LANDMATTERS

www.landmattersnz.com

REPORT INFORMATION AND QUALITY CONTROL

Prepared for:	Nathan Geard, District Plan Policy Manager Hutt City Council
Authors:	Anna Carter, Principal Planner Richard Laurenson, Senior Researcher Samuel Pritchard, Property Director & Development Manager
Approved for Release:	Bryce Holmes, Planning Director
Current document name	Hutt City Council Greenfield Development Areas Review (v3_FINAL July 2023)
Document History:	Version 1 – Draft for client review — November 2021 Version 2 – Draft for client review — March 2023 Version 3 - FINAL — July 2023

EXECUTIVE SUMMARY

In the past 15-20 years, the population of Lower Hutt has grown steadily. It was previously estimated that the city's population would reach 110,000 by 2030, but it had already reached 111,800 by June 2020 and is predicted to grow by up to a further 48,906 people by 2051 according to the Sense Partners forecast (2021).

House building in the city has not kept pace with the growth in population. The shortage of houses is contributing to a steep increase in the cost of both buying and renting houses. More recently the market appears to have experienced a downward correction albeit it remains at a higher level than before the recent upturn experienced after the 2020 Covid outbreak.

As of March 2021, there were 573 households registered on the Housing Register and of people surveyed for identifying Lower Hutt's Economic Wellbeing survey[1], 45% do not consider they have enough ability to cover everyday needs. Average house values (as of March 2021) were $856,569; average rent for the same period was $512 per week. Housing affordability remains high at 6.7 (being the average house value to average household income) and rental affordability is even higher at 20.1 (the average rent to average household income).

Strong expected demand for housing from single people and couples without children require a different kind of housing. At the current rate of population growth and based on the number of households and the changes to household size, a total of 24,772 new dwellings[2] will be required over the next 30 years in Lower Hutt.

Table 1.1: Housing bottom lines by territorial authority area

Area	Short- to medium-term 2021–31	Long-term 2031–51	Total 2021-51
Kāpiti Coast District	6,123	10,053	16,176
Porirua City	5,916	8,062	13,978
Upper Hutt City	4,713	7,510	12,223
Lower Hutt City	9,708	15,064	24,772
Wellington City	15,089	21,532	36,621
Total	**41,549**	**62,221**	**103,770**

Figure 1: Predicted growth over next 30 years (Table 1.1 of Wellington Regional HBA, May 2022)

A key element in providing sufficient capacity to meet the expected demand is ensuring that development capacity is *plan-ready* and *infrastructure ready* and *feasible* to develop. When calculating housing bottom lines, the 2022 HBA included both redevelopment of existing residential and commercial areas based on the operative district plan's development standards; and included greenfield land over 5 hectares in area that is either zoned for residential development or is identified as future urban zoning[3].

[1] *Hutt City Council (Long Term Plan 2021 – 31). Setting the Scene. Pg 55.*

[2] *This figure excludes the competitive margin being 20% for the short-medium term; and 15% for long-term as required by the NPS-UD*

[3] *The 2022 HBA was conducted based on district plans being operative and as such did not give full effect to the National Policy Statement on Urban Development (NPS-UD). Lower Hutt City Council has notified plan change 56 to enable intensification as required by the NPS-UD. This will increase plan-enabled infill and redevelopment capacity significantly.*

Table 1.2: Housing sufficiency in the Greater Wellington urban environment

	Demand	Capacity	Difference	Sufficient?
Kāpiti Coast District	16,185	7,818	-8,367	No
Porirua City	13,978	16,511	2,533	Yes
Upper Hutt City	12,223	11,361	-862	No
Lower Hutt City	24,773	16,847	-7,926	No
Wellington City	36,621	26,399	-10,222	No
Region-wide	**103,780**	**78,318**	**-25,462**	**No**

Figure 2: Housing sufficiency modelling (Table 1.2, Wellington Region HBA, May 2022)

Based on existing capacity, the 2022 HBA predicts that there will be **a shortfall of at least 7,926 new dwellings** in Lower Hutt over the next 30 years with most of the shortage occurring in the long term. However, when accounting for a competitiveness margin as required to be added to the shortfall by the NPS-UD (20% for the short to medium-term; and 15% added to address the long-term housing demand), Lower Hutt requires an additional 9,708 dwellings to meet demand in the period 2021 to 2031; and a further 15,064 dwellings to meet demand in the period 2031 to 2051. These figures are referred to as the 'housing bottom lines.'

Table 1.8: Housing bottom lines by territorial authority

	Short- to medium-term 2021–31	Long-term 2031–51
Kāpiti Coast District Council	6,123	10,053
Porirua City Council	5,916	8,062
Upper Hutt City Council	4,713	7,510
Lower Hutt City Council	9,708	15,064
Wellington City Council	15,089	21,532
Total	**41,549**	**62,221**

Figure 3: Housing bottom lines throughout the Wellington Region (Wellington Regional HBA, May 2022)

The 2022 HBA defines these terms as follows:

A note on terminology

In describing housing development capacity, the following terms are used:

- **Plan-enabled** – housing development capacity enabled in all land zoned or set aside for housing without accounting for any constraints, as provided in the relevant plans or strategies
- **Infrastructure-ready** – housing development capacity having adequate development infrastructure (network infrastructure for water supply, wastewater, stormwater and land transport) to support development of the land.
- **Feasible and reasonably expected to be realised** – housing development capacity that is commercially viable for a developer to develop considering costs, revenues and yields and likely to be taken up for development.

The relationship between the different types of housing development capacity is illustrated in Figure 1.11 below.

Figure 4: Terminology used in the NPS-UD (source: Wellington Regional HBA, May 2022)

Of the 24,772 dwellings required over the next 30 years in Lower Hutt, only 64% or 15,944 of those sites were reasonably expected to be realised. Of this number, just under 900 new greenfield sites (871 sites) have been estimated to contribute to the plan-enabled and infrastructure ready residential sites. To work out this figure, the 2022 HBA report used the greenfield model methodology provided in Appendix 1.4 of the 2019 HBA. It modelled all land parcels over 5 hectares ('ha') that are zoned for residential development, and any parcels that may not currently be zoned but that are otherwise identified for future growth areas. The HBA 2022 report also applied a *realisation test* to the feasibility capacity to quantify the percentage of feasible capacity likely to come forward over the 30-year period of the HBA[4]. For greenfield sites this was explored through the application of 20% profit margins, development timeframes, section prices over time and density of development. In calculating the number of plan-enabled, infrastructure ready, feasible greenfield sites, the three sites that are the subject of this review were excluded. Those sites are:

1. Upper Kelson area;
2. Upper Fitzherbert, Wainuiomata; and
3. Shaftesbury Grove, Stokes Valley

This report has assessed each of these sites and potential development capacity/yield to confirm whether they can contribute to the housing bottom lines for Lower Hutt city through being *plan enabled*, *infrastructure ready* and *development feasible*. This review has identified that two of the three sites (Upper Kelson and Stokes Valley sites) can meet the criteria for meeting the demand for housing on the basis that the land can be rezoned under a proposed plan change; that infrastructure is either in place or is provided for in either the Wellington Regional Investment Plan and Council's Long Term Plan or will be provided for in the Council's Infrastructure Plan; and that there are specific development yields for each site which are commercially feasible through achieving a suitable rate of return on investment (IRR) subject to the adoption of tailored development contributions to be levied against each new additional allotment created.

The greenfield development of Upper Kelson and Stokes Valley could provide between 255 and 358 new dwellings, without further intensification. Either site could achieve the objectives of Hutt City's Housing and Business Capacity Assessment to meet a small amount of shortfall for immediate new housing in these areas. It is important to note that the higher the density, the more reasonable development contributions are per site.

Both Upper Kelson and the Stokes Valley sites have significant natural values that need further assessment to determine if the sites can accommodate the higher yields without adversely affecting those values. While the higher yields provide a high return (and therefore present as more commercially feasible), both yield options for these sites are indicated as being feasible. It is recommended that a review of the significant natural areas is undertaken for both Upper Kelson and Shaftesbury Grove.

Development of the Upper Fitzherbert site in Wainuiomata, being 136 hectares would need to achieve at least 1,925 new dwellings to ensure an appropriate internal rate of return. Any development of this site will require additional financial inputs of between 30% - 60% per site for the development margin to be sustained at or near 20% the required rate of return necessary to create a feasible development.

Given the projected shortfall of 36% of dwellings calculated by the 2022 HBA report, serious consideration needs to be given to the Upper Fitzherbert greenfield area as it presents a significant improvement on the current housing capacity in Lower Hutt which requires a further 6,190 dwellings to fulfil the projected shortfall over the short to medium term. It would provide the greatest yield of new households in an area which is suffering from some of the greatest deprivation indexes in Hutt City. Greenfield development in

[4] *Refer to Property Economics reports in Lower Hutt City's update HBA report*

this area is also supported by the Wellington Regional Investment Plan 2018 - 2048 on the basis that it would adopt a *precinct approach* which is preferred by the Investment Plan. A *precinct approach* is described in the Investment Plan as:

> *"… potential engines for sustainable development since they embrace residential and employment density via the strategic use of transit and provide the opportunity to turn streets and parks into living labs to test cutting edge sustainable projects in partnership with technology firms and entrepreneurs[5]."*

A master planned development would ideally incorporate mixed use to provide for localised employment opportunities. It would also look to provides walkable neighbourhoods to a new school, parks and open space and these commercial areas. It is recommended that Wellington Water and Hutt City Council review the public/private split for delivering infrastructure to Upper Fitzherbert in order to review the overall development contributions required to achieve the development outcomes for this area; and on the basis that this greenfield site will deliver affordable housing and in response to reducing the deprivation indices for this suburb of Hutt City.

It is of note that there is an existing shortfall of infrastructure servicing for all of Wainuiomata and this will need to be addressed before or in conjunction with the development of new greenfield areas such as the Upper Fitzherbert area.

Based on the preferred overall yields for each area and infrastructure requirements new development contributions would need to be set within a range to enable a suitable rate of return, with the higher rate representing a lower overall site yield and the lower rate representing a higher overall site yield as follows

- Upper Fitzherbert: between $61,133.74 and $51,888 (*To achieve at least a 20% IRR, development contributions for Upper Fitherbert greenfield area would require discounting of between 30% - 60%)*

In the interim, land could be rezoned in Upper Fitzherbert, Wainuiomata to large lot residential zoning under the District Plan subject to provisions in place to protect the development intentions for Wainuiomata until infrastructure is in place through adoption of a Structure Plan. Large lot zoned residential sites are exempt from the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021 which provides for intensification of housing on residential zoned land.

Under the Resource Management Amendment Act 2017 there are a number of options for rezoning land other than utilising the standard Schedule 1 process. These include:

- **Streamlined planning process (SPP)**: Councils can use the streamlined planning process for the preparation of a planning instrument under the RMA if they get the Minister for the Environment's approval.
- Limited notification of proposed plan changes under Schedule 1 of the RMA where a Council is able to identify all people directly affected by a proposed plan change;
- **Collaborative Planning process under Clauses 39 - 73 of Schedule 1 of the RMA** enable the community to participate at the front end of the planning process where alternatives, costs and benefits of various options can be considered. This allows for informed decision-making to produce plans that better reflect community values and reduce litigation costs and lengthy delays later. Recommendations pursue agreement through consensus; and appeals are accepted only in respect of points of law and on those recommendations which were opposed by the collaborative group; and
- **Inviting Councils to form a Mana Whakahono a Rohe** to facilitate an iwi and council agreement;

[5] *Wellington Regional Investment Plan (2019). Pg 21*

- The **Urban Development Act 2020 provides for Specified Development Projects (SDPs)** which may be considered for Wainuiomata. This process is particularly useful for complex or challenging urban development projects that may struggle to proceed because of barriers such as uncoordinated decision-making processes, poor and aging infrastructure or restrictive planning regimes. The UDA 2020 sets out a process that has to be completed before an SDP can begin, which allows for projects to be shaped by local needs and aspirations, and the benefits of urban development are balanced against environmental, cultural and heritage considerations. Once a SDP is established, the UDA 2020 give Kāinga Ora or its delegated authority (which could be the Council), a toolkit of development powers it can use to carry out the SDP including:
    - The ability to modify, add to, or suspend provisions in the Resource Management Act, regional or district plans or policy statements within the project area;
    - The power for Kāinga Ora (or its delegated authority) to act as a resource consent authority and requiring authority under the RMA
    - The ability to create, reconfigure and reclassify reserves;
    - The ability to build, change and move infrastructure; and
    - Tools to fund infrastructure and development activities, including the ability to levy targeted rates

In developing provisions in the District Plan, new zones will need to align with directives of National Policy Statements, National Planning Standards and Regulations; and if necessary provide for designations and areas of open space to protect future public use of land for reserves, schools, infrastructure and transport corridors.

1. INTRODUCTION

1.1 Purpose of the Report

Hutt City Council (**HCC**) has engaged Land Matters Limited (**LML**) to undertake a review and analysis of the zoning options for three potential greenfield areas within Hutt City.

The brief for this work, which was finalised on the 14 September 2021 and updated in November 2022 is set out below:

> Hutt City Council[1] have confirmed that it wishes to investigate greenfield development options for Upper Fitzherbert, Wainuiomata, Upper Kelson, and Shaftesbury Gove, Stokes Valley, and have agreed to the following work:
>
> 1. Undertake landowner engagement on potential future urban development of these areas;
>
> 2. Undertake further investigatory work on future urban development to determine:
>   i. Potential environmental effects,
>   ii. Infrastructure costs
>   iii. Economic feasibility of development
>   iv. Whether infrastructure costs can be recovered through development contributions
>
> 3. Develop provisions to provide high level policy within the district plan to guide assessment of specific greenfield development proposals through rezoning to a type of residential zone or future urban zone.

The deliverables are to:

1. identify indicative masterplan areas showing likely yield, roading and three waters to give effect to short and medium term growth targets
2. Prepare development costs for construction of *facilitating infrastructure* based on the indicative masterplan; and
3. Prepare preliminary advice on rezoning to identify whether short, medium or long term growth can be accommodated within the three areas.

The draft report was finalised in November 2021 and then a subsequent request to update the report was confirmed in November 2022 to address the following:

a. Any data changes since the report as drafted in November 2021
b. Any changes to typologies/density assumptions given the Enabling Housing
c. Supply legislation and PC 56 which has been notified Proposed Regional Policy Statement Plan Change 1 – namely the policy shift towards carbon neutral greenfield development
d. Hutt City Council Three Waters Growth Study 2022
e. Prepare high level suggested zoning

Note the landowner engagement had been postponed as part of the update to the review.

1.2 Structure of Report

This report is structured as follows:

- **Section 2:** Context for the report
- **Section 3:** Developing the approach for identifying the three greenfield development areas
- **Section 4**: Upper Kelson Study Area
- **Section 5**: Upper Fitzherbert – Wainuiomata Study Area
- **Section 6**: Shaftesbury Grove – Stokes Valley Study Area
- **Section 7:** District Plan Rezoning – Issues, Considerations and Recommendations
- **Section 8:** Conclusion

2. LEGISLATIVE AND STATUTORY CONTEXT

2.1 Growth in the City

The review is intended to inform and assist with the development of the residential provisions of the Hutt City District Plan as part of the current full review of the District Plan, with this piece of work looking specifically at greenfield development areas. This work will sit alongside other intensification opportunities the Council are developing to intensify existing urban areas. This work has included approving private plan change 47 which rezoned 7.7 hectares of land General Residential at the end of Major Drive in Kelson Plan; approving Plan Change 43 which became fully operative on the 23 February 2021 which introduced two new zones to the Hutt City Council District Plan being:

- The Suburban Mixed Use Activity Area around commercial and transport nodes, for up to 12 metres (3 to 4 storeys), accommodating retail on ground floors, with apartments or offices above; and
- The Medium Density Residential Activity Area, for up to 10 metres with building height restrictions closer to the rear and side boundaries to reduce shading.

This review builds upon the significant body of work already prepared by and on behalf of HCC on greenfield areas within Hutt City. This work been guided initially by the Hutt City Council's *2012 – 2032 Urban Growth Strategy* which had set the strategy and direction for the district over the next 30 years to identify greenfield areas for redevelopment, and intensification of existing urban areas, with the goal to reinvigorate Hutt City and provide for at least 3,530 or 9% new households between 2018 and 2038[6]. These figures have more recently been updated by the Council's *Housing and Business Land Capacity Assessment (HBA, updated May 2022)* which found that there was a shortage of at least 7,926 dwellings over the next 30 years; but when the competitiveness margin and reasonably expected development were included, it increased the requirement to 15,944 new dwellings (based on medium growth projection scenarios). Any growth will also need to reflect the changing composition of households. These changes will result in:

- Approximately 50% of growth will be in multi-unit dwellings;
- More one person and couple only households and a fall in owner occupancy dwellings; and
- The number of renter households to increase by 28% particularly for people aged 65 years + (approximately 2,910 households)

Growth in the city is heralding a new approach to urbanism with a move away from single large dwellings on single allotments to a move towards multi-unit dwellings including multi-units within allotments. Access to high frequency public transport and walkable catchments to these public transport nodes will be critical. Whether that type of growth will be taken up by the market is not covered by this report.

Intensification and greenfield development areas are underpinned by the Council vision that, *Hutt City is the home of choice for families and innovative enterprise*.

2.2 Urban Growth Drivers – Statutory and strategic directions for growth

The national direction on urban development has looked to regulate at a national level, with a particular focus on high growth areas (identified in policy document as Tier 1 Councils) to provide for *plan-enabled*, *infrastructure-ready* and commercially *feasible* development capacity; and provide for that in District Plans as soon as practicable. Legislation in this area is looking to move away from single dwelling allotments through introduction of permissive medium density activity standards to be provided for in all

[6] *Hutt City Housing Demand and Need – Hutt City Council* notes "the number of households living in Hutt City is projected to increased by 3,530 (or 9%) between 2018 and 2038.

high growth areas in District Plans.

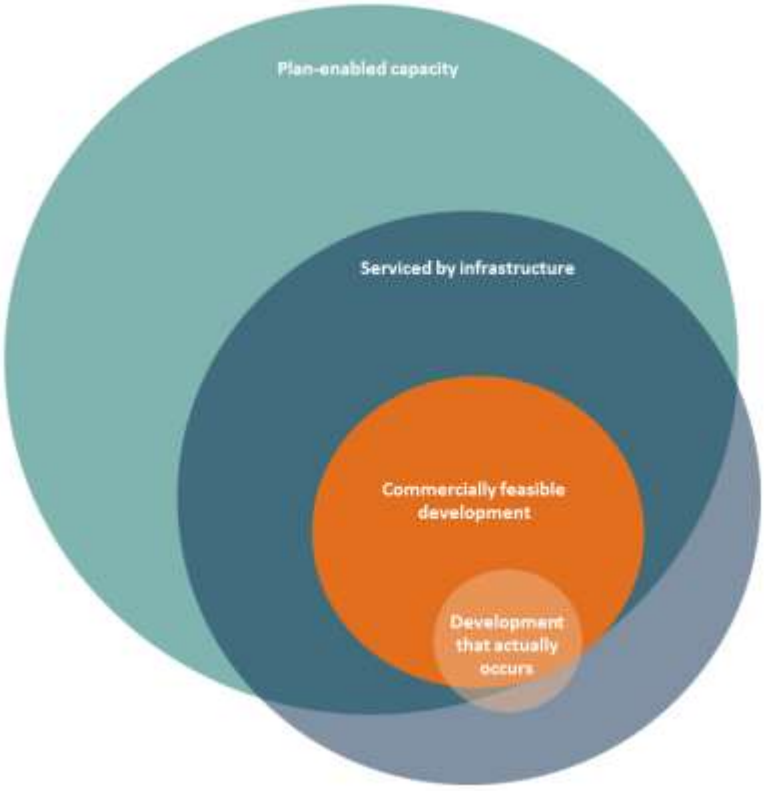


Figure 5: The 'likelihood' of development is a concept used to understand development capacity how Council's estimate demand and supply of development capacity for housing and business) (source: NZ Govt).

Supporting this work at a regional level has been the Wellington Regional Growth Framework; and work being undertaken by Wellington Water Ltd (WWL) on infrastructure capacity across the city.

2.2.1. National Policy Statement for Urban Development 2020

The National Policy Statement for Urban Development 2020 ("NPS-UD") was gazetted in July 2020 and came into force on 20 August 2020. It is relevant for future growth planning for the city. The NPS-UD aims to prioritise the provision of *sufficient development capacity for housing* in:

- Existing and new urban areas; and
- For both standalone dwellings and attached dwellings; and
- In the short term (within 3 years), medium term (3 - 10 years) and long term (10 – 30 years).

To be *sufficient*, the development capacity must be:

i. *Plan-enabled* [i.e. District Plan enabled]; and
ii. *Infrastructure ready;* and
iii. *Feasible* and reasonably expected to be realised; and
iv. For tier 1 (Hutt City is a Tier 1 Council) and 2 local authorities only, meet the expected demand plus the appropriate *competitiveness* margin.

The meaning of *plan-enabled* in relation to the short-term (within next 3 years), is that it is on land that is zoned for housing in the Operative District Plan. For the medium term (between 3 to 10 years) it is on land that is zoned for housing in a proposed district plan. For the long-term (10 to 30 years), it is on land identified by the local authority for future urban use or urban intensification in a Future Development Strategy (FDS) or any other relevant plan or strategy. To this review, *plan enabled* means whether it is appropriate to rezone the greenfield area.

Development is *infrastructure ready* where, in the short term, there is adequate existing development infrastructure to support the development of the land. In relation to the medium term, either there is adequate existing development infrastructure to support the development of the land, or planning and funding for adequate infrastructure to support development of the land is identified in a long-term plan. In relation to long term, either there is funding for adequate infrastructure to support development of the land as identified in a long-term plan, or the development infrastructure to support the development capacity is identified in the local authority's infrastructure strategy (required as part of its long-term plan).

Commercially feasible development capacity is plan-enabled capacity that developers could make a commercial return on at a particular point in time, given a certain set of assumptions about the costs of development and the necessary return. It is usually assessed at the current time or in the short-term and considers likely market demand and sales revenue and costs of building particular properties in particular locations.

Tier 1 Councils are required to give effect to these provisions through notification of an intensification planning instrument ('IPI') and giving effect to the housing bottom lines identified in the *Housing and Business Development Capacity Assessments ("HBAs")* being July 2022.Tier 1 local authorities must notify changes to its district and regional plans through the implementing intensification policies[7] by July 2023.

2.2.2.Wellington Regional Growth Framework July 2021

The Wellington Regional Growth Framework ("WRGF") is a spatial plan that has been developed by local authorities and iwi partners in the Wellington-Horowhenua region to provide an agreed regional direction for growth, investment, and delivery on the Urban Growth Agenda objectives of the Government.

The Framework is looking to identify where and how growth for between 32,000 - 56,000 new households across the Wellington region will be provided for[8] over the next 30 years through:

- 88% of housing growth from areas identified in the Framework; and
- 12% of growth to come from infill. Half of this growth is expected to occur in Wellington[9].

The Framework developed a multi-criteria analysis for assessing suitability of land for intensification and/or greenfield development across the region. The key spatial initiatives coming out of the WRGF focused on implementing transport and other infrastructure requirements across the region; and in respect of Hutt City supporting as a priority in the next three years, planning to accommodate an estimated additional 5,000 new houses including in the Wainuiomata North greenfield development area.

2.2.3.Wellington Regional Investment Plan 2019

In September 2019, Greater Wellington Regional Council received the Wellington Regional Investment Plan. The Plan ("WRIP") is a long-range blueprint over the next 30 years that details investment required to facilitate success and improve quality of life for people in the Wellington Region. Councils across the

[7] These timeframes do not apply to new greenfield development areas

[8] Actual numbers of predicted growth rates change across time and in various reports considered

[9] *Hutt City Housing Needs Research Report (circa 2018)* notes that between 2018 and 2038, the number of households in the greater Wellington metropolitan area (being Hutt City, Wellington City, Upper Hutt City, Porirua City and Kāpiti Coast District) is expected to increase by 32,330 or 19%. Hutt City is likely to get 11% of the of the total expected growth in the greater Wellington metropolitan area's households.

region have committed $4.5b in capital expenditure over the next 10 years in their Long Term Plans (LTPs) and the WRIP seeks to integrate that investment, unlock new opportunities and accelerate achievement of results.

The Plan considers infrastructure targeted for intensification and to provide up to 56,000 new housing units required across the region by 2043. The plan has identified four areas where significant progress needs to be made:

1. Developing new housing supply and contemporary urban form

Aligning housing and urban form with the future economy and lifestyle aspirations of people across the region through:

- Affordable housing
- Contemporary lifestyle precincts
- Social housing
- Greenfield

2. Accessing opportunities through transport

Design of an efficient multi-modal transport system which supports the city-region vision and integrates the economy and urban form through:

- Let's Get Wellington Moving
- North/South multi modal transport spine
- East/West transport spine

3. Building a modern low-carbon high-enterprise economy

Building an active and innovative, knowledge-focused and broad-based economy seeking to drive clean growth primarily, but not only, through the technology and creative sectors.

- Knowledge and skills for the future
- Māori Economy
- Economic and Business Acceleration
- Wellington as a destination

4. Strengthening our resilience and reducing environmental impact

Building regional infrastructure with the capacity to tackle climate change impacts and to better resist disruptive events such as earthquakes and enhancing the ability to achieve a quick recovery, should an event take place. Promoting urban development guided by the requirement to become a zero carbon region and supporting the development of replanting/planting trees and sustainable water storage.

- Lifelines
- Replanting/planting of trees
- Water storage
- Prioritising the transition to a zero carbon economy

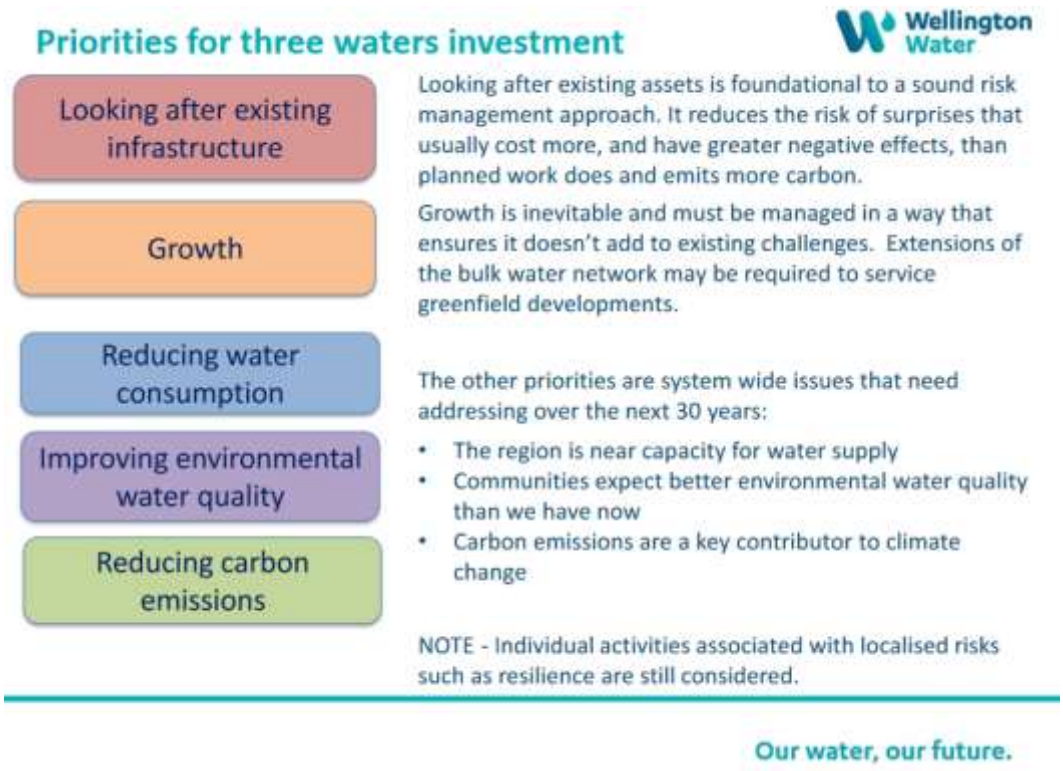
Each of the four areas described above have *actions* that are critical to achieving the overall objective. Growth in Hutt City is envisaged under the WRIP as one where the future grows technology related industries; provides for satellite operations which are closely aligned with technological innovations; focusing on the Wellington Region's cultural life by ensuring provision is made for arts, heritage, sport, and recreation.

While a large focus on the WRIP is on a *precincts approach* that provide for both working and living environments resulting in more intensification closely linked to transport corridors, it recognises that it also makes sense to *utilise existing infrastructure* (the three waters) in established areas wherever possible. Therefore, in respect of any greenfield development the priority is to identify how those areas can:

- Enhance liveability;
- Enhance multi-modal transport infrastructure; and
- Connect into existing infrastructure.

To give effect to this approach, a review of infrastructure capex was undertaken by Wellington Water and it found that an *annual regional investment* of $240 million is required, compared to $140M in 2020. The reviewer (Water Industry Commission of Scotland) concluded it as being higher, requiring between $300M-$350M in capex annually. This is in conjunction with a 30% increase in forecasted operational costs to maintain existing levels of service and being able to respond to new standards (e.g., water quality) adds additional pressure to operational budgets. The WRIP report advised that *"Wellington Water recognises that this is desirable, but not affordable – clearly councils must prioritise, especially in view of the economic impact of Covid-19."*

Wellington Water's priorities for the three waters investment is shown below:



The WRIP recommends the following:

1. Investment to keep up with renewal requirements;
2. Renewals to continue to be funded at a rate that does not create a future backlog; and
3. Conserve potable water and build new supplies as a last resort through reducing network and private leaks.

These recommendations will represent a 20% increase on the current operational costs.

The WRIP notes that the investment for this work needs to come from across the region as well as from other key stakeholders. It also states that *greenfield development*, should be a "*lower priority as a result of their lower return on investment as development costs are high."*

The WRIP has identified three areas that are the subject of this report for greenfield development potential between 2018 - 2048 acknowledging that they will require some form of infrastructure development to enable them to happen. The yields indicated in the WRIP for these three sites align with Hutt City Council's own expectations for these sites as follows:

- Wainuiomata providing 120 new sites within the *short term* and 1,600 new sites within the *medium term*; and
- Kelson 220 new sites within the *short term*; and
- Stokes Valley with possibly 80 new sites within the *short term*.

The infrastructure projects and timeframes across the region have been specified in the WRIP[10] and those projects impacting Hutt City are shown in the table below:

Years 1 – 3 (2018 – 2020)		Years 4 – 10 (2021 – 2028)		Years 11 – 30 (2029 – 2048)	
Strategic road projects					
Ngauranga to Petone	$58M	Riverlink (flood protection, transport and urban form)	$330M	Petone to Grenada Cross Valley connection	$270M $65M
Strategic public transport projects					
Rail track upgrade	$197M	Integrated ticketing	$60M	Replacement of trains for Wairarapa Connection	$330M
Wastewater Projects					
Hutt main trunk expansion	$27M	Seaview treatment plan trunk duplication	tbc		
Water Supply Projects					
Hutt reservoir upgrade	$12M				

Figure 6: Wellington Regional Infrastructure Plan Infrastructure Hutt City Projects & Timeframes for 2018 – 2048

2.2.4. Greater Wellington Regional Council Public Transport Plan 2021 - 31

Hutt City is serviced by several public transport options including commuter railway connections to the Melling Line and the Hutt Valley Line; and high frequency (10 – 15 minutes daytime) and standard frequency (30 – 60 minute all day) bus routes. Currently, the three study areas are serviced by the following public transport modes:

- Upper Kelson: 150 standard bus route
- Upper Fitzherbert, Wainuiomata: 160 standard bus route
- Shaftesbury Grove, Stokes Valley: 120 high frequency bus route

The Public Transport Plan 2021 – 31 identifies the following opportunities in Hutt City to increase mode shift to public transport:

- Continued progress on the River Link project
- Fast-tracked Crown investment in Te Ara Tupua (Petone to Melling – underway)
- Building on the success of the Wainuiomata shared path and continuing progress on the cycling

[10] These projects have been updated since the publication of this document by Wellington Water and are discussed later in the report under each of the greenfield development areas

network (Eastern Bays, Beltway[11]), multi-modal cross-valley connections, and Petone to Ngauranga cycleway
- Nodal development and improved multi-modal access to train stations
- Preparations for double-decker buses on network

In addition, the Public Transport Plan 2021 – 31 is looking to improve existing bus routes as follows:

- Routes 120 and 110: Extending the Stokes Valley route (120) to Petone and inter-working it with the Upper Hutt to Petone route (110) to provide a high frequency of 7.5 – 15 minutes at all times between Avalon, Hutt Hospital, central Lower Hutt and Petone; and

- Routes 160 and 170: Looking at operating either Route 160 (Wainuiomata North) or 170 (Wainuiomata South) to and from Petone Station via Gracefield (with the other route continuing to serve Waterloo Station and Lower Hutt) provided that customers would be able to transfer between the 160 and 170 in Wainuiomata, so that customers in both route catchments (Wainuiomata North and Wainuiomata South) would benefit from improved access to the additional destinations; or operating a single high frequency route through the most well patronised parts of Wainuiomata, to replace both Routes 160 and 170, supported by an on-demand service to serve parts of the community that are no on that new route

GWRC's Long Term Plan (LTP) 2021 – 2031 sets out how the improved public transport services will be achieved. Some of the key transport projects funded in the LTP include:

- National ticking (to be completed by 2023/24)
- Melling and Waterloo stations re-development (2024/25 and 2026/27)
- Rail timetable frequency increase for the Hutt Valley Line (from 2023 onwards)
- Real time information (to be completed by 2026/27)
- Decarbonisation of all core bus services (to increase electric buses by 111 by 22/23)

The projects in the LTP for public transport across the region over the ten years represents an investment of $1.8 billion.

2.2.5. National Land Transport Programme 2021 – 2024

In September 2021 the government announced a $1.2 billion increase in the Government's transport funding priorities for the Wellington region and set out in the National Land Transport Programme (LTP) 2021 - 2024. The projects that are being funded include:

- Implementation of demand management technology
- Government reduced public transport fares scheme
- Real time information system replacement
- Bus stop accessibility improvements
- SuperGold card allocations
- Longer distance rolling stock and service improvements business case
- Low cost/low risk improvements to the roading network (road to zero)
- National ticketing solutions implementation (probably not confirmed in the LTP)
- Streets for People implementation

[11] The Beltway Project is an off-road sealed cycleway from Waterloo Railway Station to the River Trail at Taita. When fully completed, it will connect the Wainuiomata Hill and Eastern Bays Shared Paths.

- The Beltway implementation; and
- The Hutt City Cross Valley Connection business case

2.2.6. Wellington Regional Land Transport Plan 2021

Waka Kotahi have committed to a number of activities as set out in the Regional Land Transport Plan 2021 as provided for in the NLTP noted above. Those activities include:

- Completing the networks of connected cycleways and shared pathways in Hutt City including the Wainuiomata Hill shared path, Eastern Bays shared path, and the Beltway cycleway
- Upgrade programme on State Highway 2 at Melling with potential interim at-grade solutions to address safety and efficiency issues for all road users

2.2.7.Wellington Regional Three Waters Capacity Assessment – 2021

The Wellington Regional Three Water's ('WRTW') capacity assessment reports on the three water's networks in Porirua City Council, Hutt City Council, Upper Hutt City Council and Wellington City Council. Kāpiti Coast District Council runs its own networks. The WRTW 2021 report identified that the existing networks are generally in poor condition with significant capacity constraints. There are deficits in levels of service (LOS) and the standards that are required to be met through consenting requirements.

Development taking place out of sequence is not generally supported due to sub-optimal solutions which are often temporary in nature and may increase operational and maintenance costs.

The 2021 WRTW report updates the 2018 report and is based on updated funding plans outlined in Council's 10 year Long Term Plans (LTP) 2021 – 20131 and 30-year infrastructure strategies (2021 – 2051).

The following limitations applied to this updated assessment:

- No specific hydraulic modelling had been undertaken;
- Excludes any private infrastructure or mitigations;
- Excludes sizing or scale of infrastructure needs; and
- Excludes feasibility of providing development infrastructure

The 2021 WRTW report include a greenfield development area assessment as requested by TAs. The report summarised the existing levels of service for each of the three waters in Hutt City as they relate to the three greenfield sites as follows:

Drinking Water:

a. **Kelson**: Yes - infrastructure ready in the short, medium and long term for both the network and storage. there is capacity in both the network and water storage in Kelburn;

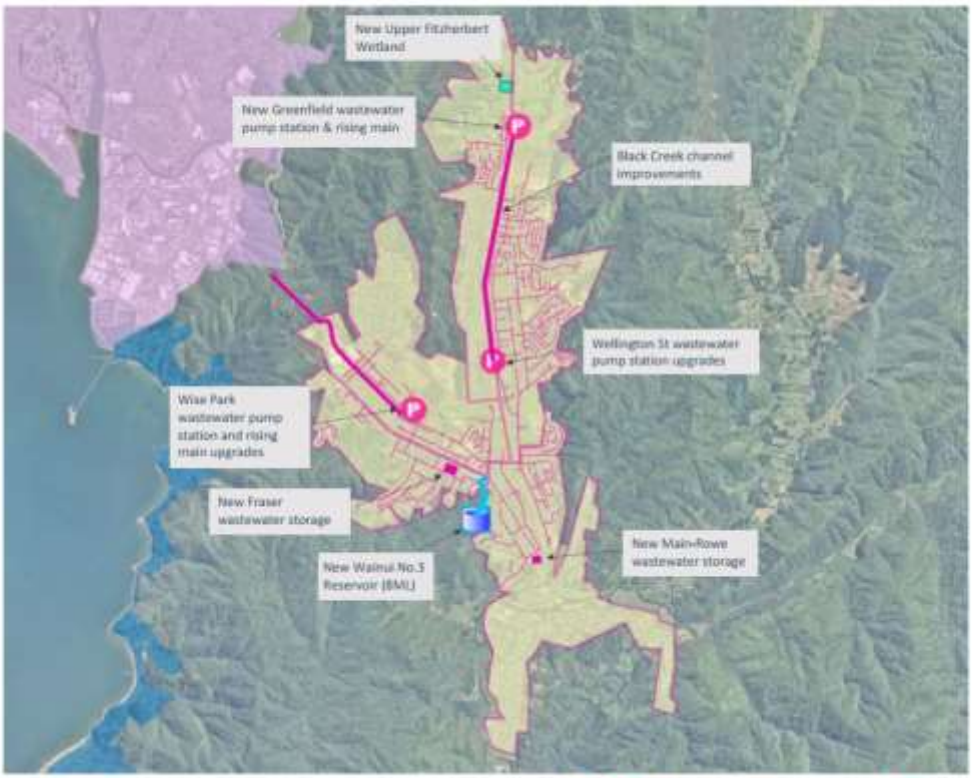
b. **Taita North** (includes Shaftesbury Grove area): Yes – infrastructure ready in the short, medium and long term for the network but not for storage. There is both water storage shortfalls and water pipe network shortfalls in this area.

Water Storage Area	Infrastructure Ready Development Capacity			Comments	Review of Infrastructure Ready Capacity: (1) Assessment of 2017-2021 projects to increase capacity. (2) Review of 30-year investment strategy
	Short Term	Medium Term	Long Term		
Liverton (upper Kelson)	N: Yes S: Yes O: Yes	N: Yes S: Yes O: Yes	N: Yes S: Yes O: Yes	Network: There are current areas of low pressure in the zone, but the network can accommodate projected growth as those existing low-pressure properties are not significantly affected by growth. Storage: The storage is sufficient for the dwellings predicted for 2047.	(1) No completed projects. (2) No capacity investment planned in 30-yr infrastructure strategy.
Taita	N: Yes S: No O: No	N: Yes S: No O: No	N: Yes S: No O: No	Network: The model indicates that the network can accommodate forecasted growth. Storage: There is a shortfall for the operational criteria.	(1) Taita Reservoir seismic upgrades. (2) No capacity investment planned in 30-yr infrastructure strategy.

Figure 7: HCC Drinking Water Infrastructure Ready Capacity Summary by WSA (Source: Wellington Water, 2021)

c. **Wainuiomata West**: Not infrastructure ready in the short or medium term but a new 8.0 million litre reservoir and pipe upgrade was budgeted for completion by 2033. While the network has capacity, there are water storage shortfalls existing in Wainuiomata which will constrain the pace of growth and ability to maintain a desired levels of service.

HCC Wainuiomata Growth Study (2020)
Proposed 3-Waters Infrastructure



Source: Wainuiomata Growth Study (GHD, 2020), prepared for Hutt City Council to support 30-year infrastructure and investment planning.

Wellington Water HUTT CITY

December 2020

Wastewater

The wastewater in the Hutt consists of a trunk network passing through the Valley coming from Upper Hutt which continues onto the Seaview wastewater treatment plan (WWTP). The network is hydraulically constrained by the wastewater outfall from the Seaview WWTP resulting in the need for increased wet weather storage to meet consent limits on discharges. The wastewater constraints for the three greenfield sites are summarised below:

a. **Wainuiomata:** not infrastructure ready in the short-term but is likely to be ready in the medium to long term. There are constraints in the current network performance, due to high levels of inflow and infiltration, limited storage, greenfield servicing and restrictions in transferring wastewater over the Wainuiomata Hill;

b. **Rest of Lower Hutt:** Not infrastructure ready in the short, medium or long-term based on capacity issues with the wastewater network including the trunk sewers which require pipe renewals and Seaview WWTP capacity upgrades. Trunk network modelling is currently underway to determine investment plan.

Wastewater Catchment	Infrastructure Ready Capacity			Comments	Review of Infrastructure Ready Capacity: (1) Assessment of 2017-2021 projects to increase capacity. (2) Review of 30-year investment strategy
	Short Term	Medium Term	Long Term		
Wainuiomata	No	Yes	Yes	There are significant constraints in Wainuiomata wastewater catchment. The system is constrained in local and trunk network and throttled by capacity of Seaview WWTP and outfall. There are existing overflows in this catchment. A suite of upgrades and mitigations are required to manage overflows in this catchment. Greenfield developments will require further servicing plans.	(1) Recent Wainuiomata wastewater pipe renewals. (2) Wastewater upgrades have been included in LTP and investment strategy. New wastewater storage will be constructed to meet medium-term growth. Pump station and rising main will be upgraded to meet long-term growth.

Stormwater

The Lower Hutt Valley and Wainuiomata Valley are both subject to extensive flooding due to runoff from surrounding hills and flat land which is difficult to drain by gravity. Options to address flooding that will require significant intervention and options for further investment are currently being investigated. The assessment on infrastructure -ready has therefore been based on the investments proposed in the 30-year investment strategy and are as follows for the two of the three areas that are the subject of this report:

a. **Wainuiomata:** yes - will be infrastructure ready in the long term with upgrades to Black Creek channel;
b. **Stokes Valley**: no – not infrastructure ready. There is no catchment data currently available, and no major investments are currently planned;
c. **Kel**son: no – not infrastructure ready although there are two streams readily accessible that currently take the Kelson suburb stormwater flows. Capital expenditure for attenuation and silt control would be a low development cost.

The Hutt City Council Three Waters Growth Study 2022 updates this work further (refer to section 2.2.8 below for more detail on this Growth Study)[12].

2.2.8. Hutt City Council Three Waters Growth Study 2022

These areas were the subject of a more recent assessment undertaken by Wellington Water in conjunction with Hutt City Council's District Plan team to review four further potential greenfield areas[13]. The advice of Wellington Water was provided to Hutt City in its document, *WWL Greenfield Area 3 Three Waters Assessment*.

The six areas covered by this assessment were Kilmister Block, Western Hills, Belmont/Normandale Rural Residential Area, Moores Valley, Wainuiomata, Stanley Street, Wainuiomata, Coast Road 1/North; and

[12] Hutt City 3W 2022 Growth Study Report can be found here: https://hccpublicdocs.azurewebsites.net/api/download/51ad0c57ebdc4a1c80f6b7f6fed5ff84/_CM9-WE/28547e31890dc2443b3bf1fd2c2c43f0e55

[13] These six areas did not include the three areas that are the subject of this report.

Coast Road 2/South. The Three Waters assessment of these six areas found that there were significant limitations for greenfield development, and they were not recommended to be prioritised for detailed planning work or other commitments to infrastructure. However, the report did leave open the option for specific proposals to be considered.

The key findings of this assessment are set out in the Council report and summarised below for each area:

Potable Water

- There is a shortfall in water storage in Wainuomata and Stokes Valley required to meet growth forecasts
- There is a predicted 8.0ML shortfall of storage volume in Wainuiomata with growth to meet seismic and operational (peak daily demand) levels of service. This will mean almost doubling the current storage volume in this area. Approximately half of this storage volume is needed to meet current population and demand levels and the other half relates to predicted growth in existing areas and new greenfield
- There is a forecast shortfall in Stokes Valley, as a result of two new reservoirs are required in Stokes Valley – a 1.5ML reservoir in Holborn to service greenfield growth in the short term and a 1.2ML in Delaney in the long term. Both reservoirs address storage issues in Stokes Valley due to growth.
- No major investment is required in the Western Hills as the shortfall in this study area is small and options available for construction of a new reservoir are limited. It is recommended that new greenfield development totalling 370 lots (defined by the ZMP (2020) be fed by the existing Liverton Reservoir

Wastewater

- Stokes Valley experiences wastewater capacity constraints resulting in overflows due to the relatively small diameter pipe section at Stokes Valley Road; and
- Wise Park pump station is a significant constraint on the network in Wainuiomata. As water levels at the is pump station rise, the Wainuiomata and Wellington Road pump stations progressively shut down through Remote Telemetry Control operation to minimise the risk of wet weather overflows. A future upgrade of Wise Park pump station is required; and
- The Seaview Wastewater Treatment Plan (WWTP) receives flows from Upper and Lower Hutt and Wainuiomata. Passing forward additional flows from Wainuiomata will increase the frequency and volume of wet weather overflows at WWTP as there are limitations on the capacity of the outfall. The preferred approach is to improve infrastructure up the line in the interim with a future upgrade to the WWTP within a 2033 planning horizon. Within the 2050 growth horizon additional wastewater infrastructure improvements will include the duplication of the gravity line from Wainuiomata to Gracefield, further inflow and infiltration work and the Wellington Road Pump Station upgrade.

Stormwater

- Black Creek in Wainuiomata is a modified channel was originally designed to convey a 1 in 50 year average recurrent interval (ARI), however a hydraulic study undertaken in 2004/2005 found the channel has less than a 1 in 30 yr ARI capacity; and
- Preferred options in Wainuiomata through to 2033 are a new detention wetland in northern greenfield, Black Creek and Parkway widening and Lees/Fraser and Upper Fitzherbert Pipe upgrade.

Wellington Water is working towards identifying infrastructure constraints and timeframes and costs for upgrades within each of the three greenfield development areas and where this information is available it is set out in Section 3 of this report.

A key recommendation of this report is for Hutt City Council to identify preferred areas and staging of growth within Lower Hutt to better enable prioritisation of spend on three waters infrastructure. Through future growth projections, a programme level business case by Wellington Water can proceed to support investment in the Seaview wastewater system including trunk and Seaview WWTP and outfall.

2.2.9.2012-2032 Urban Growth Strategy (for Hutt City Council)

The *2012 – 2032 Urban Growth Strategy* had set a target of providing for growth for at least 110,000 people and 3,530 new homes in Hutt City by 2032. The 2012 – 2032 Urban Growth Strategy gave direction on providing development in the three areas that are the subject of this report.

The goal of the Urban Growth Strategy is to invigorate new growth (both business and residential growth) in Hutt City while also ensuring that provision is made for the underlying growth. This goal is underpinned by five key principles as set out in the table below.

GOAL	MEANS
Capacity and demand for great living and a thriving commercial sector	The city is a sought after location for residential and business development and we have space to accommodate growth. The city offers homes, an environment and amenities that nourish families and provide great New Zealand living. The city is the preferred place of business for new business, providing a vibrant economy and well-paid jobs close to home.
An economy that can compete in our world in 2040	Our economy has managed the shift to a service economy based on science, knowledge, technology and creative industries, and we host fierce innovators. We grow, retain and attract people and talent that create a critical mass of smart people that will reinforce our knowledge, technology and creative-based service economy and attract "smart" businesses.
Thriving and distinctive centres that anchor Hutt City	Our thriving business and retail centres are distinctive and memorable public spaces, with quality, well-designed buildings. The Central Business District and Petone are recognised as the heart of the city, anchoring our sense of place and are regionally significant centres of commerce and great living.
Fantastic recreational opportunities, the natural environment, and character urban environment underpin Hutt City's quality of life	Fantastic recreational opportunities, the natural environment and character urban environment underpin Hutt City's quality of life and make this an attractive place for new households and businesses to develop.
A city that is connected, driving opportunities for commerce, living and playing	The city and its major centres have efficient and resilient connections to the region, driving opportunities for commerce to become more efficient and grow, opening new areas for development, and helping ensure adequate mobility in times of natural disasters and emergencies. The transport network contributes positively to our social mobility and ability to get to places to enjoy recreational activities.

Figure 8: Hutt City Council Urban Growth Strategy 2012 Principles

2.2.10. Hutt City Council's 2019 Housing and Business Development Capacity Assessment (HBA); and Updated May 2022[14]

Hutt City Council completed its Housing and Business Development Capacity Assessment (HBA) at the same time as Wellington City, Porirua City, Kāpiti Coast District and Upper Hutt City with the report being published in November 2019. The report determined the housing demand by term (short, medium or long-term) over the next 30 years to 2047. This is a requirement of the NPS-UD. A review had to be completed by 31 July 2021 and this was recently published in May 2022. The HBA 2022 update report work on one growth projection using Sense Partners medium growth forecast. The earlier 2019 HBA report referenced two growth scenarios being:

[14] *Housing and Business Capacity Assessment (May 2022) technical report prepared in support of Plan Change 56 (accessible here: https://hccpublicdocs.azurewebsites.net/api/download/aa878a8cd5734b8c8e8fd71084aa3044/_districtplann/48fb7de5125a3494ea29f6ae5d2f1b969ac)*

- Medium growth projection using Forecast .id growth series projection (equivalent to Statistics NZ medium growth series); and
- High growth series project using Statistics NZ high growth series projection.

Based on the two growth scenarios, the 2019 HBA report stated that Hutt City will need to provide for between 5,233 and 9,606 dwellings by 2047. Adding a 15 – 20% buffer to those numbers, as required by the NPS-UD means that Hutt City will need to provide for between 6,105 and 11,256 dwellings by 2047.

The May 2022 report updated the growth rate predictions and assessed demand for residential dwellings based on the Sense Partner's medium growth forecast. The growth projections under the May 2022 update almost tripled that set out in the 2019 HBA and indicates that Lower Hutt will need to provide for 24,773 dwellings by 2051 which included a 'competitiveness margin' of 15 – 20% as required by the NPS-UD.

The May 2022 update report modelled available capacity in greenfield areas and infill and redevelopment capacity, and found that Hutt City has feasible development capacity for 16,847 residential dwellings made up of:

- 15,944 feasible infill and redevelopable dwellings; and
- 903 greenfield sections[15]

Under the medium growth scenario, Hutt City has insufficient development capacity to meet demand over the 30-year time frame with a realisable capacity meeting only 68% of demand, with a projected shortfall of 7,926 dwellings. According to the HBA 2022 report, Council's Plan Change 56, and other reviews of the District Plan would provide further opportunities to increase residential development capacity.

The modelling for the residential development capacity utilised the 2018 Wellington Greenfield Feasibility Development Model and was updated in 2021. The 2021 Wellington Greenfield Feasibility Development Model calculated the commercial feasibility of developing new residential sections on greenfield land currently zoned for residential development in Hutt City. The 2018 Wellington Greenfield Feasibility Development model looked at the following inputs:

[15] The number of feasible greenfield sections was substantially reduced to 903 greenfield sections under the 2022 update report and excluded any greenfield land not currently zoned General Residential.

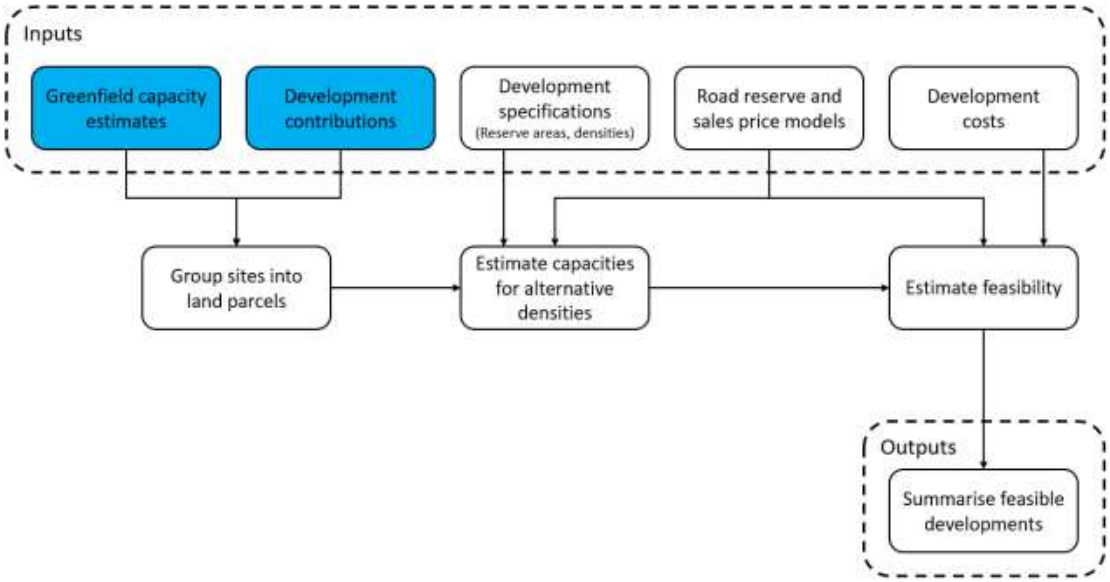


Figure 9: Greenfield feasibility model workflow (source: Wellington Regional HBA (November 2019)

In the HBA 2018 model, some of the greenfield sites which were included had been signalled for future urbanisation but had not had a zoning change at the time of the report being written, and included land in the Upper Fitzherbert area of Wainuiomata ('Pencarrow') and Kelson ('Belmont') and Shaftesbury Grove ('Northeast') being the three sites that are the subject of this review. The earlier 2019 HBA report identified up to 2,210 *plan enabled* greenfield residential sites, of which 1,316 were considered to be *feasible* (see table below for the breakdown of these figures).

	Plan Enabled	Feasible
Pencarrow	1806	1000
Eastbourne	38	38
Belmont	272	251
Northeast	94	27
Central	0	0
Petone	0	0
Total	**2210**	**1316**

Table 3.13. Plan enabled and development feasible sections in Hutt City greenfield sites by catchment (as shown in Figure 3.1).

Figure 10: Plan enabled and feasible greenfield development areas (source: HCC 2019 HBA report)

Whereas the updated May 2022 HBA report calculated only 908 feasible greenfield sites. This report relied on the 2021 Wellington Greenfield Feasibility Development Model which only assessed greenfield sites with an existing *general residential* zoning in the Operative District Plan and excluded all the land in Kelson, Stokes Valley and Wainuiomata.

The May 2022 feasibility assessment criteria also adjusted so that *feasibility* was based on a 50% increase to house sales prices; a 10% increase to development costs, and land purchase costs 50% above the 2019 CV values.

The assumption for feasibility is based on a profit margin of 20%. Table 11 in the Property Economics report (refer Appendix 3.3 of the 2022 HBA report) shows the profit levels required for each combination of typology and development option are realisable by the model:

TABLE 11 – DEVELOPER REALISABLE PROFIT RATES

	Comprehensive Developer	Infill Developer	Infill Owner
Standalone	20%	17%	25%
Terraced	23%	20%	28%
Apartment	32%	28%	39%

Source: Property Economics

Figure 11: Realisable profit margins based on housing typology (source: Property Economics, Appendix 3.3 - HBA 2022)

Table 3.10. Plan enabled and development feasible sections in Lower Hutt greenfield sites by catchment.

	Plan Enabled	Feasible
Wainuiomata	648	547
Western Hills	280	280
North	76	76
Total	1004	903

Figure 12: Table 3.10 taken from the 2021 Wellington Greenfield Feasibility Development Model

The updated model shows that Lower Hutt City currently has only 903 greenfield plan enabled and development feasible residential sections in the following areas::

- 280 sections of "plan enabled and feasible" sections in the Western Hills (and did not include Upper Kelson area); and
- 547 'plan enabled and feasible" sections in Wainuiomata (and did not include rural zoned land in Upper Fitzherbert, Wainuiomata); and
- 76 plan enabled sites in the North (and did not include the site at Shaftesbury Grove in Stokes Valley)

The 2022 HBA report found that realisable development capacity is insufficient to meet project demand over the 30 years to 2047. The shortfall is 7,926 dwellings based on projected demand. Capacity only represents 64% - 68% of demand. The table below provides a further breakdown of housing sufficiency across the short, medium and long term:

Table 3.17. Demand and realisable capacity comparison over time.

	2021-2024	2024-2031	2031-2051
Demand	2,921	6,788	15,064
Surplus Capacity	13,926	7,138	-7,926
Sufficient?	Yes	Yes	No

Figure 13: Demand and realisable capacity for Lower Hutt City 2021 - 2051 (source: HBA 2022)

2.2.11. Hutt City Council's Housing Needs Research Report (2019)

In 2019 Hutt City Council commissioned a research paper on housing needs in the City[16]. That research paper identified that the greatest demand for housing will be coming from renters. The greatest overall demand while still being for standalone housing will be closely followed by multi-unit housing for renters. According to the research paper, "between 2018 and 2038, approximately 50% of the growth in demand is projected to be for multi-unit dwellings." Changes in demographic profile of households suggest owner occupier demand for standalone dwellings will decline because of a greater proportion of older one person and couple only households.

Critical to meeting housing demand across New Zealand and in Hutt City is housing affordability. According to the research paper, over the last 17 years house prices have increased over three times faster than household incomes and rents have increased at a slightly faster rate than incomes. According to this report, *"when compared to 2001, it takes between four and eight percentage points more of medium household income to affordably pay the lower quartile and medium market rent in Hutt City. The cost of affordably servicing a loan to buy a dwelling at the lower quartile house sale price has increased 47 percentage points."* The cost of housing is directly correlated to stress experienced by whānau and hāpu when they pay more than 30% or more of their gross household income in rent. The research report has found that Hutt City's relative level of housing stress (79%) is higher than Greater Wellington (54% of all renters), Porirua (68% of all renters) and Masterton (67% of all renters).

The relative level of housing need is expected to increase in Hutt City as the projected increase in the number of older one person and couple only renter households aged 65 years and older. As these relatively fixed low-income households increase as a proportion of all renter households, the level of housing needs will increase.

Assuming rents and household incomes increase at approximately the same rate between 2018 and 2038 the projected housing need by 2038 for renters is expected to be 82%. According to the research report, 1,730 new households will be required to meet demand in the short to medium term (i.e the next ten years). And within that time period the highest demand will be within the central city (530 new households or 30%); and this is followed closely by demand in the Pencarrow – Wainuiomata statistical area which has a unit subarea of 420 new households (increase of 24%). The Belmont statistical subarea is predicted to require 320 new households (increase of 18%). In the North-East statistical subarea, which includes Stokes Valley the predicted household growth in the short term is for 280 new households (increase of 16%).

[16] Hutt City Housing Needs Research Report (June 2019)

Figure 2.1: Subarea boundaries

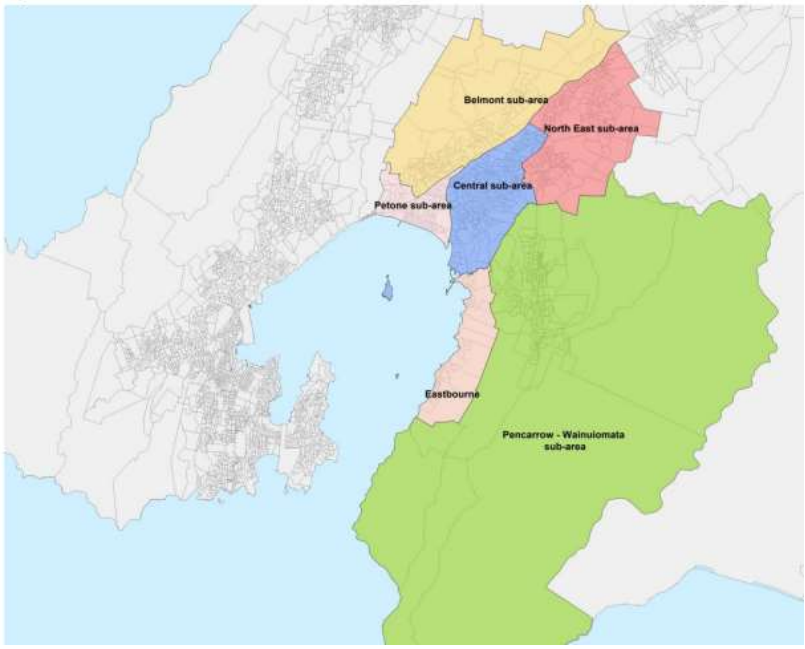


Figure 14: Statistical subareas for identifying projected growth in households (source: Hutt City Housing Demand and Need Research Report. July 2019)

In the medium to longer term (the following ten years) a further 1,800 households will be required. The highest demand for new households is projected to come from within the central city area (560 new households being an increase of 31%); and this is followed closely by the Petone – Eastbourne statistical subarea of 350 new households (increase of 19%). Pencarrow- Wainuiomata statistical subarea will require 290 new households (an increase of 16%); Belmont statistical subarea will require 320 households or 17%; and the North East statistical subarea will require 270 households or 15%.

Table 3.6: Projected growth in households by subarea

	Belmont	Central	North East	Pencarrow - Wainuiomata	Petone-Eastbourne	Hutt City
2018	4,820	11,800	8,400	6,180	6,360	37,600
2023	4,890	12,070	8,520	6,440	6,530	38,450
2028	5,020	12,330	8,680	6,600	6,700	39,330
2033	5,180	12,610	8,830	6,750	6,870	40,220
2038	5,340	12,890	8,950	6,890	7,050	41,130
Change						
18 to 28	200	530	280	420	340	1,730
28 to 38	320	560	270	290	350	1,800

Source: Modelled based on data from Hutt City, Forecast.ID and Statistics New Zealand
NB: Numbers are rounded to the nearest 10 in the modelling

Figure 15: Source: Hutt City Housing Demand and Need Research Report. July 2019)

The Housing Demand research paper found that out of Hutt City Council's suburbs, Belmont (which includes Upper Kelson), North East (which includes Stokes Valley) and Pencarrow-Wainuiomata all have proportionally fewer jobs relative to the number of households living in the area. This means that many of the residents in these areas will be commuting to work from their homes either in a private vehicle or using public transport.

The research report also identified the key rental price points[17] and established the number of renters unable to *affordably*[18] pay the median market rent in all subareas. It found that 68% of renters were unable to pay at $450 a week being the median market rent; and 62% were unable to pay the lower quartile rent.

Home ownership also identified the least affordable subareas as being the Central location followed closely by the Northeast subarea. The report found that over 78% of renters are unable to affordably purchase a dwelling at $420,000 (the Lower Quartile House Price) in Hutt City. This increases to almost 89% of renters at a sale price of $550,000.

The research report found that the unaffordability and high level of housing stress documented in Hutt City has correlating negative social, health and other outcomes including:

- Making up 22% of all children living below the poverty threshold in the Wellington Region; with the highest number living in North East and Pencarrow- Wainuiomata subareas; and they are also more likely to be of Māori and Pacifica descent than the greater Wellington average; and
- Proportionally higher levels of criminal offending per head of population than greater Wellington, being 22% of the region's recorded offending with the trend across family violence, violent crime and property offences. The highest relative levels of offending within the city occur within the Central and North- East subareas; and
- On average, the total benefits paid to a household in Hutt City was 6% higher than in greater Wellington; with the average benefits highest in the North East subarea, followed closely by Pencarrow- Wainuiomata; and
- Typically, admissions to hospital are 57% higher in the North East subarea than for greater Wellington region; and 42% higher in Pencarrow – Wainuiomata subarea. Overall, Hutt City residents have 34% higher levels of ear, nose, throat and respiratory system admissions than the average for greater Wellington. Levels of admission across all common disease and illness areas (respiratory, skin infections, cardiovascular, dental, and injury) are highest in North East subareas followed closely by Pencarrow-Wainuiomata;

Based on the HBA and Research Paper commissioned by Hutt City Council, potential greenfield development is necessary in all three locations to address housing affordability reviewed in this report and to achieve predicted demand in households in both the short and medium terms.

All new greenfield development will need to reflect the changing population demographics and housing typology required which will see the strongest growth occurring in households with people aged 65 years and over for two bedroom standalone and multi-unit dwellings. Strongest demand by housing typology are as follows:

- For owner occupiers - 2 bedroom standalone and multi-unit dwellings; and
- For renters in 3 bedroom standalone dwellings and 2 bedroom multi-unit dwellings; and
- Affordable rent or mortgage repayments capped at a key rental price point of 30% of a household's gross household income

[17] These were as of 2018
[18] The report defined "affordability" as, "a household can affordably rent or buy a dwelling if it spends no more than 30% of its gross household income on housing costs."

2.2.12. Hutt City Council Long Term Plan 2021 - 2031 and Infrastructure Strategy

The Hutt City Council Long Term Plan 2021 – 2031("LTP") has been finalised. It contains, as required by the NPS-UD an Infrastructure Strategy, investment options that will be required to support greenfield development identified within the Wellington Regional Growth Strategy and includes infrastructure to support the three field greenfield development areas that are the subject of this report.

The infrastructure identified in the LTP and/or Infrastructure Strategy is deemed to meet the definition of *infrastructure ready* under the NPS-UD.

The LTP 2021 – 2031 has committed $528M over the 10-year period to deliver high quality, fit-for-purpose three waters infrastructure including to provide for infrastructure for future growth and relieve stress on existing assets. The following Three Waters infrastructure expenditure has been committed to in the HCC's LTP:

- Increased funding of $331M for asset renewals
- Sustainable Water Supply Works: capital expenditure funding of $36M of operational expenditure funding of $11M. This includes reservoir and network upgrades to support growth; and network pump station and reservoir upgrades to improve levels of service;
- Healthy Urban Waterways: capital expenditure funding of $29M and $8M of operational expenditure funding. This includes capital wastewater projects to meet additional demand from growth; and capital wastewater projects to improve the level of service; and capital wastewater projects to replace existing assets. It also involves upgrades to the stormwater network to meet additional growth, improve levels of services and replace existing assets.
- Reducing carbon emissions: capital expenditure funding of $53M and $3M operational expenditure

The LTP 2021 – 2031 has committed $406M of capital investment over the 10 year period to encourage people to get out of cars and walk, cycle or use other micro-mobility modes of transport; to improve connectivity; and to ease access in and out of the city. The following transport expenditure has been committed to in HCC's LTP:

- $199M on Cross Valley Transport Connections; $30M on the Eastern Bays Shared Path; and $67M on cycling and micro mobility
- 25% increase of $15M (from $76M to $91M) for road resurfacing
- $6.2M increase to $11M on traffic safety
- Increase of $2.3M to $4.7M for footpath renewals

The Council's Development Contributions Policy was reviewed as part of preparing the LTP. The review estimates an increase in revenue from development contributions of approximately $27.5M over the period of the 10 year plan.

2.2.13. Resource Management (Enabling Housing Supply and Other Matters) Amendment Act and Plan Change 56 to the Hutt City Council's District Plan

Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021

On the 19 October 2021, the government released more enabling legislation to support housing supply through the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021. The Act was prepared in response to New Zealand being one of the most expensive housing markets relative to income in the OECD.

The Act requires that new medium density standards apply to *all residential zoned* lots except where qualifying matters exclude sites. The medium density residential standards will enable development of up to three dwellings on an allotment from August 2022 except where:

- A qualifying matter applies;
- The council has proposed more permissive height standards; or
- For Large Lot Residential Areas

The National Planning Standards provide specify zoning based on housing types as follows:

Zone name	Description
Large lot residential zone	Areas used predominantly for residential activities and buildings such as detached houses on lots larger than those of the Low density residential and General residential zones, and where there are particular landscape characteristics, physical limitations or other constraints to more intensive development.
Low density residential zone	Areas used predominantly for residential activities and buildings consistent with a suburban scale and subdivision pattern, such as one to two storey houses with yards and landscaping, and other compatible activities.
General residential zone	Areas used predominantly for residential activities with a mix of building types, and other compatible activities.
Medium density residential zone	Areas used predominantly for residential activities with moderate concentration and bulk of buildings, such as detached, semi-detached and terraced housing, low-rise apartments, and other compatible activities.
High density residential zone	Areas used predominantly for residential activities with high concentration and bulk of buildings, such as apartments, and other compatible activities.
General rural zone	Areas used predominantly for primary production activities, including intensive indoor primary production. The zone may also be used for a range of activities that support primary production activities, including associated rural industry, and other activities that require a rural location.

Figure 16: National Planning Standards: Residential Zone Framework

Qualifying matters may be areas that have specific characteristics that make it inappropriate to apply the MDRS in full. A qualifying matter may exists where there is a need to balance heights, densities, and other standards of the MDRS against the need to manage those specific characteristics. Accommodating the qualifying matter must be balanced against the national significance of urban development and objectives of the NPS-UD.

These standards must be incorporated into District Plans using the new *Intensification Streamlined Planning Process* or ISPP as set out in Part 5 and Part 6 of the new Bill. This process is being followed by Hutt City Council for Plan Change 56 and is shown below:

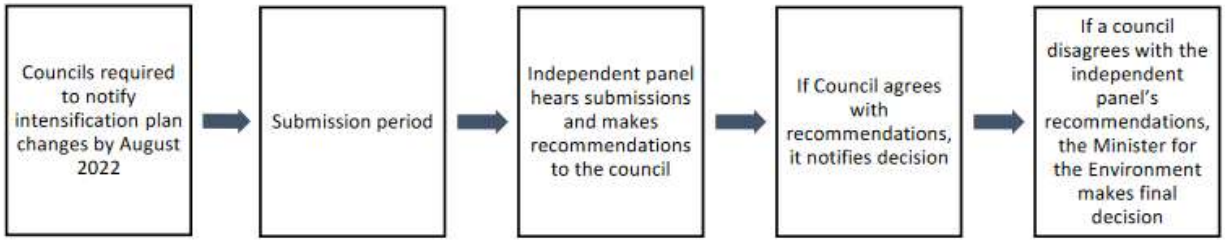


Figure 17: Intensification Streamlined Planning Process (ISPP)

The Intensification Streamlined Planning Process ("ISPP") must be completed by August 2023. Each Council will run its own individual process following the steps set outlined above. Council will be able to adopt and incorporate building and housing density changes through an intensification planning instrument ('IPI').

Proposed Change 56 – Intensification Planning Instrument

Plan Change 56 to Hutt City Council's Operative District Plan is the Council's response to the legislation to enable intensification in residential and commercial areas.

Policy 1 of Change 56 provides for the following:

"Policy 1

…. building height and density of urban form that enables:

a) as much development capacity as possible within the Central Commercial Activity Area,

b) building heights of at least 6 storeys:

i. within the Petone Commercial Activity Area,

ii. within a walkable catchment of the Central Commercial and Petone Commercial Activity Areas

iii. within a walkable catchment of rapid transit stops

iv. within the suburban centres of Avalon, Eastbourne, Moera, Stokes Valley and Wainuiomata, and

v. adjacent to the suburban centres of Avalon and Moera

c) building heights of at least 4 storeys adjacent to the suburban centres of Eastbourne, Stokes Valley, and Wainuiomata, and

d) building heights of at least 3 storeys in the remainder of the urban environment, ***excluding Hill Residential and Landscape Protection Residential Activity Areas."***

Subject to any qualifying matter, all existing residential zones in the Hutt City Council's Operative District Plan will be subject to these new medium density residential standards. A summary of the changes proposed under Change 56 is provided below:

1) A new High Density Residential zone proposes:

- Buildings up to six storeys, subject to planning permission, within 1200m from the edge of the Lower Hutt CBD; and
- Buildings up to six storeys, subject to planning permission, 800m from the Petone commercial centre and all train stations; and

- Buildings up to six storeys, subject to planning permission, in areas around Avalon and Moera commercial centres; and
- Buildings up to four storeys, subject to planning permission, in areas around the commercial shopping centres in Stokes Valley, Wainuiomata and Eastbourne.

2) New building heights and density are reduced in some areas of the city on sites with specific constraints to building. This means more development is still possible but consent from the Council will be required. Development will be constrained on the following sites:

- At risk from natural hazards like flooding, tsunami, and coastal hazards (including climate change and sea level rise) and within 20m of the Wellington fault line; and
- With heritage protection - the existing heritage protection in the District Plan will still apply. Six additional residential heritage areas have been identified and the changes propose to limit the scale of future development in these areas; and
- Of significance to Māori, including those close to marae and urupā, affected by the changes.

3) The government-mandated changes mean that the current low-density-zoned areas of Boulcott, Woburn and Lowry Bay will be included in the new intensification rules.

4) No maximum building height limit in the Lower Hutt CBD and the western part of the Petone commercial area, but most new buildings will continue to be assessed on a case-by case basis through the resource consent process.

5) Developers will be required to pay financial contributions for infrastructure and reserves, based on the number of dwellings created, not per subdivision.

6) Introduce minimum landscaping, outlook and façade glazing rules - these were optional government requirements but supported in our public feedback.

New areas of greenfield land can be rezoned as residential as part of the IPI where the MDRS apply, however none of the three sites being considered in this report have been proposed for rezoning in plan change 56 as further investigation was considered necessary.

3. DEVELOPING THE APPROACH TO ASSESSMENT OF THE CHOSEN GREENFIELD DEVELOPMENT

3.1 Council's Approach to Identifying Greenfield Development Areas

A considerable amount of work has preceded this review in developing the methodology and approach to identifying greenfield development areas in Hutt City.

At the Council's Strategic Committee Meeting, it was resolved to limit further investigations for greenfield development to the three sites that are the subject of this report.

The Council Committee resolved to identify three options for zoning of those three areas as set out in the minutes of that meeting (to right).

Discussion

13. There are three main options for zoning of potential greenfield development areas through the district plan review:

- Retain the status quo and rollover the existing rural zoning. Development can still be considered through discrete future plan changes. The downside of this approach is that there is a risk of losing development potential and quality through incremental development under the existing zoning.
- Zone the sites with a 'live' urban zoning such as *General Residential*. In this case the sites will need to be ready to develop straight away, or through a consent process. This zoning implies a commitment to infrastructure and enabling development.
- Apply a *Future Urban* zoning. This is a placeholder zone that signals that the area will be developed in the future.

DEM15-4-13 - 21/795 - Urban Form and Development - Greenfield Development Page 5

6 01 July 2021

Figure 18: Options for potential greenfield development areas. Minutes from Council Committee Meeting DEM14-4-13 held on 1 July 2021

As part of the facilitating the objectives of the City's 2012 – 2032 Urban Growth Strategy, the three areas that were identified for further investigation for greenfield growth to achieve yields are as follows:

- Increasing population growth in the Upper Kelson area of up to 40 hectares to accommodate up to 220 new households; and
- Upper Fitzherbert – Wainuiomata being an area of 138 hectares to accommodate up to 1800 potential new households; and
- Investigating the feasibility of development in the Shaftesbury Grove Area – Stokes Valley being 10.6 hectares to accommodate up to 80 new households.

Of these three areas, a significant amount of work was commissioned by Hutt Council for Wainuiomata's Upper Fitzherbert area with the publication of the 2018 Wainuiomata Development Framework. A limited amount of work has been undertaken in Upper Kelson, with the exception that Wellington Water has undertaken an initial infrastructure capacity assessment.

Further work has been pursued by the landowner of Shaftesbury Grove to scope infrastructure capacity issues and potential land redevelopment realisation through a privately initiated plan change.

3.1.1. Definitions for Density

With the policy direction of the NPS-UD driving new policies and outcomes for intensification in District Plans, definitions are being developed for low, medium and high density. For the purpose of this report, we have preferred the definitions adopted by Wellington City Council and developed by BECA Ltd in their February 2019 report, *Wellington City – Planning for Future Growth. Preliminary Baseline Scenario Development. Results and Methodology* and as set out below:

These definitions align closely with those set out in Table 3.1 of the New Zealand Land Development and Subdivision Infrastructure standards NZS4404: 2010 as set out in the table below:

LAND USE	**AREA TYPE**			
	RURAL	**SUBURBAN**	**URBAN**	**CENTRE**
LIVE AND PLAY (Residential and parks) Homes, home-based businesses, and mixed use developments with residential uses, as well as parks and low impact recreation. *Transport: These land uses primarily generate home-based and internal circulation trips (recreation, social, school and retail). Home-based work trips are concentrated at peak periods, while other types of trips are dispersed across time periods. Streets to these land uses prioritise recreation walking and cycling over vehicle movement.*	Low density, generally no more than **4 units per hectare** located outside the urban limits. *Transport: Private motor vehicles are the predominant form of transport with low trip volumes throughout the day.*	Low and moderate density housing generally up to **15 units per hectare** in an area where housing is the exclusive or dominant use. *Transport: Private vehicles are the predominant form of transport but public transport should provide peak period service on arterials and connector/collectors. Non-motorised trips are primarily recreational and occur on local roads.*	Moderate and high density housing often in combination with other uses such that combined population of residents, employees, and students is typically **50 per hectare or greater**. *Transport: A higher portion of trips are made on public transport and by walking and cycling. There is lower priority for the provision of residential parking in urban areas.*	Moderate and high density housing often in combination with other uses such that combined population of residents, employees and students is typically **200 per hectare or greater**. *Transport: Residents typically walk or cycle to nearby destinations and rely on public transport for longer trips, and they may choose not to own a vehicle. Provision for residential and commuter parking is a low priority in centres.*

HOUSING TYPOLOGIES	BECA 2019 REPORT DEFINITIONS	NZS 4404:2010 DEFINITION
	Low Density: Detached Houses 12 – 20 dwellings per hectare Average lot size: 500m^2 – 830m^2	Suburban: Low – Moderate Density 15 dwellings per hectare Average lot size: 666m^2
HOUSING TYPOLOGIES	BECA 2019 REPORT DEFINITIONS	NZS 4404:2010 DEFINITION
	Medium Density 1: Detached and Terraced Housing 40 dwellings per hectare Average lot size: 250m^2	Urban: Moderate – High Density 50 dwellings per hectare Average lot size: 200m^2
	Medium Density 2: Mid-rise Apartments up to 4 floors 60 dwellings per hectare Average lot size: 160m^2	

	High Rise 1: Mid-rise Apartments up to 6 floors 80 dwellings per hectare Average lot size: 125m^2	Centre – Moderate & High-Density Mix of Commercial & Residential 200 dwellings per hectare Average lot size: 50m^2
	Central Area: Mix of Commercial & Highrise (+15 floors) 115 dwellings per hectare Average lot size: 86m^2	Centre – Moderate & High-Density Mix of Commercial & Residential 200 dwellings per hectare Average lot size: 50m^2

3.2 Wellington Regional Growth Framework Multi-Criteria Assessment (MCA)

The Wellington Regional Growth Framework Options Assessment Report adopted a qualitative multi-criteria assessment (MCA) process which has been utilised for each of the three sites.

The key questions that are assessed using the MCA are:

1. To what extent does the urban development option increase housing supply, and improve housing affordability and choice?
2. To what extent does the urban development option enable growth that protects and enhances the quality of the natural environment and accounts for a transition to a low-no carbon future?
3. To what extent does the urban development option improve multi modal access to and between housing, employment, education and services?
4. To what extent does the urban development option encourage sustainable, resilient and affordable settlement patterns/urban form that makes efficient use of existing infrastructure and resources?
5. To what extent does the urban development option build climate change resilience and avoid increasing the impacts and risks from natural hazards?
6. To what extent does the urban development option create employment opportunities? And
7. How does each urban development option align with mana whenua housing and aspirations?

Rating	Meaning
3	Largely better – provides a considerable amount of improvement over the Base Case, so that in 30 years' time there will be a noticeably improved difference in the region
2	Moderately better – provides somewhat of an improvement over the Base Case so that in 30 years' time change is noticeable but not to a large extent
1	Slightly better – provides some but hardly any improvement from the Base Case and will not be noticeably different over the 30 year period.
0	Neutral – no discernible or positive or negative difference from the Base Case
-1	Slightly worse – is hardly, but is still somewhat, worse than the Base Case over the 30 year period
-2	Moderately worse – is somewhat worse than the Base Case so that in 30 years' time negative change is noticeable but not to a large extent
-3	Largely worse – is considerably worse than the Base Case so that in 30 years' time there be a noticeable negative difference in the region

Figure 19: Qualitative multi-criteria analysis (source: Wellington Regional Growth Fund Options Assessment Report)

The criteria for quantitative assessment requires that it be:

- *Relevant*: criteria should capture the main pros and cons of alternative options and provide information on the project objectives
- *Measurable*: it should be possible to quantify effects.
- *Parsimonious*: all things being equal, you should prefer the simplest possible explanation for a phenomenon or the simplest possible solution to a problem.

For this report we have relied on existing data to determine the impact of the constraints or opportunities on the potential for growth. Existing roading and three waters infrastructure, the projected Three Waters and transport capital expenditure projects for each area as provided by Wellington Water; and where available landscape and ecological design and reviews have been interpreted in this assessment have been relied upon.

Constraints have been developed based on known environmental and planning considerations that may affect the viability of rural lifestyle development, servicing availability and proximity to existing urban areas. The significance of each constraint/opportunity has been considered to provide gradation in the viability of specific land areas. Where known, the assessment criteria have been plotted in map form using datasets sourced from HCC, GWRC, GNS and others to create a sieve mapping set for desktop analysis thereof.

3.3 Site Constraint Analysis

The following site constraints were identified and assessed for each site:

Constraint	Information source	Description	Significance
Topography	Land Information NZ LiDAR data	Slope analysis of the existing land topography based on available contour information.	Development of steep land can incur significant costs in earthworks and retaining of cuts and fills. It can also result in accelerated erosion if earthworks are no managed appropriately. Where land that is steeper than 1:2 is generally inappropriate for development; land between 1:2 and 1:3 is considered highly constrained and land under 1:3 as being less constrained and more suitable for residential zoning
Rivers, streams and other water bodies	Greater Wellington Regional Council	Permanent or ephemeral watercourses.	
Significant Natural Areas (SNA)	Hutt City Council and or other ecological surveys	Areas of indigenous vegetation identified as potentially significant for consideration in the review of the District Plan.	Protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna is a matter of national importance under the Resource Management Act 1991 (**RMA**). Generally speaking, clearance of indigenous vegetation in SNAs "*will be discouraged*"[19]. Development within areas containing SNAs need not be precluded but should be managed to ensure the effects are addressed appropriately. Land containing identified SNA(s) are considered to be **moderately to highly constrained** depending on the extent and sensitivity of the SNA(s).

[19] Hutt City Council Operative District Plan

Outstanding Natural Features (**ONF**)	Hutt City Council	Outstanding natural features and landscapes are protected: "*The Act highlights the need to recognise and provide for outstanding landscapes. It is appropriate to also recognise locations with significant landscape values. Such areas are included within the significant natural, cultural and archaeological resources schedule, and development and activities within these areas will be restricted..*"[20]	Land within ONFs is generally not considered suitable for development given the exceptional nature of the feature. Land containing identified ONF(s) are considered to be **highly to significantly constrained** depending on the extent of the ONF(s).
Special Amenity Landscapes (**SAL**)	Hutt City Council and landscape assessments	"*The requirements of sections 6 and 7 of the Act are also supported by provisions in the following Chapters of the Plan: Residential; Recreation; Rural Residential; Rural; and Subdivision. These provisions include provision for amenity values; management of the clearance of vegetation; preserving the natural appearance of skylines; managing the siting of buildings; managing the visual appearance of earthworks; preserving the visual backdrop to the City; and recognising and providing for the coastal environment.*"[21]	The Wellington Regional Policy Statement requires the identification of landscapes considered to be 'outstanding' and 'special'. SALs are generally less natural than Outstanding Natural Landscapes but are still highly valued. Identification as a SAL will place a high degree of scrutiny would be placed on any proposal to develop land for rural lifestyle activity. Land containing identified SAL(s) are considered to be **moderately to highly constrained** depending on the extent and values of the SAL(s).
Active fault line	GNS Science	An identified fracture along which the earth's crust has moved. An active fault is considered	The management of significant risks from natural hazards is a

[20] Ibid

[21] *Ibid.*

		as a potential source of earthquakes.	matter of national importance under the RMA. Fault avoidance zones have been identified by GNS Science either side of mapped active faults. The Regional Council dataset maps sites from 1 – 5 being low to high risk from either liquefaction, slope failure proximity to an active fault. Sites rating 3 or over are considered to be **moderately constrained**.
Flood inundation areas	Hutt City Council	Areas of land modelled as being at risk of inundation from a 1 in a 100 year flood event.	Land identified as being at risk of inundation during a surface water flooding event creates a hazard to both people and property. Managing that risk either through preparatory engineering works or responding to flooding events can be costly. Land within an identified Flood Inundation Area is therefore considered to be **highly constrained**.
Potentially contaminated land	Greater Wellington Regional Council	Land identified on the Selected Land Uses Register (SLUR) where activities involving hazardous substances have or may have taken place.	Land identified on the SLUR is subject to the requirements of the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (**NES-CS**). Development of land that is subject to the requirements of the NES-CS will require investigation into the potential contamination and may require on-site remediation. Given the potential expense of remediating contaminated soils, land identified on the SLUR is considered to be **moderately constrained**.
Culturally Significant Areas; Areas of Wāhi Tapu; Archaeological sites	Mana Whenua	Land to be assessed in terms of significance by mana whenua with support from Heritage New Zealand in respect	[place holder]

	Heritage New Zealand – Pouhere Taonga	of archaeological site information (NZAASRS)	

3.4 Opportunities

The following opportunities were identified and assessed for each site:

Opportunity	Information source	Description	Significance
Roading access and transport links	HCC/NZTA/NZS4404	Existing roading networks with capacity to accommodate growth Access to high frequency public transport hubs	Zoning currently residential development will lead to a significant increase in vehicle movements on the existing road network. Where the existing road network and public transport network is in place that has both capacity and frequency, this is assessed as a benefit
Proximity to existing infrastructure and services	Wellington Water	Capacity of existing infrastructure to service development	Capacity to service development either in place or is in the Long Term Plan for construction within a short to medium term timeframe (i.e. within the next 10 years)
Opportunities for environmental/ ecological enhancement	N/A	Land where there is potential for water quality (*e.g.* stream improvement, retiring of steep slopes) or ecological (*e.g.* protection or creation of areas of native vegetation) improvements.	As such, subject to the land being considered suitable in other ways, it is appropriate to use the rural lifestyle zoning to secure environmental or ecological improvements or enhancements to the district. This might include retiring land within the harbour catchment from grazing, planting, fencing and protecting steep, erosion-prone land or gullies, fencing streams and excluding stock from areas where water quality may be adversely affected. This would need to be done in addition to utilising water sensitive urban design in the overall development; and erosion and sediment controls in the construction phase.

3.4.1. Weighting applied to Natural Hazards

The weightings applied by BECA in its WCC Growth Scenarios have been adopted this report as follows.

Greenfield Scenario

- Possible future greenfield sites were identified based on the slope table below:

Slope	Score/Class	Description
1°-31°	0	completely developable
31°-40°	0.5	semi-developable
40°-60°	0.75	mostly undevelopable
>60°	1	undevelopable

Feature	Category	Hazard Weighting
Ground Shaking	Zone 1 (Low)	0
	Zone 2	-2
	Zone 3 (Moderate)	-3
	Zone 4	-4
	Zone 5 (High)	-5
Flood Hazard	Inside area	-2
Liquefaction	Low	-1
	Moderate	-2
	High	-3
	Very High	-4
Tsunami	Yellow zone	-1
	Orange zone	-2
	Red zone	-3
Sea level rise	Inside 1.4m rise	-2
High Frequency Bus route	Within 120m of route	1
Town centre, sub regional centre, district centre	Within 320m of centre	3

Hazard weighting	High Level Zone (50k)	High Level Zone (80k)
-15 to -1	Low Density 1	Low Density 1
0	Low Density 1	Low Density 2
1	Low Density 1	Medium Density 1
2	Low Density 1	Medium Density 1
3	Low Density 2	Medium Density 1
4	Low Density 2	Medium Density 2
5	Medium Density 1	Medium Density 2
6	Medium Density 1	Medium Density 2

Hazard Weighting	Upper Kelson	Shaftesbury	Wainuiomata
Combined Total	0	0	2*
Recommended Density	Meets criteria for low density 1 (12 – 20 dwellings per hectare		Meets criteria for low density 1 & medium density 1 (20 – 40 dwellings per hectare) * Based on structure plan layout

3.4.2. Assumptions used in Feasibility Assessments

The HBA feasibility assumptions for assessing feasibility have been updated for this report (refer to Attachment 1). The main differences between the HBA feasibility model and the assumptions used in this assessment are as follows:

Costs	2019 HBA Greenfield Feasibility Model Assumptions	2021 Land Matters Ltd Feasibility Model Assumptions (updated 2023)
Site Purchases	10 – 20% of costs	20%
Earthworks	5 – 15% of total costs	Part of 25% of roading and infrastructure below
Roading and infrastructure supply	20 – 25%	25%
Development Contributions	5 – 15%	Cost per lot based on actual costs
Financing (gross profit margin)	20% (suggests that sensitivity tests of 25% or 30% could also be applied)	20% +
Land Development costs/lot (average)	$116,440	Range

Key difference between the 2019 HBA feasibility model and Land Matters 2021 feasibility model is in the cost of site purchases and infrastructure costs. However, under the 2022 HBA report, it recognised that the median price of a residential dwelling in the Greater Wellington urban environment had been rising significantly since 2016 and as of March 2022 the median price of a residential dwelling was $920,250. Since 2019, prices have risen by around 50%; and although prices are dropping, according to the updated May 2022 HBA report, residential dwelling prices were still more than double that found in 2016.

The financing costs in the HBA report include the direct financial cost to service debt or the indirect opportunity cost,; the overall development timeframe (development that take a longer time to complete have larger financing costs due to the need to hold debt for a longer period), and timing of individual expenditure.

4. UPPER KELSON

4.1 Greenfield Area Description

The area identified as potentially suitable for greenfield redevelopment in Upper Kelson is located at the end of Major Drive and Liverton Road on the western hills of Hutt City. It comprises 17 properties and encompasses an area of approximately 100 hectares of land. Access is via the State Highway 2 and Major Drive intersection. A small number of properties currently have access off the very narrow single lane Liverton Road. These same properties adjoin or are near the Winstones owned Belmont quarry and concrete manufacturing site which was established in 1920.

Upper Kelson – Western Hills

The 2012 Urban Growth Strategy identified 40 to 50 hectares of land in the upper Kelson area for future residential development.

Proposed District Plan Change 47, which recently became operative, re-zoned 7.1 hectares in Kelson from Rural Residential and Hill Residential to General Residential Activity Area. The plan change also re-zoned 5.5 hectares of land to the General Recreation Activity Area.

Following plan change 47 becoming operative there is approximately ***10 to 20 hectares of remaining rural residential land in Upper Kelson that could potentially be used for future urban growth.***

During the course of public engagement on the district plan review a number of property owners in the remaining rural residential areas of upper Kelson area have come forward requesting that their sites be rezoned from rural residential to an urban zoning. Further engagement with property owners is needed to determine the full range of views. *In addition, further information is also needed on*

The Boffa Miskell ecological assessment prepared in support of Plan Change 47 describes the environment[22]. It identifies small water catchments which flow south down a steep escarpment, under the State Highway and into Te Awa Kairangi Hutt River.

Figure 3: Water Bodies within the Study Area

[22] *Refer to Boffa Miskell Report (v2) prepared for the Private Plan Change 47 (27 November 2014) –Figure 2 being Scenario 2*

Figure 20: Partial extent of greenfield development area including recently land rezoned under Plan change 47 in Upper Kelson (source: Boffa Miskell 2014)

The vegetation across the area varies from open pasture (grazed) and landscaped gardens to regenerating bush. The Operative District Plan identifies areas of the native bush as a significant natural area (Ref: SNR 23 – Kelson Bush). Greater Wellington Regional Council identifies the same bush as a Key Native Ecosystem due to the presence of regionally representative and relatively unmodified lowland mahoe forest containing habitat for a large number of bird species, including a breeding population of kereru. The original vegetation would have had rimu and rata emergent over canopies of tawa, hinau and kamahi with mixtures of black and hard beech on the deeper soils and kamahi dominating steep to very steep rocky slopes. Pukatea, kahikatea and various tree fern species would have dominated gullies. Today the vegetation is described as "*early to mid seral scrub and forest dominated by mahoe, kanuka and tree ferns, with margins dominated by pioneer species such as gorse and tauhini which are regenerating in pasture*."

The topography and soils of the area are described as moderately steep to steep (21 to 25 degrees) greywacke hill country in areas of moderate rainfall with seasonal soil moisture deficiencies. Most of the site faces a north-eastern aspect, which means there is moderate to high exposure to both sun and wind.

A wide range of birds were recorded at time of survey (both exotic endemic and native species) none of which are identified as threatened species. Other native species are known to be present locally and of which six have threatened status including the New Zealand falcon (nationally vulnerable), three shag species (at risk), and pipit (at risk). The area has historically been known as a kereru breeding ground according to the Department of Conservation.

Several species of lizard are likely present including the common skink and copper skink, both of which are common and not threatened. There are historic records of the Wellington Green Gecko (at risk) and the North Island forest gecko (not threatened) in Belmont Regional Park and may be present in the native forest within the site.

The watercourses found within the site are all tributaries of the Te Awa Kairangi Hutt River. Perched culverts and several waterfalls found along the watercourse present barriers to fish passage. However freshwater fish species, being banded kokopu and the longfin eel and the NZ freshwater crayfish were identified by Boffa Miskell site investigations for the Plan Change 47 report.

4.2 Natural Hazards

Upper Kelson greenfield development area occupies parts of the terrain that makes up the Belmont Hills and ranges in height from RL65m (RL – relative to sea level) to RL 200m. The Wellington Fault forms a sharp edge to the Hutt Valley which State Highway 2 traverses. Access into and out of Upper Kelson is restricted across this fault.

The overall risk in this area is considered to be low to moderate from earthquake hazards in the event of a rupture of the Wellington Fault located along State Highway 2. However access into and out of Upper Kelson may be severely limited.

Figure 21: Wellington Fault in the Hutt Valley indicated by arrows sitting along SH2 (source: GNS)

The combined earthquake risk from the Wellington Fault extends partially up Liverton Road. Beyond that area, the combined earthquake risk above RL 65 through to the top of Major Drive is considered moderate. The earthquake risks within the greenfield area is limited to a low to moderate ground shaking risk and slope failure risk.

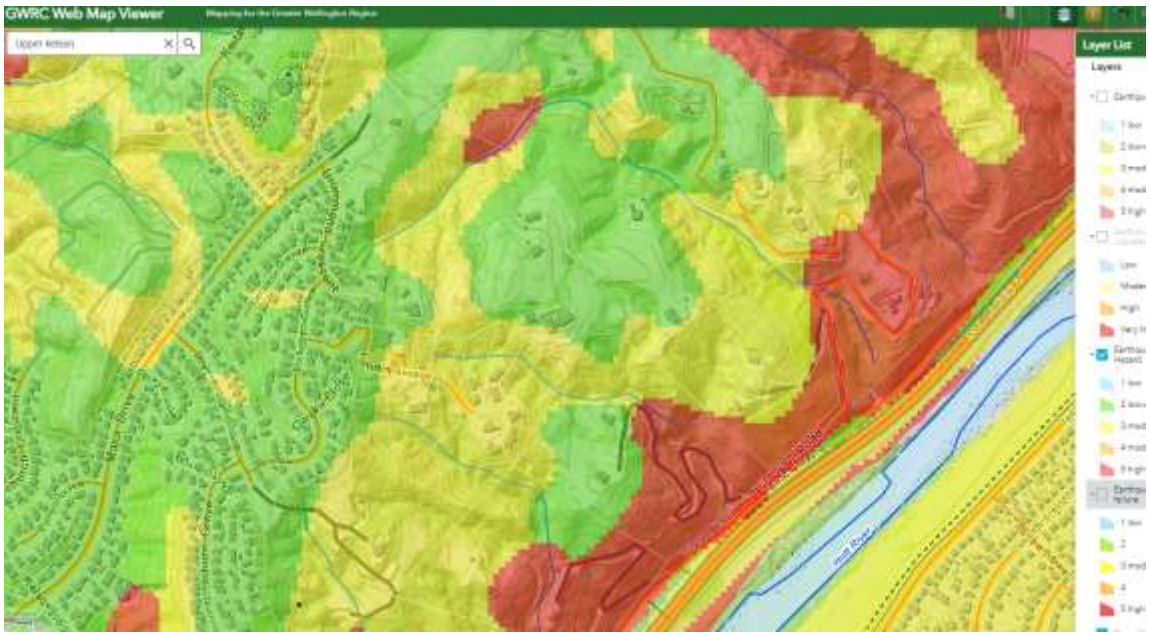


Figure 22: Combined Earthquake Risk for Upper Kelson (source: GWRC Web Map Viewer)

4.3 Options for Development

There are four options that have been considered as part of this review and they are set out in the MCA assessment (refer attachment 1) and summarised below:

Option 1: 188 lots based on an average lot areas of 1,000m^2 (minimum lot size of 600m^2)

Commentary**:** Lot sizes are large due to the topography and vegetation cover. It includes land off Liverton Road (with access constricted to Major Drive); and includes a limited extent of the mahoe and kanuka landscapes that have been identified as as potentially a Significant Natural Area (SNA)[23]

Figure 23: Potentially Significant Indigenous Vegetation (in red) Scenario 2, Upper Kelson Greenfield Development Areas

(source: Boffa Miskell Ltd (Nov 2014)

Option 2: 169 lots based on an average lot area of 1,000m^2 (minimum lot size of 600m^2)

Commentary: Lots within a wider extent of the identified mahoe and kanuka landscapes which although hasn't been identified as significant or representative, has been identified as potentially a Significant Natural Area (SNA)[24]

Option 3: No change from Rural Residential (minimum lot size of 2ha; minimum frontage 100m for front allotments and 6m for rear allotments)

Figure 24: Potentially Significant Indigenous Vegetation (in red) Scenario 1, Upper Kelson Greenfield development Areas (source: Boffa Miskell Ltd (Nov 2014)

[23] *Ibid*

[24] *Refer to Boffa Miskell Report (v2) prepared for the Private Plan Change 47 (27 November 2014) –Figure 1 being Scenario 1*

4.4 Infrastructure – Three Waters & Public Transport & Accessibility

Wellington Water have provided preliminary information on the current capacity of the three waters infrastructure that could service the Greenfield Development Area in Upper Kelson. The Wellington Water assessment takes into account an additional area (being Waipounamu Drive) that does not form part of this Greenfield Development Area; and the initial assessment for the area identified as "Kelson Subdivision" was based on a yield of 120 allotments.

11.2 Kelson

Kelson consists of three DMAs – Major, Liverton, and Kaitangata. The head in the Major DMA is driven by the Major Reservoir (~170m TWL) and the head in Liverton DMA is driven by Liverton Reservoir (~244m TWL). This results in an elevation band (135m to 155m) where properties are too high for Major and too low for Liverton to meet pressure requirements. Currently there are high-elevation areas with low pressures in Major (Figure 11-10), but no upgrades were proposed to address this. The current configuration in these DMAs are therefore retained.

There are two major development sites in Kelson – Kelson Subdivision (120 lots) and 64 Waipounamu Drive (250 lots) as shown in Figure 11-11. It is anticipated that all dwellings allocated to these sites will be online by 2033.

Both development sites will be fed by the Liverton Reservoir. Supply into 64 Waipounamu Drive will be dual feed via Christchurch Crescent and Kaitangata Crescent.

A high-level assessment of the development sites shows that the elevations range from 140m to 200m in 64 Waipounamu Drive and 100m to 202m in Kelson Subdivision. Since Liverton Reservoir has a TWL of 244m, some areas with elevations less than 150m may require a PRV so that pressures do not exceed 90m. These are shown in Figure 11-12.

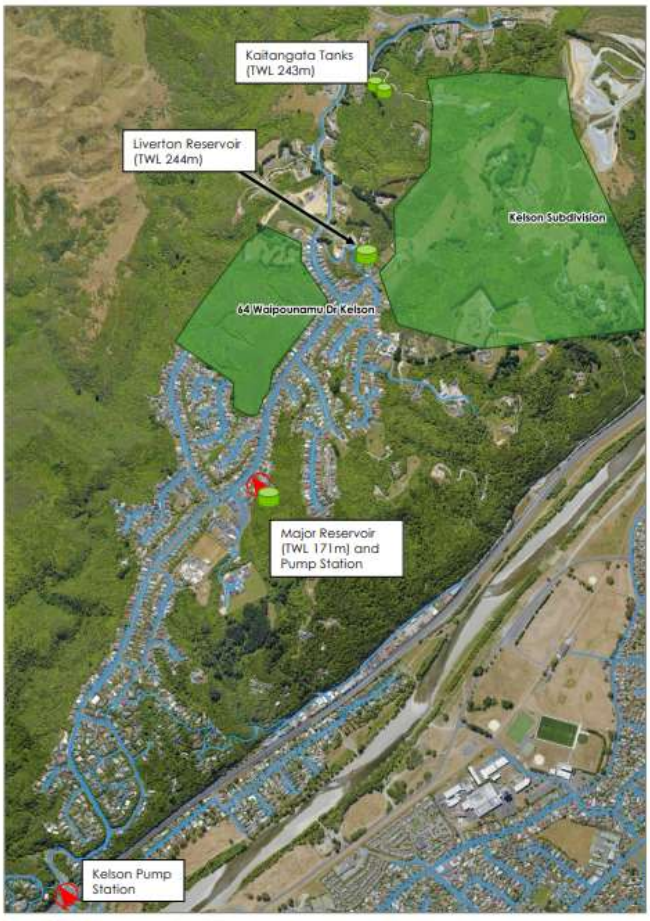


Figure 25: Infrastructure Requirements for Upper Kelson (source: Wellington Water, Email (12/10/2021)

The advice from Wellington Water on servicing lots within this greenfield area; and transport upgrades are set out in the table below[25]:

Type	Summary of constraints and recommendations	Infrastructure Summary
Transport	• Kelson is currently serviced by a standard bus route (150) with 30 – 60 minute frequency. No change is proposed under GWRC Public Transport Plan • The Regional Land Transport Plan has prioritised an upgrade programme on State Highway 2 at Melling with potential interim at grade solutions; and increasing rail frequency. • Kelson is not serviced by dedicated cycleways (either on road cycle lanes or shared paths) • Liverton Road is not suitable for increased traffic	Any development of Upper Kelson should be via Major Drive. Options for new cycle and pedestrian routes down to Melling Railway station should be investigated
Wastewater	• There is a 150mm wastewater main close to the development site, but this would likely need to be reviewed and potentially upsized for new development. • Doesn't appear to have any major downstream issues associated with this development, however an assessment of scale of development should be assessed and consider potential for infrastructure	Drummond Crescent (servicing 100 lots): i. 1km x 150mm gravity down to Hutt Road Main; OR ii. 1km x 80mm pumping main back to Kelson (preferred)

[25] *WWL haven't completed an assessment of infrastructure requirements for this area.*

	requirements. • Depending on the scale, and timing of development, wastewater mitigation from the development may be required – confirmed at the time of consenting. Provision should be made in cost-estimates for potential wastewater mitigation, e.g. pump station and storage in accordance with WWL Regional Standards.	Liverton Road (servicing 85+ lots): i. 1km x 150mm gravity down to Hutt Road Main; OR ii. 1km x 80mm pumping main back to Kelson (preferred)
Type	Summary of constraints and recommendations	Infrastructure Summary
Stormwater	• As this is an upstream catchment, and hills contribute to runoff exacerbating downstream flooding provision for stormwater neutrality and demonstrating no downstream effects will be required. • New requirements from GWRC for earthworks consents require demonstration of water sensitive urban design. Likely that on-site measures will be required to demonstrate water sensitive urban design, water quality management and hydraulic neutrality.	On-site measures required with water sensitive design
Water Supply	Water supply from Liverton Reservoir (based on current understanding of scale of development).	• 500m of 150mm plus 500m x 100mm
Public Transport	There are no planned projects to improve accessibility to public transport or other non-private vehicle modes of transport	Use of private vehicles remains high as public transport times triple or quadruple travel by private vehicle
Summary	Serviceable in the shorterm for Three Waters to current network. Development led infrastructure for water connections, wastewater and stormwater. No major water supply upgrades required.	

4.5 Summary Tables for Upper Kelson

Based on the multi-criteria panel assessment (MCA) process set out in the Wellington Regional Growth Framework (as described in the table below), the development options at Upper Kelson have an MCA rating of 0 (for Options 1 and 2) and - 1 (in respect of the status quo) as described in the tables below:

Wellington Regional Growth Framework Multi-criteria Panel Assessment	
Rating	Means
3	**Largely better** – provides a considerable amount of improvement over the Base Case, so that in 30 years' time there will be a noticeably improved difference in the region
2	**Moderately better -** provides somewhat of an improvement over the Base Case so that in 30 years' time change is noticeable but not to a large extent
1	**Slightly better** - provides some but hardly any improvement from the Base Case and will not be noticeably different over the 30 year period
0	**Neutral** no discernible or positive or negative difference from the Base Case
-1	**Slightly worse –** is hardly, but is still somewhat, worse than the Base Case over the 30 year period
-2	**Moderately worse –** is somewhat worse than the Base Case so that in 30 years' time negative change is noticeable but not to a large extent
-3	**Largely worse -** is considerably worse than the Base Case so that in 30 years time there will be a noticeable negative difference in the region

Table 1: WRGF - MCA

UPPER KELSON OPTION 1: APPROXIMATELY 188 NEW HOUSEHOLDS RECOMMENDED OPTION: LARGE LOT RESIDENTIAL (AVERAGE LOT SIZE OF 1,000m²)						
Plan Enabled	Infrastructure enabled	Feasible				
Yes	Yes	Yes				
Increases housing supply, affordability and choice	Protects and enhances the quality of the environment & is transitioning to a low carbon future	Extent to which it improves multi-modal access to education, work and recreation	Encourages sustainable, resilient and affordable development patterns (particularly in terms of infrastructure)	Avoids increasing impacts of natural hazards and builds resilience to climate change	Extent it creates employment opportunities	How it aligns with mana whenua housing and aspirations
0	0	-1	0	1	0	TBC
Overall assessment	Averaging based on 6 of the 7 criteria					0

UPPER KELSON OPTION 2: APPROXIMATELY 169 NEW HOUSEHOLDS RECOMMENDED OPTION: LARGE LOT RESIDENTIAL (AVERAGE LOT SIZE OF 1,000m²)						
Plan Enabled	Infrastructure enabled	Feasible				
Yes	Yes	Yes				
Increases housing supply,	Protects and enhances the quality of the environment &	Extent to which it improves multi-modal	Encourages sustainable, resilient and affordable	Avoids increasing impacts of natural	Extent it creates employment opportunities	How it aligns with mana whenua

affordability and choice	is transitioning to a low carbon future	access to education, work and recreation	development patterns (particularly in terms of infrastructure)	hazards and builds resilience to climate change		housing and aspirations
0	1	-1	0	1	0	TBC
Overall assessment	Averaging of 6 of the 7 criteria					0

UPPER KELSON OPTION 3: STATUS QUO – RURAL RESIDENTIAL MINIMUM LOT SIZE OF 2HA						
Plan Enabled	Infrastructure enabled	Feasible				
Yes	n/a	n/a				
Increases housing supply, affordability and choice	Protects and enhances the quality of the environment & is transitioning to a low carbon future	Extent to which it improves multi-modal access to education, work and recreation	Encourages sustainable, resilient and affordable development patterns (particularly in terms of infrastructure)	Avoids increasing impacts of natural hazards and builds resilience to climate change	Extent it creates employment opportunities	How it aligns with mana whenua housing and aspirations
-1	0	0	0	0	0	TBC
Overall assessment	Averaging based on 6 of the 7 criteria					-1

4.6 Overall Assessment for Upper Kelson

The zoning options study has been undertaken using the methodology set out below, as developed and agreed with HCC planning policy staff:

Existing information review	This zoning options study commenced with a full appraisal of the latest relevant information available. There has been limited site investigation work undertaken for this area. For this report, we have relied on the information submitted with Plan Change 47: Major Drive which was made fully operative in April 2021 including: • Plan Change documents including Boffa Miskell's November 2014 report, *"Kelson (Major Drive) Plan Change – Ecological Survey and Constraints Mapping. Prepared for Hutt City Council.*

	The direction of this current study has been informed by this available information and the review findings have been developed in cognisance of those studies.
Site visits and landowner meetings	Site visit were completed to all three areas on the 28 September by the authors.
Plan Enabled (based on constraints and opportunities)	Refer to MCA Analysis in Appendix 1. All constraints and opportunities are considered in Section 7 including those relating to significant natural features; landscape values, and natural hazards; and those relating to infrastructure. Upper Kelson has the following constraints: • Low Natural Hazard constraints • Moderate to high constraints around significant natural features (watercourses and indigenous vegetation) – noting this is an area for further work to confirm. • Access constraints. Development of Liverton Road sites would require construction of the road to Major Drive as Liverton Road is not suitable for accommodating additional development. Access into the eastern part of the greenfield area is constrained by vegetation and the existing widths of potential accessways
Natural Hazards	Low to moderate risk from fault rupture of the Wellington Fault located along State Highway 2. No other known natural hazards.
Infrastructure Ready (based on whether infrastructure necessary to service the development exists or is provided for in the Long Term Plan)	Serviceable for Three Waters to current network. Development led infrastructure for water connections, wastewater and stormwater. The preferred wastewater option is to install pump station(s) to pressurize wastewater up to the wastewater mains on Major Drive. No major water supply upgrades required.
Roading Infrastructure Ready Assessment	The development of Upper Kelson would not be supported by high frequency public transport connections; and is not currently supported by cycleways and shared paths to high frequency public transport nodes.
Inclusion of Infrastructure Requirements in Long Term Plan to enable site to meet definition of *infrastructure ready in short or medium term* under subpart 3.4 (3) of NPS-UD	None likely to be required in LTP as the existing network has capacity but will require connections potentially located outside the greenfield area that will require a Council led approach.
Current development contributions	As per the development contribution policy (dated May 2021) for Western Hills:

Table 1: Development contribution charge per EHU at 1 July 2021 (GST-inclusive)[1]

	Eastbourne	Stokes Valley	Valley Floor	Wainuiomata	Western Hills	Rural*	District-wide*
Transport	$0	$0	$0	$0	$0	$0	$2,497
Water	$0	$0	$7,680	$12,383	$1,231	$0	$342
Wastewater	$667	$667	$667	$5,525	$667	$0	$3,188
Stormwater	$864	$15	$160	$1,821	$88	$0	$244
Total	$1,530	$682	$8,507	$19,729	$1,985	$0	$6,272
Charge per EHU (including the district-wide charge)	$7,802	$6,954	$14,779	$26,000	$8,257	$2,497	$6,272

Feasibility Assessment

Indicative future development contributions based on options

Feasibility analysis was undertaken on figures obtained from Wellington Water and adjusted for inflation. The figures for the WWL report were obtained in 2018 and were inflated by 10.5% in the LML 2020 report and then inflated further by 15% for water; 41% for wastewater; and 17% for stormwater infrastructure based on 2022 rates. The overall increase between figures from 2018 until 2022 with an average increase on inflation across the three waters of 26% as set out in the table below:

	Kelson	
Name	Kelson Option 1	Kelson Option 2
Potential Yield	188	169
Sales Values per lot	$ 385,000	$ 385,000
Total Gross Sales	$ 72,380,000	$ 65,065,000
Less Agency and legal fee (4%)	$ 2,895,200	$ 2,602,600
Less GST	$ 9,440,870	$ 8,486,739
NET REALISATION	$ 60,043,930	$ 53,975,661
Estimated Development Costs:		
Devl Mang	$ 1,103,553	$ 997,777
RMA Planning	$ 1,504,000	$ 1,352,000
Engineering	$ 864,800	$ 777,400
Construction	$ 17,860,000	$ 16,055,000
Additional Earthworks due to topography	$ 3,572,000	$ 3,211,000
Titles and Survey	$ 1,015,200	$ 912,600
Council contributions and reserve fee	$ 1,349,840	$ 1,213,420
Additional Infrastructure Costs	$ 1,422,995	$ 1,422,995
TOTAL ESTIMATED DEVELOPMENT COSTS	$ 28,692,388	$ 25,942,192
Development Costs per Lot	$ 152,619	$ 153,504
Land Value at 20% of net realisation	$ 12,008,786	$ 10,795,132
Land value per lot	$ 63,877	$ 63,877
Land value (m2)	$ 57	$ 51
Development profit and risk	$ 19,278,879	$ 17,174,461
Develoment Return on outlay	47%	47%
Development Return on outlay per lot	$ 102,547	$ 101,624

Feasibility analysis presents a return on investment of 47% for both option 1 and option 2. This is well within the rate of return required for a feasible development.

	At these rates indicative development contributions would be $7,569 for Option 1, the higher yield option (assuming 188 allotments) and $8,420 for Option 2 (assuming 169 allotments). Both options 1 and 2 have been identified as meeting the feasibility criteria.
Development of options and recommendations	The assessment of development options for Upper Kelson against the Wellington Regional Growth Framework Multi-criteria Panel shows no discernible or positive or negative difference. However, adding between 169 and 188 new households will contribute to the Council's housing capacity as identified in the NPS-UD. Recommended Option based on criteria: Option 2 – Approximately 169* new households on the basis that it protects more of the existing native vegetation (*final yield to be determined following SNA review) *Indicative yields suggest that this site is best suited to Large Lot Residential sites with an average lot size of 1,000m^2 which would restrict medium density housing under the new Resource Management - Enabling Housing Supply legislation. Complying subdivision would become a Restricted Discretionary Activity and non-complying with activity standards is likely to become Discretionary Activity. Provisions could include the following: 1. Large Lot Residential as a Restricted Discretionary Activity with controls in place for: a. A revised SNR area b. Individual protection of trees within potential allotments outside the SNR area c. Strict controls for earthworks within SNR areas (i.e. no more than 20m^3 or 1m cut) and lesser controls outside SNR areas (i.e. no more than 100m^3 or 1m cut) d. Access for all new development limited to Major Drive and/or the Kelson interchange 2. Matters Council would reserve its discretion over are likely to include: a. Provision of suitable infrastructure b. Geotechnical assessments (tbc) c. Development contributions (in association with an updated DC Policy) d. Access restricted to Major Drive e. Water Sensitive Urban Design f. Erosion and Sediment Controls in accordance with Wellington Water's Guidance document g. Protection and on-going monitoring of significant areas of indigenous vegetation and habitats of indigenous species including lizard management and biodiversity off-setting requirements h. On-going protection of landscape values, particularly any Outstanding Natural Landscapes and Special Amenity Landscapes i. Mana Whenua values and accidental discovery protocols j. Achieving the outcomes sought by Hutt City Council for housing

	supply as set out in the HCC HBA Report
Information Requirements	To fully inform this discussion the following information is required for this area: 1. Ecological assessment to determine SNR for the entire area and any individual trees outside the SNR areas that would require protection under the District Plan provisions; and 2. Landscape assessment to determine if there are any Outstanding Landscapes or Special Amenity Landscapes; and 3. Broad geotechnical assessment to determine whether individual assessments required to address slope failure or other potential natural hazards.

5. UPPER FITZHERBERT - WAINUIOMATA

5.1 Greenfield Area Description

The area has been the subject of a very detailed Wainuiomata North Development Framework (WNDF).

Upper Fitzherbert – Wainuiomata

The Upper Fitzherbert area contains over 100 hectares of land, most of which is currently zoned Rural Residential. To the south are some large General Residential zoned sites that are either in the process of being developed into urban sections or remain in rural residential use.

During the development of the 2012 Urban Growth Strategy, 60 hectares of land with potential for 1500 dwellings was originally identified for greenfield development in the area. However, following public feedback the strategy proposed to ***make only 27 hectares of land available for development****.*

The 2018 Wainuiomata North Development Framework investigated a wider area of 136 hectares of land in Upper Fitzherbert currently zoned Rural Residential, Hill Residential and General Residential. The framework set out a concept plan for the area to develop 1,296 – 1,841 new dwellings. It was anticipated that this Framework would form the basis of a future structure plan and plan change to rezone the area for urbanisation. However, since the development framework was completed in 2018 no significant further work has been carried out to progress the development of the Upper Fitzherbert area.

The district plan team has received some recent inquiries regarding potential private plan changes for incremental development in the Upper Fitzherbert area. However, advice from Wellington Water has indicated that there is not sufficient infrastructure capacity to enable additional development above what is already provided for in the operative district plan.

Further information is needed on the infrastructure constraints in Upper Fitzherbert and the potential costs in order to enable development. Further information is also needed to determine the economic feasibility of recovering infrastructure costs through development contributions. As noted earlier, the Draft LTP includes some provision for these investigations over the next two years.

The Wainuiomata North Development Framework ('WNDF') had a study area covering an area of approximately 136 hectares (ha) shown in the black outline in figure 18 below. The area is located north of Wellington Road and Wise Street and is centred around Upper Fitzherbert Road in Wainuiomata. At the time of the report, the area was held in 50 lots which range in size from 0.06ha to 9.8ha and owned by 36 landowners. The area is predominantly a rural area surrounded by hills and associated bushland.

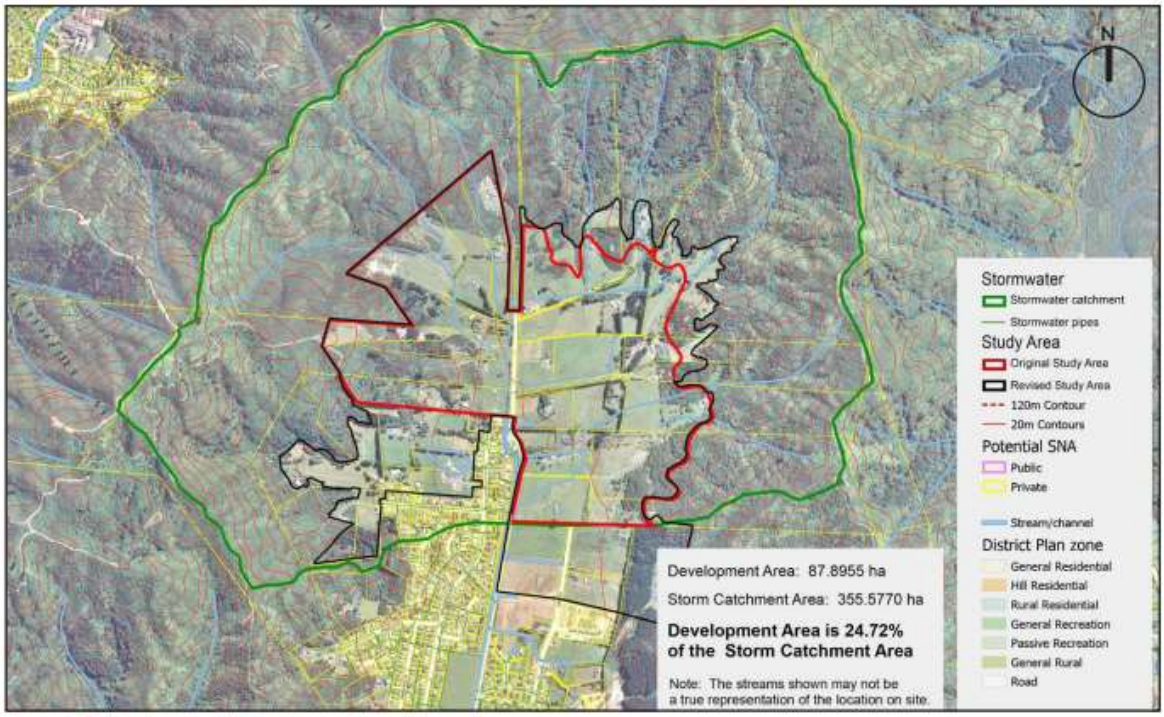


Figure 7: Wainuiomata North stormwater catchment area map

Figure 26: Extent of WNDF Study Area (area shown in black). Green boundary shows the water catchment.

The area has had a long association with future residential. In the Hutt County Approved District Scheme (1976) the land was identified for General Residential with a proposed hospital, primary school, secondary school, commercial centre and future road connections north towards Naenae.

5.2 Natural Hazards

This greenfield site occupies a flat valley located 100m above sea level. The valley is part of Black Creek catchment which is subject to inundation due to constraints within the existing stormwater system.

The valley has also been identified by GNS as containing an 'inactive unknown fault[26].' GWRC's fault mapping has identified a similar area as subject to high ground shaking although not subject to liquefaction. Any development of this land will need further geotechnical investigation and review to confirm the fault and whether it is active or inactive.

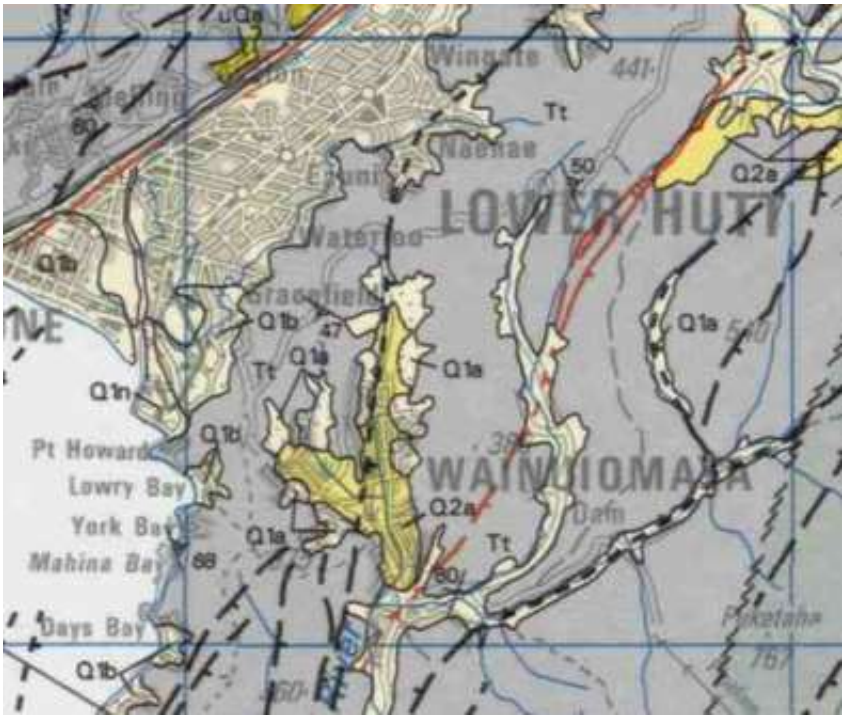


Figure 27: Faults of the Wellington Region. Fault identified as 'concealed' (inactive)

5.3 Options for Development

There are three options that have been considered as part of this review and they are set out in the MCA assessment (refer attachment 1) and summarised below:

Option 1: Mixed Density (General Residential & Medium Density) of 136ha @ 400m^2 and 250m^2 respectively, average lot size: Approximately 1,925 new households.

The WNDF proposed new land uses and typologies in this option that would result in 1,841 new households ranging in average lot sizes from 300m^2 (referenced as medium density) to 400m^2 (referenced as General Residential). It included mixed use zones for a new commercial centre with provision for a new school site and public flat recreation fields and stormwater reserves. It may be possible to increase the yields in the medium density to reflect the current accepted[27] medium density yields averaging 250m^2 adding an additional 84 allotment and improving overall *feasibility*.

[26] *(C) GNS Science 2016. (https://data.gns.cri.nz/metadata/srv/eng/catalog.search#/metadata/9bfa8939-7445-4803-8d60-e5fa207174a6). Dataset showing most current mapping of surface or near surface fault traces*

[27] *BECA (December 2018).*

The WNDF 'option 1' (which has adopted a medium density of 300m^2 per allotment or 33 dwellings per hectare):

OPTION 2 – MIXED-DENSITY DEVELOPMENT DWELLING ESTIMATE					
Location	**Density**	**Gross area (Ha)**	**Discount**	**Net area (Ha)**	**Number of units**
Existing General Residential West	General residential average 400m2	18.3	60% net	11	275
Existing General Residential East	General residential average 400m2	19.4	60% net	11.5	287
Core growth area	General residential average 400m2	54.2	60% net	32.5	812
	Medium density 300m2	20	60% net	12	396
Proposed SNA additional area to north	Hill Residential average 1,500m2	10.3	75% net	7.7	51
GHD Hill Residential area	Hill Residential average 1,000m2	-	-	-	125
Proposed centre	Primary School	2	100%	2	-35
	Neighbourhood Centre	2	100%	2	-35
Across area	Stormwater detention ponds (5x @400m2)	2	100%	2	-35
				TOTAL	**1,841 units**

Figure 28: WNDF Mixed Density Option

Option 2: General Residential of 136 ha @ 500m^2 average lot size: 1,294 households

OPTION 1 – INCREMENTAL DEVELOPMENT DWELLING ESTIMATE

Location	Density	Gross area (Ha)	Discount	Net area (Ha)	Number of units
Existing General Residential West	General residential average 500m2	18.3	60% net	11	220
Existing General Residential East	General residential average 500m2	19.4	60% net	11.5	230
Core growth area	General residential average 500m2	59.2	60% net	35.5	700
Proposed SNA additional area to north	Hill Residential average 1,500m2	10.3	75% net	7.7	51
Buffer allowance on fringe areas	Hill Residential average 1,500m2	15	75% net	11.25	75
GHD Hill Residential area	Hill Residential average 1,000m2	-	-	-	125
Proposed centre	Primary School	2	100%	2	-35
	Neighbourhood Centre	2	100%	2	-35
Across area	Stormwater detention ponds (5x @400m2)	2	100%	2	-35
				TOTAL	1,296 units

Figure 29: General Residential Density Option

Option 3: No change to existing zoning or placeholder zoning such as Future Urban or Large Lot Residential zoning.

In all greenfield development options (options 1 to 3), infrastructure requirements remain as set out in Wellington Water's advice and as described within the WNDF and may require further identification of potential sites for designation and/or purchase for recreation reserve areas (1,000m^2 to 2,000m^2 of new open space) which could also be associated with a future primary school; and a stormwater detention wetland area (approximately 4,000m^2 to 1ha in area depending on overall yield).

Figure 31: Sketch of the village centre and nearby primary school.
Source: DesignUrban Pty Ltd, 2017.

Figure 30: Schematic of potential neighbourhood/stormwater reserves connected to a school located centrally (Source: WNDF, Figure 31)

5.4 Three Waters Infrastructure

Wellington Water have provided preliminary information on the current capacity of the three waters infrastructure that could service the Greenfield Development Area in Wainuiomata North – Upper Fitzherbert. The advice from Wellington Water on servicing lots within this greenfield area are set out in the table below:

Type	Summary of constraints and recommendations	Infrastructure
Transport and Accessibility	• There are no high frequency buses currently servicing Upper Wainuiomata. • Funding has been approved in GWRC's Long Term Plan 2021 – 2031 to combine the standard Lower and Upper Wainuiomata bus service into a one high frequency combined service. • Funding has been approved through the Regional Land Transport Plan for completing the Wainuiomata Cycle Track. • Funding has been approved through GWRC's Long	• By 2031 high frequency bus routes should be servicing Wainuiomata, including Upper Fitzherbert

	Term Plan for upgrades to the Melling station.	
Wastewater[28]	• $145.17M of infrastructure upgrades by 2033 and a further $8.4M by 2050 to install a new pump station on Wellington Road and duplicate the wastewater main to Seaview • There is no existing wastewater capacity in Wainuiomata without managing peak wet weather events by all developments. There are significant existing constraints in this catchment due to high inflow & infiltration, and limited capacity of the network to manage wet weather events. Activities are ongoing to reduce inflow & infiltration, but these involve extensive and broadscale interventions. • The network is further constrained by pumping flow rates over Wainuiomata hill to Seaview Wastewater Treatment Plant (WWTP). The Seaview WWTP, and outfall are also constrained during wet-weather events, wet-weather storm tanks are being used to manage these events. • Any new development in Wainuiomata currently requires wastewater mitigation, as there is no existing capacity or ability to service development during wet weather events. Wet weather is a driving level of service requirement through regional consenting. It is likely a new target to further reduce overflows in the region will be required by the Whatuia and Natural Resources Plan, making it even more challenging to consent, if overflows gets worse. • New investment in a dedicated pump station and rising main are required to service the northern Wainuiomata area; provision of network wet-weather overflow storage and subsequent pump station upgrades and trunk upgrades to facilitate flows over to Seaview WWTP along with extensive pipe refurbishment as a result of heavy Ingress and Infiltration (I&I) rates (re-caking pipes and resealing). • Coordination of efforts and investment is necessary to make sure development can take place in this catchment at scale. • Development on land currently zoned residential is unable to take place until infrastructure to service growth can be funded	• Northern Greenfield Servicing $6.83M by 2030 • Wise Park pump station upgrade (stages 1 by 2020 & stage 2 by 2033); and Main/Rowe storage tank (2020) Fraser storage tank (2025); $37.1M • Targeted I&I refurbishment work (2020 – 2026) $85.56M; and further targeted I&I work (2033) $15.68M LONGER TERM PROJECTS • Wellington Road pump station (by 2050) $1.14M; and • Duplication of gravity main to Seaview approx. $7.3M (GWRC – 2050
Stormwater[29]	• $78.3M of stormwater upgrades projected by 2033 • Stormwater, flood protection through upgrading Black Creek Channel;	• New detention wetland (2033) $25.83M • Contributions to the widening of top, middle

[28] *WWL Reference Document: Wainuiomata Catchment Study (GHD, 2020)*
[29] *WWL Reference Document: Wainuiomata Catchment Study (GHD, 2020)*

	• provision of a wetland to manage upstream flooding/water quality.	and lower sections of Black Creek Channel (2020 then again in 2033) $17.73 M • New stormwater network draining to proposed Upper Fitzherbert wetland (2033) $9.43M • Approximately $25.4M required to widen Parkway & upgrade Lees Fraser Pipe (2020 and 2033).
Water Supply[30]	• $56.5M of water supply upgrades by 2033, and for $108.34M for further pipe upgrades including GWRC's upgrade to the bulk water main by 2050 • New network water storage reservoir and pipeline to address storage deficit and provide for new growth. A new reservoir, Wainuiomata No.3 has been identified as being required to provide sufficient level of service and manage existing high pressures in some parts of Wainuiomata.	• Contribution to Wainuiomata No.3 Reservoir and water mains in 2 stages totalling an estimated $45.5M over 2020 and 2033 • Approximately $$11M required to upgrade the pipe network 2020 and 2033 LONGER TERM PROJECTS • Pipe upgrade in 2050 $17.34M; and • GWRC will need to upgrade the Bulk water main before 2050 for an estimated $91M
Summary	There is significant infrastructure renewals and upgrades required to provide for existing levels of service and provide for growth for three waters and public transport and much of this work will not be completed until 2031 with work projected to accommodate additional capacity not being completed until 2050. Recommendation is that development in this northern greenfield area should not progress until activities to address existing level of service in the catchment are undertaken which requires approximately $280M of investment by 2033. However, by embedding a structure plan and future urban development area in the District Plan for this area; with holding provisions in place until infrastructure is in train; will support business planning for three waters infrastructure and for provision of improved high frequency public transport by the relevant entities. An Infrastructure Servicing Strategy should be developed for the Upper Fitzherbert greenfield area that is aligned with future zoning and land-use staging. WWL and HCC have worked through a prioritisation of investment based on balance of options and servicing, and this has been included in the Council's LTP.	

[30] *WWL Reference Document: Wainuiomata Catchment Study (GHD, 2020)*

5.5 Summary Tables for Upper Fitzherbert, Wainuiomata

Based on the multi-criteria panel assessment (MCA) process set out in the Wellington Regional Growth Framework (as described in the table below), the options for development of Upper Fitzherbert have an MCA rating ranging from MCA rating of -1 for the status quo, MCA rating of 2.9/3 for Option 1 (1,925 lots) and an MCA rating of 2 for Option 1 (1,296 lots) as described in the tables below:

Wellington Regional Growth Framework Multi-criteria Panel Assessment	
Rating	Means
3	**Largely better** – provides a considerable amount of improvement over the Base Case, so that in 30 years' time there will be a noticeably improved difference in the region
2	**Moderately better -** provides somewhat of an improvement over the Base Case so that in 30 years' time change is noticeable but not to a large extent
1	**Slightly better** - provides some but hardly any improvement from the Base Case and will not be noticeably different over the 30 year period
0	**Neutral** no discernible or positive or negative difference from the Base Case
-1	**Slightly worse –** is hardly, but is still somewhat, worse than the Base Case over the 30 year period
-2	**Moderately worse –** is somewhat worse than the Base Case so that in 30 years' time negative change is noticeable but not to a large extent
-3	**Largely worse -** is considerably worse than the Base Case so that in 30 years time there will be a noticeable negative difference in the region

Table 2: WRGF - MCA

WAINUIOMATA – UPPER FITZHERBERT OPTION 1: 1,925 MIXED USE (Ave Lot: General Residential 300m² - 400m² ;Medium Density 250m²) RECOMMENDED OPTION: STRUCTURE PLAN WITH UNDERLYING LARGE LOT RESIDENTIAL ZONE						
Plan Enabled	Infrastructure enabled	Feasible				
No	No	Yes subject to subsidy				
Increases housing supply, affordability and choice	Protects and enhances the quality of the environment & is transitioning to a low carbon future	Extent to which it improves multi-modal access to education, work and recreation	Encourages sustainable, resilient and affordable development patterns (particularly in terms of infrastructure)	Avoids increasing impacts of natural hazards and builds resilience to climate change	Extent it creates employment opportunities	How it aligns with mana whenua housing and aspirations
3	3	3	3	2	3	-
Overall assessment	Average of 6 out of 7 criteria					2.8

WAINUIOMATA – UPPER FITZHERBERT OPTION 2: 1,296 HOUSEHOLDS MIXED USE (Ave Lot: General Residential 500m²; ; Medium Density 250m²)						
Plan Enabled	Infrastructure enabled	Feasible				
No	No	Yes subject to subsidy				
Increases housing supply, affordability and choice	Protects and enhances the quality of the environment & is transitioning to a low carbon future	Extent to which it improves multi-modal access to education, work and recreation	Encourages sustainable, resilient and affordable development patterns (particularly in terms of infrastructure)	Avoids increasing impacts of natural hazards and builds resilience to climate change	Extent it creates employment opportunities	How it aligns with mana whenua housing and aspirations
2	2	2	3	2	1	-
Overall assessment	**Averaging of 6 out of 7 criteria**					2

WAINUIOMATA – UPPER FITZHERBERT OPTION 3: NO CHANGE FROM RURAL RESIDENTIAL (AVE 2HA) OR PLACEHOLDER ZONING (LARGE LOT RESIDENTIAL OR FUTURE URBAN ZONING) (1,000m² average lot size)						
Plan Enabled	Infrastructure enabled	Feasible				
Yes	n/a	n/a				
Increases housing supply, affordability and choice	Protects and enhances the quality of the environment & is transitioning to a low carbon future	Extent to which it improves multi-modal access to education, work and recreation	Encourages sustainable, resilient and affordable development patterns (particularly in terms of infrastructure)	Avoids increasing impacts of natural hazards and builds resilience to climate change	Extent it creates employment opportunities	How it aligns with mana whenua housing and aspirations
1	1	-1	-1	0	-3	-
Overall assessment	**Averaging of 6 out of 7 criteria**					-1

5.6 Overall Assessment for Upper Fitzherbert, Wainuiomata

The zoning options study has been undertaken using the methodology set out below, as developed and agreed with HCC:

Existing information review	This zoning options study commenced with a full appraisal of the latest relevant information available. There is a significant body of work to support the Hutt City District Plan Review for this site. This includes the following: • Wainuiomata Catchment Study. Phase One: Wainuiomata Catchment (GHD, Dec 2020) • Report for Urban Strategic Development Wainuiomata Area (GHD, October 2014) • Wainuiomata North Development Framework (Ian Munro and Nicola Tagiston for Hutt City, February 2018) • Hutt City Council Long Term Plan & Infrastructure Plan A limited analysis of the available information has been undertaken to identify any missing information that is critical to the completion of this study. The direction of this current study has been informed by this available information and the review findings have been developed in cognisance of those studies.
Site visits	Site visits were completed to all three areas on the 28 September 2021 by the authors.
Plan Enabled (based on constraints and opportunities)	Wainuiomata – Upper Fitzherbert has the following constraints: • Current significant wastewater, potable water and stormwater constraints; and • High infrastructure costs resulting in a 30% - 60% public subsidy required to support a suitable return on investment by land developers Wainuiomata – Upper Fitzherbert is considered to have the following opportunities: • The site will achieve all of the anticipated *plan enabled* (i.e. 1806) households modelled by Hutt City's HBA report; • Suitable topography for medium density residential development • Low constraints around significant natural features (watercourses and indigenous vegetation) – noting this is an area for further work to confirm • Low to moderate constraints around landscape – noting this is an area for further work • Low overall risk for combined earthquake hazards • Low slope failure risk • Low flood risk once work on Black Creek has been modified.
Infrastructure Ready (based on whether infrastructure necessary to service the development exists or is	Commitments to infrastructure over the next 30 years are as follows: • $288.17M upgrades to Three Waters by 2033 including: ▪ Water supply: $56.3M ▪ Waterways/stormwater: $78.3M ▪ Wastewater: $145.17M • Additional $116.74M upgrades by 2050 including:

provided for in the Long Term Plan)

- $108.34M Water Supply on bulk water main and pipe upgrade; and
- $8.4M Wastewater on duplication of gravity main to Seaview and Wellington Road pump station

- $406 million in transport infrastructure

Current development contributions

As per the development contribution policy (dated May 2021) for Wainuiomata:

Table 1: Development contribution charge per EHU at 1 July 2021 (GST-inclusive)[1]

	Eastbourne	Stokes Valley	Valley Floor	Wainuiomata	Western Hills	Rural*	District-wide*
Transport	$0	$0	$0	$0	$0	$0	$2,497
Water	$0	$0	$7,680	$12,383	$1,231	$0	$342
Wastewater	$667	$667	$667	$5,525	$667	$0	$3,188
Stormwater	$864	$15	$160	$1,821	$88	$0	$244
Total	$1,530	$682	$8,507	$19,729	$1,985	$0	$6,272
Charge per EHU (including the district-wide charge)	$7,802	$6,954	$14,779	$26,000	$8,257	$2,497	$6,272

Feasible Development

(based on construction costs including likely development contributions)

Feasibility analysis was undertaken on figures obtained from the Wainuiomata Catchment Final Summary Report – Rev 3 published in December 2020 by Wellington Water and adjusted for inflation. The figures for the WWL report were obtained in 2018 and were inflated by 10.5% in the LML 2020 report and then inflated further by 15% for water; 41% for wastewater; and 17% for stormwater infrastructure based on 2022 rates. The overall increase between figures from 2018 until 2022 with an average increase on inflation across the three waters of 26% as set out in the table below:

Excl GWRC	2018 ($M)	2022 ($M)	Ave % Increase 2020 - 2022
Water Total	64.669	74.62	15%
Wastewater Total	104.1972	146.41	41%
Stormwater Total	77.1205	90.14	17%
	$246	$311	26

The final figures were then reapplied to the Site assessment sheet and present a profit/risk of 9% on option 1; and profit/risk of-7% on option 2. Based on feasibility and infrastructure costs, option 1 represents a very marginal investment for a prospective developer at only 9% return on investment while option 2 is currently not feasible.

Further work needs to be undertaken to identify public/private allocation of benefits as both options for this site will require subsidising from Council at a rate of 30% ($61,133.74 per lot) for option 1; or of 60% ($51,888.21 per lot) for option 2, to attract developers willing to invest in the civil works required to achieve a minimum return on investment of the required 20% as shown in the table below:

Name	Wainuiomata	
	Wainuiomata Option 1	Wainuiomata Option 2
Potential Yield	1925	1296
Sales Values per lot	$ 350,000	$ 380,000
Total Gross Sales	$ 673,750,000	$ 492,480,000
Less Agency and legal fee (4%)	$ 26,950,000	$ 19,699,200
Less GST	$ 87,880,435	$ 64,236,522
NET REALISATION	$ 558,919,565	$ 408,544,278
Estimated Development Costs:		
Devl Mang	$ 13,447,468	$ 9,719,840
RMA Planning	$ 13,090,000	$ 10,368,000
Engineering	$ 7,122,500	$ 5,961,600
Construction	$ 146,300,000	$ 123,120,000
Additional Earthworks due to topography	$ -	$ -
Titles and Survey	$ 8,470,000	$ 6,998,400
Council contributions and reserve fee	$ 43,521,739	$ 29,300,870
Additional Infrastructure Costs	$ 117,682,457	$ 67,247,118
TOTAL ESTIMATED DEVELOPMENT COSTS	$ 349,634,164	$ 252,715,827
Development Costs per Lot	$ 181,628	$ 194,997
Land Value at 20% of net realisation	$ 111,783,913	$ 81,708,856
Land value per lot	$ 58,070	$ 63,047
Land value (m2)	$ 136	$ 99
Development profit and risk	$ 97,443,419	$ 74,056,548
Develoment Return on outlay	21%	22%
Development Return on outlay per lot	$ 50,620	$ 57,142

The resultant costs shown do not take into account the necessary costs required to be spent in the area to bring the infrastructure up to full service before any further greenfield development is undertaken.

Development of options and recommendations

The assessment of development options for Upper Fitzherbert in Wainuiomata against the Wellington Regional Growth Framework Multi-criteria Panel shows Options 1 and 2 gives a moderate to significant improvement over the baseline within the next 30 years.

*This review suggests that this greenfield area needs to achieve the highest density provided for in the WNGF to enable the development to be *feasible* even with a Council subsidy.

Consideration needs to be given to the type of zoning adopted given the Resource Management Enabling Housing legislation proposed to avoid proliferation of development prior to construction of infrastructure. Development areas subject to a Structure Plan adopted as a Development Precinct would enable development to proceed in accordance with the structure plan objectives.

The Structure Plan would look to protect open space, roading corridors, flood storage and stormwater treatment areas. The structure plan may identify opportunities for

	designation by Council and/or other stakeholders such as Ministry of Education and Department of Conservation, Objectives and policies for the development areas would clearly articulate the need to achieve the outcomes sought including: 1. Increases housing supply, affordability and choice 2. Protecting and enhancing the quality of the environment & ensuring the urban environment is transitioning to a low carbon future; and 3. Extent to which it improves multi-modal access to education, work and recreation; and 4. Encourages sustainable, resilient and affordable development patterns (particularly in terms of infrastructure); and 5. Avoids increasing impacts of natural hazards and builds resilience to climate change; and 6. Extent it creates employment opportunities; and 7. Aligns with mana whenua housing and aspirations. Development in accordance with a Structure Plan Development Area Precinct could be a restricted discretionary activity with Council reserving its matters of discretion to a wide range of matters including: • Structure Plan precinct requirements and associated documents • Water Sensitive Urban Design • Transport connectivity • Design of stormwater infrastructure in accordance with water sensitive guidelines • Erosion and Sediment Controls as set out in Wellington Water's Guidance document. • Proceeding in alignment with suitable infrastructure being in place at the time of final subdivision approvals; • Mana Whenua values and accidental discovery protocols • Achieving the outcomes sought by Hutt City Council for housing supply as set out in the HCC HBA Report Non-compliance with non-critical minimum standards could be assessed as a discretionary activity. Non-compliance with critical elements of the structure plan; or non-compliance with a large number of the standards could become a non-complying activity. A similar outcome could be achieved through a Specified Development Project (SDP) undertaken through the Development Act 2020 overseen by Kāinga Ora.
Overall Recommendation	Due to the outcome of the feasibility study, there are currently no feasible options for development of this site. However, given the suitability of the site for development and the ability to make it plan-enabled, the following actions are suggested: 1. Review public/private infrastructure cost split to settle on an acceptable outcome for density; and 2. Review a suitable zoning to enable development subject to a structure plan that can be adopted in the District Plan without creating unintended consequences particularly through the new Resource Management Enabling Housing legislation proposed. This could also be pursued through an specified development process

	('SDP') which may help align infrastructure and planning.
Information Requirements	1. Review of public/private allocation of infrastructure 2. Further development of the Wainuiomata North Concept 3. Further investigation & development of an SDP if appropriate

6. SHAFTESBURY GROVE – STOKES VALLEY

6.1 History of Proposed Development

The 12.55 hectare site located at 12 Shaftesbury Grove on a prominent ridge in Stokes Valley, is held in one parcel and is privately owned. It has been the subject of investigations for residential development for some time now and is now the subject of a private plan change.

Two earlier indicative scheme plans have been prepared by Cardno and Cuttriss Consultants (updated by Land Matters to show indicative significant natural areas) for the site with yields of 136 lots ('Option 1') and 186 lots ('Option 2') respectively. A series of reports (ecological and landscape assessments as well as infrastructure capacity assessments) have been prepared to support those earlier indicative scheme plans. This existing information has informed the review of this site for the purpose of identifying feasibility and inform likely financial contributions based on yield for this site if required for greenfield redevelopment. The review of these two earlier schemes do not constitute endorsement of any future schemes of the site.

6.2 Greenfield Area Description

The ridgeline currently supports vehicular access to a Council reservoir located just beyond the southern end of the site. There is alternative access to the reservoir via local purpose reserve land to the south. There is a cellular tower located halfway along the site.

Easements are registered over Areas A, B and C as shown on the Deposited Plan (see below) in respect of open access (public access) to the local purpose reserve land to the south; and in respect of vehicular access to the Water Reservoir and for telecommunication purposes.

Figure 31: Deposited Plan 507600 showing Lot 1 being 12 Shaftesbury Grove, Stokes Valley

The site is predominantly a ridgeline and has extensive vegetation cover consisting of a mixture of pinus radiata and regenerating indigenous species (predominantly manuka) some of which is estimated to be between 40 to 50 years old. There have been anecdotal records of whitehead (at risk-declining species) and the long-tailed cuckoo (at risk -naturally uncommon species) in Stokes Valley and possibly within this site. Lizards have also been found within 500m of the site including the Wellington green gecko (*Naultinus punctatus,* at risk-declining) and the Ngahere gecko (*Mokopirirakau* 'southern North Island', at risk-declining). Also present is likely the Raukawa gecko (*Woodworthia maculate*, not threatened). Bats may also be present within the site as the Long-tailed bat (threatened-nationally vulnerable) has been recorded near Te Marua which is within the home range of these bats. The primary threats to these species are introduced mammalian predators and habitat destruction and in respect of bats, the removal of large trees (bats are known to roost in crevices in the bark of old pine trees)[31].

Plate 1: View of mānuka removal in the 1920s with a view of the Stokes Valley hills beyond. Stokes Valley History Facebook Group.

Figure 32: Clearance of the site in 1920s. Some remnant manuka remains wihtin the site with succession species beginning to emerge

The site has gentle topography along the ridgeline with slopes falling away more steeply to the east than to the west. Both the west and east have a series of spurs and vegetated gullies that support ephemeral watercourses. These watercourses, particularly the streams located to the east of the ridge were identified as having excellent water quality based on their ability to support macroinvertebrate. All watercourses within the site contribute to the maintenance of base flows in the Taita Stream and its water quality.

The site is identified in the Operative District Plan as containing a significant natural area (Ref: SNR 50). The SNR is identified as containing the following, *"lowland forest on hill country, containing the only Pukeatea forest remnant in the region. Bird species include Whitehead. Common Green Gecko, and Kotukutuku plan species.*

The ecological report[32] identified the potential ecological effects on terrestrial vegetation types and habitats as including:

i. Clearance of indigenous vegetation;

[31] Wildlands (November 2017)
[32] Ibid

ii. Loss of habitat for indigenous fauna including 'at risk' species;
iii. Reduced connectivity for less mobile species;
iv. Increased edge effects;
v. Increased opportunity for weed colonisation and spread;
vi. Potential increase in numbers of mammalian predators;

The identified ecological effects on aquatic habitats include:

i. Loss of riparian buffering/shading for the stream;
ii. Reduced infiltration and groundwater recharge resulting in loss of flows;
iii. A permanent reduction in the length of stream with perennial flows;
iv. A permanent increase in the length and duration of streamflow intermittency;
v. Increased volume and velocity of stream flows during rainfall events with <5 years average return interval;
vi. Increased volume and velocity of stream flows during rainfall events with <5 years average return interval;
vii. Permanent loss of water quality in first order streams with cumulative downstream effects.

The lower yield option (Option 2) was proposed on advice of the assessments[33] to reinforce the existing positive attributes of the landscape through:

- Minimising disturbance to existing gully systems
- Retaining natural vegetation patterns particularly within the steeper gully areas
- Reflecting the existing underlying topography and landscape patterns
- Connecting existing vegetation patterns across the site with native enhancement planting

6.3 Natural Hazards

The potential extension of Shaftesbury Grove extends along a ridgeline approximately 155m above sea level. The ridgeline drops down to an existing reservoir located at RL 133m. Spurs extend off from the main ridgeline and drop more steeply into gullies that are predominantly vegetated with wilding pines and regenerating native vegetation.

While the site is not identified as being at risk from ground shaking, GWRC's natural hazard web map viewer has identified the ridgeline and spurs in this area as at moderate risk from slope failure.

6.4 Potential Development Options

It is understood that this site is the subject of a potential private plan change. There are three potential options that have been reviewed and they are set out in the MCA assessment and summarised on the following page.

[33] Isthmus (Dec 2018). *DRAFT Urban Design + Landscape + Visual Assessment Report (v.2).*

Option 1: 186 lots prepared by Cardno was based on an average lot area of 300m^2 and 400m^2. Proposed residential development extends further west and east then Option 2.

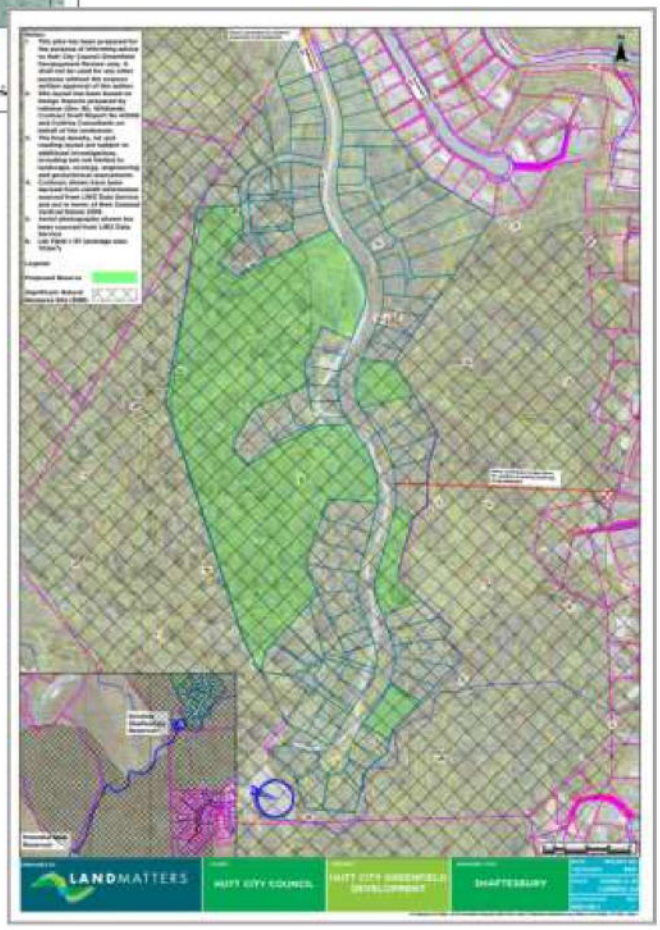
A report was commissioned by Hutt City and prepared by GHD in 2014 detailed estimates for three waters and roading based on earlier schemes with similar yields (of between 146 lots @ 500m^2 to 186 lots @ 400m^2).

Figure 33 Option 1 is based on an indicative early scheme prepared by Cardno for the landowner

Option 2: 136 lots prepared by Cuttriss Consultants and updated by Land Matters to include the SNA was based on an average lot area of between 300m^2 and 400m^2

Commentary**:** In June 2019, the landowner of this site commissioned a GHD Report which was prepared to support a private plan change to rezone the site used the scheme depicted in Figure 25 (based on 120 lots) to assess water storage requirements.

Figure 34: Option 2 has been adapted from a scheme prepared by Cuttriss Consultants Ltd to include SNR and open space areas



Option 3: Status Quo: No change from Rural Residential

6.4 Three Waters Infrastructure

Wellington Water have provided preliminary information on the current capacity of the three waters infrastructure that could service a Greenfield Development Area for this site in Stokes Valley. The advice from Wellington Water on servicing lots within this greenfield area are set out in the table below:

Type	Summary of constraints and recommendations	Infrastructure Summary
Wastewater[34]	• Stokes Valley experiences wastewater capacity constraints resulting in overflows, with some high confidence problem areas. Depending on the scale, and timing of development, wastewater mitigation from the development may be required – although this should be re-confirmed at the time of consenting. Provision should be made in cost-estimates for potential wastewater mitigation, e.g. pump station and storage in accordance with WWL Regional Standards for Water Services. • There has been a 33% escalation in costs An upgrade to the Bird Grove sewer is required along with a pump station for 11 of the lots;long with a new gravity sewer to connect the western side of the proposed development to the Eastern Hutt Road sewer.	50m x 150mm new gravity sewer to Eastern Hutt Road line approx. $26K (Oct 2021) Pump station, connection to Bird Grove and Bird Grove upgrade circa $919K (Oct 2021)
Stormwater	• There is existing stormwater flooding in Stokes Valley and new requirements from GWRC for earthworks for water sensitive urban design. • Likely that on-site measures will be required to demonstrate water sensitive urban design, water quality management and hydraulic neutrality. • Contribution may also be required to Stokes Valley stormwater upgrades, yet to be included in LTP/DC Policy.	
Water Supply[35]	• Development at the Holborn and Shaftesbury sites will require new water supply infrastructure as follows: • Construct a new 1.5 ML reservoir at ~184m TWL. • Install a new 17kW pump station adjacent to Delaney Reservoir • Install a new dedicated 150mmØ rising main from the new pump station to the new Holborn HL Reservoir. • Renew the existing 100mmØ/150mmØ AC pipes in the new Holborn HL PMA - Construct 200mmØ outlet main from the new Holborn HL Reservoir to 12 Shaftesbury Grove. *see below water summary/schematic for reference.	Level 1 cost estimate $8.8M excluding any land purchase, inflation or financing costs as of Oct 2021
Summary	Development at this site will require developer led infrastructure, including new drinking water (pump station and pipes); stormwater and wastewater infrastructure.	

[34] *Based on Holborn assessment GHD, 2014*
[35] *Hutt Valley Zone Management Plan (Stantec, 2020)*

11.3 Stokes Valley

11.3.1 Holborn High Level

There are two greenfield development sites in Stokes Valley – Holborn (186 lots) and Shaftesbury Grove (120 lots). Holborn is expected to be completed within the 2020 horizon and Shaftesbury Grove in 2033. Both development sites are located at the end of Shaftesbury Grove, a high elevation area within the Kingsley Reservoir pressure zone (~165m HGL) which is currently experiencing pressure and firefighting deficiencies.

Shaftesbury Grove is single fed by an old 150mmØ AC pipe along Holborn Drive, which does not have the capacity to supply the development sites. The total number of new dwellings in the development sites warrant the construction of a small reservoir. Based on a high-level assessment of the development site elevations, the ideal TWL of the new reservoir – referred to as Holborn HL Reservoir in this document – is 184m.

Figure 11-13 shows the ideal elevations for the reservoirs to meet the Levels of Service for minimum and maximum pressure, and the range of elevation in the greenfield sites. It is observed that there will be some properties in the Shaftesbury Grove site that will experience pressures >90m due to its elevation relative to the Holborn HL Reservoir.

Figure 11-14: Greenfield development sites in Stokes Valley and proposed upgrades

6.5 Summary Tables for Shaftesbury Grove

Based on the multi-criteria panel assessment (MCA) process set out in the Wellington Regional Growth Framework (as described in the table below), the options for development of Shaftesbury Grove in Stokes Valley have an MCA rating of between -1 for the status quo, and MCA 1.2 for Option 1 (186 lots) and MCA 1 for Option 2 (136) as described in the tables below:

Wellington Regional Growth Framework Multi-criteria Panel Assessment	
Rating	Means
3	**Largely better** – provides a considerable amount of improvement over the Base Case, so that in 30 years' time there will be a noticeably improved difference in the region
2	**Moderately better -** provides somewhat of an improvement over the Base Case so that in 30 years' time change is noticeable but not to a large extent
1	**Slightly better** - provides some but hardly any improvement from the Base Case and will not be noticeably different over the 30 year period
0	**Neutral** no discernible or positive or negative difference from the Base Case
-1	**Slightly worse –** is hardly, but is still somewhat, worse than the Base Case over the 30 year period
-2	**Moderately worse –** is somewhat worse than the Base Case so that in 30 years' time negative change is noticeable but not to a large extent
-3	**Largely worse -** is considerably worse than the Base Case so that in 30 years time there will be a noticeable negative difference in the region

Table 4: WRGF – MCA

SHAFTESBURY GROVE, STOKES VALLEY OPTION 1: APPROXIMATELY 186 NEW HOUSEHOLDS IN GENERAL RESIDENTIAL ZONE (Ave Lot: General Residential 300m² - 400m²) POSSIBLE RECOMMENDED OPTION						
Plan Enabled	Infrastructure enabled	Feasible				
Yes	tbc	Tbc – 14%				
Increases housing supply, affordability and choice	Protects and enhances the quality of the environment & is transitioning to a low carbon future	Extent to which it improves multi-modal access to education, work and recreation	Encourages sustainable, resilient and affordable development patterns (particularly in terms of infrastructure)	Avoids increasing impacts of natural hazards and builds resilience to climate change	Extent it creates employment opportunities	How it aligns with mana whenua housing and aspirations
2	1	1	2	1	0	TBC
Overall assessment	Average of 6 criteria					1.2

SHAFTESBURY GROVE, STOKES VALLEY OPTION 2: APPROXIMATELY 136 NEW HOUSEHOLDS IN GENERAL RESIDENTIAL ZONE (Ave Lot: General Residential 300m² - 400m²) POSSIBLE RECOMMENDED OPTION						
Plan Enabled	Infrastructure enabled	Feasible				
Yes	tbc	No - 3%				
Increases housing supply, affordability and choice	Protects and enhances the quality of the environment & is transitioning to a low carbon future	Extent to which it improves multi-modal access to education, work and recreation	Encourages sustainable, resilient and affordable development patterns (particularly in terms of infrastructure)	Avoids increasing impacts of natural hazards and builds resilience to climate change	Extent it creates employment opportunities	How it aligns with mana whenua housing and aspirations
2	1	1	1	1	0	TBC
Overall assessment	Average of 6 criteria					1

SHAFTESBURY GROVE, STOKES VALLEY OPTION 3: No change – Rural Residential Zone (Ave Lot: 2ha - allows for six allotments)						
Plan Enabled	Infrastructure enabled	Feasible				
Yes	n/a	n/a				
Increases housing supply, affordability and choice	Protects and enhances the quality of the environment & is transitioning to a low carbon future	Extent to which it improves multi-modal access to education, work and recreation	Encourages sustainable, resilient and affordable development patterns (particularly in terms of infrastructure)	Avoids increasing impacts of natural hazards and builds resilience to climate change	Extent it creates employment opportunities	How it aligns with mana whenua housing and aspirations
-1	0	0	0	0	0	TBC
Overall assessment	Average of 6 criteria					-1

6.6 Overall Assessment for Shaftesbury Grove, Stokes Valley

This review has been undertaken using the methodology set out below, as developed and agreed with HCC planning policy staff:

Existing information review	This zoning options study commenced with a full appraisal of the latest relevant information available. There has been limited site investigation work undertaken for this area. For the purpose of this report, we have relied on the information submitted with Plan Change 47: Major Drive which was made fully operative in April 2021 including: • GHD (June 2019), Assessment of Water Storage Shaftesbury Grove, Stokes Valley • GHD (December 2014), Report for Urban Strategic Development Holborn Area • Isthmus (December 2018) Draft Urban Design, Landscape and Visual Assessment Reports • Wildlands Ecological Reports (2017) The direction of this current study has been informed by this available information and the review findings have been developed in cognisance of those studies.
Site visits and landowner meetings	Site visit were completed on the 28 September by the authors.
Plan Enabled (based on constraints and opportunities)	**Neither option 1 or 2 is currently plan enabled but both are feasible** Refer to MCA Analysis in Appendix 1. All constraints and opportunities are considered in Section 7 including those relating to significant natural features; landscape values, and natural hazards; and those relating to infrastructure. Shaftesbury Grove is considered to have the following constraints: • Significant, potable water constraints which require infrastructure upgrades; and • High natural and landscape values • Slope risk to be determined but less than 31 degrees is developable Shaftesbury Grove is considered to have the following opportunities: • The site will achieve a large portion of the anticipated *plan enabled* households modelled by Hutt City's HBA report; • Suitable topography along ridgeline for low density (average lot size between 300m^2 – 400m^2) • Low overall risk for combined earthquake hazards • Low flood risk
Natural Hazards	At moderate risk from slope failure.
Infrastructure Ready (based on whether infrastructure necessary to	Development at this site will require new drinking water (pump station, reservoir and pipes); stormwater and wastewater infrastructure but all

service the development exists or is provided for in the Long Term Plan)	infrastructure has been priced into the development contributions and is therefore feasible for the development proposed.
Roading Infrastructure Ready Assessment	Stokes Valley is currently serviced by a high frequency bus service (120). Greater Wellington Regional Council are investigating increasing frequency of bus routes to Stokes Valley and extending the Stokes Valley route (120) to Petone and inter-working it with the Upper Hutt to Petone route (110) to provide a high frequency of 7.5 – 15 minutes at all times between Avalon, Hutt Hospital, central Lower Hutt and Petone. This upgrade is being investigated under the Regional Land Transport Plan 2021 – 2031.
Current development contributions	As per the development contribution policy (dated May 2021) for Western Hills: Table 1: Development contribution charge per EHU at 1 July 2021 (GST-inclusive)[1] Eastbourne / Stokes Valley / Valley Floor / Wainuiomata / Western Hills / Rural* / District-wide* Transport: $0 / $0 / $0 / $0 / $0 / $0 / $2,497 Water: $0 / $0 / $7,680 / $12,383 / $1,231 / $0 / $342 Wastewater: $667 / $667 / $667 / $5,525 / $667 / $0 / $3,188 Stormwater: $864 / $15 / $160 / $1,821 / $88 / $0 / $244 Total: $1,530 / $682 / $8,507 / $19,729 / $1,985 / $0 / $6,272 Charge per EHU (including the district-wide charge): $7,802 / $6,954 / $14,779 / $26,000 / $8,257 / $2,497 / $6,272
Feasible Development (based on construction costs including likely development contributions based on Option 1 and Option 2)	Feasibility analysis was undertaken on figures by Wellington Water and adjusted for inflation. The figures for the WWL report were obtained in 2018 and were inflated by 10.5% in the LML 2020 report and then inflated further by 15% for water; 41% for wastewater; and 17% for stormwater infrastructure based on 2022 rates. The overall increase between figures from 2018 until 2022 with an average increase on inflation across the three waters of 26% as set out in the table below: Feasibility analysis presents a profit/risk of 42% on option 1 or 37% option 2. Both options represent a feasible outcome in terms of development profit and risk. Infrastructure cost per lot is anticipated a $16,053 for Option 1 (186 lots), and $21,955 for Option 2 (136 lots).
Feasiblity ssessment of two earlier schemes	The assessment of the two earlier schemes for Shaftesbury Grove in Stokes Valley against the Wellington Regional Growth Framework Multi-criteria Panel shows no discernible or positive or negative difference. However, adding between 136 to 186 new households will contribute to Council's housing capacity as identified in the NPS-UD. *This review suggests that this site is best suited to a mix of *General Residential* and *Open Space Zoning*. The lot sizes should support development entirely within the Residential zone. A General Residential zone recognizes density anticipated by the site.

	Complying activities would become a Restricted Discretionary Activity and non-complying activities become Discretionary Activities. Provisions could include the following: i. Within Low Density Residential provide for development and subdivision as a Restricted Discretionary Activity with controls in place for: a. A revised SNR area b. Individual protection of trees within potential allotments outside the SNR area c. Strict controls for earthworks within SNR areas and lesser controls outside SNR areas d. Strict controls for earthworks within Open Space zone (ie. No more than $20m^3$ or a cut of 1m or greater); and lesser controls within General Residential (ie. No more than $100m^3$ or a cut of 1m or greater) Matters Council would reserve its discretion over are likely to include: a. Provision of suitable infrastructure b. Geotechnical assessments (tbc) c. Development contributions (in association with an updated DC Policy) d. Maintenance of public access to Local Purpose Reserves and Council Owned Land e. Water Sensitive Urban Design f. Erosion and Sediment Controls in accordance with Wellington Water's Guidance document g. Protection and on-going monitoring of significant areas of indigenous vegetation and habitats of indigenous species including Lizard Management and biodiversity off-setting requirements h. On-going protection of landscape values, particularly any Outstanding Natural Landscapes and Special Amenity Landscapes i. Mana Whenua values and accidental discovery protocols
Information Requirements	i. Review of public/private infrastructure cost split with landowner and Wellington Water and Council ii. Review of significant natural values and geotechnical advise on slopes iii. Consultation with mana whenua

7. DISTRICT PLAN PROVISIONS BY AREA

[placeholder following consultation with Hutt City, Landowners and Mana Whenua]

This section will identify the key resource management issues to be addressed by the District Plan review and the set of objectives, policies and rules necessary give effect to the purpose and principles of the Resource Management Act.

8. SUMMARY

LML has undertaken a comprehensive review and analysis of the three greenfield development areas. This review has been prepared to inform and assist with confirming future zoning for these sites as part of the proposed review of the Hutt City District Plan.

The review has been guided by the directives of the National Policy Statement on Urban Development and supported by the 2012 Hutt City Growth Strategy, the Wellington Regional Growth Framework, the Wellington Regional Investment Framework, Wellington Regional Land Transport Plan and National Land Transport Plan, Hutt City Council's Housing and Business Assessment (HBA), and various reports prepared in respect of each of the three sites.

The key findings and recommendations of the review and analysis are as follows:

1. Hutt City Council needs to provide approximately 7,926 new households within the next 30 years.
2. The Wellington Regional Growth Framework recognises that greenfield development may need to make up a part of the response to addressing housing supply. Approximately two-thirds of the housing growth shown in the Framework is expected to occur in Urban Renewal Areas through infill, urban renewal, and intensification; and one-third of the growth will be in future urban areas extending the current urban footprint of the region as follows:
    - 12% in Wellington City
    - Of the remaining 88% of housing growth:
        a. One quarter expected to occur Wellington City wide (i.e. Western corridor); and
        b. One third is expected to occur in the eastern corridor (i.e. Lower Hutt to Masterton); and
        c. The remaining 40% will occur in the western corridor (Porirua, Kāpiti Coast and Horowhenua districts)
3. The Wellington Regional Growth Framework recognises that while concentrated housing growth in identified urban centres scores better on objectives for transitioning to a low carbon future, improving multi-modal access, and encouraging sustainable settlement patterns that use infrastructure, greenfield development scores better on resilience to climate change and natural hazards.
4. Greenfield development is part of the approach that the Wellington Regional and Hutt City Council have adopted to provide for growth over the next 30 years but in the short and medium term (within the next 10 to 20 years). For greenfield development areas to be rezoned General Residential in the short to medium term, there must be a demonstrated short fall and/or demand for new housing; and infrastructure must either be in place or funded through the Long-Term Plan.
5. The three greenfield areas have been assessed against the framework identified in the National Policy Statement for Urban Development: Are they *plan enabled;* are they *infrastructure ready*; and *are* they *feasible*?
6. The three greenfield sites have been assessed as being able to potentially provide between 1,598 and 2,195 new households broken down as follows:
    - Upper Kelson: Assume between 169 – 188 lots with profit/risk 47% (feasible); and
    - Shaftesbury Grove – Stokes Valley: Assume between 136 – 186 with profit/risk ranging from 31 - 49% (both options are feasible)

- Wainuiomata – Upper Fitzherbert: Assume between 1,294 – 1,821 households could be plan enabled but until infrastructure can be addressed, the feasibility of any development is negatively geared and therefore not considered acceptable without a subsidy placed on development contributions of between 30% and 60%). With subsidies in place, development under both options becomes feasible at 21% and 22% respectively.

7. The following assumptions were used to assess the overall feasibility of each site:
    i. the cost of land is set at 33% for Upper Kelson; and 20% of net realisation respectively for Wainuiomata and Stokes Valley site
    ii. infrastructure costs have been assessed using information provided by Wellington Water
    iii. Public/private cost sharing has been assumed on the basis of information provided but is likely to be subject to variation
    iv. Generic development costs for similar density developments in the region
    v. Sales values from market information [placeholder: yet to be validated]
    vi. Acceptable development profit and risk percentage is 20%+
8. The Council's Long Term Plan has been finalised and includes provision for infrastructure across all three sites.
9. Fundamental to the timing to rezone sites is the ability to charge reasonable development contributions that can enable Council to recoup their costs for constructing the necessary infrastructure. This will require a change to Council's Development Contributions Policy.
10. The District Plan provisions protect features such as identified landscapes and natural features from adverse effects that cannot be avoided, remedied or mitigated to an appropriate level.
11. If sites are provided for as a Residential Zone (other than Large Lot Residential) then consideration needs to be given to the Government's new Resource Management Act (Enabling Housing Supply) Act which provides for up to three dwellings on a lot as a permitted activity subject to new Medium Density Standards, on any residentially zoned site excluding large lot residential sites.
12. It is recommended that the land identified within Upper Kelson is provided for as large lot residential sites with an average lot area of 1,000m^2 to manage potential adverse effects on indigenous biodiversity values including freshwater values.
13. It is recommended that the land identified within the Wainuiomata North Growth Framework be included in the District Plan through the adoption of a Structure Plan as set out in the Framework but with an overlying Large Lot Residential zoning that holds the land until infrastructure capacity downstream is available, or alternatively through the SDP process. Where essential community infrastructure, such as roading connections, stormwater and recreation reserves have been identified, the vesting of those assets should be provided for through the District Plan review through a designation process.
14. Land within Shaftesbury Grove has been reviewed against two earlier indicative scheme plans. Based on these scheme plans, residential development is feasible, but any future scheme will need to be reviewed against section 32 of the Resource Management Act. District Plan should look to manage potential adverse effects on indigenous biodiversity values including freshwater values, and landscape values.

9. CONCLUSIONS AND NEXT STEPS

The study of these three greenfield sites are subject to the assumptions set out in this report. The report does not constitute an assessment against section 32 of the Resource Management but may inform that process if required. The purpose of the report is to identify whether the residential development of these sites is feasible and whether they would achieve the objectives set out in the National Policy Statement on Urban Development and provide the necessary housing capacity as identified in the NPS-UD.

While development of the two smaller sites (Upper Kelson and Stokes Valley) only represent a slight improvement on the base case, development could proceed in the short term and thus contribute in the medium term to Hutt City's housing bottom line.

Wainuiomata North achieves the greatest gains in terms of meeting Hutt City Council's obligations under the National Policy Statement on Urban Development and is supported by the Wellington Regional Growth Framework. However, the high costs of development (infrastructure) based on the current public/private split for funding this infrastructure may affect the delivery timeframes. Prioritising the development of this greenfield site through the District Plan will enable business case planning to prioritise the three water infrastructure upgrades necessary to give effect to future growth in this area.

Further work is required to confirm the recommendations in this review. That work is set out in sections 4, 5 and 6 of this report and includes:

- Consultation with Mana Whenua and incorporation of any associated cultural impact assessments; and
- Consultation with landowners; and
- Preparation of additional assessments relating to ecology, landscape and geotech;
- Support to prioritise the business case for infrastructure in Wainuiomata by Wellington Water;
- Identification of public/private costs and benefits for supply of infrastructure; and
- Investigation of a specified development process under the Urban Development Act for the Wainuiomata Greenfield area

Costs are likely to continue to increase and indications are that Wellington Water is prioritising much of the work necessary to give effect to potential development in Wainuiomata within the medium to long term. To facilitate that process, options should consider immediate rezoning of all three sites so that development can be responsive to when that infrastructure is in place.

10. REFERENCES

Beca Ltd (8 February 2019). *Wellington City – Planning for Future Growth. Preliminary Baseline Scenario Document. Results and Methodology.* Prepared for Wellington City Council. Document can be retrieved from https://planningforgrowth.wellington.govt.nz/__data/assets/pdf_file/0011/2351/wcc-preliminary-baseline-growth-scenarios-update-final-report-february2019.pdf

Begg, J.G.; Johnston, M.R. (compilers) 2000: Geology of the Wellington area: scale 1:250,000. Lower Hutt: Institute of Geological & Nuclear Sciences. Institute of Geological & Nuclear Sciences 1:250,000 geological map

HenleyHutchings Ltd. *Wellington Regional Investment Plan*. Prepared for Greater Wellington Regional Council. Document can be retrieved from https://wrgf.co.nz/wp-content/uploads/2020/04/WRIP-Final.pdf

Hutt City Council (2022). Hutt City Council Three Waters Growth Study 2022. Document can be retrieved fromhttps://hccpublicdocs.azurewebsites.net/api/download/51ad0c57ebdc4a1c80f6b7f6fed5ff84/_CM9-WE/28547e31890dc2443b3bf1fd2c2c43f0e55

Hutt City Council (2012). *2012 – 2032 Urban Growth Strategy – Together We Are a City.* Hutt City Council. Document can be retrieved from http://www.huttcity.govt.nz/Your-Council/Plans-publications-and-bylaws/an-integrated-vision/urban-growth-strategy-2012---2032

Hutt City Council Private District Plan Change 47. Operative 13 April 2021. *Major Gardens, Kelson – Rezoning to General Residential Activity Area and General Recreational Activity Area.* Documents on this can be retrieved from http://www.huttcity.govt.nz/Your-Council/Plans-publications-and-bylaws/District-Plan/District-Plan-changes/pc47

Hutt City Council. *Development and Financial Contributions Policy 2021 – 2031.* Document can be retrieved from http://iportal.huttcity.govt.nz/Record/ReadOnly?Tab=3&Uri=5942535

Wellington City Council, Hutt City Council, Porirua City, Kapiti Coast District Council and Upper Hutt City Council (November 2019). *Housing and Business Development – Capacity Assessment Hutt City Council Chapter 3).* Document can be retrieved from http://iportal.huttcity.govt.nz/Record/ReadOnly?Tab=31&Uri=5468721. The full document can be retrieved from https://planningforgrowth.wellington.govt.nz/resources1/documents

Hutt City Council (2021). *Assessment of Potential Greenfield Development Areas.* Hutt City Council District Plan Team.

Hutt City Council (2021). *Final Long Term Plan 2021 - 2031: He tāone hei whai hua ki hōna tāngata – A city where everyone thrives. Our 10 year plan 2021-2031*. Document can be retrieved from http://www.huttcity.govt.nz/contentassets/f9d7320b20d34afeb84c2f85cd93090d/080721_10-year-plan.pdf

Isthmus (December 2018). DRAFT *Urban Design + Landscape + Visual Assessment Report (v.2).* Prepared for J & M Walsh Partnership for 12 Shaftesbury Grove, Stokes Valley.

Isthmus (December 2018). Urban Design, Landscape and Visual Assessment Report. Appendix B. Draft for discussion only. Prepared for J & M Walsh Partnership for 12 Shaftesbury Grove, Stokes Valley.

Isthmus (December 2018). Design Report. Draft for discussion only. Prepared for J & M Walsh Partnership for 12 Shaftesbury Grove, Stokes Valley.

Land Information New Zealand. Record of Title (771535) and Interests for Lot 1 DP 507600 being 12 Shaftesbury Grove.

Ministry for the Environment (November 2019). *National Planning Standards.* Wellington: Ministry for the Environment. Standards can be retrieved from https://environment.govt.nz/assets/Publications/Files/national-planning-standards-november-2019.pdf

Ministry for the Environment (July 2020). *National Policy Statement on Urban Development 2020.* Wellington: Ministry for the Environment. The NPS-UD can be retrieved from https://environment.govt.nz/publications/national-policy-statement-on-urban-development-2020/

Ministry for the Environment (July 2020). *Introductory guide to the National Policy Statement on Urban Development 2020.* Wellington: Ministry for the Environment. Report can be retrieved from https://environment.govt.nz/assets/Publications/Files/Introductory-Guide-to-the-National-Policy-Statement-on-Urban-Development-2020.pdf

Mitchell, Ian and Glaudel, Chris (June 2019). *Research Report – Housing Demand and Need in Hutt City.* Prepared for Hutt City. Document can be retrieved here http://iportal.huttcity.govt.nz/Record/ReadOnly?Tab=3&Uri=5560996

Munro, Ian and Tagiston, Nicola et. al. (February 2018). *Wainuiomata North Development Framework. Prepared for Hutt City Council to inform future Structure Plan and Plan Change process.* Document can be retrieved from http://iportal.huttcity.govt.nz/Record/ReadOnly?Query=container:%5buri:3677912%5d&Tab=31&Uri=5505085&Page=2

New Zealand Government. *How Councils estimate demand and supply of development capacity for housing and business*. Document can be retrieved from https://environment.govt.nz/assets/Publications/how-councils-estimate-demand.pdf

Resource Management (Enabling Housing Supply and Other Matters) Amendment Bill. This Bill can be retrieved from https://www.legislation.govt.nz/bill/government/2021/0083/latest/LMS566052.html

Wellington Regional Growth Framework Options Assessment Report (August 2020). Document can be retrieved from https://wrgf.co.nz/wp-content/uploads/2020/09/WRGF-Options-Assessment-Report-Aug-2020.pdf

Wellington Regional Growth Framework (July 2021). *Wellington Regional Growth Framework*. Report can be retrieved from https://wrgf.co.nz/wp-content/uploads/2021/08/1320-Wellington-Regional-Growth-Framework-Report-JULY-2021-FINAL-LR.pdf

Wellington Regional Growth Framework (July 2021). *3 year work programme by priority*. Document can be retrieved from https://wrgf.co.nz/wp-content/uploads/2021/07/3-year-work-programme-by-priority.pdf

Wellington Water (15 October 2020). Investment Options 2021-31 Long Term Plan. Greater Wellington Regional Council. Presentation to Council. Presentation can be retrieved from https://www.wellingtonwater.co.nz/publication-library/advice-and-work/document/633/

Wildlands Consultants & Forsyth, Frances (Nov 2017). Shaftesbury Grove Team Workshop – Ecology. Draft for discussion purposes only.

Wildlands Consultants & Forsyth, Frances (March 2018). *Shaftesbury Grove Vegetation Removal Including Loss of Potential Lizard Habitat*. Draft

APPENDIX 1: DETAILED FEASIBILITY ASSESSMENT

	Kelson			Stokes Valley		Wainuiomata	
Name	Kelson Option 1	Kelson Option 2		Shaftsbury Option 1	Shaftsbury Option 2	Wainuiomata Option 1	Wainuiomata Option 2
Potential Yield	188	169		186	136	1925	1296
Sales Values per lot	$ 385,000	$ 385,000		$ 385,000	$ 385,000	$ 350,000	$ 380,000
Total Gross Sales	$ 72,380,000	$ 65,065,000		$ 71,610,000	$ 52,360,000	$ 673,750,000	$ 492,480,000
Less Agency and legal fee (4%)	$ 2,895,200	$ 2,602,600		$ 2,864,400	$ 2,094,400	$ 26,950,000	$ 19,699,200
Less GST	$ 9,440,870	$ 8,486,739		$ 9,340,435	$ 6,829,565	$ 87,880,435	$ 64,236,522
NET REALISATION	$ 60,043,930	$ 53,975,661		$ 59,405,165	$ 43,436,035	$ 558,919,565	$ 408,544,278
Estimated Development Costs:							
Devl Mang	$ 1,103,553	$ 997,777	4%	$ 1,146,503	$ 870,409	$ 13,447,468	$ 9,719,840
RMA Planning	$ 1,504,000	$ 1,352,000	5%	$ 1,488,000	$ 1,088,000	$ 13,090,000	$ 10,368,000
Engineering	$ 864,800	$ 777,400	3%	$ 855,600	$ 625,600	$ 7,122,500	$ 5,961,600
Construction	$ 17,860,000	$ 16,055,000	62%	$ 17,670,000	$ 12,920,000	$ 146,300,000	$ 123,120,000
Additional Earthworks due to topography	$ 3,572,000	$ 3,211,000	12%	$ 3,534,000	$ 2,584,000	$ -	$ -
Titles and Survey	$ 1,015,200	$ 912,600	4%	$ 1,004,400	$ 734,400	$ 8,470,000	$ 6,998,400
Council contributions and reserve fee	$ 1,349,840	$ 1,213,420	5%	$ 1,124,734	$ 822,386	$ 43,521,739	$ 29,300,870
Additional Infrastructure Costs	$ 1,422,995	$ 1,422,995	5%	$ 2,985,840	$ 2,985,840	$ 117,682,457	$ 67,247,118
TOTAL ESTIMATED DEVELOPMENT COSTS	$ 28,692,388	$ 25,942,192		$ 29,809,077	$ 22,630,635	$ 349,634,164	$ 252,715,827
Development Costs per Lot	$ 152,619	$ 153,504		$ 160,264	$ 166,402	$ 181,628	$ 194,997
Land Value at 20% of net realisation	$ 12,008,786	$ 10,795,132		$ 11,881,033	$ 9,000,000	$ 111,783,913	$ 81,708,856
Land value per lot	$ 63,877	$ 63,877		$ 63,877	$ 66,176	$ 58,070	$ 63,047
Land value (m2)	$ 57	$ 51		$ 264	$ 133	$ 136	$ 99
Development profit and risk	$ 19,278,879	$ 17,174,461		$ 17,651,179	$ 11,739,223	$ 97,443,419	$ 74,056,548
Develoment Return on outlay	47%	47%		42%	37%	21%	22%
Development Return on outlay per lot	$ 102,547	$ 101,624		$ 94,899	$ 86,318	$ 50,620	$ 57,142
TOTAL GROSS AREA	80	80		12	12	136	136
Less: Road and Infrastructure	25%	25%		25%	25%	15%	25%
Less: Open space/SNR Areas	50%	50%		50%	25%	25%	15%
Less: SNA/ vegetation Area							
Less: Area too steep	15%	15%					
Less: Overflow path/ Coastal Inundation/ponding						4%	4%
Less: Faultline No Build Area							
NET DEVELOPMENT AREA (HA)	21.0000	21.0000		4.5000	6.7500	82.0760	82.6200
Local density							
Density Class	Low	Low		Low	Low	Medium	Low
Density /Ha	9	8		41	20	23	16
Ave Lot size	1117	1243		242	496	426	638
Stages	4	4		4	3	39	26
Access	Good	Good		Good	Good	Good	Good
Topo	Difficult	Difficult		Difficult	Difficult	Good	Good
Hazards							
Ponding							
Trans Links	Good	Good		V.Good	V.Good	Good	V.Good
Services	Good	Good		Good	Good	Good	Good
Earthquake Shaking Zone from GWRC GIS							
Liqufaction Severity from GWRC GIS	None	None		None	None	None	None
Area of site affected by liquifaction	0%	0%		0%	0%	0%	0%
Council contributions and reserve fee	$ 7,180	$ 7,180		$ 6,047	$ 6,047	$ 22,609	$ 22,609
ADDITIONAL INFRASTRUCTURE							
Water	$ 482,995	$ 482,995		$ 2,080,080	$ 2,080,080	$ 22,695,585	$ 22,695,585
Sewer	$ 940,000	$ 940,000		$ 905,760	$ 905,760	$ 91,048,109	$ 91,048,109
Stormwater						$ 54,374,101	$ 54,374,101
TOTAL INFRA UPGRADE COST	$ 1,422,995	$ 1,422,995		$ 2,985,840	$ 2,985,840	$ 168,117,795	$ 168,117,795
Infrastructure cost per lot	$ 7,569	$ 8,420		$ 16,053	$ 21,955	$ 87,334	$ 129,721
Council subsidy on infrastructure						30%	60%
Discounted DC per site (Developer to pay)						$61,133.74	$51,888.21

APPENDIX 2: UPPER KELSON

DEVELOPMENT OPTIONS, MCA SCORES , BOFFA MISKELL REPORT 2014

N

Notes:

1. This plan has been prepared for the purpose of informing advice to Hutt City Council Greenfield Development Review only. It shall not be used for any other purpose without the express written approval of the author.
2. The final density, lot and roading layout are subject to additional investigations, including but not limited to landscape, ecology, engineering and geotechnical assessments.
3. Contours shown have been derived from LiDAR information sourced from LINZ Data Service and are in terms of New Zealand Vertical Datum 2016.
4. Aerial photography shown has been sourced from LINZ Data Service
5. SNA information is from Boffa Miskell Report "Kelson (Major Drive) Plan Change - Ecological Survey and Constraints Mapping" PCC - 27 November 2014. This is shown as Scenario 2 in Boffa Report.
6. Lot Yield = 188 (average area 1075m^2)

Legend:

SNA

SNA Buffer

Significant Natural Resource Site (SNR) from Operative District Plan Maps

Potential Residential Zone

New Development access via Major Drive

New development sewer connection via pumping main or gravity feed down to Western Hutt Road Main

New Development Water Connection from Major Drive

Major Drive

Drummond Cres

Outram Grv

New development water from Drummond St and new development sewer connection via pumping main or gravity feed down to Western Hutt Road Main

New Development access via Major Drive

Liverton Rd Cul-de-sac

Liverton Rd

40 20 0 40 80 120 m

LANDMATTERS

CLIENT: HUTT CITY COUNCIL

PROJECT: HUTT CITY GREENFIELD DEVELOPMENT

DRAWING TITLE: UPPER KELSON OPTION 1

DATE: 24/11/2021

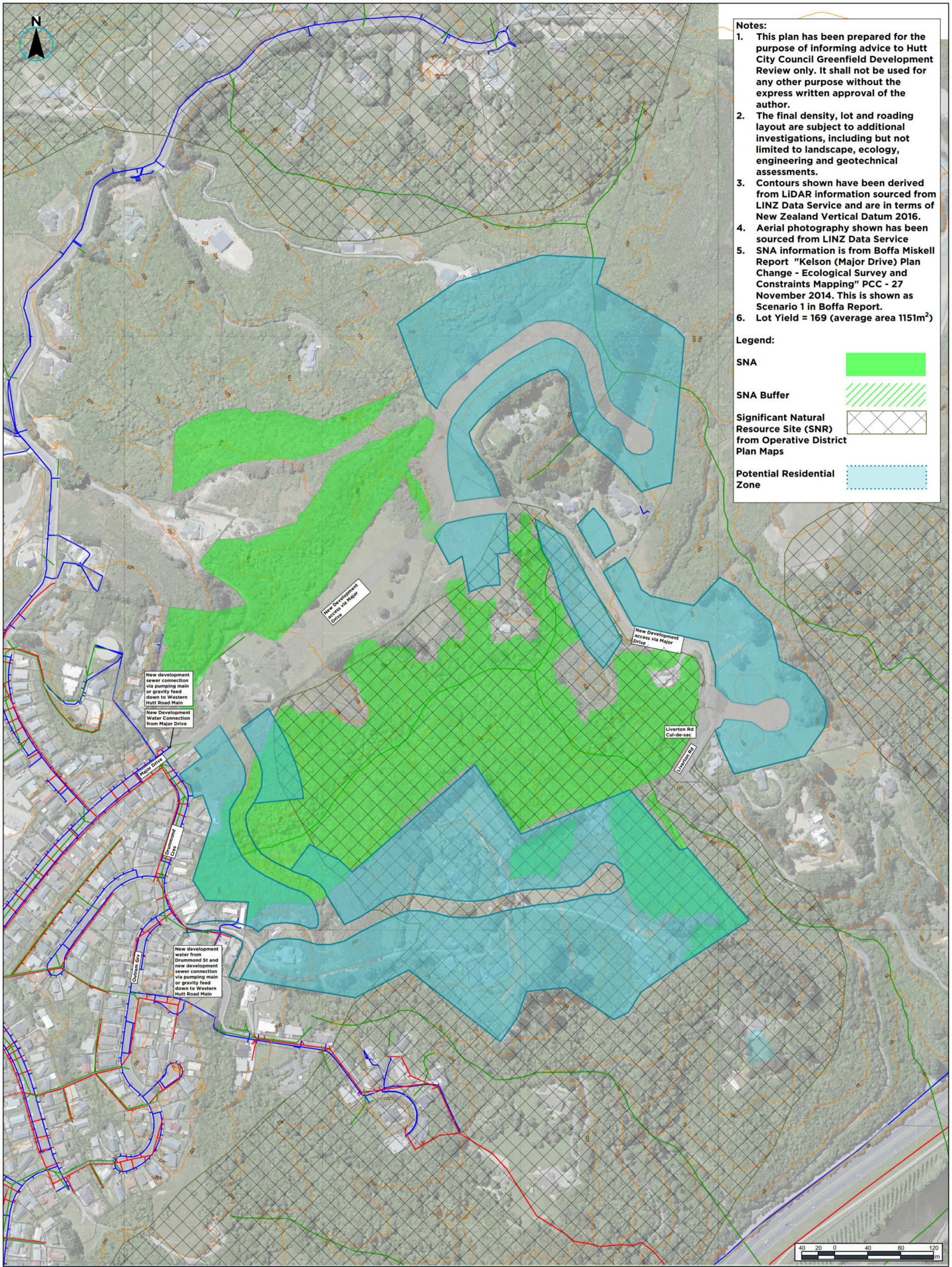
PROJECT NO.: 860

SCALE: 1:2000 @ A1, 1:4000@ A3

DRAWING NO.: 860-UKO1

REV: -

C:\12dSl\data\LM-DATA\985 - Greenfield Redevelopment - Phase 2_1097\10 Plans, Aerials, CAD\Upper Kelson\Upper Kelson.dwg, Plotted by Ben Negus at 18/07/2023 4:37:16 pm



Notes:

1. This plan has been prepared for the purpose of informing advice to Hutt City Council Greenfield Development Review only. It shall not be used for any other purpose without the express written approval of the author.
2. The final density, lot and roading layout are subject to additional investigations, including but not limited to landscape, ecology, engineering and geotechnical assessments.
3. Contours shown have been derived from LiDAR information sourced from LINZ Data Service and are in terms of New Zealand Vertical Datum 2016.
4. Aerial photography shown has been sourced from LINZ Data Service
5. SNA information is from Boffa Miskell Report "Kelson (Major Drive) Plan Change - Ecological Survey and Constraints Mapping" PCC - 27 November 2014. This is shown as Scenario 1 in Boffa Report.
6. Lot Yield = 169 (average area 1151m^2)

Legend:

- SNA
- SNA Buffer
- Significant Natural Resource Site (SNR) from Operative District Plan Maps
- Potential Residential Zone

LANDMATTERS

CLIENT	PROJECT	DRAWING TITLE	DATE	PROJECT NO.
HUTT CITY COUNCIL	HUTT CITY GREENFIELD DEVELOPMENT	UPPER KELSON OPTION 2	24/11/2021	860
			SCALE	1:2000 @ A1 1:4000@ A3
			DRAWING NO.	REV
			860-UKO2	-

C:\12dS\data\LM-DATA\985 - Greenfield Redevelopment - Phase 2_1097\10 Plans, Aerials, CAD\Upper Kelson\Upper Kelson.dwg, Plotted by Ben Negus at 18/07/2023 4:39:01 pm

Multi-criteria Anlyasis Score Upper Kelson	**Option 1** Large Lot Residential (@ 188 lots average lot size of 1,000m²; minimum lot size 600m²	**Option 2** Large Lot Residential (@ 169 lots average lot size of 1,000m²; minimum lot size 600m²	**Option 3** Status Quo Rural Residential Zone (minimum lot size 2 ha)	**Qualitative Assessment**
Objective 1: Increase housing supply, and improve housing affordability and choice				
KPI 1a: Feasible housing capacity - deficit vs demand (% of added households)	2% increase	2% increase	0	Quantitative assessment: Green is better
KPI 1b: Housing choice and variety - share of new dwellings that are terraced house and apartment	0	0	0	Quantitative assessment: Higher is better
Score for Objective 1: To what extent does the urban development option increase housing supply, and improve housing affordability and choice?	**0**	**0**	**-1**	Qualitative rating
Commentary	• The better scoring options have more housing growth located in or near centres with a more favourable outcome towards supply and affordability. Centres are already offering urban amenity and jobs, so this makes it easy to live and work and minimizes travel costs. • Greenfield is easy to do and is easier to get supply constant and affordability can benefit where there is good supply. • Infrastructure upgrades can be more expensive in greenfield areas.			
Objective 2: Enable growth that protects and enhances the quality of the natural environment and accounts for a transition to a no/low carbon future				
KPI 2a: Total quantity of open space consumed for development (ha)	n/a	n/a	n/a	Quantitative assessment: Lower is better
KPI 2b: Quantity of sensitive areas / biodiversity areas consumed for development (Natural forest proxy)	SNA protected only	SNA & Indigenous Vegetation protected	0	Quantitative assessment: Green is better
KPI 2c: Quantity of versatile rural land consumed for development (ha)	n/a	n/a	n/a	Quantitative assessment: Lower is better
KPI 2d: Total quantity of greenhouse gas emissions from transport (calculated from total vehicle kms travelled) (co2 per h/h per year). **Assume 5.3km travel by private vehicle from Upper Kelson to Melling Railway Station. Assume 2.4 person per household.**	8.4$_t$ CO_2/yr/pp 20$_t$ CO_2/yr/hh **3,790$_t$ CO_2/yr**	8.4$_t$ CO_2/yr/pp 20$_t$ CO_2/yr/hh **3,380$_t$ CO_2/yr**	0	Quantitative assessment: Green is better
Score for Objective 2: To what extent does the urban development option enable growth that protects and enhances the quality of the natural environment and accounts for a transition to a low/no carbon future?	0	1	0	Qualitative Assessment: Higher number has better outcomes
Commentary	• Greater potential for adverse effects on/loss of significant natural values (biodiversity, ecosystem function, ecosystem services and landscape values)			

Multi-criteria Anlyasis Score Upper Kelson	Option 1 Large Lot Residential (@ 188 lots average lot size of 1,000m²; minimum lot size 600m²	Option 2 Large Lot Residential (@ 169 lots average lot size of 1,000m²; minimum lot size 600m²	Option 3 Status Quo Rural Residential Zone (minimum lot size 2 ha)	Qualitative Assessment
	under higher density options • Generally, much more carbon-intensive travel patterns under all options as there are limited public transport options and no high frequency public transport options available or planned for resulting in more emissions-intensive housing form and energy use. More intensive urban form may encourage development of public and active transport modes through strategic land transport planning.			
Objective 3: Improve access to and between housing, employment, education and services, utilising all multi-modal transport options				
KPI 3a: Public transport mode share during AM/PM peak to Melling Railway station	Route 150 (every 30mins) 32mins	Route 150 (every 30mins) 32mins	0	No data on public transport volumes versus private vehicle. However public transport 3 times 4.5 times longer than private transport
KPI 3b: Average AM/PM peak vehicle speeds (km/hr) to Melling Railway Station	45km/hr 5.3km/7min	45/hr 5.3km/7min	0	Quantitative assessment: Green is better
Score for Objective 3: To what extent does the urban development option improve multi modal access to and between housing, employment, education and services?	**-1**	**-1**	**0**	Qualitative rating
Commentary	• Private transport will be preferred over public transport or walking given lack of high frequency and range of public transport options • No public transport upgrades proposed for Upper Kelson • Rapid transit connections are critical to success of nodes and centres options because they allow more journey choices and grid networks are more efficient and resilient – without these being rapid, high quality and high frequency, scores would be lower. • High population densities with more people seeking active transport and recreation in neighbourhood will have health as well as low-emissions travel benefits if these opportunities are provided.			
Objective 4: Encourage sustainable, resilience and affordable settlement patterns/urban for that make efficient use of existing infrastructure and resources				
KPI 4a: Share of household growth in areas expected to have water supply capacity in 2047 (%)	100%	100%	100%	Quantitative assessment: Higher is better
KPI 4b: % share of AM/PM peak motorway travel by public transport. Note: based on Statistics NZ 2018 Census travel by household	13%	13%	No change	Quantitative assessment: Higher is better
Panel score for Objective 4: To what extent does the urban development option encourage sustainable, resilient and affordable settlement patterns/urban form that make efficient use of existing infrastructure and resources?	**0**	**0**	**0**	Qualitative rating

Multi-criteria Anlyasis Score Upper Kelson	Option 1 Large Lot Residential (@ 188 lots average lot size of 1,000m²; minimum lot size 600m²	Option 2 Large Lot Residential (@ 169 lots average lot size of 1,000m²; minimum lot size 600m²	Option 3 Status Quo Rural Residential Zone (minimum lot size 2 ha)	Qualitative Assessment
Commentary	• The options that score best are those that build from a base of urban patterns that have established in key centres and nodes. Nodal and centres-based development will also utilize existing infrastructure and potentially enable efficiencies in additional critical mass to support upgrades and renewals (including horizontal and community infrastructure). • Greenfield that extends current infrastructure investments provided some affordability and can be sustainable/resilient etc. provided there is a control to this (will still need an urban development entity or some such). • Distribution to existing infrastructure corridors is positive - this is likely to be more efficient and sustainable. • The flatter land areas signaled can enable more flexible patterns of development (i.e. connectivity in form) which allows for better transport options and potentially re-subdivision longer term (adding to resilience and sustainability). • There is a strategic issue that the culture of what good urban is in NZ context will take some generations to change – living more shared lives, public spaces being streets and parks that you share comfortably with others, not owning your own house, using public transport, etc. are going to take time.			
Objective 5: Build climate change resilience and avoid increasing the impacts and risks of natural hazards				
KPI 5a: Population located in areas vulnerable to sea level rise	0	0	No change	Quantitative assessment: Green is better (lower is better)
KPI 5b: Employment located in areas vulnerable to sea level rise	0	0	No change	Quantitative assessment: Green is better (lower is better)
KPI 5c: Population located in areas vulnerable to earthquake hazards	0	0	No change	Quantitative assessment: Green is better (lower is better)
KPI 5d: Population located in areas vulnerable to slips and ground instability (due to increased rain events) based on slope and soils	1	1	No change	Quantitative assessment: Lower is better (slope of 1^0 – 31^0 represents completely developable with a score of 0; slope greater than 31^0 represents less developable
Panel score for Objective 5: To what extent does the urban development option build climate change resilience and avoid increasing the impacts and risks from natural hazards?	**1**	**1**	**0**	Quantitative assessment: Green is better (lower is better)
Commentary	• Options that spread the development across several areas, enhancing adaptability over time score well. • Greenfield options that have more of the development achieved at areas not prone to climate change and hazards score higher. • Development in existing seismic hazard areas increase risk for those located there and place added pressures on lifelines and emergency services and cost of building for higher earthquake standards to be met.			
Objective 6: Create employment opportunities				
KPI 6a: Transport access to jobs (WCC) via car (Time at peak hour)	57 min	57 min	No change	Quantitative assessment: Lower is better (slope of 1^0 – 31^0 represents completely developable with a score of 0; slope greater than 31^0 represents less developable
KPI 6b: Transport access to jobs via public transport (Time at peak hour)	36min	36min	No change	Upper Kelson represents a low risk environment to natural hazards

Multi-criteria Anlyasis Score Upper Kelson	Option 1 Large Lot Residential (@ 188 lots average lot size of 1,000m²; minimum lot size 600m²	Option 2 Large Lot Residential (@ 169 lots average lot size of 1,000m²; minimum lot size 600m²	Option 3 Status Quo Rural Residential Zone (minimum lot size 2 ha)	Qualitative Assessment
KPI 6c: Transport access to universities via car (Time at peak hour)	54min	54min	No change	Quantitative assessment: Higher is better
KPI 6d: Transport access to universities via public transport (Time at peak hour)	1hr 5min	1hr 5min	No change	Quantitative assessment: Higher is better
KPI 6e: Transport access to hospitals via car (Time at peak hour)	11 min	11 min	No change	Quantitative assessment: Higher is better
KPI 6f: Transport access to hospitals via public transport (Time at peak hour)	28 min	28 min	No change	Quantitative assessment: Higher is better
Panel score for Objective 6: To what extent does the urban development option create employment opportunities?	**0**	**0**	**0**	Qualitative rating
Commentary	• Jobs closer to where people live is a positive and connects well with impacts of COVID-19. • Government job disbursement is a sustainable and good outcome - more likely to drive development and attract other uses in locations that are not already established. • Diversity and intensify is viable within reason • Lower value costs associated with non-CBD options is likely to be attractive to employers looking to drive down costs of lease or ownership when workforce able to work more remotely. • Greenfield will be financially attractive to employers as lower rents but impact for region perhaps not ideal as will drive more commuters, onto roads and public transport. This could see an oversupply in greenfield and rather than 20 min commute, people could be travelling more to other locations crisscrossing the region. • Centres and nodes development combined option seems the most likely scenario to happen without a major shift in direction for the region.			

Alignment with mana whenua aspirations				
Mana Whenua Score	tbc	tbc	tbc	Qualitative rating
Commentary	• For any development option, mahitahi (partnership) is a key value for mana whenua. The Framework must demonstrate a commitment to best practice consultation and engagement processes, including iwi involvement at multiple levels such as individual plan changes, planning processes, freshwater management plans, and new greenfield development. • Developments must improve wellbeing holistically. Incorporating values from Te Ao Māori in development options such as oranga (wellbeing), kaitiakitanga (guardianship), manaakitanga (generosity), and kotahitanga (unity) are important for achieving holistic wellbeing and improving health, education and prosperity outcomes for Māori. • Development in nodes protects high quality land and improves housing affordability/choice/density therefore supports aspirations to cater for the unique needs of the Maori population and lower income earners. • Employment and services closer to home is aligned with marae hubs health improving community access for Māori. • Risks of vulnerable Māori communities/ lower income earners disadvantaged by cost of living in centres dominant options. • Improving public transport to/from major centres contributes to improving affordable reliable transport in areas in the region with higher mana whenua			

Multi-criteria Anlyasis Score Upper Kelson	Option 1 Large Lot Residential (@ 188 lots average lot size of 1,000m²; minimum lot size 600m²	Option 2 Large Lot Residential (@ 169 lots average lot size of 1,000m²; minimum lot size 600m²	Option 3 Status Quo Rural Residential Zone (minimum lot size 2 ha)	Qualitative Assessment
	populations. Reduces climate impacts and increases resilience (promotes values of transitioning fast to a low carbon economy). It also promotes aspirations around health gains from reducing car dependence, aligning with healthier community. • Improving transport and employment to the centers benefits both the population outside of centres and youthful Māori population who may choose living outside of papakāinga living. • Resilient infrastructure supports aspirations to protect the healthy functioning of ecosystems around infrastructure networks, contributes to iwi aspirations for freshwater outcomes. • Some areas densely populated with mana whenua iwi (Māori communities) need to be supported by infrastructure resilience measures and improved transport options.			

TOTAL MCA SCORE – UPPER KELSON	Option 1	Option 2	Option 3:	Qualitative rating
Average of the 6 scores (excludes mana whenua score which is tbc). Max score based on Wellington Regional Growth Framework Multi-Criteria Panel Assessment (see table below)	1.2	1	- 1	Both options 1 and 2 represent a slightly better outcome from the base case. However, the status quo represents a slightly worse outcome than the base case over a 30 year period.

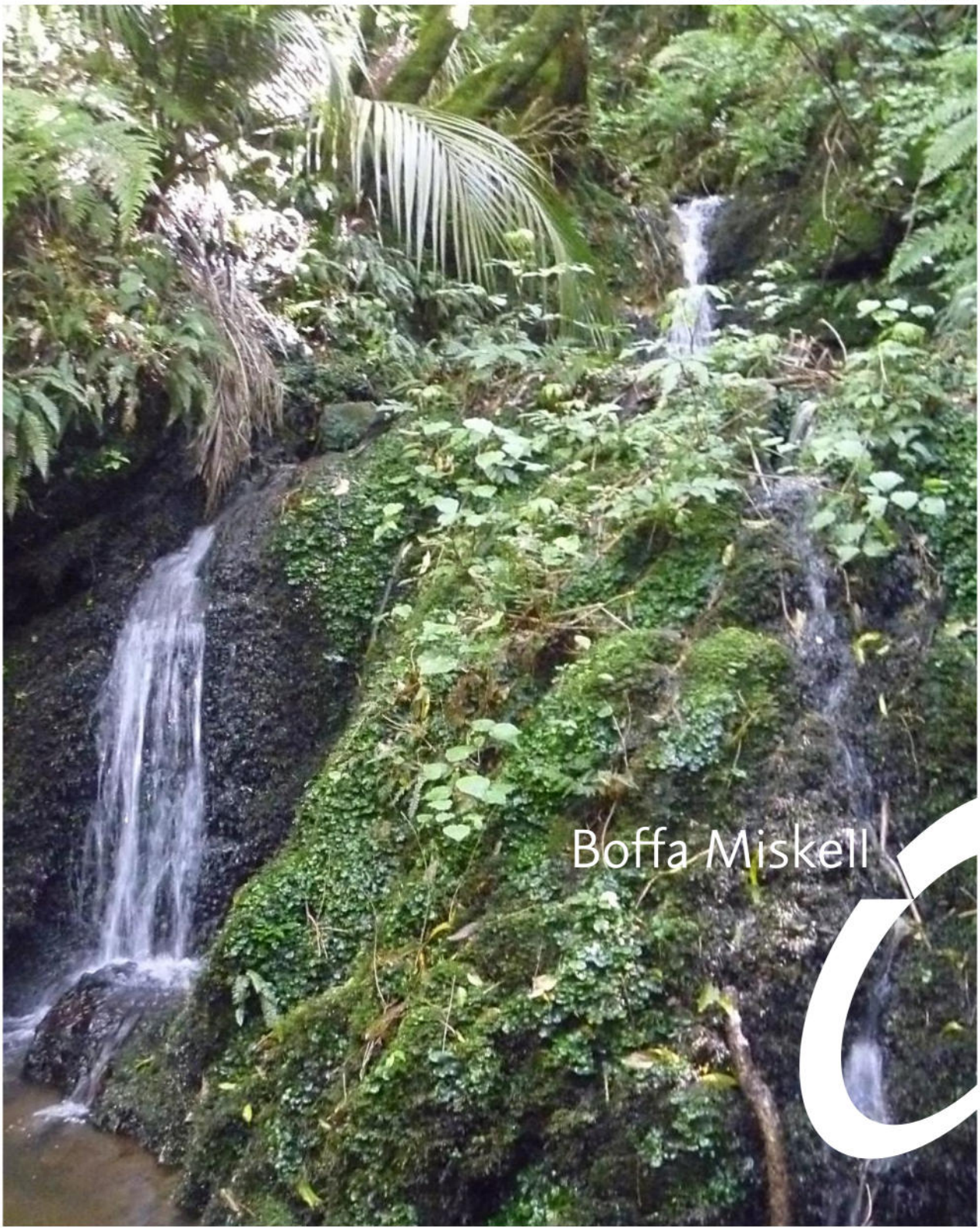
Wellington Regional Growth Framework Multi-criteria Panel Assessment	
Rating	Means
3	**Largely better** – provides a considerable amount of improvement over the Base Case, so that in 30 years' time there will be a noticeably improved difference in the region
2	**Moderately better -** provides somewhat of an improvement over the Base Case so that in 30 years' time change is noticeable but not to a large extent
1	**Slightly better** - provides some but hardly any improvement from the Base Case and will not be noticeably different over the 30 year period
0	**Neutral** no discernible or positive or negative difference from the Base Case
-1	**Slightly worse –** is hardly, but is still somewhat, worse than the Base Case over the 30 year period
-2	**Moderately worse –** is somewhat worse than the Base Case so that in 30 years' time negative change is noticeable but not to a large extent
-3	**Largely worse -** is considerably worse than the Base Case so that in 30 years time there will be a noticeable negative difference in the region

Source: Wellington Regional Growth Framework

KELSON (Major drive) PLAN CHANGE

Ecological Survey and Constraints Mapping
Prepared for Hutt City Council

27 November 2014



Document Quality Assurance

Bibliographic reference for citation: Boffa Miskell Limited 2014. KELSON (Major drive) PLAN CHANGE: Ecological Survey and Constraints Mapping. Report prepared by Boffa Miskell Limited for Hutt City Council.		
Prepared by:	Tessa Roberts [Ecologist] Stephen Fuller [Senior Ecologist] Boffa Miskell Limited	
Reviewed by:	Dr Vaughan Keesing [Senior Ecologist] Boffa Miskell Limited	
Status: DRAFT	Revision / version: 2	Issue date: 27 November 2014

Template revision: 20130822 0000

File ref: W14080_Kelson_EcologicalAssessmentReport_V2_DRAFT_20141128.docx

Cover photograph: [Waterfall Pool system found within the main gully, of the Kelson survey site, © Tessa Roberts, 2014]

CONTENTS

APPENDICES

TABLES

FIGURES

1 INTRODUCTION

One of the projects identified in the Urban Growth Strategy, 2012-32 for Hutt City [1] is the development of Greenfield sites to residential. The strategy specifically identifies 3 areas, one of which is at Kelson (Major Drive). This area is currently zoned Rural Residential and for further development to proceed it would need to be rezoned.

The area is located between the end of Major Drive and Liverton Road; it consists of 10 privately owned properties varying in size from 2ha up to 7.2ha. Most of the sites are used for rural/lifestyle residential and the vegetation varies from open pasture and landscaped gardens to regenerating bush.

The small water catchments within the site all flow south, down a steep escarpment, under state highway 2 and into the Hutt River. Several Parks and reserves can be found within the area and the site itself can be found within Kelson Bush.

The key ecological consideration for this site is its historical identification by Hutt City as part of a significant natural resource (SNR 23 – Kelson Bush) and by Greater Wellington Regional Council as a key native ecosystem (KNE). Its KNE status was due to the presence of a regionally representative example of relatively unmodified lowland mahoe forest containing large numbers of bird species, including a breeding population of kereru.

As part of preparing a proposed plan change for the rezoning of the area HCC has commissioned an assessment of the ecological values of the area as well as the ecological significance of those values (taking into account Policy 23 of the Regional Policy Statement for the Wellington Region). The assessment is intended to inform the statutory planning process associated with the proposed rezoning and to assist Council with decisions relating to this project.

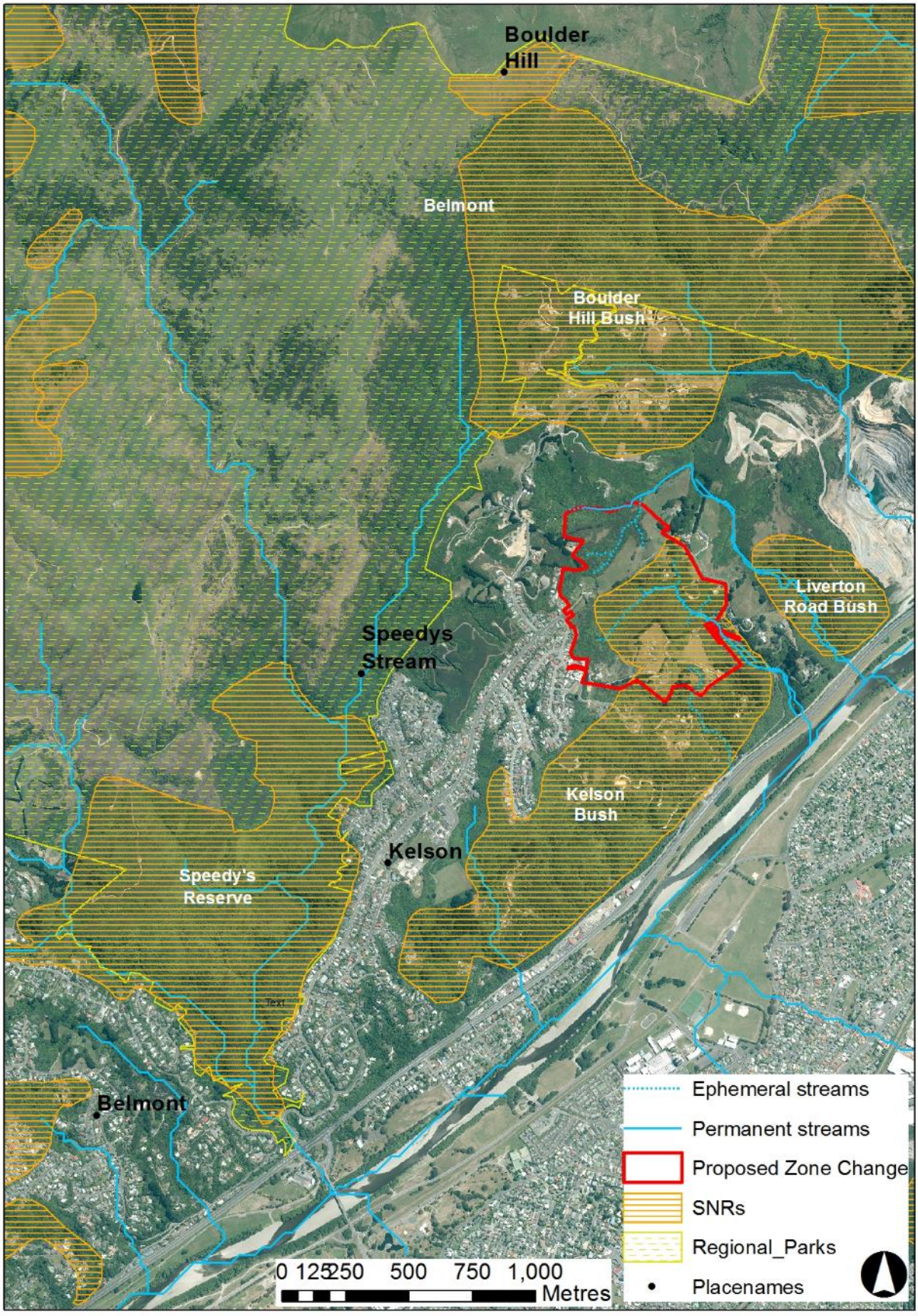
This assessment is divided into the following sections

- A detailed methodology
- A description of the existing site
- An assessment of ecological significance
- A discussion and conclusion

The location of the site and context is shown in Figure 1, page 2.

[1] Hutt City Council, *Urban Growth Strategy 2012-2032*, n.d.

Figure 1: Survey area of proposed zone change within the context of surrounding parks and reserves, the topography of the site and the watercourse of streams within the survey area.



2 METHODOLOGY

Ecological assessment of the site was made with a combination of desktop analysis and field survey work:

2.1 Desktop analysis

This consisted of a review of supplied plans and documentation, checking of existing biological databases, familiarisation with published information on biological values within the affected area, and conversations with GWRC biodiversity staff, landowners and nominated Hutt City staff. This phase also included preparation (in GIS format) of site maps and plans to direct the field surveys.

Information was derived from known datasets on landforms, soils, climate and erosion of the site. Preliminary vegetation communities were identified and described through a combination of New Zealand Land Cover Database, version three (LCDBv3)[2], and the use of aerial photographs.

The national threat classification of species was derived from the appropriate threat classification systems lists: Birds[3], fish[4], and plants[5]. Their regional status was derived from the Conservation Management Strategy for the Wellington Conservancy[6].

2.2 Field inspections

The site was surveyed during the day on the 2nd and 7th of October, 2014 and at night on the 16th of October, 2014. All properties within the survey area were traversed on foot, with the exception of 131 Liverton Road, where access was denied. This property was assessed visually from the margins, using binoculars to describe canopy type. The weather on all visits was fine and calm.

2.2.1 Vegetation mapping

The extent and differences in vegetation were firstly delineated on aerial photos using GIS topography and high resolution aerial photographs. They were then ground-truthed by field survey.

Each of the vegetation types identified prior to field survey were walked through and described. Descriptions, photos and species lists were written for each defined vegetation community in the field surveys, and any corrections needed to the pre-survey mapping noted.

The vegetation was mapped at the scale of 1:2,500 which we consider provides sufficient detail to aid in the future assessment of effects for a plan change.

Vegetation plots or transects were not considered necessary as part of the process of describing this vegetation as the communities are locally common and widespread and so well known, are mostly early seral and so contain a known range of common species; the vegetation is largely of

[2] Ministry for the Environment, "New Zealand Land Cover Database," accessed July 29, 2013, http://www.mfe.govt.nz/issues/land/land-cover-dbase/.

[3] Hugh A. Robertson et al., *Conservation Status of New Zealand Birds, 2012*, New Zealand Threat Classification Series (Wellington: Department of Conservation, November 2013).

[4] Jane M. Goodman et al., *Conservation Status of New Zealand Freshwater Fish, 2013*, New Zealand Threat Classification Series (Wellington: Department of Conservation, May 2014).

[5] P. J. de Lange et al., *Conservation Status of New Zealand Indigenous Vascular Plants, 2012*, New Zealand Threat Classification Series (Wellington: Department of Conservation, August 2013).

[6] Department of Conservation, *Preliminary Draft Vision 2020: A Conservation Management Strategy for the Wellington Region 2010-2020* (Wellington: Department of Conservation, 2010).

low stature and simple structure making description easy, and the vegetation canopy could be readily seen from numerous vantage points and so any emergent and lianes could be accounted for.

2.2.2 Birds

All birds seen or heard on site during the three site visits were noted, along with the habitat each species was found within.

Not all species potentially present would have been seen on these October visits and a comprehensive survey would need seasonal visits. This required that we also draw upon the recorded presence of bird species within the wider Belmont/Lower Hutt landscape as identified within the Atlas of Bird Distribution[7]. We then made decisions regarding likely presence based on habitat requirements for each species.

2.2.3 Lizards

Lizard searches in the pioneer and seral vegetation covering most of the site was not considered necessary. We have assumed that common skink species will have colonised these areas from adjacent bush and residential properties as pasture regenerated.

A small area of taller tawa dominated vegetation at the eastern corner of the site is likely to contain arboreal geckos, however, due to the difficulty of observing these fauna in tall forest we have relied on published documents of lizard presence within nearby forests to determine likely species presence.

Depending on the scale and location of potential vegetation clearance that might be required by the design of a future structure plan, additional lizard investigations may be required for this key habitat.

2.2.4 Terrestrial Invertebrates

No searches were carried out for threatened land snails (*Wainuia, Powelliphanta*) given the habitat on the site has been historically cleared, has a long history of pastoral farming, and the likelihood of these sensitive species persisting is negligible.

No pit fall trapping or malaise trapping was carried out given the vegetation on the site is largely seral in nature requiring recent colonisation of mobile species, and given this area of seral vegetation lies within an area of hill country containing large expanses of seral, sub-mature and remnant native vegetation of a similar or better quality.

Again for the small area of tawa forest assumption are made whereby the invertebrate community is considered representative of this forest type.

2.2.5 Water-bodies

A description and photographs of any wetlands or waterways, ephemeral, intermittent or perennial was carried out as on site. Each of the major gullies containing streams were walked up, noting changes in stream form.

[7] C. J. R. Robertson et al., *Atlas of Bird Distribution in New Zealand: 1999-2004* (Wellington: Ornithological Society of New Zealand, 2007).

The field investigation occurred in early spring after several weeks of rain starting on 16 September and persisting until 28 September. At the time of the survey all streams had continuous flows up to their headwaters obscuring tributaries that might be ephemeral. We have therefore also relied on discussions with local landowners in determining seasonal stream persistence.

Culverts under roadways were observed downstream of the main stream ('B') in order to identify any barriers to fish passage.

2.2.6 Aquatic Fauna

Appropriate fish habitat was identified within representative sections of the two perennial streams during the two day field surveys. The two likely perennial streams (B & C) were then fished using an electric fishing machine. In the larger stream (B) fishing extended over a length of 150m focusing on obvious habitat. In the smaller stream (C) fishing extended over a length of approximately 75m until a point was reached where no fish habitat was present. In addition a small wetland at the base of stream D was also electric fished.

Based on the results of this electric fishing Stream B was then surveyed again by spotlighting.

Nets were not used due to the small size of the streams.

In a number of sections, stream boulders and cobbles were turned and the invertebrate fauna considered. The species seen were considered typical for a stream of this nature including a small range of 'EPT' fauna, and kick netting was not carried out.

2.3 Assessment of Significance

The ecological significance of the area was assessed against Policy 23 of the Regional Policy Statement for the Wellington Region[8]. This policy contains the following assessment criteria:

Policy 23: Identifying indigenous ecosystems and habitats with significant indigenous biodiversity values – district and regional plans District and regional plans shall identify and evaluate indigenous ecosystems and habitats with significant indigenous biodiversity values; these ecosystems and habitats will be considered significant if they meet one or more of the following criteria:
a) Representativeness: the ecosystems or habitats that are typical and characteristic examples of the full range of the original or current natural diversity of ecosystem and habitat types in a district or in the region, and: (i) are no longer commonplace (less than about 30% remaining); or (ii) are poorly represented in existing protected areas (less than about 20% legally protected).
b) Rarity: the ecosystem or habitat has biological or physical features that are scarce or threatened in a local, regional or national context. This can include individual species, rare and distinctive biological communities and physical features that are unusual or rare.

[8] Greater Wellington Regional Council, *Regional Policy Statement for the Wellington Region* (Wellington: Greater Wellington Regional Council, April 2013).

c) Diversity: the ecosystem or habitat has a natural diversity of ecological units, ecosystems, species and physical features within an area.
d) Ecological context of an area: the ecosystem or habitat: (i) enhances connectivity or otherwise buffers representative, rare or diverse indigenous ecosystems and habitats; or (ii) provides seasonal or core habitat for protected or threatened indigenous species.
E) Tāngata whenua values: the ecosystem or habitat contains characteristics of special spiritual, historical or cultural significance to tāngata whenua, identified in accordance with tikanga Māori.

In applying these criteria we have considered the following.

2.3.1 General Application of Policy 23

Policy 23 considers ecosystems and habitats to be significant if they meet one or more of the following criteria. Therefore a site that contains ecosystems or habitats that meet, for example, criteria a) (ii) "are poorly represented in existing protected areas", is automatically significant irrespective of its scores for rarity, diversity, context or condition.

Policy 23 does not consider levels of significance. A site is either significant or not.

2.3.2 Criteria A: Representativeness

The first part of this criteria is unusual to the extent that it incorporates the word "current" as follows:

> *"habitats that are typical and characteristic examples of the full range of the **original** or **current** natural diversity of ecosystem and habitat types".*

Traditionally the LENZ threat mapping considers the presence of vegetation and habitats which are "representative" of the original vegetation and habitats at a site (i.e. pre human). Guidance as to what constitutes original vegetation and habitats is provided by a number of sources including LENZ Potential Vegetation[9], and more recently, the terrestrial ecosystem classification system developed by Singers and Rogers[10]. With this guidance, an assessment is straightforward.

However, use of the word "current" introduces a level of uncertainty to this criteria and no guidance is provided on how this word is to be interpreted or what specific "current" vegetation communities or habitats were intended to be captured by this criteria.

A literal interpretation could be that any indigenous plant community is captured including induced plant communities such as pioneer shrublands of tauhinu in pasture, or monocultures of mahoe regenerating through gorse. These are not representative of "*original*" natural ecosystems as they have arisen as a result of anthropogenic factors, but they are certainly communities that represent the "*current*" natural diversity of ecosystem and habitats.

---

9 Ministry for the Environment & Department of Conservation. 2007: Protecting our places: Introducing the national priorities for protecting rare and threatened native biodiversity on private land. April 2007,

10 Singers, N.J.D and Rogers, G.M. 2014: A classification of New Zealand's terrestrial ecosystems. New Zealand Department of Conservation. May 2014,

Once a decision has been made regarding the presence of habitats representative of natural diversity the threat status or state of protection of that habitat is then considered.

This criteria appears to be based on the Land Environments of New Zealand (LENZ) threatened environments classification. LENZ Threat informs National Priority 1 of the "National Priorities for Protecting Rare and Threatened Indigenous Biodiversity"[11]. National Priority 1 states

> *National Priority 1: To protect indigenous vegetation associated with land environments (defined by Land Environments of New Zealand at Level IV), that have 20% or less remaining in indigenous cover.*

Table 1: LENZ Threatened Environment Classification

Category	1. Acutely threatened	2. Chronically threatened	3. At risk	A. Critically under protected	B. Under protected	C. Protected
Criteria	<10% indigenous cover remaining	10–20% indigenous cover remaining	20–30% indigenous cover remaining	>30% remaining and <10% protected	>30% remaining and 10% - 20% protected	>30% remaining and >20% protected

In Policy 23 the criteria (i) "no longer commonplace (less than about 30% remaining)" incorporates categories 1 to 3 of the LENZ threat classification. Criteria (ii) "poorly represented in existing protected areas (less than about 20% legally protected)" incorporates categories A & B of the LENZ threat classification.

Decisions on what constitutes habitats that are typical and characteristic examples of 'current' indigenous habitats and ecosystems at this site are discussed in the relevant sections.

2.3.3 Criteria B: Rarity

This criteria introduces a number of terms that are unusual and not otherwise defined. This includes the words scarce, distinctive and unusual as follows:

- 'biological or physical features that are scarce or threatened'
- 'rare and distinctive biological communities'
- 'physical features that are unusual or rare.'

As guidance to the presence of scarce, threatened, rare, distinctive or unusual biological communities or physical features we have considered Priorities 2, 3 and 4 of the National Priorities for Protecting Rare and Threatened Indigenous Biodiversity. They are:

> *National Priority 2: To protect indigenous vegetation associated with sand dunes and wetlands; ecosystem types that have become uncommon due to human activity.*
>
> Wetlands present on the site are considered.
>
> *National Priority 3: To protect indigenous vegetation associated with 'originally rare' terrestrial ecosystem types not already covered by priorities 1 and 2.*

[11] Ministry for the Environment, *Protecting Our Places: Introducing the National Priorities for Protecting Rare and Threatened Native Biodiversity on Private Land*, ME (Wellington: Ministry for the Environment & Department of Conservation, April 2007).

Seventy two "naturally rare ecosystems" have been identified[12] and are defined as "ecosystems having a total extent less than 0.5% of New Zealand's total area" and the presence of any of these are considered.

National Priority 4: To protect habitats of acutely and chronically threatened indigenous species.

The threat status of indigenous species of flora and fauna we use standard national criteria found in Townsend et.al [13] along with a range of published sources which apply this threat classification to different groups of flora and fauna.

An area of concern is the use of the phrase 'scarce or threatened' in Policy 23. The word scarce is not used in any national guidance on threatened species and its use here is not defined.

One interpretation is that 'Scarce' is intended to encompass 'At Risk' species in addition to species which are 'threatened'. If this is the intent then 'scarce' will include species classified as Declining, Recovering, Relict, and Naturally Uncommon. We would note however that Appendix 1, Table 16 of the RPS identifies:

"rivers and lakes with significant indigenous ecosystems and habitats with significant indigenous biodiversity values by applying criteria taken from policy 23 of rarity (habitat for threatened indigenous fish species)".

It specifically identified shortjaw kokopu (Galaxias postvectis), giant kokopu (Galaxias argenteus) and dwarf galaxias (Galaxias divergens) all species that are nationally threatened. 'At Risk' fish species were not considered.

The correct approach needs to be confirmed with GWRC.

2.3.4 Criteria C: Diversity

No guidance is provided for the determination of what constitutes natural diversity, or at what scale diversity should be assessed. This criterion is therefore assessed subjectively based on the experience of the surveying ecologist.

The exception is the application of criterion for indigenous fish diversity which is the presence of six or more species of migratory fish as recorded in the New Zealand freshwater fish database in a catchment. (Appendix 1, Table 16 Rivers and Lakes With Significant Indigenous Ecosystems and Habitats with Significant Indigenous Biodiversity Values).

For terrestrial ecosystems and species we therefore rely on our knowledge of the Ecological District and Region.

2.3.5 Criteria D: Ecological Context

Ecological context with regard to connectivity and buffering is assessed subjectively by the surveying ecologist on a site by site basis and in relation to the presence of significant ecosystems or habitats that require connection or buffering.

---

12 Williams, P. et.al. 2007: New Zealand's historically rare terrestrial ecosystems set in a physical and physiognomic framework. New Zealand Journal of Ecology (2007) 31(2): 119-128

13 Townsend, et.al. 2008: New Zealand Threat Classification System Manual. Wellington: Department of Conservation.

Ecological context with regard to seasonal or core habitat for protected or threatened species is based upon known or inferred species presence together with an assessment of the quality of the habitat which those species are likely to utilise.

2.3.6 Criteria E: Tāngata whenua Values

We are not qualified to determine whether the ecosystem or habitat contains characteristics of special spiritual, historical or cultural significance to tāngata whenua and have not considered this criterion.

2.3.7 Other Considerations

Indigenous is defined as "originating naturally in a region or district". For clarity we have assumed that vegetation or habitats that have been induced by human activity are not indigenous for the purpose of a significance assessment, even though they may have some ecological value.

Further we assume that for vegetation to be indigenous the native species must dominate the canopy (> 50% cover)

2.4 Rivers and Streams

Unlike terrestrial ecosystems which are subject to identification through Policy 23, the RPS identifies rivers and lakes with significant indigenous ecosystems and habitats with significant indigenous biodiversity values in Appendix 1, Table 16. These rivers and lakes were selected using indicators of aquatic invertebrate community health, the diversity of indigenous migratory fish species, the presence of nationally threatened fish species and the location of inanga spawning habitat. Specifically:

- *Aquatic invertebrate health was assessed using the Macroinvertebrate Community Index and the proportion of pollution sensitive mayfly, caddisfly and stonefly taxa. The relationship between these indices and indigenous vegetation cover in a catchment established the criteria of greater than 70 per cent indigenous vegetation cover in a catchment as having rivers and streams with significant ecosystems.*
- *The criterion for indigenous fish diversity was six or more migratory fish species as recorded in the New Zealand freshwater fish database in a catchment.*
- *The criterion for habitat of threatened native fish species is numbers of shortjaw kokopu (Galaxias postvectis), giant kokopu (Galaxias argenteus) and dwarf galaxias (Galaxias divergens), as recorded in the New Zealand freshwater fish database.*

In carrying out our assessment of significant we review the streams within the site against these criteria.

2.5 Policy 47

We note that Policy 23 has been developed to provide guidance to councils and other statutory agencies in identifying and protecting sites within their planning framework.

Until Councils have identified ecosystems and habitats with significant indigenous biodiversity values Policy 47 provides an interim assessment framework.

> *When considering an application for a resource consent, notice of requirement, or a change, variation or review of a district or regional plan, a determination shall be made as to whether an activity may affect indigenous ecosystems and habitats with significant indigenous biodiversity*

values, and in determining whether the proposed activity is inappropriate particular regard shall be given to:

(a) maintaining connections within, or corridors between, habitats of indigenous flora and fauna, and/or enhancing the connectivity between fragmented indigenous habitats;

(b) providing adequate buffering around areas of significant indigenous ecosystems and habitats from other land uses;

(c) managing wetlands for the purpose of aquatic ecosystem health;

(d) avoiding the cumulative adverse effects of the incremental loss of indigenous ecosystems and habitats;

(*e) providing seasonal or core habitat for indigenous species;*

(f) protecting the life supporting capacity of indigenous ecosystems and habitats;

(g) remedying or mitigating adverse effects on the indigenous biodiversity values where avoiding adverse effects is not practicably achievable; and

(h) the need for a precautionary approach when assessing the potential for adverse effects on indigenous ecosystems and habitats.

2.6 Limitations of Assessment:

Assessment of the site was limited to observational descriptions by experts. Due to the preliminary scope of the project and the young age of the vegetation present on the site, quantitative methods were not employed.

Depending on the scope of a future structure plan and the extent of effects on vegetation and waterways, further quantitative assessments may be required which could include a Stream Ecological Valuation (SEV) within the main tributary, the only stream of sufficient size for and SEV to be used, and further lizard surveys.

2.7 Definitions

The majority of vegetation on the site has regenerated through pasture. Depending on age this vegetation could be describes as pioneer or seral:

- **Pioneer:** Pioneer species are hardy species which are the first to colonize previously disrupted or damaged ecosystems, beginning a chain of ecological succession that ultimately leads to a more bio-diverse steady-state ecosystem.
- **Seral:** A seral community (or sere) is an intermediate stage found in ecological successions in an ecosystem advancing towards its 'climax' community. In many cases more than one seral stage evolves until a steady state ecosystem is formed.

The mapping applies standard descriptors for tree, shrub, scrub and forest as follows[14]:

- **Shrub**: a woody plant with a diameter at 1.5m of less than 10cm
- **Tree**: a woody plant with a diameter at 1.5m of 10cm or greater

[14] I. A. E. Atkinson, "Semi-Quantitative Measurements of Canopy Composition as a Basis for Mapping Vegetation," *Proceedings of the New Zealand Ecological Society* 9 (1962): 1–8.

- **Scrub**: A plant community of trees and shrubs forming > 80% of the canopy and with shrubs dominating.
- **Forest**: A plant community of trees and shrubs forming > 80% of the canopy and with trees dominating.

3 DESCRIPTION OF EXISTING ENVIRONMENT

3.1 Ecological context

The study site lies at the toe of the eastern Hutt Hills with generally a north-eastern aspect and varies in altitude from 105 metres above sea level to 220 metres a.s.l.

The landform is classified as "6e6", moderately steep-to-steep (21^0 – 35^0) greywacke hill country in areas of moderate rainfall with seasonal soil moisture deficiencies[15]. Soils are largely shallow and infertile, being dominated by well-drained Korokoro hill soils and Ngaio silt loams forming patchy loess over weathered greywacke. The majority of the site faces a north-eastern aspect, meaning most of the surface has a high to moderate exposure to both sun and wind. A large gully runs through the middle of the site, containing steep slopes up to 85 degrees in places. The terrain can be seen in Figure 4 of Appendix 8.

The climate is typical of the Wellington foothills, with warm summers, mild winters. The wind is predominantly a north-westerly with frequent gales. Mean annual rainfall for the area is 1400mm, with fog occurring regularly above 200m, especially between the months November and May.

The Ecological Regions national classification[16] places this site within the Sounds-Wellington Ecological Region (39) and more specifically within the Wellington Ecological District (39.01). This classification describes the broad area contained within this district as follows:

- It is characterised by steep, strongly faulted hills and ranges, and the Wellington and Porirua Harbours. The district is very windy with frequent NW gales, warm summers, and mild winters. It includes a range of soils derived from greywacke and loess and areas of alluvial, peaty and stony soils in valley. The District was originally mostly forested. Today it is modified by farming and urbanisation, with pasture, gorse and regenerating shrublands throughout. Some small forest remnants occur. The vegetation includes a number of Cook Strait endemics and together with the Cook Strait Ecological District it is the southern limit for several plant, insect and lizard species.

The GWRC regional classification[17] places the site within the inland Domain, Tararua (58). This classification describes the character of this domain as follows:

- **Character:** Mountainous domain with a strong correlation between climatic factors and altitude. Distinct growth limits occur for dominant species which relate to temperature and sunshine hours as well as the intensity of soil leaching due to increasing rainfall with altitude. Frost flats and cold air inversions occur on broad valley floors within the mountains. Generally shallow, infertile soils.

3.2 Original Vegetation

The Land Environments of NZ (LENZ) [18] national classification classifies the main valley and ridge system as C2.1e (rimu/tawa forest) and the escarpment which descends to the Hutt Valley as F1.4b (rimu/broadleaf-beach forest).

---

[15] M. J. Page, *Land Use Capability Classification of the Wellington Region: A Report to Accompany the Second Edition, New Zealand Land Resource Inventory* (Lincoln: Manaaki Whenua Press, 1995).

[16] Biological Resources Centre and Department of Conservation, *Ecological Regions and Districts of New Zealand*, ed. W. Mary McEwen, 3rd rev. ed. in four 1:500 000 maps (Wellington: Department of Conservation, 1987).

[17] Isobel Gabites, *Eco-Domains for the Wellington Region: Processes and Patterns for Defining Diversity and Distinctiveness.* Council Report (Wellington Region: Greater Wellington Regional Council, 2002).

[18] John R. Leathwick et al., *Land Environments of New Zealand* (David Bateman, 2003).

Under the Singers and Rogers national classification[19] the area falls within the mild, sub-humid macroclimate. Potential vegetation would have fallen within two ecosystem units as follows:

- "MF7: Tawa, kāmahi, podocarp forest" with "2: emergent rimu, miro, kahikatea, mataī, tōtara and northern rātā, and abundant tawa, kāmahi, hīnau, rewarewa and pukatea".
- "MF8: Kāmahi, broadleaved, podocarp forest" with "2: abundant rimu and northern rātā, and occasional miro, hīnau, rewarewa, maire species".

The Regional classification for the Tararua Domain describes the likely original vegetation as follows:

- In the west of this domain podocarp forest dominates with rata-rimu over a tawa/kamahi canopy below 400m, and rimu over a kamahi canopy is dominant above. To the east, lowland beech species become more dominant.

Turning to more site specific soil maps[20] we find that the site spans two distinct soil types with their associated vegetation communities.

- The rolling ridges and upper slopes carry Korokoro Hill Soils on moderately steep to steep slopes and ridges with areas of Ngaio Silt Loams on rounded ridges and rolling valley sides (KoH + N). The soil parent material is greywacke drift and loess deposits on weathered greywacke. The original vegetation on these soils and slopes was rimu and rata emergent over hinau and tawa, or tawa and kohekohe with admixtures of black and hard beech on gentler slopes and deeper soils.
- RuS (Ruahine Steepland soils) on the steep to very steep escarpment to the Hutt Road. The soil parent material is greywacke. The original vegetation that occurred on this soil type and slope was rimu and rata emergent over a canopy dominated by hinau and kamahi.

Overall, the various classifications broadly describe an original vegetation with rimu and rata emergent over canopies of tawa, hinau and kamahi, and admixtures of black and hard beech on rolling slopes with deeper soils, and kamahi dominating on steep to very steep rocky slopes. In addition we would expect pukatea, kahikatea and various tree fern species to have been dominant in deeper gullies, on stony ground titoki and totara are likely to have been found, and on steep slopes and old slip faces rewarewa would have been an important successional tree. Kohekohe and Nikau would also have been present but not dominant and mahoe and pigeonwood would have been dominant in the sub-canopy.

3.3 Vegetation History

Today only scattered fragments of these original forests remain and typically the original rata and rimu have been extracted leaving tawa as the dominant canopy species[21]. The Ecological District is now dominated by pasture, regenerating shrublands and scrub, and urban development.

Today the vegetation within the site is largely early to mid seral scrub and forest dominated by mahoe kanuka and tree ferns, with margins dominated by pioneer species such as gorse and tauhinu which are regenerating in pasture. By way of example, Figure 5 in Appendix 8 shows the increase in shrublands within pasture over the past ten years. An area of tawa forest persists at one corner of the site, an extension of a larger area of forest downslope of the site.

[19] Nicholas J.D. Singers and Geoffrey Malcolm Rogers, *A Classification of New Zealand's Terrestrial Ecosystems*, Science for Conservation (Wellington: Department of Conservation, May 2014).

[20] Heine J.C. 1975: Interim Report on soils of Wellington Region, New Zealand. N.Z. Soil Bureau Record 39. Department of Scientific and industrial Research.

[21] R. G. Bagnall, *Survey of the Proposed Belmont Regional Hill Park. Part One. Recommendations on Development and Management*, University Extension publication, University Extension Publication (Wellington, N.Z: Dept. of University Extension, Victoria University of Wellington, 1976).

3.4 Vegetation & Land Use

Nine different vegetation communities were delineated within the site. Vegetation communities not managed for pasture or as amenity gardens, tended to reflect differing stages of forest regeneration from pasture over time. Of the native shrublands, scrub and forest which are present mahoe is ubiquitous and is normally dominant with varying admixtures of tree ferns, kanuka, and a variety of broadleaf sub canopy species.

A description of the vegetation communities is presented in the following table. The plant communities are sorted by structural form from grasslands, through pioneer shrublands, to scrub, seral forest and mature forest. Associated photographs are presented in Appendix 6. Map of communities delineated within the survey site is presented in Figure 2, page 18.

Table 2: Mapped Vegetation communities

MAIN HABITATS and FEATURES	
Grasslands and wetlands	
1	Pasture • While the slopes and gullies of much of the site have been retired from farming some large areas remain in pasture, typically on the rolling to moderately steep hill crests to north and south of the site. • Approximately 7ha or 19% of the site carries this vegetation. Examples of this vegetation community can be seen in Appendix 6, photo 12.
2	Wet depressions and exotic wetland vegetation in pasture. • At the confluence of stream gullies C and D on the northern margin of the site is a small area of boggy pasture and induced wetlands. The vegetation has developed in the presence of stock and is dominated by browse resistant exotic species including wandering buttercup, monkey musk, Yorkshire fog, floating sweet grass and watercress, with some areas of rautahi sedgeland. There are some scattered shrubs of karamu, young manuka, and gorse. • Approximately 0.2ha or 0.4% of the site carries this vegetation. Examples of this vegetation community can be seen in Appendix 6, photo 13.
Pioneer shrublands and emerging scrub (<80% woody cover - majority of stems < 10cm dbh)	
3	Gorse shrublands and scrub over pasture. • On the dry ridgelines where pasture has been most recently maintained gorse is the main pioneer species forming a diversity of shrub-grasslands, shrublands, and scrub depending on the time since it was last managed. • The gorse is typically between 1m and 3m tall with a variety of pasture grasses and common herbaceous weeds beneath them. • Approximately 6ha or 17% of the site carries this vegetation. Examples of this vegetation community can be seen in Appendix 6, photo 14.
Seral scrub (>80% woody cover - majority of stems < 10cm dbh)	
4	Mahoe-mixed broadleaved-(Gorse) scrub with kanuka • This is the largest plant community within the study area occurring on the valley slopes below the pasture ridgelines and above the main valley floor vegetation. It is a progression from pioneer shrub communities 3, representing the final stage in succession through gorse, with old moribund gorse scattered through the vegetation. • On drier north facing slopes kanuka appears in the canopy. On wetter south facing slopes mamaku increases in abundance. Also seen in the canopy are a variety of broadleaf species including rangiora,

	mapou, karamu, kanono, tarata, and fivefinger. Bush lawyer, pohuehue, supplejack and native jasmine form entanglements through the canopy. • This vegetation is typically 2m to 4m tall with the majority of mahoe and kanuka stems in the order of 3 to 8 cm dbh. The understorey has densely packed stems and abundant dead or moribund gorse stems. The floor is often bare or with ferns and scattered grasses. • Approximately 14 ha (38%) of the site carries this vegetation. Examples of this vegetation community can be seen in Appendix 6, photo 15.
5	Kanuka / (mahoe)-(pigeonwood) scrub • On north facing slopes within plant community '5' kanuka forms a number of almost pure, even aged stands on dry ridgelines. • The canopy of these stands is of an even height, normally ranging from 3 to 5 metres but up to 6m for the oldest stands. • The stems of the canopy plants are small, ranging from 5cm to 10cm dbh in the youngest stands and up to 10 to 20cm dbh in the oldest. A small number of stems reach 35cm dbh. The stems are typically multi-branching. • There are few other species present in the canopy aside from occasional mahoe, pigeonwood and tree fern. The understorey is relatively dense containing stems of kanuka, shrubs of rangiora, mapou, mapou, kanono, and silver fern. There are also occasional seedlings of potential canopy species; hinau and rewarewa. The floor cover has a variety of ferns. • Because of the light understorey beneath this kanuka canopy the invasive weed, old man's beard is common in some areas. • Approximately 2 ha or 5% of the site carries this vegetation. Examples of this vegetation community can be seen in Appendix 6, photo 16.
Seral broadleaved forest (majority of stems > 10cm dbh)	
6	Mahoe-gully fern forest • This community forms a continuous strip along the main valley floor. It is dominated by mahoe but with gully fern common on the shaded south facing slopes. There is also abundant supplejack in the canopy as well as scattered mamaku. • The mahoe stems are typically between 30 and 40 cm dbh, but there are occasional large trees mahoe exceeding 90 cm in diameter, tree ferns range in height up to 10m in the central gully. The canopy varies in height from 6m to 10m, with occasional large trees up to 12 m. In the understorey shrubs of kawakawa, kanono, rangiora, pigeonwood pate and hangehange are common. Young nikau are also seen in the older (larger) vegetation. The floor cover is predominantly ferns. There are no seedlings present of potential canopy species (tawa, kohekohe, pukatea). • Approximately 1 ha (3%) of the site carries this vegetation. Examples of this vegetation community can be seen in Appendix 6, photo 17
7	Mahoe-mamaku-mixed broadleaf forest. • This mahoe dominated late seral forest is found in a number of south facing gullies which lie adjacent to more mature native forest thereby benefiting from dispersed seed. • On wet south facing faces mamaku can dominate in areas. In addition several other broadleaved species such as hinau, putaputaweta, tarata, and titoki occasionally occur in the canopy. • The canopy varies from 3-4 m on upper slopes, to 6m in the valley floor and some individual stems to 8m. The stem size of the dominant mahoe is typically 20 to 40 cm with some specimens to 1.4 m. The slopes are typically steep to very steep (20° to 40°). • Vines of supplejack, bush lawyer, pohuehue, clematis and native clematis are common in the canopy and understorey. The subcanopy and understorey have a good diversity of typical forest shrubs (rangiora, hangehange, kawakawa, silver fern, pate) as well scattered saplings of potential canopy species such as

	kohekohe, titoki, pigeonwood, pukatea, tawa, nikau, and kamahi. The floor has a diverse range of fern species and seedlings and emerging vinelands of kiekie. • The core of the vegetation is largely free of exotic weed species, but a number of invasive weeds occur along the modified margins. • Approximately 1ha (2%) of the site carries this vegetation. Examples of this vegetation community can be seen in Appendix 6, photo 18.
Mature or maturing indigenous forest	
8	Tawa dominated mixed broadleaved forest. • An area of broken native forest with a diversity of broadleaf canopy species. In addition to tawa are titoki, pukatea, kamahi, and nikau. The canopy has been broken as a result of roading and where taller trees are absent a range of smaller trees enter the canopy including pate, mamaku, mahoe, pigeonwood and tarata together with a variety of native lianes and epiphytes including supplejack, vine rata, and pate. The taller trees typically range in size from 25cm to 40cm dbh, but with a few larger stems up to 75cm dbh. • The understorey contains the normal shrub species kawakawa, hangehange, pate and silver fern, and in addition tree fuchsia, nikau and saplings of karaka, tawa and titoki. • On the forest floor seedlings of nikau are abundant with kohekohe, karaka, pigeonwood also common. There is also a wide diversity of native ferns. • On the road margins where the canopy has been lost a range of invasive weeds such as Himalayan honeysuckle, cape ivy, convolvulus, buddleia and wandering willie dominate in areas. • Approximately 0.4ha or 1% of the site carries this vegetation. Examples of this vegetation community can be seen in Appendix 6, photo 19. • This community is the upper and more modified extent of a more extensive forest that occurs below the site
Exotic forest	
9	Exotic shelterbelts and plantation pine • Pine and macrocarpa occur across the site in a range of forms including isolated stems, shelterbelts over pasture and small stands of pine over native shrublands. • Approximately 2ha or 6% of the site carries this vegetation. Examples of this vegetation community can be seen in Appendix 6, photo 20
Urban	
10	Residential homes & gardens • Approximately 3ha or 7% of the site is occupied by Residential homes, buildings and amenity gardens. Examples of these areas can be seen in Appendix 6, photo 21.

We note that a revision of the complex of species referred to generically as kanuka has been recently published[22]. This separated 'kanuka' into ten discrete species. The species present at this site is *Kunzea robusta* the most widespread and abundance of the species. This revision of the species does not affect this assessment. In this paper a case is also made for alternative common names for this species, however, to avoid confusion we retain the name that has been applied to all historical reports and correspondence.

[22] De Lange, 2014: A revision of the New Zealand *Kunzea ericoides* (Myrtaceae) complex. PhytoKeys 40: 1-185.

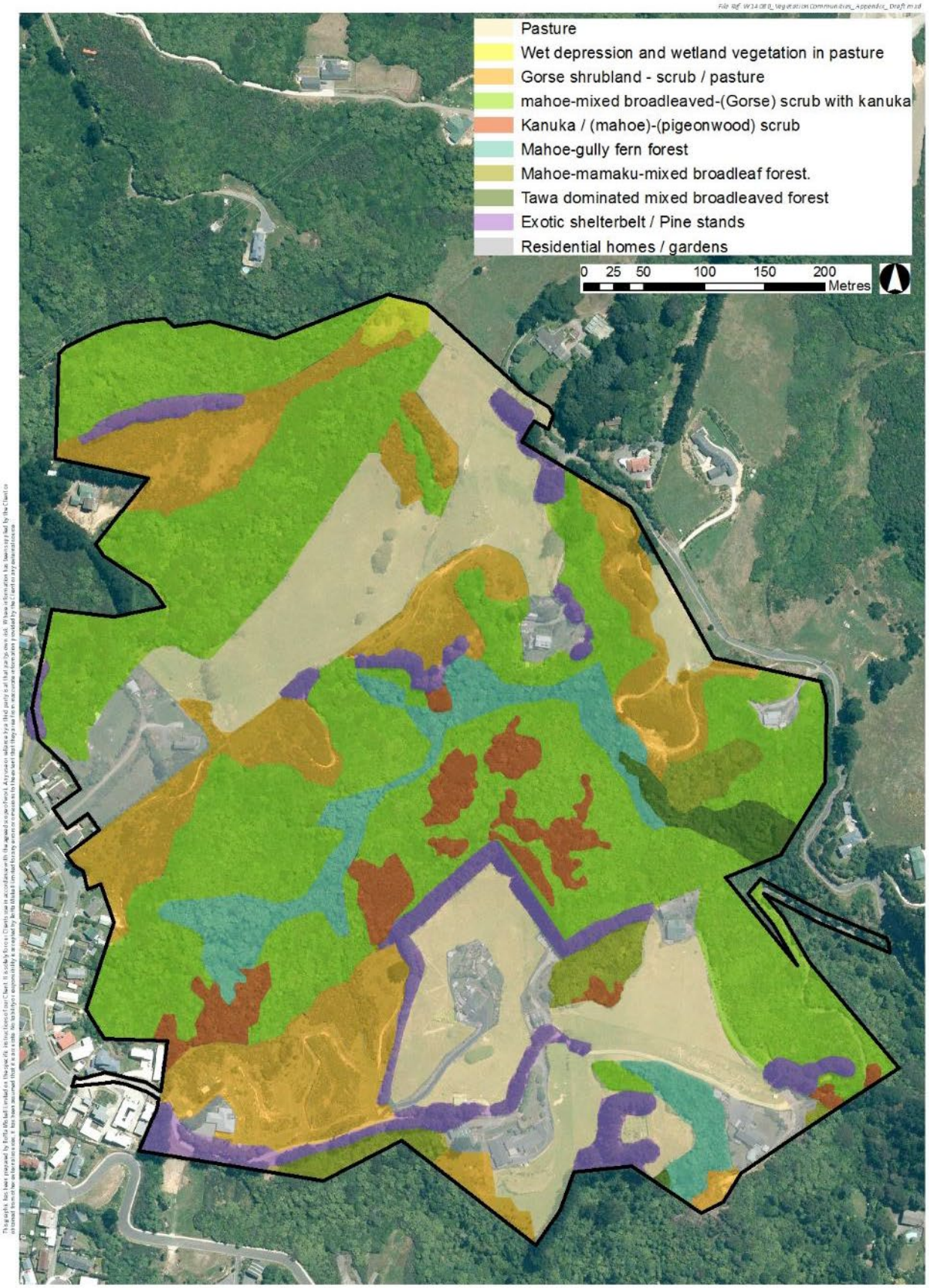
The following table provides a concise summary of the size, origins and relative condition of each of the plant communities mapped and described above.

Table 3: Vegetation Extent and Relative Condition

	MAIN HABITATS and FEATURES	Area (ha)	Area (%)	1° native	2° native	Induced native	Exotic	Regen[1]	NAT[1]	Exotics[1]	Trend[2]
Grassland, shrubland, wetlands											
1	Pasture	7.1	18.8	-	-	-	✓	A	A	H	-
2	Wet depression and wetland vegetation in pasture	0.2	0.4	-	-	✓	✓	L	A	H	S
Pioneer shrublands and emerging scrub (<80% woody cover - majority of stems < 10cm dbh)											
3	Gorse shrublands and scrub over pasture.	4.3	11.4	-	-	-	✓	A	A	H	-
Seral scrub (>80% woody cover - majority of stems < 10cm dbh)											
4	Mahoe-mixed broadleaved-(gorse) scrub with kanuka	14.1	37.5	-	✓	✓	-	M	H	L	I
5	Kanuka / (mahoe)-(pigeonwood) scrub	1.8	4.7	-	✓	✓	-	L	M	L	S
Seral broadleaved forest (majority of stems > 10cm dbh)											
6	Mahoe-gully fern forest	1.3	3.5	-	✓	✓	-	M	M	L	I
7	Mahoe-mamaku-mixed broadleaf forest.	1.6	4.3	-	✓	✓	-	L	M	L	S
Mature or maturing indigenous forest											
8	Tawa dominated mixed broadleaf forest	0.4	1.1	✓	✓	-	-	H	M	M	D
Exotic forest											
9	Exotic shelterbelt & plantation pine	2.3	5.9	-	-	-	✓	A	A	H	-
Urban											
10	Residential homes & gardens	2.6	6.9	-	-	-	✓	A	A	H	-
	TOTALS	**37.6**	**100**								

KEY to Table:	
Abundance	tawa = < 50% tawa = 20-50% tawa = 10-20% (tawa) = <10%
Tiers	/ separates various tiers of the vegetation in the community descriptions. – links plants in the same tier.
Regen / Nat / Exotics	H = High, M = Medium, L = Low, A = Absent
Trend	D = Deteriorating, S = Steady, I = Improving

Figure 2: Vegetation Communities within the Study Area



3.5 Birds

The birds recorded at time of survey were those typical of regenerating lowland forest (Table 3). This list is not exhaustive due to the limited time on site and has been supplemented from the New Zealand Bird Atlas.

Table 4: List of native or endemic bird species either sighted or heard within the site during the field surveys

Species	Endemic (E) Native (N)	National Threat Status	In Native Forest	In grassland shrubland
Australasian Harrier	N	Not threatened	✓	
Fantail	N	Not threatened	✓	
Grey Warbler	E	Not threatened	✓	✓
Kereru	E	Not threatened	✓	
Kingfisher	N	Not threatened	✓	
Morepork	N	Not threatened	✓	
Pukeko	N	Not threatened		✓
Shining cuckoo	N	Not threatened	✓	
Silvereye	N	Not threatened		✓
Tui	E	Not threatened	✓	
Welcome swallow	N	Not threatened		✓

None of the native species seen or heard are threatened or at risk (Ref Robertson et.al. 2013).

Other native species not seen in the application area but known to be present locally and which may occur within this habitat include: white-faced heron, paradise shelduck, grey duck, New Zealand falcon, welcome swallow, whitehead, little shag, little black shag, New Zealand pipit and spur-winged plover[23]. Of these six have a threatened status.

- The New Zealand falcon is "nationally vulnerable". If present the habitat most likely to be used would be the mature forest where tui and kereru are common and roost sites are abundant. The seral vegetation is less suitable.
- The three shag species are "At Risk" but there is insufficient habitat for these species.
- Similarly the area of wetland is unsuitable habitat for Grey Duck (Nationally Critical) and it is unlikely to use this site.
- New Zealand pipit "At Risk" occurs in the area but this site only has fragments of suitable habitat and so is unlikely to be an important site for this species given the extensive areas of open country within the nearby Belmont Regional Park.

Within pasture and scrub margins the birds present were those typically seen within a pastoral and scrub landscape - including finches, blackbirds, fantails, starlings, song thrush, magpie etc.

The area has been historically known as a Kereru breeding area (Department of Conservation, 2013) and a number of kereru were seen within the site. Tui and kereru were seen as individuals across the site, but were seen in groups within the mature forest at the eastern fringe of the site. Grey warbler and silvereyes

[23] Based on Atlas of Bird Distribution in New Zealand 1999-2004, The Ornithological Society of New Zealand Inc.

were also seen or heard through the site; fantail was more common on the bush margins. Bellbird are likely to utilise the area, but were not heard during the survey.

The small wetland in the northern corner of the site does not provide appropriate habitat to support wetland species such as bittern or crake. Pukeko and mallard ducks were seen here.

Overall, the diversity and abundance of species seen were considered normal for the types of vegetation present. This includes tui and kereru which are locally common.

3.6 Lizards

A lizard survey of Regional Parks[24] is a recent guide to the species most likely to occur at this site (see Appendix 2.

With regard to the seral vegetation, any species present will have colonised the site from adjacent bush areas and from residential properties as the farmland has regenerated back into shrublands and scrub. The species most likely to have achieved this are common skink and copper skink which are ubiquitous species. They will most likely inhabiting rank pasture on the forest margins. Both species are common and not threatened.

There is little habitat for arboreal geckos with the exception of the small area of mature native forest at the eastern edge of the site which is contiguous with extensive forests along the lower slopes of the Western Hutt hills. This forest contains a diversity of native trees, with lianes and dense epiphytes which provide potential habitat (See photo Appendix 6, photo 16). Spotlighting for arboreal lizards did not identify any animals but these species are notoriously difficult to observe and so we assume arboreal geckos will be present in this forest. Common gecko is known to occur in the forests between Horokiwi and Haywards and so is potentially present. This species is not threatened.

There are also historic records of Wellington Green Gecko (At Risk) and the NI forest gecko (not threatened) in Belmont Regional Park. Again, if they are present it will be in the native forest.

No native frogs will be present at this site.

3.7 Terrestrial Invertebrates

The local land snail *Wainuia urnula* is unlikely to occur within this site. This is due to past farming disturbance and the young age of the native vegetation.

Nursery web spider, tree weta and cave weta were all seen in or near Stream B during the stream spotlighting survey.

3.8 Native Mammals

There are no known populations of native bats in the assessment area. Given the past disturbance and current age of the recovering native vegetation, bats are unlikely to be present within the area.

3.9 Exotic Mammals

In a survey carried out in October 2000 by Greater Wellington Regional Council, possum browse was recorded as moderate, with isolated severe patches of browse occurring, particularly on mamaku and

[24] Romijn, R. 2009: The Lizard Fauna of Greater Wellington's Regional Parks. Prepared for Greater Wellington Regional Council.

pate. However, due to an extensive possum control programme undertaken by the Wellington Regional Council as part of the key native ecosystems (KNE) programme, possum numbers are now controlled and little browse was noted at time of field survey.

3.10 Water bodies

Four streams flow through the site, 'A' the smallest, 'B' the main waterway in the project, 'C' the second largest waterway and 'D' which is a small branch of 'C'. Photos of these streams can be found in Appendix 7. Streams B and D are considered to be perennial in nature, Streams A and D are considered to be ephemeral. The streams are unnamed, being relatively small tributaries of the Hutt River (Figure 3, page 23).

All four waterways within the survey area flow into the Hutt River at three separate points. Perched culverts and several waterfalls can be found along the stream path which are barriers to fish passage. Examples are shown in Appendix 7.

Table 5: Stream Descriptions

Stream:	Description:
A	• This is a small tributary which enters the south end of the site beneath 20A Drummond Crescent, running for approximately 160 metres into the site to its headwater. The stream is very small and the local landowner reported that it is dry during summer. • Where it enters the site it is deeply incised by erosion between 0.5m and 1.5m. The channel varies between 0.3m to 0.5m wide. Flows are typically sheet flows across the sandy and muddy beds with scattered small pools reducing in size moving upstream. The stream disappears at a slope change from an incised mud and clay channel to a rocky cascade. • Given local knowledge that this stream is ephemeral we did not spotlight or electric fish. • Examples of this stream can be seen in photos Appendix 7, photos 3 and 4.
B	• This stream is the largest within the site with a number of secondary tributaries. It has its headwaters to the south east of the site immediately below Drummond drive. It flows north east through the site for approximately 750m before exiting in a gorge beneath by Liverton Drive. The stream continues to the south east, descending through a series of natural waterfalls and culverted crossings to the Hutt River. Two large culverts, one under Liverton Road, the second under SH2 present significant barriers to fish passage. • Where the stream enters the site the bed varies between 0.8m and 1.2m wide with a predominantly run riffle form and occasional pools. The stream flows over a small cobble and gravel bed with areas of fine sediments. The flows vary between 0.5cm and 1cm deep with pools up to 10cm. There is abundant woody debris within the stream bed including tree fern root mats. • At intervals along the stream are waterfalls incised into bedrock often with large pools top and bottom, upward of 3m x 1m in size and up to 400mm deep. These waterfalls vary from 1m to 3m in height and may be stepped to rise 8 metres or more over a short distance. • Width and depth diminish with distance up the valley reducing to gentle run-riffles with occasional small pools and eventually becoming a boggy seep. • Examples of this stream can be seen in Appendix 7, photos 4 to 7.
C	• This stream forms the true left branch of the north western stream and is the second largest stream in the site. It enters the site from the north, traverses it for 300m where it exists the site and continues on for another 260m to its headwaters below Kaitangata Cres. • It has a larger catchment than Stream D and modest flows for the first 250m. The channel has a semi soft bottom with accumulations of sand and silt over embedded cobbles. The habitat is marginal for fish, the runs and pools too small and shallow to provide persistent habitat through

	summer. The stream is likely to reduce to a boggy seep during summer droughts. • The bed did, however, have good numbers and diversity of macro-invertebrates supported by abundant mahoe and tree fern leaves and detritus. Caddis were naturally abundant, as well as common mayfly species. As a result the stream is likely to have a Macroinvertebrate Community Index (MCI) in the order of 120. • Overall, the stream and its observed fauna are as expected in an upper stream headwater flowing through regenerating broadleaf bush. • Examples of this stream can be seen in Appendix 7, photos 10 and 11
D	• This stream is the true right branch of the north western stream however it has a much smaller catchment. It has its headwaters in the site, running for approximately 450m from the northern margin to the gully below Major Drive. It was considered that this stream had marginal habitat for fish and would have become intermittent or ephemeral during summer. We therefore did not spotlight or electric fish.

3.11 Freshwater Fauna

Electric fishing of streams B and D and the wetland resulted in finding two species of freshwater fish, banded kokopu and longfin eel. No fish or Koura were found in Stream D or the adjoining wetland.

During night spotlighting in stream B 82 koura were found, sizes of these generally ranged from 60-80mm, with the smallest being 20mm and largest approximately 200mm (one individual).

Table 6: EFM results:

Common name	Scientific name	Threat status	Size (mm)	No.
Longfin eel	*Anguilla dieffenbachii*	Gradual decline	600	1
Banded kokopu	*Galaxis fasticularis*	Not threatened	120	1

Table 7: Spotlighting results:

Common name	Scientific name	Threat status	Size (mm)	No.
Banded kokopu	*Galaxis fasticularis*	Not threatened	120	1
Koura	*Paranephrops planifrons*	Gradual decline	200-20	82

The presence of only two native fish, a single banded kokopu and a single eel is a strong indicator that the culverts and natural waterfalls are significant fish barriers. These two fish may have been the only fish that had successfully traversed the fish barriers in several decades.

Koura, the NZ freshwater crayfish were seen in abundance in stream B (82 individuals) ranging in size from 20mm to 200mm. The very large size of some of these individuals and the high abundance is an indicator of a population that has developed largely in the absence of fish, their primary predator.

In a number of sections of stream boulders and cobbles were turned and the invertebrate fauna considered. The fauna seen were typical of this type of stream, but were present in very good numbers, a further indicator of the absence of native fish.

Given these tributaries have been historically cleared and farmed to their headwaters we anticipated seeing macroinvertebrate fauna present in these streams that were typical robust species that have been able to persist in the presence of stock and this was the case.

Figure 3: Water Bodies within the Study Area

3.12 Protected and Unprotected Significant Natural Areas

The survey site lies at the northern extremity of a large area of unprotected native forest and scrub known as Kelson Bush. Kelson Bush was identified by Greater Wellington Regional Council as a key native ecosystem (KNE). The significant values for which it was identified were:

> *"Kohekohe, tawa and karaka stands. With large Rimu's and Northern Rata. Woodpigeon breeding site. Nikau understorey."* (See Appendix 4).

The current site is not a core part of the KNE as described (lacking rimu and rata) and most of its vegetation would not be as significant as that presented in the KNE description.

Kelson Bush was also identified by Hutt City as a significant natural resources (SNR[25]). Kelson Bush (SNR 23) is described as:

> *"Regionally representative example of relatively unmodified lowland Mahoe forest. Large numbers of bird species including NZ Pigeon".*

To the north lies Boulder Hill Bush and to the west and across the ridgeline lies Speedys Gully partly contained within Belmont Regional Park and partly within Speedy's Reserve (see Figure 1, page 2 and Table 8). These sites are listed in Table 8 along with relevant references.

Table 8: Sites of Significant Natural Resources found in the surrounding area and within (*) the survey area, and there associated significance values

Site name	Source & Alternative Names	Significance values (District Plan, City of Lower Hutt, 2004)
Belmont Regional Park	Parrish, 1984[26] BRWR[27] GWRC, 1996 Fuller & Wassilieff, 1993	Lowland forest vegetation. NZ Pigeon.
Boulder Hill Bush	WRC 84 (15e & 15h) / WRC 89 / WRC 96 / WRC 98 Gabites, 2002.	Lowland forest vegetation. NZ Pigeon.
Haywards Quarry Bush	Parrish 1984	Lowland forest on hill country.
*Kelson Bush	Parrish, 1984 WRC 84 (15d) / WRC 89	Regionally representative example of relatively unmodified lowland mahoe forest. Large numbers of bird species, including NZ pigeon.
Liverton Road Bush	Parrish, 1984 CLH 04 (31)	Lowland forest on hill country.
Speedy's Reserve	Parrish, 1984 WRC 84 (15g) / WRC 89 / WRC 96 / WRC 98 CLH 04 (49)	Lowland forest on hill country, with diverse canopy species. Tawa forest with large specimens, Large numbers of bird species.

The southern and central streams flow through Kelson Bush. The northern stream flows into Liverton Road Bush, an area of similar vegetation.

[25] Lower Hutt City Council, *City of Lower Hutt District Plan* (Lower Hutt City Council, 2004).

[26] G. R. Parrish, *Wildlife and Wildlife Sites of the Wellington Region*, Fauna Survey Unit Report (New Zealand Wildlife Service, 1984).

[27] Wellington Regional Council, *Biological Resources of the Wellington Region* (Wellington Regional Council, Queen Elizabeth II National Trust, N. Z. Biological Resources Centre, 1984).

4 ASSESSMENT OF ECOLOGICAL SIGNIFICANCE

The ecological significance of the area was assessed against Policy 23 of the Regional Policy Statement for the Wellington Region[28]. Policy 23 considers ecosystems and habitats to be significant if they meet one or more of the following criteria:

4.1 Representativeness

> **a) Representativeness:** the ecosystems or habitats that are typical and characteristic examples of the full range of the original or current ecosystem and habitat types in a district or in the region, and:
>
> (i) are no longer commonplace (less than about 30% remaining); or
>
> (ii) are poorly represented in existing protected areas (less than about 20% legally protected).

Introduction

There are two steps to assessment using these criteria. Firstly:

- Identify any ecosystems or habitats that are representative of original communities, and
- Identify any ecosystems or habitats that are representative of current communities

If communities are present that are found to be representative then assess their significance as follows:

- The proportion of that community remaining. If less than 30% of the original extent of that community remains it is significant. If more than 30% remains, then;
- The proportion of that community that is legally protected. If less than 20% of the remaining extent of that community is legally protected it is significant. If more than 20% is protected it is not significant.

If any community is found to be significant under this criteria then no further assessment of that community is required. If it is not significant it is then tested against four other criteria.

Within this site there are three broad plant communities; mahoe dominated scrub and low stature forest which dominates the site, kanuka scrub which occurs locally, and tawa dominated mixed broadleaf forest which extends into the site from a larger adjacent forest.

Representative of "original" communities

With regard to the criteria; "original natural diversity of ecosystem and habitat" we have considered the existing vegetation described in Section 3.3, against the predicted historic vegetation described in Section 3.2. All relevant sources and our own knowledge of the Wellington Ecological District provide a consistent picture of historic vegetation that can be used with confidence.

Within the site there is one area of vegetation which potentially meets the general description of original vegetation which is community 8: Tawa dominated mixed broadleaf forest. This is a modified outlier of a more extensive and intact area of tawa dominated forest containing rimu and

[28] Greater Wellington Regional Council, *Regional Policy Statement for the Wellington Region*.

beech, which extends along the steep lower slopes of the western Hutt Hills and which falls generally within Kelson Bush. Community 8 lacks the emergent podocarps, possible historically harvested. However, despite its modification, it is an extension of a larger contiguous stand and we conclude that it is representative of an original community present at this site.

Representative of "current" communities

With regard to the criteria; "current natural diversity of ecosystem and habitat"; all other indigenous communities within the site are seral or pioneer in nature. They are dominated by either mahoe (with tree ferns) or by kanuka. All of these communities have regenerated through pasture and gorse.

It may be that inclusion of "current" within these criteria was intended to capture seral vegetation, not normally captured in the protected natural areas methodologies. If this is the case then this effectively captures all other indigenous vegetation on the site.

Looking to national datasets for guidance we note that none of these seral communities are identified within the LENZ classification. Singer, however, identifies a number of seral communities in the sub-humid zone which have formed as a result of large-scale disturbance from fire and/or volcanic activity or other anthropogenic influences such as grazing. These include:

- Kanuka scrub/forest (VS2) in sub-humid areas.
- Broadleaved species scrub/forest (VS5): Scrub/short forest of a wide range of variants, including species of Coprosma, Coriaria, Pittosporum, Pseudopanax, Melicytus, Olearia, Hebe and Myrsine, and wineberry, and locally kōtukutuku, kāmahi, tōwai, rewarewa, northern rātā and tree ferns. (see Appendix 5 for detailed descriptions)

These classifications match vegetation type 4: mahoe-mixed broadleaved scrub, vegetation type 5: kanuka scrub, and resemble but do not precisely match vegetation types 6 & 7: seral broadleaved forest.

All four of these communities are representative of current and widespread vegetation communities within the Western Hutt Hills and the wider ecological district that have regenerated within pasture.

All four "current" communities differ from "original" communities in that they have regenerated on soils where no seed bank remains and so are dominated by species that disperse prolifically, do so in the absence of seed carrying native forest birds, and are dominated by species that are tolerant of browsing by ungulates. In this context mahoe and kanuka have become opportunistic dominants on landforms that would have originally regenerated along quite different pathways and where they would have been elements of more diverse ecological systems.

In effect, the use of the word "current" captures all indigenous vegetation at this site. We question if this is the intent of this category and suggest further discussion with GWRC is needed. Until further guidance is obtained we have classified these four seral communities as "not significant".

No longer Commonplace

Once the typical and characteristic examples of ecosystems or habitats have been identified the test is whether they are no longer commonplace or poorly protected:

- The tawa dominated mixed broadleaf forest is no longer commonplace within the ecological district with less than 30% of the original extent (LENZ Threat Classification). This original community is therefore found to be significant and no further assessment of this community is required.

- With regard to seral kanuka and mahoe scrub and low stature forest this criteria is irrelevant. This is because there is no original extent to compare the current distribution to. Historically mahoe would have occurred as a sub canopy species in podocarp forest, or a mixed canopy species in low stature coastal forest, or as one of a range of early seral species that regenerated where the forest canopy was disturbed. Kanuka would have occurred primarily in conjunction with manuka and tauhinu as a pioneer species in braided river beds, active dunelands, on erosion scars or in highly specialised sites (e.g. geothermal kanuka scrub). This means that these communities would either not have had an original distribution (for example mahoe scrub and low stature forest) or their distribution would have been restricted both spatially and temporally, or would have been limited to environments not found at this site (for example kanuka scrub and forest).

Legally protected

Assuming seral vegetation is found to be representative of current communities, neither seral mahoe scrub, nor low stature forest, nor kanuka scrub are well represented within the existing protected natural area network which has historically focused on original vegetation and not induced or seral vegetation.

These seral communities are therefore significant under this interpretation of the criteria.

Conclusion

In conclusion original communities are represented by a small area of modified tawa dominated mixed broadleaved forest. We find that this community is significant on the basis that it is no longer commonplace, i.e. significantly reduced in extent from its original distribution.

There are four described communities of seral vegetation that depending on interpretation may or may not be considered representative of current vegetation. If they are representative then we find that all four communities are poorly represented within the protected natural areas network (being seral vegetation) and so are significant under these criteria.

If this is the correct interpretation of these criteria then all indigenous vegetation on the site is significant. No further assessment is required.

If, however, it was not the intention to capture all seral vegetation by this criteria then these communities still require assessment against the other three criteria.

4.2 Rarity

> **b) Rarity**: the ecosystem or habitat has biological or physical features that are scarce or threatened in a local, regional or national context. This can include individual species, rare and distinctive biological communities and physical features that are unusual or rare.

Introduction

There are three elements that need to be assessed under this criteria:

- Rare and distinctive biological communities that are scarce or threatened
- Individual species that are scarce or threatened (Flora and fauna)
- Unusual or rare physical features that are scarce or threatened

Many of these words are not defined and so assumptions of meaning and subjective assessments must be relied upon. Of particular note is the use of the word "scarce" which is not defined but which we assume is equivalent to "At Risk", at least for terrestrial species.

Rare and Distinctive Biological Communities

We have assessed the site against Williams et.al. 2007, Historically Rare Ecosystems. The only group of ecosystems identified by this classification that are potentially found within this site are 'wetlands'.

- The small area of wetland at the confluence of streams C & D is, in our view induced by land practices (e.g. slope colluviation following forest clearance), the site would have originally been forested, and the vegetation is largely exotic in nature.
- We do not consider it to be representative of the any of the 15 types of historically rare wetland ecosystem types described by Williams.
- All other biological communities present on this site are ubiquitous on the Western Hutt Hills where land has been retired from farming and are widespread throughout the ecological District.

In addition we have concluded that Stream B, while not considered significant in the RPS (Appendix 1, Table 16) has been found to be distinctive due to the abundance and size of indigenous freshwater crayfish, an 'At Risk' taxa. This is due to the almost complete absence of predatory fish in a stream of good size and water quality. This stream and the mahoe gully forest which protects this stream, are in our view significant for this reason.

Individual Species - Flora

No species of flora recorded on site are scarce or threatened locally, regionally or nationally. This is as expected. With the exception of the small area of tawa mixed broadleaf forest all communities have regenerated through pasture. Therefore all species recorded at this site have been carried to the site by wind or birds from adjacent areas of similar vegetation.

Individual Species - Fauna

With regard to avifauna;

- No species of bird recorded on site are threatened or at risk.
- Two species that are potentially present have a threat status. The bush falcon, if present, is only likely to utilise the small fragment of native forest, a vegetation community that is already assessed to be significant.

- Depending on whether 'sparse' is equivalent to 'At Risk', then a further species, the NZ pipit may be present at this site on open pasture, though the habitat is small in relation to the extensive open country within the adjacent Belmont Regional Park and more residential in character than this species favours.

With regard to lizards;

- None of the lizards most likely to occur at this site are threatened or at Risk.
- Depending on whether sparse is equivalent to At Risk, then a further species, the Wellington Green Gecko is potentially present, although is only likely to utilise the small fragment of native forest, a vegetation community that is already assessed to be significant.

With regard to freshwater fish;

Rivers and lakes with significant indigenous ecosystems and habitats with significant indigenous biodiversity values are listed in Appendix 1, Table 16.

- The RPS identifies rivers and lakes with significant indigenous ecosystems and habitats with significant indigenous biodiversity values in Appendix 1, Table 16. The criterion for habitat of threatened native fish species is the presence of shortjaw kokopu (Galaxias postvectis), giant kokopu (Galaxias argenteus) and dwarf galaxias (Galaxias divergens), as recorded in the New Zealand freshwater fish database.

None of these species are present in the streams surveyed. The streams are therefore not significant for these criteria and are not included in the RPS Appendix 1.

Unusual or rare physical features

We do not believe there are any unusual or rare physical features within the site. The landform, geology and soils are typical along the Western Hills and within the Wellington, Porirua and Hutt valleys generally.

Conclusion

In summary, there are no Rare Biological Ecosystems or Distinctive Biological Communities, or Unusual or Rare Physical Features.

However, we find that Stream B contains a distinctive community of native freshwater crayfish, both in terms of abundance and the size of the individuals. In our view Stream B is therefore significant.

With regard to Scarce of Threatened Species, one species of threatened bird (falcon) and one species of 'At Risk' lizard (Wellington Green Gecko) may be present, but the likely habitat for both species is the tawa forest which has already been determined to be significant.

4.3 Diversity

> **c) Diversity:** the ecosystem or habitat has a natural diversity of ecological units, ecosystems, species and physical features within an area.

Introduction

This criteria does not require that a site have a level of diversity that is exceptional or unusual, simply that the diversity is "natural". No guidance is provided for the determination of what constitutes natural diversity, or at what scale diversity should be assessed.

It could be argued that all of the plant communities, habitats and species found within this site, and the site itself has natural diversity that would normally be found within this type of ecosystem anywhere in the Western Hutt Hills. However, if this approach is taken then the criteria has no value as a tool for assessing the ecological significant.

Normally, to determine whether a community has a degree of diversity that is 'natural', either a benchmark site is identified for comparison, or an arbitrary set of diversity values are provided for guidance (similar to the approach taken for freshwater ecosystems). Neither is provided in Policy 23 for terrestrial systems.

In the absence of guidance this assessment is largely descriptive.

Assessment – Vegetation

As discussed earlier, diversity within the seral vegetation that dominates this site is limited by its genesis. All four "current" seral communities have regenerated through pasture, with gorse commonly present as a pioneer crop. The land had undergone a long history of farming and therefore any seed bank that would have occurred following forest clearance would have been lost. All species that now occur at this site will have had to re-colonise it.

Species which are poor dispersers or which rely on native birds to carry their seed have been selected against. Similarly species that are highly palatable to ungulates will have been eliminated from pioneer and later seral communities. Those species which are prolific fruiters and can disperse large distances without the aid of native birds have been favoured. Of these is a subset of species which are tolerant of browsing by ungulates and these species have come to dominate all successions.

Because of these origins all of the seral communities have low diversity within the canopy, within the understorey and on the floor. A small number of common, robust and browse tolerant species dominate. Most importantly the seral communities considered here have few or no seedlings or saplings of potential species which are needed to perpetuate the community successions (e.g. tawa, titoki, kamahi, rewarewa, nikau, pukatea, and podocarps).

Our conclusion would normally be that these communities and habitats have a low diversity of species when compared to the diversity that would be found in naturally occurring seral successions. Therefore these communities are not significant for this criteria.

This conclusion assumes that in considering diversity the benchmark is "original" vegetation or habitats. If the assessment is against equivalent "current" communities then it could be argued that this site has a level of diversity that is natural for this type of ecosystem and so is significant.

Assessment – Terrestrial Fauna

The range of bird species is what would be expected from this site, pastoral species in the farmland and pioneer shrublands, a few native passerines within the simple seral scrub and low stature forest, and a greater diversity of birds within the mature forest.

If compared to the diversity and abundance of the original communities the diversity would be considered to be low. This would apply equally to lizards and invertebrates.

If, however, the diversity of fauna at this site is compared to fauna within other areas of current regenerating vegetation on the Western Hutt Hills the diversity would be considered to be "natural" and the site would be significant.

Assessment – Streams and Aquatic Fauna

The RPS (Appendix 1, Table 16) has determined that the streams that traverse this site are not significant for diversity of species;

- *The criterion for indigenous fish diversity was six or more migratory fish species as recorded in the New Zealand freshwater fish database in a catchment.*

Three small streams have no fish, and the largest stream (Stream B) carries two species of diadromous fish which are uncommon due to downstream fish barriers.

Conclusion

The levels of diversity of species, plant communities and habitats within this series of landforms are not exceptional or unusual and would be considered poor in relation to original communities. However, the levels of diversity of vegetation, flora and fauna are typical of equivalent areas of vegetation within the Western Hutt Hills and therefore under this criteria could be considered significant.

We question if this is the intent of these criteria and suggest further discussion with GWRC is needed.

4.4 Context

> **d)** **Ecological context of an area:** the ecosystem or habitat:
>
> (i) enhances connectivity or otherwise buffers representative, rare or diverse indigenous ecosystems and habitats; or
>
> (ii) provides seasonal or core habitat for protected or threatened indigenous species.

There are four elements that need to be assessed under this criteria as follows:

Connectivity

This site lies within a matrix of pasture, regenerating scrub, original forest that cloak the escarpment and rolling hill tops at the north end of the residential development of Kelson.

It will be providing some connectivity for a few bird species such as kereru and tui. However, these species are equally abundant in the residential gardens of the established parts of Kelson and which move easily across the wider landscape.

Given the range of species present in the area, we do not believe this site provides essential connectivity for scarce or threatened native species.

Buffering

The vegetation within this site does not buffer other rare or diverse indigenous ecosystems adjacent to the site.

However, within the site we have concluded that Stream B contains a distinctive community of native freshwater crayfish. The health of this stream and of the crayfish population is in part maintained by the riparian vegetation that forms a narrow strip along the stream.

We believe that mahoe gully forest which is the dominant vegetation along this stream, is therefore an important buffer for this habitat and community. Further we consider that this strip of vegetation is not of sufficient width to form a sustainable community in its own right. Additional buffering would be required if any of the surrounding vegetation was to be cleared to protect this gully vegetation and prevent edge effects.

For the purpose of this exercise we suggest a strip of 20m to either side of the gully forest. The final extent would be determined through further survey. In some areas it is likely to be wider to accommodate for example rock bluffs. In other areas, where the buffering vegetation is of low stature and less susceptible to edge effects, the buffer could be narrower.

Seasonal Habitat

This site is not seasonal habitat for threatened indigenous species.

Core Habitat

This site is not core habitat for threatened indigenous species.

Conclusion

We conclude that there is no seasonal or core habitat for threatened indigenous species. The site is not significant for connectivity. However, the mahoe gully forest is important for protection of Stream B and of the distinctive community of freshwater crayfish present and this vegetation is significant.

5 SUMMARY

Due to uncertainty over the status of seral vegetation in the application of Policy 23 we have arrived at two scenarios as follows:

Scenario 1:

- If the intention of Policy 23 was to capture all indigenous seral vegetation, then all indigenous vegetation on site is significant under this policy irrespective of age, stature or condition.
- If the intent is to capture all seral vegetation then this is unusual in our experience. Most assessment schemes try to avoid inclusion of induced seral communities by either
    - Using original vegetation as the benchmark for assessment, or
    - Placing a lower limit on the size or stature of vegetation to be assessed, or
    - Specifying which communities are and which aren't included in any assessment.
- We do not believe that this scenario accurately reflects the presence and distribution of significant ecosystems and habitats at this site.

Scenario 2:

- If it was not the intent for all seral vegetation to be considered significant, then we find that two plant communities are significant, an area of tawa mixed broadleaved forest which is representative (albeit modified) of the original vegetation and habitat, and the mahoe gully forest found within stream B, which buffers this stream and the fauna that are found in it.
- This stream, while not considered significant in the Regional Freshwater Plan, has been found to be unusual due to the abundance and size of indigenous freshwater crayfish, a result of the isolation of this stream from predatory fish by a range of fish barriers.
- Further we have concluded that the mahoe gully forest which forms a narrow strip along the stream is not of sufficient width to form a sustainable community. Additional buffering would be required if any of the surrounding vegetation was to be cleared to prevent edge effects.
- We believe that this scenario provides an accurate reflection of the values of this site and of the buffering required to protect those values. It is our recommended approach subject to further discussion with GWRC on interpretation of the criteria.

These scenarios are presented in Appendix 8, Figure 6 and Figure 7.

Figure 6 presents Scenario 1, that is all indigenous vegetation is significant.

Figure 7 presents Scenario 2, seral vegetation is not significant. This maps show the tawa remnant and the gully forest together with a nominal 20m buffer as "Significant". It shows the remaining seral scrub and forest as present but not significant.

Before a final determination can be made these findings require discussion with Greater Wellington Regional Council to confirm the intent of these criteria, and gain guidance on their application.

6 REFERENCES

Atkinson, I. A. E. "Derivation of Vegetation Mapping Units for an Ecological Survey of Tongariro National Park North Island, New Zealand." *New Zealand Journal of Botany* 23 (1985): 361–78.

———. "Semi-Quantitative Measurements of Canopy Composition as a Basis for Mapping Vegetation." *Proceedings of the New Zealand Ecological Society* 9 (1962): 1–8.

Bagnall, R. G. *Survey of the Proposed Belmont Regional Hill Park. Part One. Recommendations on Development and Management*. University Extension publication. University Extension Publication. Wellington, N.Z: Dept. of University Extension, Victoria University of Wellington, 1976.

Biological Resources Centre, and Department of Conservation. *Ecological Regions and Districts of New Zealand*. Edited by W. Mary McEwen. 3rd rev. ed. in four 1:500 000 maps. Wellington: Department of Conservation, 1987.

De Lange, P. J., J. R. Rolfe, P. D. Champion, S. P. Courtney, P. B. Heenan, J. W. Barkla, E. K. Cameron, D. A. Norton, and R. A. Hitchmough. *Conservation Status of New Zealand Indigenous Vascular Plants, 2012*. New Zealand Threat Classification Series. Wellington: Department of Conservation, August 2013.

Department of Conservation. *Preliminary Draft Vision 2020: A Conservation Management Strategy for the Wellington Region 2010-2020*. Wellington: Department of Conservation, 2010.

Goodman, Jane M., Nicholas R. Dunn, Peter J. Ravenscroft, Richard M. Allibone, Jacques A. T. Boubee, Bruno O. David, Marc Griffiths, Nicholas Ling, Rodney A. Hitchmough, and Jeremy R. Rolfe. *Conservation Status of New Zealand Freshwater Fish, 2013*. New Zealand Threat Classification Series. Wellington: Department of Conservation, May 2014.

Greater Wellington Regional Council. *Regional Policy Statement for the Wellington Region*. Wellington: Greater Wellington Regional Council, April 2013.

Hutt City Council. *Urban Growth Strategy 2012-2032*, n.d.

Isobel Gabites. *Eco-Domains for the Wellington Region:Processes and Patterns for Defining Diversity and Distinctiveness.* Council Report. Wellington Region: Greater Wellington Regional Council, 2002.

Leathwick, John R., Gareth Wilson, Daniel Rutledge, Peter Wardle, Fraser Morgan, Kirsty Johnston, Malcolm McLeod, and Russell Kirkpatrick. *Land Environments of New Zealand*. David Bateman, 2003.

Lower Hutt City Council. *City of Lower Hutt District Plan*. Lower Hutt City Council, 2004.

Ministry for the Environment. "New Zealand Land Cover Database." Accessed July 29, 2013. http://www.mfe.govt.nz/issues/land/land-cover-dbase/.

———. *Protecting Our Places: Introducing the National Priorities for Protecting Rare and Threatened Native Biodiversity on Private Land*. ME. Wellington: Ministry for the Environment & Department of Conservation, April 2007.

Page, M. J. *Land Use Capability Classification of the Wellington Region: A Report to Accompany the Second Edition, New Zealand Land Resource Inventory*. Lincoln: Manaaki Whenua Press, 1995.

Parrish, G. R. *Wildlife and Wildlife Sites of the Wellington Region*. Fauna Survey Unit Report. New Zealand Wildlife Service, 1984.

Robertson, C. J. R., P. Hyvonen, M. J. Fraser, and C. J. Pickard. *Atlas of Bird Distribution in New Zealand: 1999-2004*. Wellington: Ornithological Society of New Zealand, 2007.

Robertson, Hugh A., John E. Dowding, Graeme P. Elliott, Rodney A. Hitchmough, Colin M. Miskelly, Colin F. J. O'Donnell, Ralph G. Powlesland, Paul M. Sagar, R. Paul Scofield, and Graeme A. Taylor.

Conservation Status of New Zealand Birds, 2012. New Zealand Threat Classification Series. Wellington: Department of Conservation, November 2013.

Singers, Nicholas J.D., and Geoffrey Malcolm Rogers. *A Classification of New Zealand's Terrestrial Ecosystems*. Science for Conservation. Wellington: Department of Conservation, May 2014.

Wellington Regional Council. *Biological Resources of the Wellington Region*. Wellington Regional Council, Queen Elizabeth II National Trust, N. Z. Biological Resources Centre, 1984.

Bruce, J.G. 2000: The soils of Wellington. Pp 93-121 in: McConchie, J, Winchester, D and Willis Reds. Dynamic Wellington: a contemporary synthesis and exploration of Wellington. Institute of Geography, Victoria University of Wellington.

Gabites, I. (1993): Wellington's Living Cloak: a guide to the natural plant communities. Victoria University Press; and Crocker BH (1953) Forest regeneration on the Western Hutt Hills, Wellington. Trans. Roy.Soc. NZ: 81: 11-21.

7 APPENDICES

Appendix 1 Species Lists (Fauna)

Table 9: Birds seen or heard

Species	Scientific name	Threat Status
Fantail	*Rhipidura fuliginosa placabilis*	Not threatened
Grey Warbler	*Gerygone igata*	Not threatened
Harrier	*Circus approximans*	Not threatened
Kereru	*Hemiphaga novaeseelandiae*	Not threatened
Kingfisher	*Todiramphus sanctus vagans*	Not threatened
Morepork	*Ninox novaeseelandiae novaeseelandiae*	Not threatened
Shining cuckoo	*Chrysococcyx lucidus lucidus*	Not threatened
Slivereye	*Zosterops lateralis lateralis*	Not threatened
Tui	*Prosthemadera novaeseelandiae*	Not threatened

Table 10: Birds potentially present [29]

Species	Threat Status	Likelihood
Grey duck	Nationally Critical	Unlikely
Little black shag	At Risk - Naturally Uncommon	Unlikely – no open water
Little shag	At Risk - Naturally Uncommon	Unlikely – no open water
Black Shag	At Risk - Naturally Uncommon	Unlikely – no open water
New Zealand falcon	*Nationally vulnerable*	Potential breeding habitat in mature forest
New Zealand pipit	At Risk - Declining	Potentially present on open pasture
Paradise shelduck	Not threatened	Potential vagrant to small wetland area
Spur-winged plover	Not threatened	Likely on open pasture
Welcome swallow	Not threatened	Likely spring arrival
White-faced heron	Not threatened	Potential vagrant to small wetland area
Whitehead	Not threatened	Potential

Table 11: Invertebrates

Species	Scientific name	Threat Status
Tree weta	*Hemideina crassidens*	Not threatened
Cave weta	*Rhaphidophoridae*	Not identified to species.
Dolomedes	*Dolomedes minor*	Not threatened

Table 12: Freshwater Fauna

Species	Scientific name	Threat Status
Longfin eel	*Anguilla dieffenbachia*	Gradual decline
Banded Kokopu	*Galaxias fasciatus*	Not threatened
Koura	Paranephrops planifrons	Gradual decline

[29] Based on Atlas of Bird Distribution in New Zealand 1999-2004, The Ornithological Society of New Zealand Inc.

5.3 Belmont Regional Park

Only Wellington green geckos (1996, 1965) and Southern North Island forest geckos (1965) have been recorded from Belmont Regional Park. Other species that are most likely to occur in the park are copper skink, ornate skink, common skink, brown skink, and the common gecko have all been found in the Western Hills between Horokiwi and the Haywards. There is the possibility that a relict population of spotted skinks could be in the area of the Korokoro Stream mouth.

Table 5: Lizards species known from the Wellington region and their occurrence in Belmont Regional Park

Scientific name	Common name	Occurrence or closest location (s)
Cyclodina aenea	Copper skink	Plimmerton, Percy Reserve, Belmont
Cyclodina ornata	Ornate skink	Johnsonville, Korokoro, Silverstream
Oligosoma lineoocellatum	Spotted skink	Mouth of Korokoro Stream, Percy Reserve
Oligosoma nigriplantare polychroma	Common skink	Johnsonville, Korokoro, Maungaraki, Belmont Normandale, Whitby
Oligosoma zelandicum	Brown skink	Horokiwi, Johnsonville, Pukerua Bay
Hoplodactylus "southern North Island forest gecko"	Southern North Island forest gecko	Belmont Regional Park
Hoplodactylus maculatus	Common gecko	Korokoro, Maungaraki, Belmont, Papakowhai,
Hoplodactylus pacificus	Pacific gecko	Moonshine Valley
Naultinus elegans punctatus	Wellington green gecko	Belmont Regional Park

Survey priorities

- Cornish street area - set pitfall traps for spotted skinks.
- Bush off Oakleigh Street entrance – set pitfall traps for Cyclodina skinks and search for geckos.
- Area near Horokiwi – search for brown skinks.
- Search rock outcrops at Boulder hill for skinks and geckos.

Appendix 3 Species Lists (Flora)

Table 13: TREES & SHRUBS

Native

Alectryon excelsus	titoki	*Kunzea ericoides*	kanuka
Aristotelia serrata	*wineberry*	*Laurelia novae-zelandiae*	pukatea
Beilschmiedia tawa	tawa	*Leptospermum scoparium*	manuka
Brachyglottis repanda	rangiora	*Lophomyrtus bullata*	ramarama
Carpodetus serratus	putaputaweta	*Macropiper excelsum*	kawakawa
Coprosma grandifolia	kanono	*Melicytus ramiflorus*	mahoe
Coprosma lucida	karamu	*Myrsine australis*	mapou
Coprosma robusta	karamu	*Ozothamnus leptophyllous*	tauhinu
Cordyline australis	cabbage tree	*Pennantia corymbosa*	kaikomako
Corynocarpus laevigatus	karaka	*Pittosporum eugenioides*	lemonwood
Dacrydium dacrydioides	kahikatea	*Pittosporum tenuifolium*	tarata
Dysoxylum spectabile	kohekohe	*Pseudopanax arboreus*	fivefinger
Elaeocarpus dentatus	hinau	*Pseudopanax crassifolius*	lancewood
Fuchsia excorticata	tree fuchsia	*Rhopalostylis sapida*	nikau palm
Geniostoma ligustrifolium	hangehange	*Schefflera digitata*	pate
Hedycarya arborea	pigeonwood	*Solanum aviculare*	poroporo
Knightia excelsa	rewarewa	*Weinmannia racemosa*	kamahi

Adventive

Buddleia davidii	buddleia	*Leycesteria formosa*	Himalayan honeysuckle
Cupressus macrocarpa	macrocarpa	*Pinus radiata*	pine
Cytisus scoparius	broom	*Ulex europaeus*	gorse
Hypericum androsaemum	tutsan		

Table 14: CLIMBERS, LIANES ETC.

Native

Clematis foetida	native clematis	*Muehlenbeckia australis*	pohuehue
Clematis paniculata	native clematis	*Parsonsia heterophylla*	NZ jasmine
Metrosideros diffusa	vine rata	*Rubus cissoides*	bush lawyer
Metrosideros perforata	vine rata		

Adventive

Calystegia silvatica	convolvulus	*Rumex sagittatus*	climbing dock
Clematis vitalba	old mans' beard	*Senecio angulatus*	Cape ivy
Rubus fruticosus	blackberry	*Senecio mikanioides*	German ivy

Table 15: GRASSES, RUSHES & LIKE PLANTS

Native

Carex lessoniana	rautahi	*Cyperus ustulatus*	giant umbrella sedge
Carex secta	purei	*Microlaena stipoides*	meadow rice grass
Cortaderia toetoe	toetoe	*Uncinia uncinata*	hook grass

Adventive

Anthoxanthum odoratum	sweet vernal	*Festuca arundinacea*	tall fescue
Bromus sp.	brome grasses	*Glyceria fluitans*	floating sweetgrass
Cortaderia selloana	pampas grass	*Holcus lanatus*	Yorkshire fog
Dactylis glomerata	cocksfoot	*Lolium perenne*	perennial ryegrass

Table 16: HERBS

Native

Cardamine sp.

Adventive

Achillea millefolium	yarrow
Allium triquetrum	onion weed
Anagallis arvensis var.	Scarlet pimpernel
Bellis perennis	daisy
Cirsium vulgare	scotch thistle
Crocosmia x *crocosmiflora*	montbretia
Digitalis purpurea	foxglove
Foeniculum vulgare	fennel
Lotus pedunculatus	lotus
Mimulus guttatus	monkey musk
Phytolacca octandra	inkweed
Plantago major	broad-leaved plantain
Polygonum hydropiper	water pepper
Ranunculus repens	creeping buttercup
Rorippa nasturtium-aquaticum	watercress
Rumex acetosella	sheep's sorrel
Rumex obtusifolius L.	broad-leaved dock
Rumex sagittatus	climbing dock
Senecio jacobaea	ragwort
Solanum nigrum	black nightshade
Taraxacum officinale	dandelion
Tradescantia fluminensis	wandering willie
Trifolium dubium	suckling clover
Trifolium repens	white clover
Verbascum thapsus	woolly mullein
Vicia sativa	vetch

Table 17: FERNS AND ALLIES

Native

Anarthropteris lanceolata	lance fern
Asplenium bulbiferum	hen & chicken fern
Asplenium flaccidum	hanging spleenwort
Asplenium oblongifolium	shining spleenwort
Blechnum chambersii	nini
Blechnum discolor	crown fern
Blechnum filiforme	thread fern
Blechnum fluviatile	kiwakiwa
Blechnum novae-zelandiae	kiokio
Cyathea dealbata	silver fern/ponga
Cyathea medullaris	black tree fern / mamaku
Cyathea smithii	soft tree fern
Histiopteris incisa	water-fern
Hymenophyllum sp.	filmy fern
Lastreopsis glabella	smooth shield fern
Lastreopsis hispida	hairy fern
Leptopteris hymenophylloides	crepe fern
Microsorum pustulatum	hounds tongue fern
Paesia scaberula	hard fern
Polystichum vestitum	prickly shield fern
Pteridium esculentum	bracken; bracken fern

KEY NATIVE ECOSYSTEMS

Description and Scoring Form

THE REGIONAL COUNCIL
caring about you & your environment

DoC ID no. (if known)	1023
Site name	Kelson Bush/Woodroyd Bush
Ecological region	Wellington
NZMS 260 Map no.	R27
Grid Reference	730 015
Area (ha)	70
Altitude range	40-180
Date	24-Mar 1997
Time (24 hr) start/stop	1030-1330
Authorised person	Mark
Protect/ Type (Auth/body)	Private
Protection Status	None

General Description

A nice patch of Native forest. It has a variety of different vegetation types. Woodroyd has a noteable exotic garden established near the house in the 1920's. Also known as Kelson bush.

Significant Values (Vegetative association)

Kohekohe, Tawa and Karaka stands. With large Rimu's and Northern rata. Woodpigeon breeding site. Nikau understorey.

(1) DoC Plant Score	3.0	(b)
(2) DoC Animal Score	4.0	(a)
(3) DoC Vulnerability Score	1.5	
(4) DoC Primary Score	6.0	(3) X highest of (1)or(2)
(5) Local Significance Score	0.0	
(6) Regional Priority Score	6.0	(4) + (5)

Other Relevant Factors

Willing for partnership. They are pro active against possums. The woodpigeon's stay all year round and breed here. Large tree fuchsia.

Plant Species known to be present

Emergent Canopy trees	
Canopy trees	Karaka , Kohekohe, Northern rata, Tawa, Rimu, Tree fuchsia
Middle Storey	Nikau, Mamaku, Titoki, Pigeonwood, Kowhai
Lower Storey & shrubs	Kawakawa, Mahoe, Kiekie, Gully fern , Wet fern, Hounds tongue fern, Five finger, Rewarewa, Red matipo, Hangehange, *Cop grand* , Ladder fern, , Black Mapou, Silver fern, Kaikomako, Shinning spleenwort, Oler rani, Rangiora, King fern, *Lycopodium scariosum* , *Cop robusta* , Totara, *Cop rubra* , Pukatea, Miro, Lacebark, Pate, Hen and chicken fern, Putaputaweta, Kanuka, small leaved milk tree
Other	Supplejack, Banana passionfruit, Native jasmine, *Asparagus scandens,* cathedral bells, oldmans beard.

Animal Species known to be present

(include birds, reptiles, mammals, invertebrates, fish, pests)

Woodpigeon, Tui, Bellbird, Waxeye, Harrier
hawk, rosella, fantail, grey warbler, king fisher

Threatened Species for Wellington Conservancy

Category A	
Category B	Woodpigeon
Category C	
Priority Species	

Nationally Threatened Species

Appendix 5: Excerpts from Singer and Rogers

3.1.3 North and South Island mild forests (Units MF1–25)

Twenty-five forest ecosystems occur in areas where mean summer temperatures range from 15°C to 17.5°C (Appendices 2 & 3). The upper elevational limits of tawa across its entire latitudinal range are a useful biological proxy for the altitudinal limit of this zone. This temperature zone is split into humid, sub-humid and semi-arid moisture availability zones; and further division separates coastal, inland and alluvial (with recent soils) landform zones. Unusual landforms and their associated soils also distinguish further units, namely welded volcanic ignimbrites and glacial outwash terraces. Soil type is an additional tertiary driver in this zone, where high rainfall and/or low potential evapo-transpiration have led to the formation of podzols and organic soils, or where relatively recent soils of volcanic origin have been derived from Taupo Pumice and other volcanic ashes.

At the broadest compositional level, almost all of these 25 ecosystems are mixes of podocarp and broadleaved tree species that are environmentally filtered according to climate and edaphic fertility (Appendices 2 & 3). The often emergent podocarp element can be broadly divided into mataī (Prumnopitys taxofolia), tōtara (Podocarpus totara) and kahikatea (Dacrycarpus dacrydioides) on the higher fertility sites (with the first two being sub-humid and semi-arid specialists); rimu (Dacrydium cupressinum) and miro (Prumnopitys ferruginea) on more weathered soils and in humid and sub-humid climates; and Hall's tōtara (Podocarpus cunninghamii) also on lower fertility soils at higher altitudes, albeit across a wide moisture availability gradient.

In terms of the broadleaved component, tawa is prominent in the North Island in both the sub-humid and semi-arid climatic zones (MF6, MF7 and MF21). Kāmahi is co-dominant with tawa in the humid climatic zone, e.g. MF7, but not in the semi-arid zone of the two main islands. In the humid zone of the South Island, rimu and kāmahi are co-dominant or individually dominant, depending on landform (e.g. MF16, MF17 and MF19). Beech species (mainly hard beech and black beech Fuscospora solandri) occur in several mild forest units, especially on steep and/or thin soil landforms within the humid zone.

ECOSYSTEM UNIT CODE AND NAME	DESCRIPTION	DISTRIBUTION (BOTH CURRENT AND HISTORIC), WITH EXAMPLES AND COMMENTS
MF7: Tawa, kāmahi, podocarp forest	Podocarp, broadleaved forest of abundant tawa and kāmahi of at least three local variants: 1. Waikato/Bay of Plenty with occasional emergent rimu, miro, kahikatea, mataī, tōtara and northern rātā, abundant tawa and kāmahi, occasional mangeao, hīnau and rewarewa, and locally pukatea in the canopy; 2. central and eastern North Island with emergent rimu, miro, kahikatea, mataī, tōtara and northern rātā, and abundant tawa, kāmahi, hīnau, rewarewa and pukatea (and locally tāwari in the north of the range on non-volcanic soils); and 3. Hunua to south Taranaki, with scattered emergent rimu, kahikatea and northern rātā, abundant tawa, pukatea and māhoe, and locally kāmahi, miro, hīnau and tawheowheo.	Downland and hill country, predominantly inland. Variant 1 occurs in inland Waikato, Bay of Plenty and King Country. Variant 2 occurs from western Raukumara southern Urewera Ranges, Wanganui, and western margin of the Tararua Range; also found east of the Main Divide on higher country, particularly in the Tiniroto Ecological District and Tararua District in humid locations; and small areas occur in the Marlborough Sounds. Variant 3 occurs in Hunua and western Waikato uplands to south Taranaki.

3.2.6 Combustion and/or volcanic activity (fire) (Units VS1–14)

Although the classification primarily focuses on the steady-state or late successional composition of ecosystems, it also needs to accommodate the substantial area and wide environmental and compositional variability of fire-modified vegetation that occurs below the treeline. Therefore, the vegetation succession section of the classification principally applies to early to mid-successional or seral states of vegetation, rather than to advanced states. These secondary communities can be extensive in areas where old-growth woody communities have been most fire-prone, especially on low-fertility substrates where repeat fire has been the main method of land management. In most cases, our ecosystem labels incorporate just a small number of structural dominants of what might be viewed as iconic species of seral communities, e.g. bracken (Pteridium esculentum), mānuka (Leptospermum scoparium), kānuka (Kunzea ericoides), and red (Chionochloa rubra) or copper (C. rubra subsp. cuprea) tussock. Several of the ecosystem labels use a small number of species; however, these are often labels of convenience that distil or represent a wide range of potential co-dominant species. These compositionally-simple labels also belie the successional variability and complexity of their subsequent compositional states. For instance, mānuka shrubland or scrub is a successional nurse or precursor to widely divergent communities across its full edaphic and climatic range—it can give way variously to beech forests, broadleaved forests and upland conifer-dominated forests.

We have not included any exotic plant-dominated seral ecosystems in the fire classification, even though they are also antecedents of many types of native woody vegetation, including forests (e.g. see Sullivan et al. 2007). Indeed, exotic plants are a substantial component of many seral communities, especially in rain shadow regions. The tall tussock community is effectively physiognomically equivalent to some alpine tall tussock grassland types (AL1–9), albeit in an entirely different climatic environment, with different herbaceous associates, and hosting different assemblages of invasive herbs, shrubs and trees. Repeat fire disturbance of seral communities can reset successions to the predictable physiognomic sequence of colonising non-vascular plants, herbs and grasses that eventually give way to woody species, including lianes. In other instances, the wind-dispersed seed of woody species such as mānuka, kānuka and Dracophyllum spp. permit their primary colonisation of fired-landscapes. Although our primary ecosystem driver emphasises anthropogenic fire rather than lightning-strike fire, the latter is also a source of less frequent and spatially-confined fires in New Zealand. It should also be noted that although all 14 ecosystems can have fire origins, there are specific instances where environmental stress and/or herbivory by domestic and feral ungulates can lead to similar communities; for example, the pest animal-induced tree-fernland or bush tussock grassland of montane southern Ruahine Range is a case in point (Rogers & Leathwick 1997). Consequently, the two universal influences on vegetation condition—environment and landscape history—need to be integrated before some seral states can be placed in this class.

We have included vulcanism alongside fire as a driver of seral vegetation. In renewing soils, volcanic disturbance tends to elicit similar seral vegetation states as local fire within regional contexts in both primary and secondary successions. Further, despite speculation to the contrary, there is no evidence that vulcanism caused long-term deforestation in New Zealand, except in very close proximity to active vents (McGlone 1989).

ECOSYSTEM UNIT CODE AND NAME	DESCRIPTION	DISTRIBUTION (BOTH CURRENT AND HISTORIC), WITH EXAMPLES AND COMMENTS
VS2: Kānuka scrub/forest	Kānuka scrub/forest of a range of variants. Later successional transitions include a wide range of broadleaved and podocarp trees.	Semi-arid and sub-humid zones, especially on free-draining soils in the northern and eastern North Island and eastern South Island to Otago. Kānuka dominates in Otago where rainfall is < 650 mm per annum. Locally succeeds VS12: Sward grassland and VS11: Short tussock tussockland.
VS5: Broadleaved species scrub/forest	Scrub/short forest of a wide range of variants, including species of Coprosma, Coriaria, Pittosporum, Pseudopanax, Melicytus, Olearia, Hebe and Myrsine, and wineberry, and locally kōtukutuku, kāmahi, tōwai, rewarewa, northern rātā and tree ferns.	Semi-arid to humid zones, from Northland to Stewart Island/Rakiura on free- and poor-draining soils. Often succeeds bracken fernland and/or mānuka scrub in humid climatic zones. On Mt Taranaki and Mt Tarawera, kāmahi and northern rātā have established terrestrially following volcanic activity, e.g. the Maeroa debris flow. Dominant species reflect local forest composition. Tree ferns can be locally abundant in humid locations.

Appendix 6: Site Photographs – Plant Communities

Photo 1: Community 1, Pasture

Photo 2: Community 2, Wet depression and wetland vegetation in pasture.

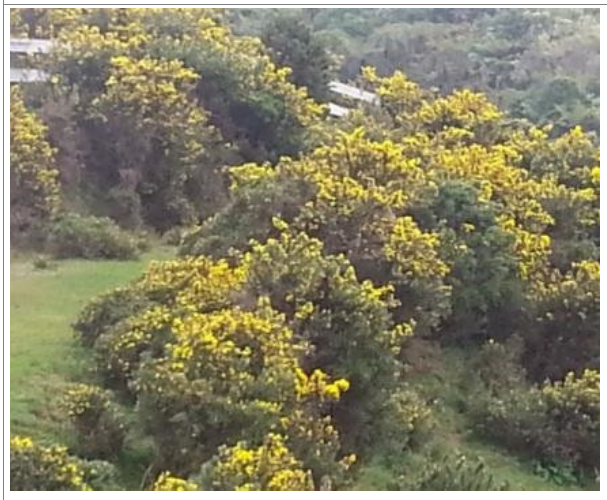


Photo 3: Community 3, Gorse shrublands and scrub over pasture.

Photo 4:

Photo 5: Community 4, dense mahoe-mixed broadleaved-(Gorse) scrub with kanuka.

Photo 6: Community 4, typical understorey

	
Photo 7: Community 5, kanuka / (mahoe)-(pigeonwood) scrub.	Photo 8: Community 5, typical understorey
	
Photo 9: Community 6, mahoe-gully fern forest.	Photo 10: Community 6, typical understorey
	
Photo 11: Community 7, mahoe-mamaku-mixed broadleaf forest in centre of image.	Photo 12: Community 7, typical understorey where mamaku dominates

Photo 13: Community 7, typical understorey where mahoe dominates on shaded slopes

Photo 14: Community 7, typical understorey where mahoe dominates on north facing slopes with little mamaku.

Photo 15: Community 8, tawa dominated mixed broadleaved forest.

Photo 16: Community 8, dense epiphytes.

Photo 17: Community 8, Canopy dieback as a result of road construction.

Photo 18: Community 9, exotic shelterbelts or Pine stands

Appendix 7: Site Photographs - Streams:

Photo 19: Stream A, a small ephemeral steam, full of litter and tree fern debris.

Photo 20: Stream A: Sheet flows within an incised channel.

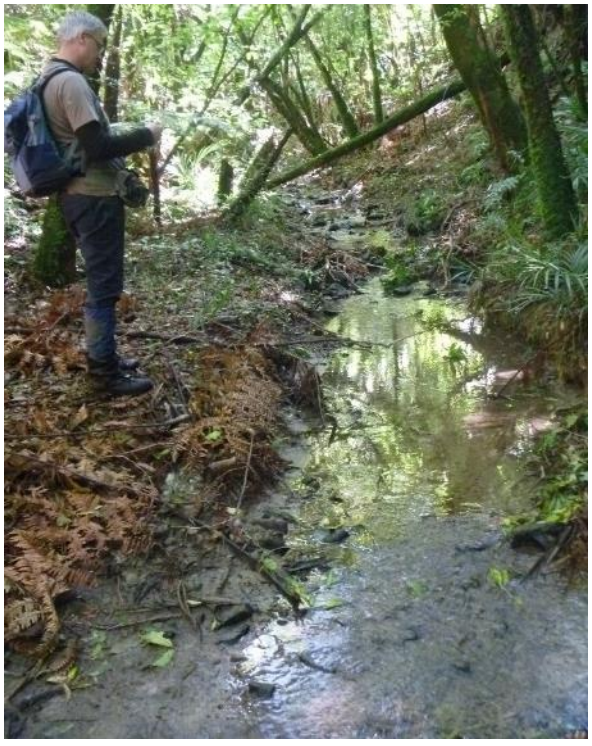


Photo 21: Stream B, the largest stream shaded by mahoe and gully fern, runs across the survey site from the NW corner to the SE

Photo 22: Stream B: Waterfall pool cascade in stream B, approximately 200m upstream from the SE site boundary

Photo 23: Stream C has cut a small channel, primarily shaded by mahoe and mamaku.

Photo 24: Stream C – EFM survey.

Photo 25: Confluence of Stream C & D: a channel flowing through boggy ground.

Photo 26: Stream B, EFM survey immediately upstream of the point the stream leaves the site.

Photo 27: Stream B: headwater tributaries are typically as shown above.

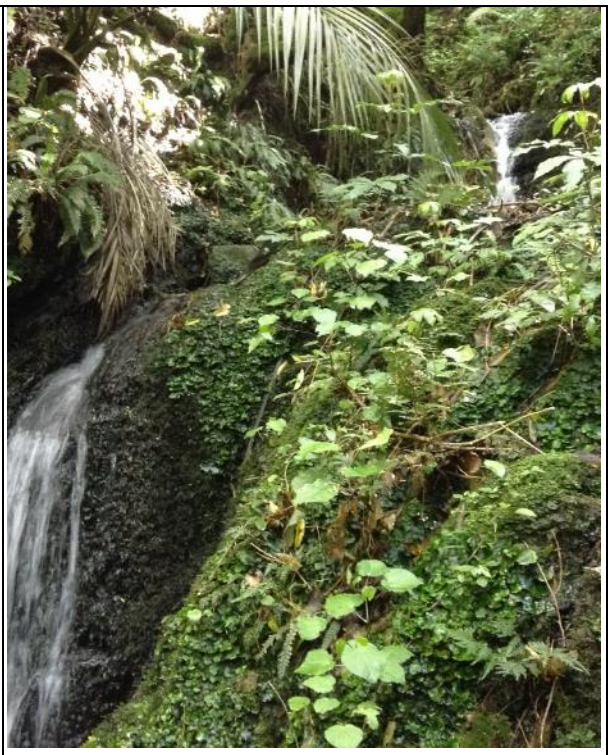


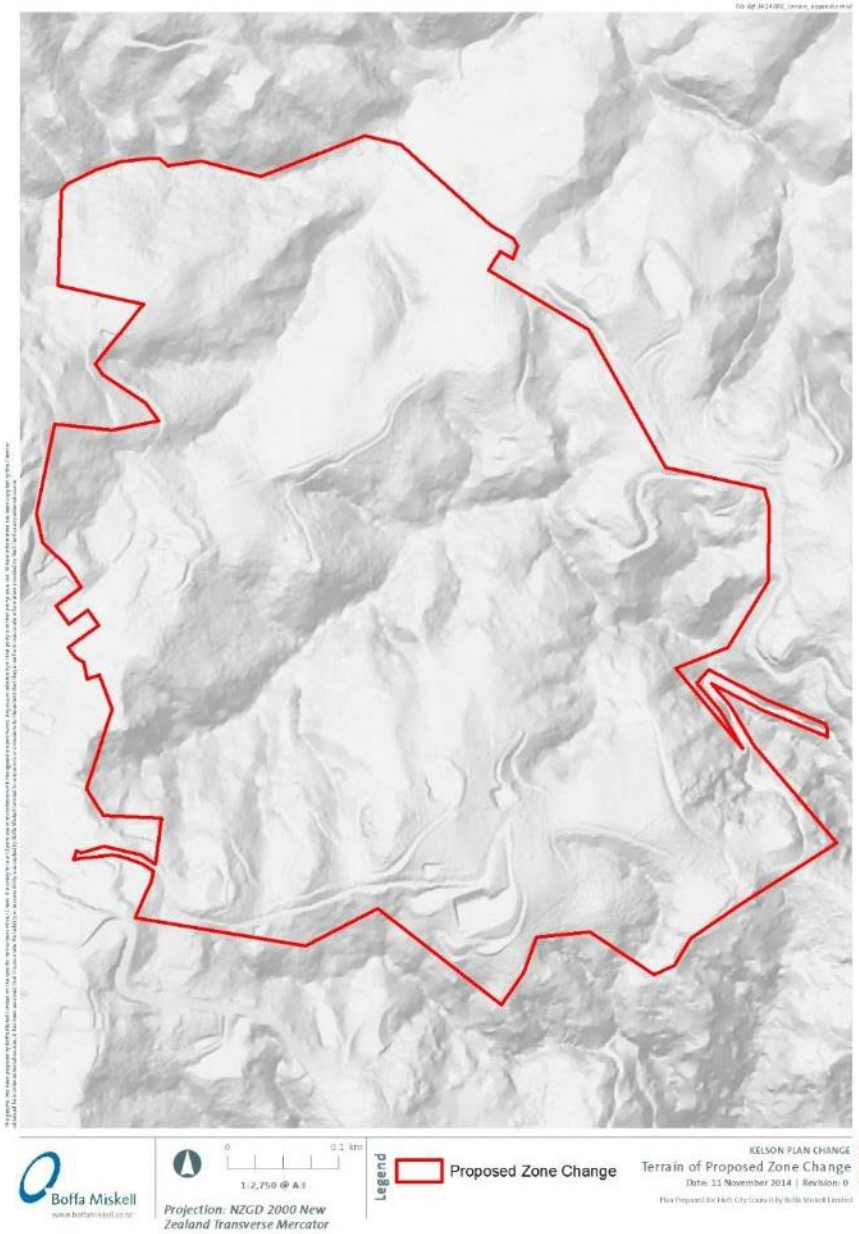
Photo 28: Fish Barriers: Stream B, numerous waterfalls below and within the site provide natural barriers to most migratory fish species.

Photo 29: Fish Barriers: Stream B at the Liverton road crossing below the site is a significant perched culvert and waterfall

Photo 30: Fish Barriers: A concrete bund and debris trap in stream B immediately upstream of the culvert beneath SH2.

Appendix 8: Site Maps

Figure 4: Topography and Slope of site. Left Map, LIDAR generated map showing fine topography of the site. Map right, showing constraints of slope over 28 degrees.



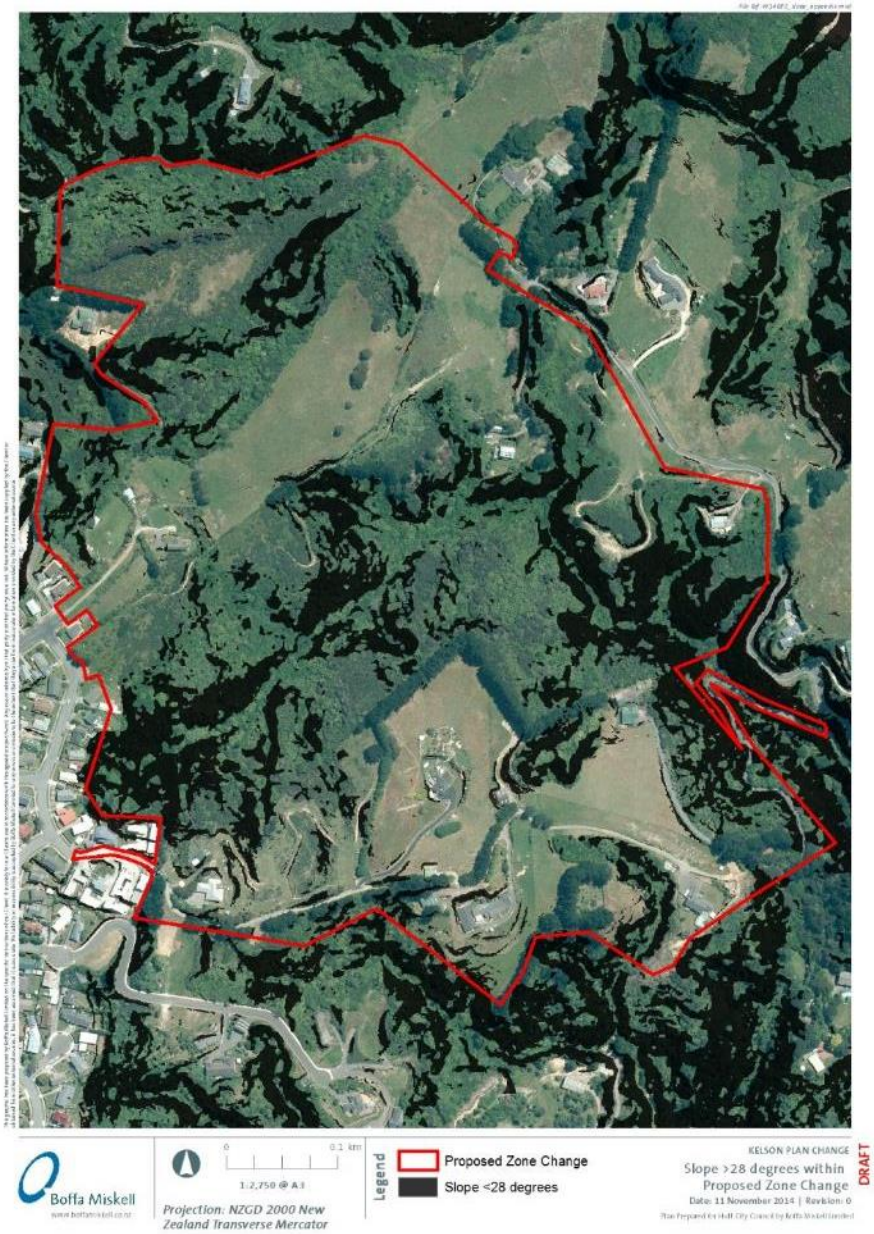


Figure 5: Changes in Land use over time, showing progressive spread of shrub into unmanaged pasture in the north and east in the 10 years between 2003 (left) and 2013 (right)

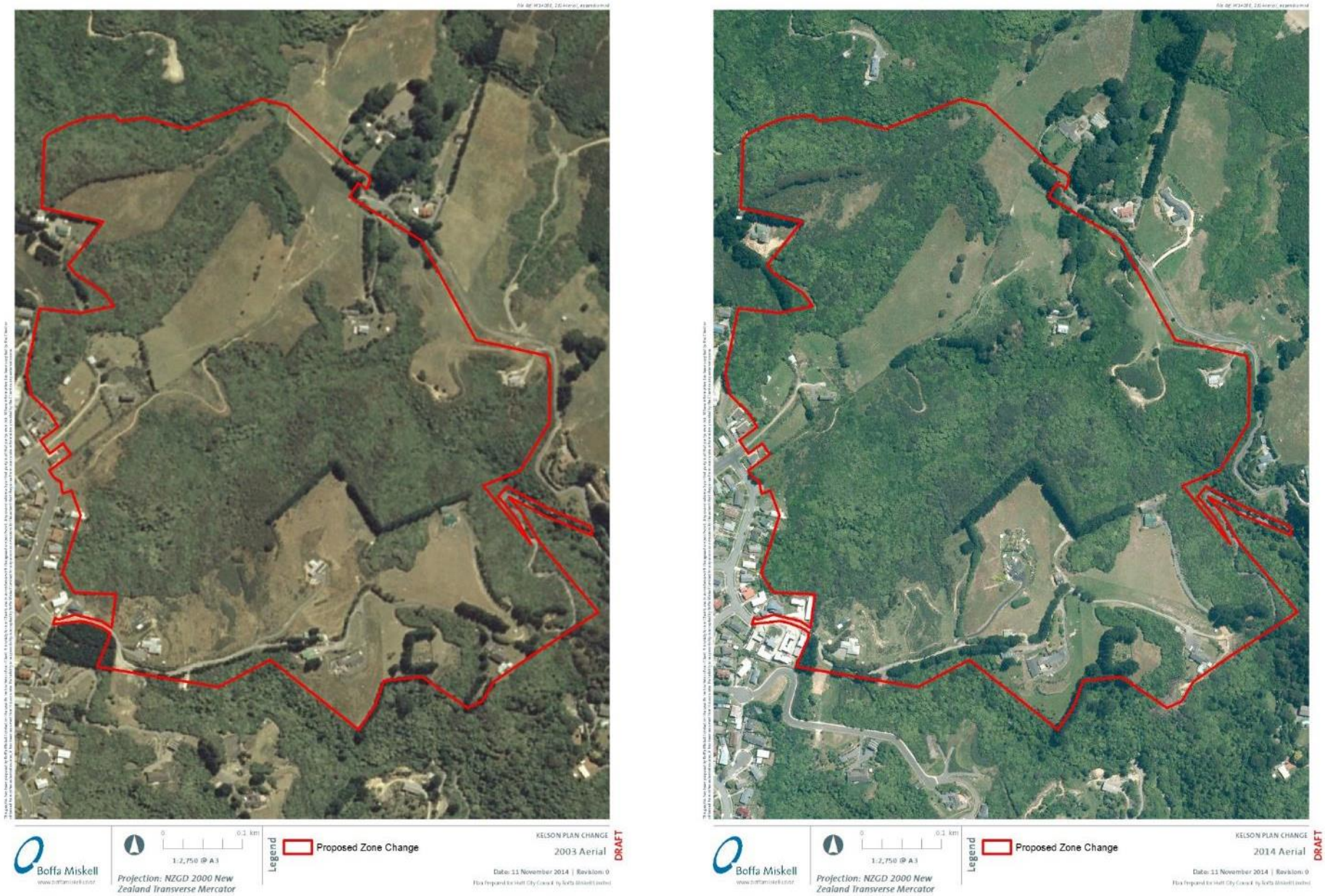


Figure 6: Assessment of Significance – Scenario 1

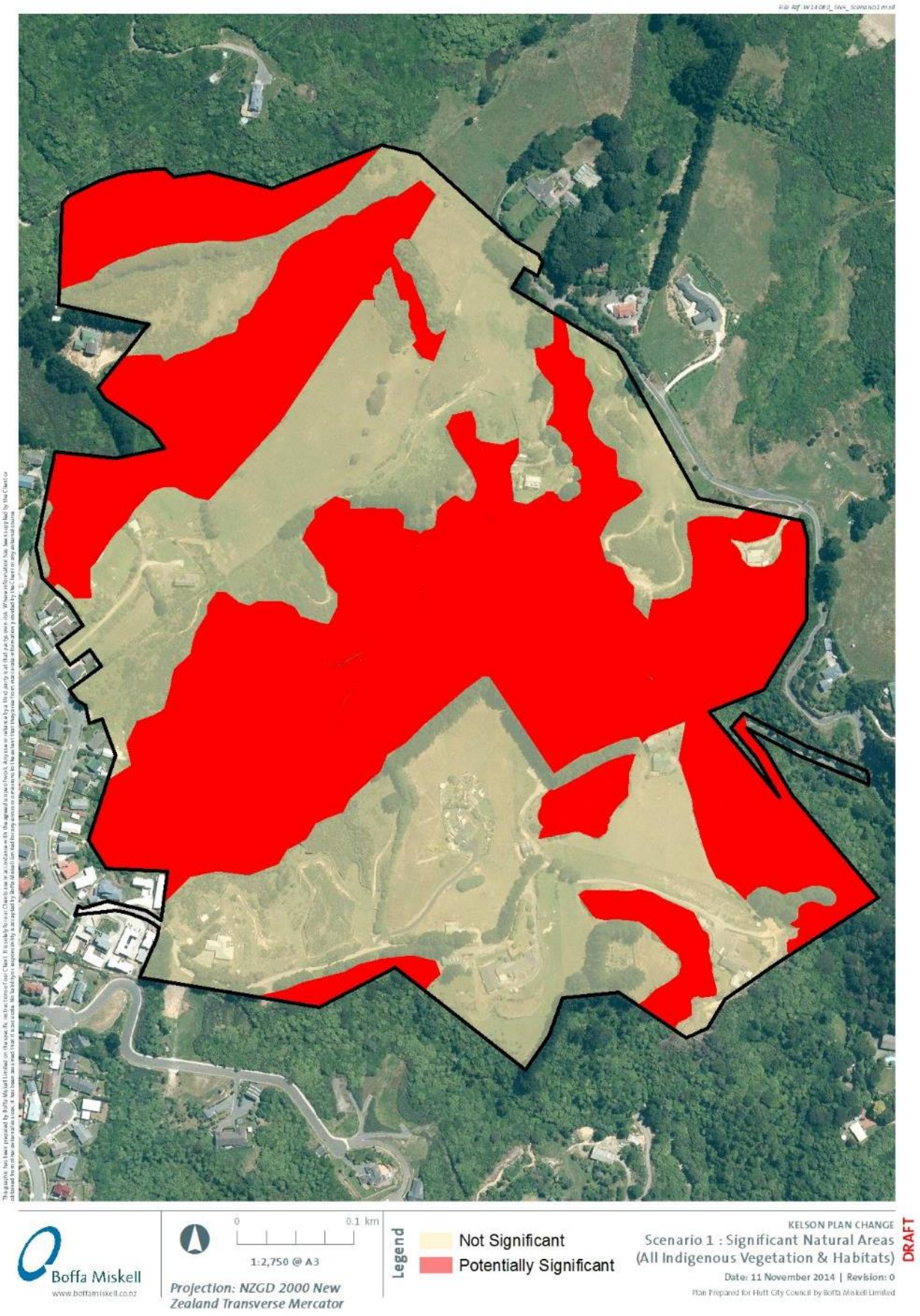
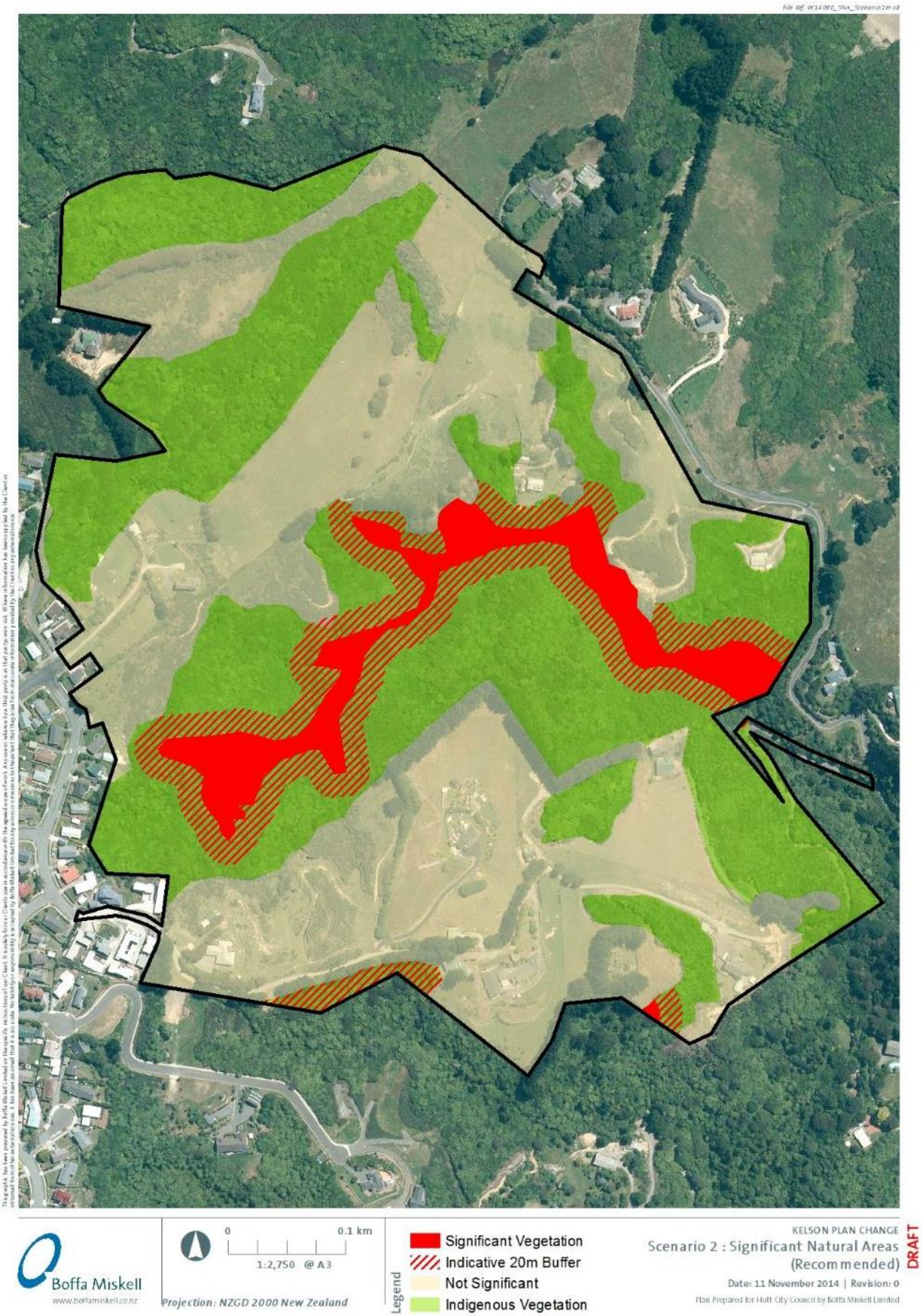


Figure 7: Assessment of Significance – Scenario 2



APPENDIX 3: UPPER FITZHERBERT, WAINUIOMATA

WAINUIOMATA NORTH DEVELOPMENT FRAMEWORK REPORT & MCA

WAINUIOMATA NORTH DEVELOPMENT FRAMEWORK

Prepared for Hutt City Council to inform a future Structure Plan and Plan Change process

By:
Ian Munro and Nicola Tagiston
with:
Mike Cullen (Urbacity Pty Ltd)
Steve Thorne (Design Urban Pty Ltd)

February 2018

HUTT CITY
TE AWA KAIRANGI

EXECUTIVE SUMMARY

A priority for Hutt City Council is facilitating an increase in housing supply to meet the predicted needs of population growth, particularly affordable housing both in established areas of the City as well as greenfield development in suitable areas at the urban edge. Wainuiomata North is one such priority greenfield location, identified in the Council's Urban Growth Strategy 2012-2032.

The growth strategy, the National Policy Statement on Urban Development Capacity and recent market-driven housing demand in Wainuiomata have resulted in the need for the Council to initiate the production of a development framework for Wainuiomata North. The framework sets out a pathway to realise opportunities for the comprehensive and integrated development of Wainuiomata North, to increase the supply of housing (including affordable housing), and to make efficient use of land and infrastructure.

The proposed Wainuiomata North Development Framework was identified during an inquiry-by-design workshop process with cross-Council representatives, key stakeholders and consultants. Taking Council's existing policy direction and vision for Wainuiomata North as a starting point, the workshop focused on:

- identifying the two most feasible development options and a supporting concept master plan for the land.
- understanding the urban form, socio-economic and sustainability implications of development.
- identifying opportunities to add value, leverage investment benefits, improve social and economic outcomes and add to the success of Wainuiomata and the City generally.
- discussing staging considerations and delivery mechanisms so Council can consider risk and uncertainties and put in place an enabling planning framework.

The main outcome of this project is to give clear direction to the form future development could take in Wainuiomata North underpinned by best practice urban design principles. This will be best achieved by pursuing a mixed-density development option. That would enable a wider range of housing and varying levels of density, providing more choice and a quality living environment.

It is anticipated that the Council will subsequently prepare a structure plan to guide its decision making on rezoning and infrastructure investment followed by a Resource Management Act plan change process.

FRONT COVER IMAGE: Wainuiomata North study area (HCC, 2017)
ABOVE: Wainuiomata North area, Wainuiomata, Lower Hutt (HCC, 2017)

TABLE OF CONTENTS

Wainuiomata North
Development Framework
February 2018

1 INTRODUCTION

1.1 ABOUT THE PROJECT

The National Policy Statement on Urban Development Capacity requires local authorities to provide zoned and serviced land to accommodate housing growth over 3, 10 and 30-year horizons. Hutt City Council's (HCC) Urban Growth Strategy 2012-2032 (UGS) aspires to 6,000 more dwellings and 10,000 more residents in the City by 2032. To meet these population targets and requirements, Council is actively pursuing options for residential intensification in established areas of the City as well as greenfield development in suitable areas at the urban edge. The NPS also requires Councils to more generally promote choice, the efficient use of urban land, and the benefits of urban development.

In this context, it is recognised that growth will continue in greenfield fringe areas of the City, and an area of Rural Residential, Hill Residential and General Residential zoned land within Wainuiomata - Wainuiomata North presents an opportunity to support Council's growth imperatives. It is anticipated that Council will in time undertake a structure plan to guide its decision making on rezoning and infrastructure investment followed by a Resource Management Act plan change process. The main outcome of this development framework project is to give clear direction to the form future development could take through the preparation and evaluation of development options and a concept masterplan underpinned by best practice urban design principles.

1.2 PROJECT AREA

The Wainuiomata North study area covers an area of approximately 136 hectares (ha) as shown by the black line in the locality plan map (Figure 1). The area is located north of Wellington Road and Wise Street and is centred around Upper Fitzherbert Road. The area currently consists of 50 lots which range in size from 0.06ha to 9.8ha[1] and are owned by 36 landholders. The area is predominately a rural area and is surrounded by significant hills and associated bushland. The area is also known as the Upper Fitzherbert Area in the Council's UGS. The area comprises the northern end of a long linear valley enclosed by the hills.

[1] For the smallest and largest lot sizes calculation, only the area of the property found within the study area boundary are included, as some properties are only partly contained by the study area.

Wainuiomata North
Development Framework
February 2018

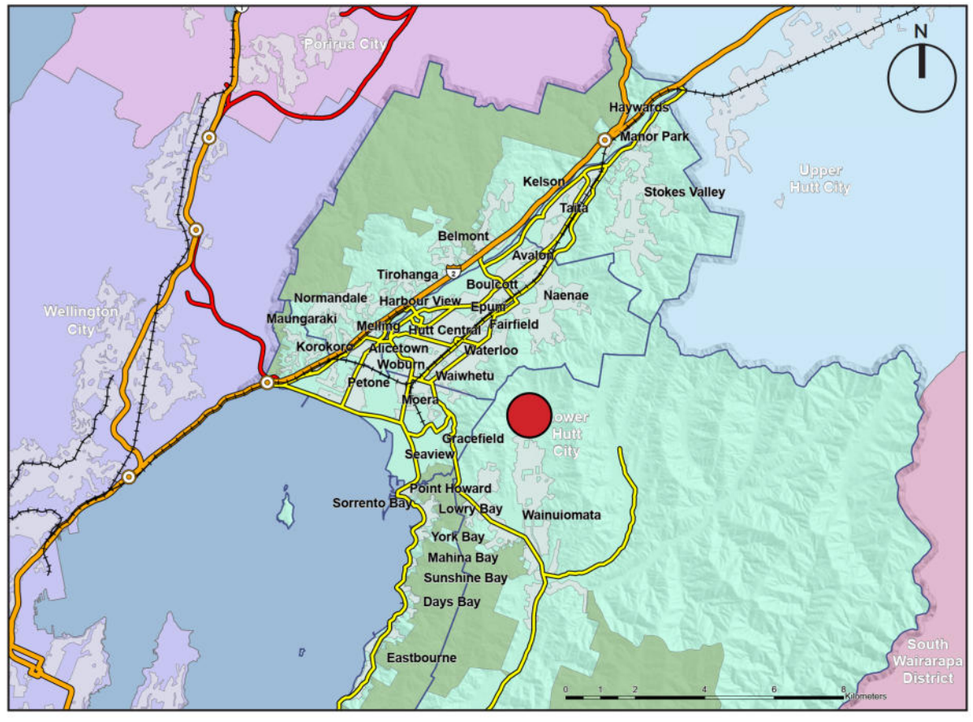


Figure 1: Wainuiomata North location plan (location marked by a red dot)

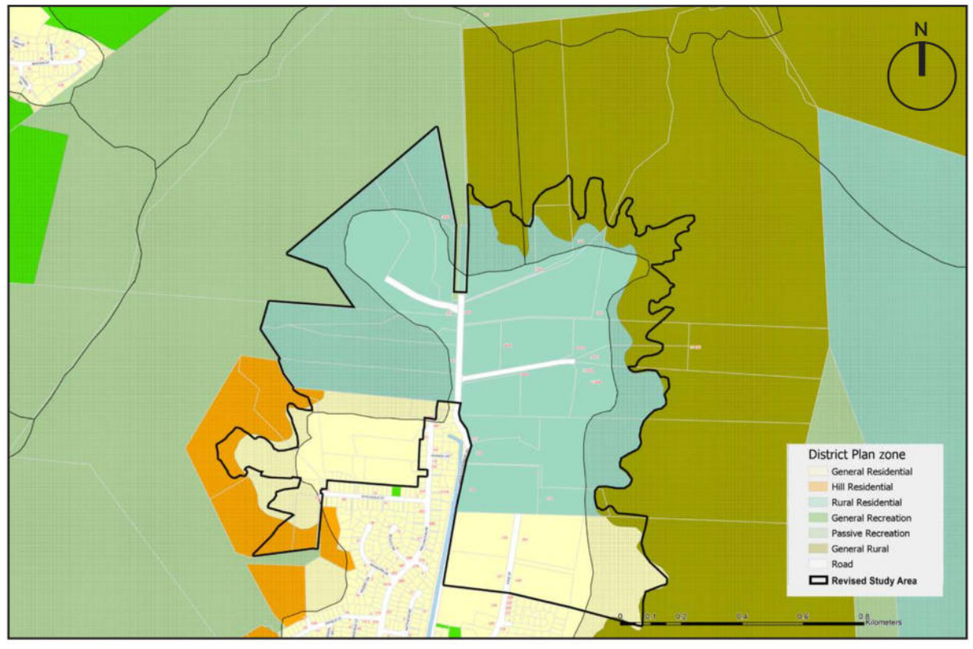


Figure 2: Wainuiomata North zoning under the Hutt City Operative District Plan
Source: HCC, 2017.

Current zoning

The study area is predominantly zoned Rural Residential with some southern areas zoned General Residential and Hill Residential under the Hutt City Council Operative District Plan (Figure 2). The land surrounding the study area to the east, west and north are zoned Rural and Passive Recreation and is subject to a Significant Natural Resource (SNR) overlay.

Project history

Background planning documents

Wainuiomata North land has long been identified for urban development. Dating back to 1976 under the Hutt County Council Approved District Scheme Review No. 2 prepared under the Town & Country Planning Act 1953, Wainuiomata North land was earmarked for residential purposes along with a proposed hospital, primary school, secondary school, a discrete area of commercial activity, and a future road connection north towards Naenae (Figure 3). This District Scheme was operative until the Proposed District Plan was notified in December 1995 which rezoned the majority of the land to Rural Residential.

Following this, the UGS published by Council in March 2014 identified the Wainuiomata North area as greenfield land suitable for moderate to large scale residential development. The Council's original intention was to enable all the land in the Upper Fitzherbert area to be available for development – around 60 hectares of land with potential for around 1,500 new dwellings (UGS, page 30). However, a number of the existing lifestyle land owners objected to completely opening up the area and Council resolved to make only 27 hectares of land available for development.

The UGS envisages the area as:

> "*a mixed community offering a range of housing and densities; from retirement housing and affordable housing for first home buyers through to premium housing with large sections, nestled in and around the beautiful bush and wilderness surrounds. A small number of sites will also be set aside to accommodate local shops and services.*" (UGS, page 30).

Since identification as a growth area in the UGS, a number of specialist independent studies have been subsequently undertaken to assess the potential of the area. This body of work has informed this development framework.

Wainuiomata North
Development Framework
February 2018

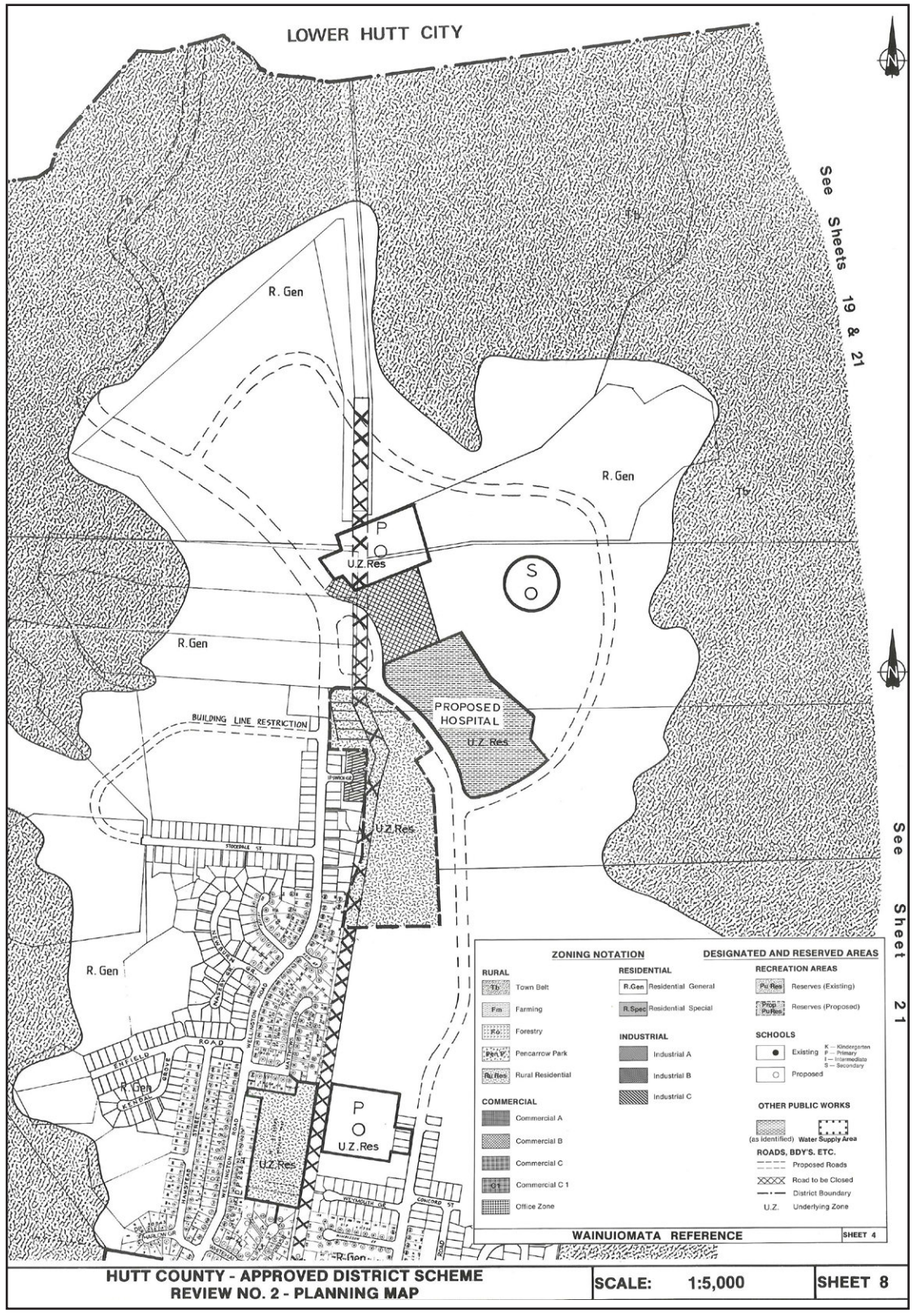


Figure 3: Wainuiomata North zoning under the Hutt County Council Approved District Scheme Review No. 2

Source: HCC, 1976.

1.3 PROJECT METHODOLOGY

The Wainuiomata North Development Framework is the culmination of a three-day technical workshop held in Lower Hutt during 21-23 November 2017. Facilitated by Ian Munro (project lead), the workshop consultant team included Steve Thorne (master planner), Mike Cullen (centre specialist) and Nicola Tagiston (urban design and planning). The workshop was attended by both internal and external stakeholders including representatives from Hutt City Council, Greater Wellington Regional Council, Ministry of Education, Wellington Water and Iwi. Refer to Appendix 2 for a full list of workshop attendees.

Workshop participants numbered around 15 participants per day from various technical disciplines including transport planning, urban design, strategy and planning, resource consenting, community services, parks and gardens, and three waters management.

A summary diagram of the key stages and milestones is included as Figure 4.

1. Site, context and market analysis – understanding the environment
Identification of the key characteristics of the land, key opportunities and constraints presented by the wider context, and determining the spatial extent and form of the future development area. This included analysis of relevant data, preferences, priorities and approved / proposed subdivisions within the wider area.

2. Development options – high level land use concepts for the precinct
Indicative layout of major roads, nodes, residential opportunity and potential development yields. This included confirmation of key parameters of the options and identification of a preferred option.

3. Concept Masterplan – detailed development concept for the area
Testing a comprehensive and detailed development concept illustrating one preferred option for how the area could be developed.

4. Structure plan principles – staging and regulatory considerations
Analysis of development logic, staging and regulatory framework considerations for a future structure plan process.

Figure 4: Spatial design stages and milestones

Wainuiomata North
Development Framework
February 2018

The workshop process
Workshop Day 1 – 21 November

Outcome: A shared appreciation of the constraints and likely directions of the project.

- project briefings from key technical departments and stakeholders on pertinent local, city-wide and regional issues and considerations. These presentations are included as Appendix 3.
- site visit to Wainuiomata North precinct study area and key points of reference in Wainuiomata and adjoining suburbs including stops at the Wainuiomata town centre, Norfolk Street shops, Arakura Park, local schools and newly constructed/ approved residential developments.

Workshop Day 2 – 22 November

Outcome: Working though assumptions and preferences to identify key structuring elements, land use options and a preliminary concept master plan.

- validate the Wainuiomata North precinct study area boundary.
- evaluate demand for retail and the role of existing centres and possible establishment of a new centre as a consequence of population growth in Wainuiomata
- evaluate demand for a new Primary School and the capacity of existing schools in Wainuiomata.
- high level evaluation of growth and strategic access options on Wainuiomata and its socio-economic performance.
- preparation of provisional land use options and development yields.

Workshop Day 3 – 23 November

Outcome: Finalisation of the concept master plan and summation of the workshop process, options, inputs and next steps for the project.

- assessment of the relative costs and benefits of the two development options in the growth area against agreed principles to confirm a preferred option.
- finalise concept master plan.
- commence identification of best practice principles and planning mechanisms needed to deliver the vision.
- presentation to Council senior managers and Councillors.

Benefits of a workshop process
The Council supported a workshop-based design-led process that cycled between strategic and detailed considerations. This process allowed the project team to make local decisions informed with an understanding of likely strategic outcomes and vice versa.

The local and technical knowledge of workshop participants enabled a significant amount of information to be canvassed over a relatively short period of three days. The workshop encouraged a high degree of active participation amongst local and regional authority representatives and consultants. This meant a wide range of issues and development complexities were able to be explored, with the preferred development option achieving broad support and ownership amongst participants.

The concurrent preparation of a concept masterplan during the workshop substantiated and further articulated the preferred development option, and demonstrated how many of the built form qualities sought by the Council could be accommodated.

WORKSHOP IN ACTION

1.4 PROJECT TIMELINE

Phase One: August 2017 - February 2018
Inquiry-by-design workshop
Feedback on draft development options and concept masterplan
Proposed development framework submitted to Council for consideration
Final development framework

Phase Two: early – late 2018
Structure Plan
Statutory plan change

Phase One of the project focusses on the production of a development framework. The development framework process started in August 2017 and concludes in early 2018. The previous studies that have been undertaken in the area were analysed including the Wainuiomata Development Plan (2015) and the GHD Report for Urban Strategic Development – Wainuiomata Area (2014).

New and updated information gathered as part of stage one includes:

- Regional Policy Statement for the Wellington Region 2013, GWRC
- Hutt City Water Infrastructure Constraints Mapping - 3 Waters capacity/ constraints analysis (May 2016), Wellington Water
- Hutt City Water Infrastructure Constraints Mapping Update (Nov 2016), Wellington Water
- Empowering Tamariki for the Future 2017, HCC
- Leisure and Wellbeing Strategy 2012-2032, HCC
- Long Term Integrated Community Facilities Plan 2015, HCC.

A summary of the opportunities and constraints identified by these technical reports is provided in Section 4. Key elements of these reports in addition to the Council's planning framework and general best practice urban design literature were put together to form the draft framework based on a synthesis of the technical information.

The proposed development framework is submitted to Council for consideration. It is anticipated Council will choose to prepare a plan change (and structure plan) in accordance with the first schedule of the Resource Management Act 1991 (RMA) in early 2018 as project Phase Two.

2 LOCAL CONTEXT

2.1 SITE DESCRIPTION

The Wainuiomata North area is approximately 136ha in total (Figure 1) with the core developable area of approximately 84.5ha. Within Wainuiomata North are established rural residential areas with Rural Residential, Hill Residential or General Residential zoning under the HCC Operative District Plan. Residential properties are dispersed about existing road access ways. Upper Fitzherbert Road acts as the central spine through the Wainuiomata North area, with two forks providing access to several rural properties to the east and west.

This area currently accommodates a range of semi-rural land uses including hobby-farms and rural lifestyle properties. Residential colonisation is becoming more common across the landscape and pastoral or lifestyle block activities in the south of the precinct are gradually being phased out by small-lot residential subdivisions in the General Residential zoned land. A number of permanent and intermittent streams dissect land within the precinct and drain into Black Creek.

The precinct is contained to the north, east and west by a ring of hills and lowland forest. The Hutt City Operative District Plan acknowledges the importance of this regenerating native forest by scheduling two Significant Natural Resources (SNR). SNR 58 Wainuiomata West Bush is located to the west, and SNR 34 Mowlem Bush to the east. Two other areas of reserve are located near to the study area and both are protected under the Reserves Act 1977 - the Haywards Scenic Reserve in the Eastern Hills and the Fitzherbert Covenant to the west. Although the core part area of the area is relatively flat, it sits in a unique amphitheatre of hills covered in grass, scrub, pine forest and regenerating bush of the Eastern Hills which provide high scenic amenity values.

While the core General Rural area remained the focus of the investigation, the workshop identified the need to expand the study area in peripheral locations (Figure 5). Two areas of zoned but undeveloped General Residential and Hill Residential land bordering the core area to the south totaling 37.7ha was included. To the northeast some hill areas above the 120m contour line but not identified as a potential Significant Natural Resource were also included.

Wainuiomata North
Development Framework
February 2018

The study area was expanded because these new areas in the south, while currently zoned for urban use, are undeveloped. In the interests of promoting the most integrated-possible outcome across Wainuiomata North the land was added to the project, particularly form the point of view of understanding future stormwater and road network / block structure opportunities that might exist. A consequence of this inclusion was that later in the project, care had to be taken not to double-count development capacity that might be enabled as a result of new urban zoning being provided in the future.

THE UPPER FITZHERBERT ROAD SPINE THROUGH WAINUIOMATA NORTH

EXISTING HOBBY FARMS AND LIFESTYLE ACTIVITIES IN WAINUIOMATA NORTH

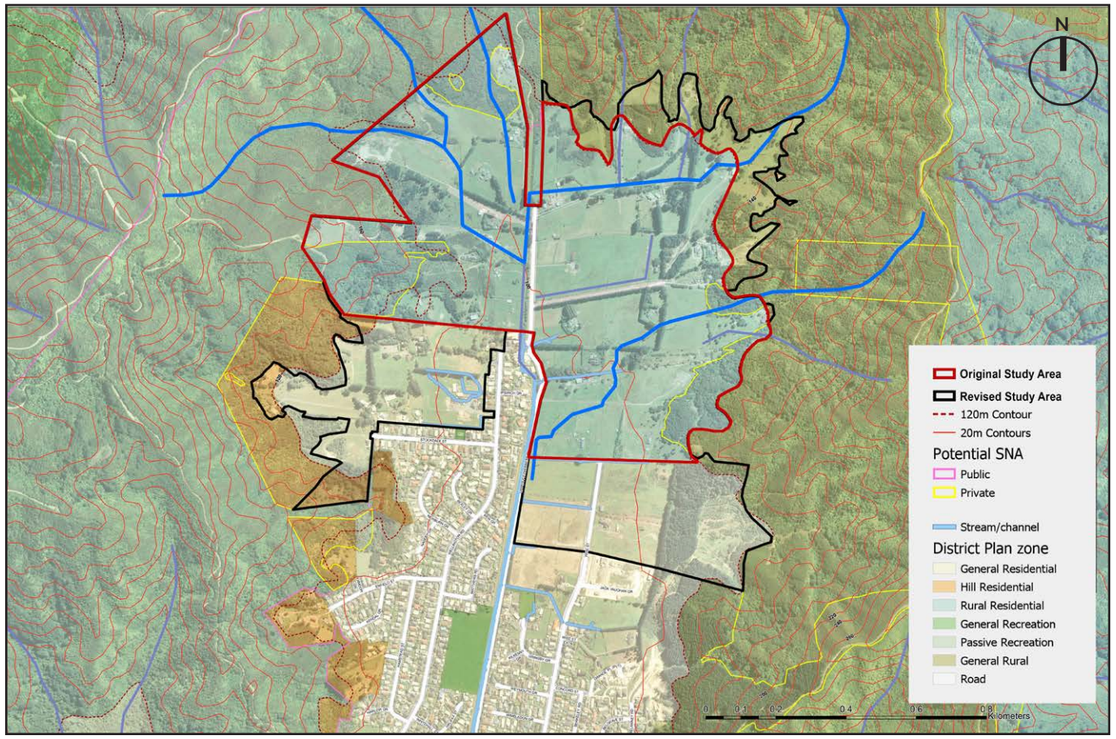


Figure 5: Original and expanded Wainuiomata North study area

Wainuiomata North
Development Framework
February 2018

2.2 SURROUNDING LAND USE

The Wainuiomata North area is situated within a wider suburban residential context, with the surrounding residential area to the south characterised by low density housing including a mix of detached single and double-storey houses. Established residential areas have a General Residential zoning under the HCC Operative District Plan.

To the northeast across a section of the area is the alignment of a high voltage transmission line corridor as part of the National Grid Corridor network owned and operated by Transpower New Zealand. To the east, north and west above the area is the bush-clad Eastern Hills of Lower Hutt accessible by a number of tracks. These are steep and for the most part would not be readily developable even if reserve and SNR classifications did not exist.

In close proximity to the area, 1.7km to the south, is the Norfolk Street shopping area. This is a small neighbourhood centre with approximately six shops zoned Suburban Commercial under the HCC Operative District Plan. The centre serves the convenience retail and service needs of current residents and includes a superette. The precinct is approximately 3.5km north of Wainuiomata town centre and 12km southeast of Hutt City Centre which meet residents' higher-order shopping needs.

Arakura Primary School is located to the southwest of the area, and the nearest Primary School and Kindergarten in the wider area. Arakura Primary is a Decile 2 contributing school (Years 1-6) with a roll of approximately 170-200 pupils. Wainuiomata High School is the nearest co-eduational secondary school to the area located in Wainuiomata.

2.3 LAND FORM AND FEATURES

The central core of the study area is relatively flat with areas of undulating pastoral landform elevated approximately 100 metres above sea level, rising towards the surrounding hill ridges with moderate to steep slopes. The majority of the vegetation in the lowland floor of the area has been cleared and replaced with exotic pasture, buildings and roads. With the exception of some fringe areas and land above the 120m contour line, very little native vegetation remains in the area. In contrast, the area is strongly defined by the surrounding hills to the east, north and west which form a large greenbelt encircling it. The majority of the hills are bush-clad and have high natural character and recreation value.

The Upper Fitzherbert area forms part of the northernmost section of the Black Creek catchment (Figure 6) which eventually drains into the Wainuiomata River. The area is a drained farmland crisscrossed by a number of natural and very modified / artificial drainage corridors which drain into Black Creek downstream. Most of these corridors appear to have been modified by historical farming activities and degraded by drains, a lack of riparian cover and stock access. Black Creek traverses much of the length of Wainuiomata in a north-south direction with the northern section of the Creek a modified deep-cut open drain located adjacent to Upper Fitzherbert Road.

SECTIONS OF THE MODIFIED DEEP-CUT OPEN DRAIN ADJACENT TO UPPER FITZHERBERT ROAD

Wainuiomata North
Development Framework
February 2018

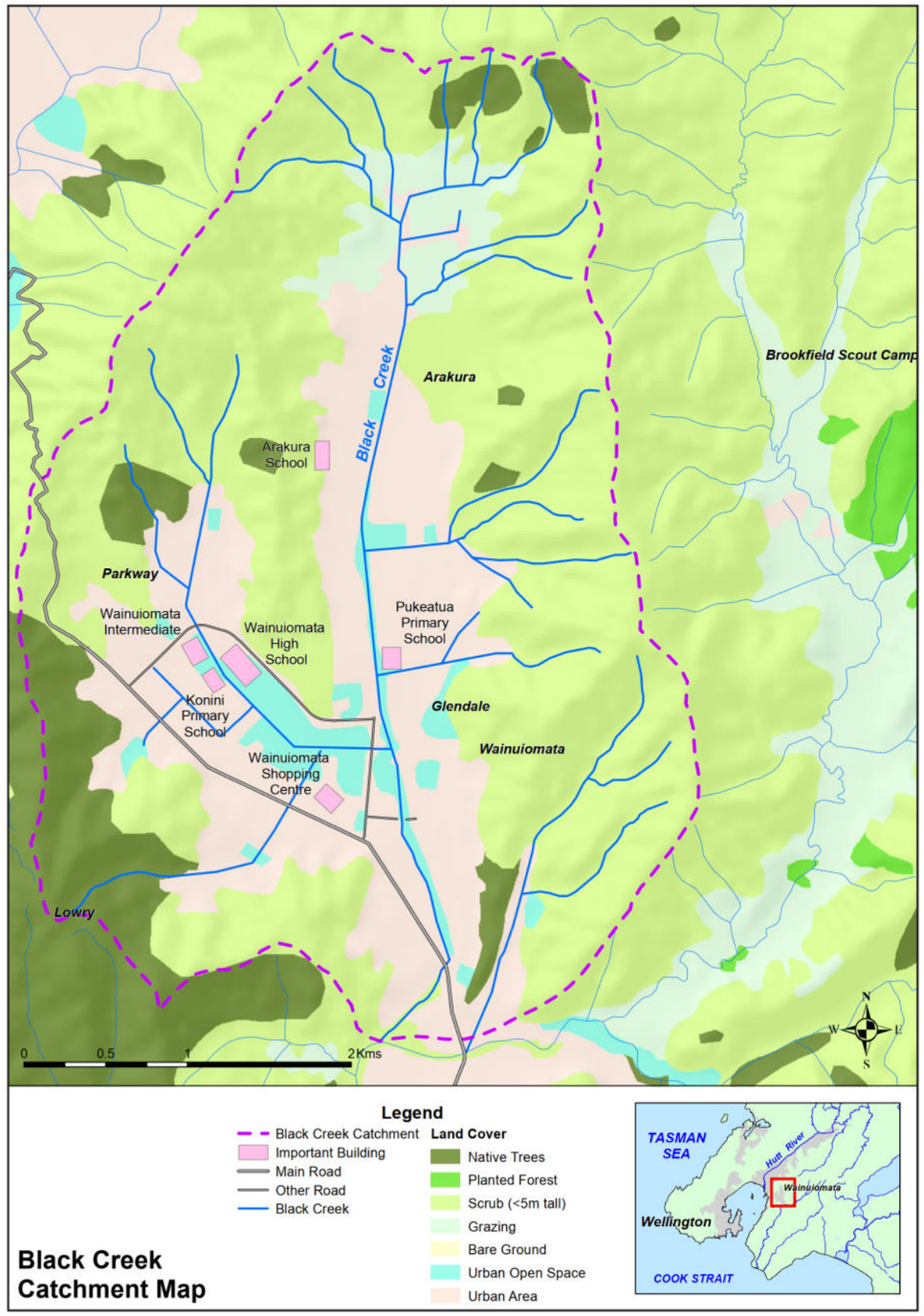


Figure 6: Black Creek catchment map
Source: GWRC, 2017.

3 URBAN DEVELOPMENT INFLUENCES

This section summarises the relevant urban development influences likely to significantly affect urban development outcomes, including technical opportunities and constraints identified by Council and other stakeholders involved at the workshop. More detailed technical reporting of constraints would be undertaken at the time of the future structure plan and resource management plan change to further confirm their characteristics.

3.1 NATURAL CHARACTER, LANDSCAPE AND VISUAL

In terms of natural character, the bush-clad hills have a high level of natural character, landscape and visual amenity values. In contrast, rural-residential development across the central core of the area contributes relatively little to what are low landscape values and sensitivity. Most of the area is classed by Greater Wellington Regional Council as an 'acutely threatened environment' as less than 10% of indigenous vegetation cover remains. The urban-zoned area to the south is also undergoing significant change with new areas of housing at Wise Street, Stockdale Street, Trelawney Road and small-lot subdivisions on Upper Fitzherbert Road occurring.

While there will inevitably be a level of adverse effects on landscape and visual amenity values from the loss of the remaining rural landscape as land uses change, this has been anticipated by the Council's growth planning strategy for the area. Development in Wainuiomata North nonetheless presents opportunities to maintain or improve some landscape amenity outcomes, enhance habitat values and improve the ecological value of Black Creek and key tributaries through the area. Riparian improvements of the tributaries and potential stormwater management devices including swales, wetlands or detention ponds could also contribute to habitat. Although not able to be quantified in this project, the conversion of farmland to urban use has elsewhere provided some opportunities for a reduction in fertiliser and nitrification use, with associated benefits.

Wainuiomata North
Development Framework
February 2018

3.2 OPEN SPACE AND RECREATION

In the northernmost part of the area, the Upper Fitzherbert Track is accessed by a 250m north-south paper road that extends over farmland between 166 and 167 Upper Fitzherbert Road. This is a walking and mountain biking track that joins the ECNZ Track (managed by Transpower New Zealand) across the surrounding hills. HCC is also in the process of acquiring land along the eastern ridgeline adjoining the study area. It aims to expand the Wainuiomata network of walking and mountain biking tracks and connect to the ECNZ Track and the Wainuiomata Scenic Reserve (managed by Department of Conservation) to the south.

Also of note are the stream tributaries of Black Creek which run through rural properties within the area. It is likely that at least some of these tributaries could be used for recreational purposes into the future as an amenity feature in Wainuiomata North (especially if well-integrated into a subdivision pattern and subject to riparian corridor improvements). The open grassy area on the eastern bank of the Black Creek drainage corridor is currently accessible to bikers, walkers, and runners and forms part of the informal network of open space in the surrounding area. The Council is considering the future closure of the section of Upper Fitzherbert Road north of Norfolk Street (due to long-term erosion and stormwater concerns, and that the road is poorly integrated with adjacent residential dwellings), and this could be enhanced for recreational purposes into the future.

There are no existing recreation reserves within the area, with the closest formal open space Arakura Park – a 2.7ha open space - located 1.2km south of the study area. Frederick Wise Park, Bryan Heath Park and Wainuiomata Pool are major recreational assets in the wider Wainuiomata area.

Overall, with additional housing anticipated within the Wainuiomata North area, open space networks and park assets will be required to support the informal recreational needs of the population. It is important the area has access to a quality open space network for running around, community gathering and casual recreation. Development in Wainuiomata North presents opportunities to provide open spaces that could also fulfill an educational, conservation or stormwater management function depending on their location and attributes.

It is likely that urban zoning of the study area would result in a need for at least one flat recreation reserve of approximately 4,000m2 area. This would preferably be in a central and well-accessible part of the area, and placed so as to be visually prominent and easy to find ("legible").

3.3 STORMWATER AND MANAGEMENT OF FRESHWATER

The Wainuiomata North area is largely undeveloped and any stormwater generated within local catchments is currently discharged via artificial channels or permanent and intermittent watercourses then finally into the upper section of the open Black Creek drain adjacent to Upper Fitzherbert Road. A large volume of water is generated in the upper catchment and there has been historical flooding and inundation issues within, and associated with, the area (GHD, 2014). Issues have been reported at the northern end of Wise Street as well as instances of localised flooding on properties and floodwaters flowing across the northern end of Upper Fitzherbert Road. The catchment also contributes to Black Creek, where downstream flood modelling indicates significant flooding on properties in a 1 in 100 year flood event (Wellington Water). Black Creek also ultimately discharges in the Wainuiomata River which has had significant flooding in the past.

Development in the upstream catchment in Wainuiomata North will inevitably increase areas of impervious surfaces such as roads, driveways, car parks and roofs. This may result in a net increase in runoff that could further reduce the effectiveness of the existing drainage network, increasing the flood risk. Development should be designed to not add to flood risk further downstream, and into the future, stormwater flows will need to be carefully detained, and potentially also cleaned, to improve the resilience of the area to flooding. Wainuiomata North presents opportunities to be hydraulically neutral so new development does not increase the runoff from the precinct above pre-development levels. Stormwater management approaches can assist in the protection and enhancement of the natural stream environment, and could include environmental, ecological and amenity aspects to provide greater connection to the community.

However, it is noted that the stormwater catchment, at approximately 356ha total, is predominantly comprised of the bush-clad hills, and these will continue to generate stormwater down and across the study area into Black Creek (Figure 7). This may require a comprehensive approach to detention at the base of the hills, possibly including a number of ponds.

3.4 WATER AND WASTEWATER SERVICING

The area is currently unserviced by water and wastewater infrastructure and does not have good accessibility to the underlying infrastructure needed to support development. The intensification area proposed will exacerbate the capacity issues identified across water and wastewater networks.

Wastewater servicing
The wastewater network downstream of the precinct is serviced by undersized wastewater pipes that currently operate at capacity and discharge wastewater into Black Creek during storms. It is reported that this happens approximately 12-15 times per year.

Wainuiomata North
Development Framework
February 2018

To allow development in Wainuiomata North, new wastewater infrastructure such as reticulation pipework and onsite storage will be needed to cope with wastewater flow generated in the area before being conveyed into the wider network. However, notwithstanding the need to establish a new trunk network into the area, there are no significant obstacles in the path of this delivery other than standard local authority funding / planning / delivery processes.

Water supply
The Wainuiomata North area is within the Konini Reservoir fed Wellington Road (Arakura) Water Supply Zone. To provide sufficient water supply for the projected population growth within Wainuiomata North, new reticulation pipework will be needed, and sections of the existing supply mains will need to be upgraded.

Due to the moderate topography and contours in the fringe areas of the precinct, the maximum water supply point is recommended below the 120m contour in order for development to have adequate water supply and water pressure through the piped system. Development above this may need to supply its own water such as by a small reservoir or on-site tanks, or use a (possibly private) pump to connect with the public main. However, notwithstanding the need to establish a new trunk network into the area, there are no significant obstacles in the path of this delivery other than standard local authority funding / planning / delivery processes.

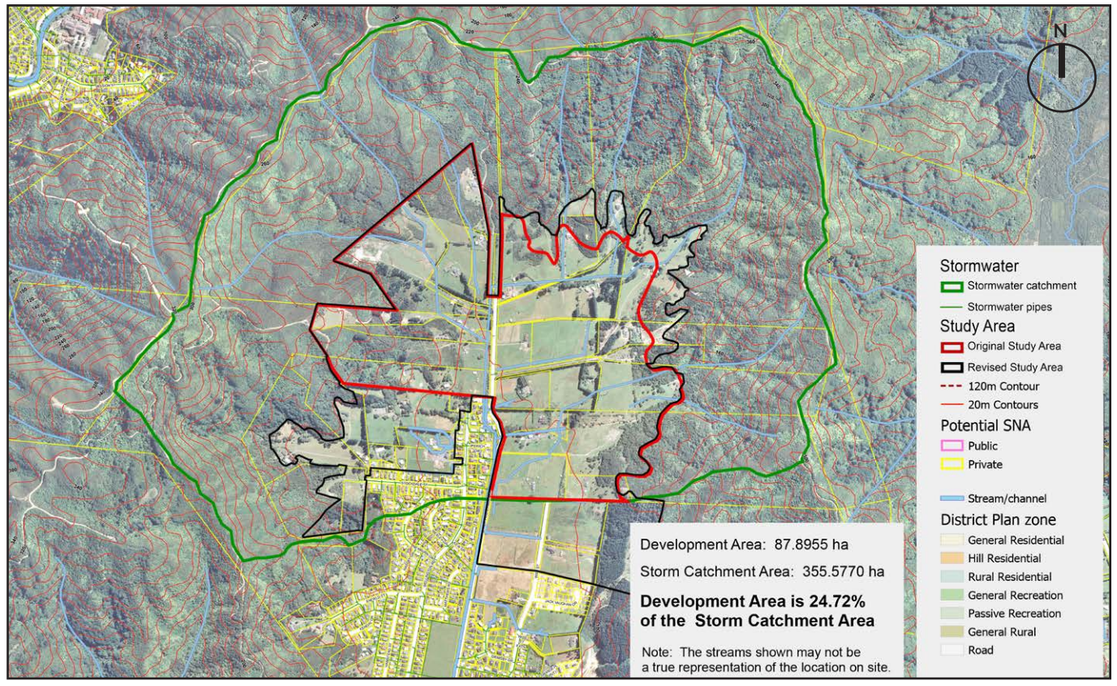


Figure 7: Wainuiomata North stormwater catchment area map
Source: HCC, 2017.

3.5 CULTURAL VALUES

The Council currently recognises two iwi authorities that represent Te Atiawa – the Wellington Tenths Trust and Taranaki Whānui ki Te Upoko o Te Ika within the Port Nicholson Block. Both have a spiritual and cultural connection to the Wainuiomata North area and its surrounds. They are mana whenua of the area and as such, have kaitiaki and other obligations and responsibilities to the land and its cultural and natural resources.

The importance of involving tangata whenua as Council's partner in the future development of a structure plan and any subsequent plan change process is established within the Operative District Plan. In particular, the protection and enhancement of hau (air), whenua (land), wai (water), biodiversity, wāhi tapu and taonga throughout Wainuiomata North is recognised.

Of note, near to the Wainuiomata North area, the former Wainuiomata College and Wainuiomata Intermediate site on Moohan Street (both land and buildings) were transferred to the ownership of the Trust in 2009 as part of cultural redress within the Deed of Settlement. The Trust has a 10-15-year horizon for development on the Moohan Street site in the form of papakāinga housing and ancillary services, and is currently in the process of preparing development plans. The Pukeatua Kohanga Reo and Wainuiomata Marae are two key focal points for local whānau, hapu and iwi within Wainuiomata generally.

3.6 COMMUNITY FACILITIES

No community facilities exist in the Wainuiomata North area, however a number of facilities are located in neighbouring suburbs of Wainuiomata (Figure 8). For a suburb of what is overall a modest size (approximately 18,000 people[2]), Wainuiomata is relatively well serviced. The key community facilities in Wainuiomata are:

- seven Primary/Intermediate schools and one Secondary school
- multiple early childhood centres, Kohunga Reo, playcenters and toy library
- Wainuiomata Community Centre
- Wainuiomata Library
- Wainuiomata Marae
- Wainuiomata Pool
- 22 churches (wainuiomata.co.nz)
- Medical services
- Wainuiomata Little Theatre
- Recreation, service, youth, senior citizens and sports clubs. A number of sports clubs have now joined the Wainuiomata Sportsville partnership.

[2] Estimated Resident Population area unit and Wainuiomata at 30 June 2017, Statistics New Zealand.

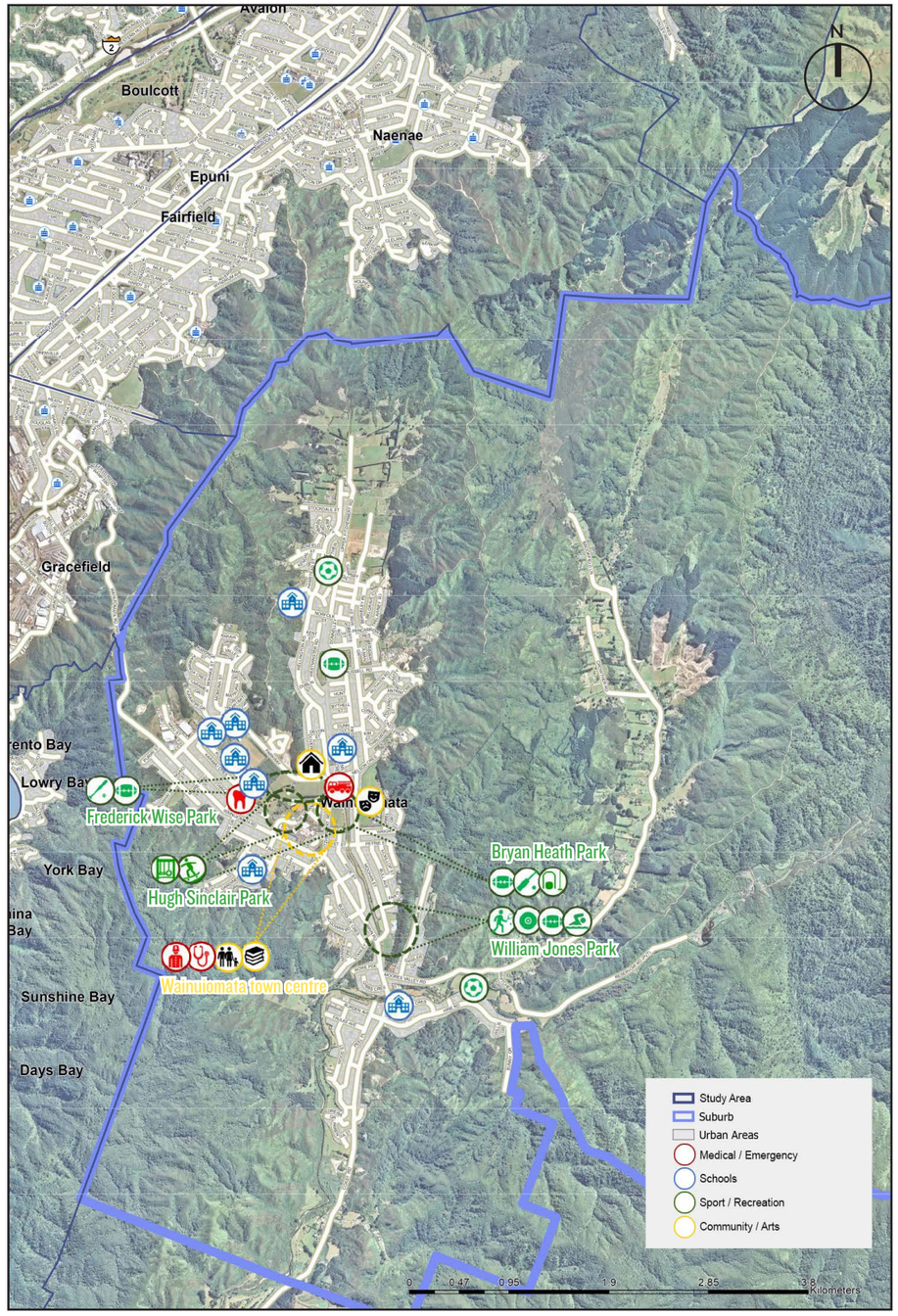


Figure 8: Location of key community facilities in Wainuiomata
Source: N Tagiston, 2018.

An Integrated Community Hub (library and community centre) has been identified and budgeted for Wainuiomata by the Council for 2031/32 and 2032/33 (Long Term Plan). It is expected to be located near the town centre. This future project is relevant to the Wainuiomata North area, as it will serve existing and future local catchments, and potentially draw patronage from the wider area.

Promoting accessibility to community services, networks and amenities while ensuring that some groups, such as those with disabilities, the elderly, and families with young children are not disadvantaged is critical. Development in Wainuiomata North presents opportunities to provide for new community facilities to benefit the social health of future residents.

Education
In respect of the provision of schools and their capacity, existing public primary schools within Wainuiomata have a total spare capacity of approximately 300 student spaces. Arakura Primary (a decile 2 full primary school) closest to Wainuiomata North has only 37 spare student spaces. For Years 7 and 8, Wainuiomata Intermediate has approximately 150 spare spaces, and for Years 9-13 Wainuiomata High School has 300 spare spaces. Many young people travel out of Wainuiomata to attend state integrated single-sex schools in Hutt City and Wellington City.

With future residential development, an additional (new) primary school may be required within Wainuiomata North but this will depend on the population enabled and the Ministry of Education's operating preferences for existing schools. Any new public school would need to be located and delivered according to Ministry of Education preferences.

In terms of the existing primary school capacity of approximately 300 students, it is estimated that this would be consumed by approximately 1,000 new dwellings. Given that there is development potential for 1,000 dwellings just in terms of the existing pace of residential intensification within Wainuiomata generally and (refer to Table 1) excluding any development on the Wainuiomata North land, it may be that a new school within the study area becomes necessary.

Wainuiomata North
Development Framework
February 2018

3.7 LAND TENURE

There are a number of different landowners in the Wainuiomata North precinct, from individual residential lot owners to larger hobby farm/lifestyle block operators. Some owners own multiple sites. Fragmented ownership and a large land area makes co-ordinated provision (and funding) of infrastructure a critical issue, and necessitates the need for future comprehensive agreements regarding the future provision of infrastructure. A structure planning approach to the management of subdivision is preferred by Council to demonstrate how the entire area can be urbanised in a comprehensive way.

A practical consequence of this for any development planning exercise is to ensure that there are multiple pathways through which development could occur. Allowing one landowner to control the others by, for example, deliberately not providing a key road on which all others rely, can create a number of planning and funding risks to the Council, and may result in a need to employ powers under the Resource Management or Public Works Acts.

PUKEATUA KOHANGA REO IN WAINUIOMATA

3.8 TRANSPORT

The existing transport environment in Wainuiomata North can be summarised as follows:

- with Upper Fitzherbert Road operating as a very long cul-de-sac, the area has limited vehicle connections to and from the wider Wainuiomata suburb. Access to Wainuiomata North is currently via Wellington Road, Upper Fitzherbert Road and Wise Street as the three-key north-south roads into the area. With the potential closure of Upper Fitzherbert Road from Norfolk Street north, Wellington Road and Wise Street would form the backbone of a future urban network within Wainuiomata North.
- some of the newer residential subdivisions and the existing residential area south of Ipswich Grove contain a poorly connected local road network with curvilinear, loop roads and a number of cul-de-sacs. This form of road design creates barriers to connectivity and movement choice through the area in both east-west and north-south directions. Generally, this pattern is no longer favoured across New Zealand's urban communities especially as pedestrian and cycle activity increases over time and people desire a greater quantity of convenient routes to move through their neighbourhoods.
- there is a lack of east-west connectivity in the lower Upper Fitzherbert area. Only Norfolk Street and Parkway provide genuine east-west multi-modal connections over Black Creek over a distance of 3km from Wainuiomata North.
- footpaths are generally provided on both sides of each local road within Wainuiomata. In the Wainuiomata North precinct area, footpaths will be provided on both sides of each road to connect to Wainuiomata as well as internally within Wainuiomata North.
- the area has access to regional cycling and walking tracks via the Upper Fitzherbert Track.
- a public bus route (Bus 160 Wainuiomata North – Lower Hutt) currently services the area from the northern conclusion of Wellington Road (Wainuiomata North – Ipswich Grove) just south of the precinct area to Queensgate in Lower Hutt. Buses run between 6.30am-11pm at 30 minutes frequency.
- six school bus routes (Bus 860, 867, 868, 870, 874 and 875 to various schools within Wainuiomata and Lower Hutt) stop at Wainuiomata North Ipswich Grove.
- the nearest train station is at Woburn Station in Lower Hutt, approximately 10km from Wainuiomata North. The Woburn station serves the Wairarapa Line, providing a good connection via train to all stops along this line.
- access to Wainuiomata from Lower Hutt is limited to a single access route via the Wainuiomata Road. Currently there is no viable alternative route from Wainuiomata to Lower Hutt and the greater Wellington region and this represents a demonstrable lack of transport resilience and efficiency.

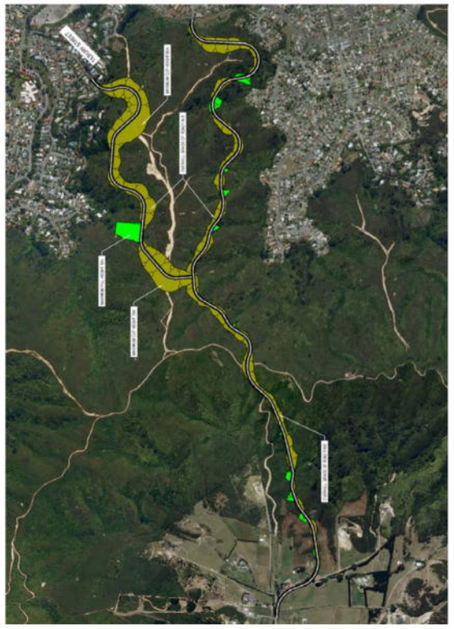
Wainuiomata North
Development Framework
February 2018

Development within the Wainuiomata North area will need to consider the provision of new roads, cycle, pedestrian and ecological networks that provides for all modes of transport and green infrastructure. Road typologies will need to consider the various movement and place functions of roads to enable an attractive and safe walking and cycling environment and efficient public transport.

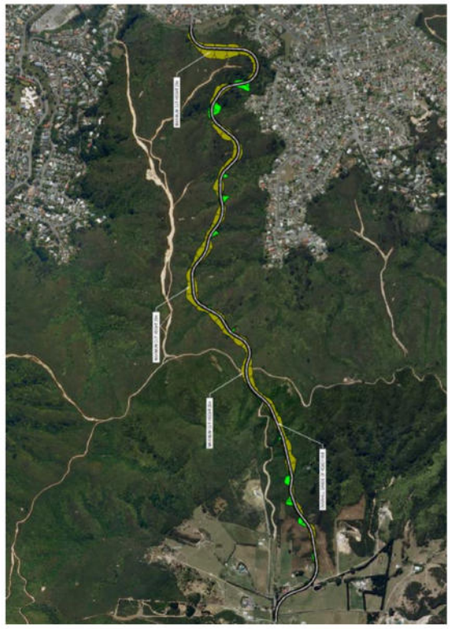
The development of Wainuiomata North will also contribute to the process of making public transport infrastructure more viable. Extending the bus network north internally through the area from Wellington Street to connect to Wise Street would be greatly beneficial for the area.

Strategic Access Road concept from Wainuiomata to Lower Hutt
The 1976 Hutt County Council Approved District Scheme plotted a future road from the Wainuiomata North area northwards over the hill towards the Lower Hutt suburb of Naenae. This connection was never progressed. Then, following the release of the UGS in December 2012, the Upper Fitzherbert growth node to Naenae strategic access road concept was further investigated as a way of adding resilience to the movement network and reducing travel times from the Wainuiomata North precinct. A number of connection options were developed and indicatively costed by Council (Figure 9).

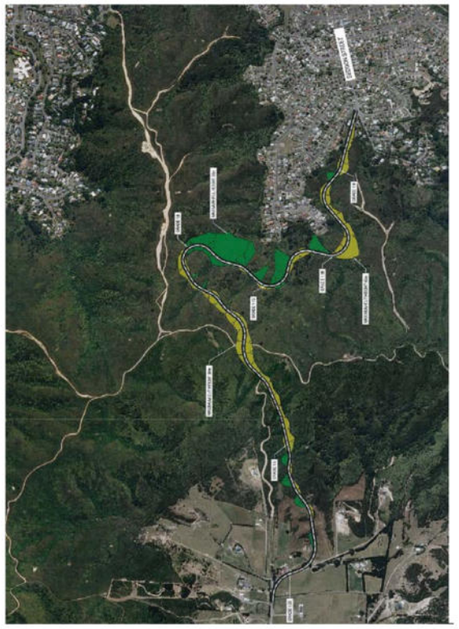
The development of Wainuiomata North is not dependent on the provision of a strategic access road over the hill. The movement network and land use zones within the area do however need to be sufficiently resilient to accommodate a logical local connection point if the link happened into the future. Given how dramatically a new link between adjacent neighbourhoods could affect the movement patterns of people through the study area, it is necessary to make sure that, as much as is practicable, a development framework solution is found that is readily workable in each of the "with link" and "without link" scenarios.



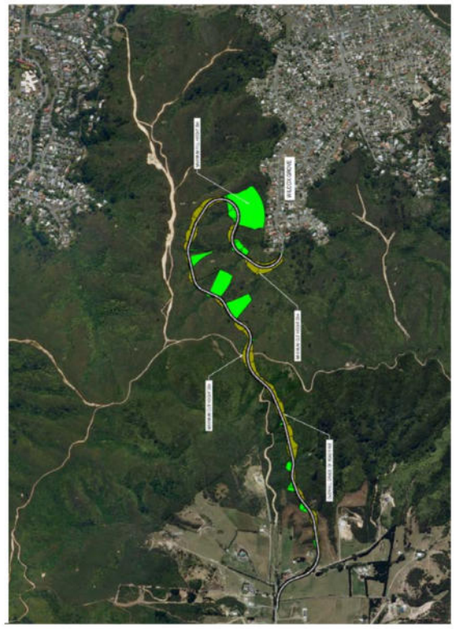
1. Tilbury Street to new link road



2. Upper Fitzherbert Road to Waddington Drive



3. Upper Fitzherbert Road to Seddon Street



4. Upper Fitzherbert Road to Wilcox Grove

Figure 9: Strategic Access Road connection options
Source: HCC, 2015.

Wainuiomata North
Development Framework
February 2018

The workshop identified another possible strategic access road option connecting from Wainuiomata North westwards over the hill to Whites Line East (Figure 10). While this option has some challenging contours and negotiates the Hayward Eastern Hills Scenic Reserve, it has the benefit of connecting into one of the alignment options of the Cross-Valley Link (a proposed strategic east-west road linking Seaview with State Highway 2). It is also likely to create less disruption to suburban Naenae than the previous connection options.

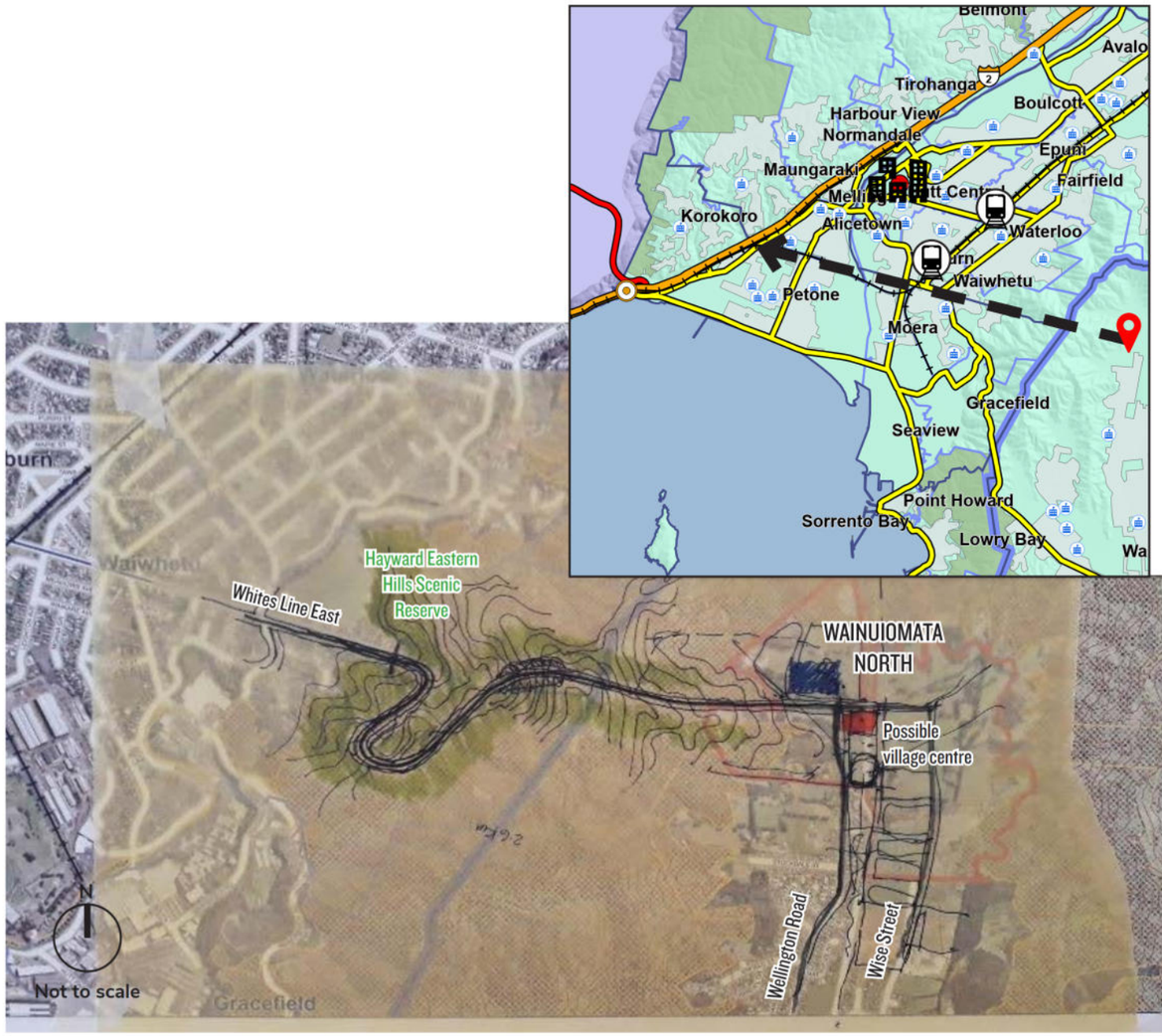


Figure 10: Whites Line East Strategic Access Road connection option
Source: DesignUrban Pty Ltd, 2017.

3.9 RESIDENTIAL DEMAND

As outlined in the UGS, the Council has a growth target of 6,000 new houses within Lower Hutt with 2/3rds of additional dwellings (4,000 dwellings) located in existing intensified urban areas, and 1/3rd (2,000 dwellings) of future development located on greenfield sites. Five years into the growth program and the City has experienced a net increase of 1,271 houses or met 21% of the target.

The Wainuiomata North area is one of the last large areas of greenfield land in the City. Recent residential development indicates the Wainuiomata area is in transition, with incremental low density residential development occurring in the study area and surrounds. Recent development is concentrated at the northern end of Wise Street just south of the precinct where 370-460 lots of compact detached housing is being planned or constructed. There have also been several recent consent approvals or developments at the pre-application stage for the subdivision of remaining undeveloped sites for residential development in Wainuiomata (Table 1).

Ref	Name	Status	Number of lots
1	Ex-Wainuiomata College site	Consent approved	30
		Pre-application stage	160
2	Parkway Rise (Stage 1 and 2)	Consent approved (March 2016)	69
3	Hugh Sinclair Park, Masonic Retirement Village	Consent approved	110 villas /apartments 60 care suites
4	Wise Street extension	Consent approved (January 2016)	31
		Pre-application stage	339
5	80a Wise Street	Consent approved (June 2016)	27
6	80 Parkway	Pre-application stage	71
7	64 Trelawney Road	Consent approved (May 2012)	39
8	80 Meremere Road	Stage 1 Consent approved (October 2017)	17
		Stage 2 Pre-application stage	20
		SUB TOTAL	**371 lots approved**
			620 lots pre-application
		TOTAL	**991 lots**

Table 1: Consent approvals and applications in Wainuiomata
Source: HCC, 2018.

Wainuiomata North
Development Framework
February 2018

NEW HOUSING UNDER CONSTRUCTION ON WISE STREET

If these were developed simultaneously, there would be a very competitive land market for housing, a quick pace of development and pressure on school capacity in the area.

Overall the Hutt Valley is seeing the construction of a greater diversity of housing types including terraced housing, duplex and compact detached units. This has been aided by recent benchmark developments such as the Woburn Apartments by Masonic Villages Trust and the Amberley Gardens development in Silverstream. Local developers have indicated the Wainuiomata North precinct could be a successful area for compact forms of affordable housing for first home buyers and a retirement village.

In terms of the project, the clear consequence of the Council's UGS work, and the recent National Policy Statement on Urban Development Capacity, is that land in the district that can be developed for urban purposes needs to be appreciated as a scarce resource and planned to be used as efficiently as possible. In this respect, the project adopted an "as much as can be sustainably accommodated" approach to residential development in preference to a "design for a specific yield" one.

3.10 CENTRES-BASED DEMAND

Residential growth in the structure plan area will support an increase in the amount of retail and services spending by residents within centres in Wainuiomata and the wider district. Despite a large proportion of this spending likely to occur outside of Wainuiomata North in larger, higher-order centres such as Hutt City Centre and Wellington City, increased retail and services floor space will be required locally to cater for the demands of the increased local population.

On the basis of expected growth and spatial distance from the existing Norfolk Street shopping area, development in Wainuiomata North presents the potential to plan for a new small-scale village centre. Studies have indicated that a residential catchment in the order of 1,000 households is needed to support a viable village centre-scale hub of commercial shops and services[3].

If there is a demonstrable need for an additional centre in Wainuiomata North it should be located according to 'movement economy' principles so that it achieves social and economic objectives and increases its prospects of long term success. This means coordinating any future centre with the busiest streets - where the most people are moving to and through. The commercial viability of local businesses is often dependent on the exposure and access to passing random or spontaneous trade as well as just locals undertaking planned or deliberate trips to the shops. The movement economy principle recognises that a large proportion of convenience retailing is based on impulse or spontaneous exchange when a consumer had no set plans to visit a shop but, on passing it, is attracted in by way of signage, advertisements, or other prompts (this is the same fundamental principle used in shopping mall planning and allocating products within supermarket aisle layouts).

Opportunities to maximise trade benefits from drive-by customers occur when:

- traffic speeds are low, allowing vehicle occupants to safely look at signs, produce or other goods facing the street.
- it is easy for vehicles to pull into readily visible (often on-street) parking spaces.
- traffic is frequently held up and paused (e.g. to allow a vehicle to reverse into a parking bay), facilitating slower speeds and casual pedestrian crossing opportunity.
- there is convenient all-weather access from parking spaces to shop fronts.

The activities that are likely to establish in a village centre, should one prove supportable based on residential yield, are:

- some specialty fresh food retailers (butcher, fruit shop, fish shop, etc.).
- a small number of comparison retail stores with a convenience retail focus.
- cafes, restaurants and takeaway outlets.
- service-oriented businesses such as mechanics, hairdressers, real estate, medical practices and dry-cleaners.

Wainuiomata North
Development Framework
February 2018

A vibrant hub of activity can also boost the establishment of a community heart which is a strong source of identity for a new community. This can differentiate a new greenfield neighbourhood from a generic residential expansion exercise.

There are obvious opportunities and synergies to be explored from the co-location of a potential village node, a possible new primary school, and new public recreation reserves within the study area. These facilities could be located close together, enjoy integration with a future bus route, and be coordinated with the road network so as to be accessible should a strategic northern link ever occur out of the study area and over the hill. Such co-location could give additional rise to complementary services such as an early childhood care centre, or a very small supermarket.

Of note, the Wainuiomata town centre has experienced a significant reduction in retail performance as a consequence of the closure of The Warehouse in the Wainuiomata Shopping Mall in early 2017. The centre is now going through a period of consolidation, and plans are in place for a large-scale supermarket and redevelopment of the Mall. While the transformation in itself is not necessary to support development in Wainuiomata North, its redevelopment will help to increase the destination appeal of Wainuiomata generally.

[3] Refer to "Casey Cardinia: Towards Melbourne 2030", Technical Workbook, 2004 where the relationship between catchments and facilities is well canvassed based on Australian, British, and American research.

THE NORFOLK STREET SHOPPING AREA

Wainuiomata North
Development Framework
February 2018

4 DEVELOPMENT OPPORTUNITIES AND CONSTRAINTS

4.1 SUMMARY OF KEY OPPORTUNITIES

Key opportunities for the Wainuiomata North area are summarised below under the broad headings of 'environment', 'access' and 'uses' and on Figure 11.

Environment

- the majority of the land is relatively vacant, flat, free of environmental constraint and readily developable (1).
- sloping land is generally located on the periphery of the precinct (2) and provides an opportunity to consider landscape-based lower density housing to ensure intensities do not undermine the landscape or other qualities of the land.
- development of the land offers the chance to remediate historically degraded watercourses (3) and Black Creek (4) and create a high quality green network.
- use of (future) decommissioned Upper Fitzherbert Road and the Black Creek margins is an opportunity to create a series of parks with stormwater function connected by regional pathways (5).

Access

- the area has convenient access to regional walking and cycling connections (6).
- the basis of a logical movement structure for the area is already in place by way of Wellington Road (7) and Wise Street (8). Development of a north-south loop road connecting the two through Wainuiomata North (9) would help establish an efficient internal movement network.
- this loop could form the basis of a logical and accessible passenger transport (bus) route that could link to a village centre.

Uses

- the need for an additional primary school (10) generated by additional houses, if a sufficient quantity can be provided, could be harnessed.
- development of the land may start to 'switch on' interest and investment in the existing shops at Norfolk Street (11) or support a fully autonomous local centre in the precinct itself (12) that does not take customers away from existing centres.

Figure 11: Summary of key opportunities in Wainuiomata North.

Wainuiomata North
Development Framework
February 2018

4.2 SUMMARY OF KEY CONSTRAINTS

Key constraints for the Wainuiomata North area are summarised below and on Figure 12.

Environment

- peripheral land in the precinct (1) is recognised for its high amenity rural and natural setting, and some areas are identified as potential Significant Natural Resources. This may constrain development options and impact on the urban structure (block and street network) and densities that can be achieved. An effective balance between development and landscape values needs to be found.
- the area is affected by a number of waterbodies (2) and a high volume of water in the upper catchment (3). Flood prone areas need to be confirmed and designed with care.
- increasing the population will present on-going infrastructural challenges that need to be managed at the same pace as growth.
- three waters infrastructure networks are constrained, and development will increase impervious surfaces and run-off creating a large negative impact on the infrastructure network (4).

Uses

- if a new centre was deemed unviable in the precinct, anchoring new growth to the existing local centre at Norfolk Street (5) may undermine intensification of the precinct and not successfully meet the needs of future residents. The Norfolk Street shops currently have low levels of public realm vibrancy as evidenced by the overall poor quality of the current retail offer and modest built form quality. The separation distance of this centre from Wainuiomata North will require car-based trips and be unsupportive of a highly accessible, walkable environment.

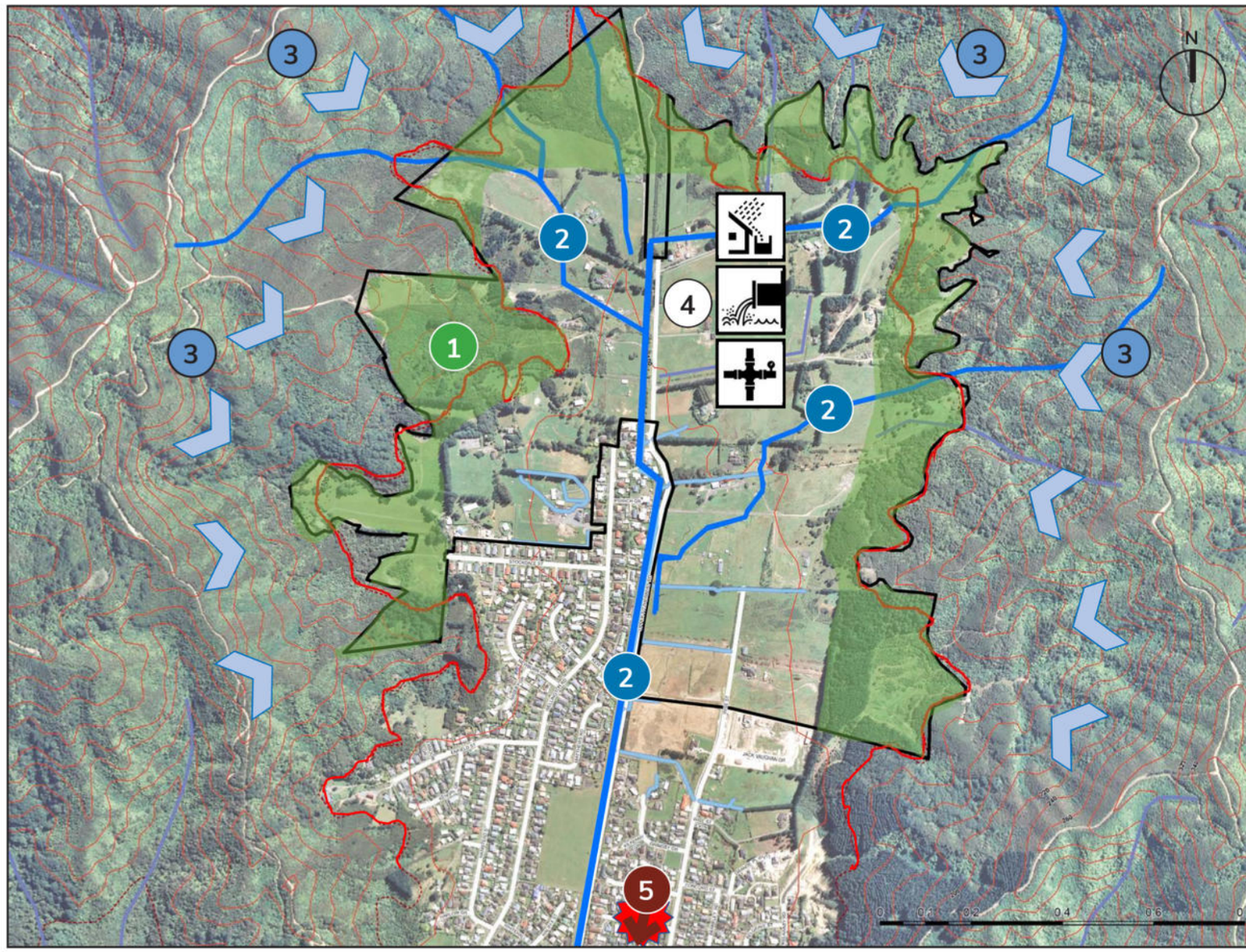


Figure 12: Summary of key constraints in Wainuiomata North.

5 DEVELOPMENT FRAMEWORK

5.1 A DEVELOPMENT FRAMEWORK FOR WAINUIOMATA NORTH

There are a number of considerations relevant to the development of the Wainuiomata North area, from the strategic to the very local. They form a framework that has shaped the design process and against which the two development options have been tested.

The framework is not a fixed or scored system of ticks or crosses. It is an informed debate taking into account the benefits, limitations, compromises and hard choices that all large-scale development proposals are based on. This reflects that despite being a greenfield area, Wainuiomata North is not a blank palette. Existing title boundaries, roads and infrastructure deficiencies, independent landowner preferences, development realities and costs, market expectations, and the Council's preferences for how new development should be undertaken all exert forces that substantially narrow idealistic design options.

Key considerations relevant to the urban development outcomes proposed are the:

- UGS's strategic framework for urban growth and development
- practical purpose of the National Policy Statement on Urban Development Capacity
- priorities outlined in the Wainuiomata Development Plan
- priorities outlined in the HCC Operative District Plan and Proposed District Plan Change 43 in respective of land use zones
- best-practice urban design preferences.

UGS strategic framework

The UGS sets out the long-term approach (2012 - 2032) to managing growth and change. The UGS establishes a strategic goal for "capacity and demand for great living" in Hutt City. It states the following:

> *"Hutt City Council intends to lead the way in driving new greenfield development. While the city's remaining greenfield capacity is modest, it can still potentially meet around half of the city's housing growth over the next 20 years."* (UGS, page 30).

To ensure enough homes are built to meet population growth and that homes stay affordable, under the UGS Council committed to minimum targets for new homes and:

- expanding the range of intensification opportunities available and the supply of greenfield land available for development.
- maintaining incentives to undertake intensive developments in Hutt City.
- partnering with developers to provide key infrastructure for greenfield developments and limiting up-front cost recovery through development contributions to 50%.

The UGS identifies the location of future greenfield development for the long term (Figure 13) but does not include a timing or sequencing explaining how future greenfield land areas and intensification opportunities in existing urban environments would be released.

The policies in the UGS include the following issues relevant to Wainuiomata North:

- linking density to amenities, notably centres, community facilities, open spaces and recreational opportunities, and transport networks
- ensuring that core infrastructure is in place or can be provided for new development
- promoting the efficient use of existing assets, services and land.

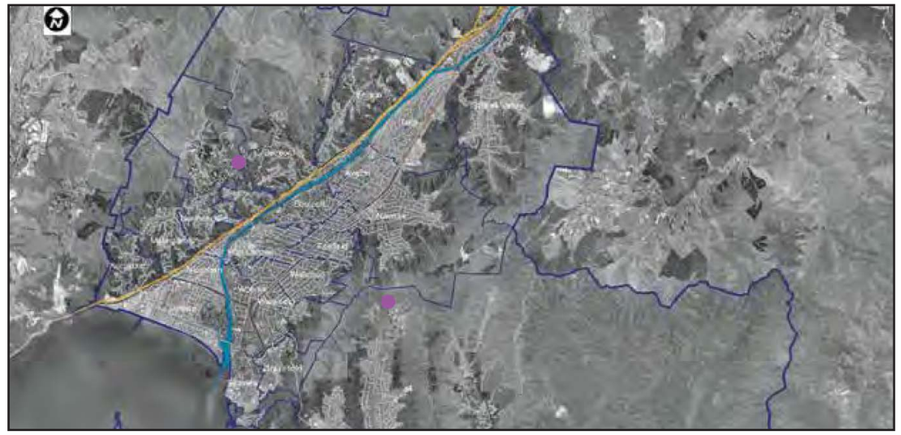


Figure 13: Future greenfield residential areas identified in the UGS.
Source: HCC, UGS, page 30.

National Policy Statement on Urban Development Capacity
The National Policy Statement (NPS) on Urban Development Capacity directs local authorities to provide sufficient development capacity in their resource management plans for housing and business growth to meet demand, as a key to improving housing affordability in New Zealand. The policies provide direction on how decision makers can provide for change and development, and responsive planning approaches that facilitate urban development.

Alongside this document which provides certainty about the feasible development capacity for housing and business demand in a key greenfield area, Council most recently is giving effect to the NPS on Urban Development Capacity through the preparation of Proposed Plan Change 43 to the District Plan which provides for greater housing capacity at medium densities.

The short, medium and long-term land development capacity framework found in the National Policy Statement is aligned with the Council's Long Term Plan, Urban Growth Strategy, Environmental Sustainability Strategy, Economic Development Plan and Infrastructure Strategy. Ensuring that Wainuiomata North development capacity is serviced with development infrastructure or ensuring funding is in place will need to be considered carefully by the future Resource Management Act plan change process.

Wainuiomata Development Plan
The Wainuiomata Development Plan (2015) is a community-led strategic plan for the growth and development of Wainuiomata to 2035. Following a comprehensive community engagement process, the plan embodies a strong sense of community pride and spirit that residents in Wainuiomata connect with.

The Plan establishes a positive and proactive vision for the community – preserving the enviable lifestyle residents have in Wainuiomata, a vibrant town centre, a strong recreational and tourism destination and a connected neighbourhood.

The community vision found within the Development Plan is:

> *"Wainuiomata. The breath of life.*
> *Ha. Returning over the hill, feeling at home in your sanctuary.*
> *Ha. Driving out over the hill, feeling invigorated and fulfilled with nature.*
> *Wainuiomata's heart beats to our pioneering spirit and neighbourly resilience, woven together by the valley and nature we treasure. Investing yourself here was a smart choice. You're well connected, there's money in the bank, and there's a big backyard to discover your next outdoor adventure. Breathe easy Wainuiomata."* (Wainuiomata Development Plan, page 5)

The five key aims found within the Development Plan (Figure 14) are:
- a fun gateway
- a connected neighbourhood
- a vibrant town centre
- a top destination
- a proud Wainuiomata identity.

Of the above aims, the one of most relevance to the Wainuiomata North Development Framework, is for Wainuiomata to be 'a connected neighbourhood'. This fits with the project's aim to set in train a framework to enable an integrated and sustainable urban development that supports a choice of quality living environments. Under the Development Plan, 'a connected neighbourhood' includes the following specific priorities:
- a smart and healthy place to live with retirement living and new housing options which are walkable to amenities
- well-connected and easy to get around, utilising river reserves as walking and cycling trails between recreational destinations, schools, hilltop trails and other amenities
- increasing landscaping in streets for a 'leafy green' feel.

Figure 14: The Wainuiomata Development Plan vision roadmap.
Source: HCC, 2015.

District Plan and Proposed Plan Change 43
The Council's District Plan provides the regulatory framework for managing Hutt City's residential development and subdivision of land. It is critical in ensuring that there is a sufficient supply of appropriately zoned land for residential development for greenfield, infill and intensive housing.

The Development Framework will support housing in a variety of forms including low to medium density housing that provide for a wide range of sizes and types. It will also support the comprehensive residential development of large sites. The future plan change may be based on a number of development zones in the existing District Plan and Proposed Plan Change 43 (PC43) (notified 7 November 2017). This includes the General Residential activity area and more intensive housing in and around any future village centre such as the proposed Medium Density Residential and Suburban Mixed Use activity areas (PC43).

A Medium Density Design Guide has also been proposed under PC43. This design guideline could be used to assure a successful design outcome for large-scale residential development in Wainuiomata North that provides for adequate amenity values, quality and aesthetics of construction, and quality of life for residents.

Best-practice urban design
Based on domestic literature on urban design (such as the Ministry for the Environment's New Zealand Urban Design Protocol (2005), the Ministry for the Environment's People+Places+Spaces (2002), or the Ministry of Justice's National Guidelines for Crime Prevention Through Environmental Design (2005)), a number of urban design priorities based on established urban design principles underpin the Wainuiomata North Development Framework. These allow a spatially robust, defendable 'bottom-line' against which the potential of any development option can be explored.

Five urban design priorities (Figure 15) were identified as being relevant to Wainuiomata North. An explanation of why they are important and what benefits they might bring to Wainuiomata North area are summarised below:

- promoting a mixed density, walkable neighbourhood that minimises cul-de-sacs:
  - a range of housing densities are provided through a well-connected street network offering safe, direct and convenient routes for pedestrians will encourage more socialising and healthy activity in Wainuiomata North.
  - the size and length of urban blocks are limited to increase the choice of movement routes through the area, and allow increases in residential density close to any village core or node (ven if just a 'village green' rather than a commercial village).
  - reducing unnecessary vehicle travel has environmental benefits and contributes to a people-focussed, rather than car-focussed way of life.
  - cul-de-sacs and dead ends are avoided unless there is no practical alternative.
  - to balance the potential nuisance of passing traffic, streets are designed to encourage cautious driver behaviour and slow vehicle speeds

- maximising local and strategic connectivity:
  - development is integrated and connected with its surrounding environment to help with ease of access, economy of movement and social interaction.
  - a network of streets and pedestrian/cycle links throughout Wainuiomata North connect employment areas and residential catchments, recreational, community and other important amenities.
  - road axes are laid out to be direct and convenient, and help users navigate through the area.
  - although there is uncertainty regarding which strategic access road route, if any, may connect to Wainuiomata North, it is important that the urban structure provides for a logical connection point with a view to improving the resilience of Wainuiomata North. By ensuring that a long-term access road can direct traffic directly past any village node, such a node could in turn capitalise on the movement economy generated by this traffic which in turn will support its continued commercial viability.

- aspiring to be a new development benchmark based on 21st century neighbourhood design expectations:
  - it is important that the development does not become one large, repetitive cluster of "sameness". Streets and neighbourhoods throughout Wainuiomata North should be experientially distinct from the rest of Wainuiomata and feature many types and variations of housing. This includes higher density housing than has occurred in many older post-war suburbs of Wainuiomata, and a greater expectation for a high standard of design and distinctiveness. As the rest of Wainuiomata regenerates it might influence a new pattern of development.
  - development in Wainuiomata North adheres to established principles of urban design. This includes an urban structure that provides unambiguous public and private spaces, whereby the orientation of roads and blocks ensure lots orientate for sunlight and provide a public 'front' to the road, and also a private 'back' for resident amenity and seclusion.
  - streets and public spaces in Wainuiomata North feel people-friendly and are well-overlooked by houses and activities, which turn brings safety benefits, encourages more socialising between neighbours, and healthy activity.
  - livability and design quality for new residents is paramount.

- integrating with green and blue networks:
  - walkways and streets support the key recreational routes around and near to Wainuiomata North to encourage healthy active lifestyles. This includes connections to tracks in the hills and alongside the Black Creek corridor.
  - a network of 'urban' and 'green' open spaces give different experiences and recreational opportunities. These are well integrated with logical movement patterns and regularly intersect with the road network to allow a richer variety of route choices for pedestrians and cyclists.
  - public open spaces are integrated into obvious, prominent and well-fronted parts of the neighbourhood and are a source of local identity and amenity.
  - development has particular regard to the unique landform and catchment dynamics of the area. Sub-catchment based infrastructure planning looks for low impact solutions to stormwater management (treatment and discharge) and opportunities that enhance the visual amenity value or provide for walking and cycling linkages.

- improving the self-sufficiency of the community:
  - walkways and streets support the key recreational routes around and near to Wainuiomata North to encourage healthy active lifestyles. This includes connections to tracks in the hills and alongside the Black Creek corridor.
  - the intensification being delivered promotes housing choice through the provision of a diverse mix of housing types and compatible activities including employment uses and community facilities. This will enable the built environment of Wainuiomata North to better adapt over time, respond efficiently to social needs such as housing affordability, and provide for a range of market demands and changes in lifestyle. Intensification brings with it positive flow-on impacts for the local employment and social outcomes in Wainuiomata generally.
  - establishing a village centre enables residents to meet their everyday shopping needs locally for daily food items and personal services reduces the need for people to travel outside of the immediate neighbourhood. The level of activity and amenity in the node acts as a lever to facilitate higher density living in and around it and a public transport supportive outcome.
  - community facilities including a local primary school are an important focal point of social life in a new community. A key part of achieving this will be to locate any new school in Wainuiomata North prominently and in a logical, easy to find place connected to a bus route, near to the village centre and open space amenities. With good management and maintenance arrangements, school facilities and playing fields can enjoy a cooperative relationship with Council reserve assets.

It is noted that through the subsequent plan change process, other urban design priorities may be identified and/or expanded upon.

Wainuiomata North
Development Framework
February 2018

1. promoting a mixed density, walkable neighbourhood that minimises cul-de-sacs
2. maximising local and strategic connectivity
3. aspiring to be a new development benchmark based on 21st century neighbourhood design expectations
4. integrating with green and blue networks
5. improving the self-sufficiency of the community

Figure 15: Five urban design priorities for Wainuiomata North

6 DEVELOPMENT OPTIONS

6.1 TWO PROPOSED DEVELOPMENT OPTIONS

Drawing on the urban development influences identified in Section 3, two different development options for Wainuiomata North have been identified and tested. Option 1 provides for incremental, status-quo type development, while Option 2 provides for a more pro-actively mixed-density development across the area.

Option 1 – incremental development (Figure 16)
Option 1 provides for an incremental spread of residential development northwards from the existing zoned General Residential area. This option facilitates some choice for house buyers and generates a modest variety of housing types and densities of development. It largely lets the market decide how and where growth is located. The look and feel of neighbourhoods within Wainuiomata North would remain largely similar to existing urban areas in Wainuiomata currently, as section sizes would be comparable and achieve the same lower-density product mix. Limited opportunities for terraced, townhouse or mixed-use housing choices exist. The option seeks to try to soften or hide modest levels of development recessively into the landscape to maintain a semi-rural visual character around the fringes. The key overall difference between this option and the existing suburban residential neighbourhoods immediately south is that a higher standard of street connectivity would be required, assumed to be established through District Plan mechanisms at the land subdivision stage.

Option 2 – mixed-density development (Figure 17)
An unmistakably 'urban' neighbourhood, Option 2 looks to maximise the efficiencies and opportunities of mixed-density development as a design imperative. This option introduces greater variety of residential densities and future dwelling types including medium density on smaller site sizes where infrastructure and good design supports it. Option 2 establishes a harder urban edge to Wainuiomata North and capitalises on the landscape amenity and high development premium of hillside areas. Part of the drive for higher total density is to support any potential that may exist for a new public primary school, a local village centre, and the case to justify a strategic road link across the hill.

Wainuiomata North
Development Framework
February 2018

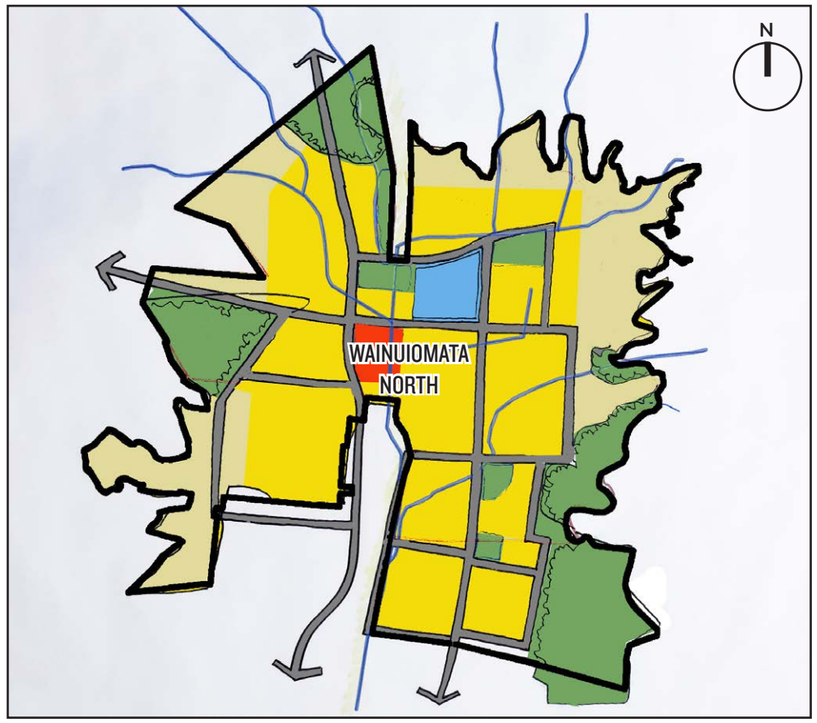


Figure 16: Option 1 - incremental development

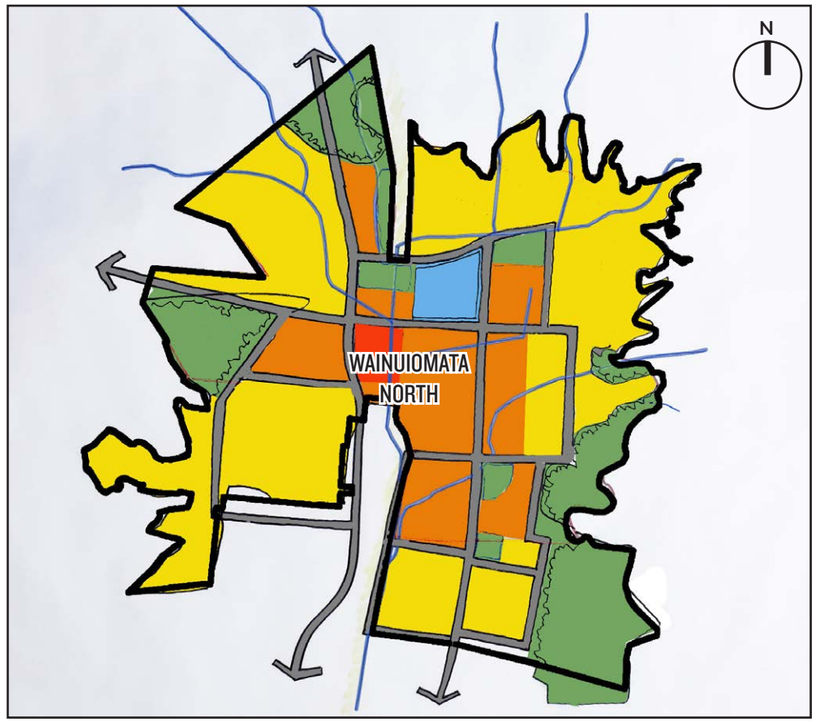


Figure 17: Option 2 - mixed-density development

6.2 COMMON DEVELOPMENT AND DESIGN ELEMENTS

Given the commonality of key constraints and opportunities, the development options have many development and design elements in common:

ENVIRONMENT

Landscape, infrastructure and cultural-related features and opportunities include:

Landscape and stormwater management

- green edge: the SNR boundary creates a natural growth boundary which defines new residential areas and supports a contained settlement.
- protection and enhancement of watercourses: protection and remediation of stream tributaries with riparian improvements, associated walking/cycle pathways and potential stormwater management functions such as swales, wetlands or detention ponds.
- water sensitive design: promotion of area-wide water sensitive design from site-specific features to the distribution of stormwater detention infrastructure in the public realm.
- It is noted that Option 2 would offer the best potential to cluster density so as to activate and 'front' the edges of new green infrastructure and stream corridors, although a workable solution would be possible under Option 1. Conversely, Option 1 may result in less impervious surface and storm-water load needing management (although the substantial component of the storm water catchment is the bush-clad hills ad this would generate the same volumes of storm water in either Option).

Water and wastewater servicing

- new trunk network: the establishment of an efficient wastewater and water trunk network through the area on a staged basis.

Cultural values

- sustainable management of taonga: recognition of mana whenua culture, traditions, tikanga, place names, wāhi tapu and taonga and the importance of hau (air), whenua (land), wai (water), and biodiversity. Incorporating these elements into a future structure plan and plan change process in collaboration with Te Atiawa – the Wellington Tenths Trust and Taranaki Whānui ki Te Upoko o Te Ika.

Open space and recreation

- Black Creek green corridor: a north-south linear park fulfilling recreational and stormwater management functions connecting with decommissioned Upper Fitzherbert Road east of the Black Creek drain.
- community reserve: provision of at least one flat neighbourhood reserve (to Council requirements) of approximately 4,000m2 area in a central and well-accessible part of the area, within a 400-500m walkable catchment of the majority of houses.

Wainuiomata North
Development Framework
February 2018

- Upper Fitzherbert Track linkage: the provision of off-road cycle and walkways through the area connecting to the Upper Fitzherbert hill track in the north.

ACCESS

Transport related features and opportunities include:

Transport

- connectivity to Wainuiomata: maintaining north-south connectivity within Wainuiomata North and connecting to the wider transport network via an extension of Wellington Road and Wise Street to form a loop road. This also forms the basis of an extended bus route through the area.
- strategic access road connection point: provision of a workable 'with link' local connection point near the Wellington Street extension close to the village core to leverage the greatest benefits of through-traffic.
- interconnected network of roads: a grid-like transport network of north-south and east-west roads supports route choice, provides for good wayfinding and resilience, and enables the efficient location of utility services.
- It is noted that Option 2, being higher-density, could help justify a higher quality of passenger transport services than Option 1 if greater passenger numbers were generated.

USES

Land use related features and opportunities include:

Residential demand

- low to medium density: most land in Wainuiomata North identified for housing to provide for the housing needs of a growing community and to provide a variety of housing types that encourage an increased residential density.
- higher density residential: higher density residential (in the form of medium density housing or suburban mixed-use activity) is concentrated around the village core in close proximity to proposed local amenity spaces and where future passenger transport network stops are being proposed.
- residential street and block networks: the generally north-south urban block structure maximises solar access and facilitates a permeable pedestrian and vehicular movement network.
- Hill residential: within Wainuiomata North there are areas and sites which are expected to remain as larger lot rural-residential development such as on the north and southwestern edge. Due to a combination of movement network practicalities and landscape sensitivities, any higher intensity residential development from logically occurring here is likely ruled out. On balance low scale, lower density residential outcomes are realistic and could also act as a buffer to the SNR interface.

Community facilities

- Primary School: projected residential growth in either Option appears to justify one new Primary School of approximately 2 - 3ha in area. If one occurred, the new school should be positioned to provide convenient walkable access to new residential catchments, future bus routes and amenity spaces. It should also be designed to enable the potential cooperative use of a new public recreation reserve. The securing of future educational land is subject to Ministry of Education collaboration and approval.
- Based on the project outcomes in each of an Option 1 or an Option 2 scenario, further work investigating a potential new (future) primary school should be commenced.

Centre-based demand

- a new village centre: provision of a neighbourhood centre of approximately 2ha in a central and accessible location within a 400-500m walkable catchment of the majority of houses. This approach concentrates the retail and social energy within a focused walkable area at the confluence of the Wellington Road to Wise Street loop to deliver long term centre viability. While it is likely that an Option 2 scenario would provide more customers and greater commercial viability for such a node, the Option 1 scenario alone (even without any strategic link to Naenae) will justify a small node of shops.
- support for existing centres: new residential growth supports retail spend in the network of local centres and the higher order Wainuiomata town centre.

6.3 CALCULATING PROJECTED GROWTH

The projected growth is a calculation of the amount of residential development that is expected to take place in Wainuiomata North under both development options. The projected growth calculations take into consideration the following factors:

- the future desired character and built form for areas within Wainuiomata North: this ranges from low density / general residential (1 to 2-storey detached housing), medium density (up to 3-storey semi-detached and attached housing), and hillside residential (larger lot lifestyle housing).
- assumptions: a series of assumptions related to the density of different development types and standard expectations to extrapolate the ‘net’ developable land area for residential use. In general:
  - taking the ‘gross’ developable area and excluding 40% as a crude place holder for roads and open spaces in low to medium density residential area
  - taking the ‘gross’ developable area and excluding 25% as a crude placeholder for various inefficiencies in the hill residential area, and other matters such as title boundaries, privatelyowned watercourse protection and the like.

Wainuiomata North
Development Framework
February 2018

  - setting aside 2ha for a future Primary School and 2ha for employment land (village centre)
  - setting aside 2ha to accommodate up to five stormwater detention ponds, which are indicatively envisioned to ring the outer edge of the development area to help intercept and manage the flow and volume of runoff down the bush-clad hills.

The study area has been divided into a number of sub-areas for ease of calculation (Figure 18).

The calculation provides a broad estimate of projected growth. Depending on the final requirement for open spaces (including for ecological and drainage purposes), this could substantially vary the growth potential.

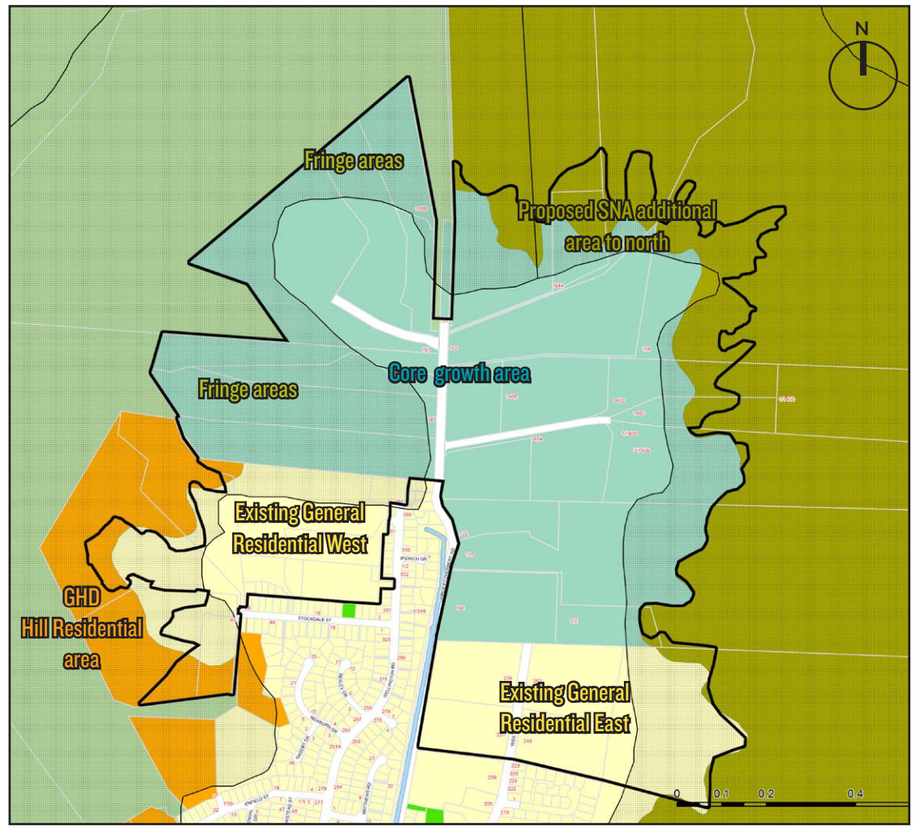


Figure 18: Sub-areas of Wainuiomata North

Projected growth under Option 1
Application of the proposed land uses and typologies in Option 1 will result in a total capacity of 1,296 new units (including 125 households from the existing Hill Residential zone) within the Wainuiomata North study area (Table 2).

Projected growth under Option 2
Application of the proposed land uses and typologies in Option 2 will result in a total capacity of 1,841 new units (including 125 households from the existing Hill Residential zone) within the Wainuiomata North study area (Table 3).

Wainuiomata North
Development Framework
February 2018

OPTION 1 – INCREMENTAL DEVELOPMENT DWELLING ESTIMATE					
Location	**Density**	**Gross area (Ha)**	**Discount**	**Net area (Ha)**	**Number of units**
Existing General Residential West	General residential average 500m2	18.3	60% net	11	220
Existing General Residential East	General residential average 500m2	19.4	60% net	11.5	230
Core growth area	General residential average 500m2	59.2	60% net	35.5	700
Proposed SNA additional area to north	Hill Residential average 1,500m2	10.3	75% net	7.7	51
Buffer allowance on fringe areas	Hill Residential average 1,500m2	15	75% net	11.25	75
GHD Hill Residential area	Hill Residential average 1,000m2	-	-	-	125
Proposed centre	Primary School	2	100%	2	-35
	Neighbourhood Centre	2	100%	2	-35
Across area	Stormwater detention ponds (5x @400m2)	2	100%	2	-35
				TOTAL	**1,296 units**

Table 2: Option 1 (incremental development) dwelling estimate

OPTION 2 – MIXED-DENSITY DEVELOPMENT DWELLING ESTIMATE					
Location	**Density**	**Gross area (Ha)**	**Discount**	**Net area (Ha)**	**Number of units**
Existing General Residential West	General residential average 400m2	18.3	60% net	11	275
Existing General Residential East	General residential average 400m2	19.4	60% net	11.5	287
Core growth area	General residential average 400m2	54.2	60% net	32.5	812
	Medium density 300m2	20	60% net	12	396
Proposed SNA additional area to north	Hill Residential average 1,500m2	10.3	75% net	7.7	51
GHD Hill Residential area	Hill Residential average 1,000m2	-	-	-	125
Proposed centre	Primary School	2	100%	2	-35
	Neighbourhood Centre	2	100%	2	-35
Across area	Stormwater detention ponds (5x @400m2)	2	100%	2	-35
				TOTAL	**1,841 units**

Table 3: Option 2 (mixed density development) dwelling estimate

6.4 CALCULATING PRIMARY SCHOOL CATCHMENT DEMAND

As established in Section 3.6 existing public primary schools within Wainuiomata have a total spare capacity of approximately 300 student spaces. The population driven demand for primary school spaces (ages 5 to 12 years) has been calculated for both development options as follows:

- Option 1 – Incremental development = up to 411 primary students
- Option 2 – Mixed-density development = up to 584 primary students

With approximately 1,000 new households consented or are at pre-application stage in Wainuiomata (refer to Section 3.9), this growth alone would fill the existing 250-300 spare primary school spaces in Wainuiomata. Given both development options considerably exceed the spare capacity available, the development framework looks to locate a new Primary School in the growth area rather than increasing capacity in Arakura Primary (which may be required in any event in addition to a new school).

6.5 CALCULATING CARBON AND ENVIRONMENTAL FOOTPRINTS

Given the limited passenger transport options to the area, and reliance on one access road (Wainuiomata Hill Road) in and out of the suburb, lifestyles for new residents of Wainuiomata North would be predominantly car-based, creating higher carbon and environmental footprints. A broad calculation of vehicle kilometres travelled (VKT) supports a case for a strategic access road connection, preferably to Whites Line East, to reduce driving distances into and out of the area. For example, a development of 1,841 units in Wainuiomata North (Option 2) that enabled 3.5km shorter trips to SH2 compared to the existing Wainuiomata Road could equate to:

- 11km less driving per day per unit (assuming 3 return trips per household unit[4])
- 19,331km less driving per day for the development as a whole
- up to 5,122,583km less driving per year for the development (assumes 265 days of trip-making per unit per year to exclude weekends and holiday periods)
- up to 102,451,660km less driving over a 20-year period, the minimum timeframe taken into account in settlement growth planning
- that 102,451,660km could equate to some $57,697,920 saving by users on vehicle operating costs (VOC) (at $0.80 VOC per km using AA's running costs for a medium sized petrol vehicle), and up to 23,564 less tonnes of CO2 equivalent emissions (using NZTA's Economic Evaluation Manual).

[4] VKT calculations are based on generation rates by household, not just home-based trips. This includes service trips allocated to households such as mail delivery, rubbish collection, deliveries, home help, charities etc). Generally traffic models estimate at least 10 trips per day per household. Some of these trips are local (such as to the shops or for work, but some are regional).

Wainuiomata North
Development Framework
February 2018

None of the above include any other economic benefits that could be accrued by such a link, for example, the economic value of saved travel time, or the strategic / transformational benefit to Wainuiomata by being perceived within the region as becoming better-connected and more accessible.

In addition, a portion of the existing catchment north of Norfolk Street (calculated at 2308 dwelling units) could use and benefit from this strategic access road connection resulting in:

- 4,036,154km less driving per year (assumes 265 days of trip-making per unit per year to exclude weekends).

Overall the total savings for Wainuiomata as a whole (Option 2 plus the portion of existing catchment) could equate to:

- up to 9,158,736km less driving per year and up to 183,174,720km less driving over a 20-year period for the whole of Wainuiomata
- that 183,174,720km could equate to some $82 million saving by users on vehicle operating costs (VOC), and up to 45,500 less tonnes of CO2 equivalent emissions.

In practice, these effects are not always accounted for in cost-benefit analysis for new roads or growth planning exercises. However, these inefficiencies will inevitably create socially discriminatory costs that can only appeal to and be met by a limited proportion of the population. This can undermine sustainability objectives for an affordable and diverse community.

As a general note, the estimated carbon saving and VKT calculations are uncertain and rely on a number of assumptions. These can't be more precisely calculated until a specific project design is agreed upon.

7 EVALUATION OF DEVELOPMENT OPTIONS

This section provides an urban design evaluation of the two development options.

7.1 EVALUATION CRITERIA

Seven urban design evaluation criteria

Seven key urban design evaluation criteria were developed at the workshop to assess the two development options:

1. responding to Wainuiomata North's key opportunities and constraints (Section 4)
2. making the best use of scarce greenfield land
3. improving the resilience of Wainuiomata
4. leveraging off urban sustainability benefits
5. maximising access to passenger transport
6. finding transformational opportunities for Wainuiomata
7. enhancing liveability and quality for new residents

The inter-relationship of urban design priorities and evaluation criteria
As established in Section 5.1, a 'principle-led' approach underpinned by best practice urban design has been used to drive the development of five urban design priorities for the Wainuiomata North Development Framework. As can be seen in Figure 19, although evaluation criteria were formulated at the workshop prior to the production of the Development Framework, the urban design principles are inherently 'built into' the evaluation criteria. If a project satisfies the evaluation criteria then by consequence it also satisfies the urban design priorities of the project. Given the interrelated and holistic nature of urban design, many evaluation criteria also satisfy multiple urban design priorities. The urban design priorities and evaluation criteria have also been cross-referenced against the five key aims found in the Wainuiomata Development Plan to ensure the evaluation of options includes the locally relevant long-term priorities for the suburb of Wainuiomata as established by the community.

Wainuiomata North
Development Framework
February 2018

Wainuiomata North Urban Design Priorities	Wainuiomata Development Plan	Related Evaluation Criteria
Promoting a mixed density, walkable neighbourhood that minimises cul-de-sacs	A connected neighbourhood	2. Making the best use of scarce greenfield land 6. Finding transformational opportunities for Wainuiomata 7. Enhancing liveability and quality for new residents
Maximising local and strategic connectivity	A connected neighbourhood A fun gateway	1. Responding to Wainuiomata North's key opportunities and constraints 5. Maximising access to passenger transport 6. Finding transformational opportunities for Wainuiomata
Aspiring to be a new development benchmark based on 21st century neighbourhood design expectations	A connected neighbourhood A proud Wainuiomata identity	2. Making the best use of scarce greenfield land 6. Finding transformational opportunities for Wainuiomata 7. Enhancing liveability and quality for new residents
Integrating with green and blue networks	A top destination A connected neighbourhood	1. Responding to Wainuiomata North's key opportunities and constraints 4. Leveraging off urban sustainability benefits
Improving the self-sufficiency of the community	A vibrant town centre A connected neighbourhood	1. Responding to Wainuiomata North's key opportunities and constraints 4. Leveraging off urban sustainability benefits 7. Enhancing liveability and quality for new residents

Figure 19: The inter-relationship of Development Framework urban design priorities, Wainuiomata Development Plan aims and options evaluation criteria

7.2 OPTION EVALUATION

A rating matrix comparing Options 1 and 2 under the urban design evaluation criteria is provided in Table 4 below. Given the commonality of many design elements across both development options, the assessment is a case of 'the degree to which' an option satisfies opposed to an 'achieves/not achieve' or 'positive/negative' assessment. General positive effects that apply to both Options are represented in Section 6.2. The evaluation was therefore a combination of quantitative and qualitative assessment.

Table 4: Options evaluation under project evaluation criteria

Ref	Principle	Option 1	Option 2	Comments
1	Responding to Wainuiomata North's key opportunities and constraints	Moderately satisfies	Moderately satisfies	• Both equally able to deal with water network constraints, and able to work with features of landscape and ecological value/sensitivity. • Both address SNR green edge – Option 1 has a tapering edge whereas Option 2 has a firmer/more assertive edge. • Less flexibility around servicing for Option 2 but has the advantage that it is more likely to support any future strategic access connection, new Primary School and establish a new sense of development direction in Wainuiomata.
2	Making the best use of scarce greenfield land	Does not satisfactorily address	Moderately satisfies	• Land is not a limitless resource and Option 2 has the ability to generate more yield on the least amount of land. It offers a good choice of housing types and section sizes compared with Option 1. Option 1 reflects historical patterns of land development and largely continues the status quo. • The magnitude of development offered by Option 2 provides the best opportunity to get a connected network spreading south. • More population can retain and grow schools and centres, provide infrastructure resilience and a strengthened sense of community.
3	Improving the resilience of Wainuiomata	Moderately satisfies	Strongly satisfies	• An objective of the development framework is to protect a long-term strategic access road connection point. Both options equally support the alignment of any future road to either north (to Naenae) or east (to Waiwhetu), and provide for a logical access tie-in close to the village node so traffic is channelled onto local roads which in turn supports the establishment of the planned future centre. • Although the route alignment is beyond the scope of the Development Framework, Option 2 would better support the case for the provision of a new strategic access road. Greater population will create more demand for the road and better support its economic feasibility.
				• Although beyond the scope of this Development Framework, the effects for future (and existing) residents should a strategic road progress would be positive in that the road would result in increased intra-city connectivity and growth in employment activities. Lowered traffic volumes on the existing Wainuiomata Road may also lead to improvements in its safety and increase its appeal to local traffic and tourist movements (as a multi-modal route) through less road-traffic noise and intensity.
4	Leveraging off urban sustainability benefits	Does not satisfactorily address	Moderately satisfies	• Both options • Option 2 has greater sustainability gains locally as greater population supports growing businesses and the viability of shops (i.e. through more customers) and active transportation / a bus route (i.e. through more people living closer to public transport and green spaces). • Under Option 2, residents would be able to choose from townhouses and terraced houses around a village centre, smaller sections or larger sections in rural-fringe settings. The wider variety of choice would help keep house prices affordable and lead to more prosperous, equitable households.
5	Maximising access to passenger transport	Slightly satisfies	Moderately satisfies	• Both options support a Wellington Road to Wise Street loop road and associated bus route. • Improving bus services (extending the route or increasing the frequency of services) will be more difficult in low density areas (Option 1). Mobility-related risks of social exclusion will therefore be better addressed by Option 2. • A compact urban development (Option 2) which spatially concentrates a higher intensity of development within a walking catchment of the village centre and along public transport routes means a greater proportion of local residents will be able to access to passenger transport services. Active transport modes and passenger transport will become more attractive and economically viable which in turn potentially reduces private car dependency and atmospheric pollution and results in positive health outcomes.

Key	Does not satisfactorily address	Neutral	Slightly satisfies	Moderately satisfies	Strongly satisfies

Wainuiomata North
Development Framework
February 2018

Table 4: Options evaluation under project evaluation criteria (continued)

6	Finding transformational opportunities for Wainuiomata	Does not satisfactorily address	Strongly satisfies	• This relates to retail planning imperatives and maximising consumer access and expenditure in existing local centres of Wainuiomata. Option 2 has greater transformational potential as more local population will result in more retail expenditure flow-back in the wider community. The proposed Wainuiomata North village centre is estimated to capture $20 million of retail spend, but $30 million will flow south to Wainuiomata town centre creating jobs and growing businesses. • Rezoning large areas of land under both options will help keep land cost low and housing prices affordable and competitive. Smaller section sizes and the mix of product types and price points offered by Option 2 will help with housing affordability - an important part of an inclusive social agenda. • Under both options an influx of residents could establish a new community identity and create a positive community character. However, the principles of good design embodied in Option 2 including making more efficient use of the available land, will better enable the step-change in quality required to break the homogeneity of land use density and outdated settlement design that has characterised housing development in Wainuiomata to date. • With more people the range and quality of community facilities in Wainuiomata improves. Option 2 offers the greatest population gain.
7	Enhancing liveability and quality for new residents	Moderately satisfies	Moderately satisfies	• Option 1's outward spread of low density of housing under a 'market predict and provide' approach will be less able to encourage a well-laid out settlement pattern with well-designed streets and quality open space when compared to the urban consolidation and suburban intensification approach of Option 2. Given liveability is associated with how walkable a place is to local amenities and services, convenience to shopping and schools and perceived opportunities to form social networks, Option 1 is likely to result in less liveability and neighbourhood satisfaction for residents. • How a neighbourhood is planned, designed and configured to produce a quality public realm that people feel safe and comfortable in is another aspect of liveability. Research finds that streets and open spaces that are overlooked by buildings so there are 'eyes on the street' and a mix of uses will best meet address safety and inclusiveness. Option 2 will best provide for building diversity and a stimulating public realm in residential areas.

Key	Does not satisfactorily address	Neutral	Slightly satisfies	Moderately satisfies	Strongly satisfies

Wainuiomata North
Development Framework
February 2018

7.3 OPTION 2 (PREFERRED) SUMMARY OF BENEFITS

Option 2 'mixed-density development' consistently scores better across the evaluation criteria but particularly against three key criteria:

2. making the best use of scarce greenfield land
4. leveraging off urban sustainability benefits
6. finding transformational opportunities for Wainuiomata

Changing the relative balance towards a more compact settlement design with a mix of densities was widely supported through the assessment process. Option 2 will best meet Council's strategic aspirations to redefine Wainuiomata. This option is most likely to facilitate a change in the diversity of product on offer to the local market and consequent social sustainability outcomes such as improved housing affordability and the ability of residents to age in place.

Evaluation of Option 1 'incremental development' finds the continuation of the status quo, reflecting historical patterns of development that focus on less varied markets and housing types. This option is less supportive of sustainable lifestyle opportunities and transformational change in Wainuiomata, and is less likely to promote affordable housing. Option 2 on the other hand, could better unlock the potential of the land and promulgates the principles of best practice urban design that relate to successful residential environments. This includes connections between people and places, movement and urban form, nature and built environment and processes for ensuring successful places are delivered and maintained[5]. The option has the best prospect of delivering on creating a quality housing layout and design at subdivision stage, and higher quality of life for future residents of Wainuiomata North.

Key benefits of a compact settlement approach
In general, the key benefits of a compact settlement approach include:

- agglomeration, convenience, and proximity between activities, in high quality settings, will ensure that multiplier benefits and opportunities for one activity to stimulate others will occur. This strategy will ensure that every possible activity that could enjoy viability can occur, even to the point of an additional local corner store or specialty, niche retailer.
- opportunities for people to meet their daily needs without the energy intensive and increasingly expensive reliance on automobiles will be maximised. This will also have an equity benefit for the elderly and young who are less able to use vehicles in meeting their daily needs.

[5] http://www.urbandesigncompendium.co.uk/importanceofdesign, accessed 24th January 2018.

- New Zealand has an internationally high ecological footprint, based in a large part on energy use and transport patterns. With energy (including transport) emitting 40% of New Zealand's greenhouse gases, mainly in the form of CO2, and 43% of these CO2 emissions coming from domestic surface transport, emissions from transport are significant . Changing the way people connect their daily need activities together will have one of the single biggest positive impacts on environmental sustainability within Lower Hutt. There will also be affordability benefits from enabling people to minimise their car use.
- the greatest possible amount of high amenity landscapes and productive soils will be retained for present and future generations.
- the greatest opportunity for affordability for individuals and the community will eventuate.
- while Development Contributions under the Local Government Act 2002 allow the Council to require the capital costs of growth-related infrastructure to be recovered from those causing that growth (developers and new residents), on-going maintenance costs - always greater in the long term than up front capital costs - still fall on the general community to meet. Long term maintenance cost and debt burdens on infrastructure and services will be minimised for the community when connections per km of service are maximised, and the overall length of service kms are minimised.

The approach proposed is based on a significant body of substantiated local and international research into sustainable urban settlements. This has emphasised the need to ensure that towns are efficient, effective, equitable, and ecological in enabling wellbeing for people and communities.

7.4 LAND USE TYPOLOGIES AND OUTCOMES

Indicative residential typologies
Indicative residential typologies under a mixed-density option are shown on Figure 20.

Indicative mixed use or retail typologies
Indicative mixed use or retail typologies in the future village centre under a mixed-density option are shown on Figure 21.

Wainuiomata North
Development Framework
February 2018

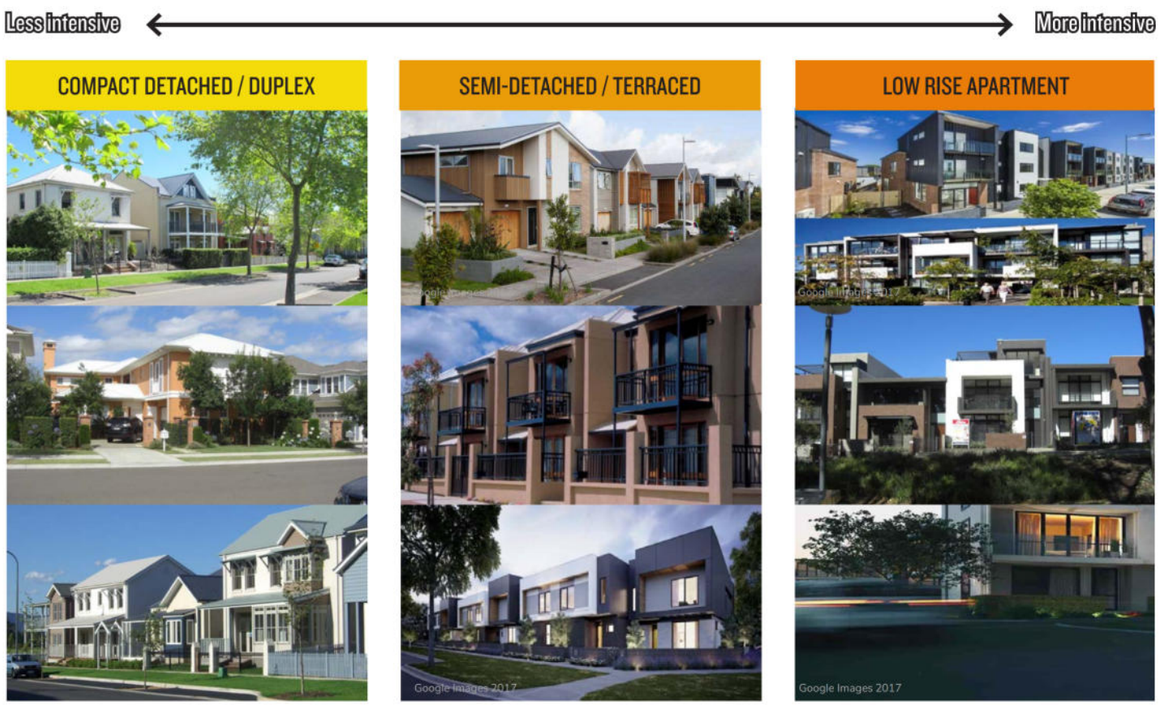


Figure 20: Indicative residential typologies under a mixed-density option

Figure 21: Indicative mixed use or retail typologies under a mixed-density option

8 THE WAINUIOMATA NORTH CONCEPT MASTER PLAN

8.1 THE WAINUIOMATA NORTH CONCEPT MASTER PLAN

Following the identification of the preferred development option for the Wainuiomata North area, a concept master plan has been developed to substantiate and further develop the vision for the land use, open space and movement network. The master plan work was initiated at the workshop by Melbourne-based urban designer Steve Thorne of DesignUrban Pty Ltd alongside members of the consultant design team, in consultation with Council and external stakeholders.

While the Wainuiomata North Concept Master Plan (Figure 22) presents an indicative concept only, its value is that it shows how aspirational outcomes could be physically accommodated and be credible as planning solutions. The master plan is therefore a means to corroborate many of the spatial assumptions being applied in the higher-level framework options and evaluation. The Concept Master Plan demonstrates how the key land use and transport outcomes identified in the preferred mixed-density option (Option 2) could be delivered spatially. The master plan also demonstrates how best-practice principles of urban design, including the retention of local character-defining elements such as key waterways and natural features can be retained so as to contribute amenity to the new development area. A number of possible structure plan details have been tested and shown to be workable such as the general minimisation of cul-de-sacs in favour of a well-connected street network.

The use of a master plan is a valuable means of balancing both a strategic consideration of appropriate use, activity and residential densities, and the achievement of a desirable urban form including block sizes and road widths. While a master plan is a non-statutory instrument, Council could consider including it as a supporting future concept plan within a Structure Plan so people can see the big picture vision for the area.

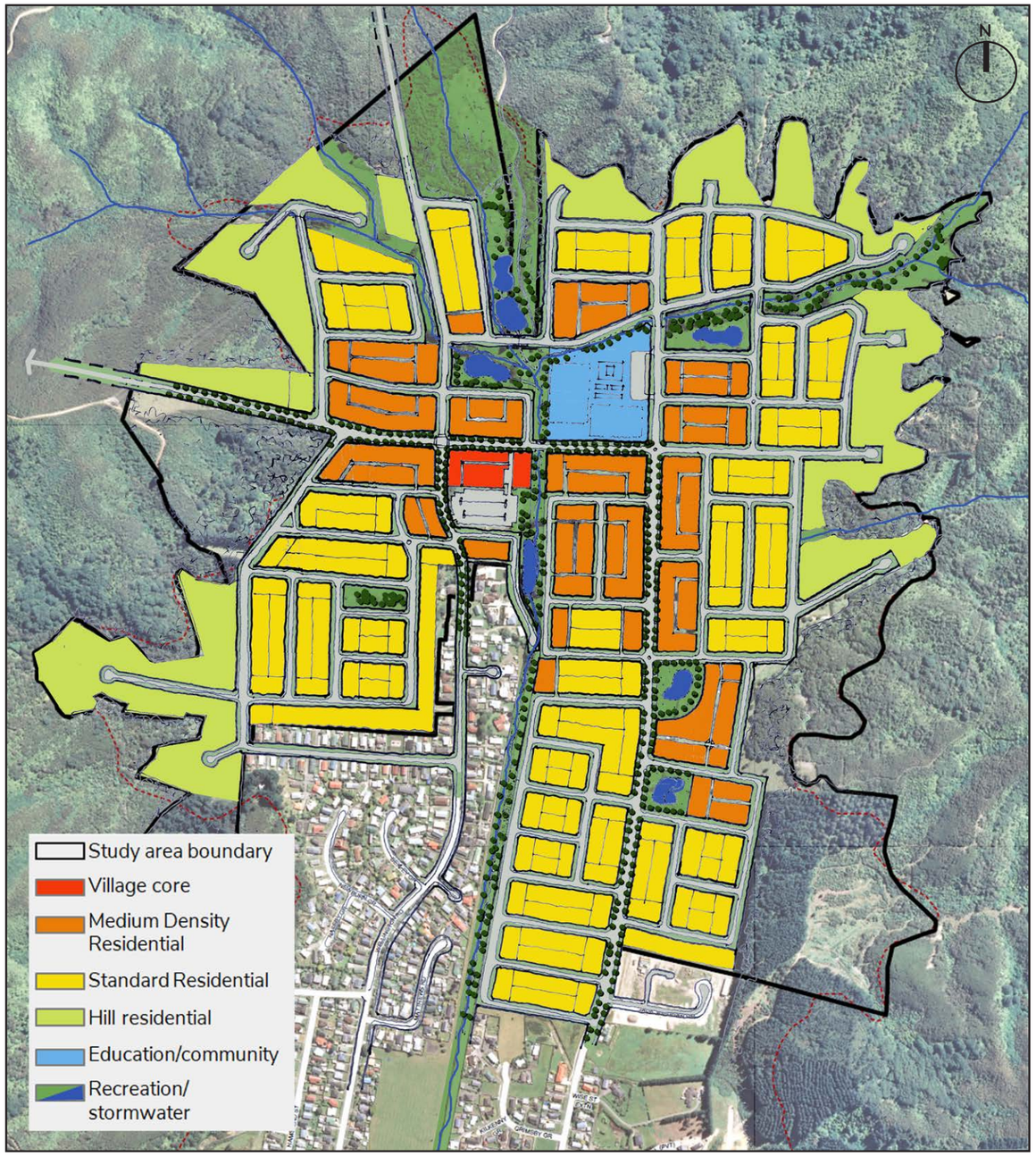


Figure 22: Wainuiomata North Concept Master Plan.
Source: DesignUrban Pty Ltd, 2017.

Wainuiomata North
Development Framework
February 2018

8.2 SUMMARY OF MASTER PLAN PRIORITIES

The key elements of the concept master plan for Wainuiomata North are described under the five urban design priority headings (identified in Section 5.1) described in more detail below.

Promoting a mixed density, walkable neighbourhood that minimises cul-de-sacs

- a network of east-west and north-south streets create easily navigable, walkable development blocks (Figure 23). The size and length of urban blocks are limited with the majority of blocks measuring approximately 50-80 metres to increase the choice of movement routes through Wainuiomata North, allow for increases in residential density, and to support for a mix of housing types from terraced housing to more conventional detached units. As a general rule, higher order roads are fronted by higher density housing (see areas of darker orange) (Figure 24) because of their connections to amenity features and the proposed passenger transport route. This reinforces their role as main routes through Wainuiomata North.
- rural-residential development potential is protected on hillside areas to the north, east and west recognising flooding and water supply constraints, remote distances from services and the high visual landscape amenity value of the adjoining SNR.

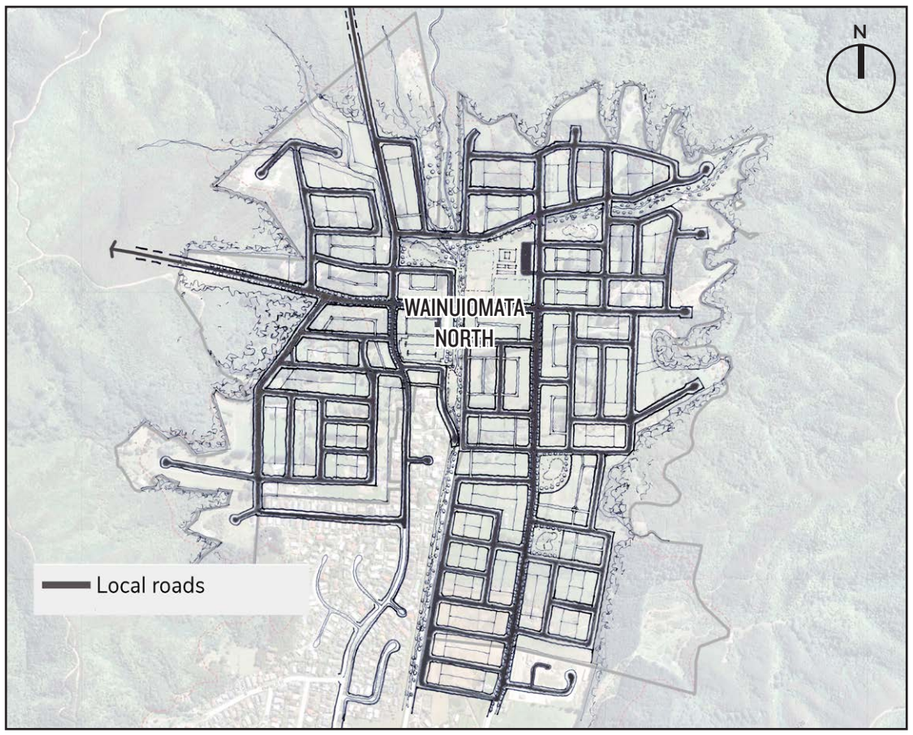


Figure 23: the local street network within the concept master plan

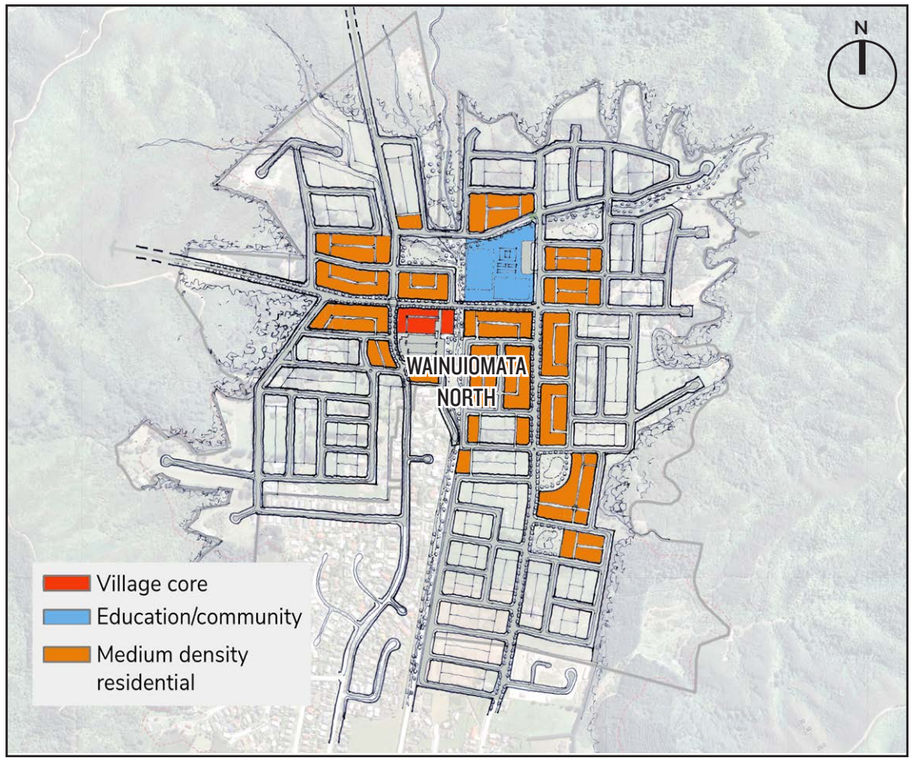


Figure 24: distribution of higher density housing within the concept master plan

Wainuiomata North
Development Framework
February 2018

Maximising local and strategic connectivity

- the network still relies on a road hierarchy, with two higher order roads connecting to form a transport 'super-loop' (Figure 25, map reference 1) through the area based around extensions to existing Wellington Road and Wise Street, and future strategic access road connection points either to the north (2) or west (3). These roads are supported by a finer grain of east-west and north-south local roads that provide for pedestrian movement through neighbourhoods, as well as rear lanes. This loop is the principal structuring element and bus route serving the neighbourhood.
- a future-proofed strategic access road connection is provided to both the north and the east taking traffic past the village centre and into the higher order super-loop which has adequate capacity.
- streets are pedestrian friendly and accommodate 1.8m to 3.0m (shared with cyclists) footpaths along both sides. A no-access frontage condition can be included along sections of important roads such as Wellington Road and Wise Street, with access to future lots shown from side streets or rear lanes (Figure 26). This creates good conditions for cycling and walking on these higher order roads as vehicle crossings (driveways etc.) are avoided.

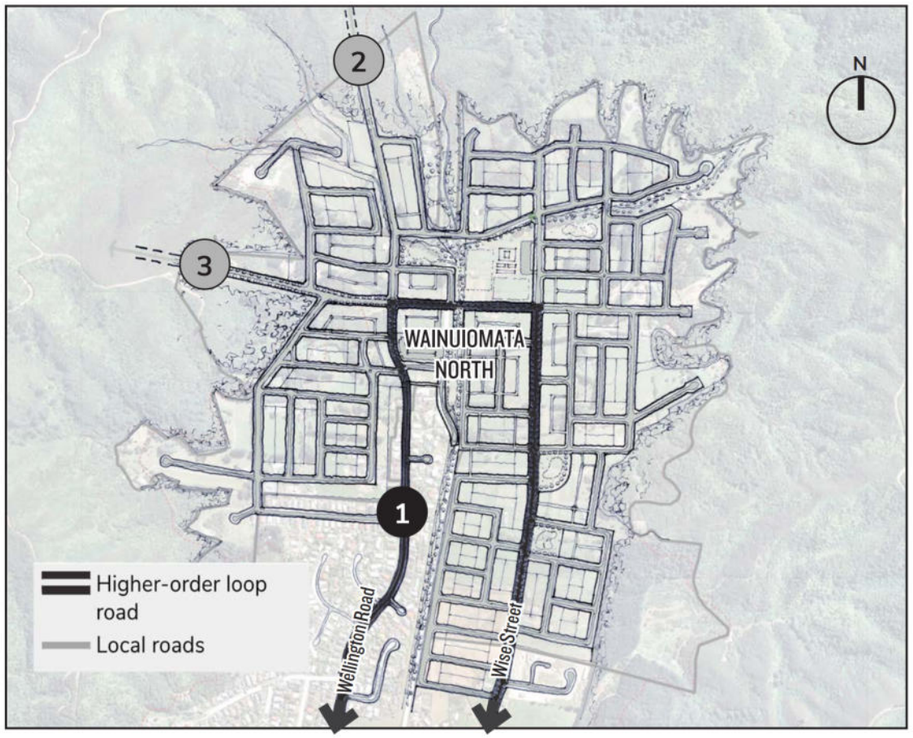


Figure 25: Transport 'super-loop' extending Wellington Road and Wise Street

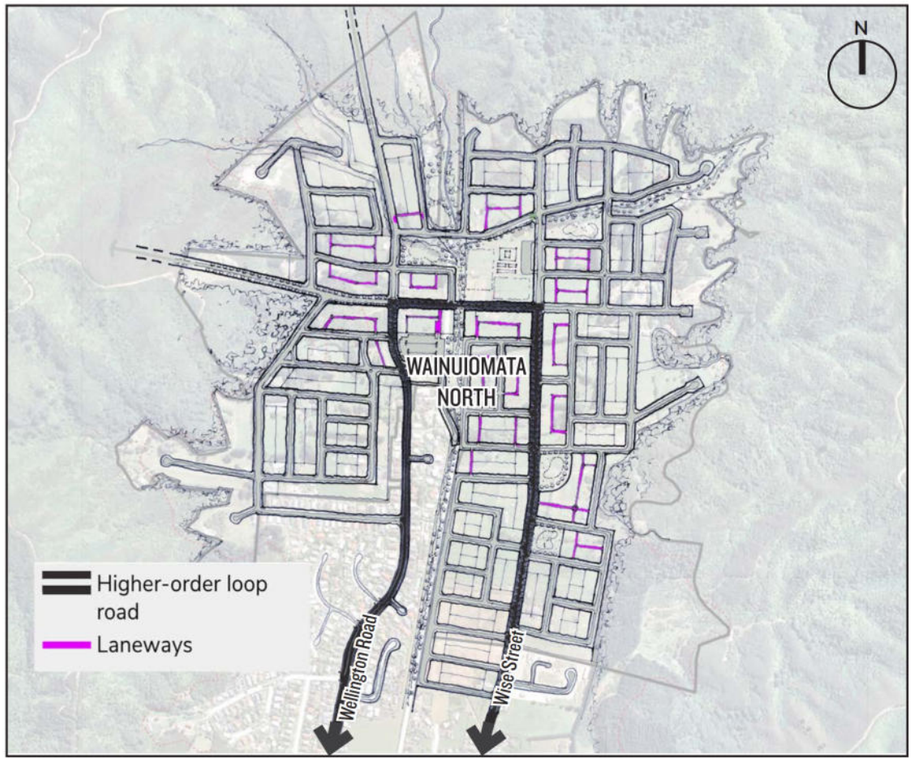


Figure 26: Introduction of rear laneways on important streets within the concept master plan

- streets are cycle friendly (Figure 27, map references 1-3) and create a comprehensive network, including:
  - on-road cycle lanes on at least one side of key streets (e.g. Wellington Road and Wise Street) (1)
  - off-road cycleways associated with the green network (2)
  - low speed environment with traffic calming in the village centre (3)
  - low speed road design on all local roads (30km/hr maximum)
  - avoiding vehicle crossings over shared use paths on key streets.
- walkways and streets support key recreational routes (Figure 28) to expose more people to the open space network and open it up as public estate. This includes 'park-edge' roads (1) adjoining and running parallel to future open space / drainage corridors, and connections to wider walking and cycling trails northwards towards the ECNZ Track (2), Wainuiomata Scenic Reserve, and southwards along Black Creek (3).

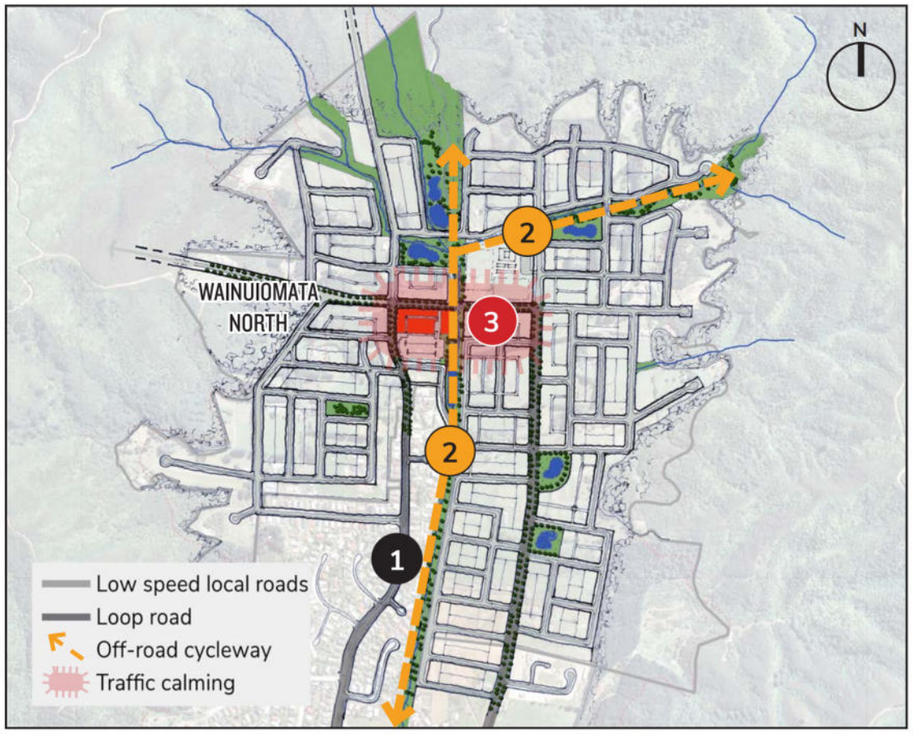


Figure 27: Cycle friendly streets within the concept master plan

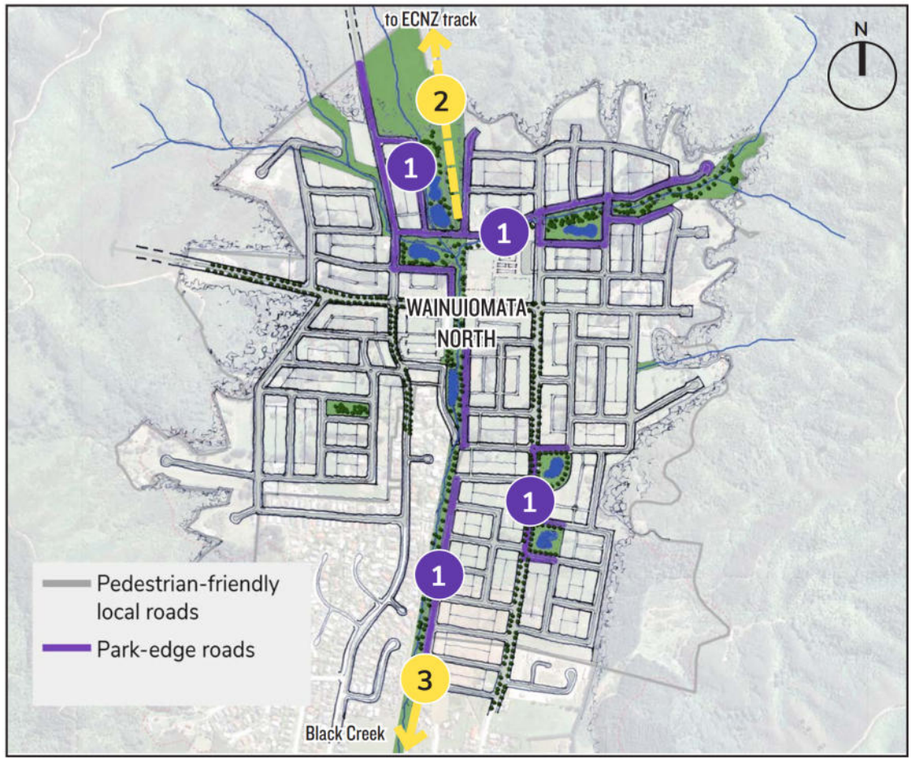


Figure 28: Recreational amenity connections in the movement network within the concept master plan

Aspiring to be a new development benchmark based on 21st century neighbourhood design expectations

- urban block sizes can support fee simple sections ranging from 250-400m2 or comprehensive development on larger lots in the range of 1,500m2. Compact forms of housing such as semi-attached or attached units on smaller sections are distributed in areas with good accessibility to local amenity spaces and higher order transport routes. The majority of medium density housing is within a walkable catchment of the village centre (refer to Figure 29) and served by passenger transport.
- the orientation of roads and blocks ensure coherent public 'fronts' and private 'backs'. Roads are mostly aligned in north-south direction, and lots aligned east-west, so that future dwellings orient for solar access, on-site privacy, and vehicle access from streets.

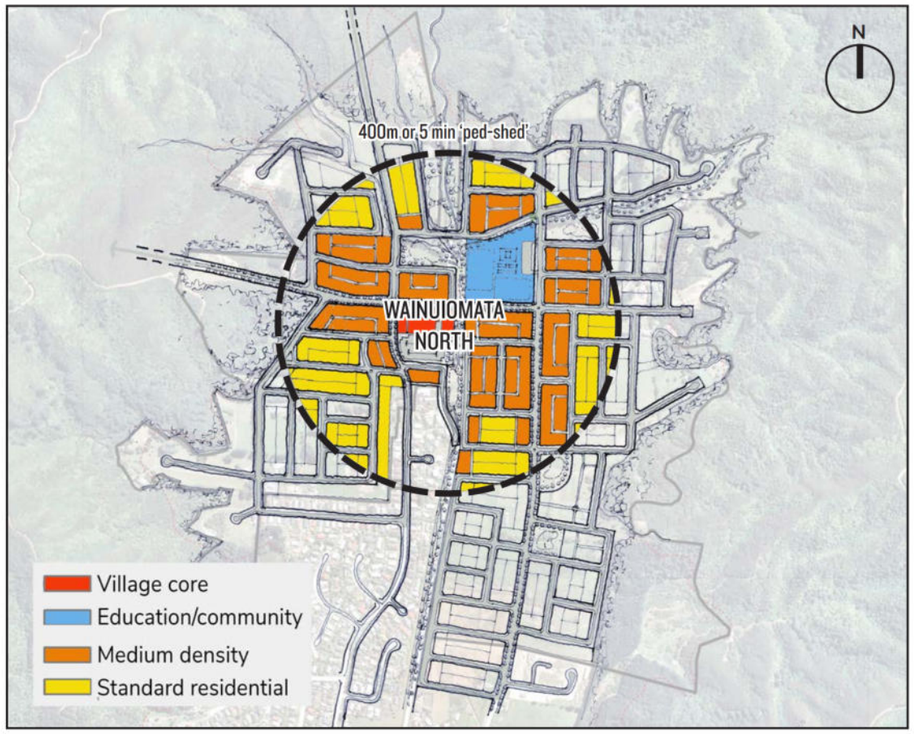


Figure 29: The walkable catchment (400m) of the village centre

Integrating with green and blue networks (Figure 30, map references 1-5)

- centralised stormwater treatment ponds and wetland system: stormwater is captured and treated in a series of seven lowland depressions in parks (1) located within existing drainage catchments. These pond/wetland systems are designed to detain, treat and attenuate stormwater runoff to minimise potential flooding damage associated with bigger runoff events. Stormwater runoff can also be captured through the provision of swales on key roads.
- a continuous landscaped corridor runs north-south and east-west through the area (see green lines) connects key stream tributaries (2). This corridor links future esplanade reserves/strips, riparian margins and community recreational reserves to form a sequence of high amenity open spaces. The corridor links wider walking and cycling networks including hill trails.
- piped network capacity: as development occurs, new reticulated network servicing individual subdivisions will be interconnected to provide a higher level of network redundancy. Sections of existing supply mains require capacity upgrades, and modelling identifies the scale and timing of this work so appropriate development contributions can be assessed.

- landscaped street network: provision of street trees and landscaping along key roads (3) and the decommissioned Upper Fitzherbert Road (4) to soften and break up long vistas and provide a 'leafy green' feel (Wainuiomata Development Plan, page 6).
- new recreation reserve: a large neighbourhood reserve 1,000 to 2,000m2 of new open space (5) suitable for running around, community gathering, and casual recreation is located in a central prominent location overlooked by public streets and land uses (houses or other buildings) for easy casual surveillance. It has the potential to combine with playing fields associated with a future primary school and/or stormwater management area into a larger reserve space exists (approximately 4,000m2).

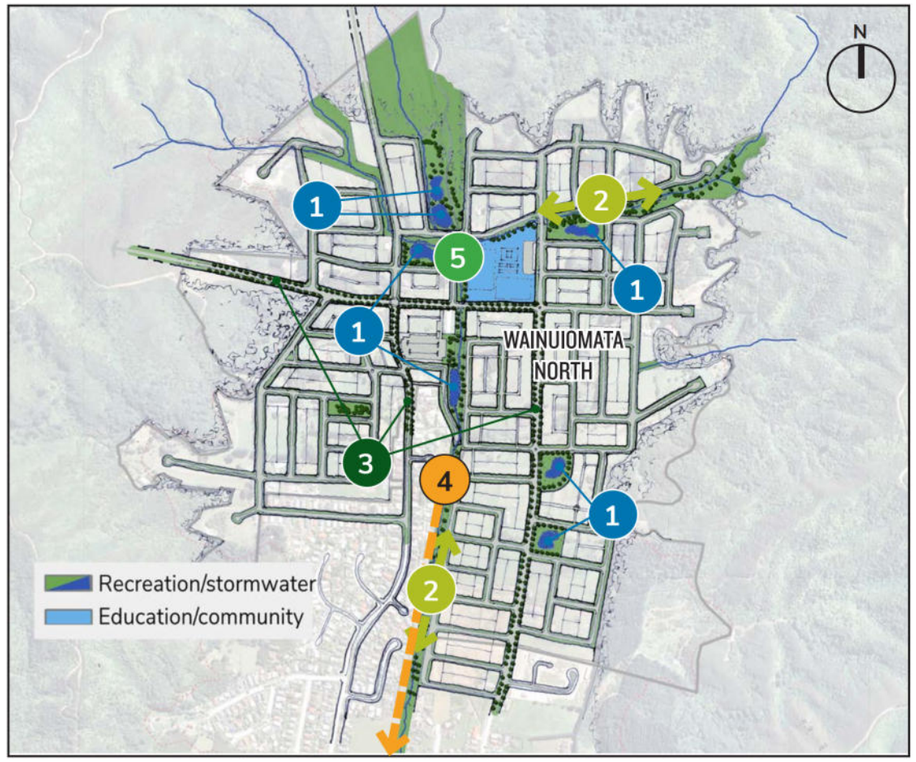


Figure 30: Green and blue networks within the concept master plan

Improving the self-sufficiency of the community

- a 2ha village centre designed to maximise the employment and economic multiplier benefits of the movement economy, future bus route and strategic access road, and higher density residential land. The village centre is connected to a number of major elements including a village green and primary school, and also has the potential for an early childhood centre. Together, this forms the heart of the neighbourhood (Figure 31) which acts as a cumulative destination for the neighbourhood and provides a sense of place and amenity values. Refer to Table 5 which recommends the retail mix and estimated gross floor area for the village centre.
- a 2ha primary school ideally located towards the centre of Wainuiomata North, where access to residents, the proximity of the village centre, and the ability to bring green amenity or co-locate with reserve assets can leverage the greatest benefits.

Figure 31: Sketch of the village centre and nearby primary school.
Source: DesignUrban Pty Ltd, 2017.

Retail tenant	Number	Gross floor area (GFA) in square metres (m2)	Total GFA
Small-scale supermarket e.g. IGA or Fresh Choice	1	1200-1500	1200-1500
Chemist	1	100	100
Wine / bottle shop	1	100	100
Hair / health / beauty	2	80	160
Bakery / deli / takeaway	2	75	150
Cafe	2	80	160
Restaurant	2	150	300
Office / service-related business	2	125	250
Real estate	2	100	200
TOTAL			**2,920m2 GFA**

Table 5: Retail mix and estimated GFA for the Wainuiomata North village centre
Source: Urbacity Pty Ltd, 2017.

The main street length will be determined by the following key aspects:

- the movement network: it sits as part of wider Wainuiomata and not at the end of a cul-de-sac.
- its design qualities: such as spatial intimacy, domestic-scaled architecture and micro-climatically efficient spaces. Building should feature articulated windows and doors, awnings (not canopies), proper roofs and be able to be recognised as individual uses (while remaining fully scaled and working cohesively).
- size of catchment: a dedicated residential catchment.
- quality tenants: the service tenants (especially food and beverage) must be exceptional in order to raise the profile of the retail offer of Wainuiomata.

Detailed design could include small shops sleeving the length of the supermarket (approximately 75m in length), the entrance 'turning the corner' and located on the main street with a small internal courtyard fronted by a café.

OVERALL

The concept master plan illustrates how a realistic development outcome for the new neighbourhood (Option 2) could be achieved in Wainuiomata North. The concept should form the basis of future planning work by the Council and could become part of the guiding vision for the area.

9 IMPLEMENTATION

9.1 STAGING CONSIDERATIONS

In considering how to stage the release of land for urban development, the workshop disregarded a general release of land for urban development with no staging option. Under this option development timing would be dependent upon economics of development, land owner intentions, and could occur in any location within the Wainuiomata North growth boundary. A general release option has a large risk that the future settlement will develop into a fragmented pattern of land uses, impact on the infrastructure rationale and may lead to the ineffective use of the land resource available. In contrast, a staged pattern of release offers opportunities to co-ordinate, in an integrated way, the outcomes noted in Section 7.1 of the Development Framework. As a purely greenfield area, development staging will in particular need to be carefully aligned so that initial development creates the settings needed to progress the next, enabling development to efficiently grow outwards.

Given there are known infrastructure deficits and challenges for Wainuiomata North, development needs to be carefully aligned with realistic and achievable infrastructure provision and infrastructure capacity. This includes infrastructure provision on a timely, logical and cost-effective basis, which does not preclude a strategic access road connection across to Naenae or White Lines East. Since the strategic access road over the Eastern Hills is currently not planned or funded, and is clearly a longer-term proposition, this will also necessitate a staged approach. In terms of commercial deliverability, a commercial node and new primary school are also likely to commence later in the development sequence, once several hundred dwellings have been built (creating customers for shops and pupils for the school). Safeguarding the opportunity for these by coordinating the land release with when market circumstances are more likely to support them is a logical and desirable planning strategy.

The future structure plan for Wainuiomata North may provide for any number of staged land releases, but in general, it is recommended that the residential development staging strategy progresses from the south to the north with a bias toward the eastern side of Upper Fitzherbert Road (Figure 32).

This possible staging approach has been identified on the basis of a number of factors including:

- the ability of existing General Residential zoned land to be developed as of right at present (subject to servicing requirements)
- the logical growth and improvement of the external northern edge of Wainuiomata North land
- the relative ease/availability of trunk infrastructure
- acceptance that development of the village centre, a primary school and a strategic access road are longer-term propositions that should not be foreclosed or precluded by unnecessarily hasty development pressure coming to bear by way of ‘live’ land use zoning.

As a general consideration, different land ownerships should be available in each stage so that there is competition in the land market and the avoidance of land banking. It is acknowledged that some landowners may aspire to have their land developed for urban purposes, and others may not.

The challenge for Council in developing Wainuiomata North land is to carefully manage the supply of land to ensure adequate housing choice, but also the consolidation of growth in new residential areas prior to the development of a village centre so that it does not become a stand-alone, isolated, single-use retail area. However, it is also recommended that at all times the presentation of zones and development vision for the area be retained as a whole. This may necessitate the use of a ‘future’ or ‘deferred’ zone allowing the entirety of the area and a single coherent development vision to be used in all planning exercises.

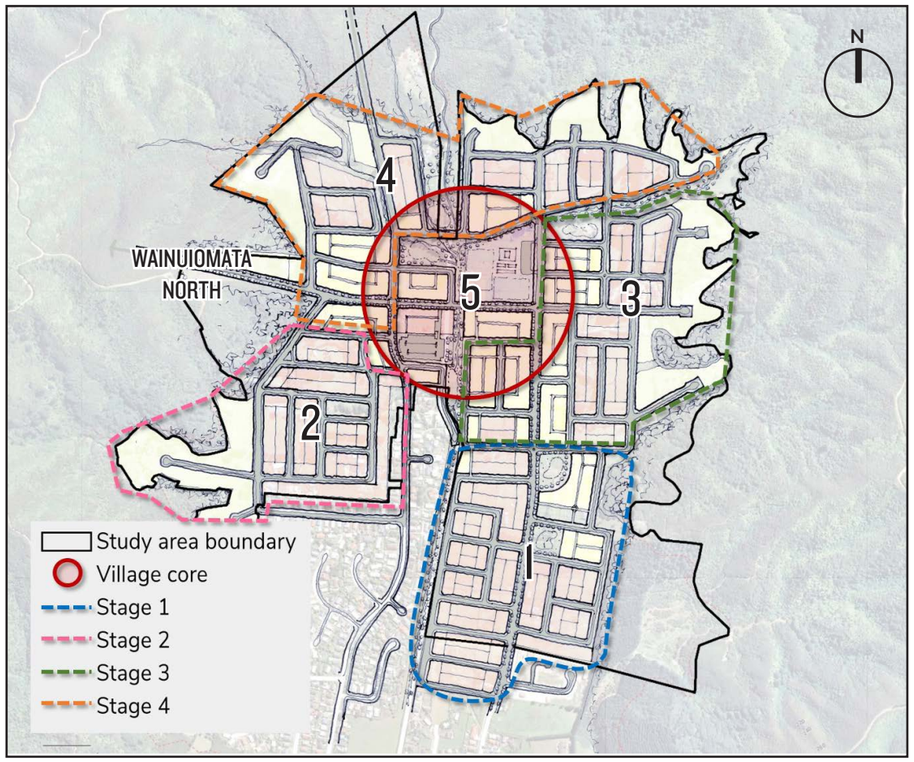


Figure 32: Possible staging strategy from south to north.

9.2 STRUCTURE PLANNING / RMA PLAN CHANGE CONSIDERATIONS

This section summarises key issues or outcomes that a future Council-led structure plan and/or subsequent plan-change process could include or consider. It also provides a summary of relevant non-RMA recommendations or issues that could be considered before or concurrently with any future Council-led plan-change process.

Because of the largely contained and generally flat nature of Wainuiomata North, the master plan concept has been relatively well-resolved. It is recommended that Council initiates any structure planning process with validation of the concept master plan. For example, it could confirm:

- that the mix of densities proposed will satisfy the market
- flood storage needs and required mitigation measures
- ecological and riparian areas required;
- infrastructure upgrades, costs and timeframes available to sequence development
- what development options exist above RL120m (whether on-site water or a form of pump-based public supply is feasible)
- which landowners may be development-ready and which may not be
- whether there are any detailed or specific engineering matters that may require localised changes in the likely block structure or yield.

Through these studies, Council will gain a greater understanding of the yield or total sum of land that could be rezoned and obtain certainty around engineering solutions. It is recommended that on the basis of the above, a revised master plan be prepared and used to illustrate the vision for Wainuiomata North, including in terms of community consultation and as an assessment matter that could be considered at the time of subdivision or resource consent assessments. This would help ensure that small-scale incremental developments could be kept coordinated with the vision.

The structure plan and/or plan change also needs to deal with elements of uncertainty – i.e. how to start things early without precluding longer term outcomes from also occurring if future circumstances allow. For example, the majority of road networks will only be provided at time of subdivision, so policies should talk about a coherent vision for the movement network. Trying to prescribe the alignment of every road doesn't work but finding key links that guarantee minimum connectivity and developers then 'filling in' the gaps is recommended. Key roads could be identified on the structure planning map (Figure 33), with subdivision matters detailing how the remainder of the road network should be resolved.

Figure 33: Identification of key roads (shown in grey)

It is important that sufficient flexibility is maintained in any structure plan, so it can respond to social, economic and environmental changes. Council should monitor land take up and review the structure plan on a five-yearly basis to identify any amendments required to maintain a suitable future land supply. These reviews should be appropriately timed to ensure that they can feed into future reviews of the District Plan.

Framing expectations around urban structure

There is a critical need for any structure plan or plan change to articulate the fundamental urban structure and design expectations related to the future development of Wainuiomata North so that land uses can develop in a way that is consistent with the sustainable outcomes sought by the Development Framework. Indicatively, the urban structure and design outcomes to be specified or focused on could include:

- connected street networks
- minimising cul-de-sacs and pedestrian-only linkages
- emphasis on shared mode streets rather than car-dominated streets
- emphasis on delivering integrated streets that create active frontages and promote safety and activity for pedestrians

- integrated, prominent reserves and other amenities which are well fronted by other activities
- higher density based around landform and distance to public amenities such as passenger transport routes, shops and open spaces
- residential blocks promoting walkability and permeability
- minimising rear lots
- configuring lots, blocks and activities to minimise nuisance between users and activities and maintain high standards of amenity
- providing for clear spatial ownership boundaries i.e. what is public and what is private
- emphasising housing variety and affordability
- setting out guidance on when different housing typologies may be more appropriate. Indicatively for example:
    - double-width garage are less appropriate when individual lot frontage width falls below 13m.
    - detached dwellings are less appropriate than duplex or terraced houses when the individual lot frontage width falls below 9m.
    - when lot frontage width falls below approximately 7m it becomes difficult to avoid garage or vehicle-dominated street frontages and associated manoeuvring space. At these frontage widths, alternative access such as by way of rear lane is desirable.
    - blocks intended for rear-lane servicing should be approximately 8m deeper than a block of front-accessed lots (unless 'bookend' rear lanes at each block end are proposed).
    - lots intended for rear-lane servicing should often be narrower and deeper than front-accessed lots (minimum of 25-26m depth for front-accessed lots vs. 27-28m minimum depth for rear-accessed lots).
    - proposed lots that do not meet the above (or similar) guidance should be subject to integrated land use and subdivision design, where a smaller lot outcome may be demonstrated as appropriate based on a specific built form proposal for that lot.
    - the Medium Density Design Guide proposed under PC43 offers good guidance from which to draw from.
- promoting successful on-site solar orientation, privacy, and activation of public streets by managing north-facing lots less than 15m (lots less than 15m may not be able to accommodate all of required vehicle access / garaging, a living room must face the street, and the width of an outdoor space that could sit next to a house / garage and be screened for privacy from the street).

Wainuiomata North
Development Framework
February 2018

By clearly articulating the outcomes and conditions sought and establishing a clear, understandable vision for development, the Council will be able to 'set the agenda' for mixed-density development and high-quality outcomes where developers are able to clearly understand what is being asked of them and make sound investment decisions in response. The outcome-based policy framework should also identify why each outcome is important. For example, under the movement-related urban structure outcomes, this is to:

- create character-defining streetscapes that organise the neighbourhood
- create a well-connected and logical street network that provides safe, direct and convenient routes for people
- reduce unnecessary vehicle travel through Wainuiomata North
- create permeability through the area and establish pedestrian and cycle priority and safety ahead of driving.

These matters could form the basis of Wainuiomata North-specific Plan policies.

Future plan change considerations

Taking the outcome-based policy framework of the Wainuiomata North structure plan into a plan change may result in the need to review and revise the present resource management approach of some policies which apply across the whole of Wainuiomata or the City. For example, the workshop identified some inconsistency of lighting standards within the City. Given the performance benefits of quality lighting in creating safe and active spaces in a community, Council may wish to reconsider its urban road light standards generally.

Or for example, the plan change could include examples of appropriate street cross sections and an associated rule package. If deemed applicable, these may also apply District-wide and be introduced through a whole-of-city District Plan Change, or alternatively via a separate Engineering Code of Practice.

There was strong consensus at the workshop not to progress with discrete areas of rezoning, as this runs the risk of fragmenting the vision. Instead, a future plan change could look to rezone the whole area but add prerequisites for future stages, which only switch on with particular milestones or development performance.

For example:

> *"...development in stage 2 is a non-complying activity until such time as 80% of stage 1 is consented."*

Or for instance, to ensure stormwater is comprehensively addressed for the entire area where there is a necessary infrastructure upgrade:

> *"Until the stormwater solution required by Rule xx is met, any subdivision activity is a non-complying activity."*

While such an approach could be criticised for "zoning but then not enabling", it is considered a very appropriate way of balancing a comprehensive and integrated land use solution that will not be deliverable in one discrete timeframe. If written clearly, and supported by policies that clearly differentiate when outcomes should be "enabled" (such as housing diversity and choice), "required" (such as a connected street network) or "avoided" (such as outcomes that compromised the vision), it would also be unlikely to be misunderstood by users.

Looking to the village centre, planning mechanisms which preserve centre options such as a deferred or future zone may be appropriate. Council could also look to use the road controlling powers of the LTMA to prevent access. It may prove most appropriate to leave the north-western quadrant of Wainuiomata North zones for rural-residential use so that development will not proliferate in a way that could undermine future road locations, park locations, or the village node itself.

In terms of development control rules, the following topics are commonly included in urban design-based frameworks and are supported:

- relaxation of height in relation to boundary controls, at least in the front half of sites, so as to enable more-urban streetscapes and the efficient use of narrow gardens as the principal outdoor living space (less applicable on north-facing lots).
- requirements relating to site frontages, including landscaping, fence heights, and the visibility of front doors from streets.
- provision for urban trees between 4m-8m in (mature) height, either as street trees - which may require wider roads - or to be accommodated on certain lots.
- minimum-width side yard setbacks (1m), with restrictions on upper-level windows closer than 5m to the side or rear boundary.
- being permissive of housing density to promote housing diversity and choice. If an intensity control is required, such as to equitably collect development contributions under the LGA or provide certainty in infrastructure capacity, a habitable-room (lounges and bedrooms) control could be used. Indicatively, if a rule provided for one habitable room per 50m2, then on a 500m2 site 1 x 9 bedroom unit (+ lounge) could eventuate or 2 x 4 bedroom units, or 2 x 2-bedroom units and 1 x 3 bedroom unit could eventuate etc.
- building coverage could be ignored and more efficiently replaced with a stormwater / run off requirement (which could be met by complying with site coverage requirements or by utilising other means such as storage tanks) and a building length control to manage building dominance effects.

Wainuiomata North
Development Framework
February 2018

Key plan change guidance

In summary, the key recommendations for a future plan change are:

1. use simple and direct policies and objectives, including provisions that enable what is sought as well as seek to limit what is not sought (when policy frameworks only achieve one of these two 'sides', Plans are less effective in practice).
2. include plans and a vision for the whole Wainuiomata North area, even if not all of the area is proposed to be subject to re-zoning at one time.
3. specify subdivision rules that require logical and connected block structures.
4. specify land use rules that focus on the quality of public space interfaces and, otherwise, maximizing choice and diversity.
5. any village node should be subject to its own planning requirements, including its own master-plan concept for a main street-based precinct that will enhance a sense of place and destination within the new neighbourhood.

Demonstration project / design leadership

A range of tools are also available to demonstrate Council's commitment to design quality and sustainable urban outcomes such as a demonstration project for five to seven lots to show that higher density and different products bring benefits. This could allow the Council to set the tone for future development, and it could do this alone or with a development partner.

As a half-way-house and given that resource consents are attached to land rather than a person, the Council could design and apply for a resource consent on a prominent Wainuiomata North site as a means of incentivising the landowner to implement that consent effectively given to them free of charge. This is a cheaper and less capital-intensive means for the Council to show design leadership, however there is no guarantee that such a consent would be implemented by the relevant landowner (and it could simply facilitate the site's sale).

Strategic Access Road

It is recommended that any structure plan or plan change include indicative strategic access road links north to Naenae or west to White Lines East on any planning maps. This is because future-proofing for the eventuality has played a large part on the concept master plan and placement of a future village / primary school / recreation reserve. The timing of such a link may also have a direct bearing on when development of commercial activities in particular may become viable. If the number of houses within the area has not grown to a size sufficient to make shops viable, the additional passing traffic of cars using the link may make up the shortfall and entice development earlier than otherwise would be the case.

To this end, planning for the future node and potential future link should be linked to one another.

9.3 NEXT STEPS

The Council will use the development framework to undertake further due diligence of the planning and development issues facing Wainuiomata North. This may result in further specific consultation with local landowners or other stakeholders including NZTA, Wellington Water, Wellington Regional Council, Iwi, or developers.

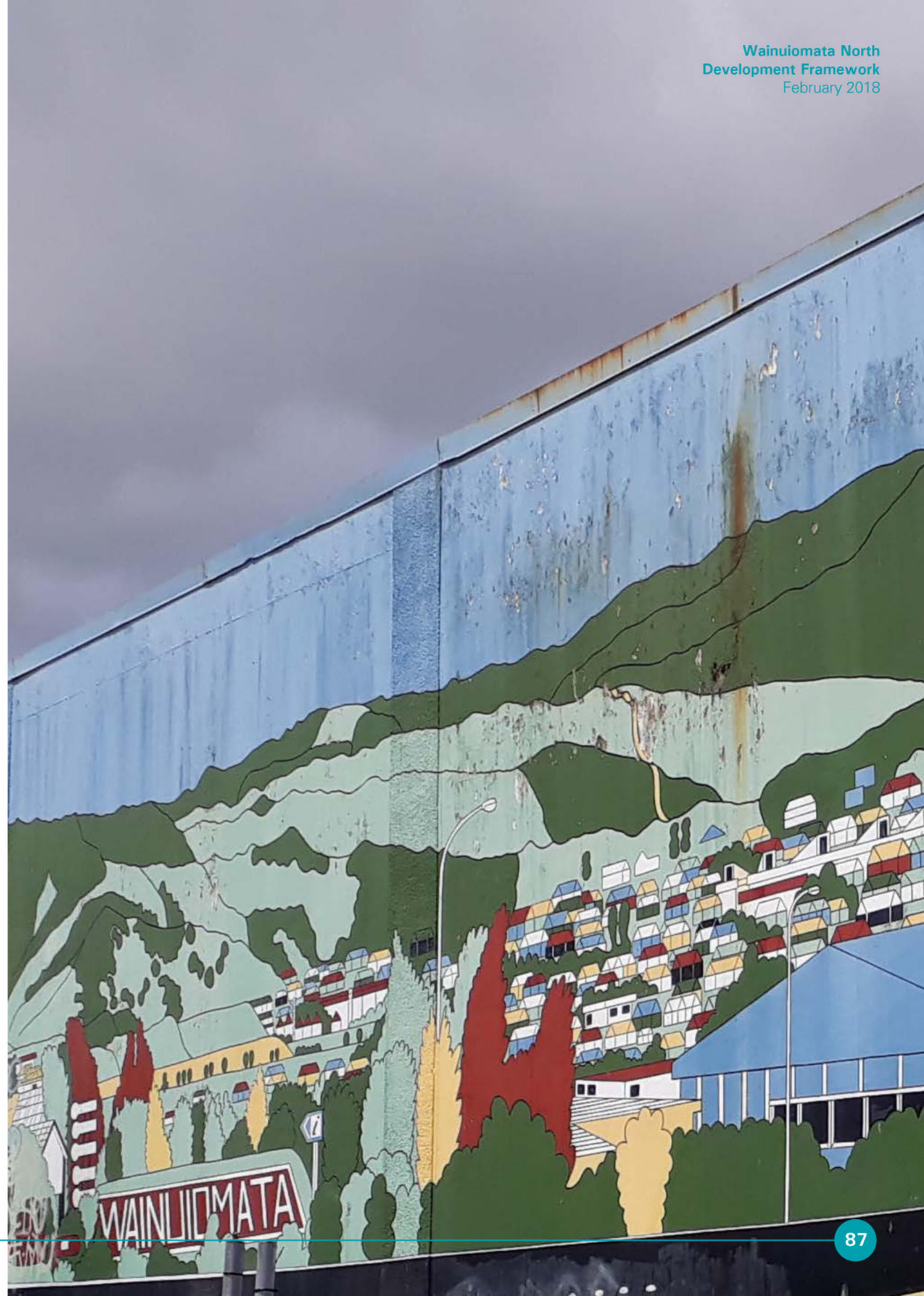
Indicative time frame: early-mid 2018
Either after or as a part of that further validation, the Council will initiate a structure plan process. This is the first-step towards re-zoning the land for urban development. The Structure Plan will identify specific built form and development outcomes for Wainuiomata North, and take this initial development framework further in terms of preferred infrastructure needs, outcomes and sequences, future planning requirements, and staging. It is recommended that the structure plan contain an updated concept master plan for the area. The outputs of the structure plan will inform the Council's long term (10 year) and annual planning processes in terms of aligning necessary capital expenditure for growth, and including how this may relate to future development contributions and rates that will apply in Wainuiomata North.

Indicative time frame: mid 2018 – mid 2019
After the structure plan process, the Council will initiate a statutory District Plan change under the Resource Management Act. This will be focused towards re-zoning the land for urban purposes and will be predominantly for residential activity that can be included in the term 'medium density'. This will include planning objectives and policies, and the development rules that will apply.

Indicative time frame: late 2018 / early 2019 – end 2019
Once operative, people wishing to undertake development in Wainuiomata North will be subject to the applicable rules and necessary infrastructure upgrades, with resource consents required for most subdivision and then generally large-scale land use developments.

Indicative time frame: 2020+
As above.

Wainuiomata North
Development Framework
February 2018



REFERENCE LIST

Greater Wellington Regional Council. (2013). Greater Wellington Regional Policy Statement. Retrieved from http://www.gw.govt.nz/assets/Plans--Publications/Regional-Policy-Statement/Regional-Policy-Statement-full-document.pdf

Greater Wellington Regional Council. (2016). Identifying and protecting significant indigenous biodiversity in the Wellington region. Retrieved from http://www.gw.govt.nz/assets/council-publications/Identifying-and-protecting-significant-indigenous-biodiversity-in-the-We....pdf

Greater Wellington Regional Council. (2017). Black Creek Catchment Map. Retrieved from http://www.gw.govt.nz/assets/Sustainable-Schools/Stream-assessment-kits/Hutt-Valley-maps/Black-Creek-map.PDF

Hutt City Council. (2012). Urban Growth Strategy 2012-2032. Retrieved from http://www.huttcity.govt.nz/Your-Council/Plans-publications-and-bylaws/an-integrated-vision/urban-growth-strategy-2012---2032/

Hutt City Council. (2012). Leisure and Wellbeing Strategy 2012 - 2032. Retrieved from http://www.huttcity.govt.nz/Your-Council/Plans-publications-and-bylaws/an-integrated-vision/leisure-and-wellbeing-strategy-2012---2032/

Hutt City Council. (2014). Walk and Cycle Strategy 2014 - 2019. Retrieved from http://iportal.huttcity.govt.nz/Record/ReadOnly?Tab=3&Uri=3677441

Hutt City Council. (2015). Long Term Integrated Communities Facilities Plan 2015. Retrieved from http://www.huttcity.govt.nz/Your-Council/Plans-publications-and-bylaws/an-integrated-vision/leisure-and-wellbeing-strategy-2012---2032/long-term-integrated-community-facilities-plan/

Hutt City Council. (2015). Environmental Sustainability Strategy 2015 - 2045. Retrieved from http://www.huttcity.govt.nz/Your-Council/Plans-publications-and-bylaws/an-integrated-vision/environmental-sustainability-strategy-2015---2045/

Hutt City Council. (2015). Infrastructure Strategy 2015 - 2045. Retrieved from http://www.huttcity.govt.nz/Your-Council/Plans-publications-and-bylaws/an-integrated-vision/infrastructure-strategy-2015---2045/

Hutt City Council. (2017). Annual Plan 2017-2018. Retrieved from http://iportal.huttcity.govt.nz/Record/ReadOnly?Tab=3&Uri=4559886

Hutt City Council. (2017). Empowering Tamariki for the Future 2017. Retrieved from http://www.huttcity.govt.nz/Services/Community-Support/empowering-tamariki

Hutt City Council. (2015). Wainuiomata Development Plan. Retrieved from http://lovewainuiomata.com/our-focus/

Hutt City Council. (2017). Proposed District Plan Chnage 43. Retrieved from http://www.huttcity.govt.nz/Your-Council/Have-your-say/Consulting-on/residential-intensification/

Hutt City Council. (2018). City of Lower Hutt District Plan. Retrieved from http://eplan.huttcity.govt.nz/Common/Common/terms.aspx

Hutt City Council. (2018). Hutt City Tracks and Trails. Retrieved from http://iportal.huttcity.govt.nz/Record/ReadOnly?Tab=3&Uri=3677455

New Zealand Government. (1991) Resource Management Act 1991. Wellington, New Zealand: Ministry for the Environment.

New Zealand Government. (2010). New Zealand Coastal Policy Statement 2010. Wellington, New Zealand: Department of Conservation.

New Zealand Government. (2014). National Policy Statement for Freshwater Management 2014. Wellington: Ministry for the Environment.

New Zealand Government. (2016). National Policy Statement on Urban Development Capacity 2016. Wellington: Ministry for the Environment.

Wainuiomata North
Development Framework
February 2018

APPENDIX I

Glossary and abbreviation of terms

SHORT TITLE	DESCRIPTION
Council	The Hutt City Council.
Cross Valley Link	A proposed strategic east-west road linking Seaview with State Highway 2 (SH2) under investigation by Council and Central Government.
Greenfield land	Rural or open land that is being developed for urban purposes for the first time.
Gross floor area	The sum of the gross areas of all the floors of a building or buildings measured from the exterior faces of exterior walls or from the centre-lines of walls separating two buildings.
Kohanga Reo	Premises (language nest) where preschool children are taught and cared for in accordance with Tikanga Maori (Maori customs).
Kaitiaki	Guardian.
Long-term Plan	A 10-year plan prepared under the Local Government Act 2002 containing programmes for the Council's priorities, activities and operating and capital expenditure.
Mana whenua	Māori with ancestral rights to resources and responsibilities as kaitiaki over their tribal lands, waterways and other taonga. Mana whenua are represented by iwi authorities.
Mauri	Life force.
National Grid Corridor	The 110kV National Grid (as defined in the National Policy Statement on Electricity Transmission) transmission line including the facilities and structures used for, or associated with, the overhead transmission of electricity located to the northwest of Wainuiomata North, and the area located within 32m of the line measured either side of the centreline of the transmission line.
Norfolk Road shops	The shopping strip between Upper Fitzherbert Road and Honey Street fronting to Norfolk Street in Wainuiomata.
Operative District Plan	The Council's regulatory land use planning document prepared under the Resource Management Act 1991. It provides guidance and rules on how land can be developed.
Residential Activity	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.
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, car sales yards, video parlours and licensed premises.
RMA	Resource Management Act 1991.

Wainuiomata North
Development Framework
February 2018

SHORT TITLE	DESCRIPTION
Rural Residential zone	A zone used to identify rural land for urban development in the future. This zone will remain in place until a plan change re-zones the land to the appropriate urban zone (e.g. residential or business). Rural activities are able to continue on this land until the urban zone becomes effective.
SNR	Significant Natural Resource. Any significant natural resource which is considered to be significant to the City for botanical, geological or zoological reasons and which is listed in Chapter 14E - Appendix Significant Natural, Cultural and Archaeological Resources.
SH2	State Highway 2.
Taonga	A treasured item (tangible or intangible).
Taranaki Whānui ki Te Upoko o Te Ika	Taranaki Whānui are the mana whenua or traditional guardians of the Wellington Harbour and associated lands including the Port Nicholson area. The Port Nicholson Block Settlement Trust was established in August 2008 to receive and manage the Treaty settlement package for Taranaki Whānui ki Te Upoko o Te Ika.
Te Atiawa – Wellington Tenths Trust	Established to administer Māori reserve lands, largely in urban Wellington. The Reserve has a set of beneficial owners descended from Te Atiawa, Ngāti Tupaia, Taranaki and Ngāti Tama tūpuna who were resident around Te Whanganui a Tara (Wellington Harbour) in 1840. The Wellington Tenths Trust administers what was left of the original reserve of over 4000 acres, on behalf of its beneficial owners.
Wāhi tapu	A place sacred to Maori in the traditional, spiritual, religious, ritual or mythological sense
Wainuiomata North	The 136ha area of land which forms the study area for the Development Framework. The area is located north of Wellington Road and Wise Street and is centred around Upper Fitzherbert Road.
WSD	Water Sensitive Urban Design is an approach which integrates the urban water cycle, including stormwater, groundwater and wastewater management and water supply, into urban design to minimise environmental degradation and improve aesthetic and recreational appeal.

APPENDIX 2

Workshop participants

CONSULTANT TEAM
COUNCIL TEAM

NAME	ORGANISATION	ROLE OR DEPARTMENT
Ian Munro	Ian Munro	Project Manager (Consultant)
Mike Cullen	Urbacity Pty Ltd	Retail and Town Centre specialist
Steve Thorne	DesignUrban Pty Ltd	Urban Designer / Masterplanner
Nicola Tagiston	Nicola Tagiston	Urban Designer / Planner
Andrew Cumming	HCC	Divisional Manager District Plan / Project Manager (Council)
Gary Craig	HCC	City and Community Development Manager
Paki Maaka	HCC	Urban Design Manager
Wendy Moore	HCC	Divisional Manager Strategy and Planning
Hamed Shafiee	HCC	Economist / Senior Policy Advisor Strategy and Planning
John Gloag	HCC	Divisional Transport Manager
Damon Simmons	HCC	Traffic Assets Manager
Ryan Rose	HCC	Manager Land Development
James Lamb	HCC	Visitor Market Development Manager
Parvati Rotherham	HCC	Development Liaison Manager City Growth
Phil Murphy	HCC	Infrastructure
Steve Mann	HCC	Infrastructure
Bruce Hodgins	HCC	Divisional Manager Parks & Gardens
Kelly Crandle	HCC	Reserves Planner
Mel Laban	HCC	Community Projects and Relationships Manager
Mike Mercer	HCC	Divisional Manager Community Hubs
Hayley Goodin	HCC	Healthy Families Manager
Corinna Tessendorf	HCC	Senior Environmental Policy Analyst
Joe Jeffries	HCC	Environmental Policy Analyst
Nathan Geard	HCC	Environmental Policy Analyst
Jon Hoyle	HCC	Communications and Marketing Advisor
Tim Johnstone	HCC	Team Leader Resource Consents
Peter McDonald	HCC	Resource Consents Planner

Wainuiomata North
Development Framework
February 2018

EXTERNAL STAKEHOLDERS
COUNCIL SENIOR LEADERSHIP TEAM
ELECTED MEMBERS

NAME	ORGANISATION	ROLE OR DEPARTMENT
Lucy Harper	GWRC	Environmental Policy Adviser
Michelle Bourke	GWRC	Policy Advisor and Environmental Protection Officer
Helen Chapman	GWRC	Senior Advisor Public Transport Policy
Kerryn Merriman	GWRC	Team Leader Public Transport Service Design
Craig Walton	Urban Plus Ltd	Manager HCC properties / social housing
Deborah Leaupepe	Ministry of Education	Education Network Advisor
Laura Robson	Ministry of Education	Education Analyst
Morris Te Whiti Love	Port Nicholson Block Settlement Trust / Wellington Tenths Trust	Trustee / Iwi Advisor
Stewart McKenzie	Wellington Water	Principal Advisor - Planning and Environment
Kim Kelly	HCC, Senior Leadership Team	General Manager City Transformation
Matt Reid	HCC, Senior Leadership Team	General Manager City and Community Services
Cr Campbell Barry	HCC Elected Councillor	Wainuiomata Ward
Cr Josh Briggs	HCC Elected Councillor	Wainuiomata Ward
Cr Margaret Cousins	HCC Elected Councillor	Deputy Chair, District Plan Committee

APPENDIX 3

Technical workshop presentations

I. GARY CRAIG - URBAN GROWTH STRATEGY

I

2

What I'll talk about

- Why an Urban Growth Strategy
- Targets and Results to Date
- Dwelling types completed
- Future Developments we are aware of.

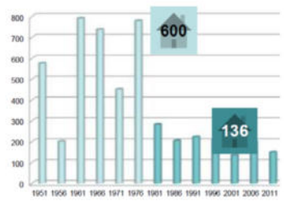
3

Population Changes

- Negative net migration, particularly among 20-30 year olds
- Declining birth rate and increasing death rate so little natural population increase
- Ageing population and falling average household size from 2.7 persons to 2.4 persons
- Falling working age employment base

4

Housing growth - past



5

Business As Usual is not an option

- It will not provide adequate space for new families
- It will not provide enough opportunities for older residents
- It will mean our population will decline
- May mean the loss of future commercial development opportunities;
- Retail centres will lack vibrancy

6

Urban Growth Strategy

Adopted in 2013 the UGS sets out a vision for growth and development of the built environment in Lower Hutt for the **next 20 years**;

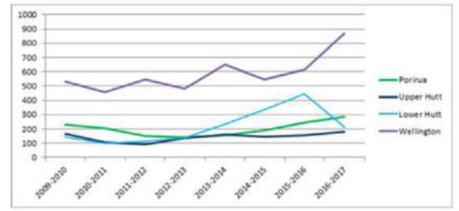
By 2032:

- target population at least **110,000**
- target increase of **6,000** new homes

(Average of 300 new homes per annum)

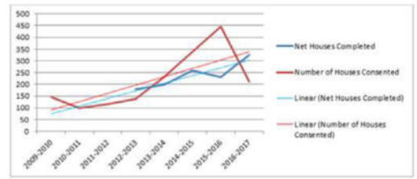
7

New Dwelling Consents



8

Consents vs Built



9

Growth to date

New Residential Dwellings **Completed**

Year to 30 June 2013	Net	179		
Year to 30 June 2014	Net	198	Ave	187
Year to 30 June 2015	Net	258	Ave	212
Year to 30 June 2016	Net	232	Ave	217
Year to 30 June 2017	Net	325	Ave	238
3 Months to 30 Sept 2017		79		

[net of removals and demolitions]

Total 1271 – 21% of target

10

Population Growth

11

Pop. Growth Last 1,2,3 & 5 Years

12

Population Target 2032

Target at least	110,000
Census 2013	98,238
Population est. for 2033 was	102,100
Rev. population est. 2033 (2017)	108,100

Good progress to date but we need to do more

Multi-criteria Anlyasis Score Upper Fitzherbert, Wainuiomata	**Option 1** 136ha @ 1,925 units General Residential @ 400m² Medium Density @ 250m²	**Option 2** 136ha @ 1,294 units General Residential @ 500m²	**Option 3** No Change Rural-Residential or Place-Holder Zoning	**Qualitative Rating**
Objective 1: Increase housing supply, and improve housing affordability and choice				
KPI 1a: Feasible housing capacity - deficit vs demand (% increase of added households unaccommodated)	24%	16%	No change	Quantitative assessment: Higher is better
KPI 1b: Housing choice and variety - share of new dwellings that are terraced house and apartment	50%	50%	No change	Quantitative assessment: Higher is better
Score for Objective 1: To what extent does the urban development option increase housing supply, and improve housing affordability and choice?	**3**	**2**	**1**	Qualitative rating
Commentary	• The better scoring options have more housing growth in centres being a more favourable outcome towards supply and affordability. Centres are already offering urban amenity and jobs, so this makes it easy to live and work and minimizes travel costs. • Greenfield is easy to do and is easier to get supply constant and affordability can benefit where there is good supply. • Nodes offer an 'in between' amenity but may have less employment but could suit different demographic (older people for example). Extent of urban regeneration required in nodes will be influenced by the extent to which these nodes are places of choice to live. Some will be more attractive than others. Distribution of choices may thus be limited to some nodes more than others. Wholesale change to nodes will be needed to accommodate a large percentage of growth being in these areas. • Higher density rather than medium density is assumed to have a greater level of affordability associated with the per unit costs in established urban centres where the size and scale of unit construction can be supportive.			
Objective 2: Enable growth that protects and enhances the quality of the natural environment and accounts for a transition to a no/low carbon future				
KPI 2a: Total quantity of open space consumed for development (ha)	0	0	No change	Quantitative assessment: Lower is better
KPI 2b: Quantity of sensitive areas / biodiversity areas consumed for development (Natural forest proxy)	0	0	No change	Quantitative assessment: Lower is better
KPI 2c: Quantity of versatile rural land consumed for development (ha)	n/a	n/a	No change	Quantitative assessment: Lower is better
Score for Objective 2: To what extent does the urban development option enable growth that protects and enhances the quality of the natural environment and accounts for a transition to a low/no carbon future?	3	2	1	Qualitative rating based on outcomes (highest score can be 3)

Multi-criteria Anlyasis Score Upper Fitzherbert, Wainuiomata	**Option 1** 136ha @ 1,925 units General Residential @ 400m² Medium Density @ 250m²	**Option 2** 136ha @ 1,294 units General Residential @ 500m²	**Option 3** No Change Rural-Residential or Place-Holder Zoning	**Qualitative Rating**
Commentary	• Less potential for adverse effects on/loss of significant natural values (biodiversity, ecosystem function, ecosystem services and landscape values) under these greenfield-heavy options • Less carbon-intensive travel patterns under greenfield-heavy options as public and active transport options are developed; also, generally less emissions-intensive housing form and energy use as higher density is promoted. More intensive urban form likely to encourage development of public and active transport modes. • Strongest potential for restored/recreated communal green spaces in centres options. • High population densities with more people seeking active transport and recreation in neighbourhood will have health as well as low-emissions travel benefits if these opportunities are provided. • Local economic growth in nodes and village centres and concentrated demand for environmental quality generally enables better environmental protection and enhancement overall in region. • Some increase in employment and access to schooling and local services may lead to slightly lower car dependency.			
Objective 3: Improve access to and between housing, employment, education and services, utilising all multi-modal transport options				
KPI 3a: Public transport mode share during AM/PM peak (based on high frequency bus route)	**1.5**	**1**	-1	Quantitative assessment: Higher is better
KPI 3b: Average AM/pm peak vehicle speeds (km/hr)	1.5	1	0	Quantitative assessment: Higher is better
Score for Objective 3: To what extent does the urban development option improve multi modal access to and between housing, employment, education and services?	**3**	**2**	**-1**	Qualitative rating
Commentary	• Centres options present a much more compact city form and thus overall multi model access is likely to be easier to achieve. In many respects they are like nodes options - it offers similar levels of modal choice, but overall shorter commute times given development is largely within current urban limits. • High frequency public transport is proposed to service this area; and walking/cycling in order to give modal choice but also will require employment opportunities within the new centres to ensure the average commute times decrease.			
Objective 4: Encourage sustainable, resilience and affordable settlement patterns/urban for that make efficient use of existing infrastructure and resources				
KPI 4a: Share of household growth in areas expected to have water supply capacity in 2047 (%)	100%	100%	Existing levels of service	Quantitative assessment: Higher is better
KPI 4b: Share of AM/PM peak motorway travel subject to high frequency public transport (proxy for transport infrastructure constraints)	50%	50%	100%	Quantitative assessment: Lower is better
Score for Objective 4: To what extent does the urban development option encourage sustainable, resilient and affordable settlement patterns/urban form that make efficient use of existing infrastructure and resources?	**3**	**3**	**-1**	Qualitative rating

Multi-criteria Anlyasis Score Upper Fitzherbert, Wainuiomata	**Option 1** 136ha @ 1,925 units General Residential @ 400m² Medium Density @ 250m²	**Option 2** 136ha @ 1,294 units General Residential @ 500m²	**Option 3** No Change Rural-Residential or Place-Holder Zoning	**Qualitative Rating**
Commentary	• The options that score best are those that build from a base of urban patterns that have established in key centres and nodes. Nodal and centres-based development will also utilize existing infrastructure and potentially enable efficiencies in additional critical mass to support upgrades and renewals (including horizontal and community infrastructure). Centres have propensity to become walkable/compact and well serviced by transport which is efficient. • Greenfield that extends current infrastructure investments provided some affordability and can be sustainable/resilient etc. provided there is a control to this (will still need an urban development entity or some such). • Distribution to existing infrastructure corridors is positive - this is likely to be more efficient and sustainable. • The flatter land areas signaled can enable more flexible patterns of development (i.e. connectivity in form) which allows for better transport options and potentially re-subdivision longer term (adding to resilience and sustainability). • There is a strategic issue that the culture of what good urban is in NZ context will take some generations to change – living more shared lives, public spaces being streets and parks that you share comfortably with others, not owning your own house, using public transport, etc. are going to take time.			
Objective 5: Build climate change resilience and avoid increasing the impacts and risks of natural hazards				
KPI 5a: Population located in areas vulnerable to sea level rise	-1	0	No change	Quantitative assessment: Lower is better
KPI 5b: Employment located in areas vulnerable to sea level rise	-1	0	No change	Quantitative assessment: Lower is better
KPI 5c: Population located in areas vulnerable to earthquake hazards	2	2	No change	Quantitative assessment: Lower is better (Combimed earthquake hazard identified within Wainuiomata North resulting in high ground shaking & moderate liquefaction. Also Wainuiomata Road is the only access and at risk from slope failure during an earthquake and parts of Wainuiomata North)
KPI 5d: Employment located in areas vulnerable to earthquake hazards	1	1	No change	Quantitative assessment: Lower is better (earthquake risk and flood risks need to be quantified and assessed.
Score for Objective 5: To what extent does the urban development option build climate change resilience and avoid increasing the impacts and risks from natural hazards?	**2**	**2**	**0**	There is uncertainty on this assessment given the lack of information on natural hazards in this area. However, greenfield development can build in resilience to natural hazards through design and mitigation
Commentary	• Options that spread the development across several areas, enhancing adaptability over time score well. • Greenfield options that have more of the development achieved at areas not prone to climate change and other known natural hazards score higher. • Options with a dependence on centres which are subject to sea level rise, seismic and other hazards constrain infill development. Intensification exacerbates the current infrastructure limitations across the centres, especially for wastewater and stormwater going forward with sea level rise and rising groundwater. Greenfield options can be more resilient through specific design. • Smart development of work hubs dispersed across the region and greater working from home (given the public service and technology-based nature of the workforce) could alleviate travel movements along congested major connection corridors. • However, development in existing seismic hazard areas increase risk for those located there and place added pressures on lifelines and emergency services and cost of building for higher earthquake standards to be met.			
Objective 6: Create employment opportunities				
KPI 6a: Transport access to jobs (Waterloo Station) via car (time)	5 min (to commercial node)	13 min	13 min	Quantitative assessment: lower is better
KPI 6b: Transport access to jobs (Waterloo Station) via public transport (time)	22 min (likely to be lower)	22 min	No change	Quantitative assessment: lower is better

Multi-criteria Anlyasis Score Upper Fitzherbert, Wainuiomata	**Option 1** 136ha @ 1,925 units General Residential @ 400m² Medium Density @ 250m²	**Option 2** 136ha @ 1,294 units General Residential @ 500m²	**Option 3** No Change Rural-Residential or Place-Holder Zoning	**Qualitative Rating**
KPI 6c: Transport access to universities via car (time)	32min	32min	32 min	Quantitative assessment: Lower is better
KPI 6d: Transport access to universities via public transport (time)	1hr 12 min	1hr 12 min	No change	Quantitative assessment: Lower is better
KPI 6e: Transport access to hospitals via car (time)	18 min	18 min	No change	Quantitative assessment: Lower is better
KPI 6f: Transport access to hospitals via public transport (time)	42 min (likely to be lower)	42 min	No change	Quantitative assessment: Lower is better
Panel score for Objective 6: To what extent does the urban development option create employment opportunities?	**3**	**1**	**-3**	Qualitative rating (max score of 3) reflects planned high frequency public transport for Wainuiomata North
Commentary	• Jobs closer to where people live is a positive and connects well with impacts of COVID-19. • Government job disbursement is a sustainable and good outcome - more likely to drive development and attract other uses in locations that are not already established. • Diversity and intensify is viable within reason • Lower value costs associated with non-CBD options is likely to be attractive to employers looking to drive down costs of lease or ownership when workforce able to work more remotely. • Greenfield will be financially attractive to employers as lower rents but impact for region perhaps not ideal as will drive more commuters, onto roads and public transport. This could see an oversupply in greenfield and rather than 20 min commute, people could be travelling more to other locations crisscrossing the region. • Centres and nodes development combined option seems the most likely scenario to happen without a major shift in direction for the region			

	Alignment with mana whenua aspirations			
Mana Whenua Score	tbc	tbc	tbc	Qualitative rating
Commentary	• For any development option, mahitahi (partnership) is a key value for mana whenua. The Framework must demonstrate a commitment to best practice consultation and engagement processes, including iwi involvement at multiple levels such as individual plan changes, planning processes, freshwater management plans, and new greenfield development. • Developments must improve wellbeing holistically. Incorporating values from Te ao Māori in development options such as oranga (wellbeing), kaitiakitanga (guardianship), manaakitanga (generosity), and kotahitanga (unity) are important for achieving holistic wellbeing and improving health, education and prosperity outcomes for Māori. • Development in nodes protects high quality land and improves housing affordability/choice/density therefore supports aspirations to cater for the unique needs of the Maori population and lower income earners. • Employment and services closer to home is aligned with marae hubs health improving community access for Māori. • Risks of vulnerable Māori communities/ lower income earners disadvantaged by cost of living in centres dominant options. • Improving public transport to/from major centres contributes to improving affordable reliable transport in areas in the region with higher mana whenua populations. Reduces climate impacts and increases resilience (promotes values of transitioning fast to a low carbon economy). It also promotes aspirations around health gains from reducing car dependence, aligning with healthier community. • Improving transport and employment to the centers benefits both the population outside of centres and youthful Māori population who may choose living outside of papakāinga living. • Resilient infrastructure supports aspirations to protect the healthy functioning of ecosystems around infrastructure networks, contributes to iwi aspirations for freshwater outcomes. • Some areas densely populated with mana whenua iwi (Māori communities) need to be supported by infrastructure resilience measures and			

Multi-criteria Anlyasis Score Upper Fitzherbert, Wainuiomata	Option 1 136ha @ 1,925 units General Residential @ 400m² Medium Density @ 250m²	Option 2 136ha @ 1,294 units General Residential @ 500m²	Option 3 No Change Rural-Residential or Place-Holder Zoning	Qualitative Rating
	improved transport options.			

TOTAL MCA SCORE	Option 1	Option 2	Option 3	Qualitative rating
Average of the 6 scores (excludes mana whenua score which is tbc). Max score based on Wellington Regional Growth Framework Multi-Criteria Panel Assessment (see table below)	**2.9/3**	**2**	**-1**	Based on a structure plan development that supports high frequency public transport and mixed use development, this area scores highly for Option 1 resulting in considerable improvement over 30 years.

Wellington Regional Growth Framework Multi-criteria Panel Assessment	
Rating	Means
3	**Largely better** – provides a considerable amount of improvement over the Base Case, so that in 30 years' time there will be a noticeably improved difference in the region
2	**Moderately better -** provides somewhat of an improvement over the Base Case so that in 30 years' time change is noticeable but not to a large extent
1	**Slightly better** - provides some but hardly any improvement from the Base Case and will not be noticeably different over the 30 year period
0	**Neutral** no discernible or positive or negative difference from the Base Case
-1	**Slightly worse –** is hardly, but is still somewhat, worse than the Base Case over the 30 year period
-2	**Moderately worse –** is somewhat worse than the Base Case so that in 30 years' time negative change is noticeable but not to a large extent
-3	**Largely worse -** is considerably worse than the Base Case so that in 30 years time there will be a noticeable negative difference in the region

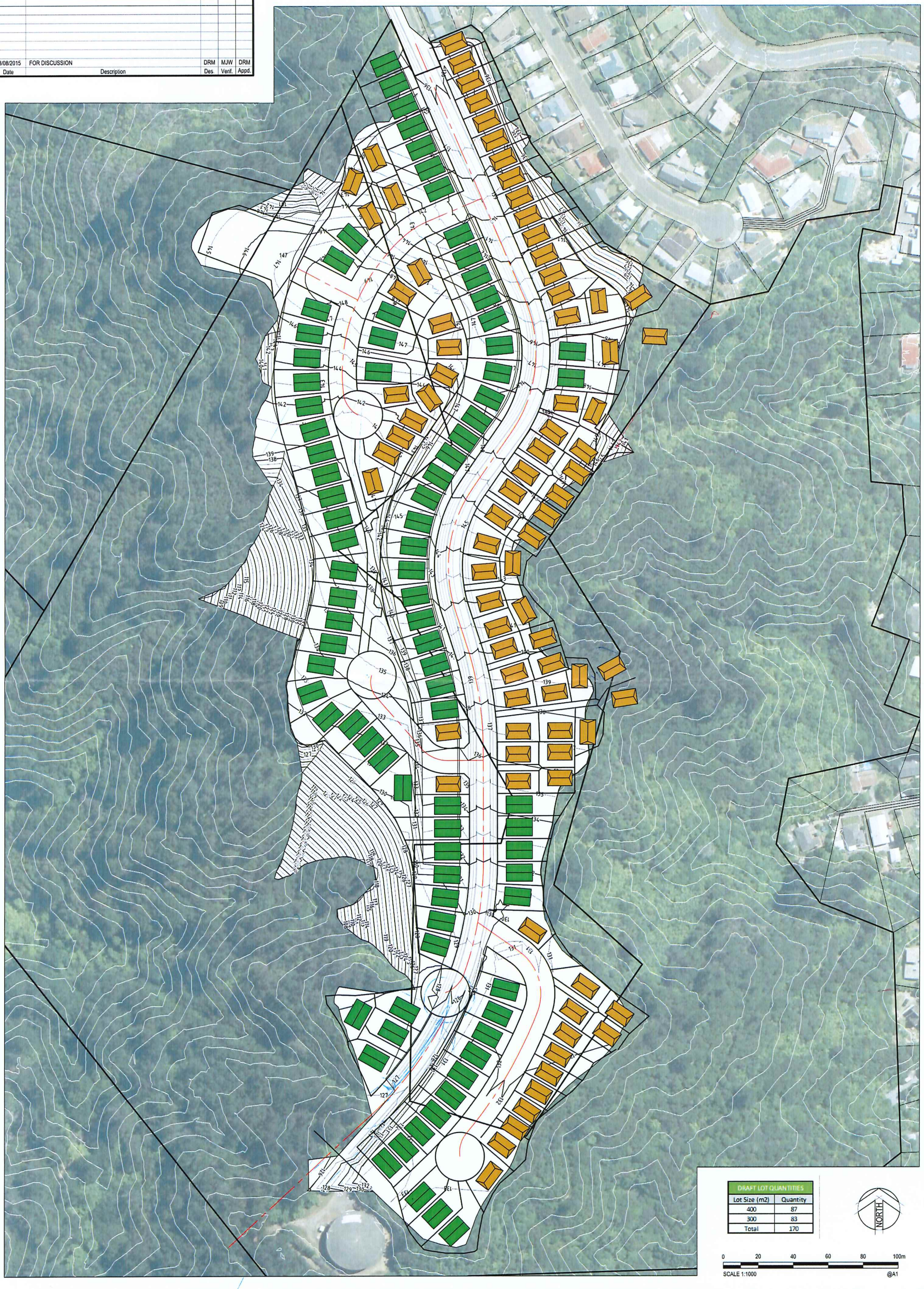
Source: Wellington Regional Growth Framework

APPENDIX 4: SHAFTESBURY GROVE, STOKES VALLEY

INDICATIVE SCHEMES & MCA SCORES

DATE PLOTTED: 28 August 2015 10:13 a.m. BY : MICHAEL WRIGHT

Rev.	Date	Description	Des.	Verif.	Appd.
1	28/08/2015	FOR DISCUSSION	DRM	MJW	DRM



DRAFT LOT QUANTITIES	
Lot Size (m2)	Quantity
400	87
300	83
Total	170

NORTH

0 20 40 60 80 100m

SCALE 1:1000 @A1

Cardno
Shaping the Future
Cardno (NZ) Limited
Level 5, IBM Building, 25 Victoria Street
Petone, Lower Hutt 5012
Tel: 04 478 0342
Web: www.cardno.co.nz

		Date
Drawn	MJW	28/08/2015
Checked	DRM	28/08/2015
Designed	DRM	28/08/2015
Verified	MJW	28/08/2015
Approved	RPEQ.	
	DRM	28/08/2015

Client: URBAN PLUS

Project: THE HEIGHTS
SHAFTESBURY GROVE
LOWER HUTT

Title: SCHEME PLAN
SHEET 1 OF 2

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Council Ref	Scale	Size
Wgtn2000		AS SHOWN	A1

Drawing Number: NZ0X15XXX-PL-C101

Revision: 1

XREFs: contours concept design; X-Contours-Ex; X-Boundaries External
CAD File: H:_2015\NZ0115148\Cad\NZ0115148-P100-SCHEME-01.dwg

Notes:

1. This plan has been prepared for the purpose of informing advice to Hutt City Council Greenfield Development Review only. It shall not be used for any other purpose without the express written approval of the author.
2. Site layout has been based on Design Reports prepared by Isthmus (Dec 18), Wildlands Contract Draft Report No 4350b and Cuttriss Consultants on behalf of the landowner.
3. The final density, lot and roading layout are subject to additional investigations, including but not limited to landscape, ecology, engineering and geotechnical assessments.
4. Contours shown have been derived from LiDAR information sourced from LINZ Data Service and are in terms of New Zealand Vertical Datum 2016.
5. Aerial photography shown has been sourced from LINZ Data Service
6. Lot Yield = 87 (average area 702m^2)

Legend:

- Proposed Reserve
- Significant Natural Resource Site (SNR)
- Potential Residential Zone

New sewer connection to existing sewer in Shaftesbury Grove for northern properties of development

New sewer connection to upgraded sewer line in Bird Grove for southern & central properties of development

Existing Shaftesbury Reservoir

Potential New Reservoir

Existing Shaftesbury Reservoir

Shaftesbury Grv

Fenchurch Grv

Logie St

N

20 10 0 20 40 60 m

PREPARED BY: LANDMATTERS	CLIENT: HUTT CITY COUNCIL	PROJECT: GREENFIELD REDEVELOPMENT - PHASE 2	DRAWING TITLE: SHAFTESBURY OPTION 2

DATE 20/07/2023 | PROJECT NO. 985

SCALE 1:1000 @ A1, 1:2000@ A3

DRAWING NO. 860-SB-1 | REV -

C:\12dS\data\LM-DATA\985 - Greenfield Redevelopment - Phase 2_1097\10 Plans, Aerials, CAD\Shaftesbury\Shaftesbury.dwg, Plotted by Ben Negus at 20/07/2023 10:29:11 am

Multi-criteria Anlyasis Score Shaftesbury Grove, Stokes Valley	**Option 1** 186 units General Residential 300m² – 400m²	**Option 2** 136 units General Residential 300m² – 400m²	**Option 3** No Change Rural-Residential 2ha	**Qualitative Rating**
Objective 1: Increase housing supply, and improve housing affordability and choice				
KPI 1a: Feasible housing capacity - deficit vs demand (% of added households unaccommodated)	2%	2%	Limited	Quantitative assessment: Higher is better
KPI 1b: Housing choice and variety - share of new dwellings that are terraced house and apartment	25%	0%	None	Quantitative assessment: Higher is better
Score for Objective 1: To what extent does the urban development option increase housing supply, and improve housing affordability and choice?	**2**	**2**	**-1**	Qualitative rating
Commentary	• The better scoring options have more housing growth located in or near centres with a more favourable outcome towards supply and affordability. Centres are already offering urban amenity and jobs, so this makes it easy to live and work and minimizes travel costs. • The site is within a walkable catchment to the local shopping area including supermarket and community hub, early childhood education, medical centre and high frequency bus route. More direct access from the site would further reduce walking times.			
Objective 2: Enable growth that protects and enhances the quality of the natural environment and accounts for a transition to a no/low carbon future				
KPI 2a: Total quantity of open space consumed for development (ha)	More	Less	No change	Quantitative assessment: Lower is better
KPI 2b: Quantity of sensitive areas / biodiversity areas consumed for development (Natural forest proxy)	Lower	Higher	n/a	Quantitative assessment: Lower is better
KPI 2c: Quantity of versatile rural land consumed for development (ha)	None	None	n/a	Quantitative assessment: Lower is better
KPI 2d: Total quantity of greenhouse gas emissions from transport (calculated from total vehicle kms travelled) (tonnes/year) to local shops (super market, bus stop etc – Koraunui Stokes Valley commercial area	18min walking	18 mins walking	N/a	Quantitative assessment: Lower is better (based on access to high frequency public transport hubs)
Score for Objective 2: To what extent does the urban development option enable growth that protects and enhances the quality of the natural environment and accounts for a transition to a low/no carbon future?	**1**	**1**	**0**	Qualitative rating
Commentary	• Greater potential for adverse effects on/loss of significant natural values (biodiversity, ecosystem function, ecosystem services and landscape values) under higher density options • Options for protection of slopes through enhancement of regenerating indigenous vegetation exist • Potential for recreational opportunities connecting through to the reservoir area and beyond			

Multi-criteria Anlyasis Score Shaftesbury Grove, Stokes Valley	**Option 1** 186 units General Residential 300m² – 400m²	**Option 2** 136 units General Residential 300m² – 400m²	**Option 3** No Change Rural-Residential 2ha	**Qualitative Rating**
Objective 3: Improve access to and between housing, employment, education and services, utilising all multi-modal transport options				
KPI 3a: Public transport mode share during AM/PM peak to Silverstream Railway Station	31 min	31 min	n/a	Quantitative assessment: Higher is better
KPI 3b: Average AM/PM peak vehicle speeds (km/hr)	8 min	8 min	n/a	Quantitative assessment: Higher is better
Panel score for Objective 3: To what extent does the urban development option improve multi modal access to and between housing, employment, education and services?	**1**	**1**	**0**	Qualitative rating
Commentary	• Growth in this area will not necessarily place additional demand on private vehicle use provided high frequency public transport options are provided for in Stokes Valley as projected • The greenfield options depend not only on investment in high levels of service for high frequency bus soutes and access to railway stations via public transport; but also for walking/cycling opportunities (particularly down to the Stokes Valley commercial area) in order to give modal choice but also will require employment opportunities within the new centres to ensure the average commute times decrease.			
Objective 4: Encourage sustainable, resilience and affordable settlement patterns/urban for that make efficient use of existing infrastructure and resources				
KPI 4a: Share of household growth in areas expected to have water supply capacity in 2047 (%)	100%	100%	n/a	Quantitative assessment: Higher is better
KPI 4b: Share of AM/PM estimated peak motorway travel	Assume 25% - 100%	Assume 25% - 100%	n/a	Quantitative assessment: Lower is better
Panel score for Objective 4: To what extent does the urban development option encourage sustainable, resilient and affordable settlement patterns/urban form that make efficient use of existing infrastructure and resources?	**2**	**1**	**0**	Qualitative rating
Commentary	• The options that score best are those that build from a base of urban patterns that have established in key centres and nodes. Nodal and centres-based development will also utilize existing infrastructure and potentially enable efficiencies in additional critical mass to support upgrades and renewals (including horizontal and community infrastructure). Centres have propensity to become walkable/compact and well serviced by transport which is efficient. • Greenfield that extends current infrastructure investments provided some affordability and can be sustainable/resilient etc. provided there is a control to this (will still need an urban development entity or some such). • Distribution to existing infrastructure corridors is positive - this is likely to be more efficient and sustainable. • The flatter land areas signaled can enable more flexible patterns of development (i.e. connectivity in form) which allows for better transport options and potentially re-subdivision longer term (adding to resilience and sustainability). • There is a strategic issue that the culture of what good urban is in NZ context will take some generations to change – living more shared lives, public spaces being streets and parks that you share comfortably with others, not owning your own house, using public transport,			

Multi-criteria Anlyasis Score Shaftesbury Grove, Stokes Valley	**Option 1** 186 units General Residential 300m² – 400m²	**Option 2** 136 units General Residential 300m² – 400m²	**Option 3** No Change Rural-Residential 2ha	**Qualitative Rating**
	etc. are going to take time.			
Objective 5: Build climate change resilience and avoid increasing the impacts and risks of natural hazards				
KPI 5a: Population located in areas vulnerable to sea level rise	No	No	n/a	Quantitative assessment: Lower is better
KPI 5b: Employment located in areas vulnerable to sea level rise	n/a	n/a	n/a	Quantitative assessment: Lower is better
KPI 5c: Population located in areas vulnerable to earthquake hazards	Slightly higher vulnerable	Less vulnerable	n/a	Quantitative assessment: Lower is better
KPI 5d: Employment located in areas vulnerable to earthquake hazards	n/a	n/a	n/a	Quantitative assessment: Lower is better
Panel score for Objective 5: To what extent does the urban development option build climate change resilience and avoid increasing the impacts and risks from natural hazards?	**1**	**1**	**0**	Qualitative rating
Commentary	• Options that spread the development across several areas, enhancing adaptability over time score well. • Greenfield options that have more of the development achieved at areas not prone to climate change and hazards score higher. • Options with a dependence on centres have all the negative impacts from sea level rise, seismic and other hazards constraining development going forward. Intensification exacerbates the current infrastructure limitations across the centres, especially for wastewater and stormwater going forward with sea level rise and rising groundwater. • Smart development of work hubs dispersed across the region and greater working from home (given the public service and technology-based nature of the workforce) could alleviate travel movements along this corridor. • Development in existing seismic hazard areas increase risk for those located there and place added pressures on lifelines and emergency services and cost of building for higher earthquake standards to be met.			
Objective 6: Create employment opportunities				
KPI 6a: Transport access to jobs via car				Quantitative assessment: Higher is better
KPI 6b: Transport access to jobs via PT				Quantitative assessment: Higher is better
KPI 6c: Transport access to universities via car				Quantitative assessment: Higher is better
KPI 6d: Transport access to universities via PT				Quantitative assessment: Higher is better

Multi-criteria Anlyasis Score Shaftesbury Grove, Stokes Valley	**Option 1** 186 units General Residential 300m² – 400m²	**Option 2** 136 units General Residential 300m² – 400m²	**Option 3** No Change Rural-Residential 2ha	**Qualitative Rating**
KPI 6e: Transport access to hospitals via car				Quantitative assessment: Higher is better
KPI 6f: Transport access to hospitals via PT				Quantitative assessment: Higher is better
Panel score for Objective 6: To what extent does the urban development option create employment opportunities?	**0**	**0**	**0**	Qualitative rating
Commentary	• Jobs closer to where people live is a positive and connects well with impacts of COVID-19. • Government job disbursement is a sustainable and good outcome - more likely to drive development and attract other uses in locations that are not already established. • Diversity and intensify is viable within reason • Lower value costs associated with non-CBD options is likely to be attractive to employers looking to drive down costs of lease or ownership when workforce able to work more remotely. • Greenfield will be financially attractive to employers as lower rents but impact for region perhaps not ideal as will drive more commuters, onto roads and public transport. This could see an oversupply in greenfield and rather than 20 min commute, people could be travelling more to other locations crisscrossing the region. • Centres and nodes development combined option seems the most likely scenario to happen without a major shift in direction for the region.			
Alignment with mana whenua aspirations				
Mana Whenua Score	TBC			Qualitative rating
Commentary	• For any development option, mahitahi (partnership) is a key value for mana whenua. The Framework must demonstrate a commitment to best practice consultation and engagement processes, including iwi involvement at multiple levels such as individual plan changes, planning processes, freshwater management plans, and new greenfield development. • Developments must improve wellbeing holistically. Incorporating values from Te ao Māori in development options such as oranga (wellbeing), kaitiakitanga (guardianship), manaakitanga (generosity), and kotahitanga (unity) are important for achieving holistic wellbeing and improving health, education and prosperity outcomes for Māori. • Development in nodes protects high quality land and improves housing affordability/choice/density therefore supports aspirations to cater for the unique needs of the Maori population and lower income earners. • Employment and services closer to home is aligned with marae hubs health improving community access for Māori. • Risks of vulnerable Māori communities/ lower income earners disadvantaged by cost of living in centres dominant options. • Improving public transport to/from major centres contributes to improving affordable reliable transport in areas in the region with higher mana whenua populations. Reduces climate impacts and increases resilience (promotes values of transitioning fast to a low carbon economy). It also promotes aspirations around health gains from reducing car dependence, aligning with healthier community. • Improving transport and employment to the centers benefits both the population outside of centres and youthful Māori population who			

Multi-criteria Anlyasis Score Shaftesbury Grove, Stokes Valley	**Option 1** 186 units General Residential 300m² – 400m²	**Option 2** 136 units General Residential 300m² – 400m²	**Option 3** No Change Rural-Residential 2ha	**Qualitative Rating**
	may choose living outside of papakāinga living. • Resilient infrastructure supports aspirations to protect the healthy functioning of ecosystems around infrastructure networks, contributes to iwi aspirations for freshwater outcomes. • Some areas densely populated with mana whenua iwi (Māori communities) need to be supported by infrastructure resilience measures and improved transport options.			

TOTAL MCA SCORE	**Option 1**	**Option 2**	**Option 3**	**Qualitative rating**
Average of the 6 scores (excludes mana whenua score which is tbc). Max score based on Wellington Regional Growth Framework Multi-Criteria Panel Assessment (see table below)	**1.2**	**1**	**-1**	Based on a structure plan development that supports high frequency public transport and mixed use development, this area scores highly for Option 1 resulting in considerable improvement over 30 years.

Wellington Regional Growth Framework Multi-criteria Panel Assessment	
Rating	Means
3	**Largely better** – provides a considerable amount of improvement over the Base Case, so that in 30 years' time there will be a noticeably improved difference in the region
2	**Moderately better -** provides somewhat of an improvement over the Base Case so that in 30 years' time change is noticeable but not to a large extent
1	**Slightly better** - provides some but hardly any improvement from the Base Case and will not be noticeably different over the 30 year period
0	**Neutral** no discernible or positive or negative difference from the Base Case
-1	**Slightly worse –** is hardly, but is still somewhat, worse than the Base Case over the 30 year period
-2	**Moderately worse –** is somewhat worse than the Base Case so that in 30 years' time negative change is noticeable but not to a large extent
-3	**Largely worse -** is considerably worse than the Base Case so that in 30 years time there will be a noticeable negative difference in the region

Source: Wellington Regional Growth Framework

LANDMATTERS

www.landmattersnz.com