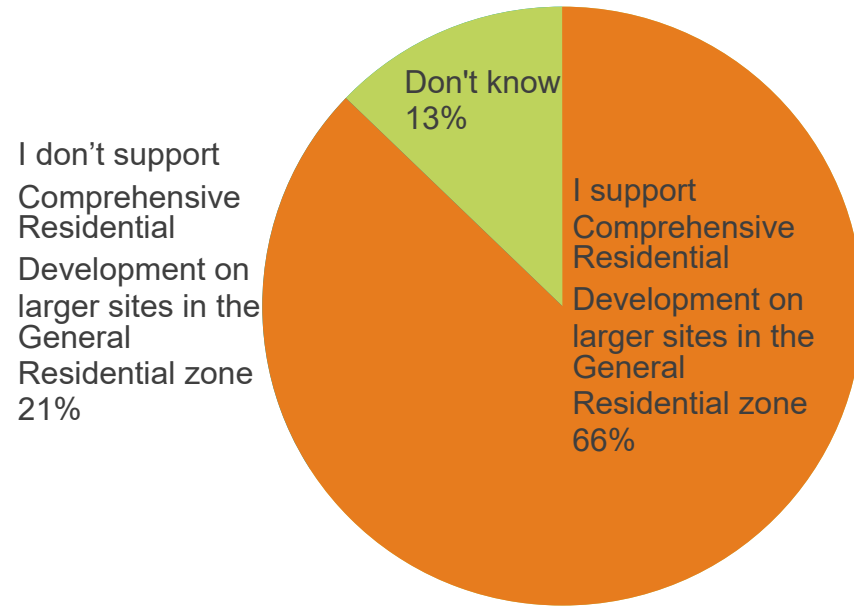


Intensive development within the site

Neighbours beyond the overall site protected by standard boundary rules e.g. yards and recession planes

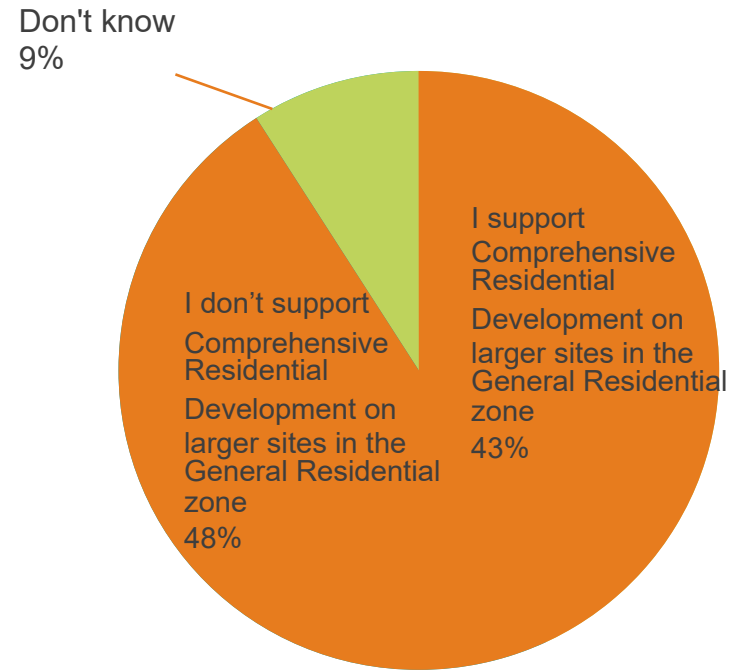
Neighbours beyond the overall site protected by standard boundary rules e.g. yards and recession planes

# Comprehensive Residential Development on General Residential sites 1400m<sup>2</sup>



Panel Members

Filter: Panel Members; Weight: Age and Gender; base n = 443; total n = 528



General Public

Filter: General Public; Unweighted; base n = 837; total n = 1012

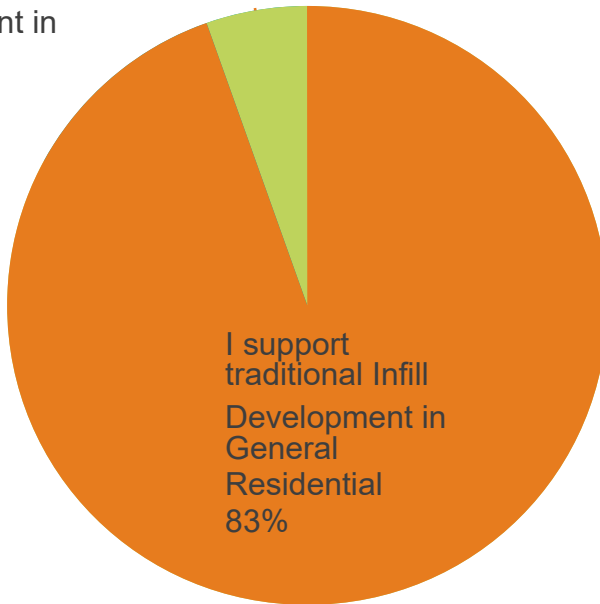


# Infill Development in General Residential



I don't support traditional Infill Development in General Residential  
12%

Don't know  
5%

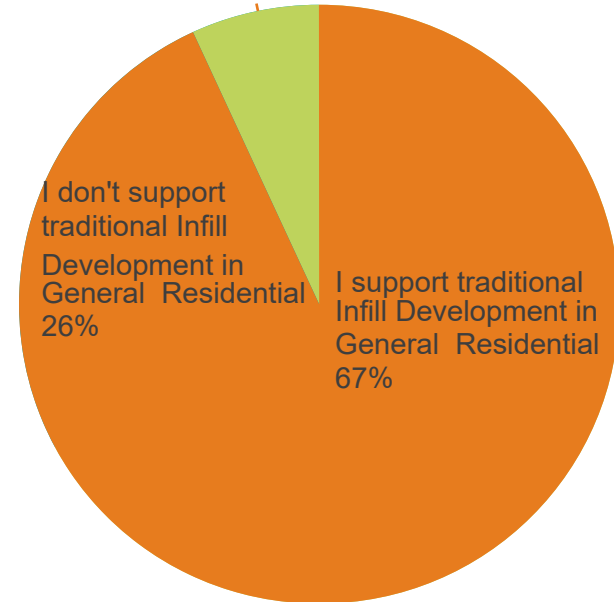


Panel Members

Don't know  
7%

I don't support traditional Infill Development in General Residential  
26%

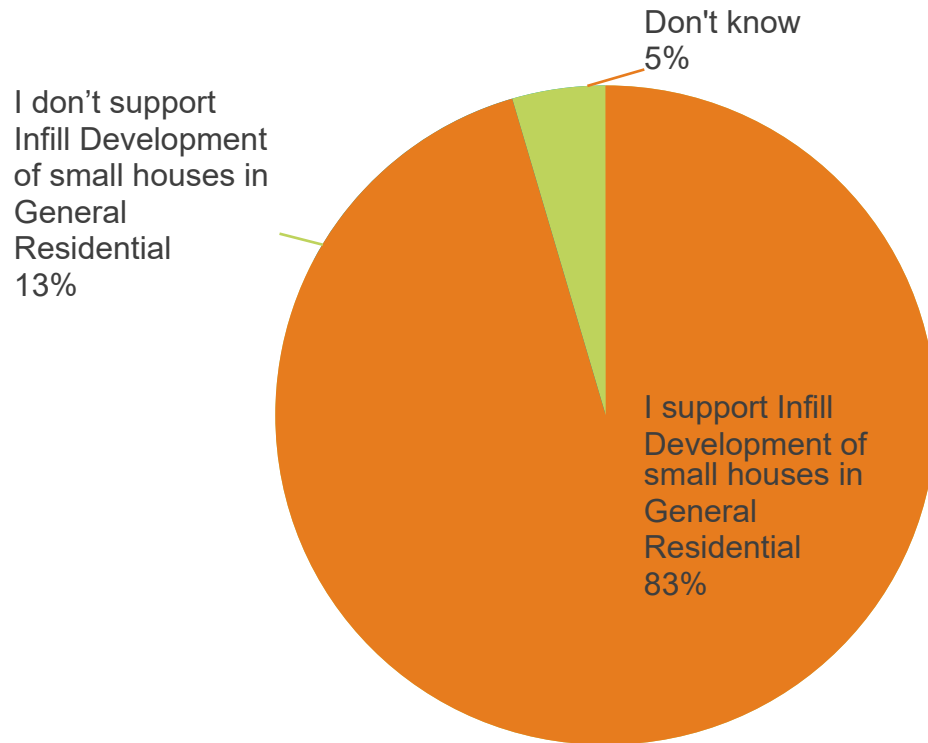
I support traditional Infill Development in General Residential  
67%



General Public

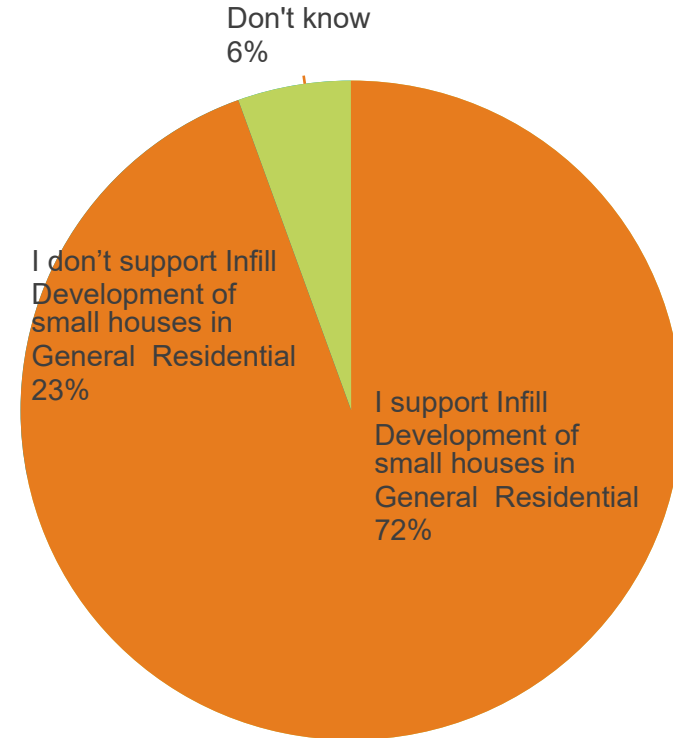


# Infill Development in General Residential – Small Houses



Panel Members

Filter: Panel Members; Weight: Age and Gender; base n = 444; total n = 528



General Public

Filter: General Public; Unweighted; base n = 813; total n = 1012



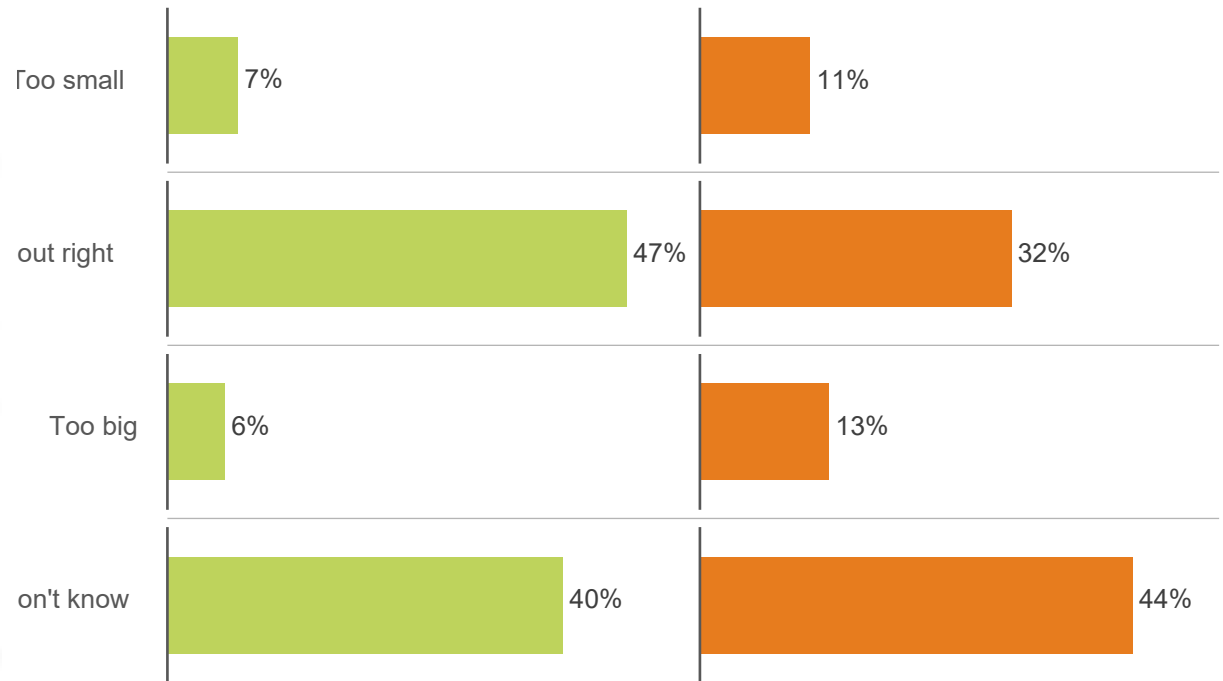
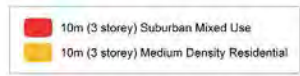
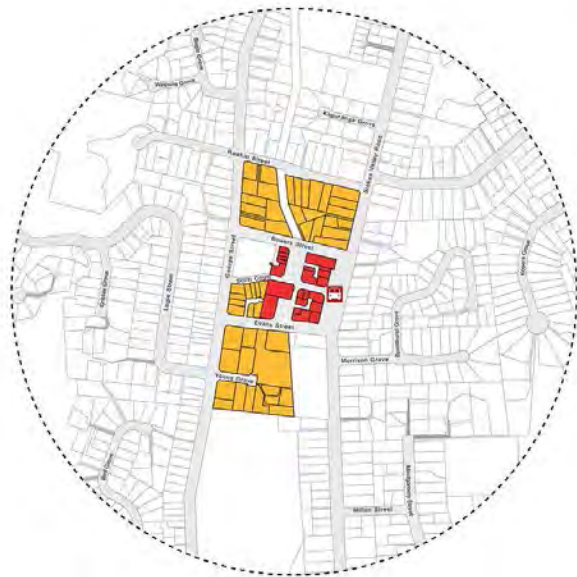


# Targeted Areas

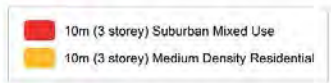
## Stokes Valley

### The Stokes Valley targeted area is.... Panel Members

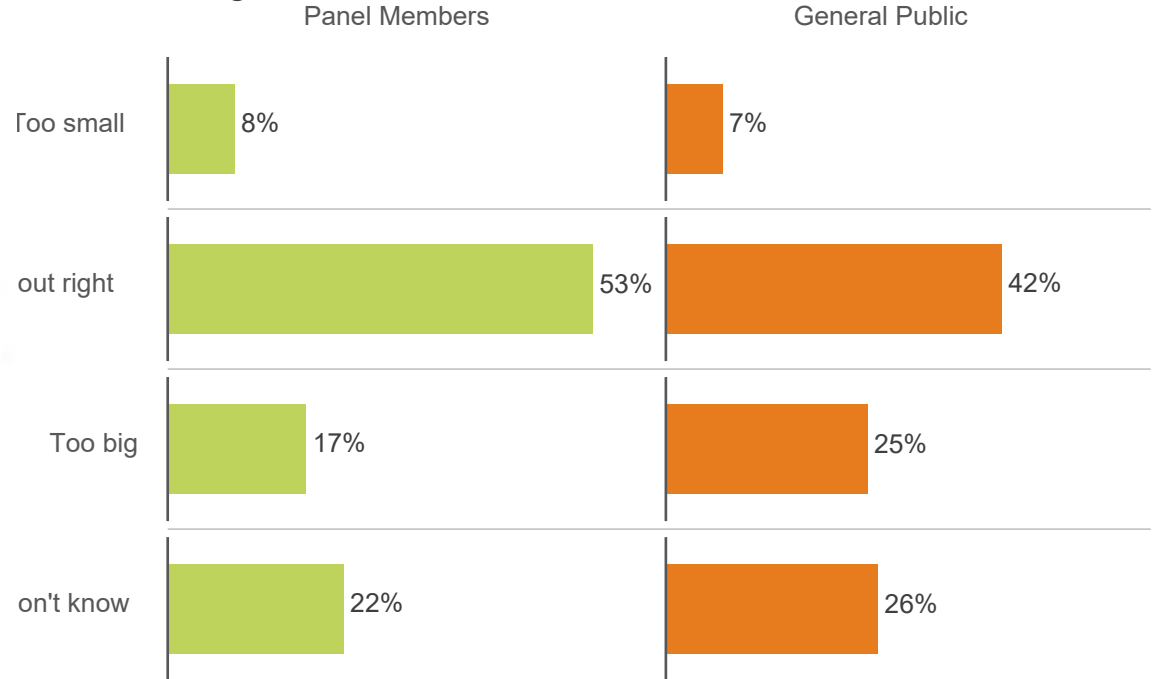
### General Public



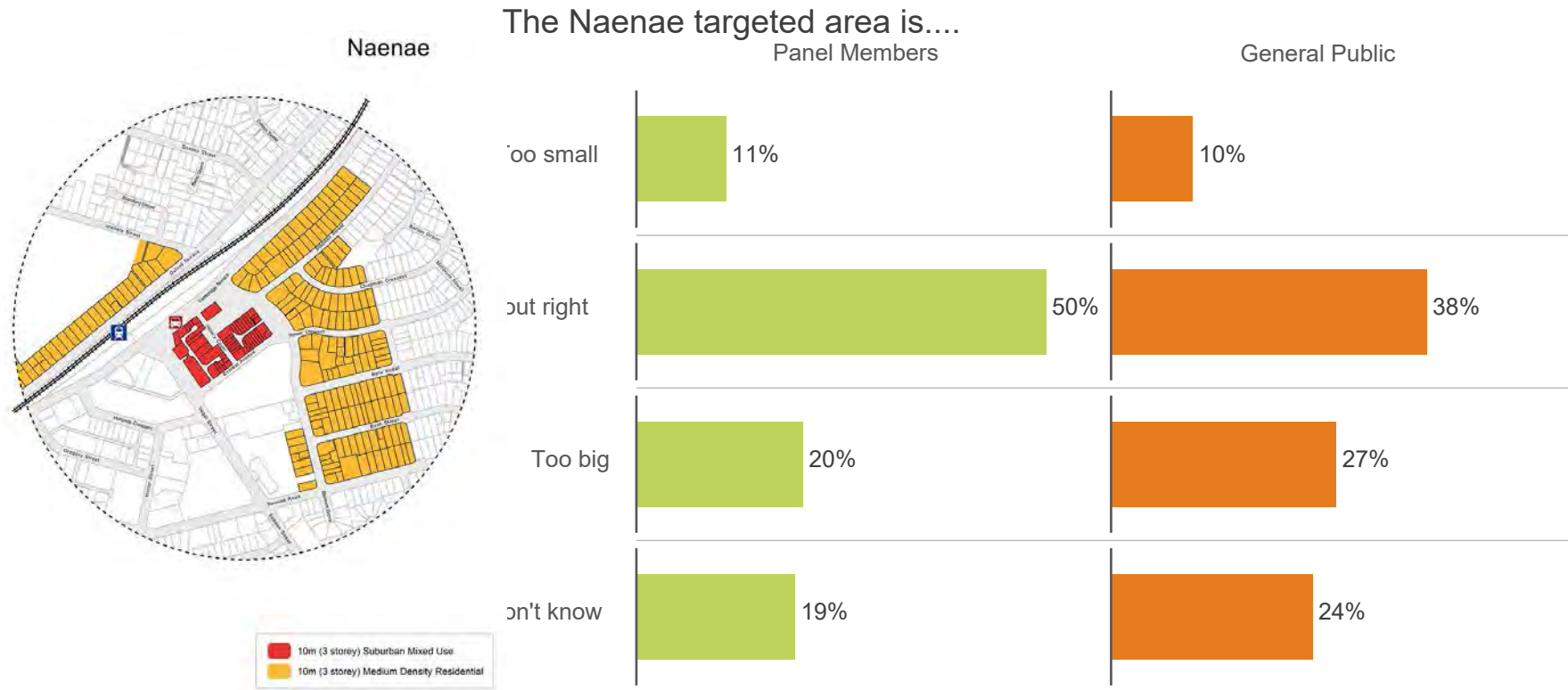
Unweighted; base n = 1229; total n = 1540; Panel Members weighted by Age and Gender



## The Taita targeted area is....

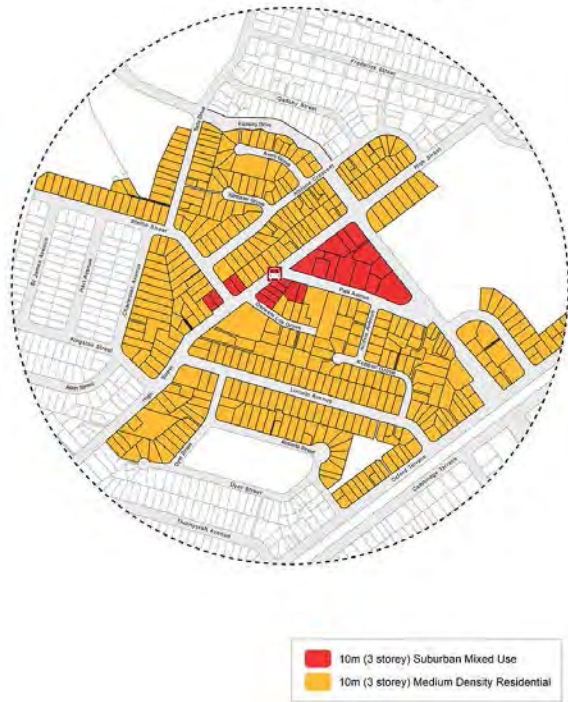




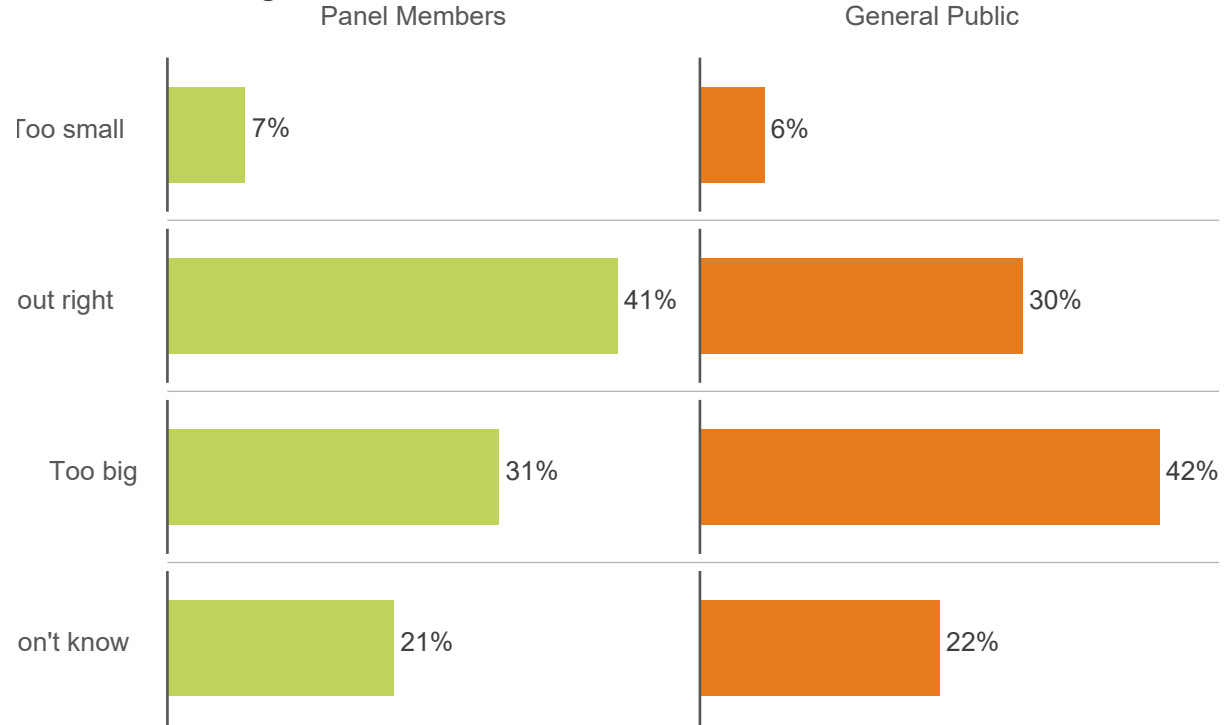


base n = 1213; total n = 1540; Panel Members weighted by Age and Gender

Avalon



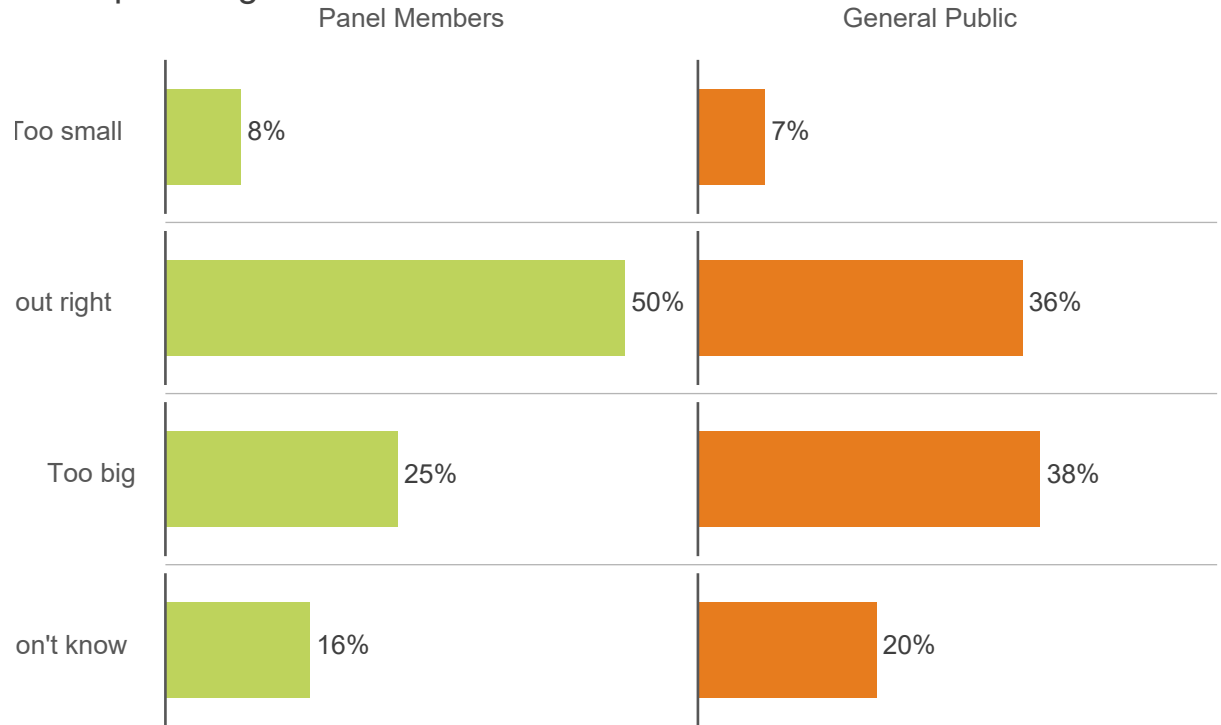
## The Avalon targeted area is....



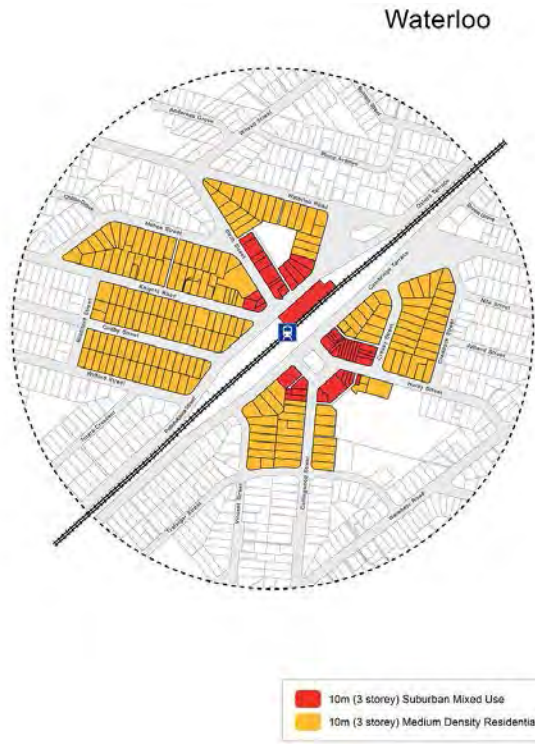
base n = 1209; total n = 1540; Panel Members weighted by Age and Gender



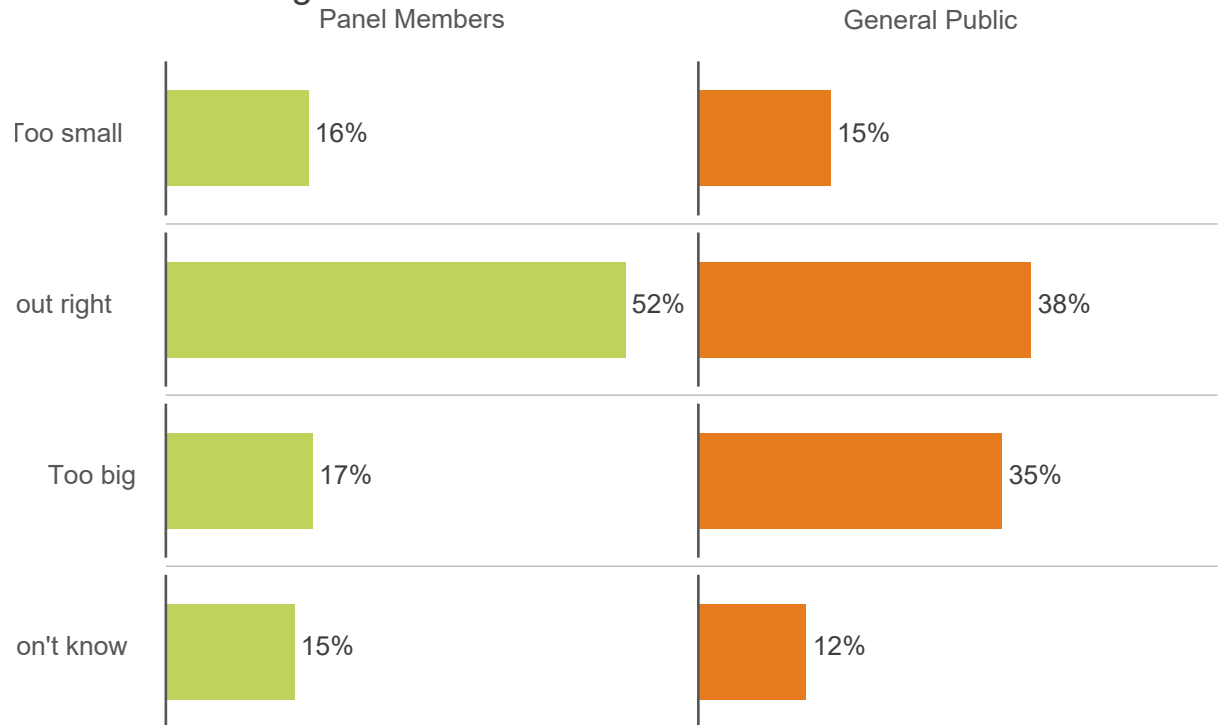
## The Epuni targeted area is....



base n = 1208; total n = 1540; Panel Members weighted by Age and Gender



## The Waterloo targeted area is....



base n = 1200; total n = 1540; Panel Members weighted by Age and Gender



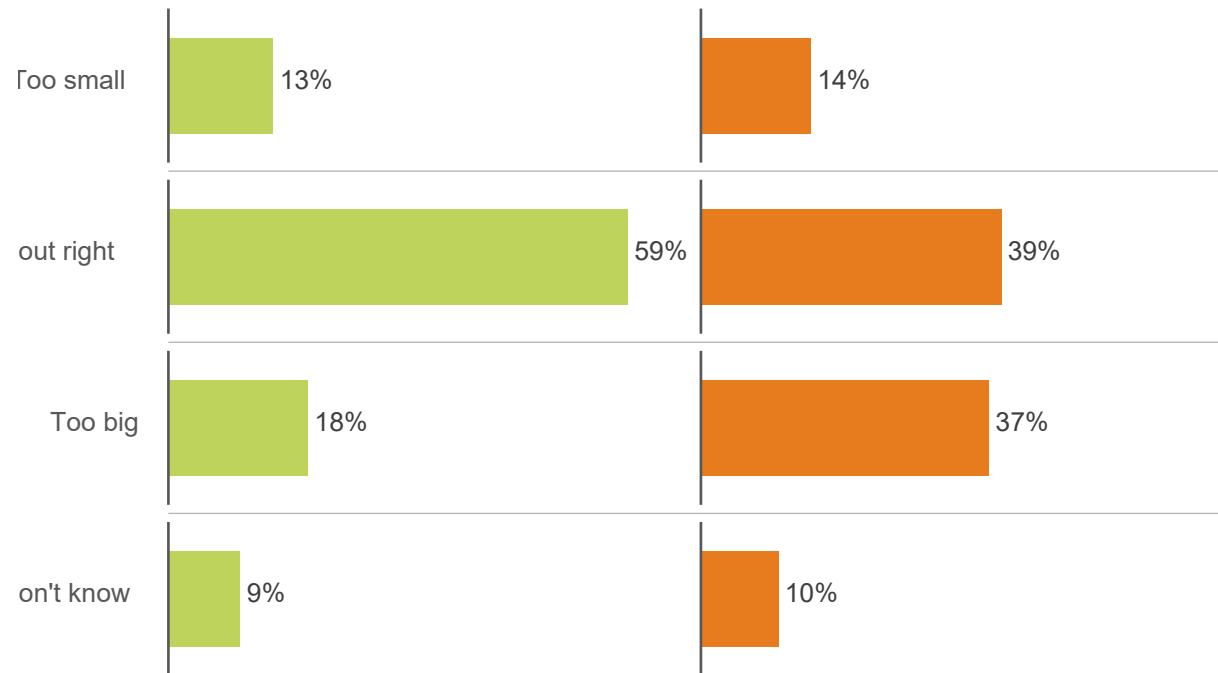
Lower Hutt  
CBD Edge

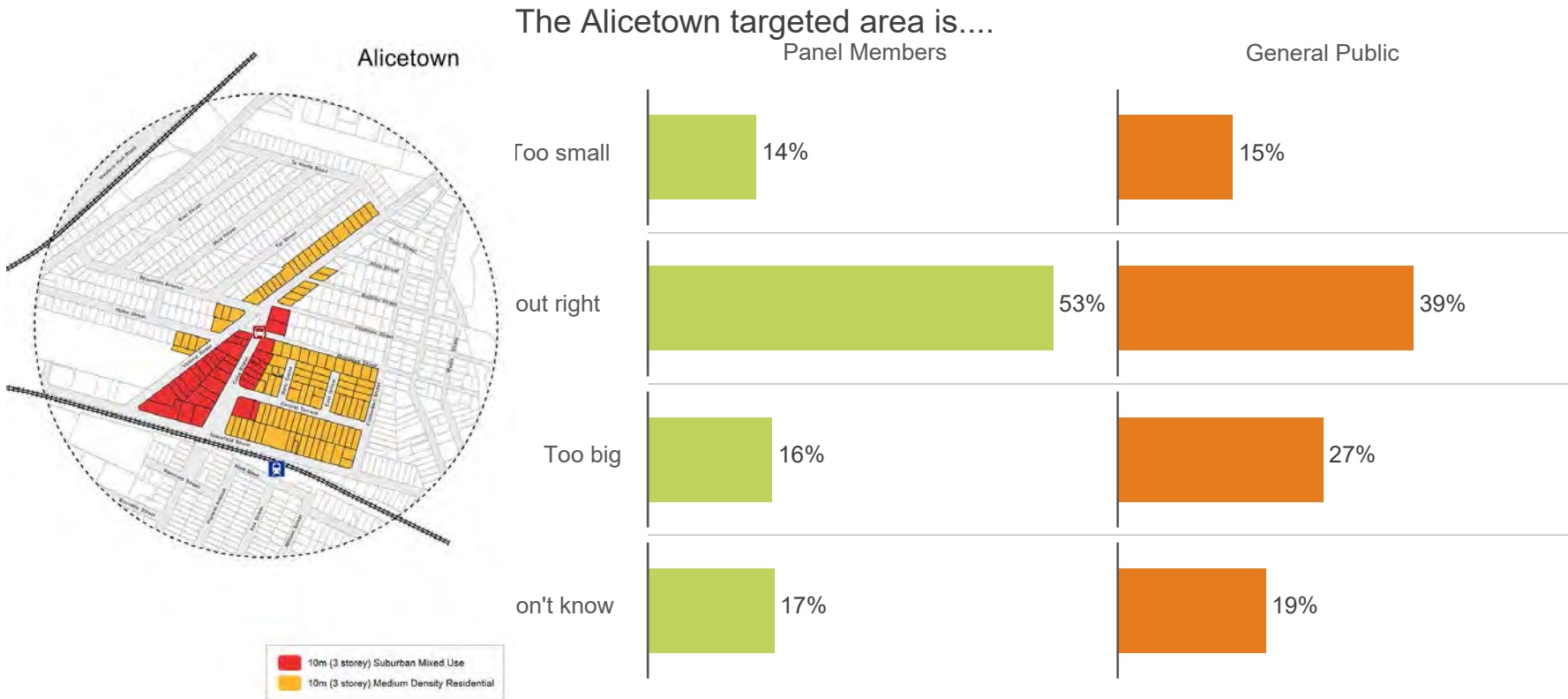


## The Lower Hutt CBD Edge targeted area is....

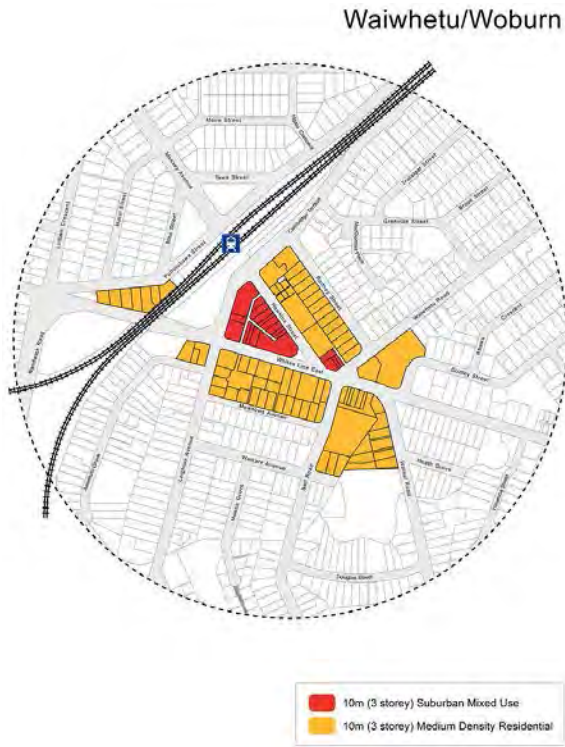
Panel Members

General Public

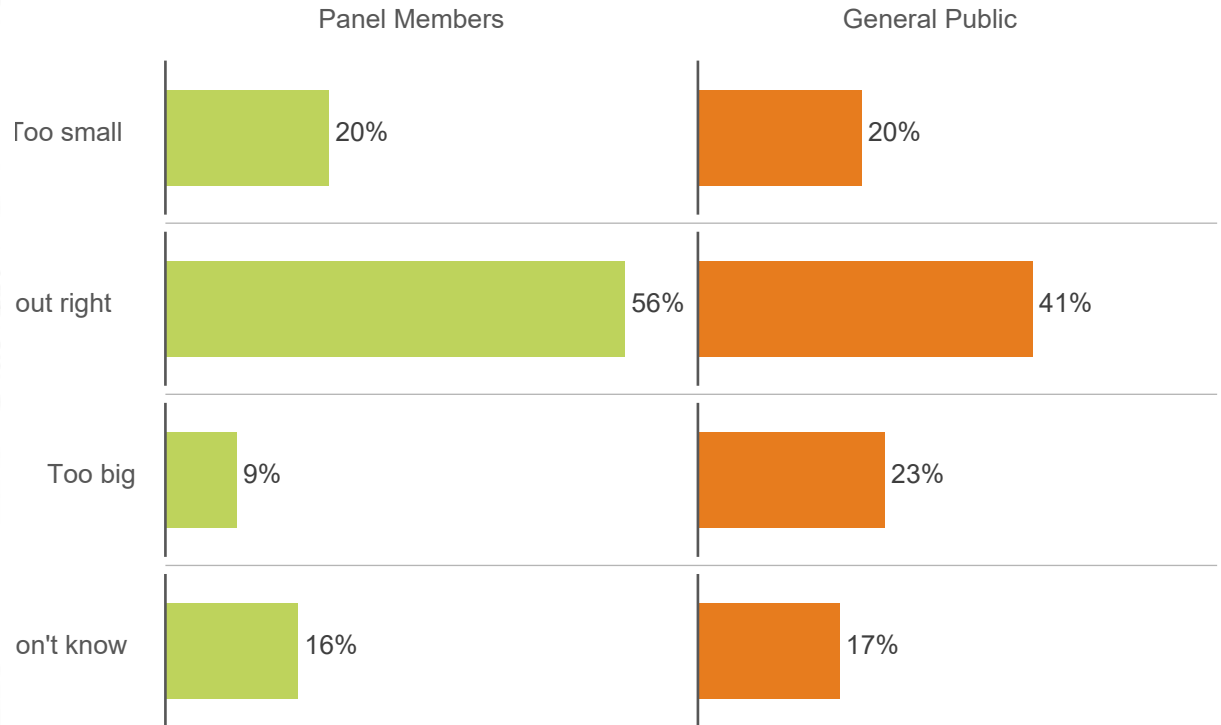




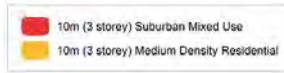
base n = 1187; total n = 1540; Panel Members weighted by Age and Gender



## The Waiwhetu/Woburn targeted area is....



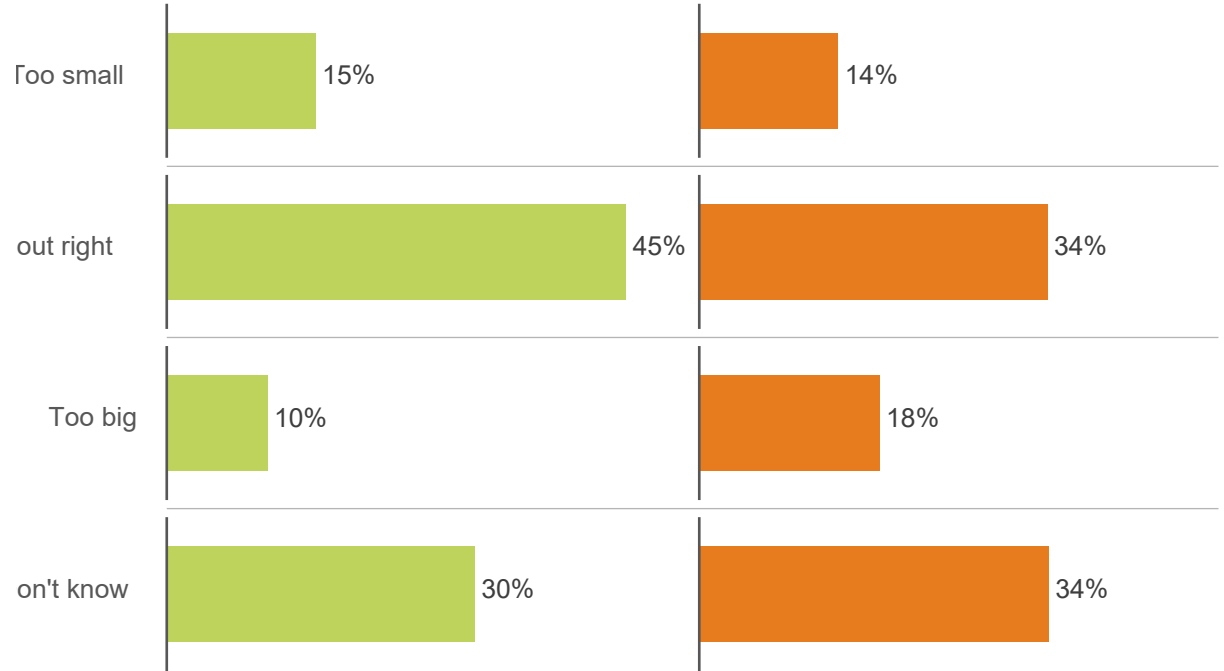
## Wainuiomata



## The Wainuiomata targeted area is....

Panel Members

General Public

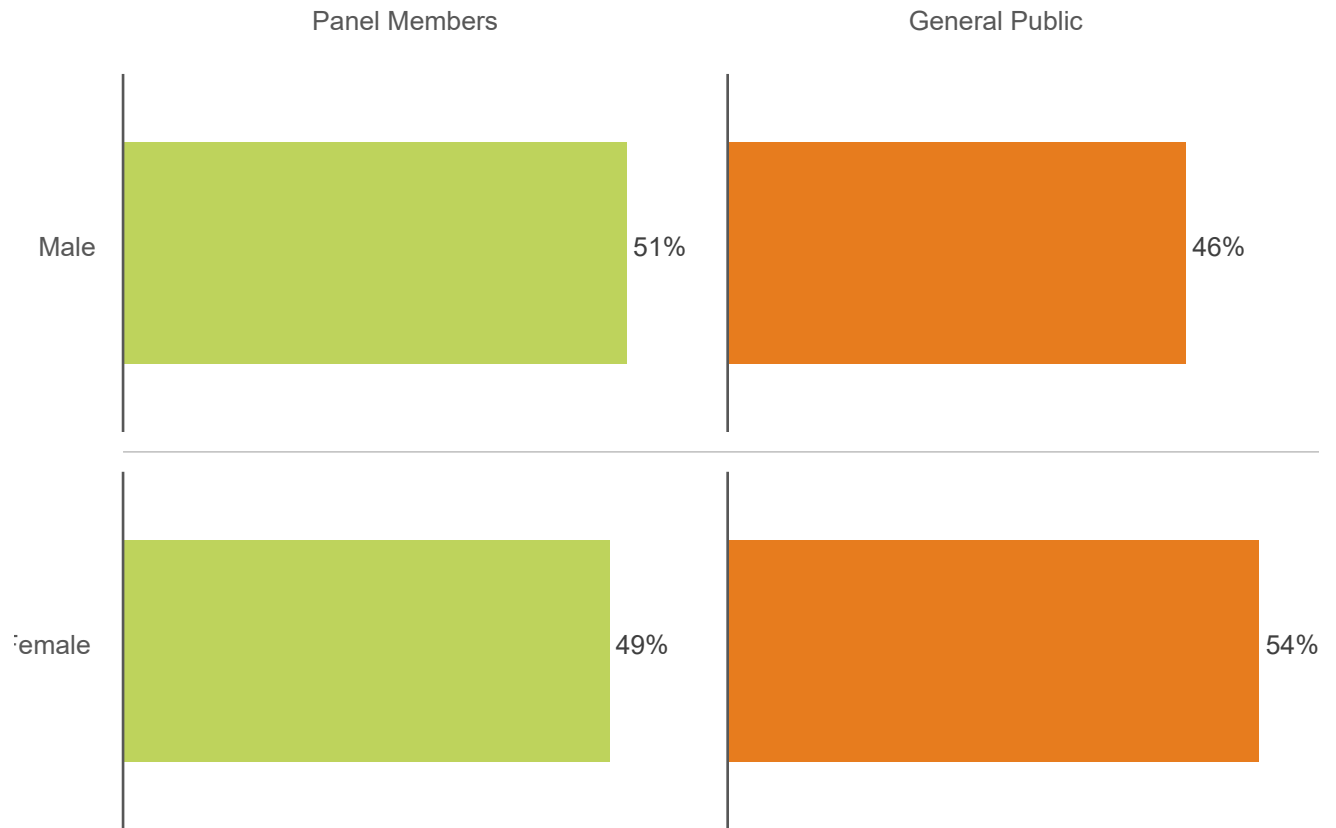
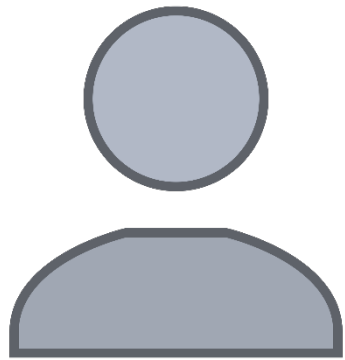


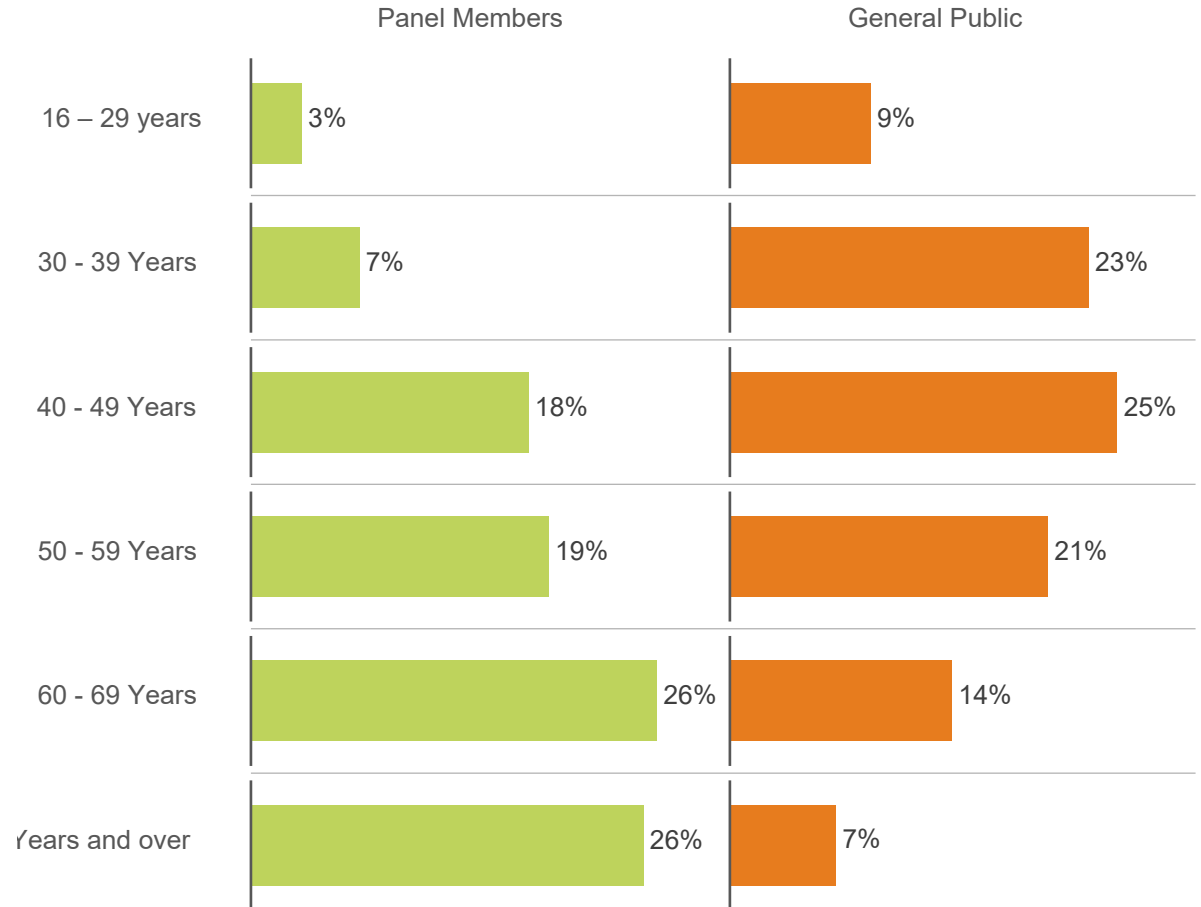
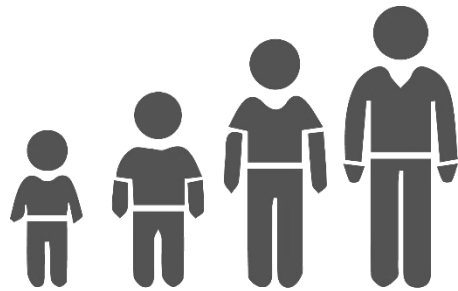
base n = 1180; total n = 1540; Panel Members weighted by Age and Gender





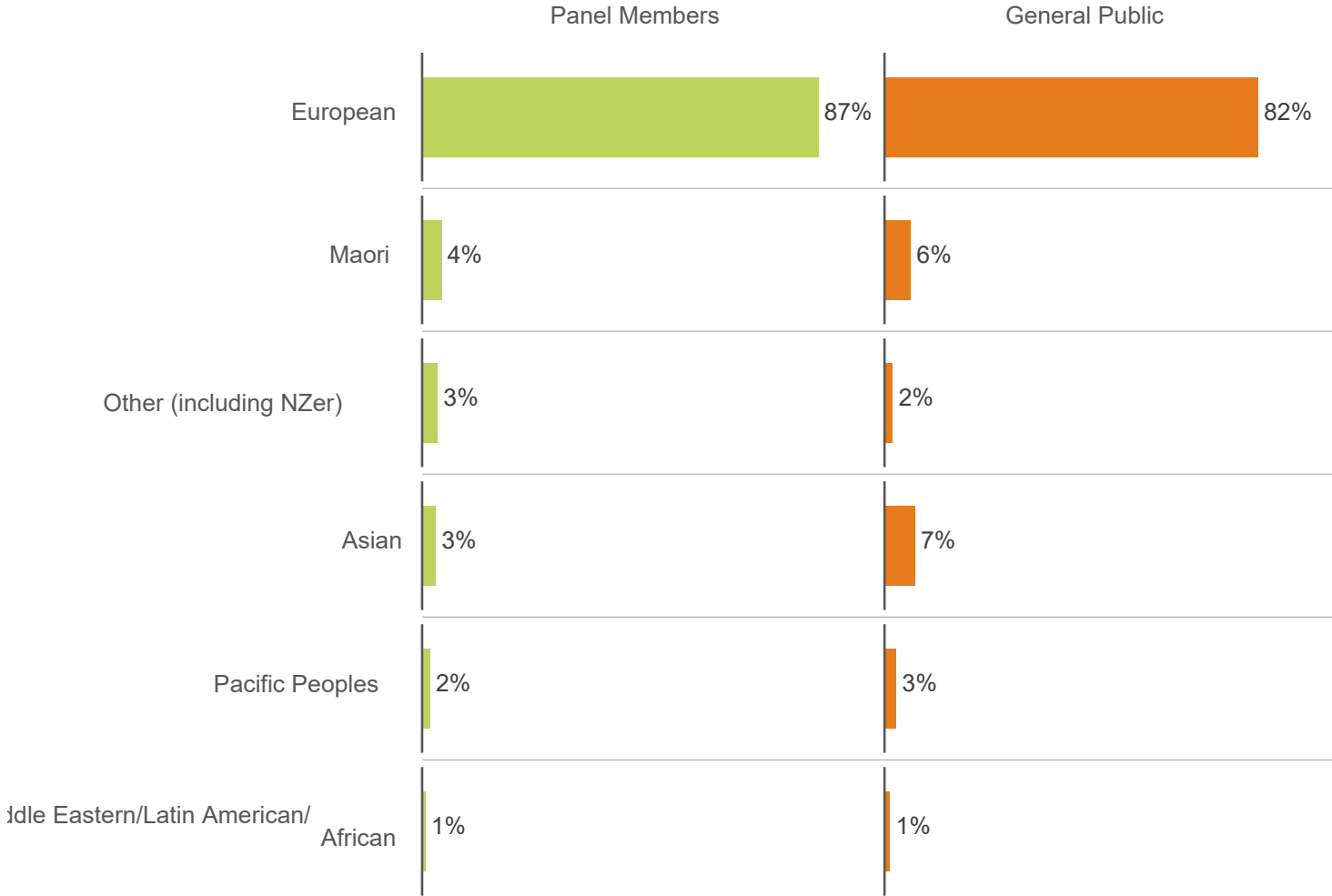
# Demographics



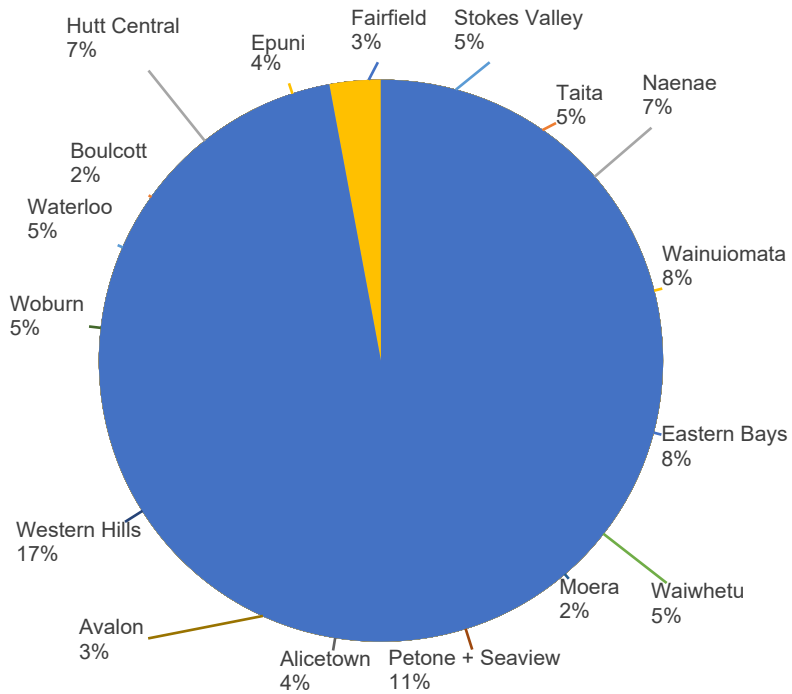


Total sample; Unweighted; base n = 1205; total n = 1540;



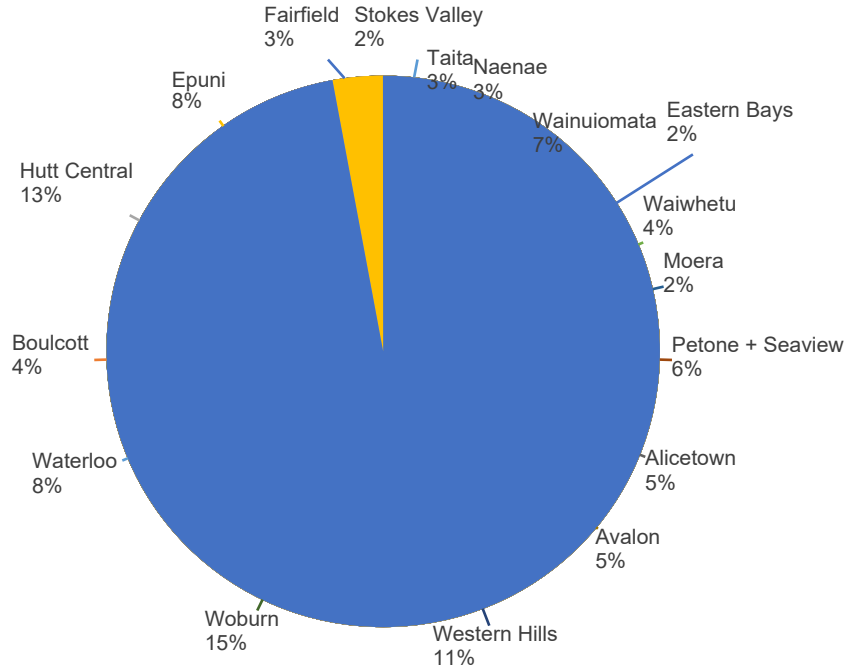


Total sample; Unweighted; base n = 1540



Panel Members

Filter: Panel Members; Unweighted; base n = 443; total n = 528; 66% filtered out



General Public

Filter: General Public; Unweighted; base n = 683; total n = 1012; 34% filtered out



# Open Text Analysis

There are four types of open text responses(Comments/Reasons) in this survey:

- Responses to questions about the *Design Guide*.
- Responses to questions about the type of development being considered (5 types of development).
- Responses to questions about the *Transition Options*.
- Responses to questions about the *Targeted Areas*.

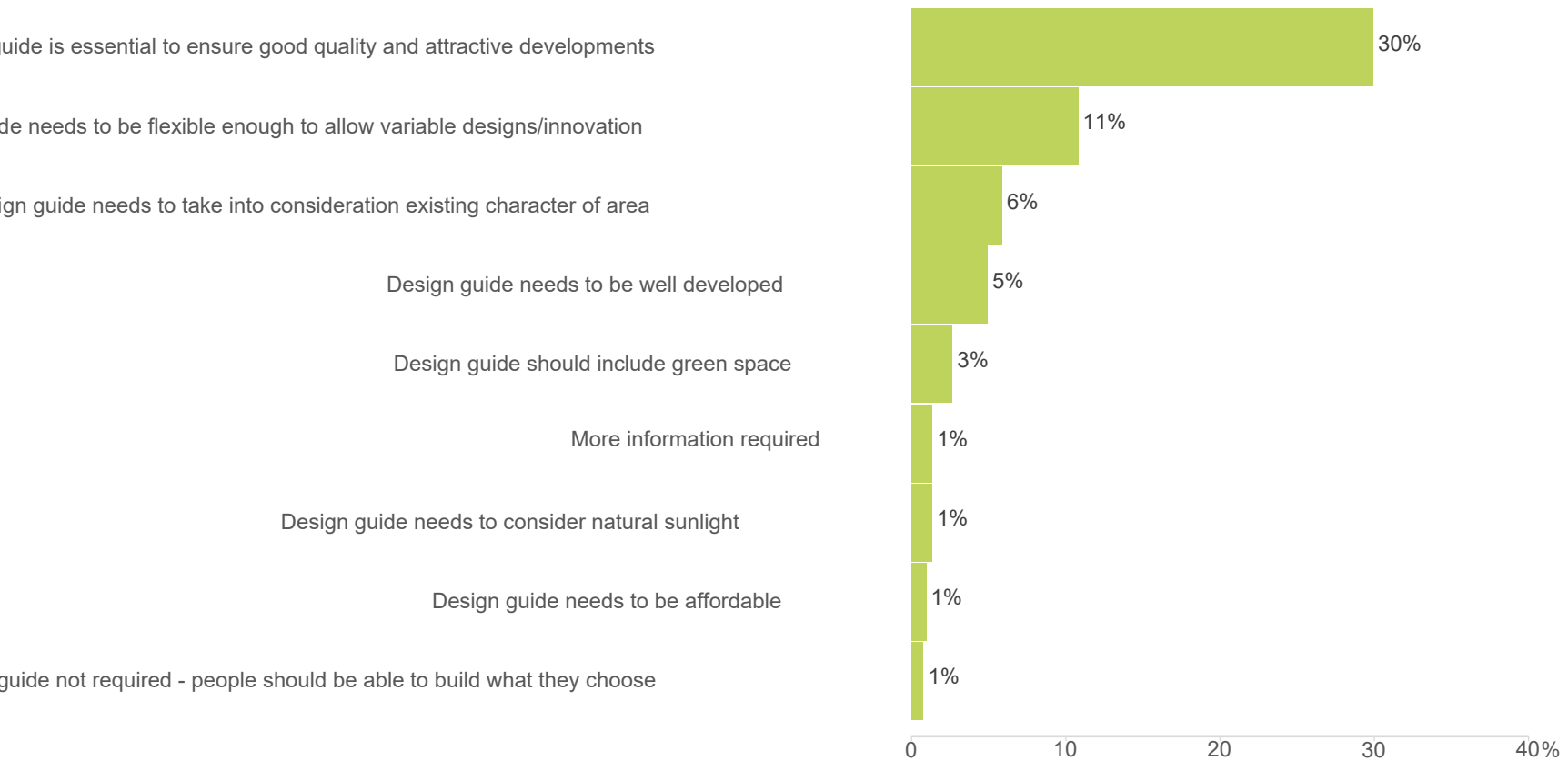
All open text responses following every question were analysed. The methodology applied in this analysis included: collecting, classifying, grouping, and charting the responses to provide insights from survey responses.

A filter is applied to each analysis to show the responses of respondents who answered the previous question in the same way.



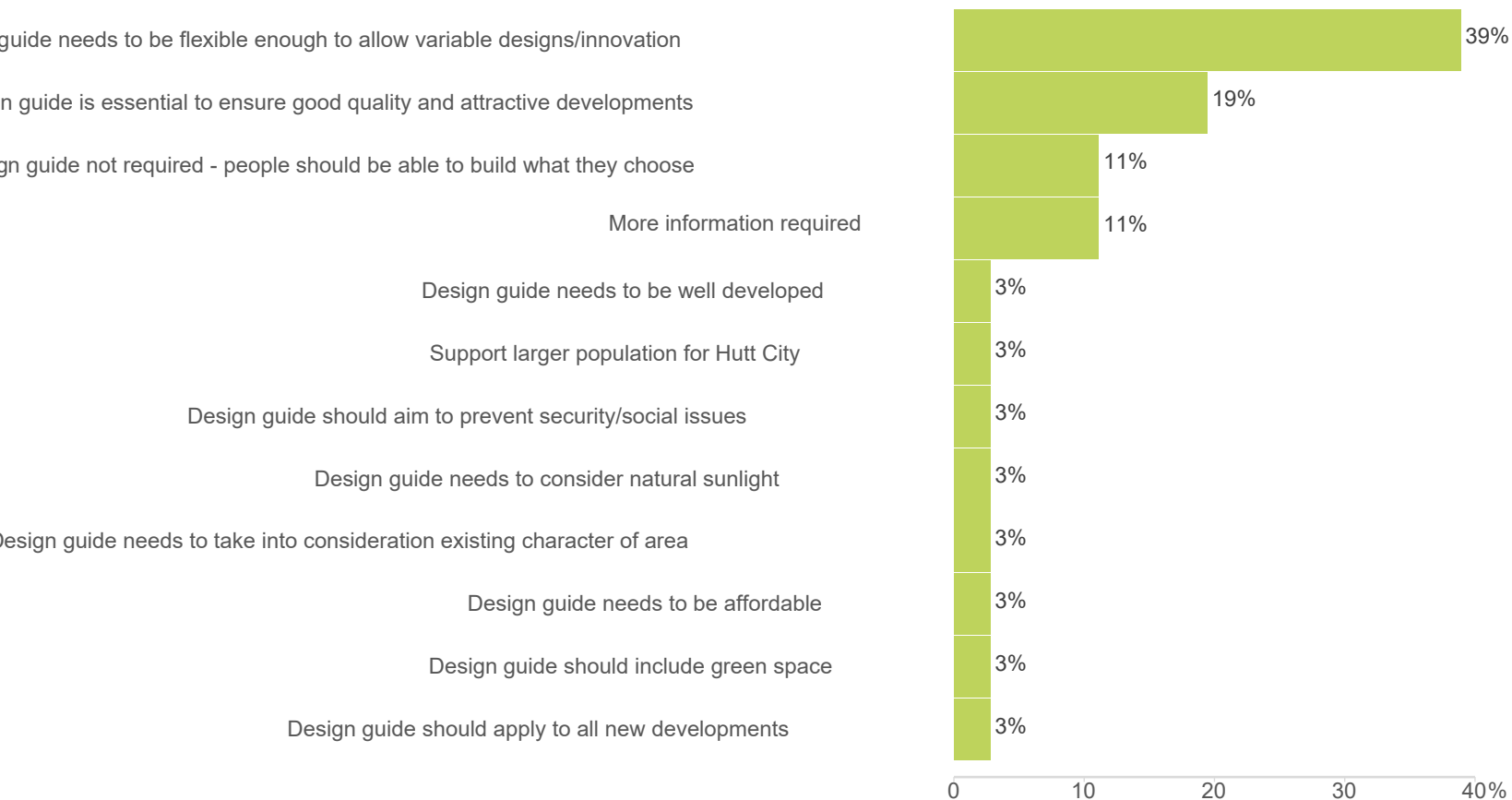
# Design Guide – Comments/Reasons

# Design Guide (Strongly Agree/Agree) - Comments/Reasons



Filter: Design Guide - Agree, Strongly agree; Unweighted; base n = 528; total n = 1226; 20% filtered out

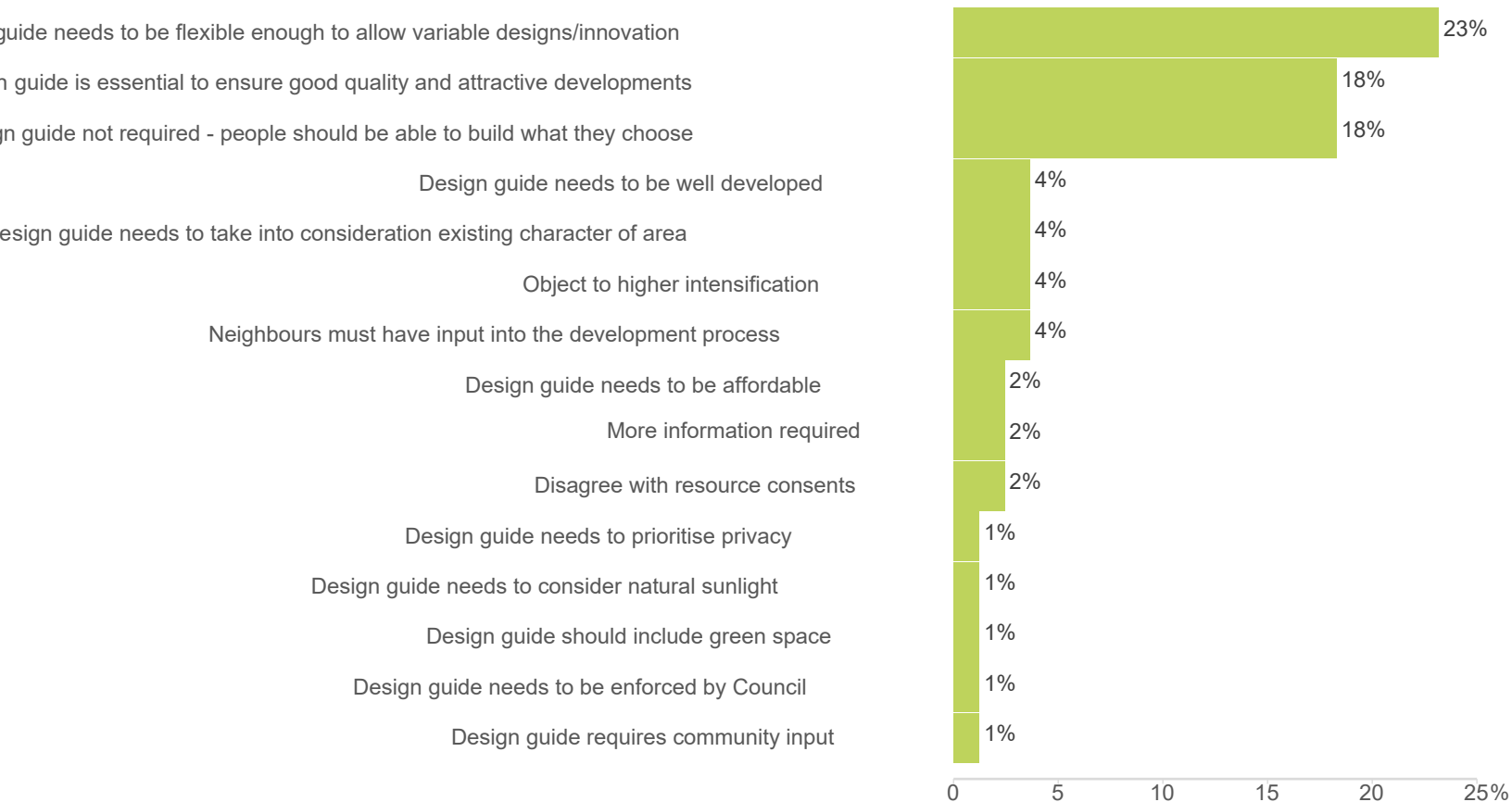




Filter: Design Guide - Neutral; Unweighted; base n = 36; total n = 123; 92% filtered out



# Design Guide (Strongly Disagree/Disagree) - Comments/Reasons

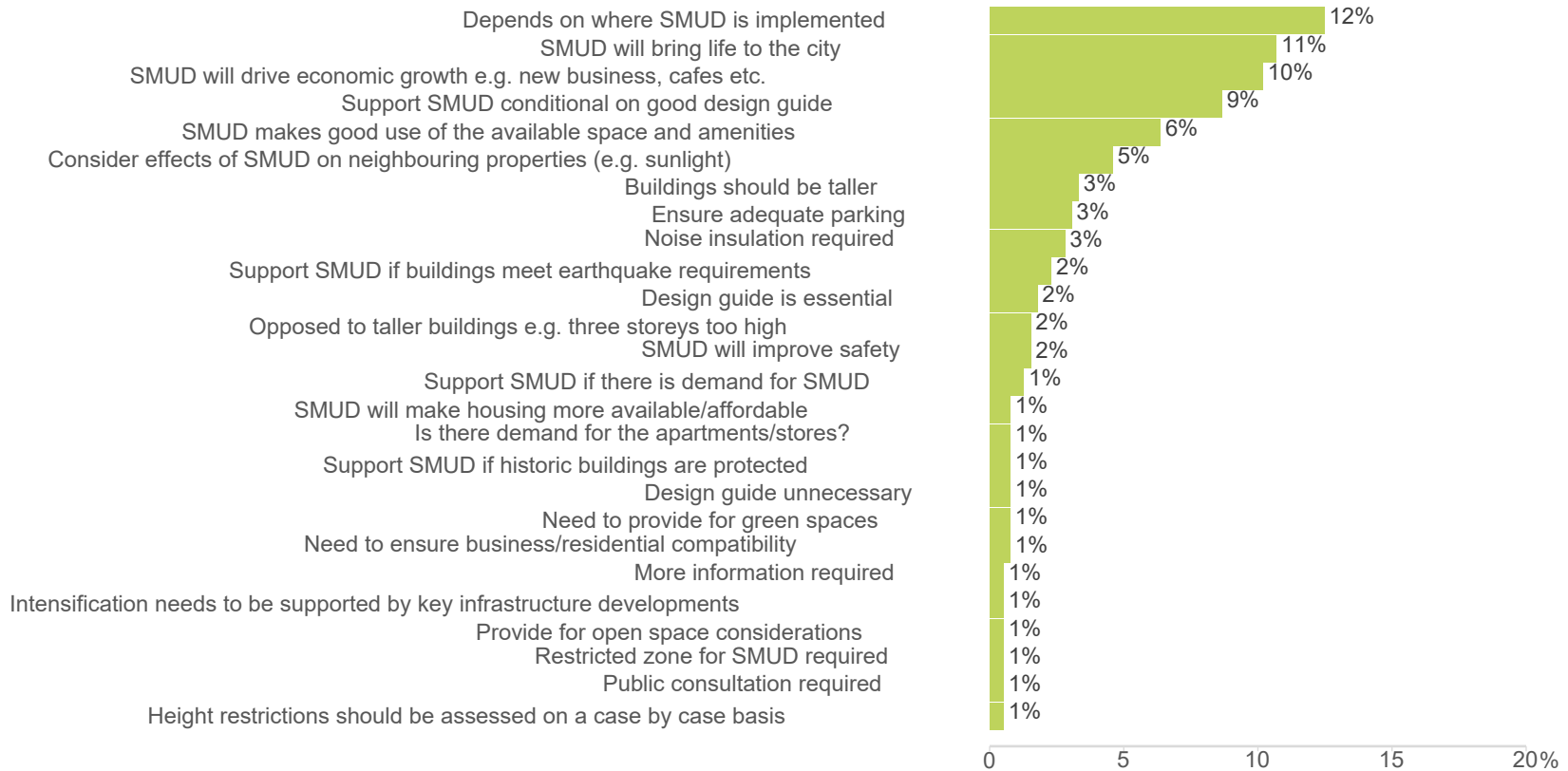


Filter: Design Guide - Strongly disagree, Disagree; Unweighted; base n = 82; total n = 153; 90% filtered out



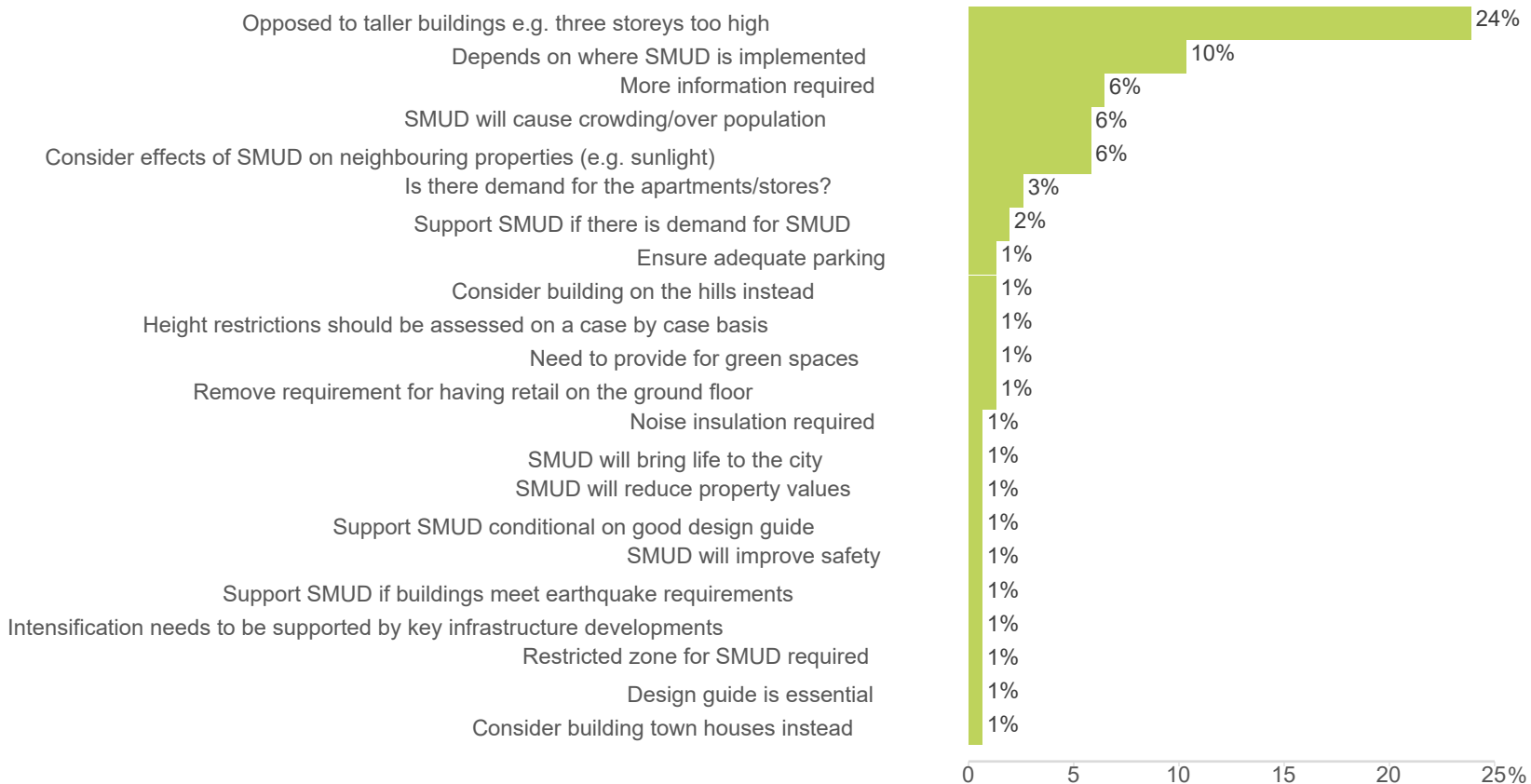
# Suburban Mixed Use Development – Comments/Reasons

# I support Suburban Mixed Use Development - Comments/Reasons



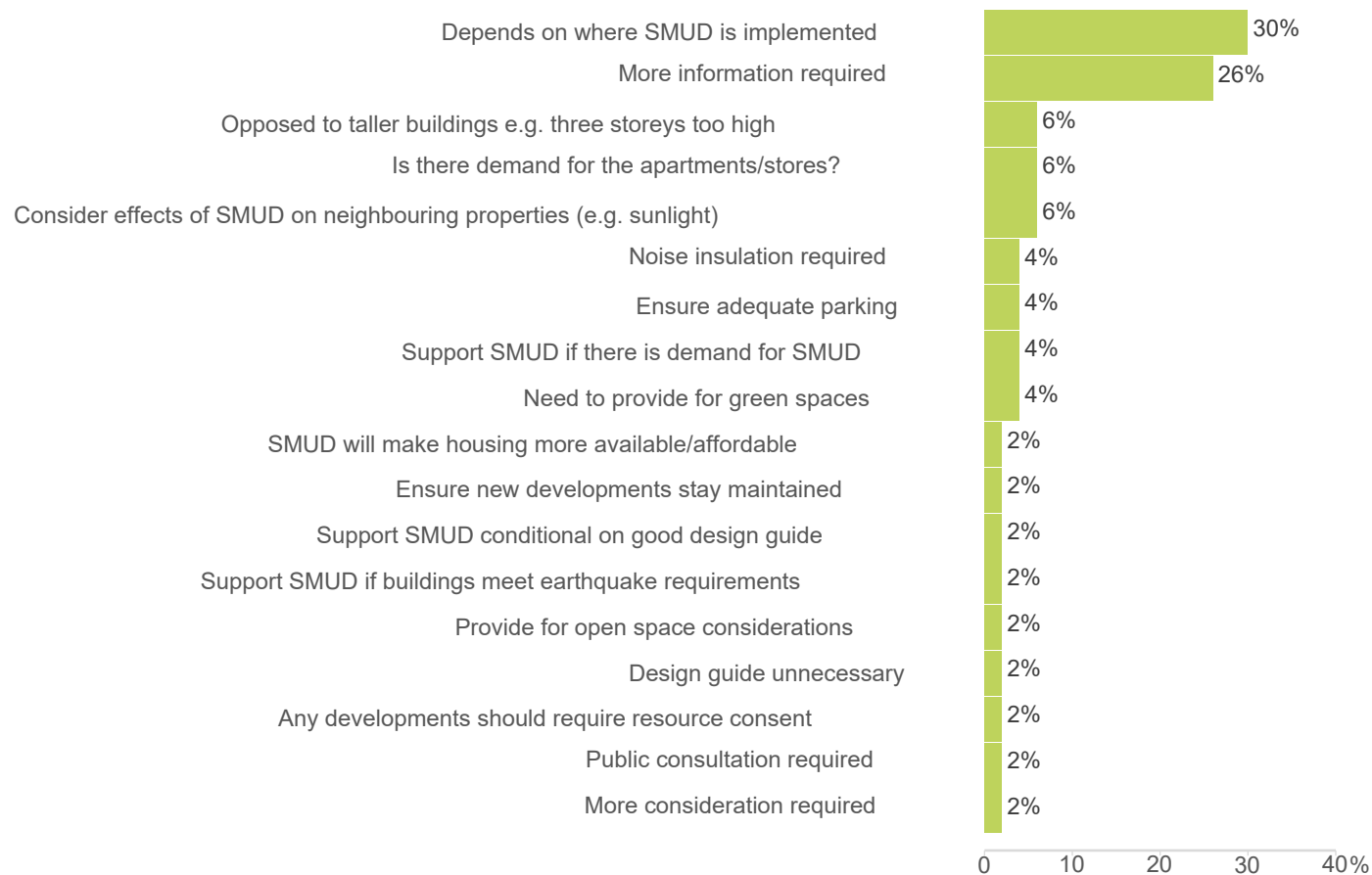
Filter: I support the Suburban Mixed Use zone; Unweighted; base n = 393; total n = 1016; 34% filtered out

# I don't support Suburban Mixed Use Development - Comments/Reasons



Filter: I don't support the Suburban Mixed Use zone; Unweighted; base n = 155; total n = 370; 76% filtered out

# Suburban Mixed Use Development (I don't know) - Comments/Reasons



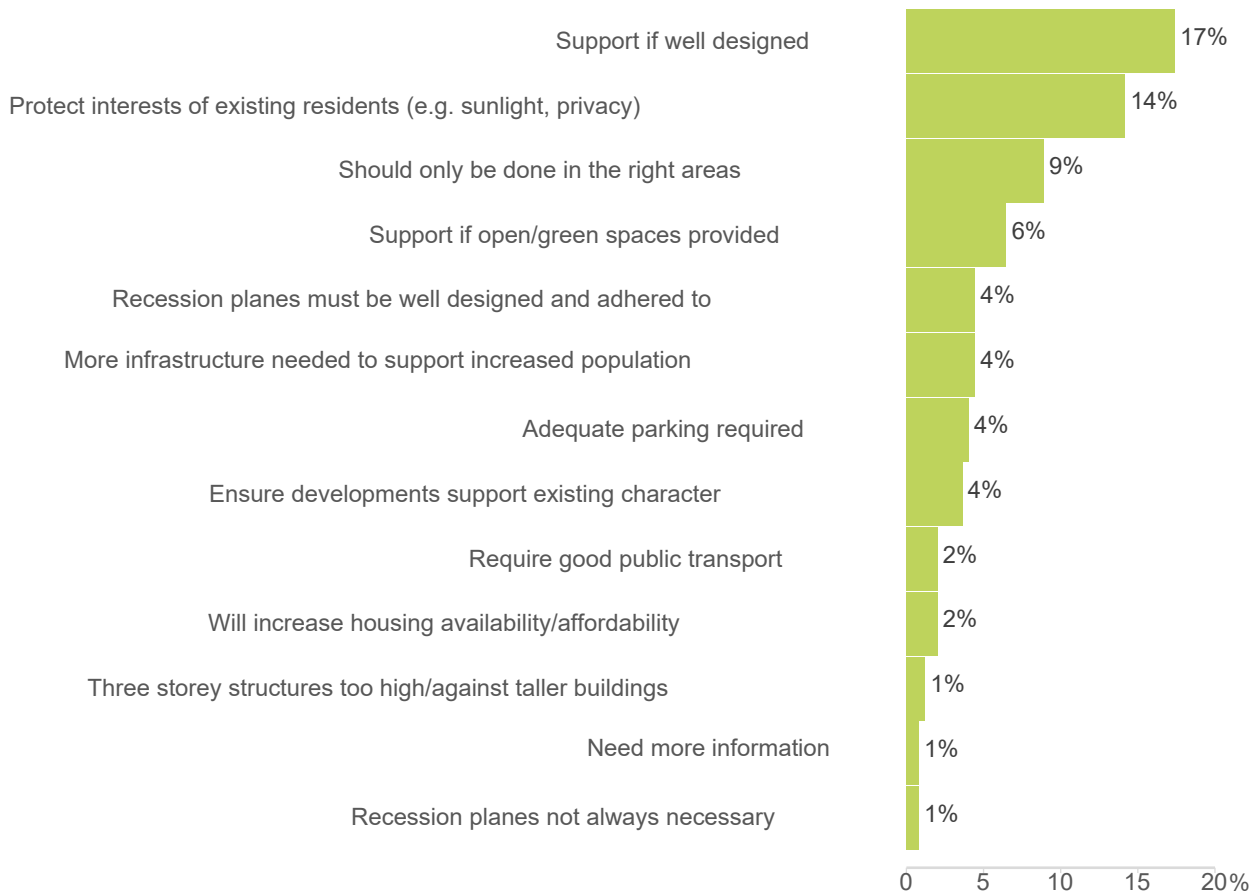
Filter: SMUD – Don't know; Unweighted; base n = 50; total n = 96; 94% filtered out





# Medium Density Residential Zone – Comments/Reasons

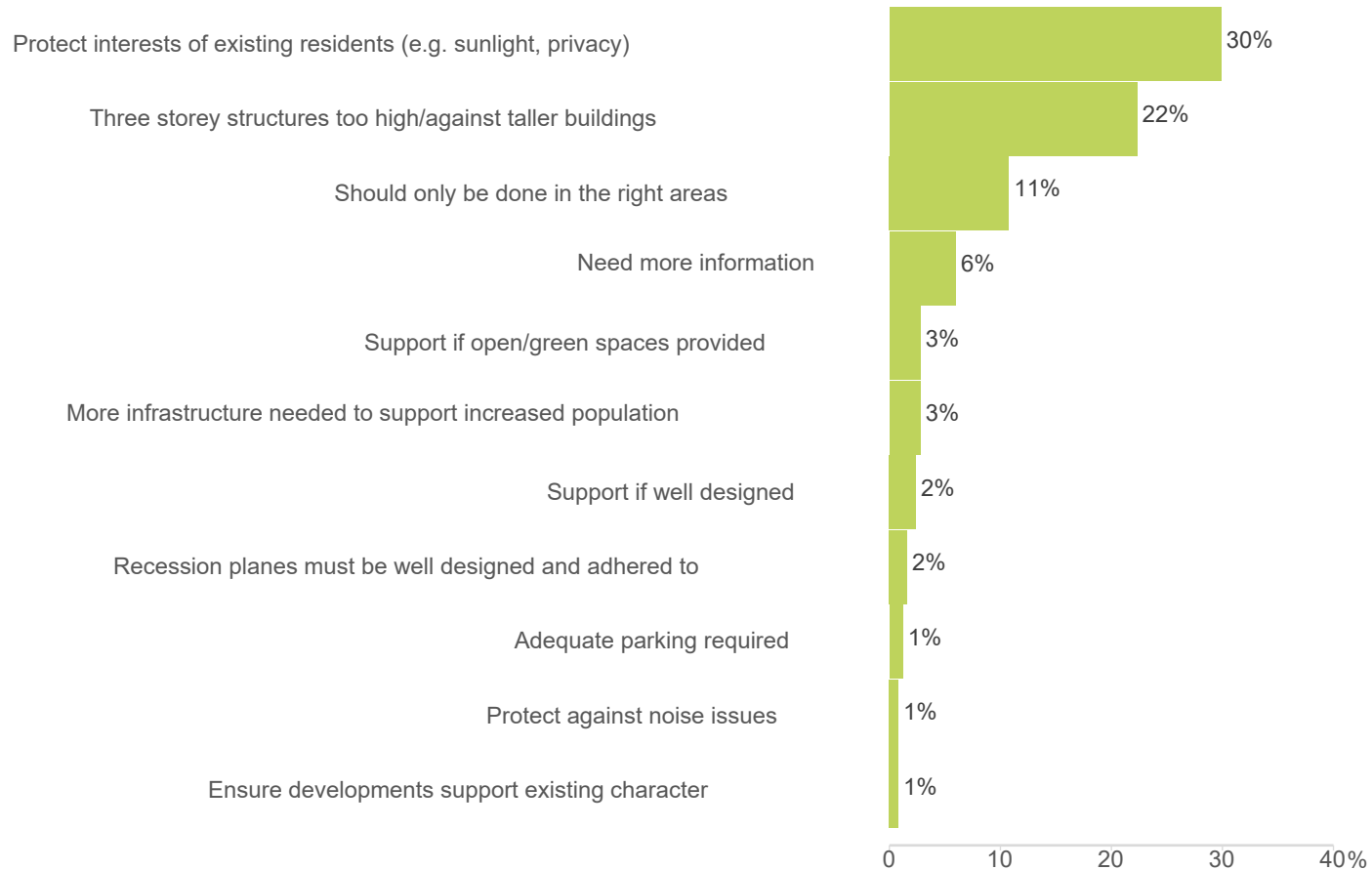
# I support Medium Density Residential Zone - Comments/Reasons



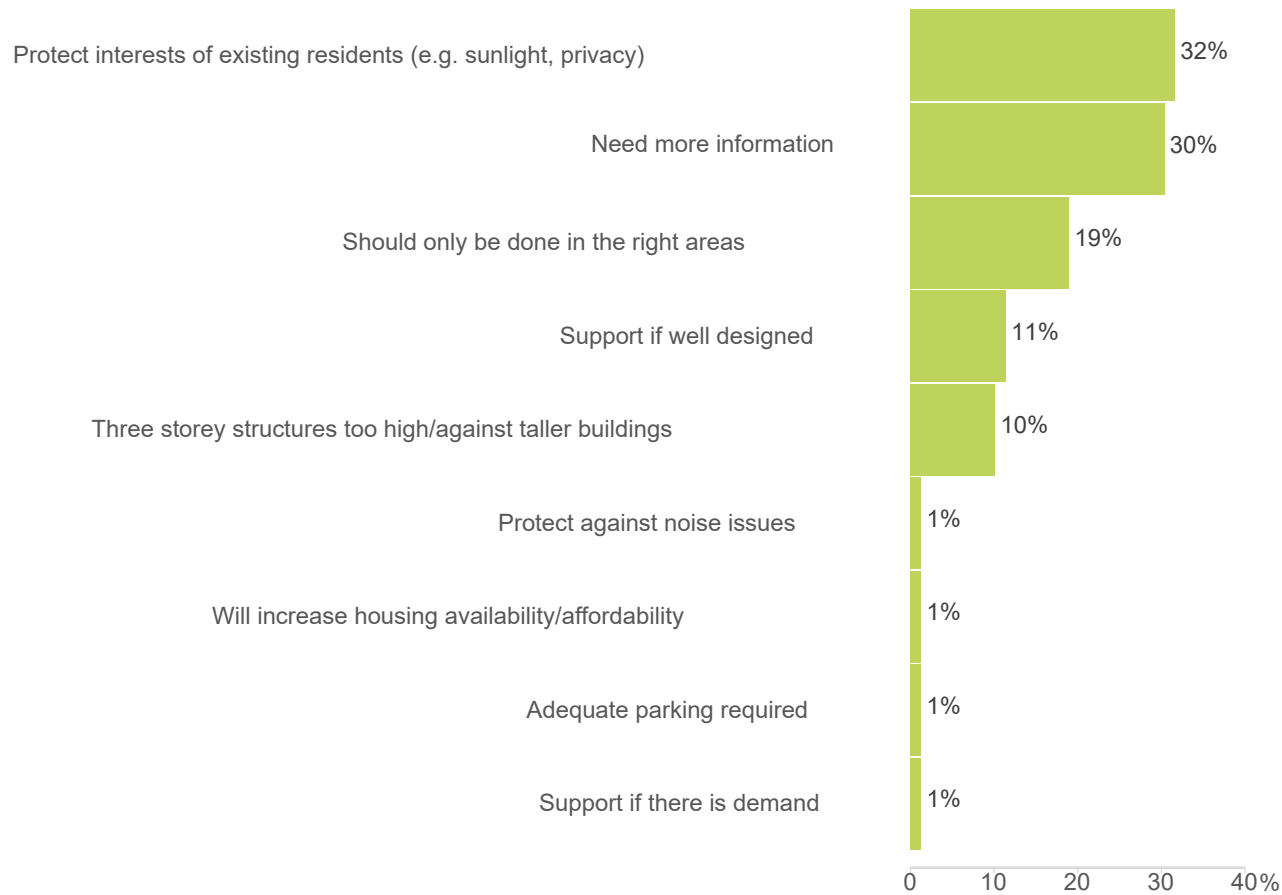
Filter: I support the Medium Density Residential zone; Unweighted; base n = 247; total n = 751; 51% filtered out



# I don't support Medium Density Residential Zone - Comments/Reasons



Filter: I don't support the Medium Density Residential zone; Unweighted; base n = 251; total n = 549; 64% filtered out



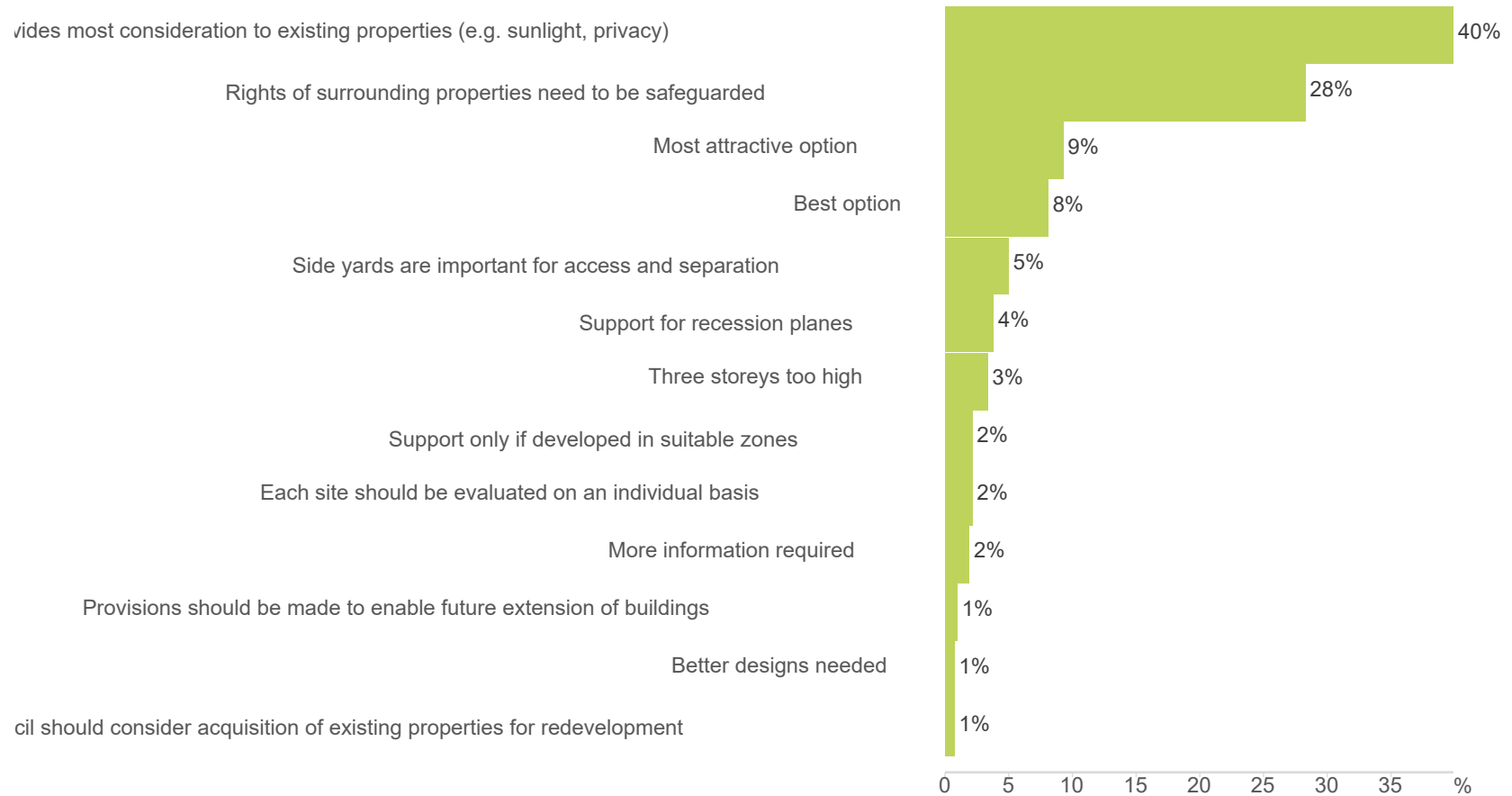
Filter: MDRZ - Don't know; Unweighted; base n = 79; total n = 137; 91% filtered out



BUILDING IS  
MODIFIED TO  
AVOID CUTTING  
THROUGH  
RECESSION  
PLANE

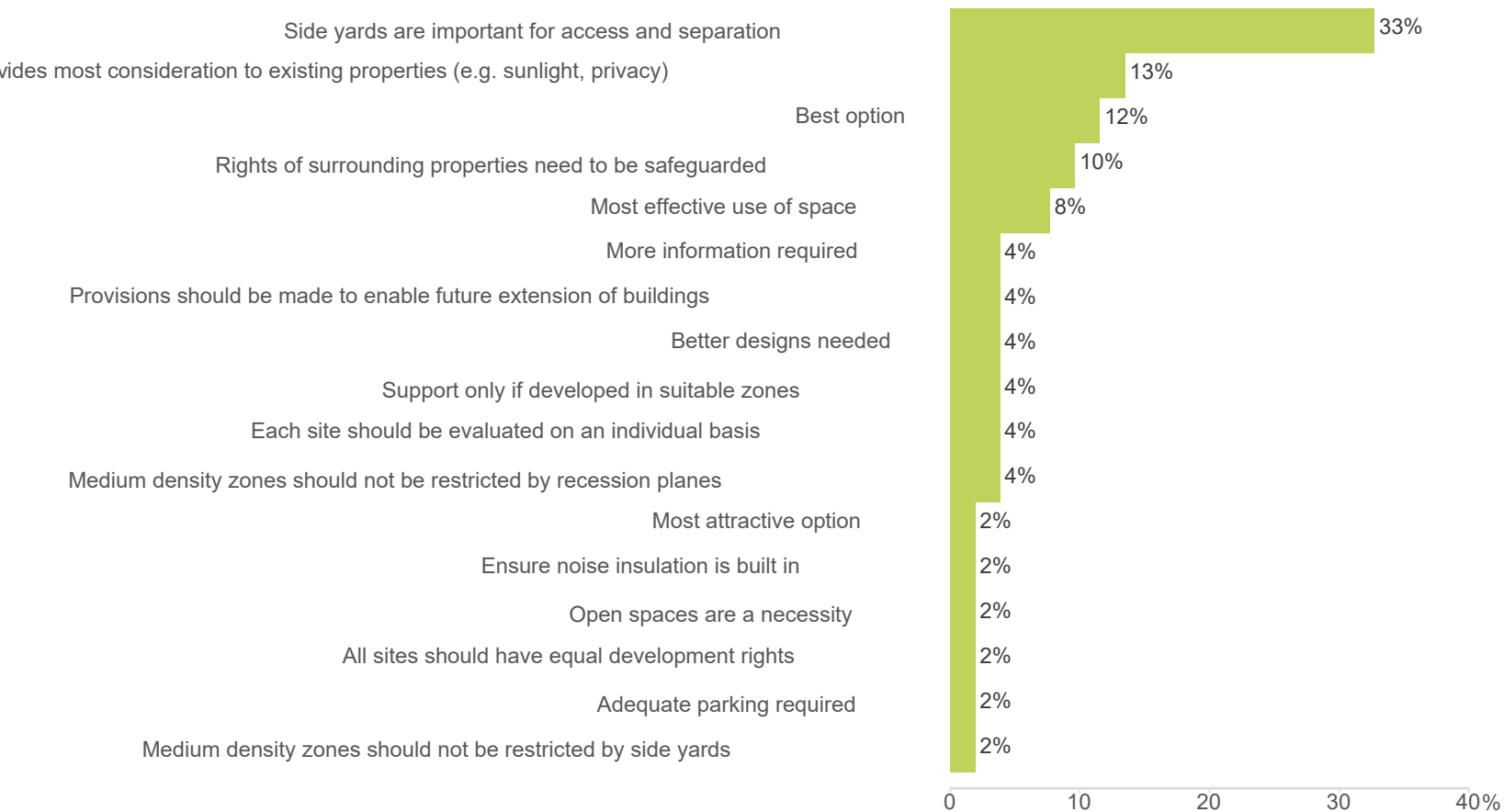
# Transition Options – Comments/Reasons

# Transition Options (Option A supporters) - Comments/Reasons



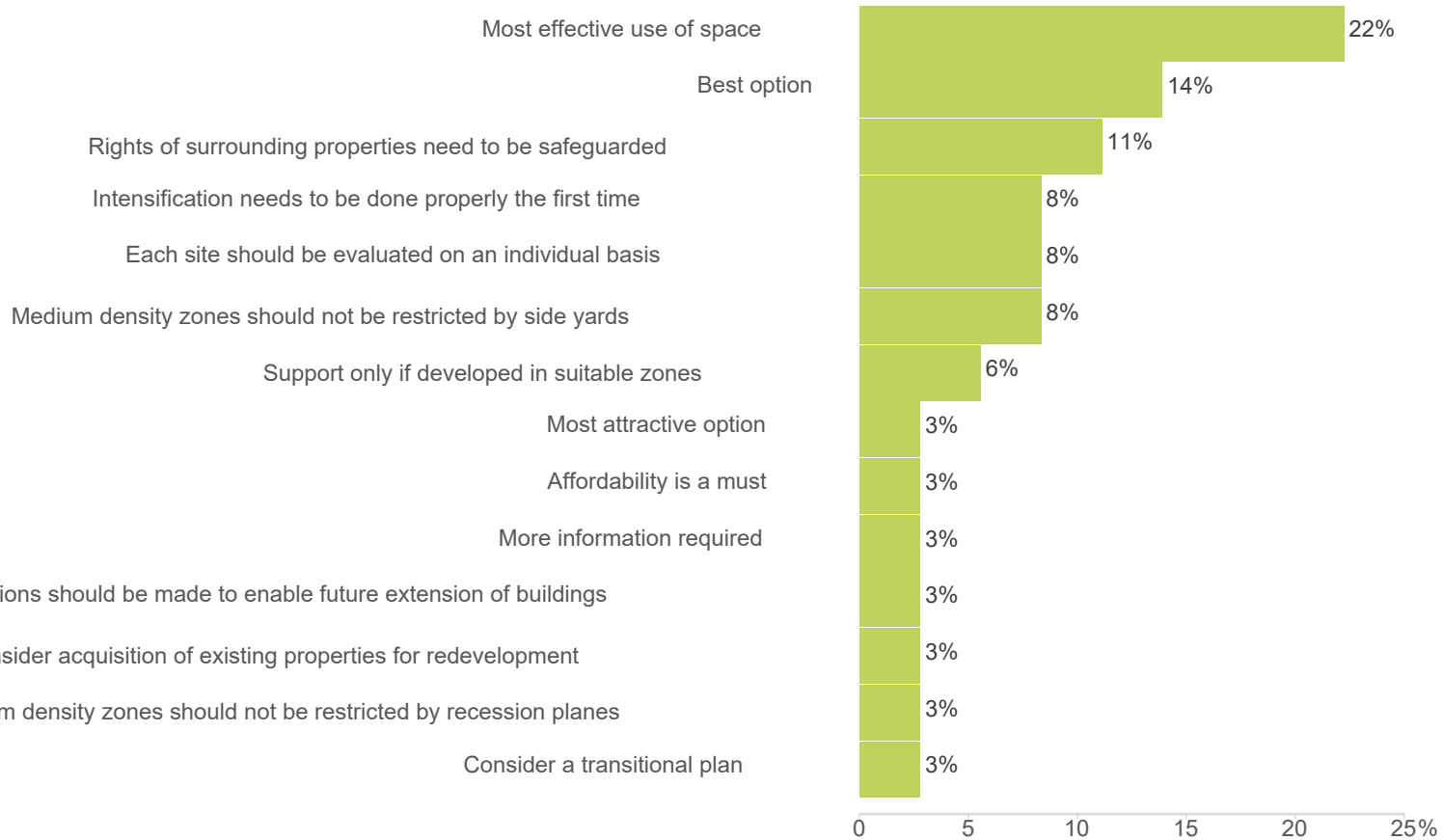
Filter: Transition Options - Preferred Option A; Unweighted; base n = 421; total n = 912; 41% filtered out

# Transition Options (Option B supporters) - Comments/Reasons



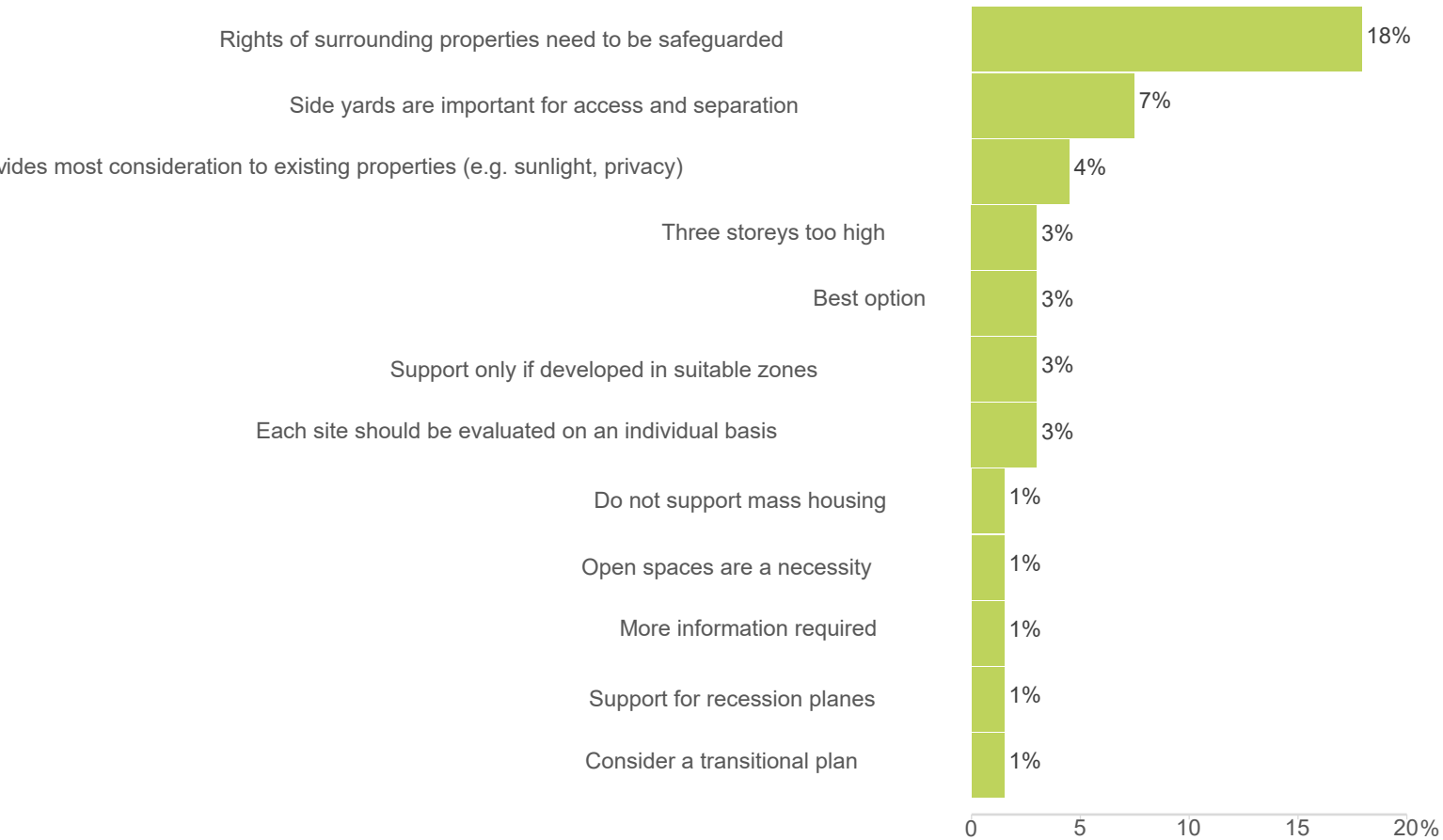
Filter: Transition Options - Preferred Option B; Unweighted; base n = 52; total n = 149; 90% filtered out

# Transition Options (Option C supporters) - Comments/Reasons



Filter: Transition Options - Preferred Option C; Unweighted; base n = 36; total n = 79; 95% filtered out

# Transition Options (I don't know) - Comments/Reasons



Filter: Transition Options - Preferred Option Don't know; Unweighted; base n = 67; total n = 110; 93% filtered out





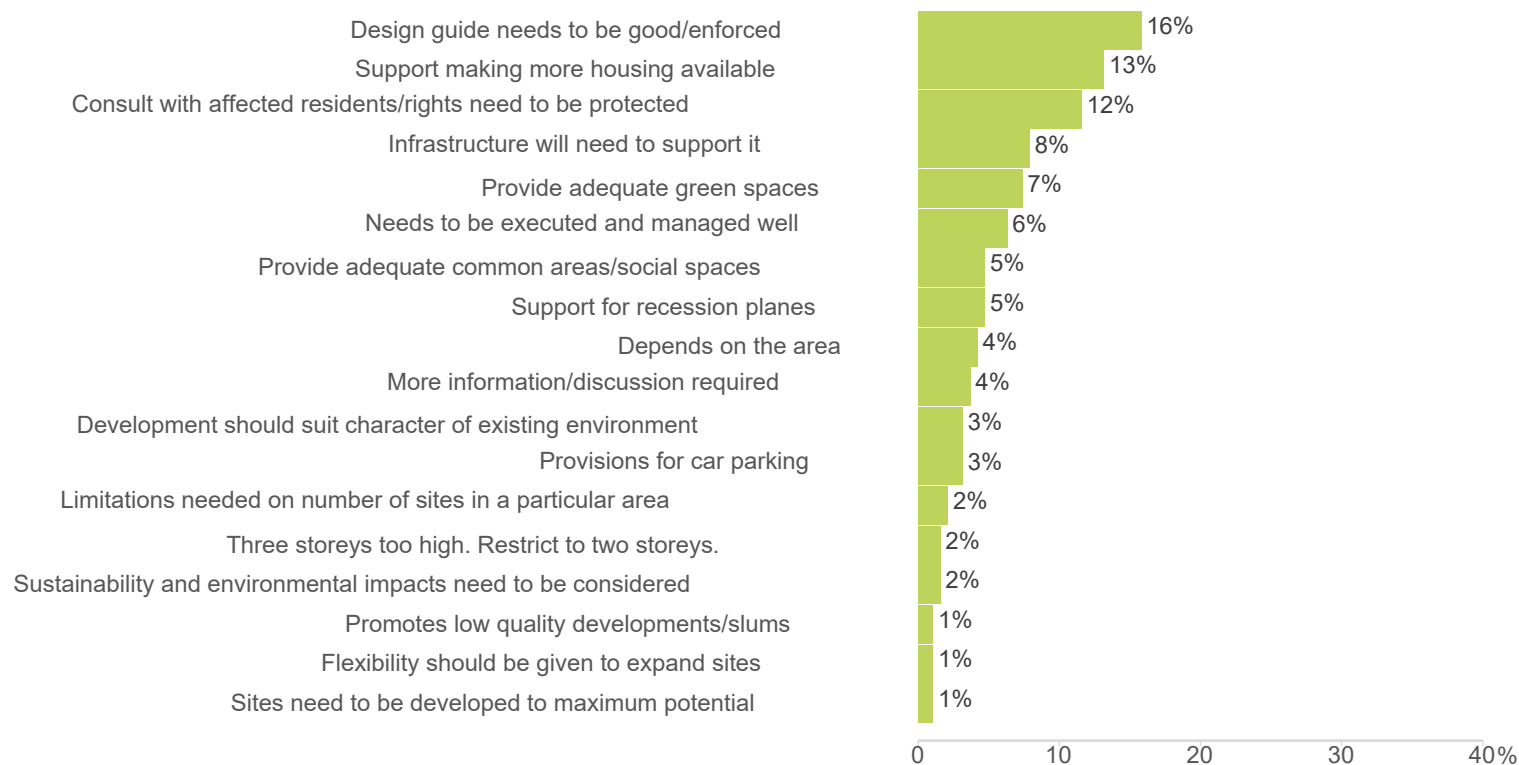
Intensive development within the site

Neighbours beyond the overall site protected by standard boundary rules e.g. yards and recession planes

Neighbours beyond the overall site protected by standard boundary rules e.g. yards and recession planes

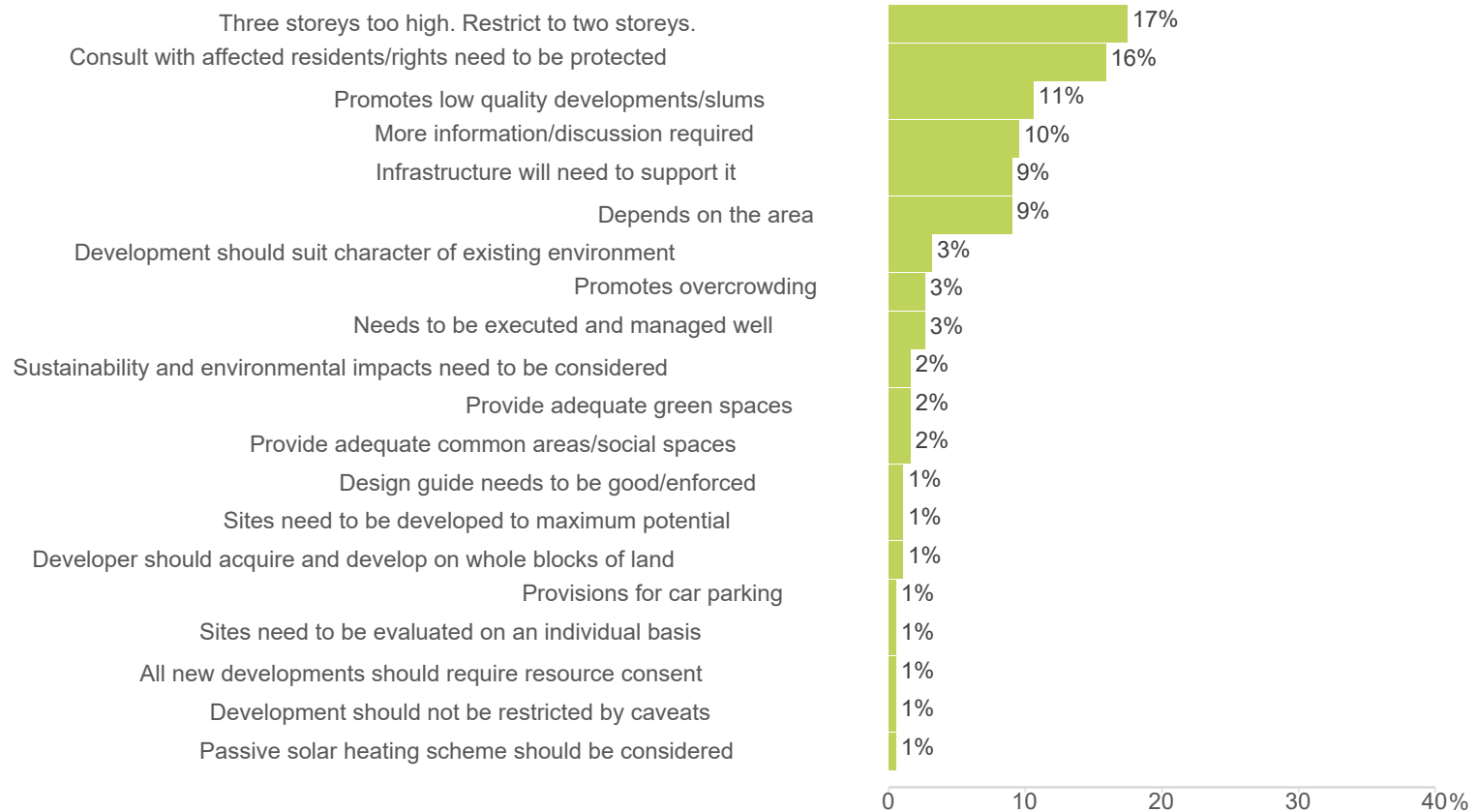
# Comprehensive Residential Development on General Residential sites 1400m<sup>2</sup> – Comments/Reasons

# I support Comprehensive Residential Development on General Residential sites 1400m<sup>2</sup> - Comments/Reasons



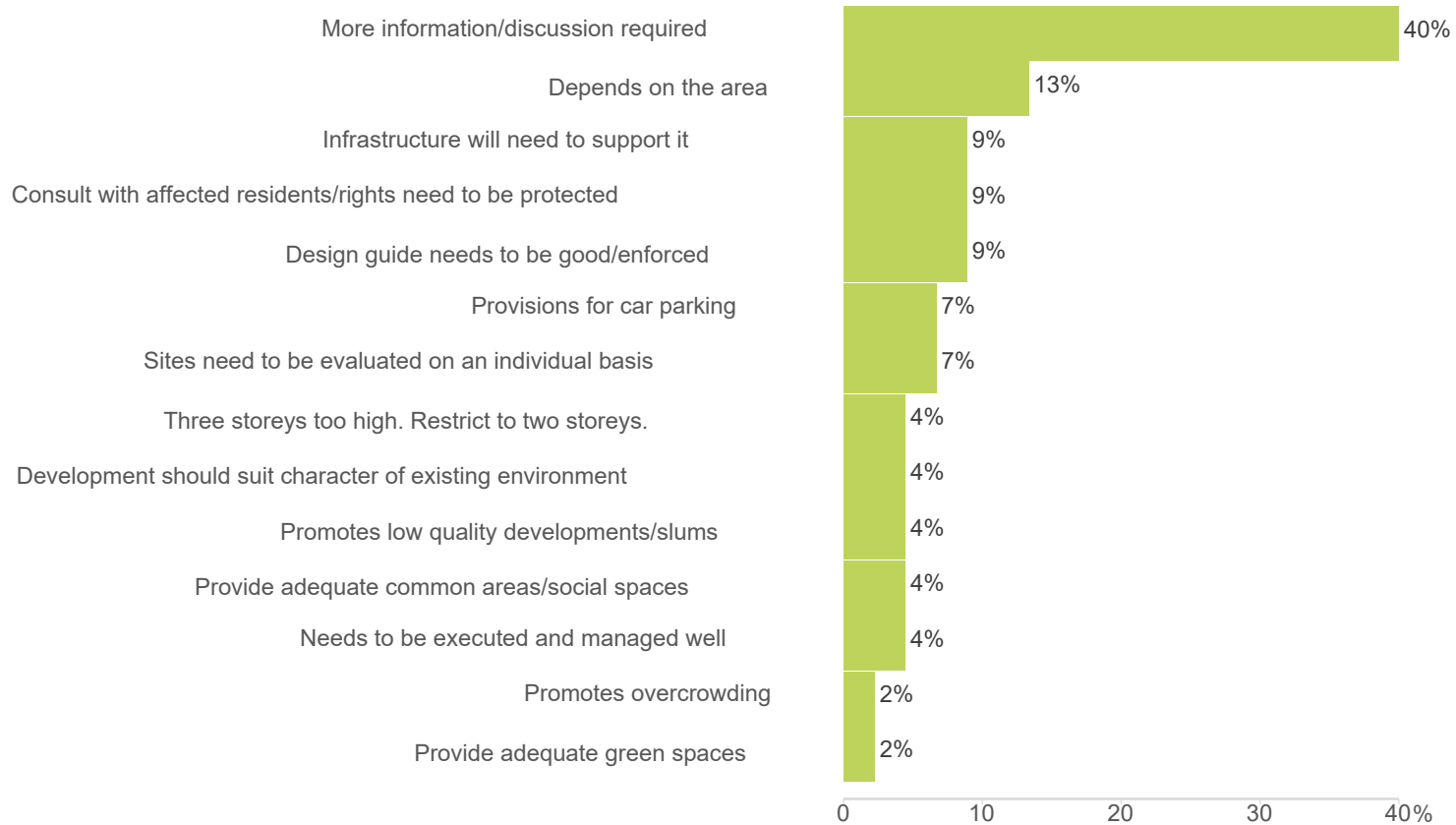
Filter: I support Comprehensive Residential Development on larger sites in the General Residential zone; Unweighted; base n = 190; total n = 663; 57% filtered out

# I don't support Comprehensive Residential Development on General Residential sites 1400m<sup>2</sup> - Comments/Reasons



Filter: I don't support Comprehensive Residential Development on larger sites in the General Residential zone; Unweighted; base n = 189; total n = 515; 67% filtered out

# Comprehensive Residential Development on General Residential sites 1400m<sup>2</sup> (I don't know) - Comments/Reasons



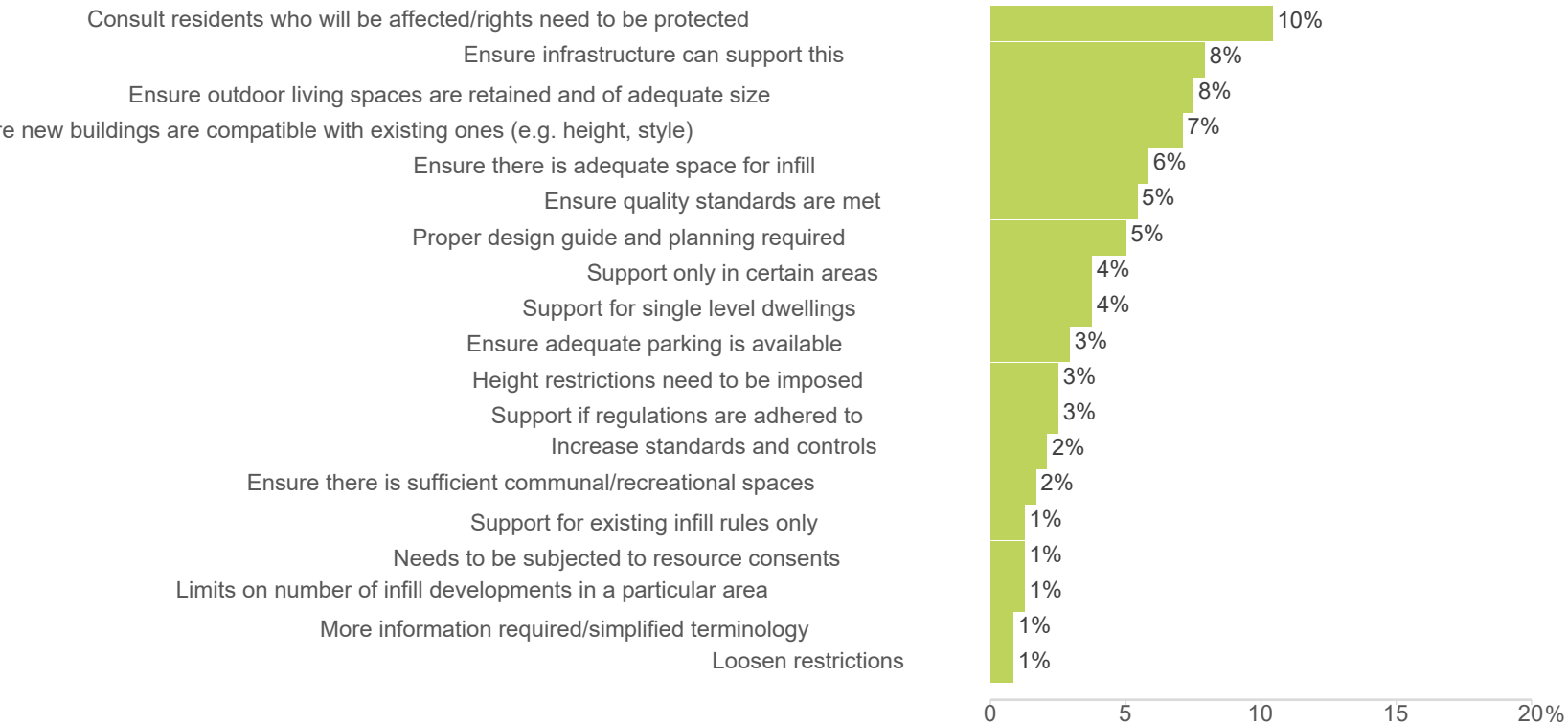
Filter: Comprehensive Residential Development - Don't know; Unweighted; base n = 45; total n = 134; 91% filtered out



# **Infill Development in General Residential – Comments/Reasons**

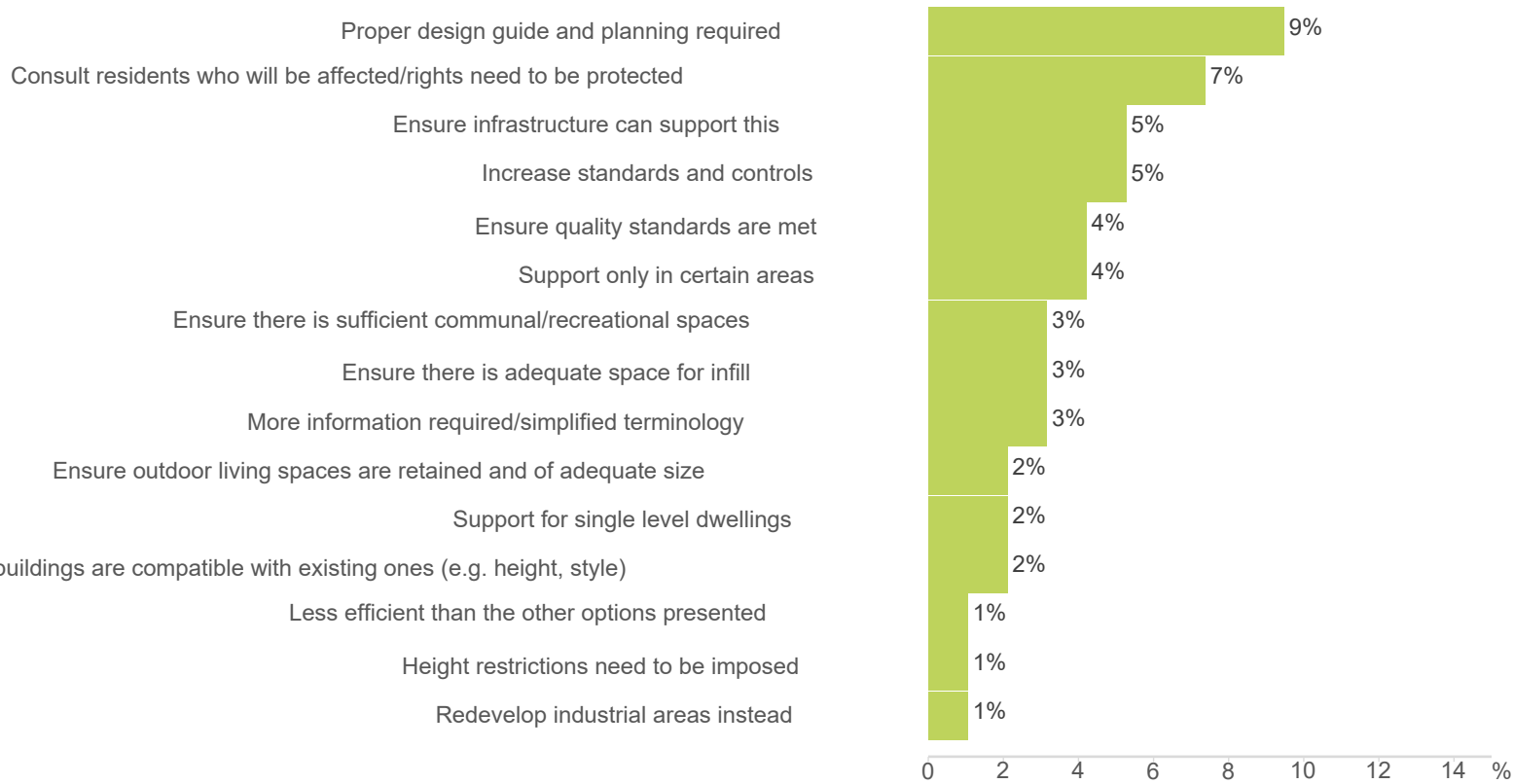


# I support Infill Development in General Residential - Comments/Reasons



Filter: I support traditional Infill Development in General Residential; Unweighted; base n = 240; total n = 946; 39% filtered out

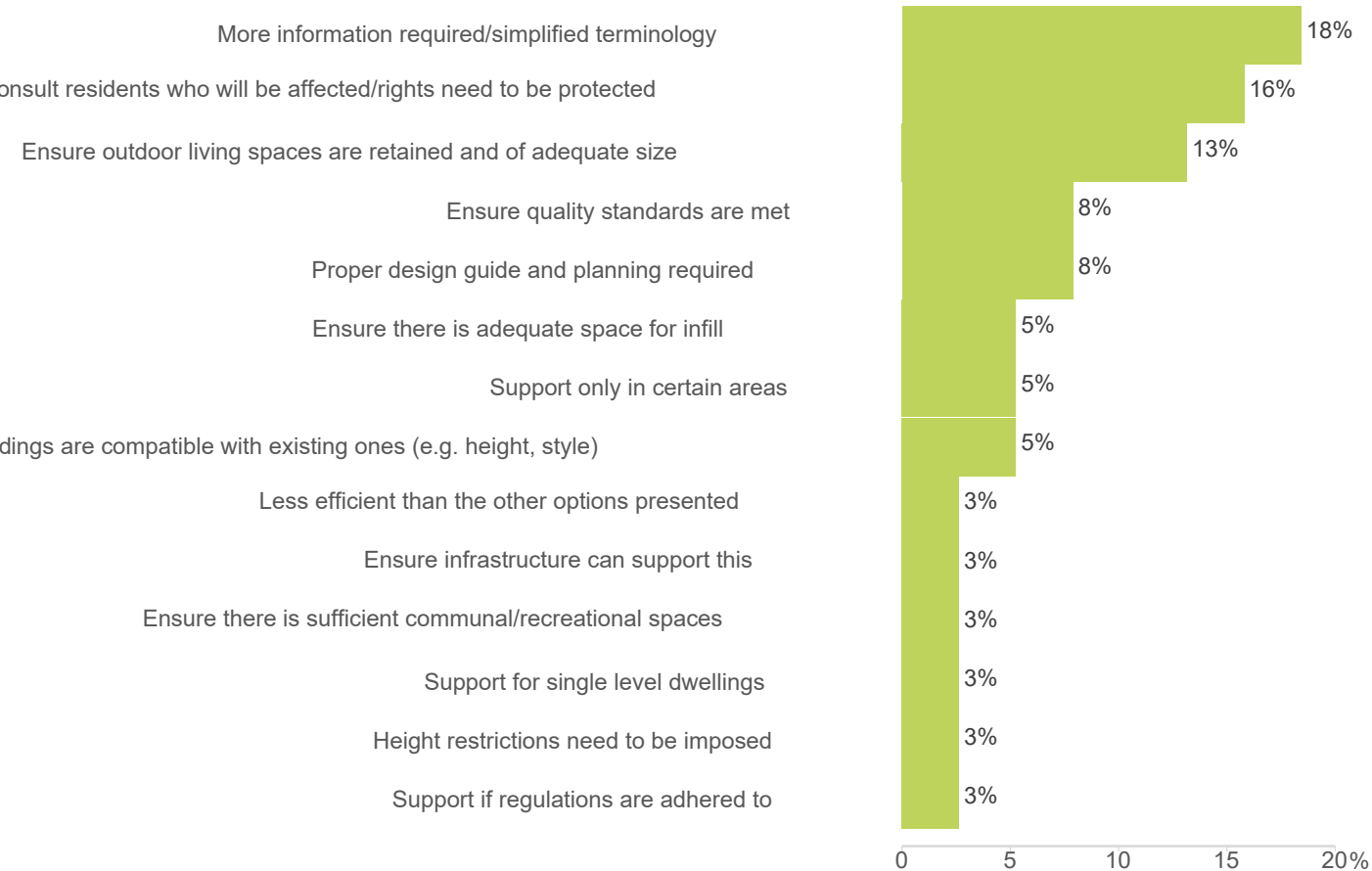
# I don't support Infill Development in General Residential - Comments/Reasons



Filter: I don't support traditional Infill Development in General Residential; Unweighted; base n = 95; total n = 269; 83% filtered out



# Infill Development in General Residential (I don't know) - Comments/Reasons



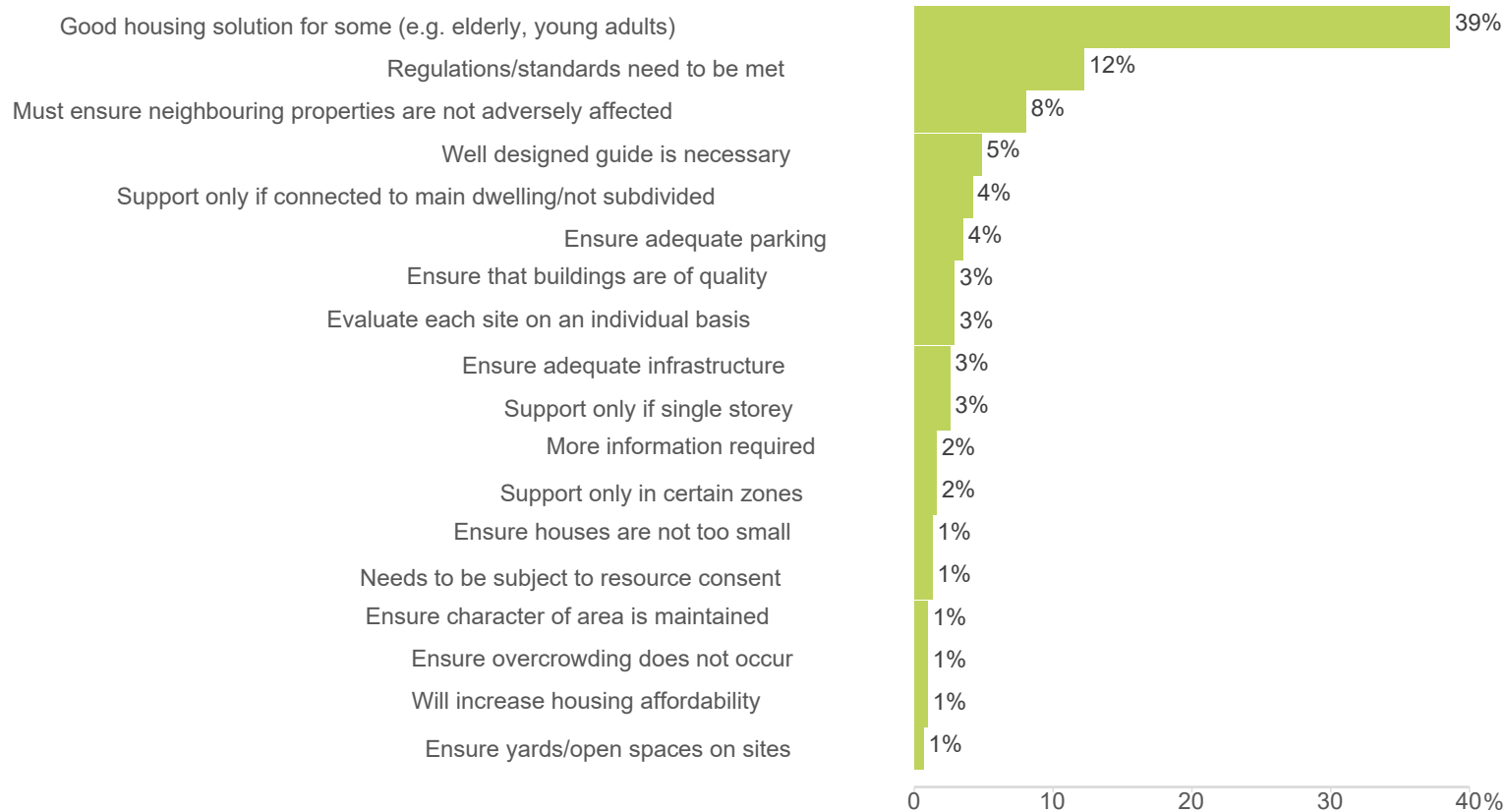
Filter: Infill Development in General Residential - Don't know; Unweighted; base n = 38; total n = 81; 95% filtered out



Small house

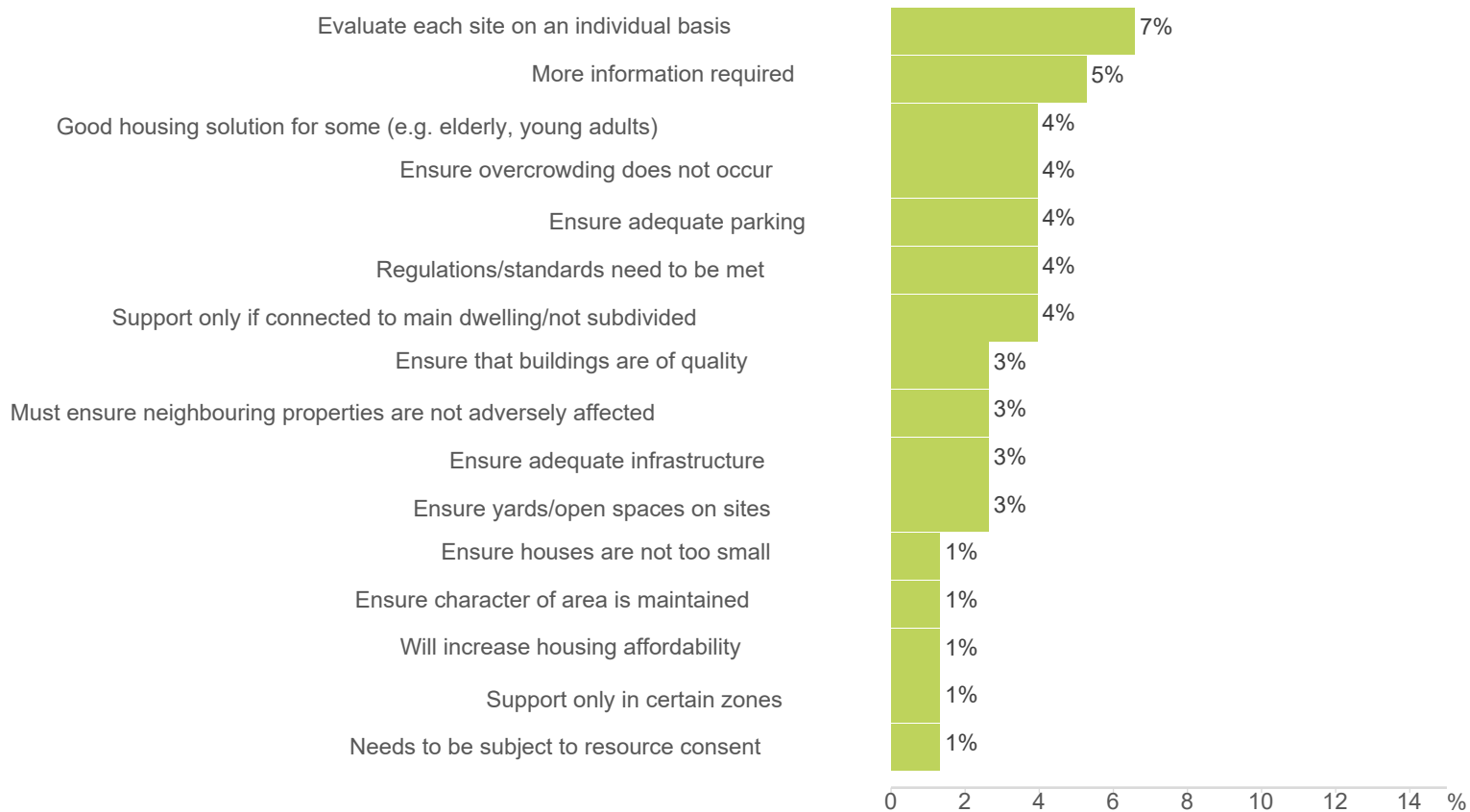
# Infill Development in General Residential – Small Houses – Comments/Reasons

# I support Infill Development in General Residential – Small Houses - Comments/Reasons

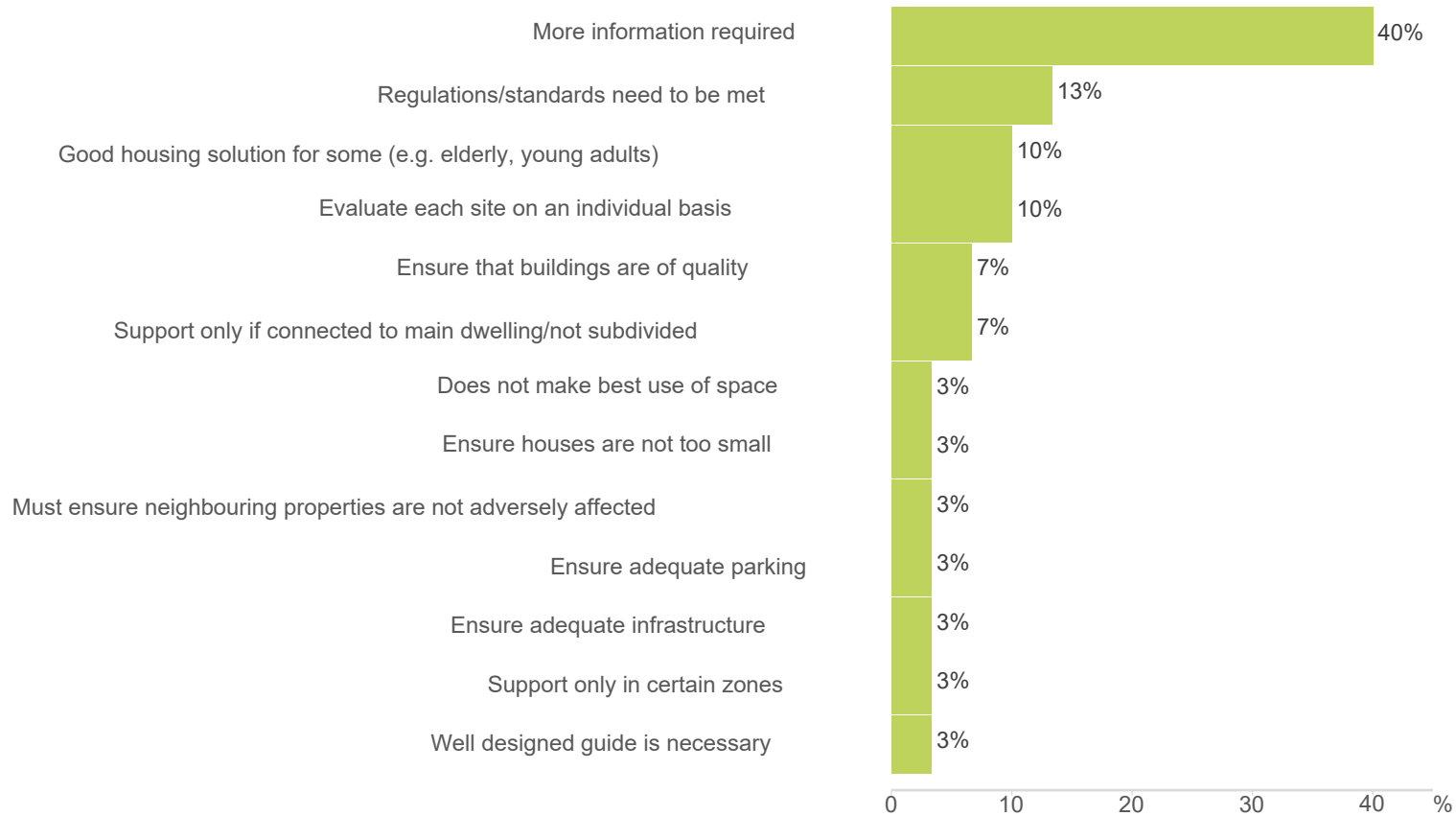


Filter: I support Infill Development of small houses (such as granny flats or tiny houses) in General Residential; Unweighted; base n = 311; total n = 964; 37% filtered out

# I don't support Infill Development in General Residential – Small Houses - Comments/Reasons



Filter: I don't support Infill Development of small houses (such as granny flats or tiny houses) in General Residential; Unweighted; base n = 76; total n = 249; 84% filtered out



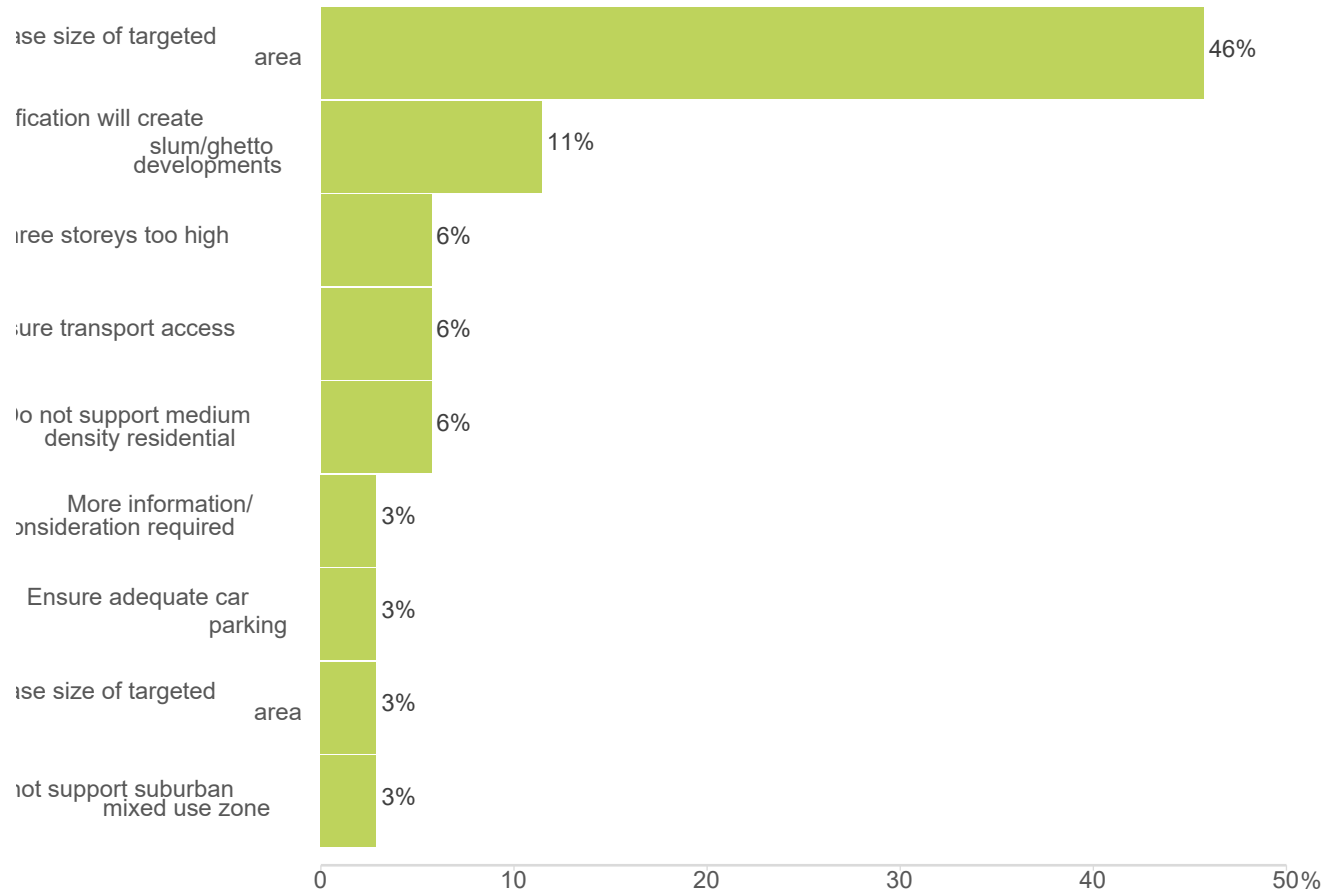
Filter: Infill Development in General Residential Small Houses - Don't know; Unweighted; base n = 30; total n = 68; 96% filtered out





# Targeted Areas – Comments/Reasons

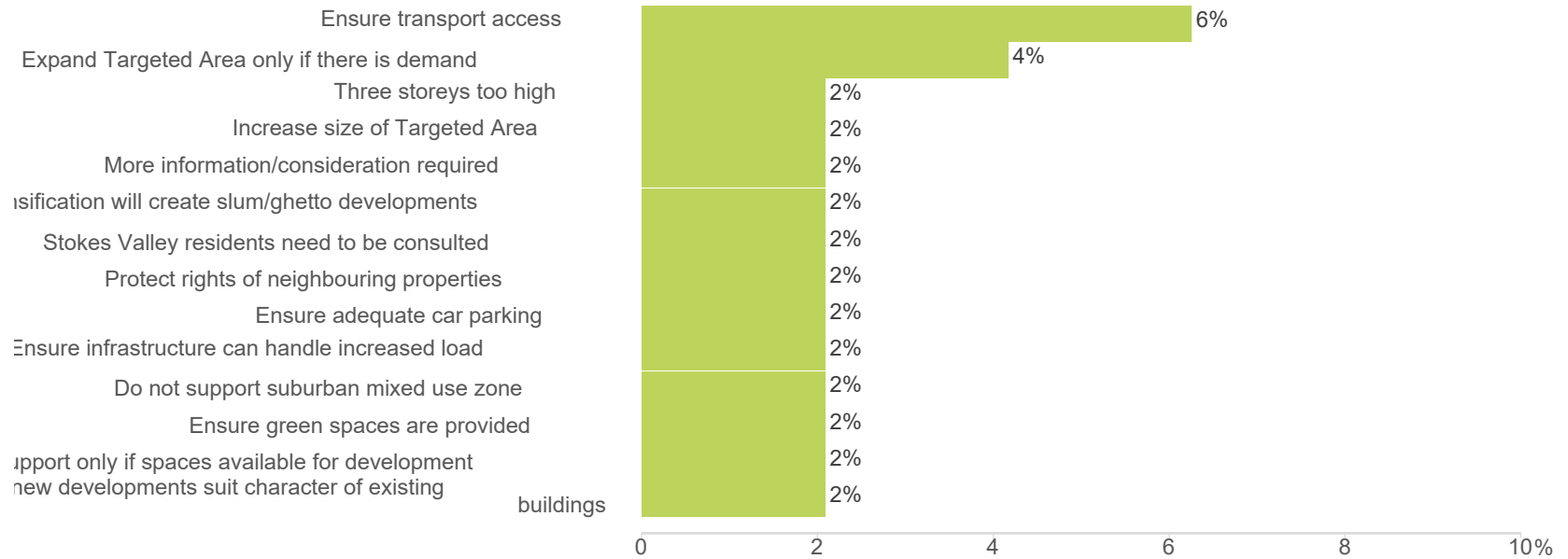
# The Stokes Valley targeted area is too small - Comments/Reasons



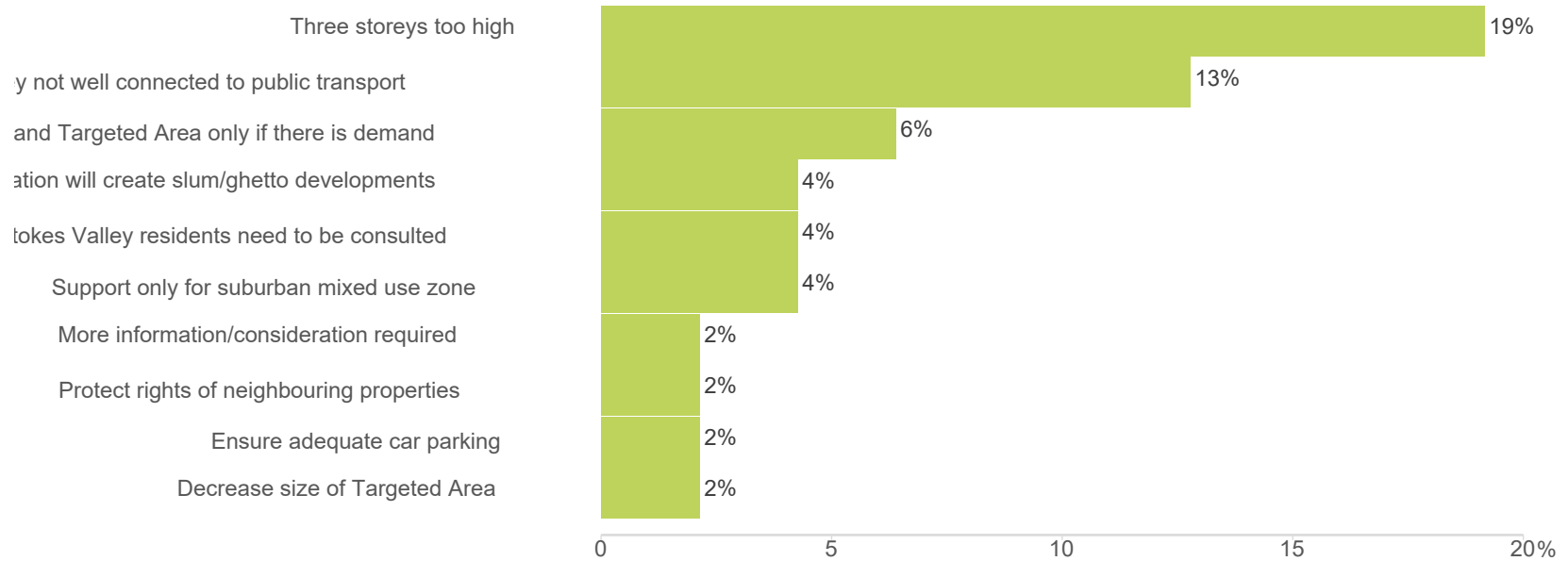
Filter: SV - Too small; Unweighted; base n = 35; total n = 119



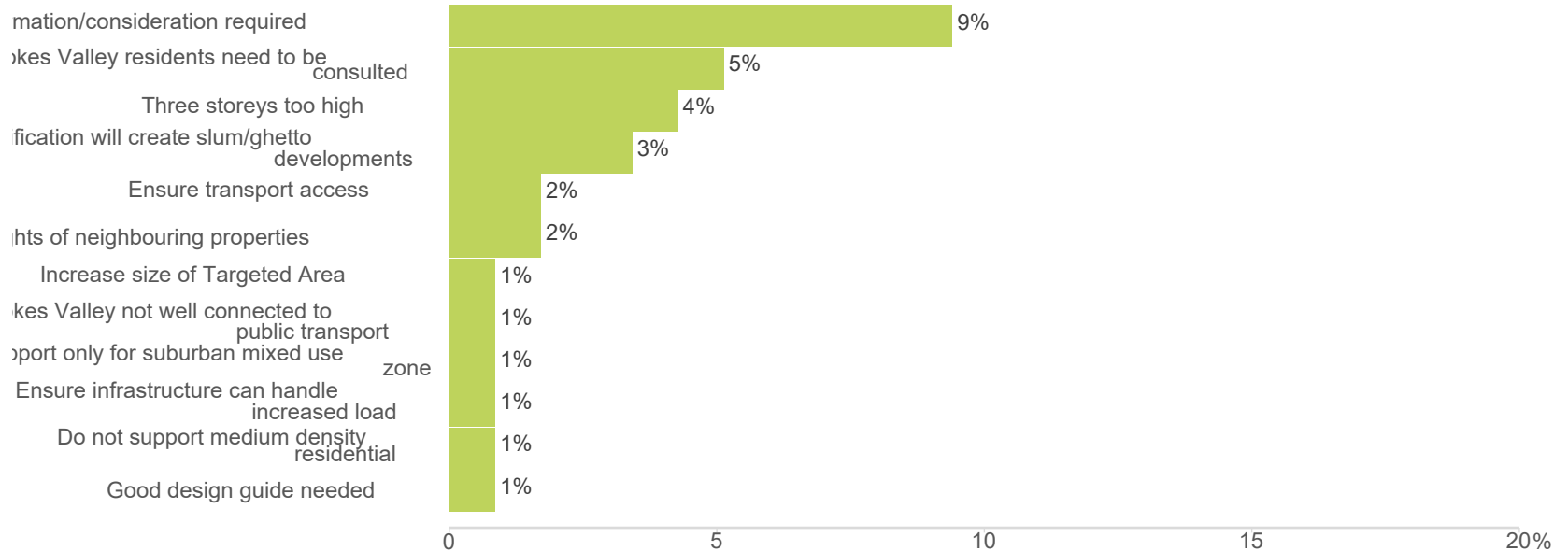
# The Stokes Valley targeted area is about right - Comments/Reasons



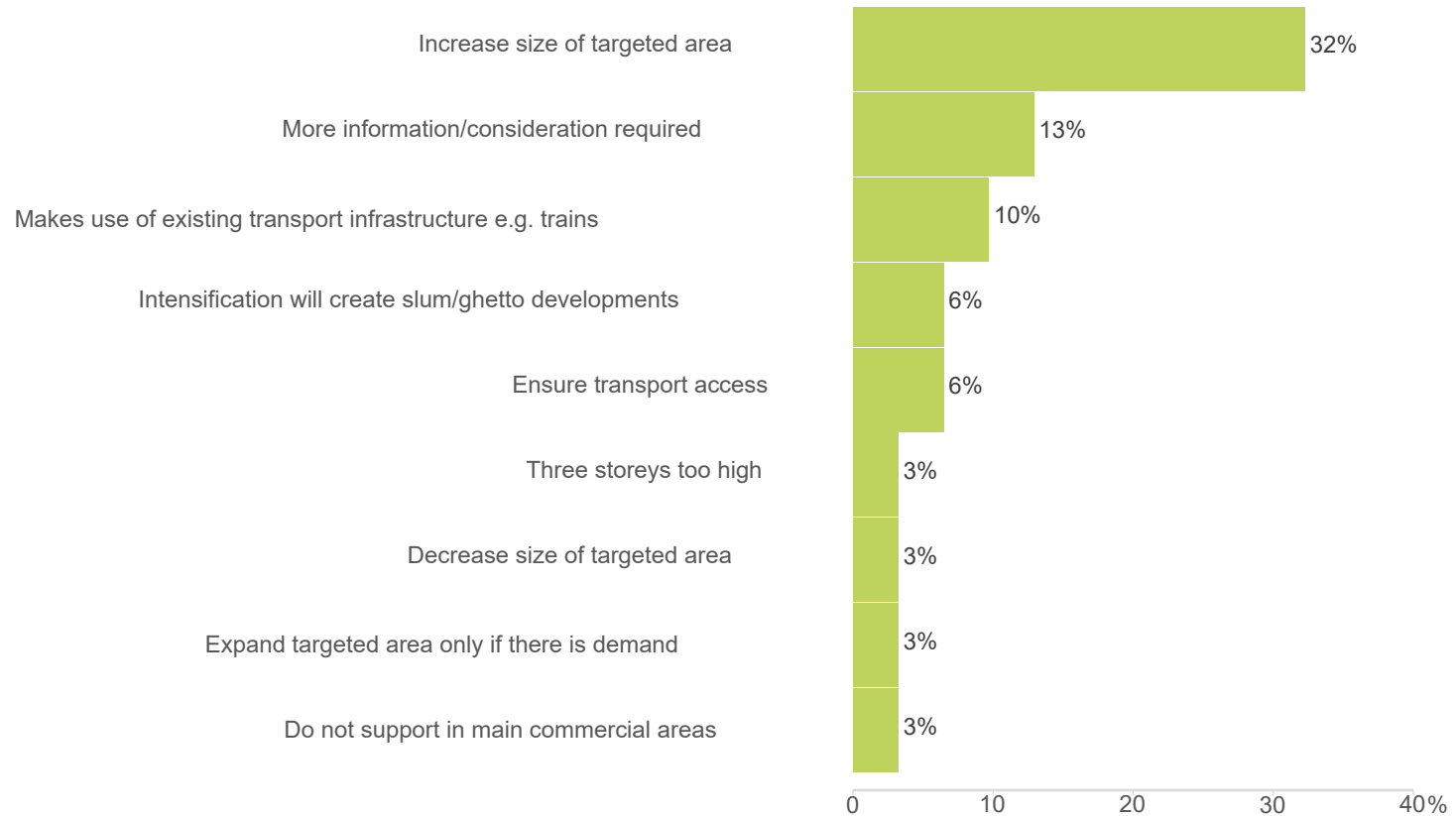
# The Stokes Valley targeted area is too big - Comments/Reasons



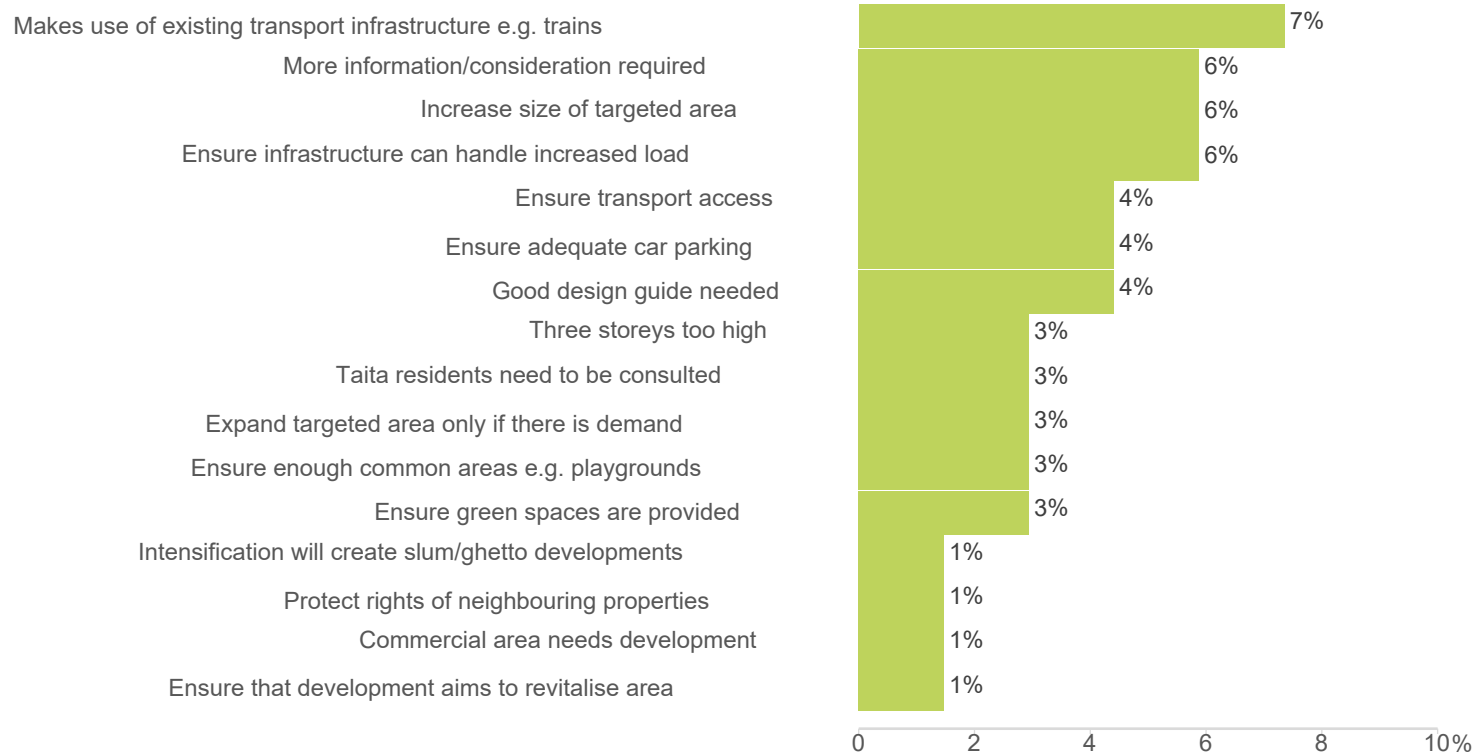
# The Stokes Valley targeted area is (I don't know) - Comments/Reasons



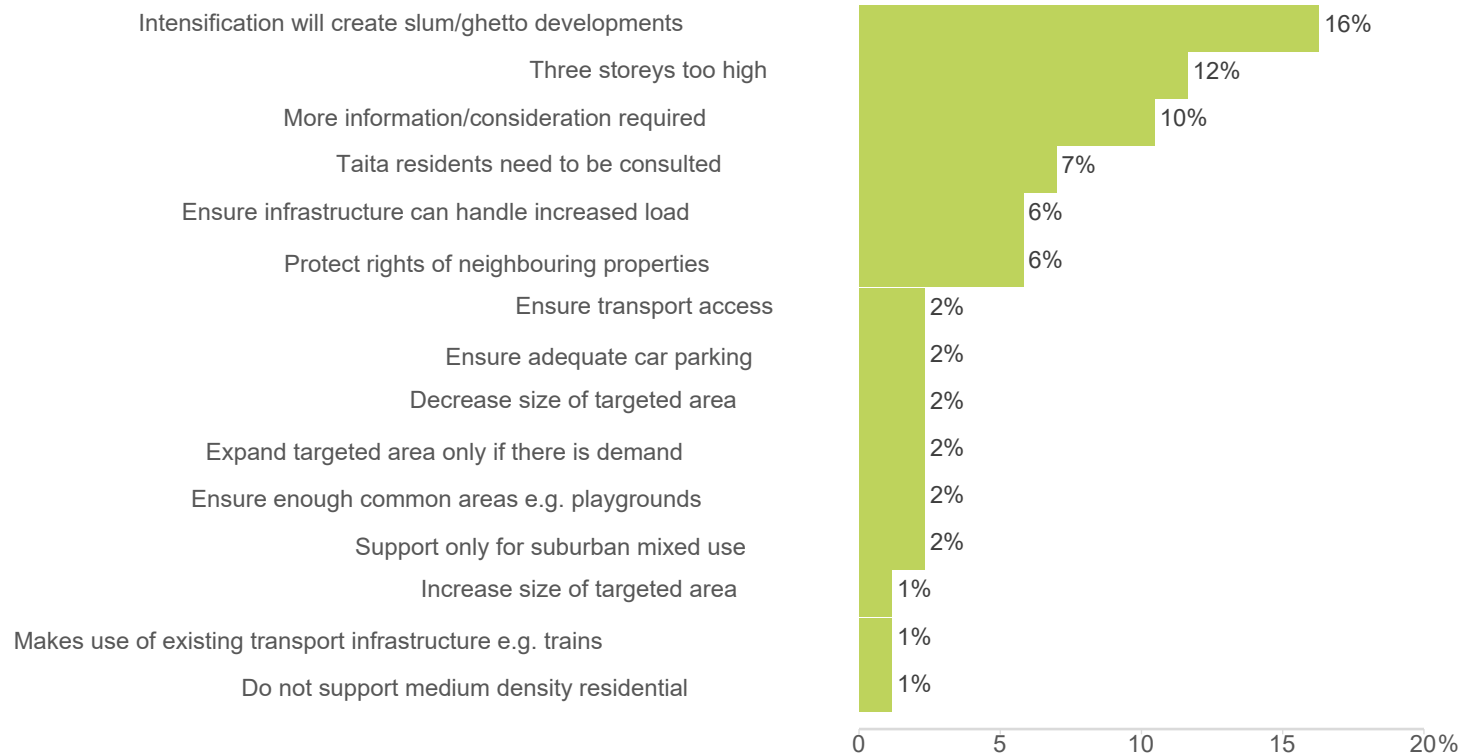
# The Taita targeted area is too small - Comments/Reasons



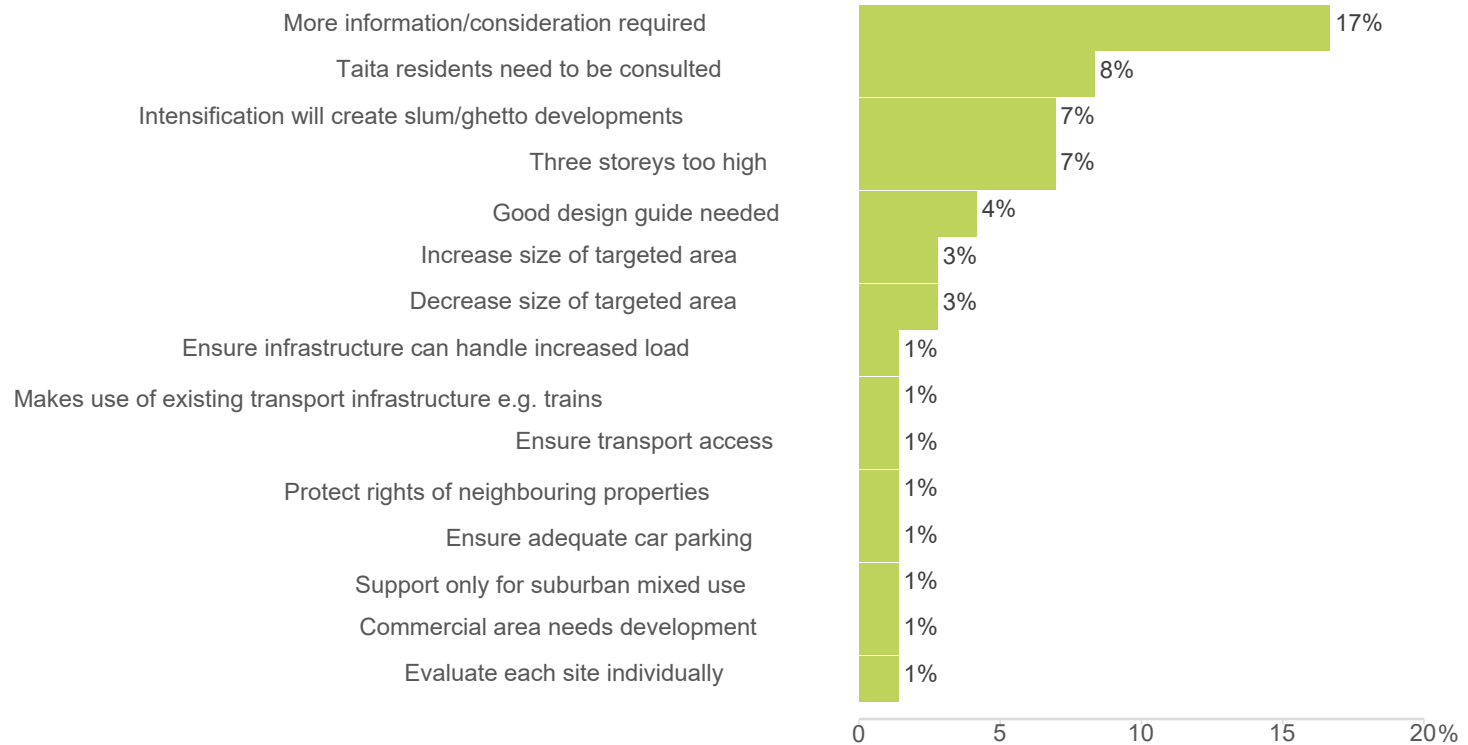
# The Taita targeted area is about right - Comments/Reasons



# The Taita targeted area is too big - Comments/Reasons

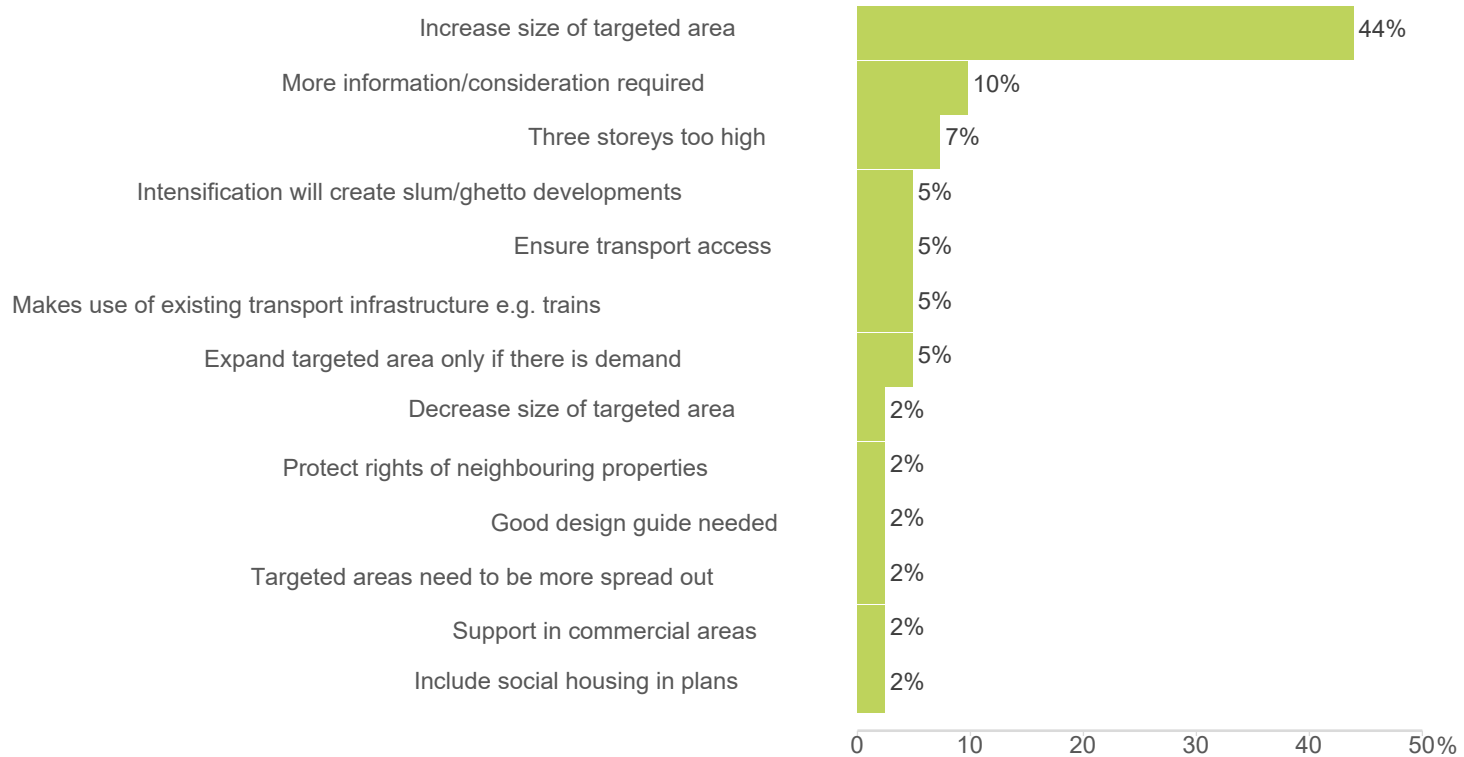


# The Taita targeted area is (I don't know) - Comments/Reasons

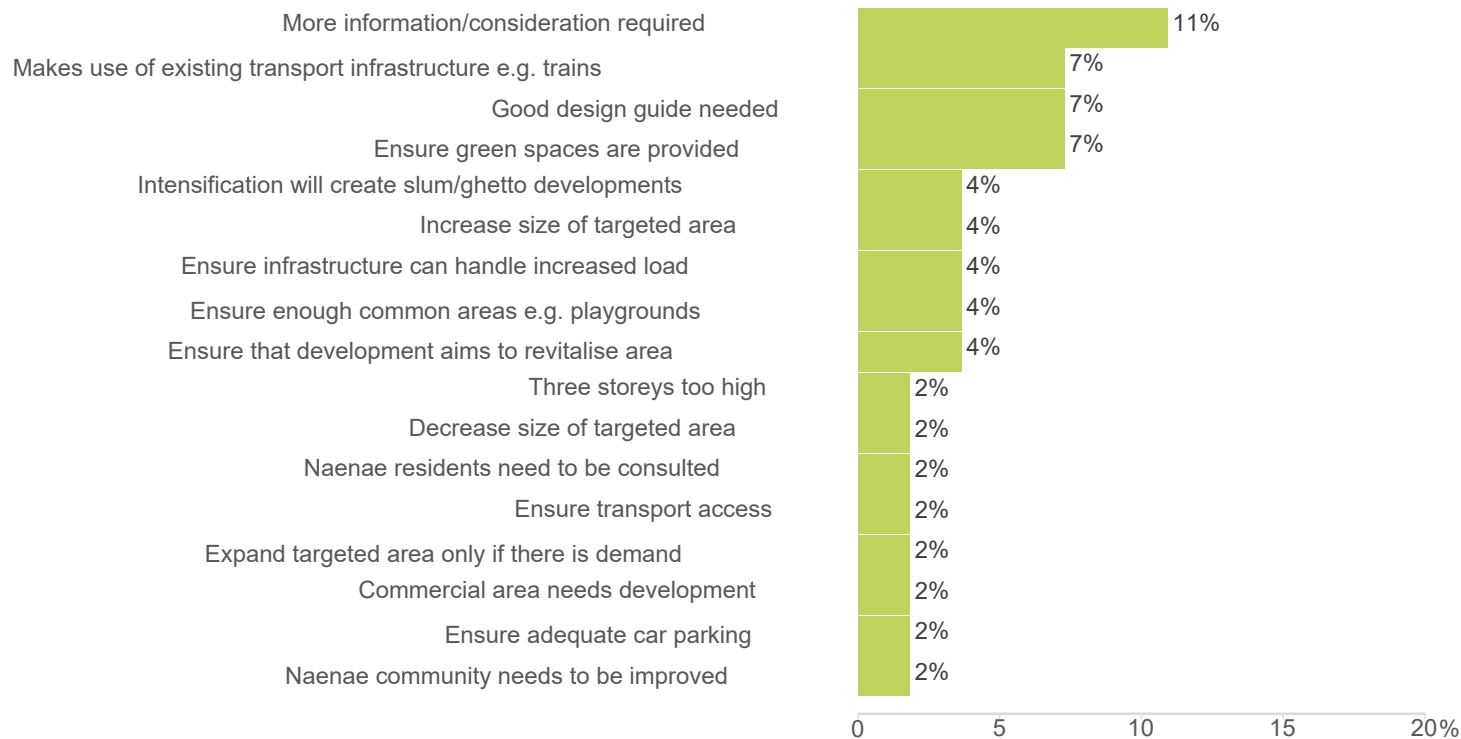




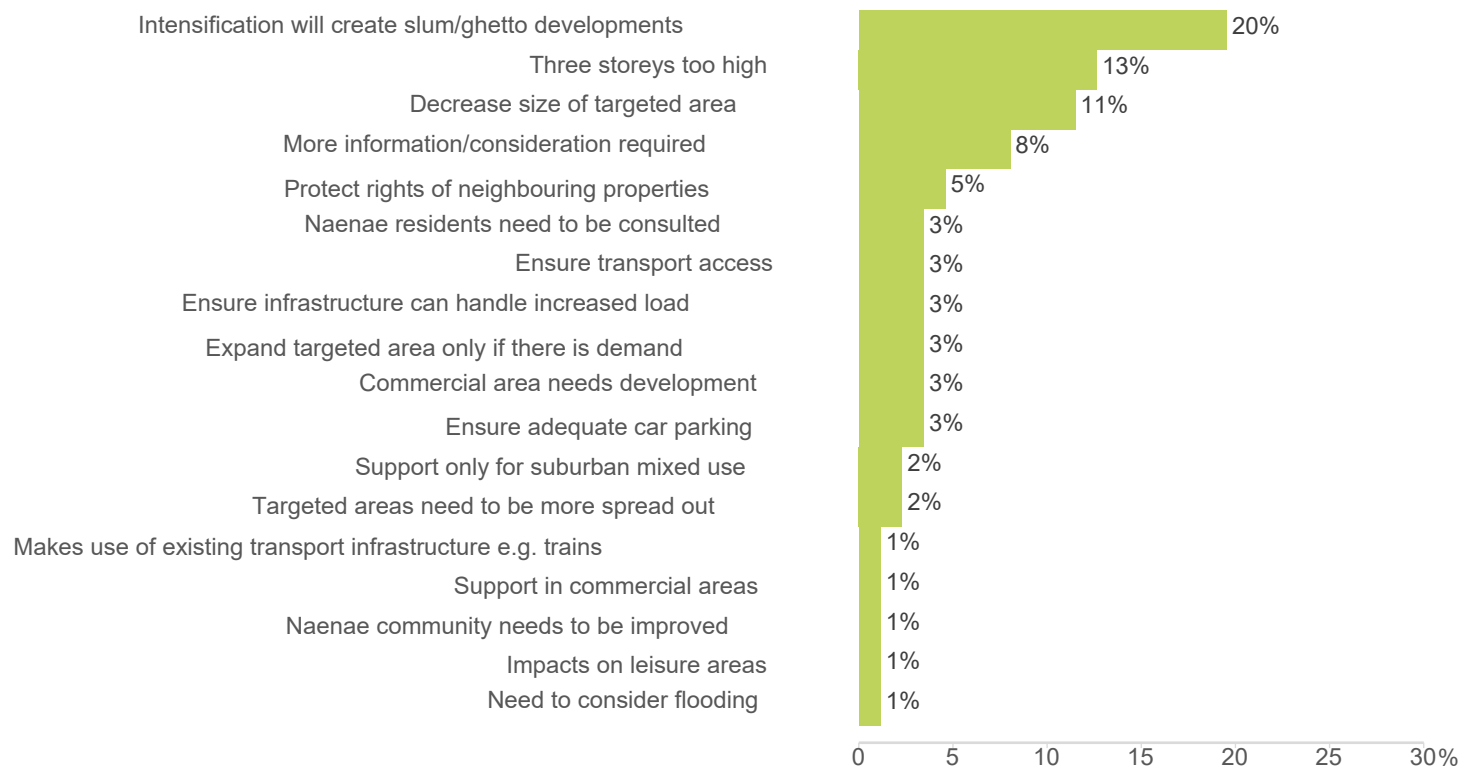
# The Naenae targeted area is too small - Comments/Reasons



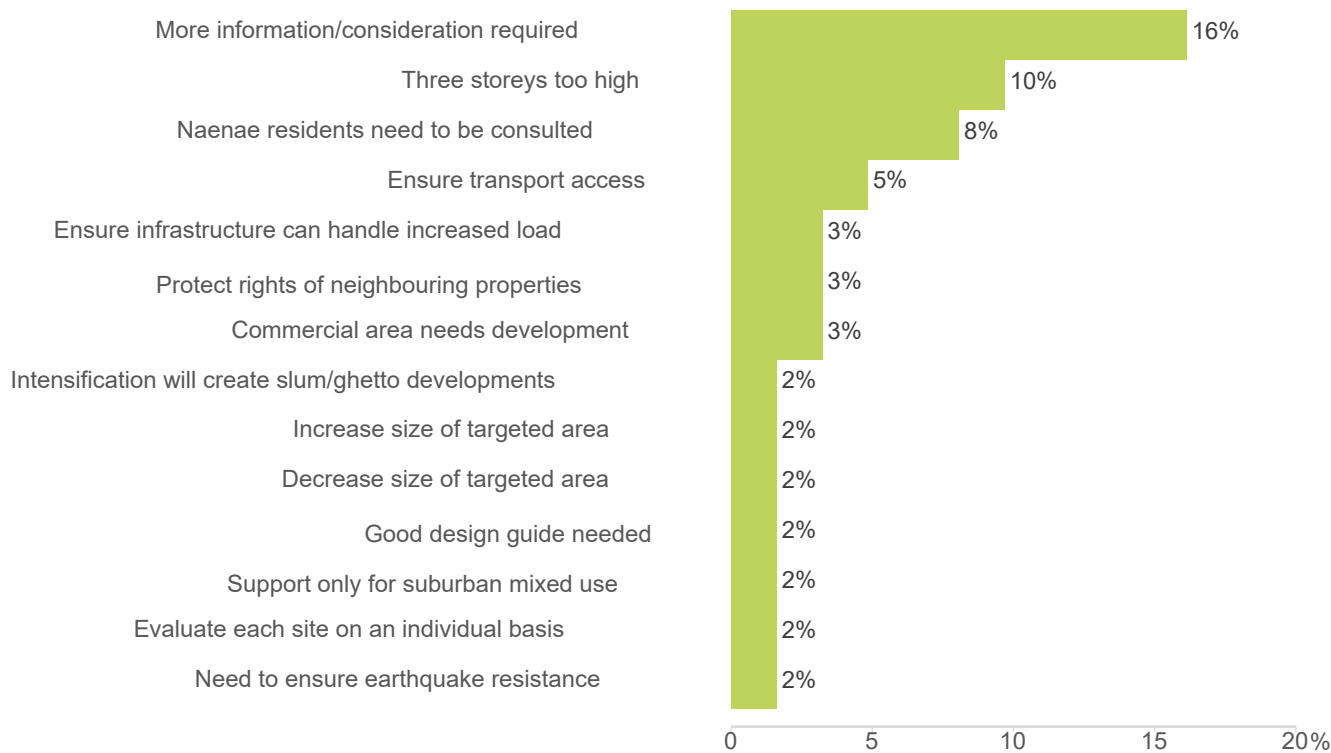
# The Naenae targeted area is about right - Comments/Reasons



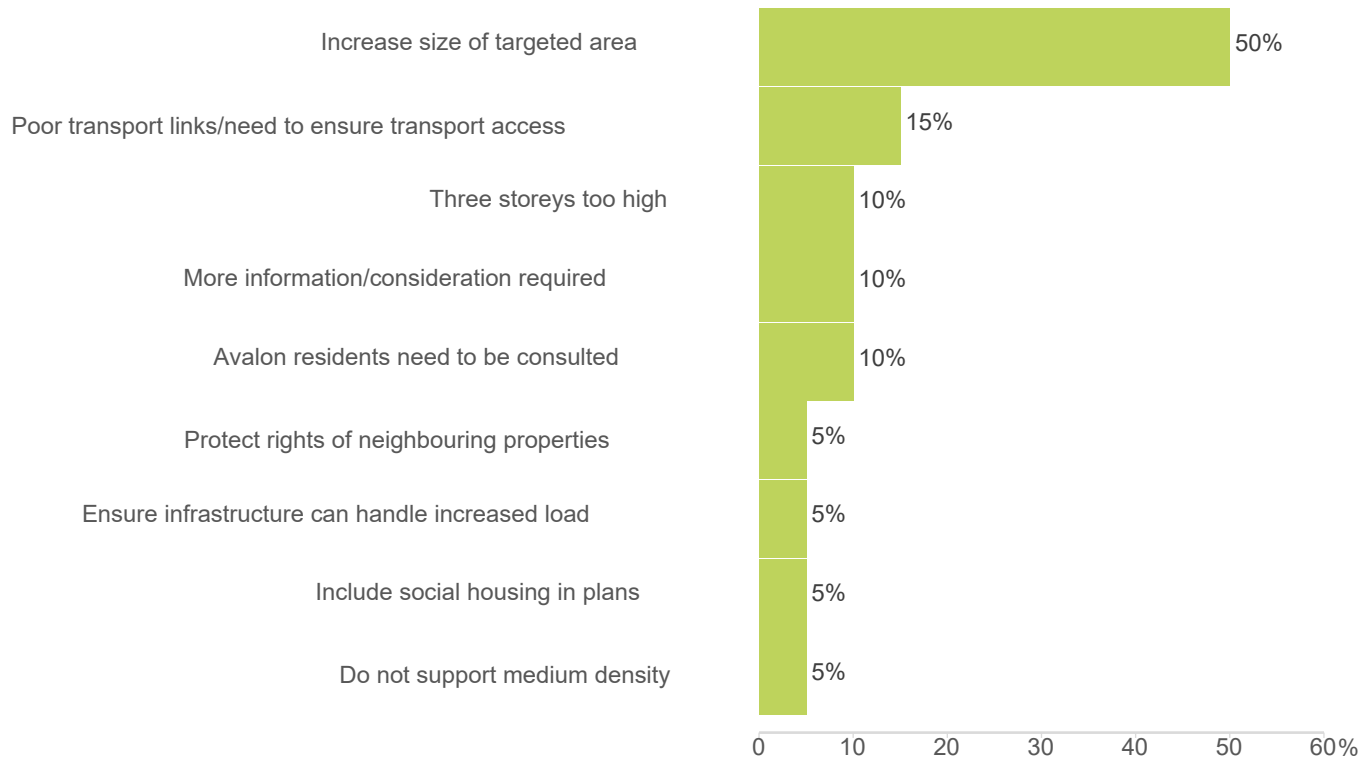
# The Naenae targeted area is too big - Comments/Reasons



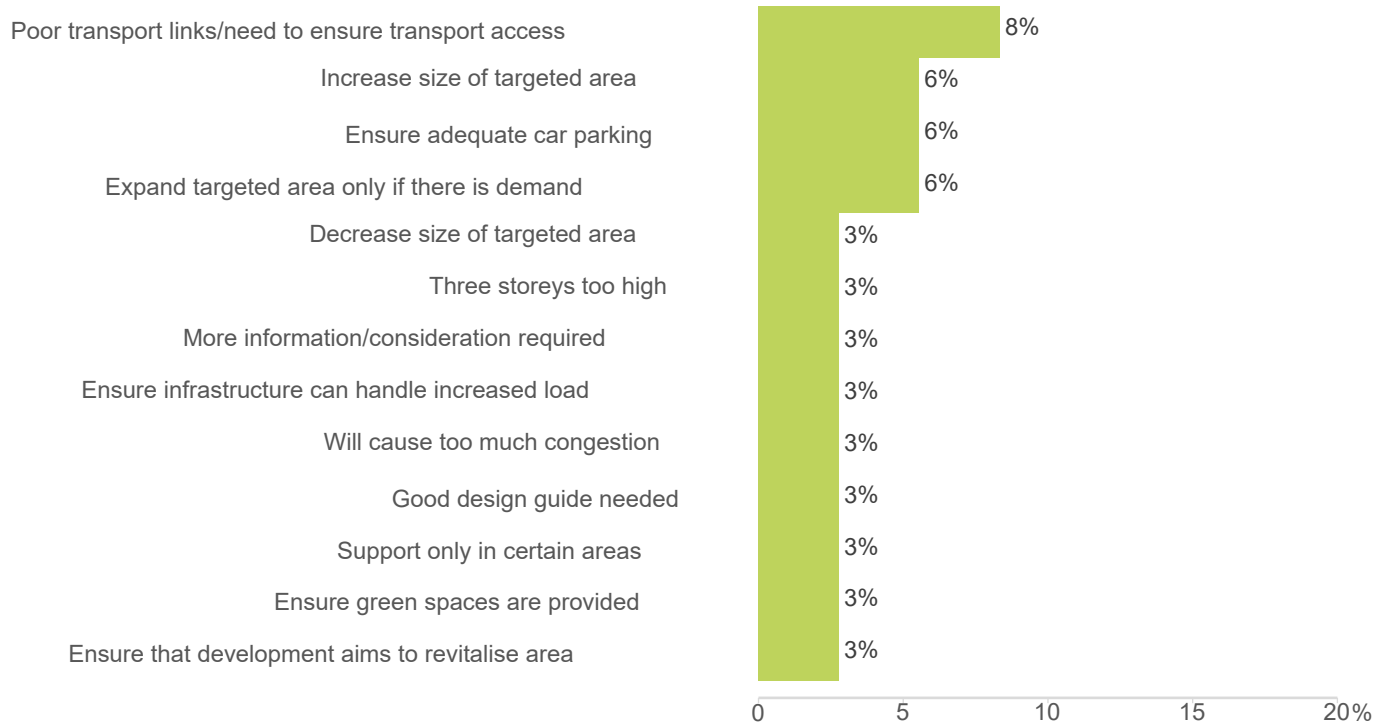
# The Naenae targeted area is (I don't know) - Comments/Reasons



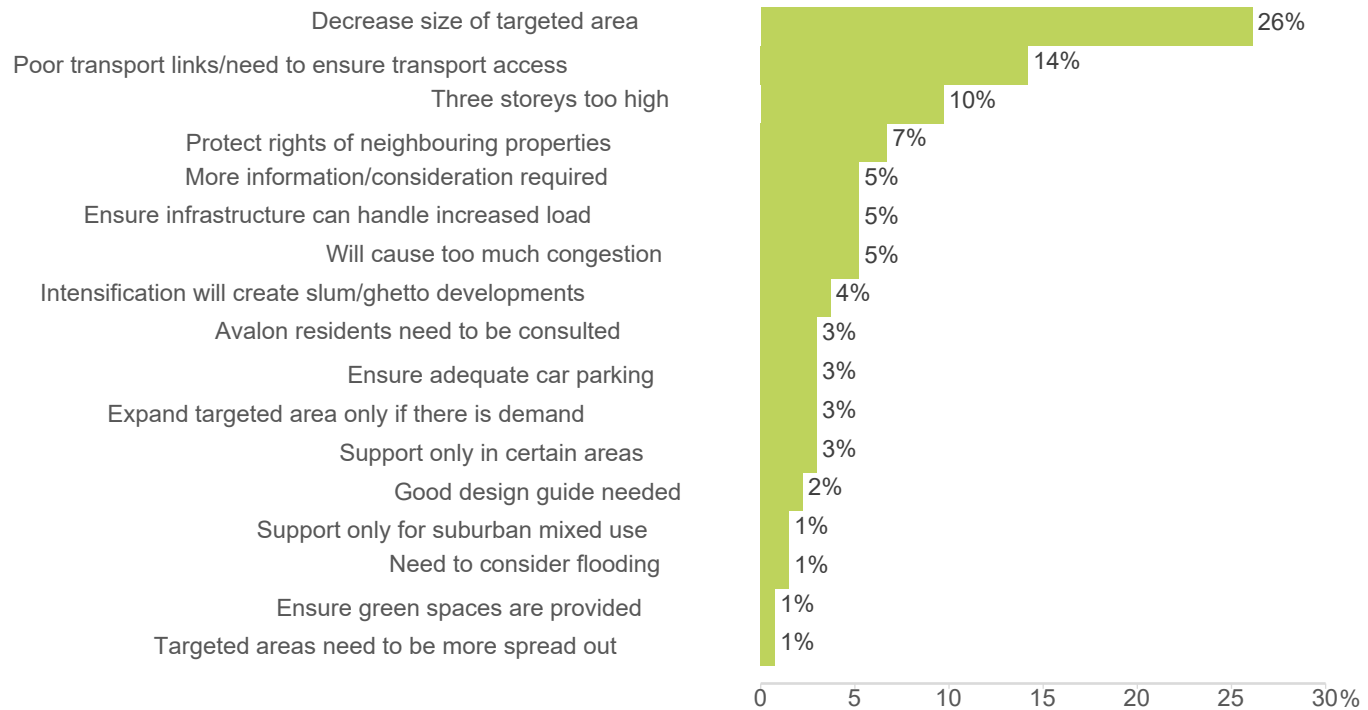
# The Avalon targeted area is too small - Comments/Reasons



# The Avalon targeted area is about right - Comments/Reasons

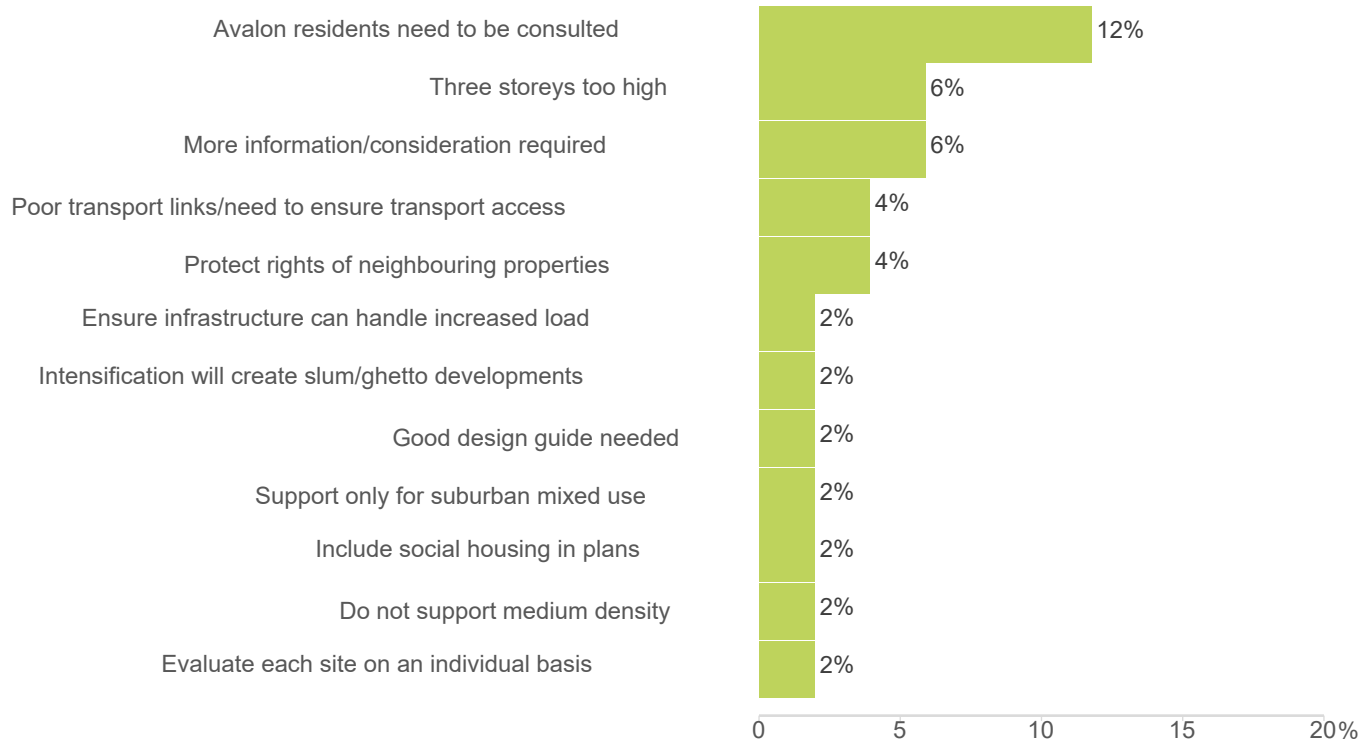


# The Avalon targeted area is too big - Comments/Reasons

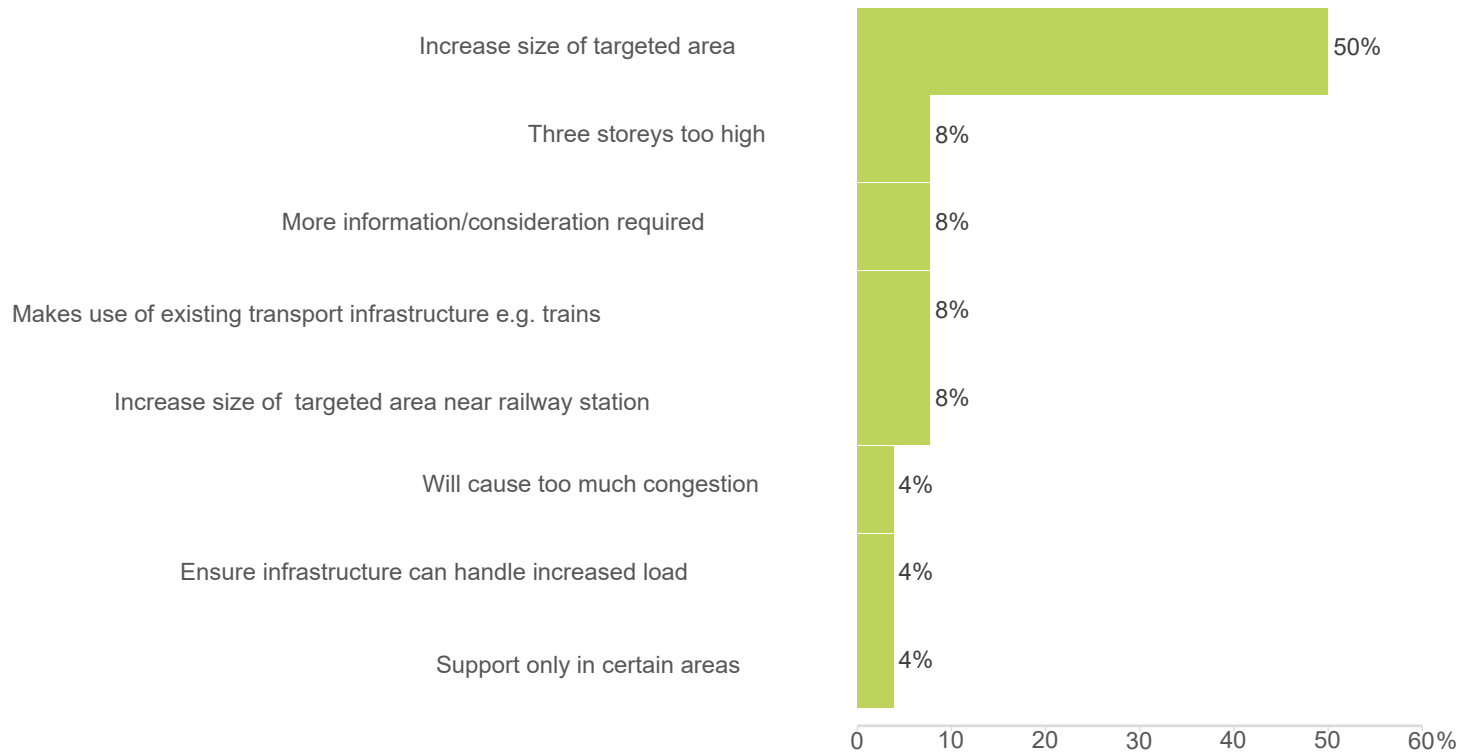




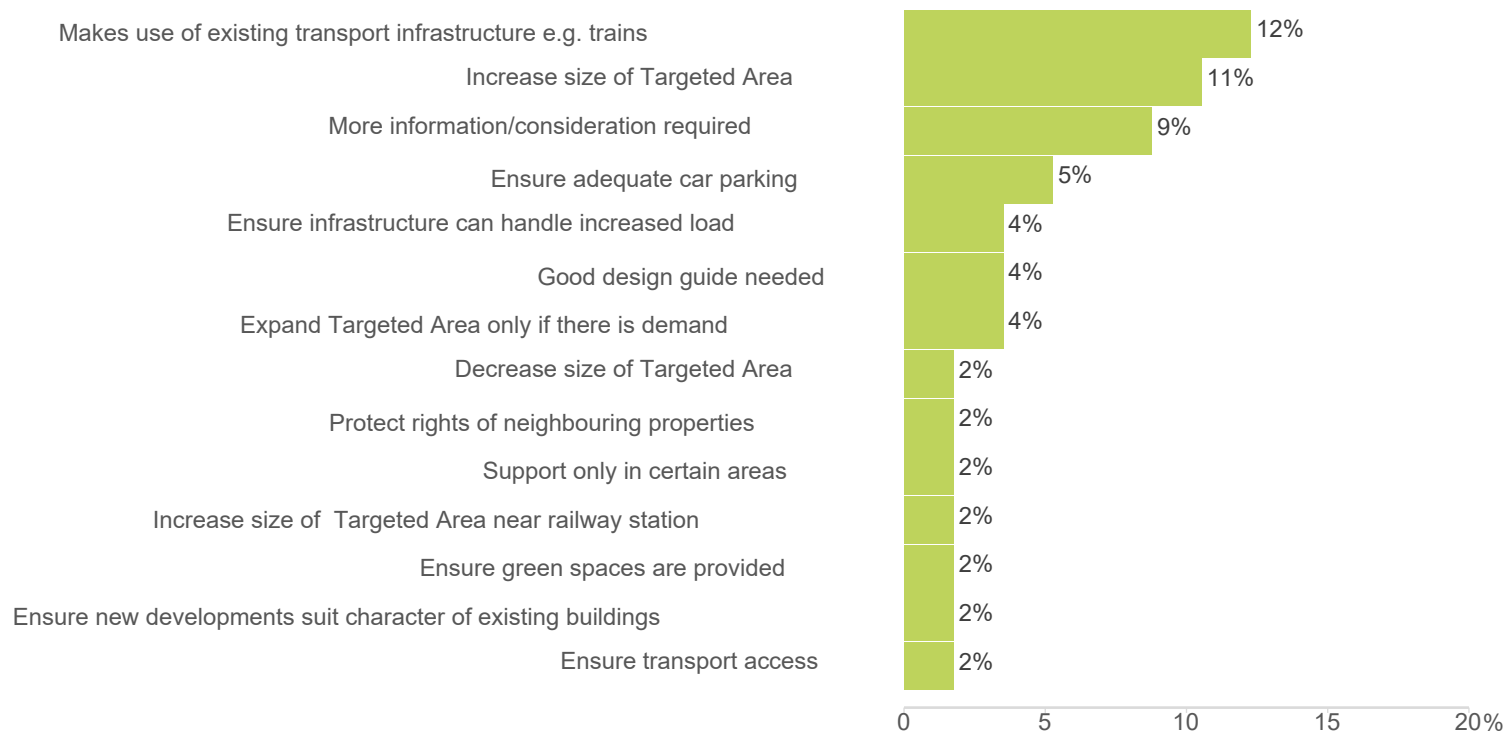
# The Avalon targeted area is (I don't know) - Comments/Reasons



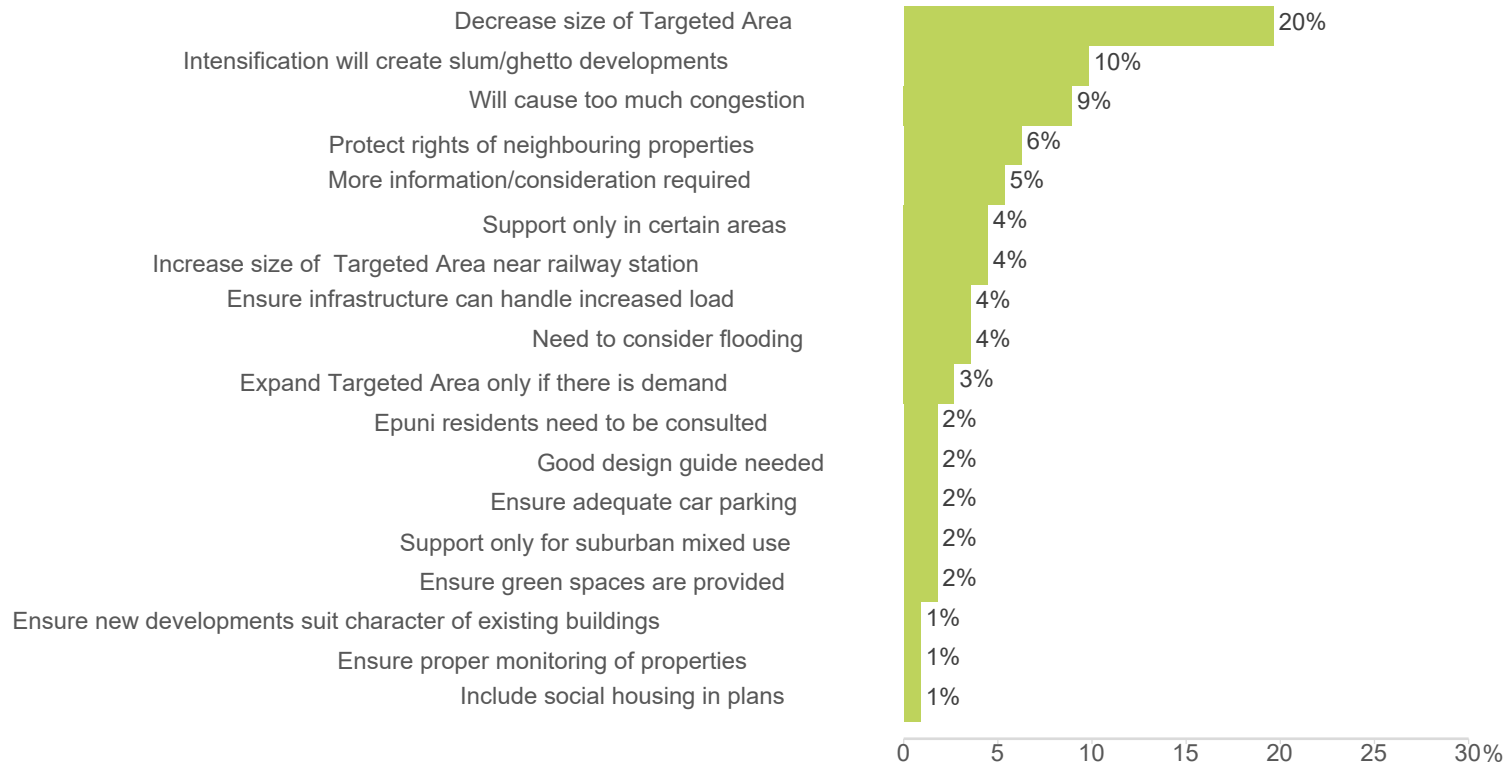
# The Epuni targeted area is too small - Comments/Reasons



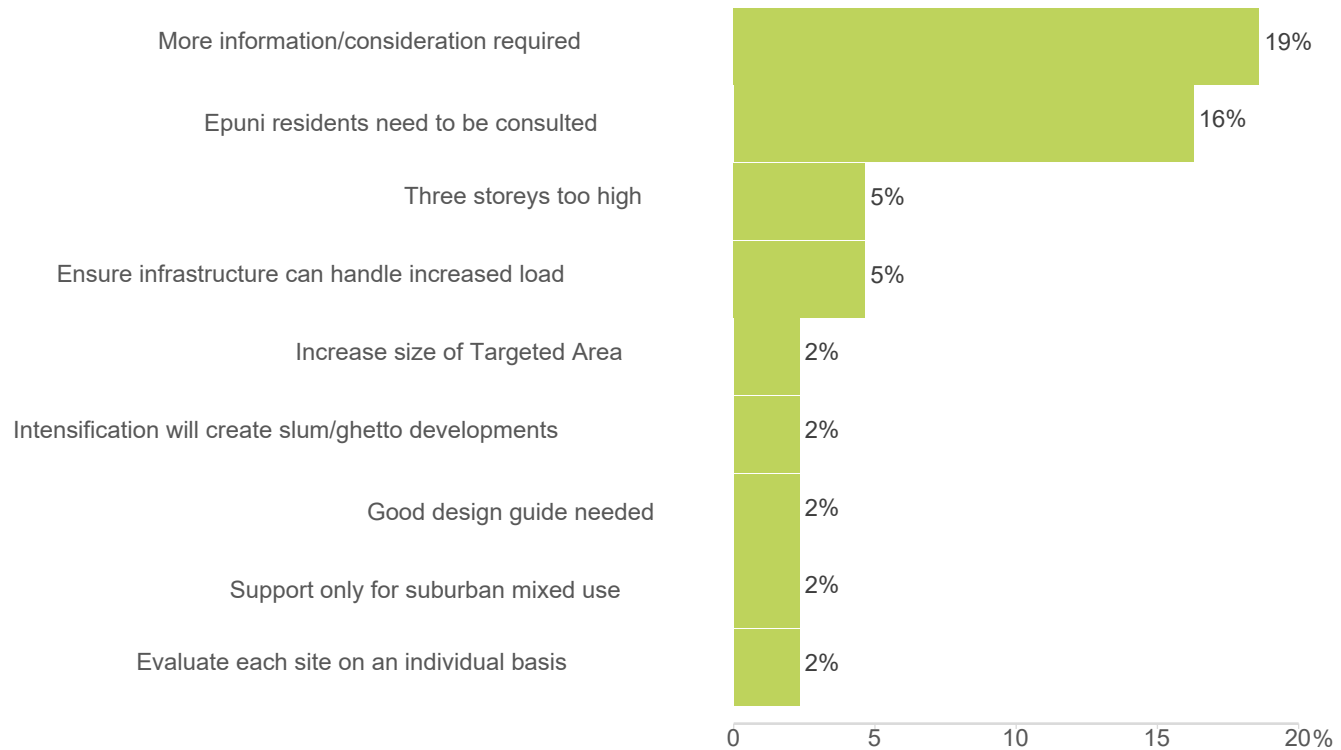
# The Epuni targeted area is about right - Comments/Reasons



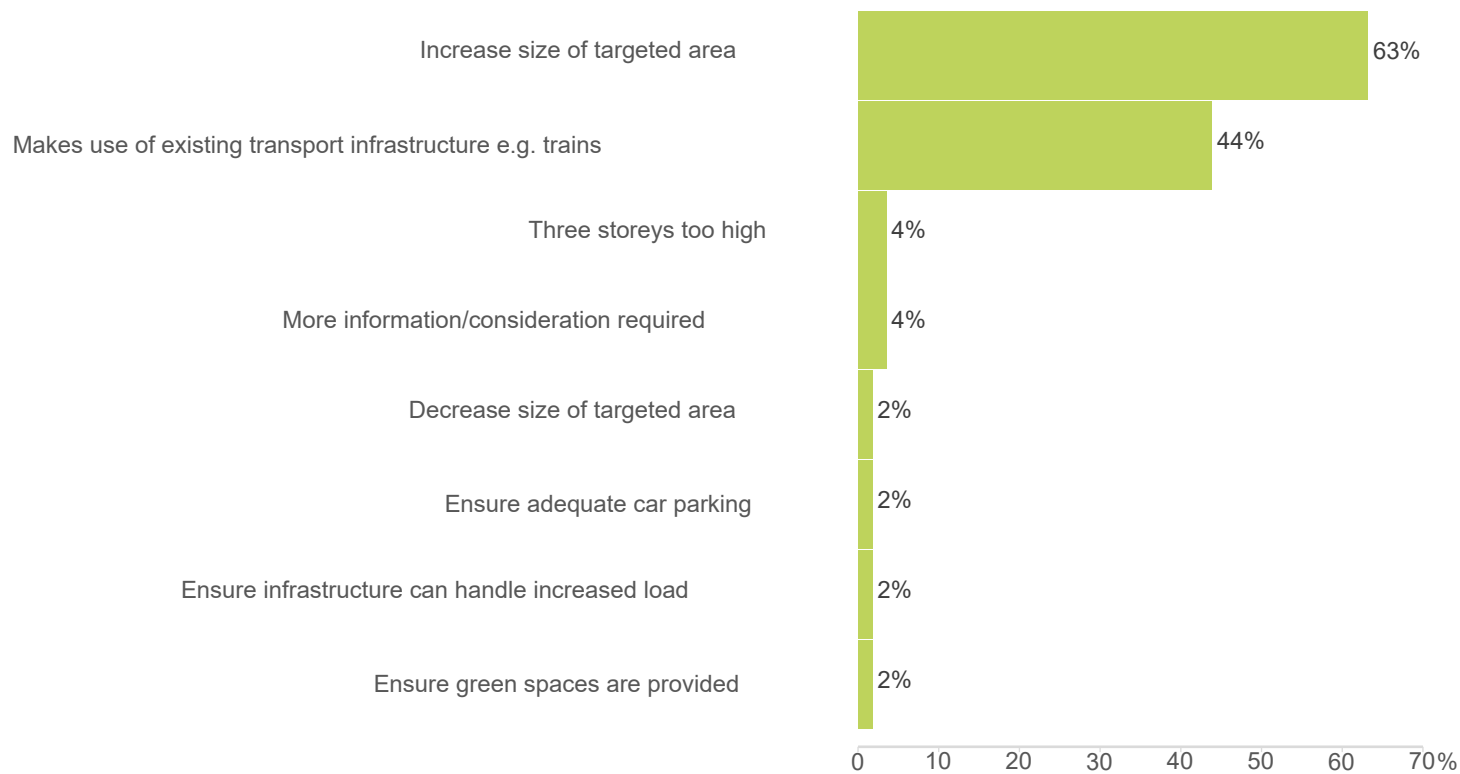
# The Epuni targeted area is too big - Comments/Reasons



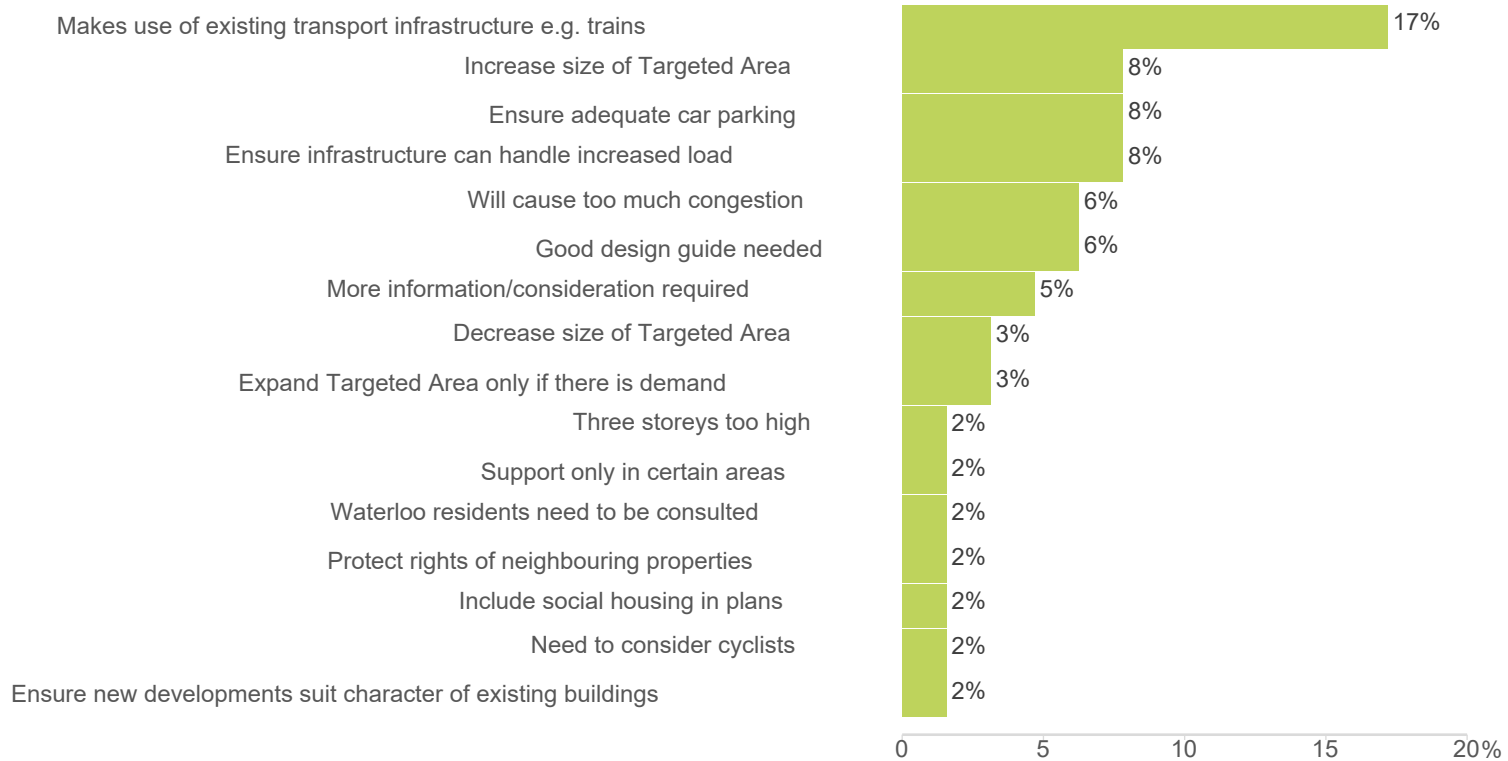
# The Epuni targeted area is (I don't know) - Comments/Reasons



# The Waterloo targeted area is too small - Comments/Reasons

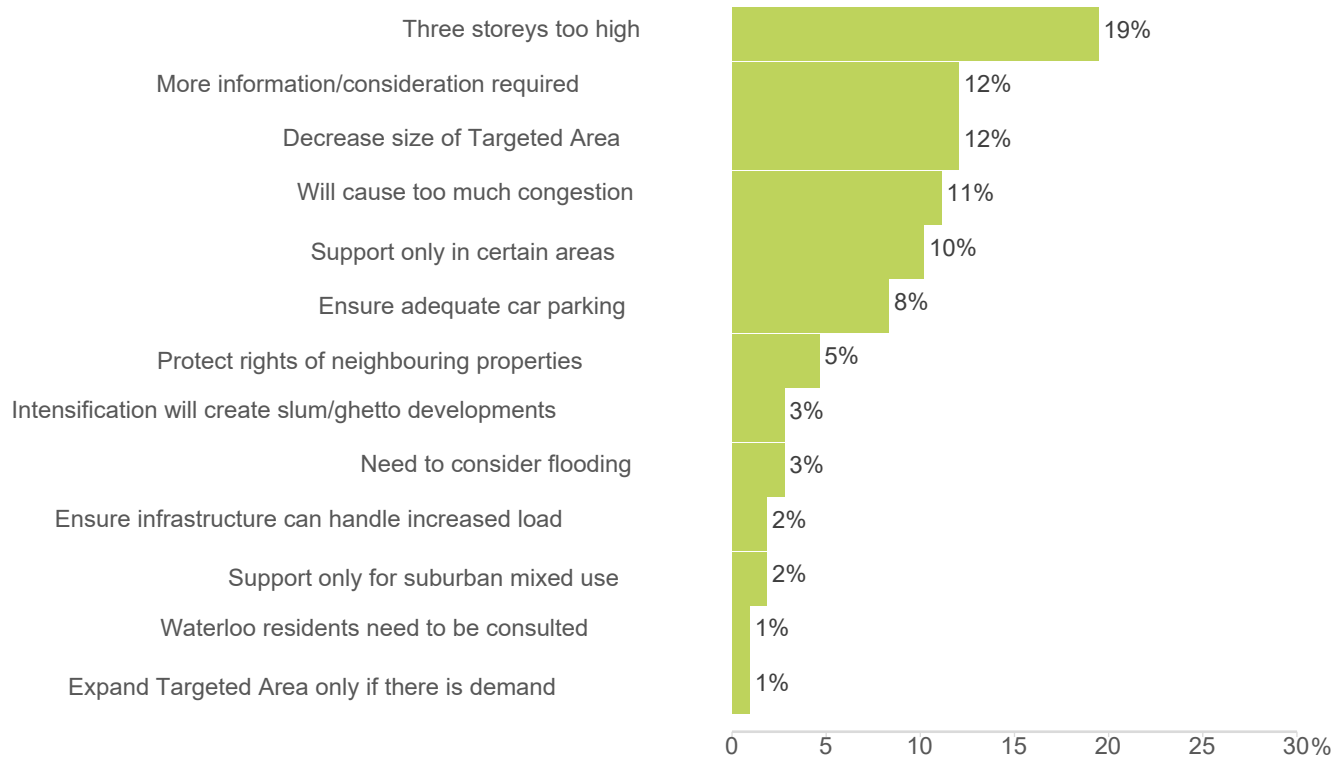


# The Waterloo targeted area is about right - Comments/Reasons

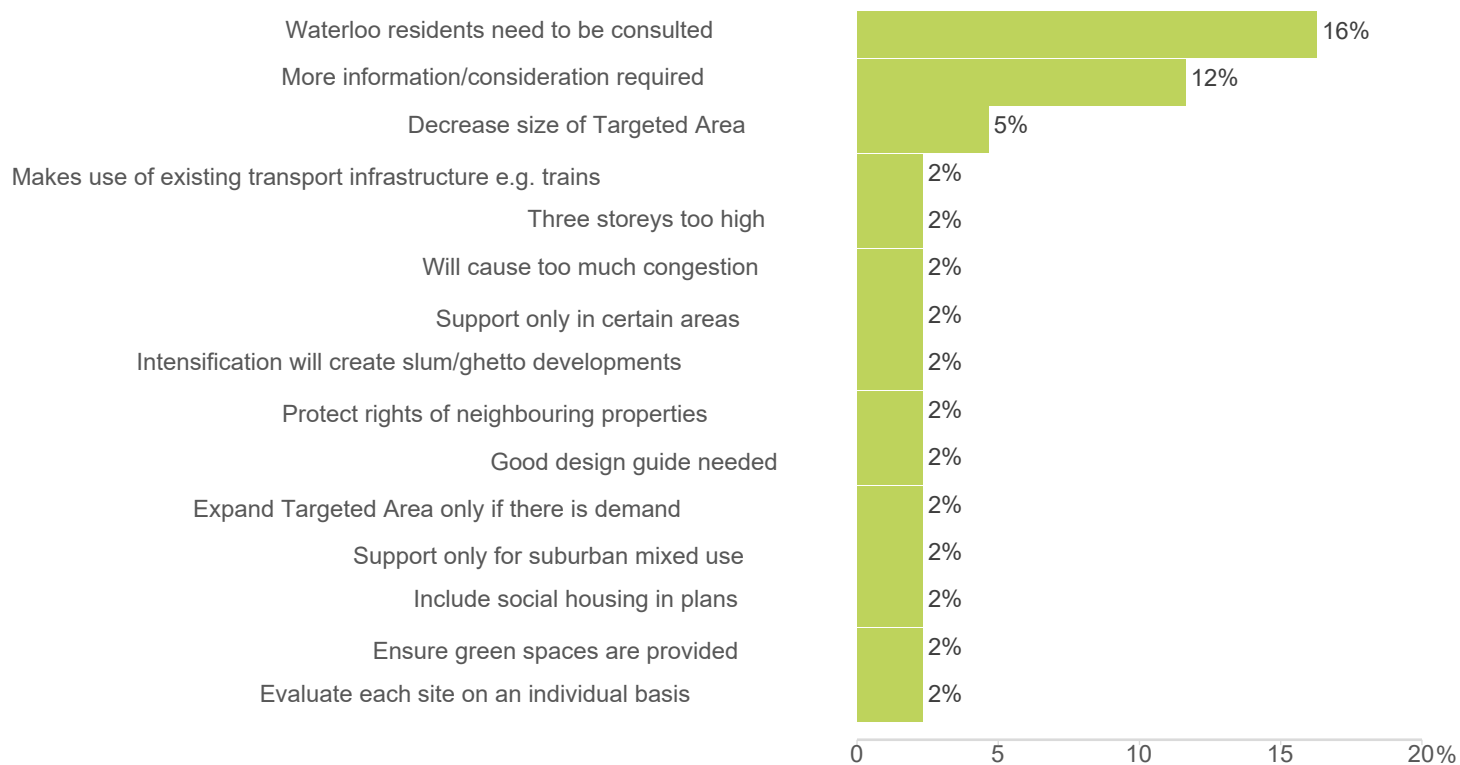




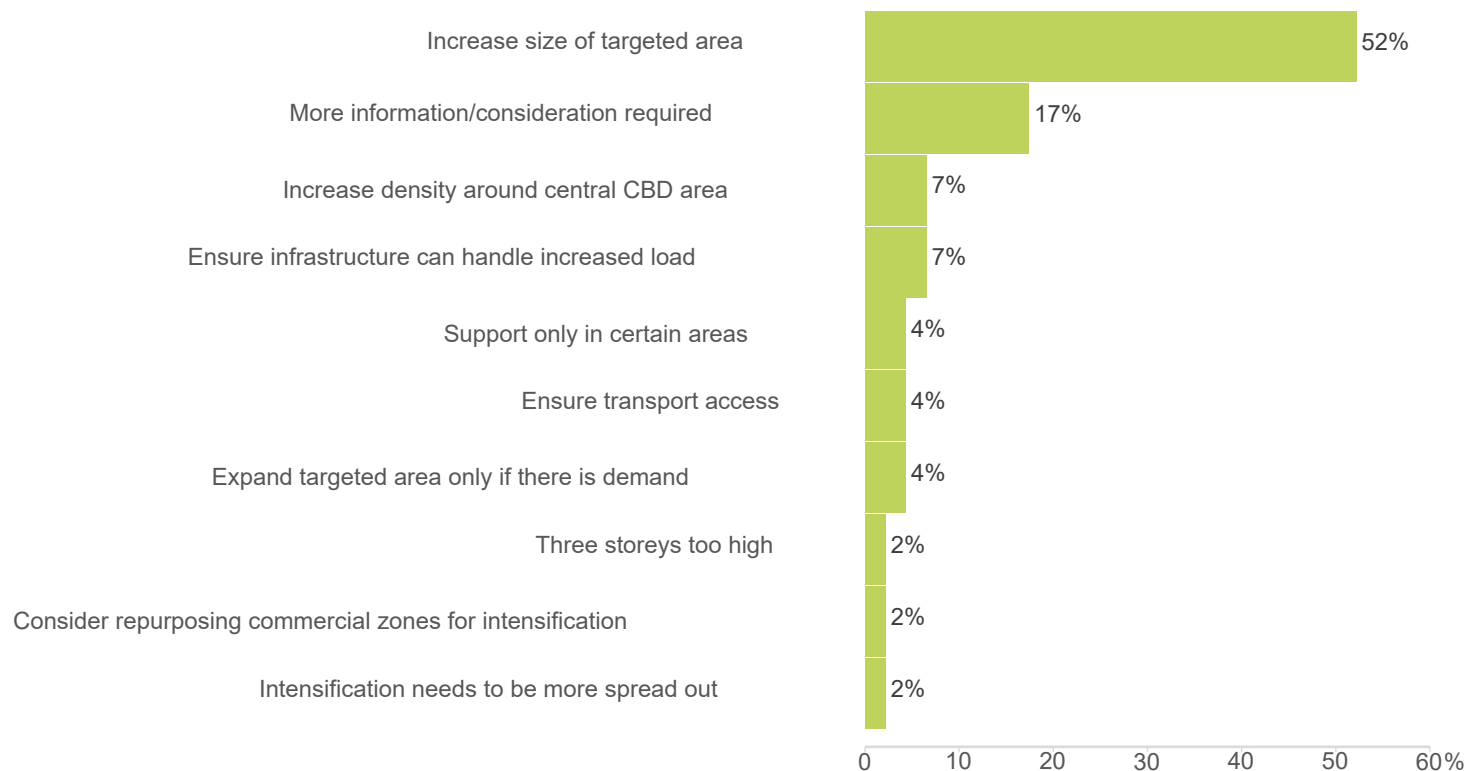
# The Waterloo targeted area is too big - Comments/Reasons



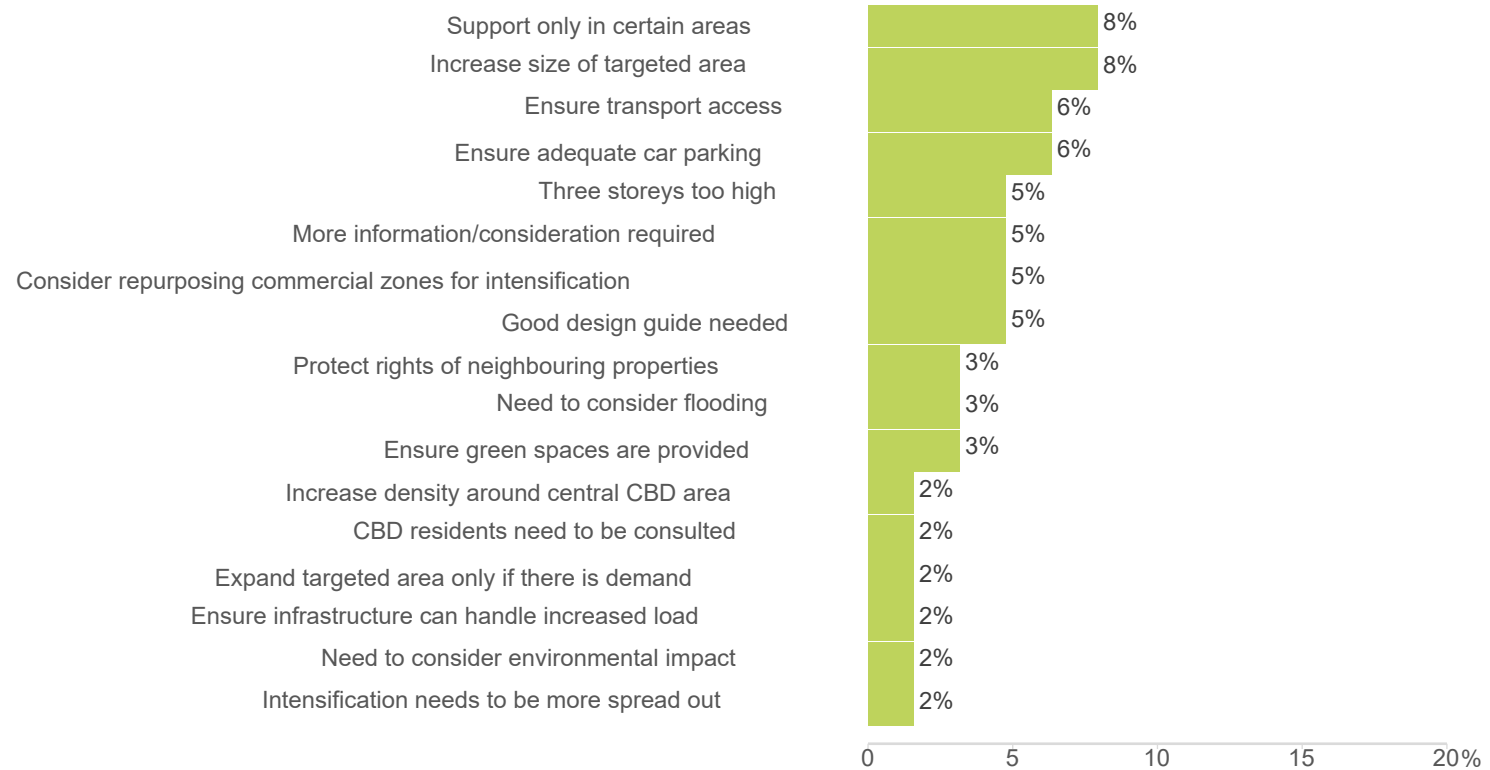
# The Waterloo targeted area is (I don't know) - Comments/Reasons



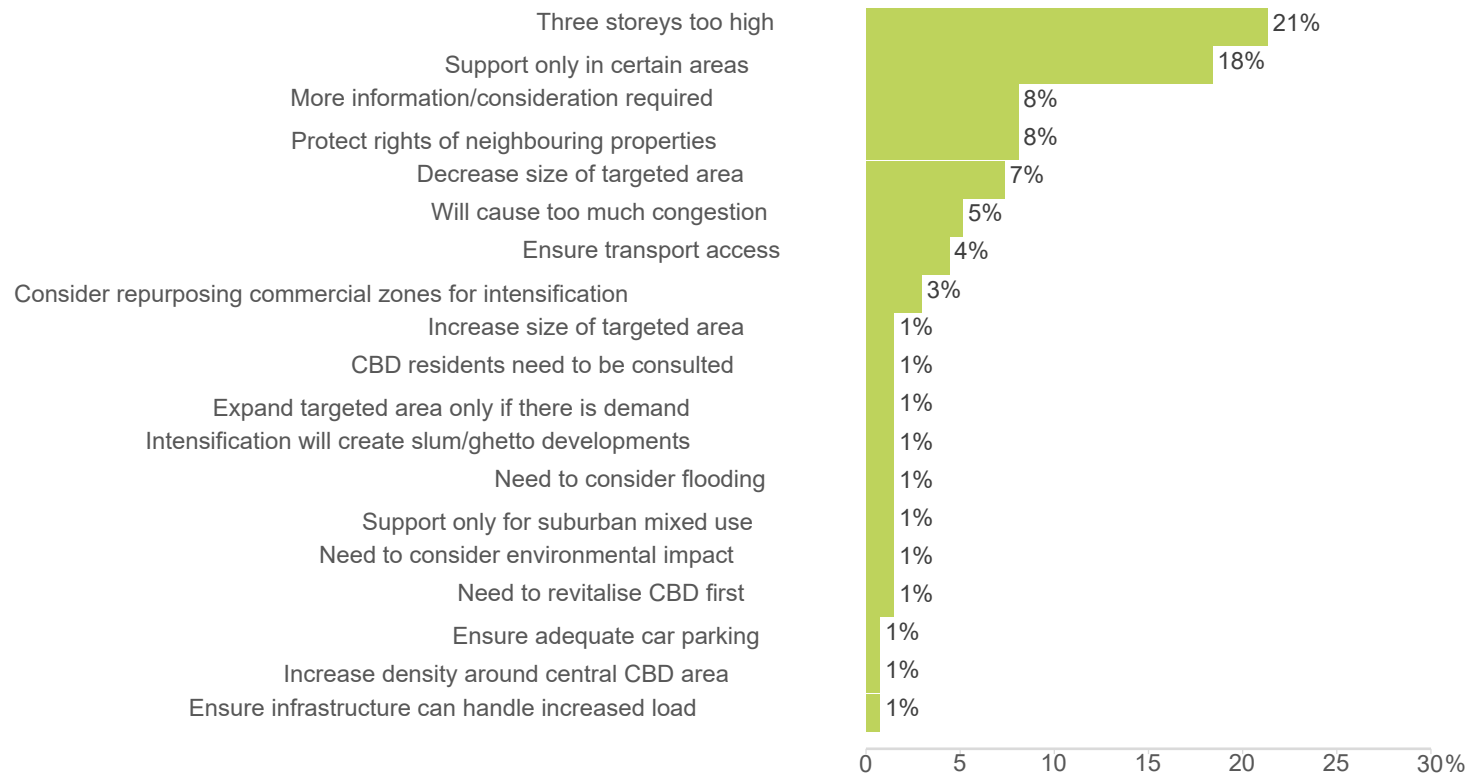
# The Lower Hutt CBD Edge targeted area is too small - Comments/Reasons



# The Lower Hutt CBD Edge targeted area is about right - Comments/Reasons

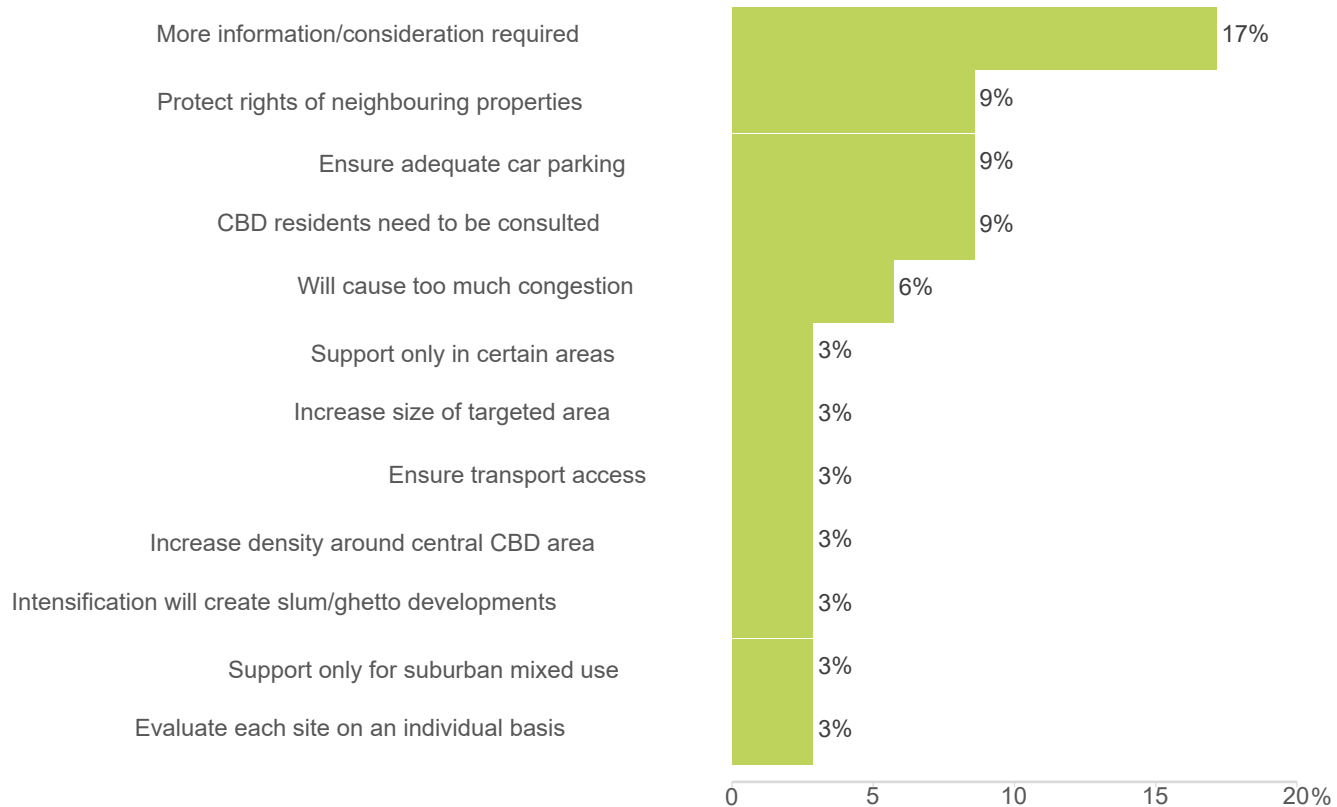


# The Lower Hutt CBD Edge targeted area is too big - Comments/Reasons

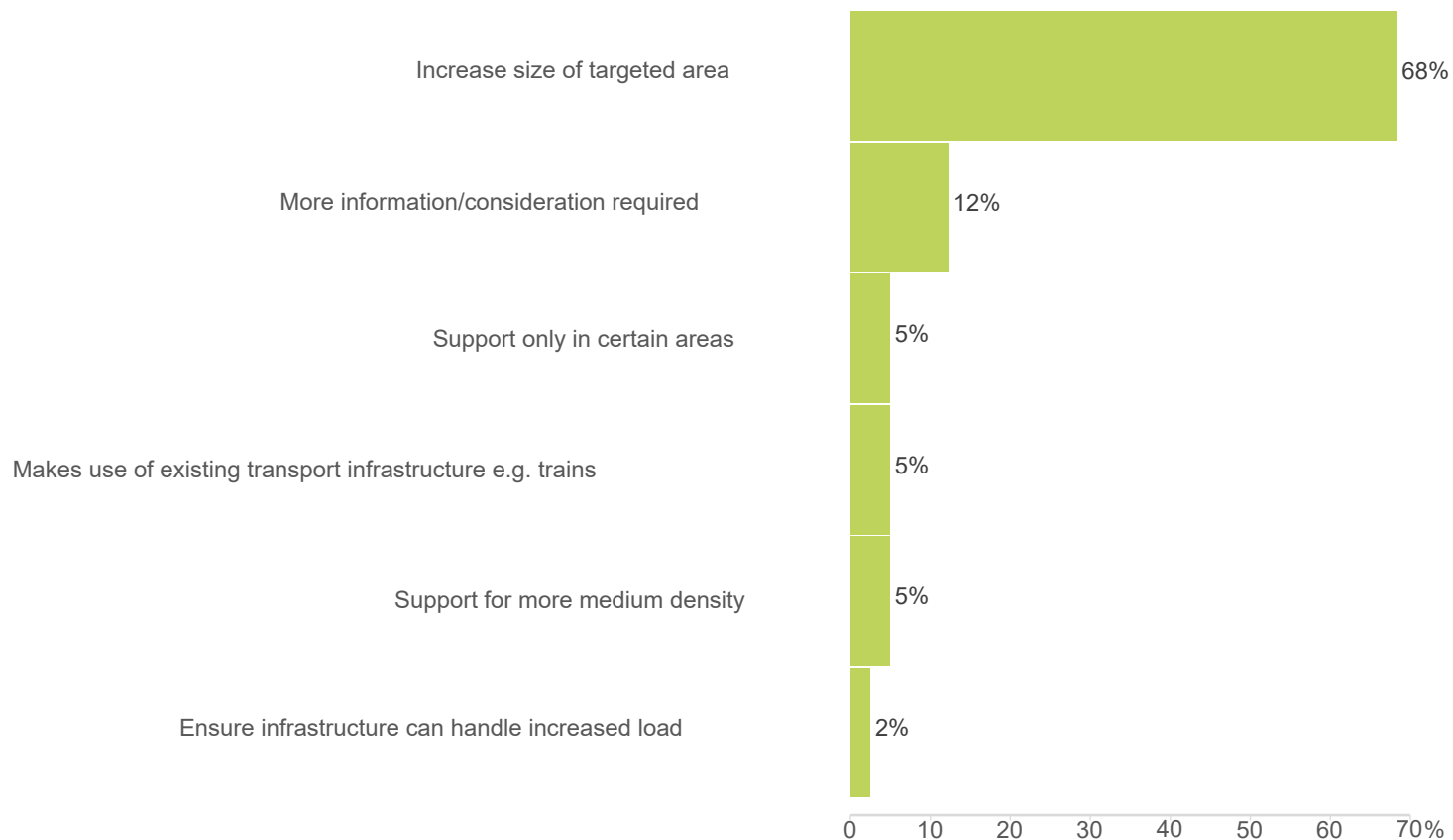


Filter: Lower Hutt CBD Edge - Too big; base n = 136; total n = 368

# The Lower Hutt CBD Edge targeted area is (I don't know) - Comments/Reasons



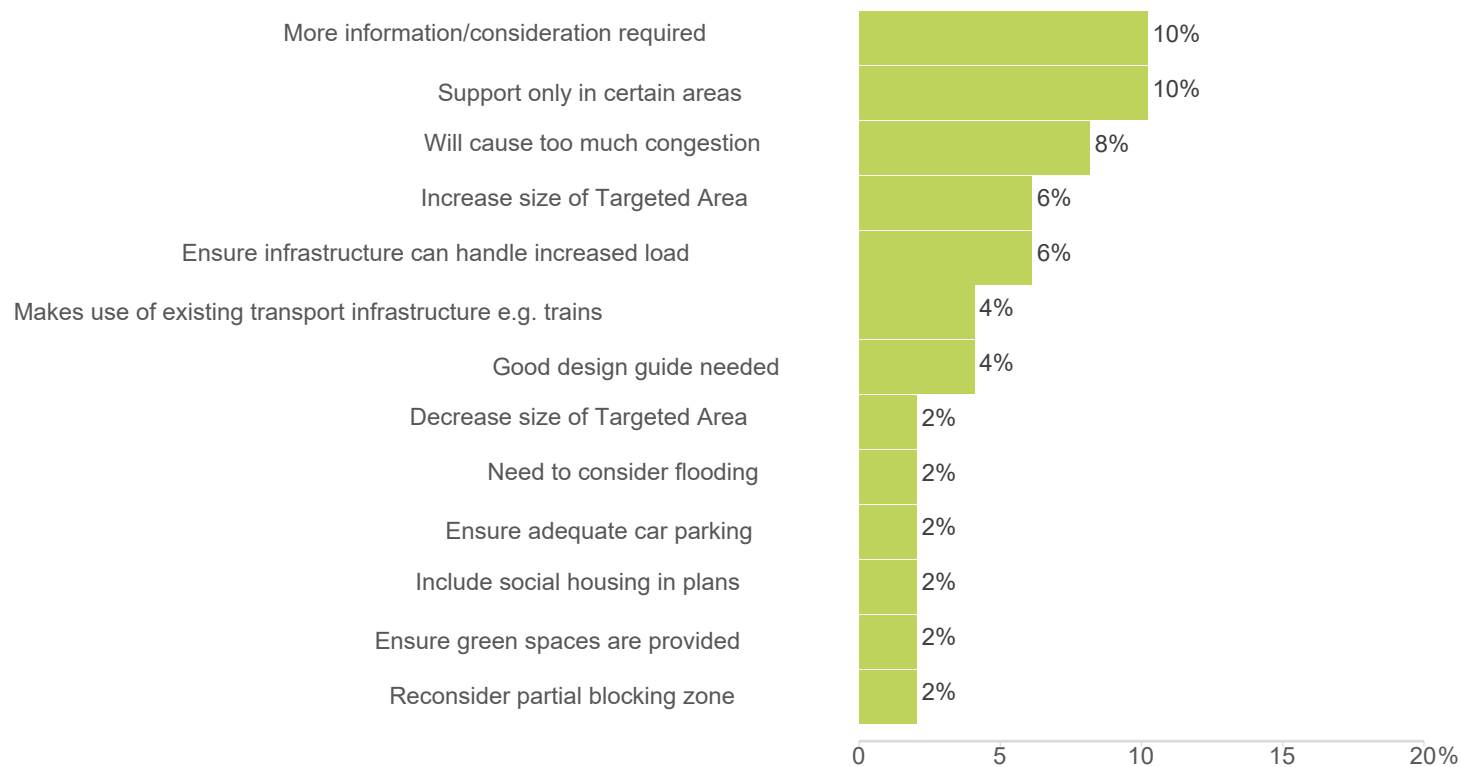
# The Alicetown targeted area is too small - Comments/Reasons



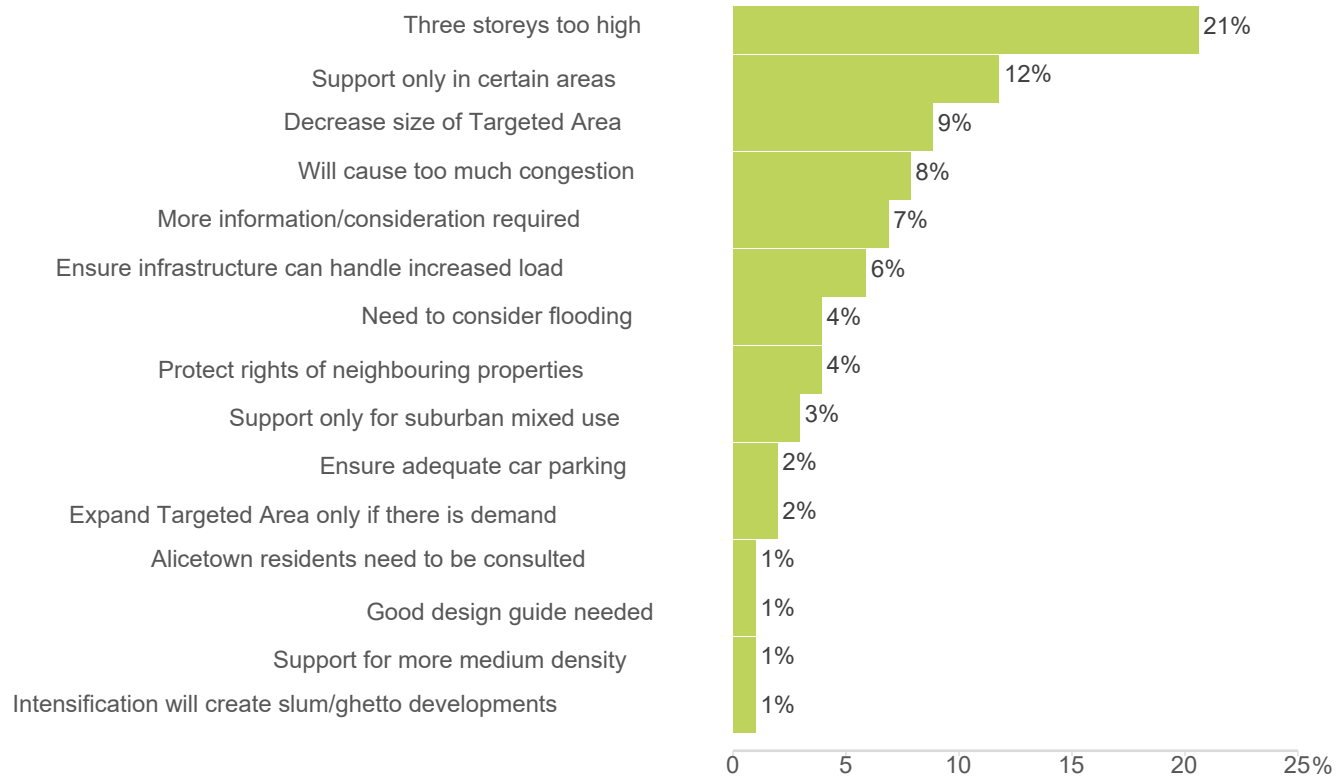
Filter: Alicetown - Too small; base n = 41; total n = 170



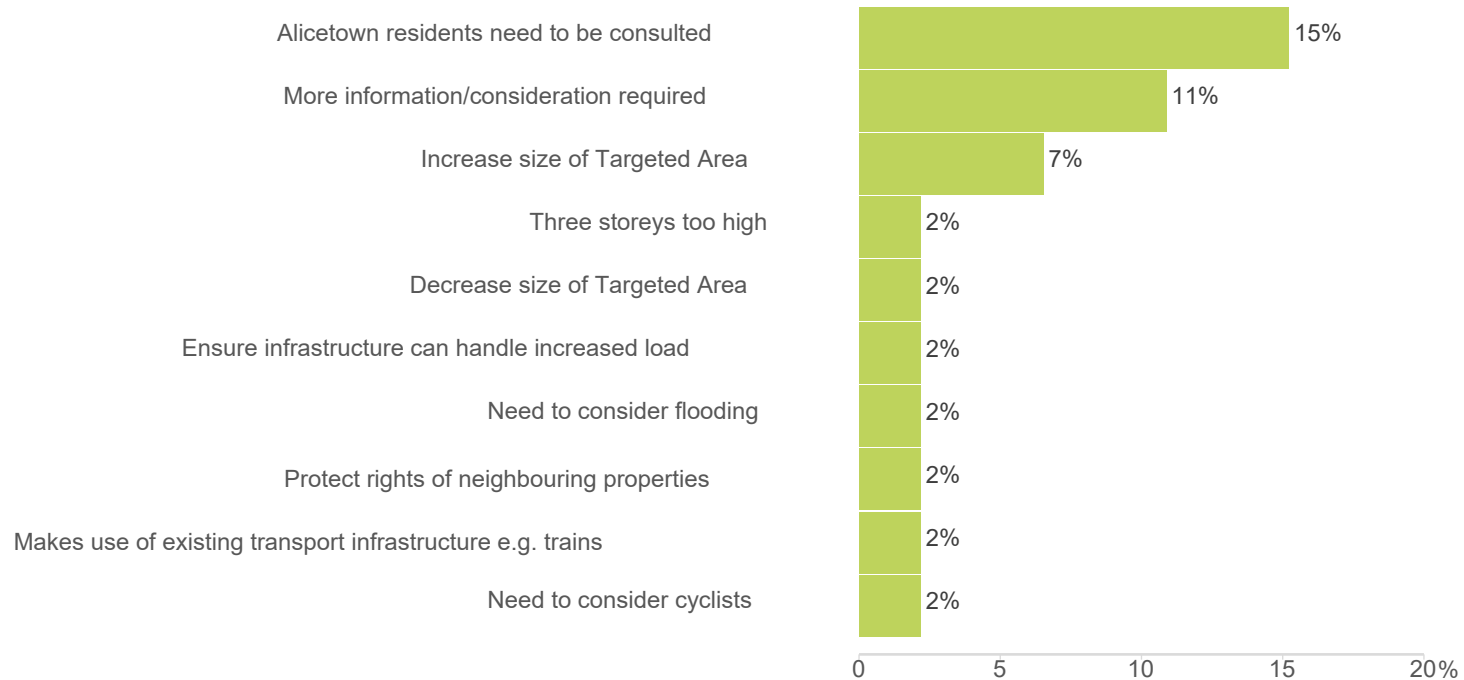
# The Alicetown targeted area is about right - Comments/Reasons



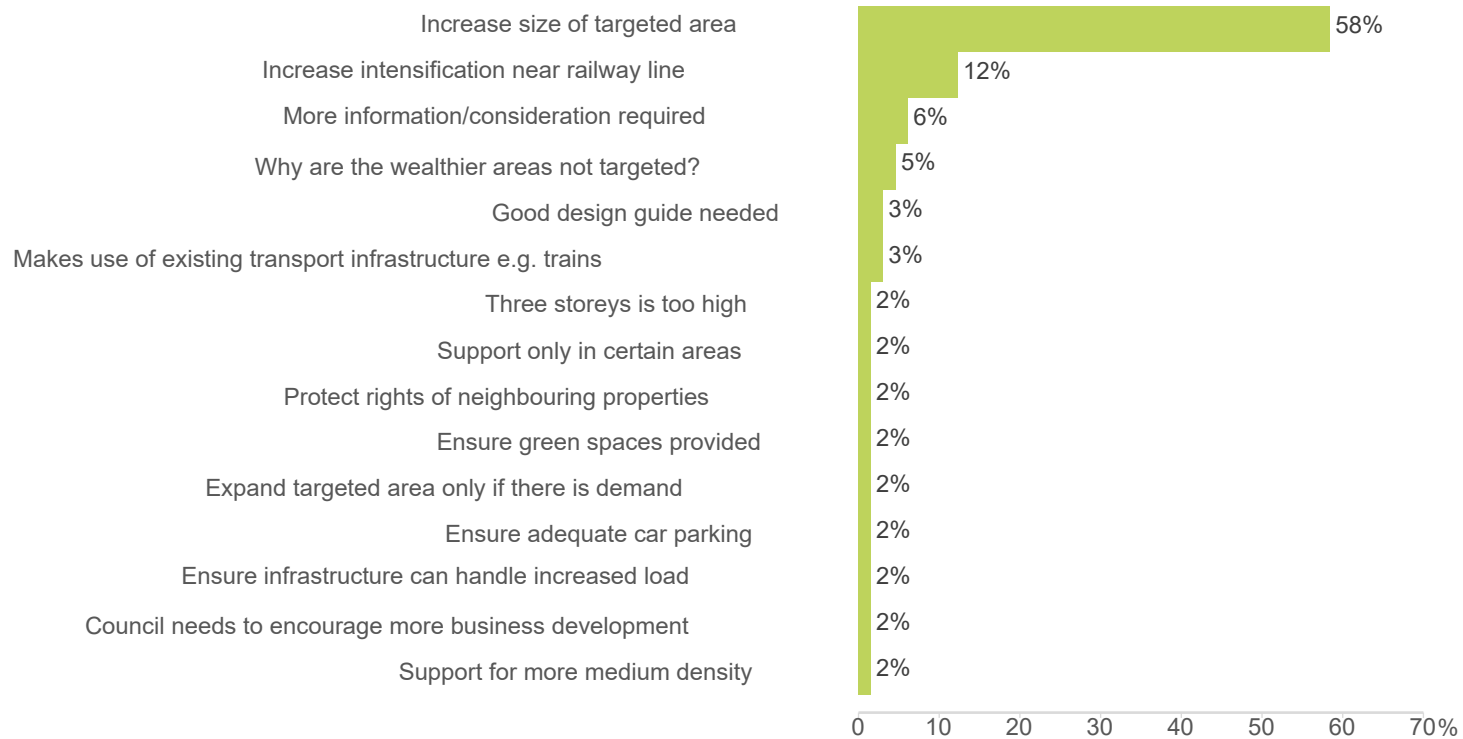
# The Alicetown targeted area is too big - Comments/Reasons



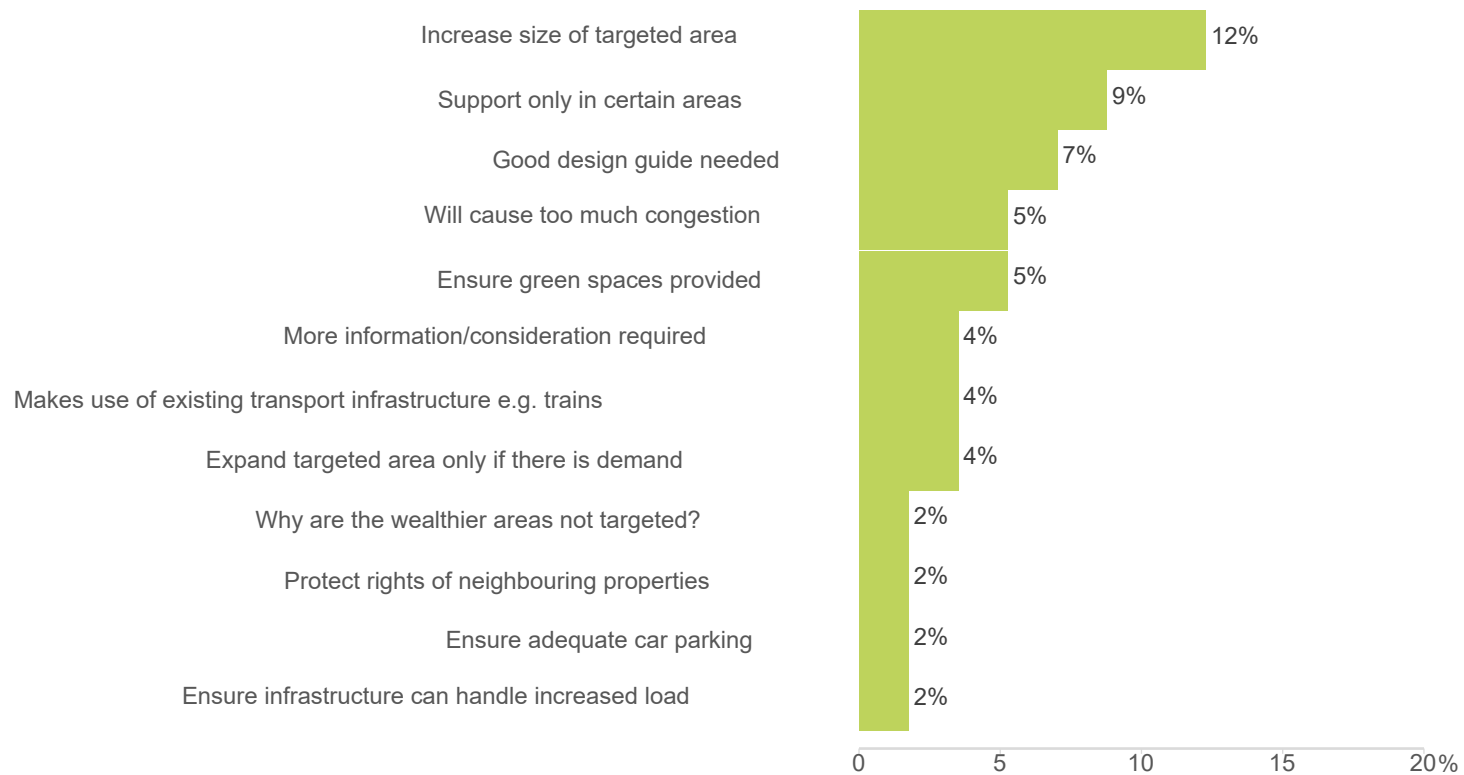
# The Alicetown targeted area is (I don't know) - Comments/Reasons



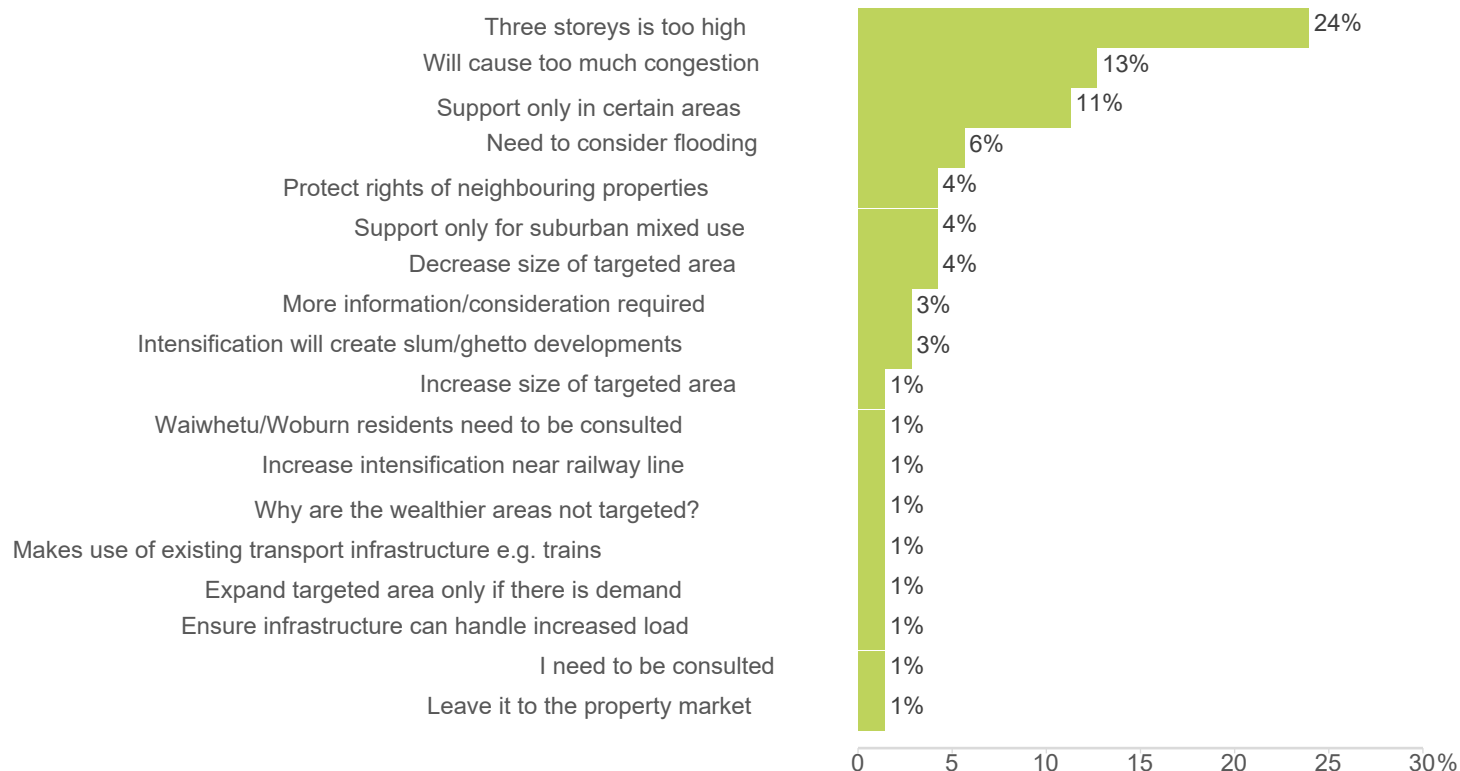
# The Waiwhetu/Woburn targeted area is too small - Comments/Reasons



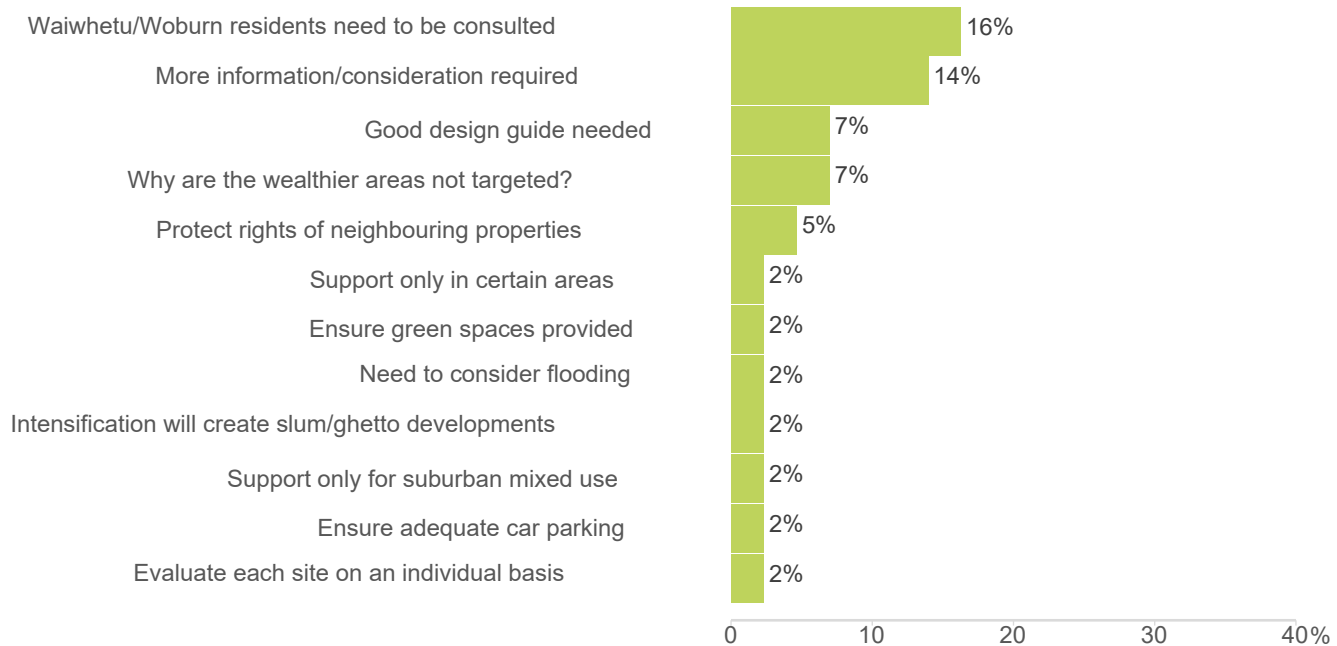
# The Waiwhetu/Woburn targeted area is about right - Comments/Reasons



# The Waiwhetu/Woburn targeted area is too big - Comments/Reasons

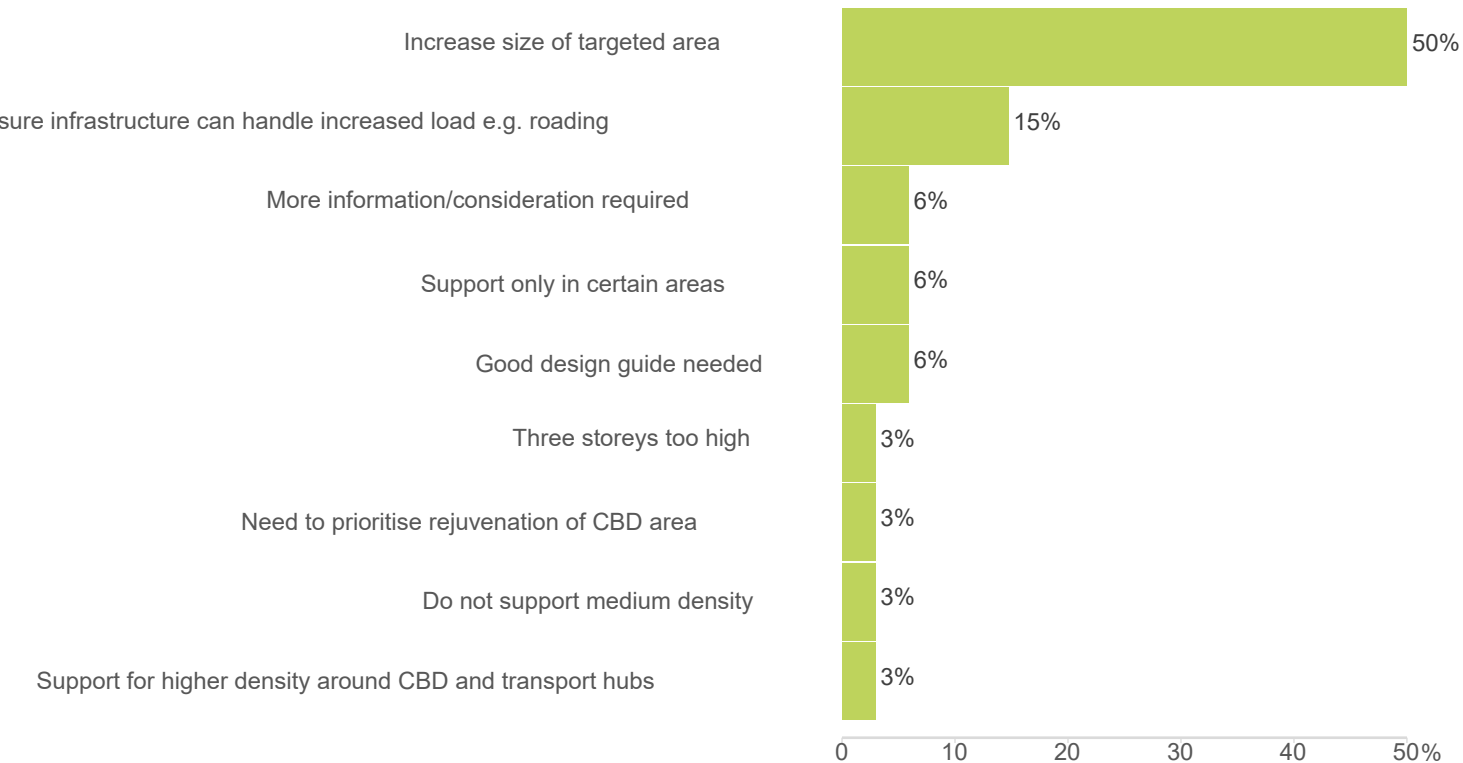


# The Waiwhetu/Woburn targeted area is (I don't know) - Comments/Reasons

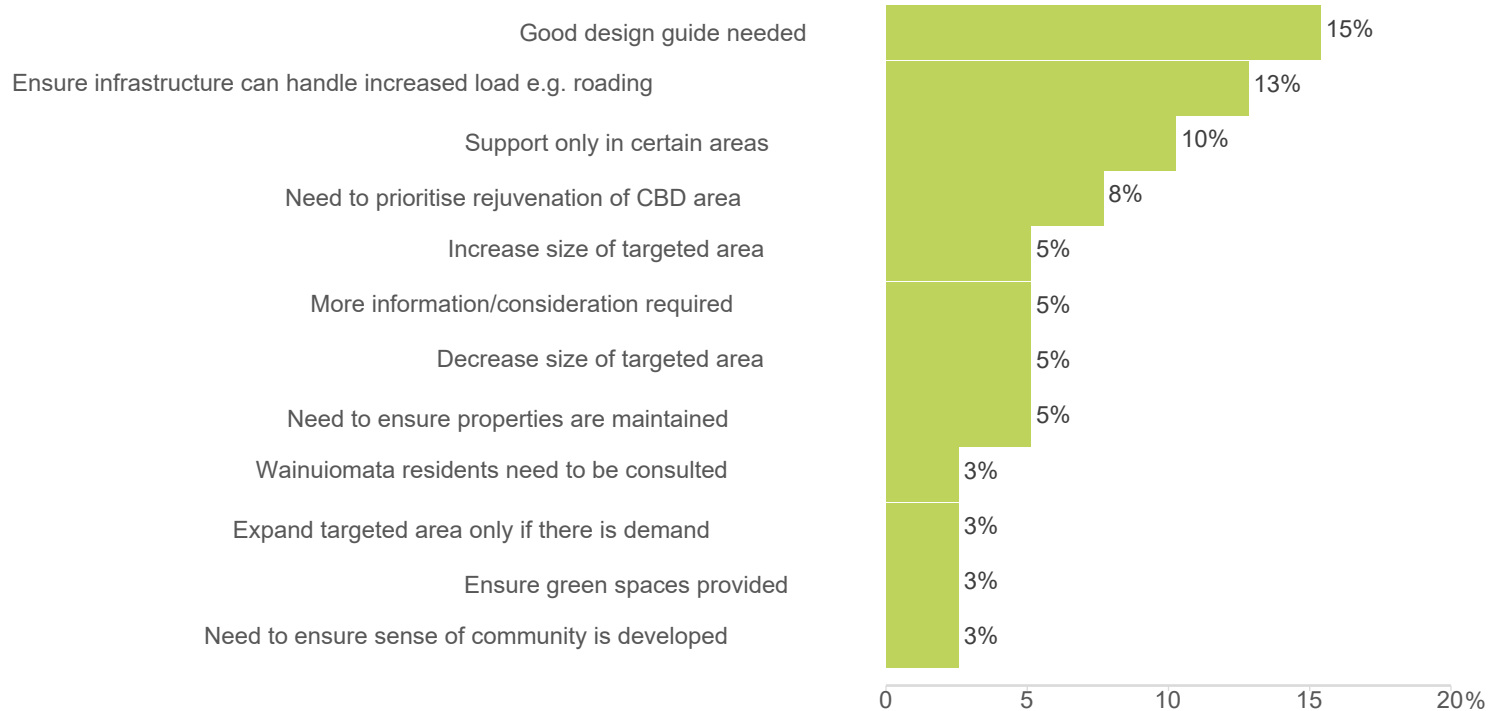




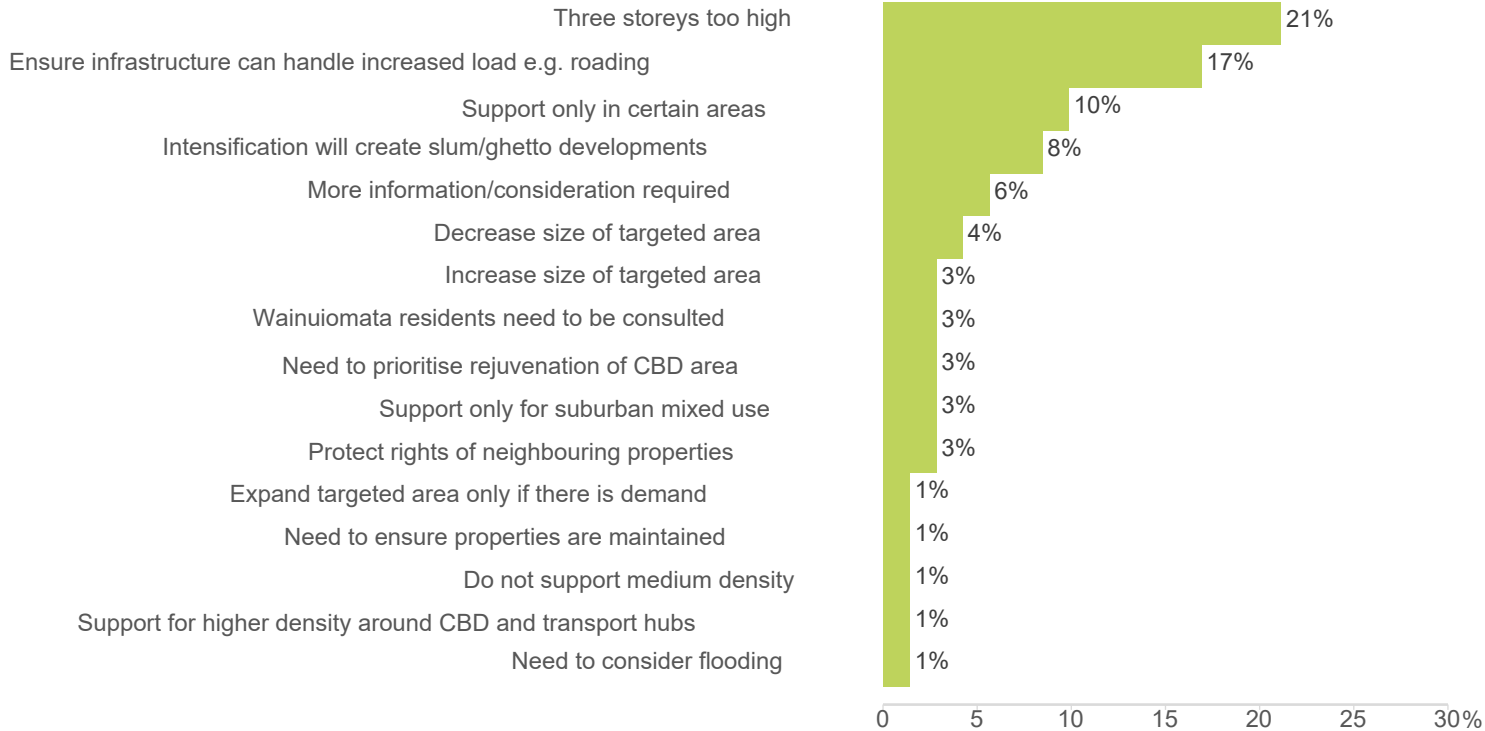
# The Wainuiomata targeted area is too small - Comments/Reasons



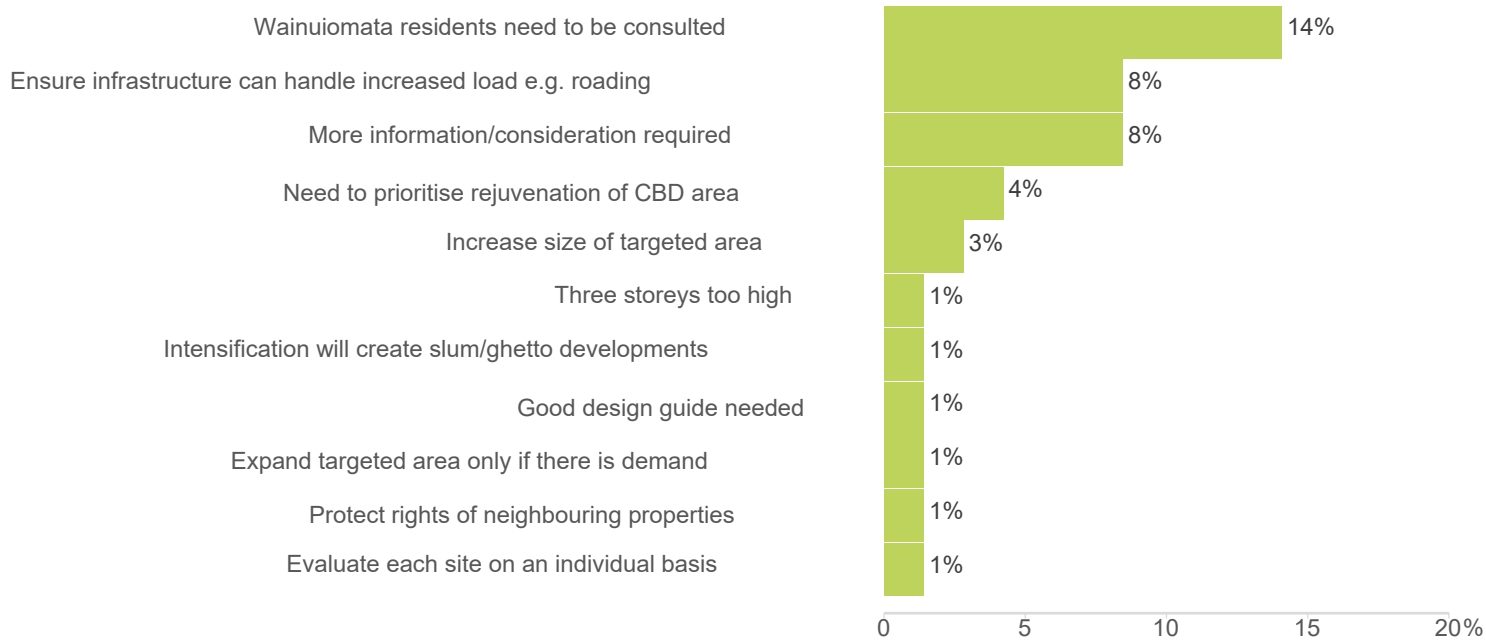
# The Wainuiomata targeted area is about right - Comments/Reasons



# The Wainuiomata targeted area is too big - Comments/Reasons



# The Wainuiomata targeted area is (I don't know) - Comments/Reasons



The survey has been managed by PublicVoice Ltd. Any queries regarding this report can be addressed to:

Jared Bothwell  
PublicVoice  
Account Director  
04 - 589 5552  
[jared@publicvoice.co.nz](mailto:jared@publicvoice.co.nz)



**Attachment 9**

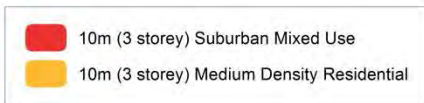
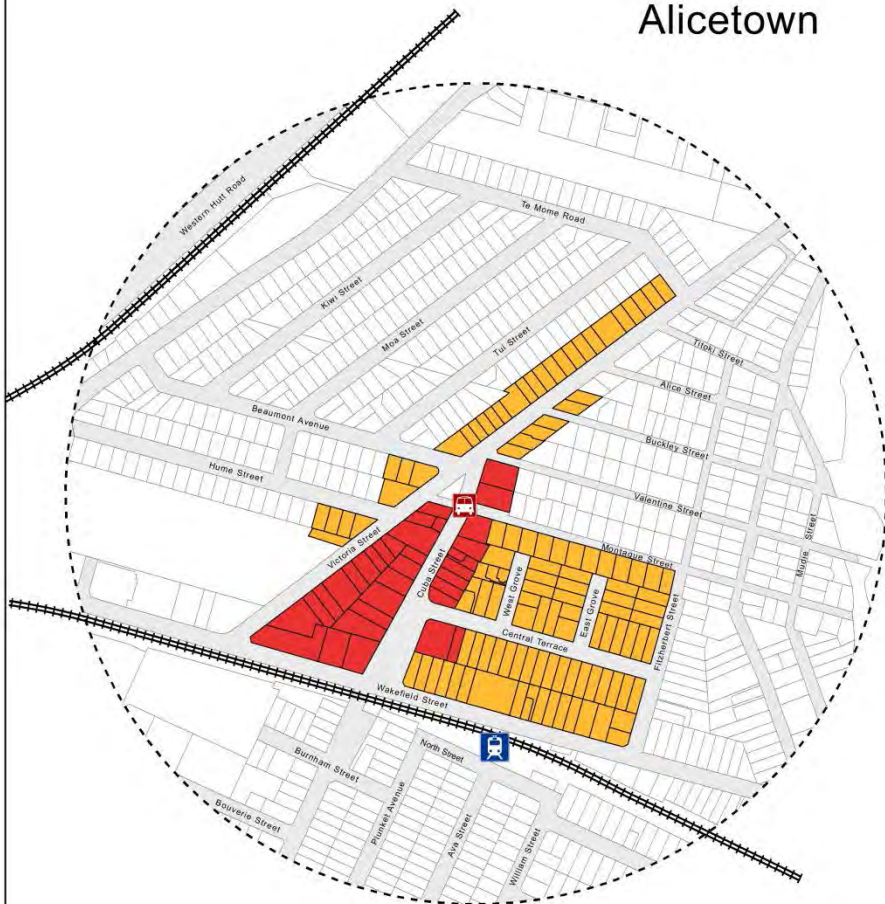
Targeted Areas as Amended by Councillor Working Group (7 July 2017). Hutt City Council  
DOC/17/133916.





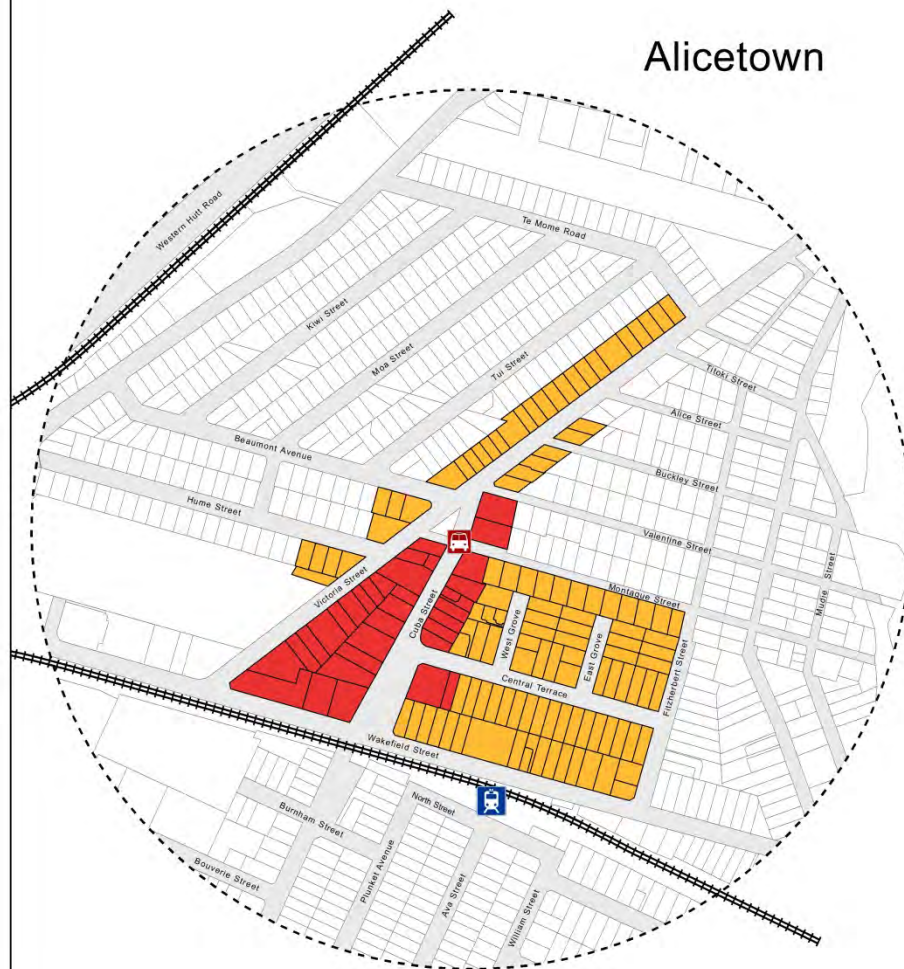
Targeted area as consulted on in online survey  
May/June 2017

Alicetown



Targeted area amended in response to online survey  
feedback

Alicetown



List of changes

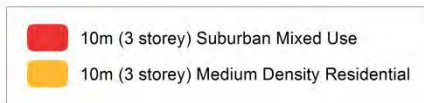
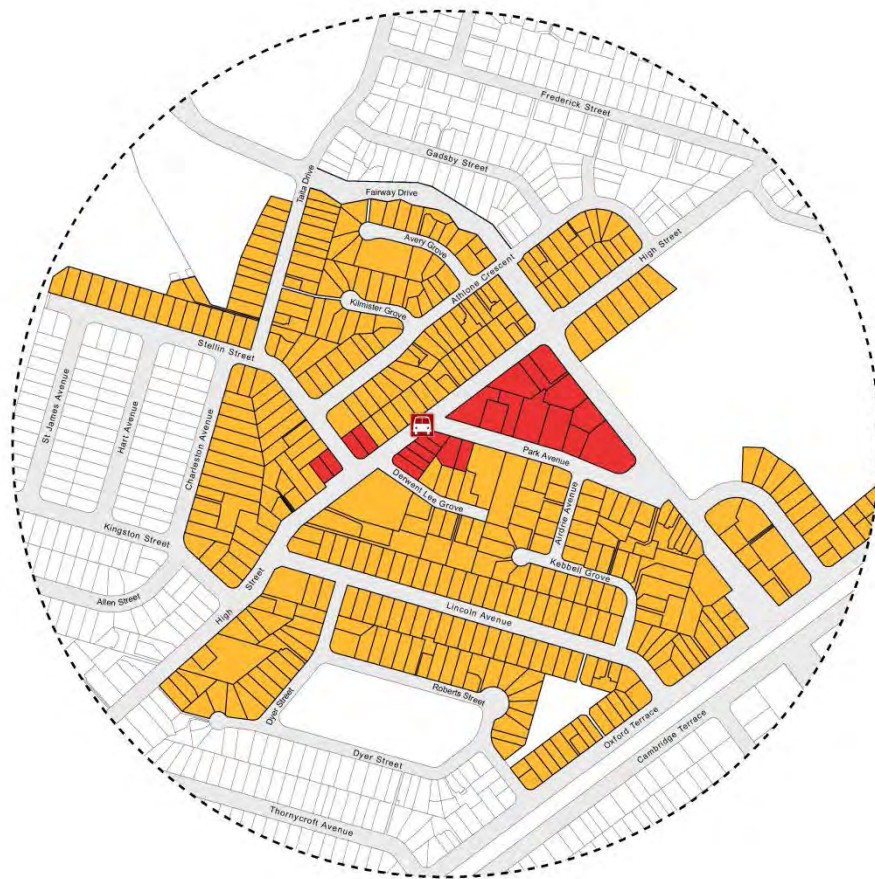
- No change





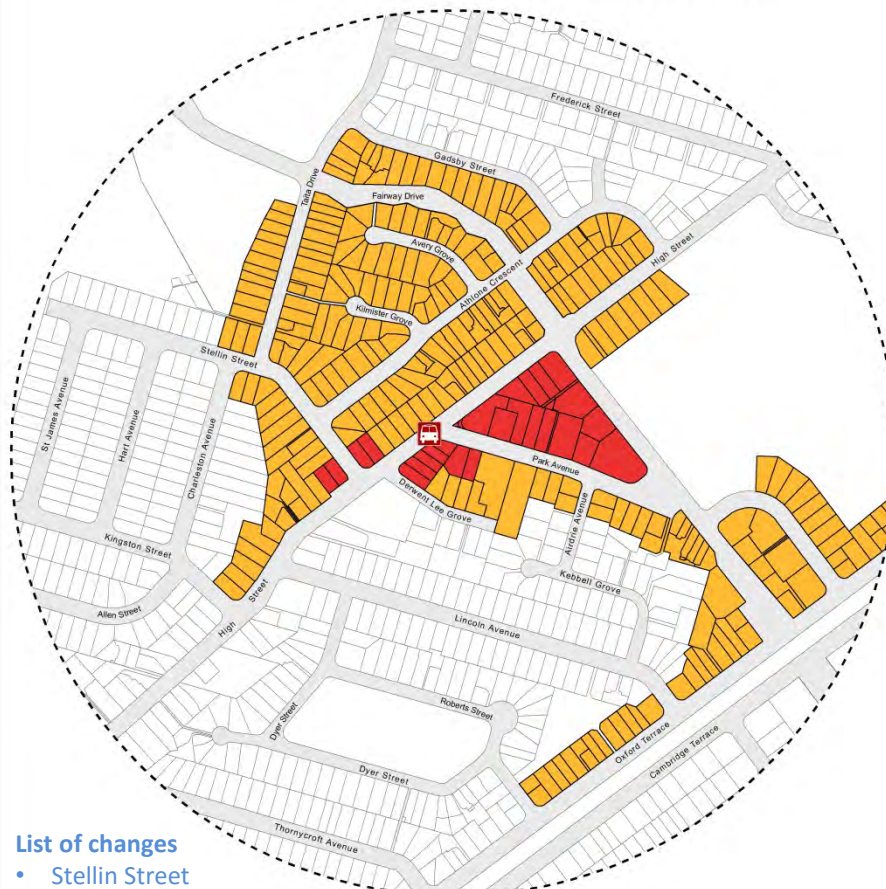
Targeted area as consulted on in online survey  
May/June 2017

Avalon



Targeted area amended in response to online survey  
feedback

Avalon



List of changes

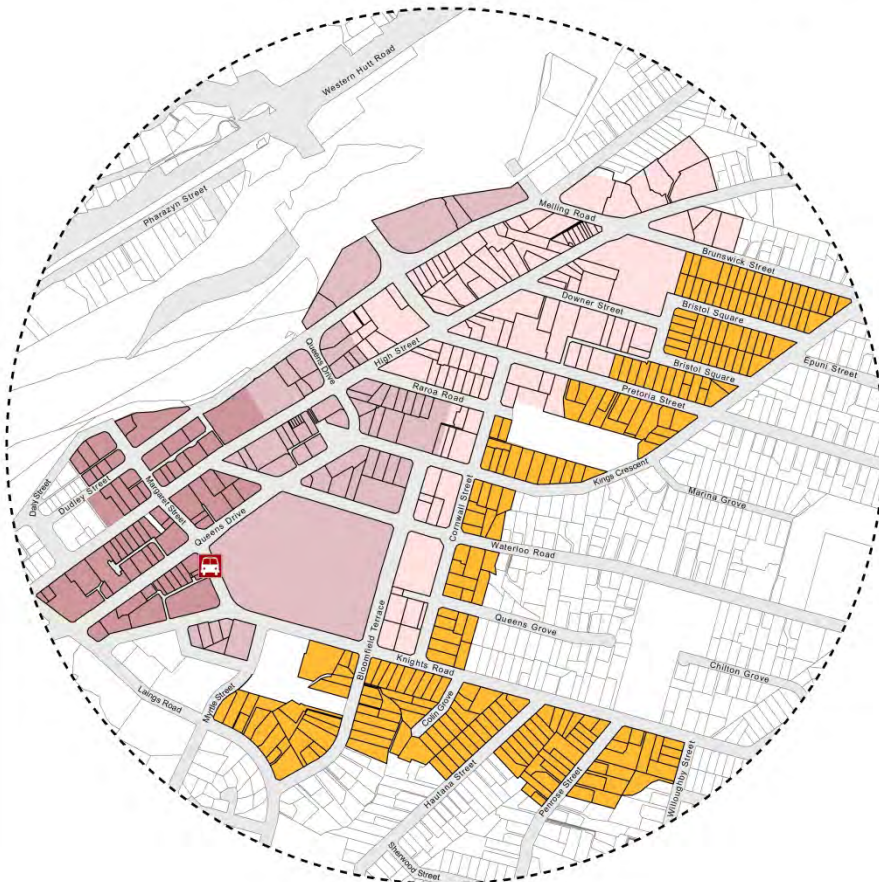
- Stelling Street
- Charleston Avenue
- Kingston Street
- Dyer Street
- Roberts Street
- Lincoln Avenue
- Kebbell Grove
- Derwent Lee Grove
- Airdrie Avenue
- Gadsby Street
- Taita Drive
- Athlone Crescent
- Fairway Drive
- High Street





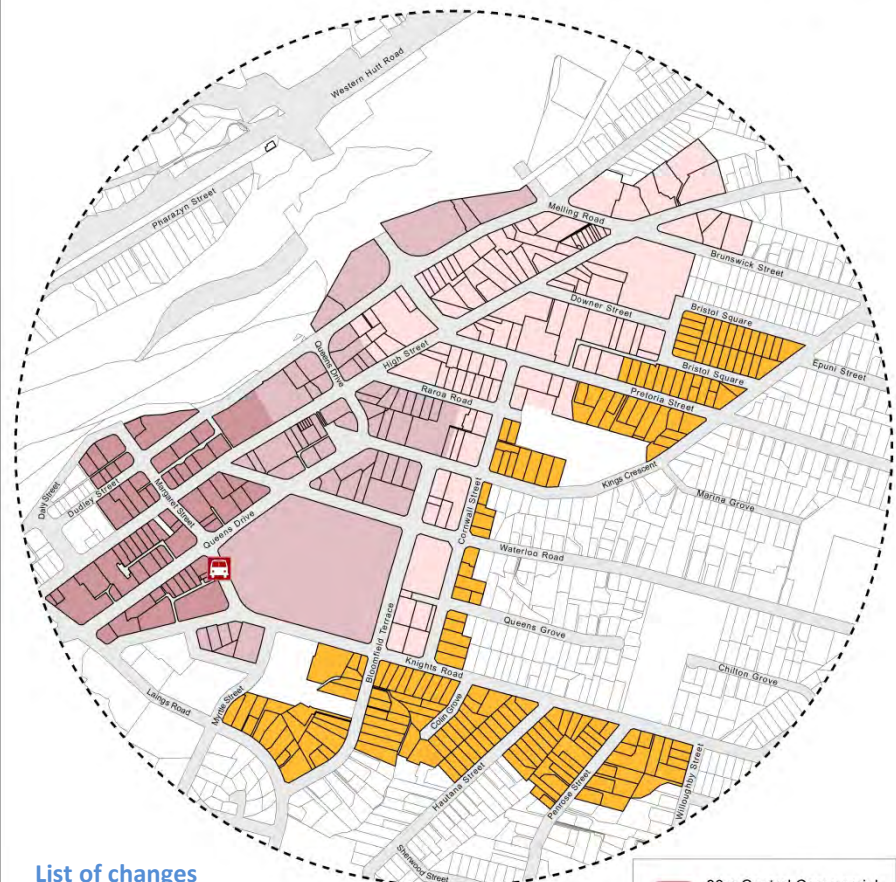
Targeted area as consulted on in online survey  
May/June 2017

Lower Hutt  
CBD Edge



Option 1 – Amend at north end and east of Cornwall St

Lower Hutt  
CBD Edge



List of changes

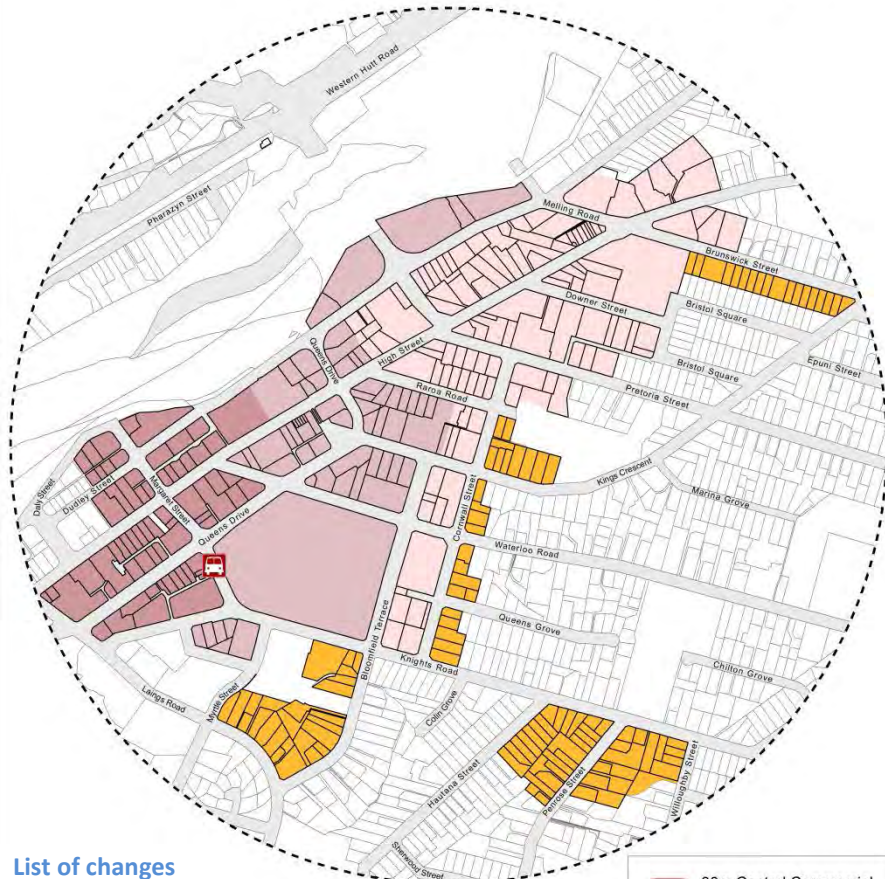
- Brunswick Street
- Bristol Square
- Kings Crescent
- Waterloo Road
- Queens Grove
- Knights Road





## Option 2 – Suggested by Deputy Mayor Bassett

### Lower Hutt CBD Edge



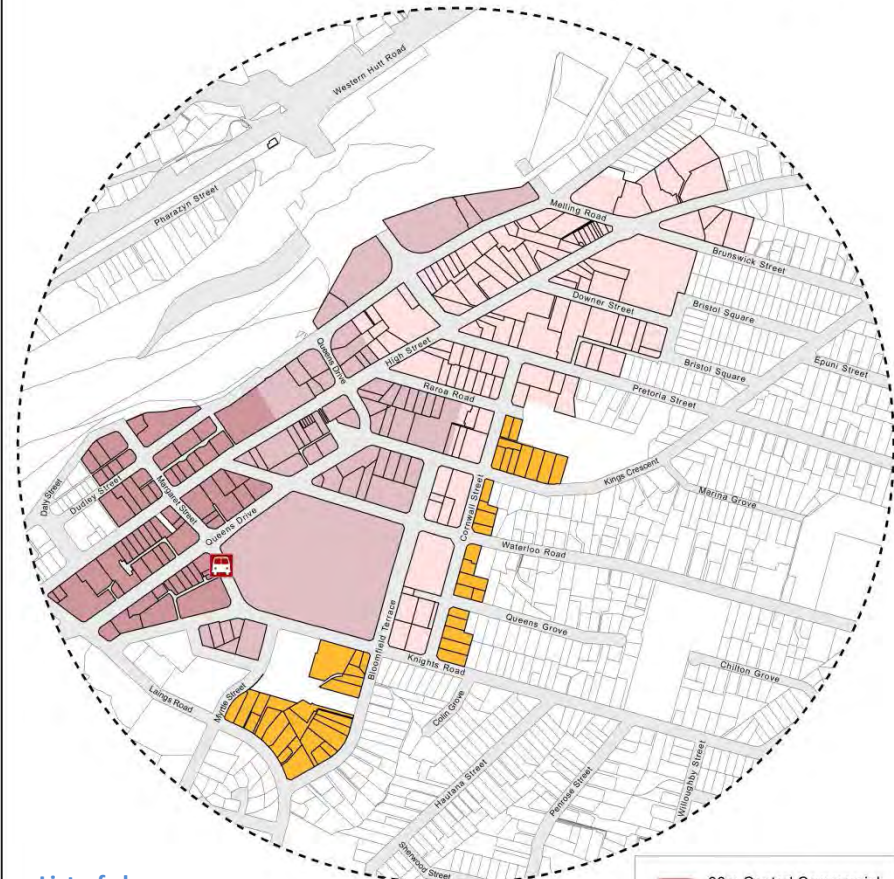
#### List of changes

- Bristol Square
- Pretoria Street
- Kings Crescent
- Waterloo Road
- Queens Grove
- Knights Road
- Bloomfield Terrace
- Colin Grove
- Hautana Street



## Option 3 – Outlying areas of Option 2 removed

### Lower Hutt CBD Edge



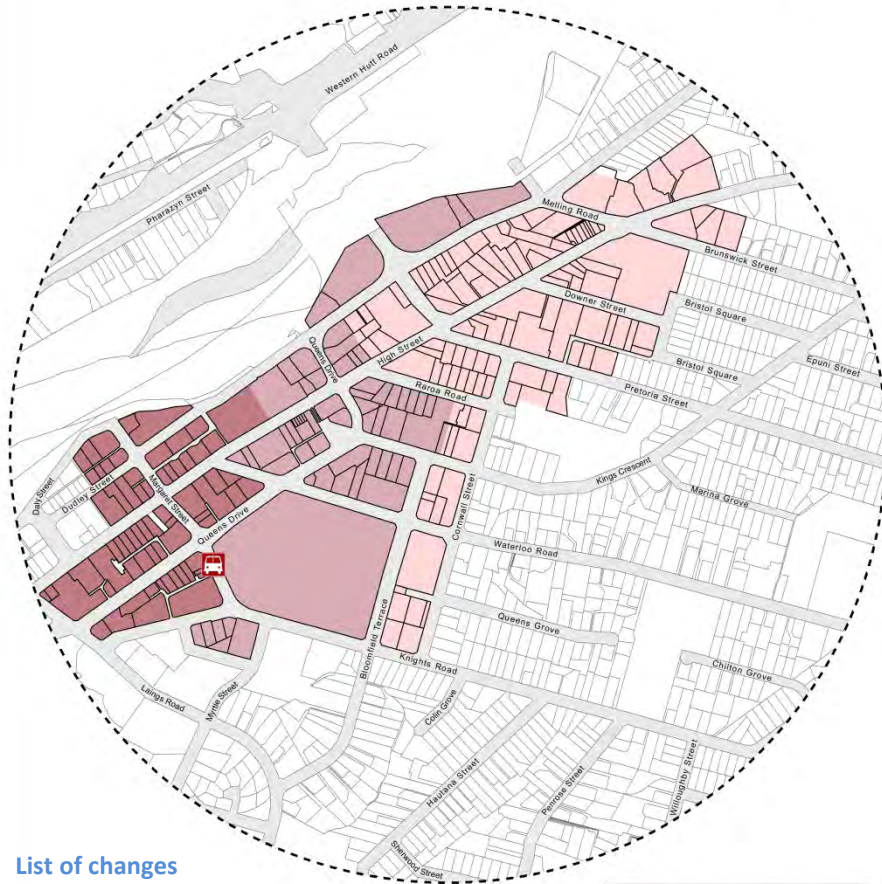
#### List of changes

- Brunswick Street
- Bristol Square
- Pretoria Street
- Kings Crescent
- Waterloo Road
- Queens Grove
- Knights Road
- Bloomfield Terrace
- Colin Grove
- Hautana Street
- Penrose Street



## Option 4 – Defer to be considered in Lower Hutt 2040 process

### Lower Hutt CBD Edge



#### List of changes

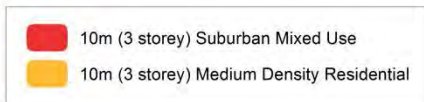
- No new medium density residential





Targeted area as consulted on in online survey  
May/June 2017

Epuni



Targeted area amended in response to online survey  
feedback

Epuni



List of changes

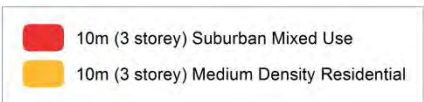
- Fairfield Avenue
- Porutu Street
- Cambridge Terrace
- Junction Street





Targeted area as consulted on in online survey  
May/June 2017

Naenae



Targeted area amended in response to online survey  
feedback

Naenae



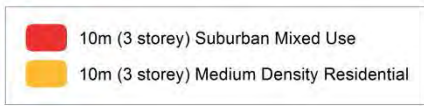
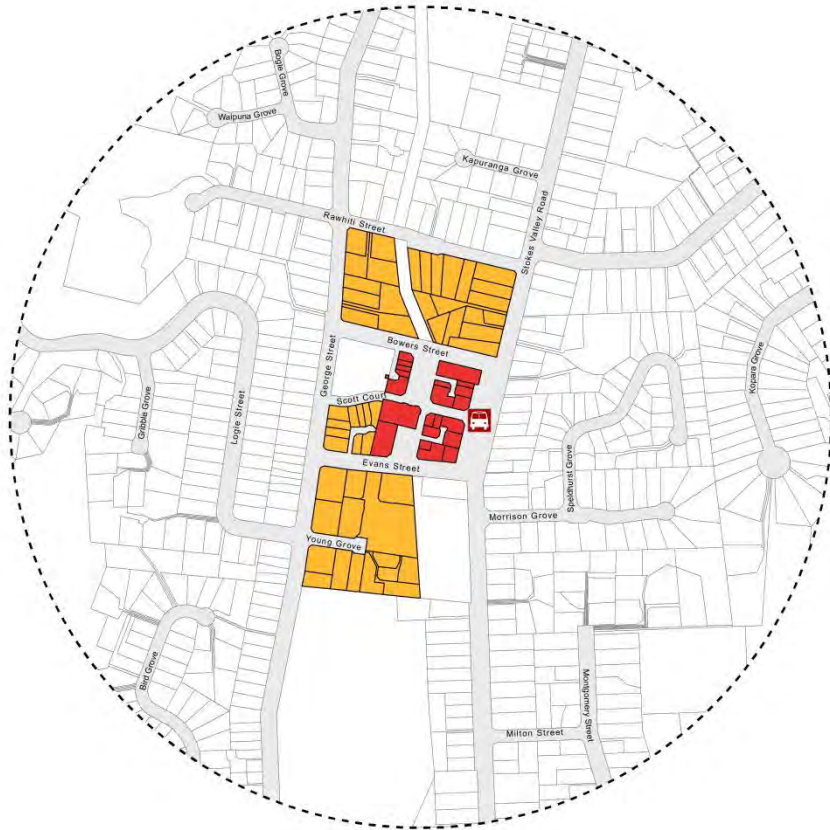
List of changes

- No change



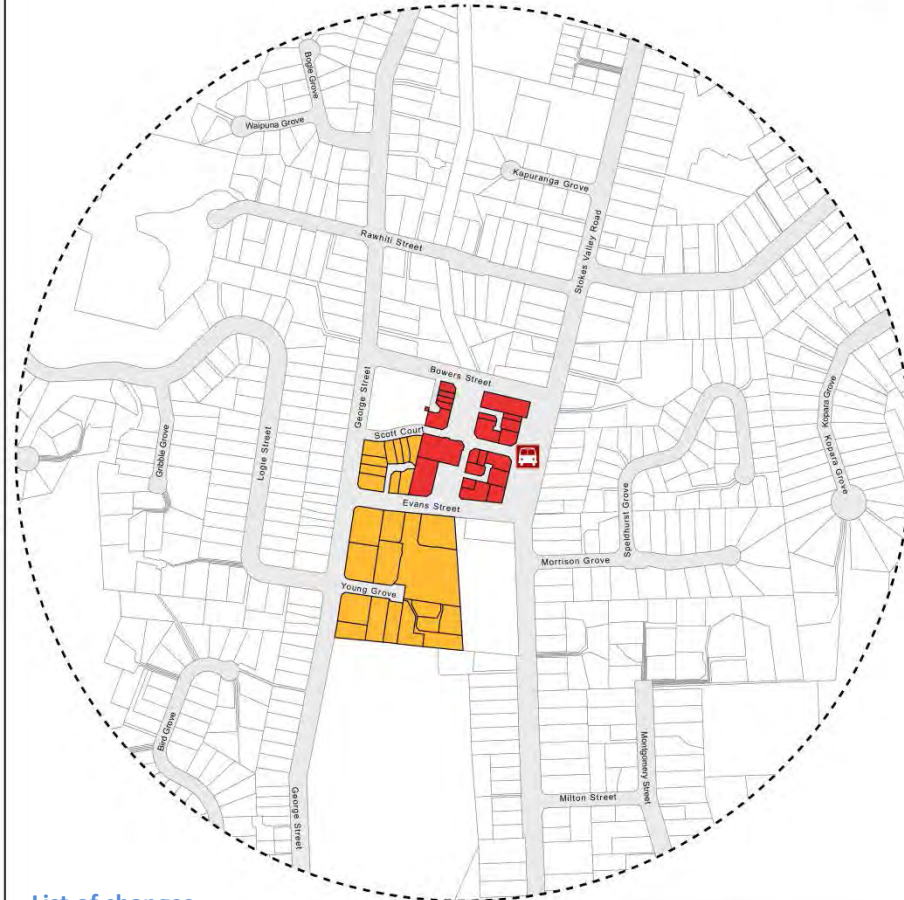
Targeted area as consulted on in online survey  
May/June 2017

Stokes Valley



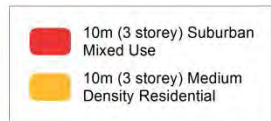
Targeted area amended in response to online survey  
feedback

Stokes Valley



List of changes

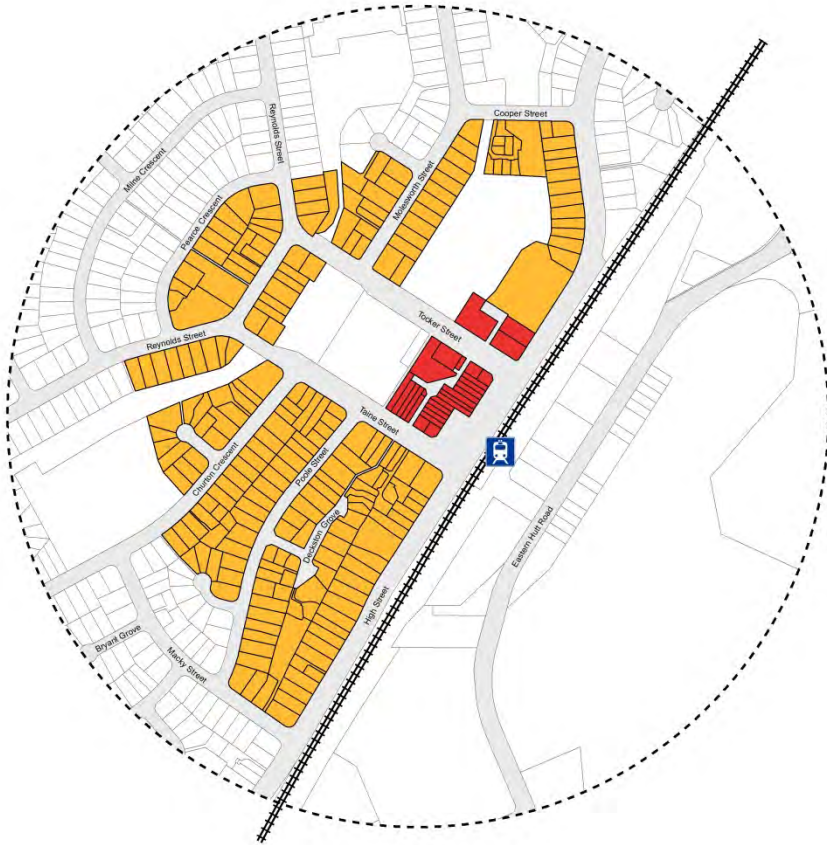
- Rawhiti Street
- Bowers Street
- George Street
- Stokes Valley Road





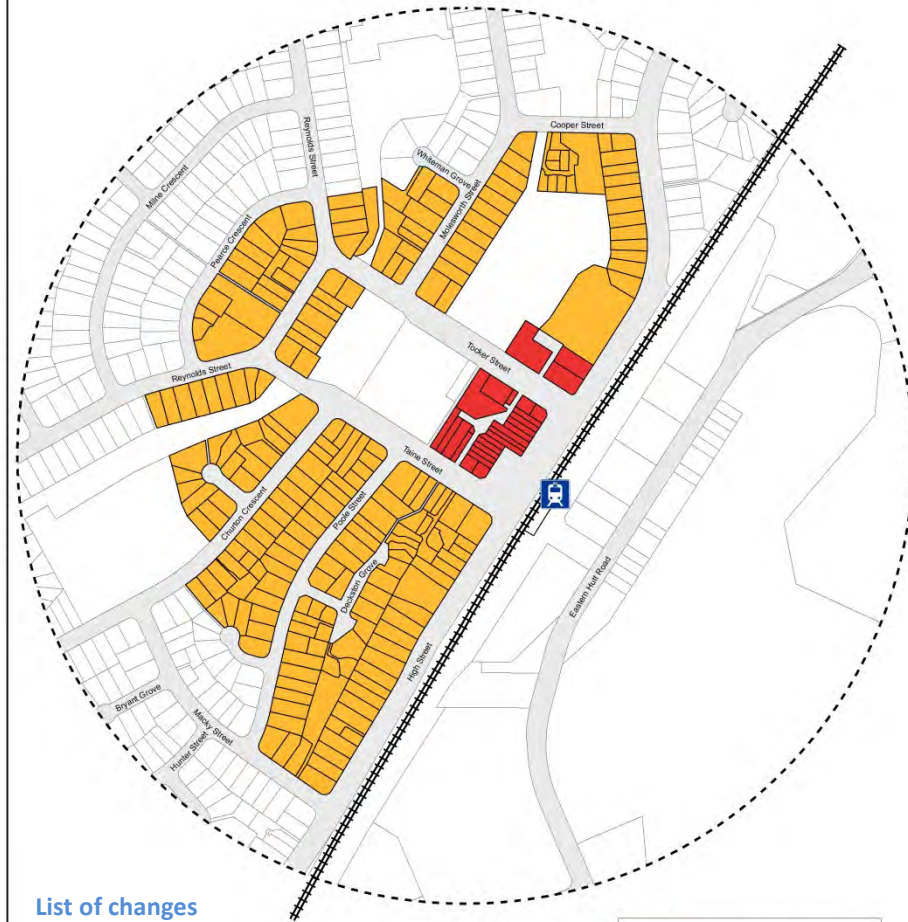
Targeted area as consulted on in online survey  
May/June 2017

Taita



Targeted area amended in response to online survey  
feedback

Taita



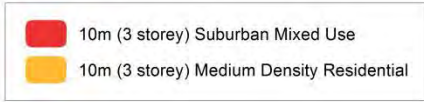
List of changes

- No change



Targeted area as consulted on in online survey  
May/June 2017

Wainuiomata



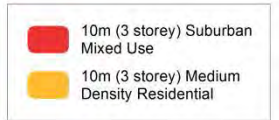
Targeted area amended in response to online survey  
feedback

Wainuiomata



List of changes

- Wainuiomata Road
- Reading Street

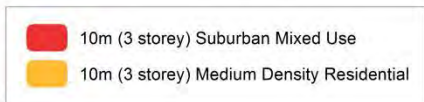
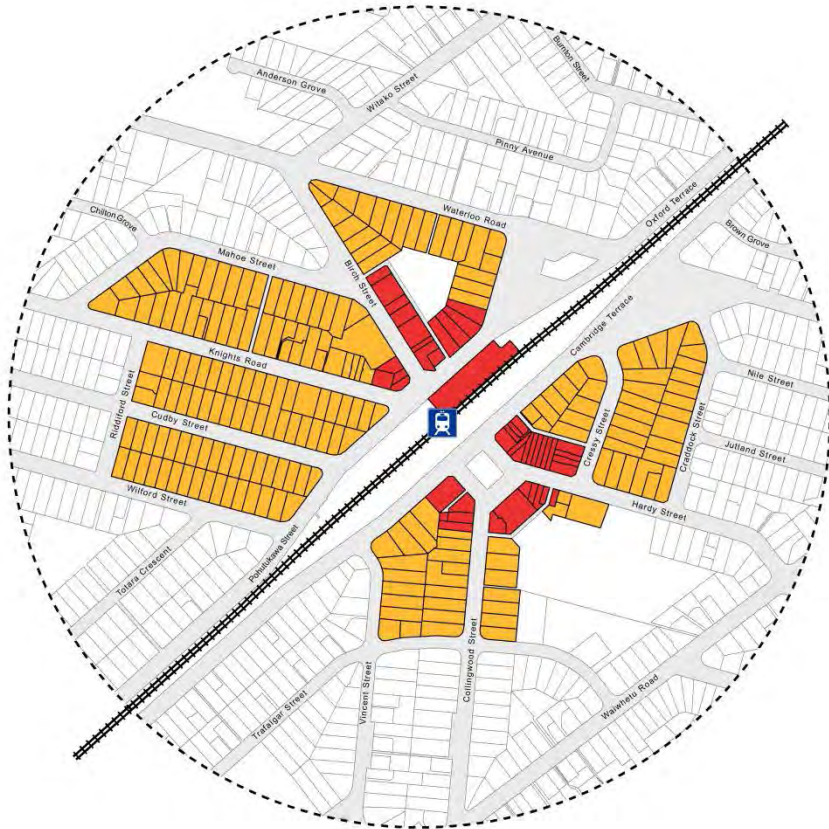






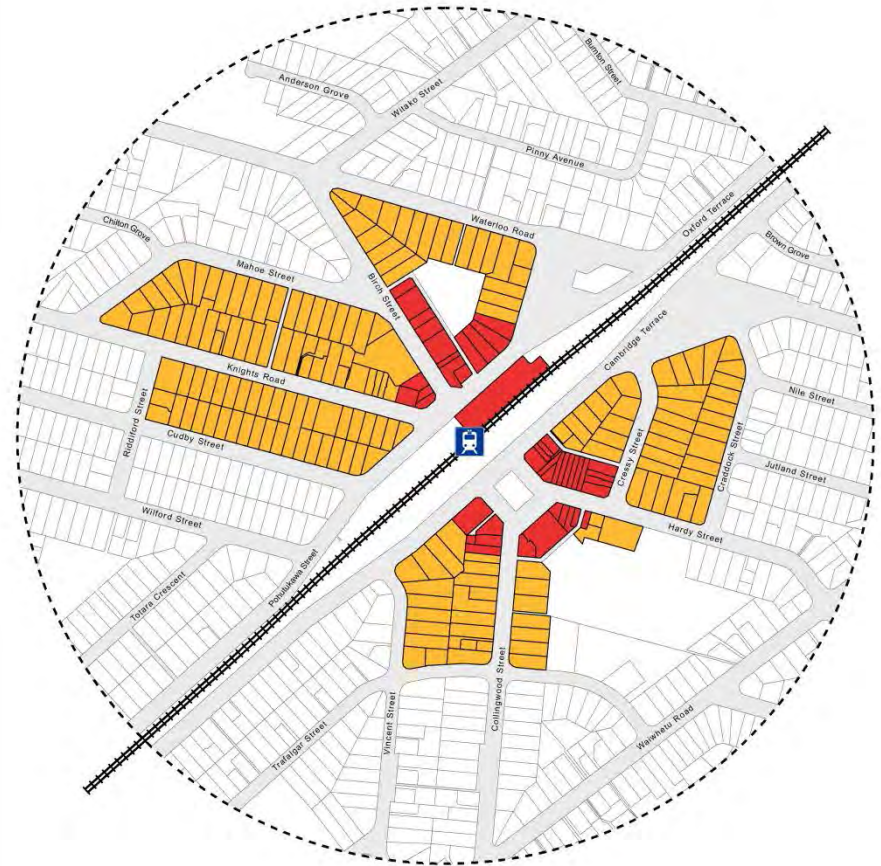
Targeted area as consulted on in online survey  
May/June 2017

Waterloo



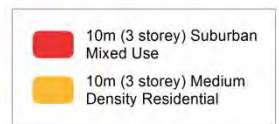
Targeted area amended in response to online survey  
feedback

Waterloo



List of changes

- Cudby Street
- Riddiford Street
- Wilford Street
- Pohutukawa Street





**Attachment 10**

Hutt City Council Report DPC2017/3/163 to District Plan Committee (26 July 2017) *Residential Intensification*. Hutt City Council DOC/17/122883.





## District Plan Committee

02 July 2017

File: (17/1033)

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Report no: DPC2017/3/163

### Residential Intensification

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## DECISION MAKING CHECKLIST

This checklist is designed to assist report writers and decision makers to more easily understand and comply with the obligations of the Local Government Act, whilst providing a legal record of how the process was followed.

There are specific obligations in the Local Government Act 2002 for Council to consider a range of factors when making decisions. The Decision Making Checklist is applicable to all reports *seeking a decision* to SLT, Council, Community Committees or Community Boards.

**What is the decision you are seeking in your report?** Instructions on the overall approach to the residential intensification plan change including the extent of any proposed targeted areas.

**Who is responsible for making this decision?** District Plan Committee

Check Council's [Terms of Reference](#) the [Delegations Register](#) and [Functions and Delegations for Community Boards 2016-2019](#)

#### LEGISLATIVE REQUIREMENTS

<p>Does this decision fit the purpose of local government by meeting the current and future needs of the community by providing <b>good quality</b>:</p> <p><input type="checkbox"/> Local infrastructure, or,</p> <p><input type="checkbox"/> Local public services, or,</p> <p><input checked="" type="checkbox"/> Through the performance of regulatory functions?</p> <p>(Note: In the <a href="#">Local Government Act 2002</a> <b>good-quality</b> means infrastructure, services, and performance that are efficient, effective and appropriate to present and anticipated future circumstances)</p>		
Does your report show how this decision achieves this purpose (see above) in the most cost efficient way?	Yes	Click here to enter text.
Does your report state whether this is a significant decision, and if so, on what basis it is significant? <a href="#">Refer to significance policy</a>	Not applicable	Click here to enter text.
Does the report show that I have considered how this decision will affect people in the community?	Not applicable	Consultation under RMA
<b>OPTIONS</b>		<b>Comments</b>
Have I considered <i>all</i> practicable options in my report?	Not applicable	Addressed through section 32 RMA
Does the report show that I have assessed the costs and benefits (or pros and cons) of each of those options?	Not applicable	Addressed through section 32 RMA
<b>FINANCIAL CONSIDERATIONS</b>		<b>Comments</b>
Does my report show how this decision would be funded? <i>(If you answer 'existing budgets' please specify the budget year).</i>	Existing budgets 2018	
Have I considered the short term and long term financial implications of this decision in my report?	Not applicable	Click here to enter text.
Do I need to prepare a business case with my report?	Not applicable	Click here to enter text.
<b>CONSISTENCY WITH OTHER COUNCIL PLANS</b>		<b>Comments</b>
Does the report recommend a decision that would substantially deviate from current plans (including the Annual or Long Term Plan, The District Plan, asset management plans or <a href="#">policies or strategies</a> ); or	No	Implements Urban Growth Strategy

Does the report recommend a decision that supplements or replaces any current plans or policies?	No	Click here to enter text.
<b>CONSULTATION</b>		<b>Comments</b>
Should this issue be consulted on? <i>Refer to the <a href="#">Community Engagement Strategy</a></i>	Yes	Consultation under RMA
If so, have I identified a consultation plan and identified who I need to consult with? <i>Refer to the <a href="#">Community Engagement Strategy</a></i>	Yes	Consultation under RMA
Am I aware of any existing community views regarding this decision?	Yes	Online survey results
Should I consult with Māori on this decision? <i>Refer to <a href="#">Community Engagement Strategy</a> and <a href="#">Contact the Kaitakawaenga Kaupapa Maori</a></i>	No	Consultation under RMA
<b>OTHER CONSIDERATIONS</b>		<b>Comments</b>
Which other staff members within Hutt City Council should I talk about this decision with?	Not applicable	Click here to enter text.
How would I communicate this decision? <i>(Consider both internally and externally)</i>	Plan change proposal under RMA	
Have I made a plan for the implementation of this decision?	Yes	Plan change proposal under RMA
Does this report require specialist input (for example, advice from the legal team, the Communications team, Human Resources, Finance, or Risk Management)?	No	Click here to enter text.
Health and Safety: Are there any health & safety implications or risks to others in making this decision? If so have these risks been assessed in accordance with the Health & Safety at Work Act 2015 and what actions may be taken to reduce the risk of harm?	Not applicable	Click here to enter text.

### Supporting Information

#### Strategic Fit/Strategic Outcome

State how this fits with Hutt City Council's outcomes and objectives

**LTCCP/Annual Plan Reference**

State how this fits with Hutt City Council's LTP or Annual Plan  
Implements Urban Growth Strategy

**Treaty of Waitangi Consideration**

Consultation required under RMA

**Purpose of Report**

1. To seek instructions on:
  - The overall approach to a residential intensification plan change including the extent of any proposed targeted areas.
  - The consultation process.
  - Timeframe.

**Recommendations**

It is recommended that the Committee:

- (i) requests officers to prepare Proposed Plan Change 43 Residential and Suburban Mixed Use for consideration at the District Plan Committee meeting of 20 September 2017. The plan change approach is confirmed as the approach that was consulted on in the Public Voice online survey of May/June 2017 and is summarised as:
  - a. intensive residential development requiring resource consent must follow a design guide;
  - b. new Suburban Mixed Use zone in targeted areas, with a maximum building height standard of 10 metres;
  - c. new Medium Density Residential zone in targeted areas, with a maximum building height standard of 10 metres and height to boundary standard of 2.5 metres vertically at the side and rear boundaries with a 45 degree recession plane;
  - d. comprehensive Residential Development enabled on General Residential sites of 1400m<sup>2</sup> or larger;
  - e. enabling infill development provisions including tiny houses;
  - f. targeted area maps amended, as attached as Appendix 2 to the report including the following option for the CBD Edge targeted area:
    1. Option 1: As proposed in the online survey with amendments at north end and east of Cornwall

St; or

2. Option 2: As suggested by Deputy Mayor Bassett; or
  3. Option 3: As suggested by Deputy Mayor Bassett with additional outlying areas of Option 2 also removed; or
  4. Option 4: Defer CBD Edge for consideration as part of Lower Hutt 2040 project;
- (ii) approves a submission period in the plan change process of at least 3 months; and
- (iii) requests officers to prepare a comprehensive communications plan to accompany the proposed plan change.

## Background

2. Proposed Plan Change 43 is under development. The plan change is intended to enable residential growth by providing for intensification and greater housing choice within the existing urban environment.
3. The plan change is part of a suite of measures – intensification plus greenfield development at the urban edge - to give effect to Council’s Urban Growth Strategy and meet Council’s obligations under the National Policy Statement on Urban Development Capacity to provide sufficient short, medium and long term capacity for housing growth. The plan change recognises that Council will not be able to achieve its goals or meet its obligations solely through greenfield development.
4. Council established the Residential Intensification Working Group in 2016. The Working Group currently comprises Councillors Bridson, Bassett, Cousins, Barry, Lewis and Sutton. (The Mayor and all Councillors are invited to participate in Working Group meetings as a matter of course). The Working Group was established to facilitate in-depth consideration of officers’ residential intensification options based on the Jacobs Consultants Ltd report “Hutt City - Planning for the Future; A long-term vision for future housing growth and choice - Urban Development Plan for Hutt City Residential Intensification”.
5. The final Jacobs report took into account feedback from the Working Group on the preferred locations of residential intensification.
6. Officers recommended that residential intensification proceeds through the following overall approach in the District Plan:
  - a. Require intensive residential development that needs resource consent to follow a design guide.
  - b. Establish a new Suburban Mixed Use zone in 10 specific targeted areas to replace much of the existing Suburban Commercial zone and allow for buildings of up to three storeys, compared with Suburban Commercial’s two-storey limit. Buildings would

accommodate shops and cafes on the ground floor, with the second and third storeys being residential or office.

- c. Establish a new Medium Density Residential zone in 10 specific targeted areas adjacent to the proposed Suburban Mixed Use zone and allow for residential buildings of up to three storeys.
  - d. Enable greater intensification (Comprehensive Residential Development) on sites larger than 1400m<sup>2</sup> in the General Residential zone.
  - e. Enable traditional infill, allowing two dwellings per site subject to standards for outdoor living space and site separation.
  - f. Enable minor dwellings (granny flats, tiny houses), subject to standards for outdoor living space and site separation.
7. The Working Group met on 26 April 2017 to discuss and confirm a public consultation on the above draft plan change approach. The agreed approach was to use an online survey because of its ability to provide Council with a representative view of all sectors of the population. The online survey is discussed below.

### **The Online Survey**

- 8. The online survey explained Council's possible approach to intensification and sought feedback on the key elements of the approach and the locations targeted in the approach.
- 9. The survey included maps of possible targeted areas at Stokes Valley, Taita, Naenae, Avalon, Eponi, Waterloo, the CBD Edge, Alicetown, Waiwhetu/Woburn and Wainuiomata and asked respondents to comment on the extent of the areas.
- 10. The survey was conducted by Council's survey provider Public Voice Ltd.
- 11. The online survey was aimed primarily at *Hutt City Views* - a representative panel of Hutt City residents who participate in surveys about issues facing the city and provide Council with a representative view of all sectors of the population.
- 12. The survey was also made available to the general public via the Council website, Council Facebook page and Neighbourly so that anyone with an interest could state their views.
- 13. The Working Group reviewed a draft online survey and approved its release subject to a number of amendments to improve clarity and understanding.
- 14. A non-functional version of the survey is available at the following link:  
<http://survey.publicvoice.co.nz/s3/ris-demonstration>



15. Officers advised iwi authorities of the survey in emails and meetings with Port Nicholson Block Settlement Trust and Tenth's Trust and in email to Ngati Toa.
16. The survey was completed by 1540 people and generated much discussion. Of these, 528 responses came from the *Hutt City Views* Panel. There were 1012 responses from the general public. The Panel responses and general public responses were collated and analysed separately. On several of Council's proposals, there were significant differences of opinion between the responses of the panel and those of the general public.
17. The results of the survey are summarised below. The full results are attached as Appendix 1 to the report, which is also available at the following link:  
  
<http://iportal.huttcity.govt.nz/Record/ReadOnly?Tab=31&Uri=4544469>
18. Of the panel respondents, 82 per cent supported the proposed Suburban Mixed Use zone and 12 per cent opposed it. Among general public respondents, 62 per cent supported the proposed zone with 31 per cent against. Opinions also differed on the proposed Medium Density Residential zone, which was supported by 69 per cent of panel respondents and 44 per cent of general public respondents.
19. Respondents were strongly in favour of Option A of the three options presented for dealing with building height in relation to boundaries within the Medium Density Residential zone. Option A showed a height to boundary standard of 2.5 metres vertically at the side and rear boundaries with a 45 degree recession plane, and a 1m yard requirement.
20. Council's possible plan change ideas also included providing for greater development in the General Residential zone, including enabling more intensification on large sites and opportunities for tiny houses. Of the panel respondents, 83 per cent supported traditional infill, compared to 67 per cent of the general public. The proposed infill development of small houses attracted 83 per cent support from the panel and 72 per cent from general public respondents.
21. To ensure high-quality developments, Council proposes all intensive residential developments that require resource consent would have to follow a design guide. Panel and general public respondents support for this is 82 per cent and 81 per cent respectively.
22. In summary, the *Hutt City Views* Panel strongly supported the suggested Council approach. The Panel also showed a solid minority response in opposition. The opposing point of view is shown more strongly in the self-selected general public response group.

### **Consideration of Survey Results and Next Steps**

23. The Working Group convened a workshop on 21 June 2017. The workshop considered the survey results and agreed to take a bus tour of the suggested targeted areas to assist in understanding the potential

effects of residential intensification and determining the appropriate extent of any targeted areas. The bus tour took place on 27 June 2017.

24. The Working Group convened a follow up workshop on 7 July 2017 and discussed the plan change approach and the targeted areas in the context of the survey results and the bus tour.
25. The Working Group confirmed its support for the overall approach to residential intensification as set out above and confirmed a height to boundary standard in the Medium Density Residential zone of 2.5 metres vertically at the boundary with a 45 degree recession plane, and 1m yard requirement. The Working Group made a number of changes to targeted areas as a result of feedback in the online survey, confirmed by the tour of the sites.
26. The Working Group was unable to reach consensus on the CBD Edge targeted area and has identified 4 options for the Committee to select its preferred option from. The amendments to targeted areas including the 4 CBD Edge options are shown in the maps, attached as Appendix 2 to the report.
27. CBD Edge Option 1 involves minor changes at the area's north end and east of Cornwall St. The option remains consistent with the recommendation of officers and the representative Panel results of the online survey.
28. CBD Edge Option 2 involves changes suggested by Deputy Mayor Bassett in response to his discussions with potentially affected residents of the area. The option is not consistent with the representative Panel results of the online survey and is not supported by officers.
29. CBD Edge Option 3 is Option 2 with the isolated outlying areas removed on the basis that they make little sense with closer in areas removed. The option is not consistent with the representative Panel results of the online survey and is not supported by officers.
30. CBD Edge Option 4 involves deferring the CBD Edge for later consideration as part of the Lower Hutt 2040 project, which is intended to continue the rejuvenation of the CBD by updating *Making Places* and producing a spatial plan with recommendations for land uses and connections. The option is not consistent with the representative Panel results of the online survey but is supported by officers on the basis that the Lower Hutt 2040 project will provide additional information on the relationships between the CBD and the CBD Edge.
31. The Working Group also discussed options for further public consultation and decided that the best way forward is a formal plan change process with an extended (3 month plus) submission period supported by comprehensive public communication. That enables a specific formal proposal to be tested through the submission, hearing and appeal processes with the outcomes determined on the merits of the resource management arguments.

32. The Working Group asked that officers present a proposed plan change document for consideration at the District Plan Committee meeting of 20 September 2017. Subject to recommendation to Council by the Committee, and subsequent Council approval, the proposal would be publicly notified in October 2017 with the submission period ending in February 2018.
33. The Working Group also asked for a comprehensive public communication plan that would include the following approach:
- Communications prepared for all key meetings and notification dates.
  - All messaging and Q&A prepared for enquiries from media, members of the public and for responding to social media queries and comments.
  - Draft media releases and related key messaging and copy for social media to be used should public debate begin to gather momentum following committee meetings.
  - All statements and messaging should be reviewed and amended as required following committee and Council meetings.
  - Active media and social media monitoring following meetings and throughout submission period.
  - Customer service staff briefed and all calls regarding intensification directed to communications advisor.
  - A web page dedicated to the plan change to be designed and content written, ready to go live, well in advance of notification.

### **Working Group Instructions**

34. The Working Group provided the following instructions to officers on the plan change's overall approach and the extent of the targeted areas.

*Requests officers to prepare Proposed Plan Change 43 Residential and Suburban Mixed Use for consideration at the District Plan Committee meeting of 20 September 2017. The plan change approach is confirmed as the approach that was consulted on in the Public Voice online survey of May/June 2017 and is summarised as:*

- *Intensive residential development requiring resource consent must follow a design guide*
- *New Suburban Mixed Use zone in targeted areas, with a maximum building height standard of 10 metres*
- *New Medium Density Residential zone in targeted areas, with a maximum building height standard of 10 metres and height to boundary standard of 2.5 metres vertically at the side and rear boundaries with a 45 degree recession plane*
- *Comprehensive Residential Development enabled on General Residential sites of 1400m<sup>2</sup> or larger*

- *Enabling infill development provisions including tiny houses*
- *Targeted area maps amended as attached as Appendix 2 to the report including the following option for the CBD Edge targeted area:*
  - *Option 1 Amend at north end and east of Cornwall St; or*
  - *Option 2 Suggested by Deputy Mayor Bassett; or*
  - *Option 3 Outlying areas of Option 2 also removed; or*
  - *Option 4 Defer CBD Edge for consideration as part of Lower Hutt 2040 project;*

*Requests that officers provide for a submission period in the plan change process of at least 3 months.*

*Requests officers to prepare a comprehensive communications plan to accompany the proposed plan change.*

### **Legal Considerations**

35. Council is required by the National Policy Statement on Urban Development Capacity to provide sufficient short, medium and long term capacity for housing growth.

### **Financial Considerations**

36. A district plan change is able to be advanced within existing budgets.

### **Other Considerations**

37. In making this recommendation, officers have given careful consideration to the purpose of local government in section 10 of the Local Government Act 2002. Officers believe that this recommendation falls within the purpose of the local government in that it assists in meeting the housing needs of the community. It does this in a way that is cost-effective because it removes regulatory barriers to housing growth, increasing the potential housing capacity of the existing urban environment.

### **Appendices**

<b>No.</b>	<b>Title</b>	<b>Page</b>
1	HCC Residential Intensification Survey - June 2017.	
2	Targeted areas - as amended by Residential Intensification Working Group 7 July 2017	

**Author:** Andrew Cumming  
Divisional Manager Environmental Policy

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**Approved By:** Kim Kelly  
General Manager, Strategic Services



**Attachment 11**

Hutt City Council Resolution 17/1331 (10 October 2017) *Proposed Plan Change 43 Residential and Suburban Mixed Use*. Hutt City Council DOC/17/172219.





**Item 5) Proposed Plan Change 43 Residential and Suburban Mixed Use  
(17/1331)**

The motion was taken in parts. Parts (i)-(iii) and (v)-(xiii) were CARRIED on the voices.

**RESOLVED:**

**Minute No. C 17416**

*“That Council:*

- (i) notes the Proposed Plan Change 43 Residential and Suburban Mixed Use which is attached as Appendix 1 to Report DPC2017/4/207;*
- (ii) notes the accompanying Communications Plan attached as Appendix 6 to Report DPC2017/4/207;*
- (iii) instructs officers to change the Communications Plan to include hosting Public Information days in community venues;*
- (iv) resolves to promulgate Proposed Plan Change 43 for consultation, attached as Appendices 1-5 to Report DPC2017/4/207 with the addition of the Lower Hutt CBD edge being removed from the Residential Intensification Plan Change until such time as a Spatial Plan for the Lower Hutt CBD is developed and officers have authority to make any necessary consequential amendments. This work to be undertaken in consultation with the community, business and Council representatives;*
- (v) instructs officers to publicly notify Proposed Plan Change 43 as soon as practicable;*
- (vi) allows officers to make any non-policy related changes to the details of the Proposed Plan Change should the need arise;*
- (vii) notes that residents will have direct input into the process;*
- (viii) notes that consultation has been extended to a four month period;*
- (ix) notes that residents directly affected will receive personal letters and information about the proposed changes;*
- (x) notes that there will be public information days for residents;*
- (xi) notes that residents in affected areas will have the opportunity to make submissions and further submissions and be heard on those submissions before any decisions are made;*
- (xii) notes that the hearings process will be chaired by an experienced independent commissioner; and*
- (xiii) resolves the final decision from the hearings panel will be a recommendation to Council with Council having the final say on any plan change.”*

Part (iv) above was declared CARRIED by Division with the voting as follows:

<b>For</b>	<b>Against</b>
Mayor Wallace	Cr Barry
Deputy Mayor Bassett	Cr Briggs
Cr Barratt	Cr Milne
Cr Edwards	
Cr Lewis	
Cr Lulich	
Cr McDonald	
Cr Sutton	
Total: 8	Total: 3



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## Part 9: Submission Form

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# Submission on publicly notified Proposed District Plan Change

Clause 6 of the First Schedule, Resource Management Act 1991



To: Chief Executive, Hutt City Council

1. **This is a submission from:**

Full Name	<small>Last</small> <input style="width: 60%; border: none; border-bottom: 1px solid black;" type="text"/> <small>First</small> <input style="width: 20%; border: none; border-bottom: 1px solid black;" type="text"/>	
Company/Organisation	<input style="width: 100%; border: none; border-bottom: 1px solid black;" type="text"/>	
<i>Contact if different</i>	<input style="width: 100%; border: none; border-bottom: 1px solid black;" type="text"/>	
Address	<small>Number</small> <input style="width: 20%; border: none; border-bottom: 1px solid black;" type="text"/> <small>Street</small> <input style="width: 60%; border: none; border-bottom: 1px solid black;" type="text"/>	
	<small>Suburb</small> <input style="width: 100%; border: none; border-bottom: 1px solid black;" type="text"/>	
Address for Service <i>if different</i>	<small>City</small> <input style="width: 60%; border: none; border-bottom: 1px solid black;" type="text"/>	<small>Postcode</small> <input style="width: 20%; border: none; border-bottom: 1px solid black;" type="text"/>
	<small>Postal Address</small> <input style="width: 50%; border: none; border-bottom: 1px solid black;" type="text"/>	<small>Courier Address</small> <input style="width: 50%; border: none; border-bottom: 1px solid black;" type="text"/>
Phone	<small>Home</small> <input style="width: 50%; border: none; border-bottom: 1px solid black;" type="text"/>	<small>Work</small> <input style="width: 50%; border: none; border-bottom: 1px solid black;" type="text"/>
	<small>Mobile</small> <input style="width: 100%; border: none; border-bottom: 1px solid black;" type="text"/>	
Email	<input style="width: 100%; border: none; border-bottom: 1px solid black;" type="text"/>	

2. This is a **submission** on the following proposed change to the City of Lower Hutt District Plan:

**Proposed District Plan Change No:**

**Title of Proposed District Plan Change:**

3.a I  **could**  **could not** gain an advantage in trade competition through this submission  
*(Please tick one)*

3.b *If you could gain an advantage in trade competition through this submission:*

I  **am**  **am not** directly affected by an effect of the subject matter of that submission that–

- (a) adversely affects the environment; and
- (b) does not relate to trade competition or the effects of trade competition.

*(Please tick one)*

*Note: If you are a person who could gain an advantage in trade competition through the submission, your right to make a submission may be limited by clause 6(4) of Part 1 of Schedule 1 of the Resource Management Act 1991.*

4. The specific provisions of the proposal that my submission relates to are:

*Please give details:*

*(Please use additional pages if you wish)*

5. My submission is:

*Please include whether you support or oppose the specific provisions or wish to have them amended; and reasons for your views:*

*(Please use additional pages if you wish)*

6. I seek the following decision from Hutt City Council:

*Please give precise details:*

*(Please use additional pages if you wish)*

7. I  **wish**  **do not wish** to be heard in support of my submission

*(Please tick one)*

8. If others make a similar submission,

I  **will**  **will not** consider presenting a joint case with them at the hearing.

*(Please tick one)*

Signature of submitter  
*(or person authorised to sign  
on behalf of submitter)*

	<i>Date</i>
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*A signature is not required if you make your submission by electronic means*

Personal information provided by you in your submission will be used to enable Hutt City Council to administer the submission process and will be made public. You have the right under the Privacy Act 1993 to obtain access to and to request correction of any personal information held by the Council concerning you.