URBAN DESIGN REPORT

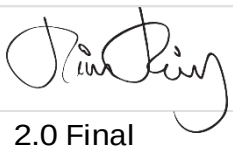
O'HARA

WAIUKU PLAN CHANGE

for

The Gardon Trust

commonground STUDIO

APPROVED FOR ISSUE:	
Author	Tim King
Position	Design Director - Urban Design, Landscape
Signature	
Version/Status	2.0 Final
Checked	tk
Date	7 March 2022
For and on behalf of Common Ground Studio Ltd	

commonground STUDIO

Tel 09 302 2200 | 72 Beulah Ave, Rothesay Bay, Auckland 0630 | cgstudio.co.nz

CONTENTS

PREFACE

PREFACE

1. INTRODUCTION

1.1. THE REPORT

This report is in support of the Plan Change (PC) for a zone change from Mixed Rural to Mixed Housing – Urban of 45a, 92 and 130 Constable Road, Waiuku.

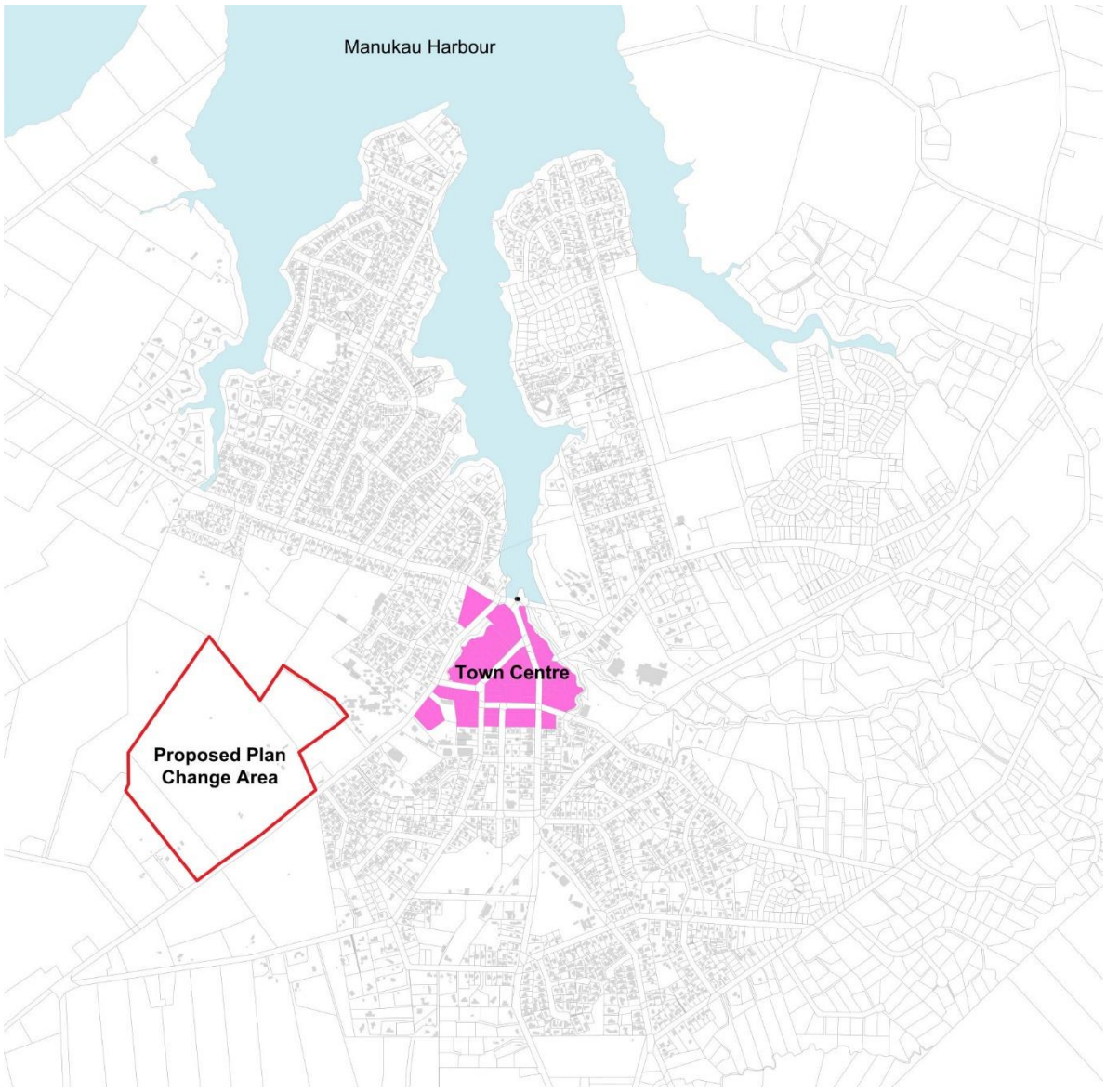


Figure 1-1 Proposed Plan Change area in relation to Waiuku

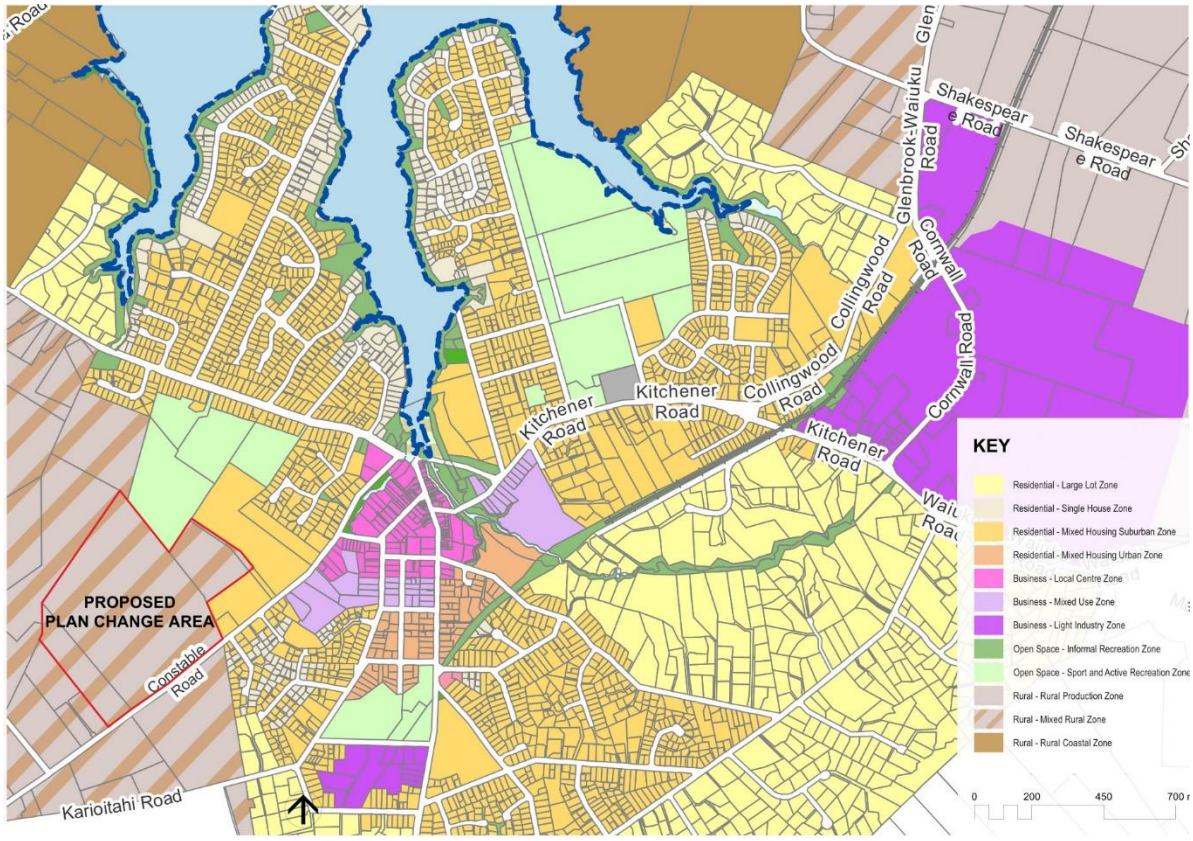


Figure 1-2 Auckland Unitary Plan existing zones

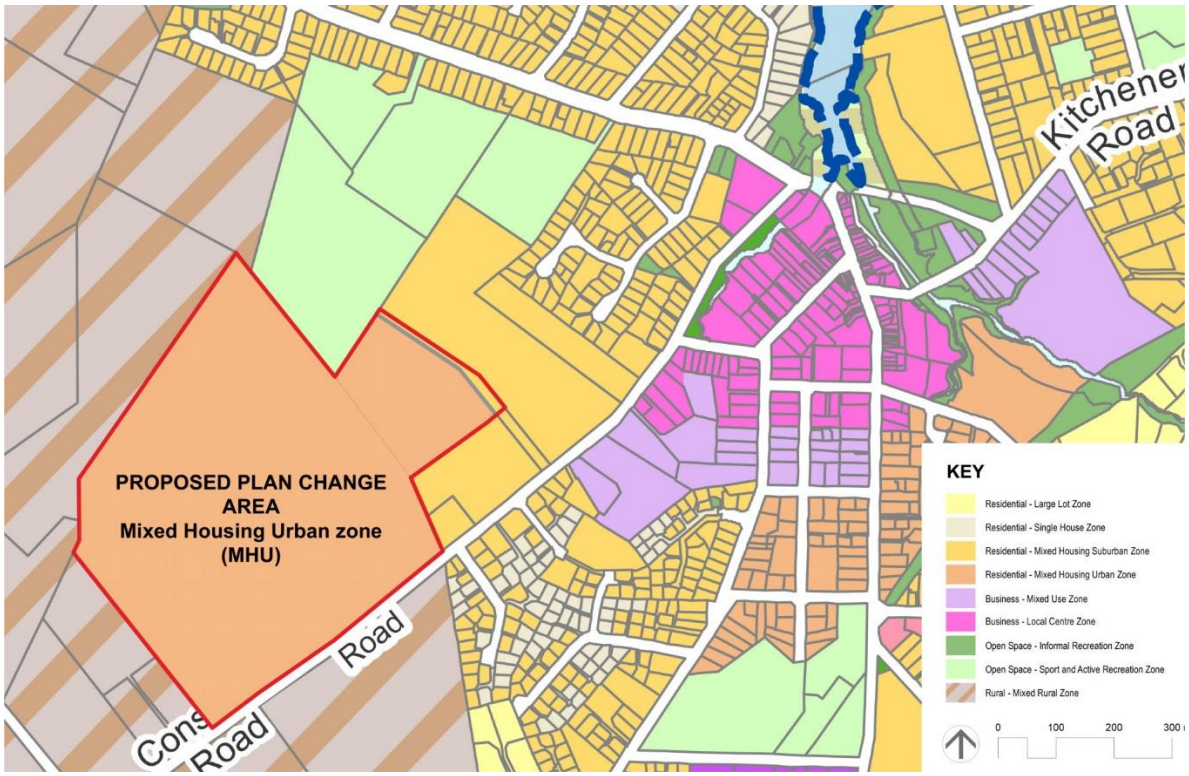


Figure 1-3 Auckland Unitary Plan proposed zone

The report accepts a priori the Urban Economics Benefit-Cost Analysis Report regarding the projected population growth of Waiuku township and its surrounds. It also accepts the Urban

Economics findings regarding the nature and extent of housing demand in the area and the shortage of residential land available to accommodate growth.

This report briefly considers urban context and argues why the properties included in the proposed Plan Change are the best placed to absorb residential growth in Waiuku. More importantly, it explores 'how' that housing should be delivered. It argues that Waiuku is different from the surrounding towns in many ways, and that those differences of character and economy are strengths that should be protected.

The Report provides some analysis of issues/ short-comings in the present form and amenity of the town, and shows how residential development of the PC area provides opportunities to not only solve those issues but also add considerable value to existing community assets.

Finally, a provisional Urban Design Concept is put forward that tests the claims and arguments put forward in the report. This design also provides substantive and realistic baseline data to test the effects of the Plan Change.

1.2. REPORT FORMAT

The report is structured in four sections.

PART 1

This section identifies a wide contextual base for the PC in terms of the nature and identity of the area. This defines all the matters that a subdivision design should respond to. It is comprised of six short context chapters:

- Wide Urban Context
- Physical Nature
- History
- Economy
- Built Form
- Character and Lifestyle

PART 2

Following are three chapters that consider the immediate physical and urban context of the PC area. They justify the PC area as the most suitable place to absorb growth in Waiuku and identify existing issues for which development on these sites could provide solutions.

PART 3

This sections puts forward an outline development plan and a demonstration subdivision design for the PC area as a response to all the matters of identity raised in Part 1 and the urban form issues from Part 2. While not required for the PC application, it reveals in more tangible terms the urban design principles and opportunities referred to in Part 2. It is also a feasible design response encompassing features and values with which the applicant wishes to proceed. It enables an accurate determination of a realistic yield from which to calculate environmental effects and provides a framework for the engineers to assess any potential mitigation requirement.

PART 4

The final section is an Appendix consisting of full page and scaled versions of the Plan Change and scheme plans included in the body of the report.

Part 1

2. CONTEXT

2.1. WIDE URBAN CONTEXT

Waiuku is a medium-sized rural town situated on the Waiuku River at the southern end of the Manukau Harbour. Usually categorised as a rural service town, the size of its catchment, its geography, and its position mark it as having quite a different character and function to the other rural settlements in Auckland's southwest (Pukekohe, Tuakau, Pokeno and Patamahoe).

The catchment map illustrates the hard boundaries and inferred edges between the main community catchments of the south-west.

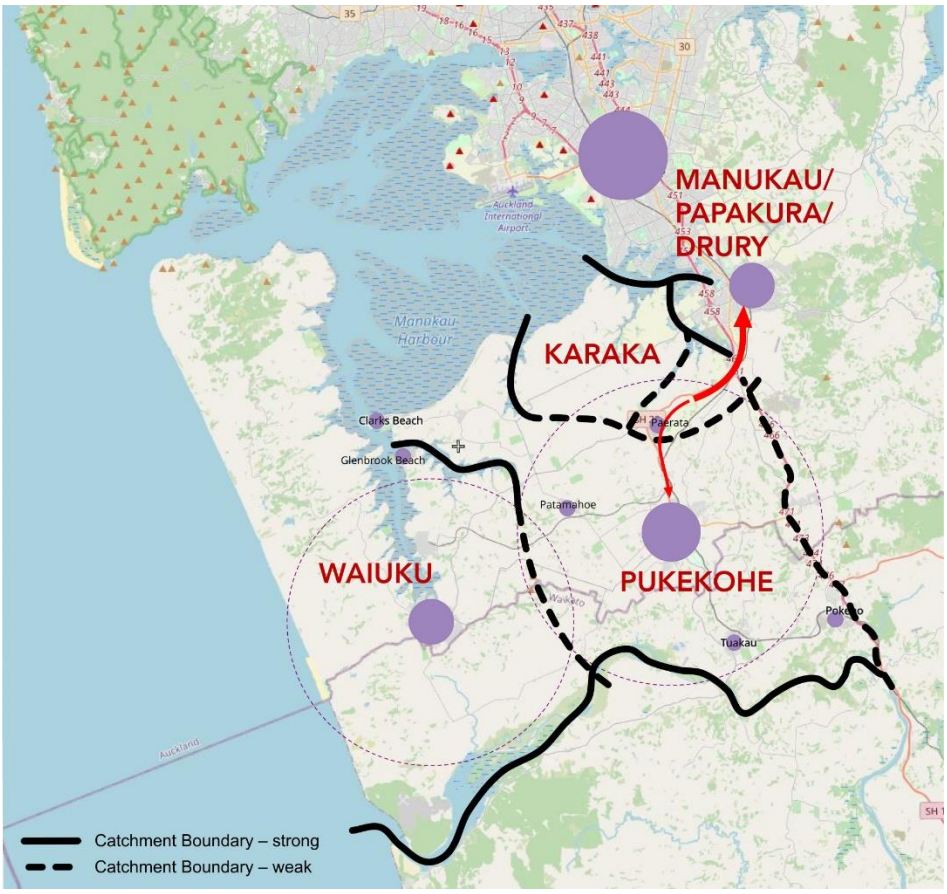


Figure 2-1 District Catchments

Waiuku is the largest catchment with a serviced population of about 20,000 – more than double that of the town itself.

Geologically it is much more varied than the neighbouring areas. It has two coastal edges – a rugged ocean side to the west and a gentle, heavily indented estuarine and inner harbour edge to the east.

2.2. FAMILIAL RELATIONS

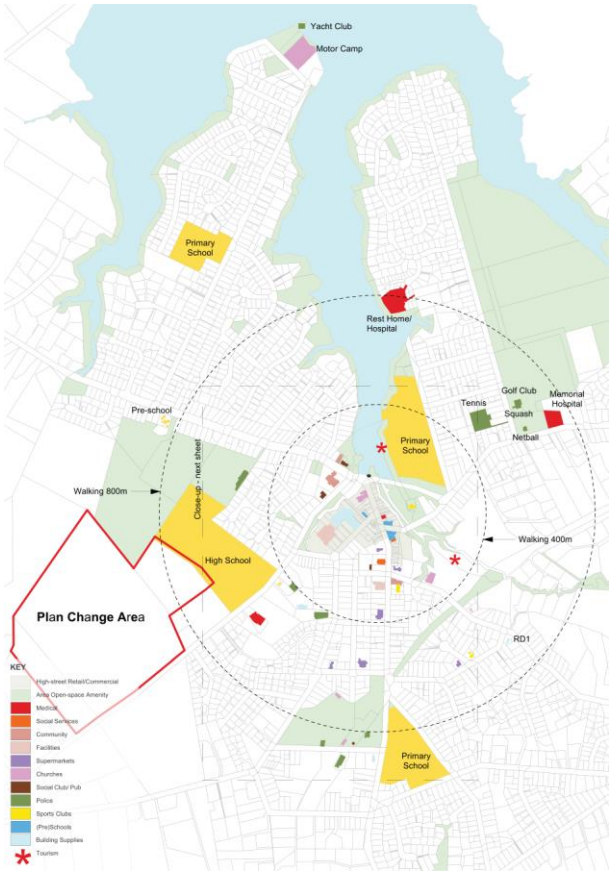
It is usual to sort settlements into familial relationships as a way of understanding their identity; every town (or even suburb) has a parent that will supply larger and less often-used services just as the town will supply services to smaller child communities in its vicinity. The more remote a settlement and the more strongly defined its catchment boundaries, the more independent and complete its economy and the more distinct its identity.

Proximity to the Auckland urban area of the south-west communities other than Waiuku mean that they are increasingly becoming extensions of the Auckland urban area. Manukau is a dominant attractor, and has already drawn in Papakura and Drury. The almost non-existent boundary between Karaka and this group strengthens the pull to the north.

The Pahurehure Inlet and the associated confluence of three streams has forced connectivity between the region and the Manukau/ Papakura/ Drury group to link further south and more directly with Pukekohe. The weakness of any boundary between the rural south and 'town' has been made worse by the planning decision to extend the urban corridor with extensive development at Paerata. The effect of this will be for Pukekohe to be ultimately absorbed into Auckland's outer southern suburbs. Its identity, meaning and function eventually will become subservient to the 'parent'.

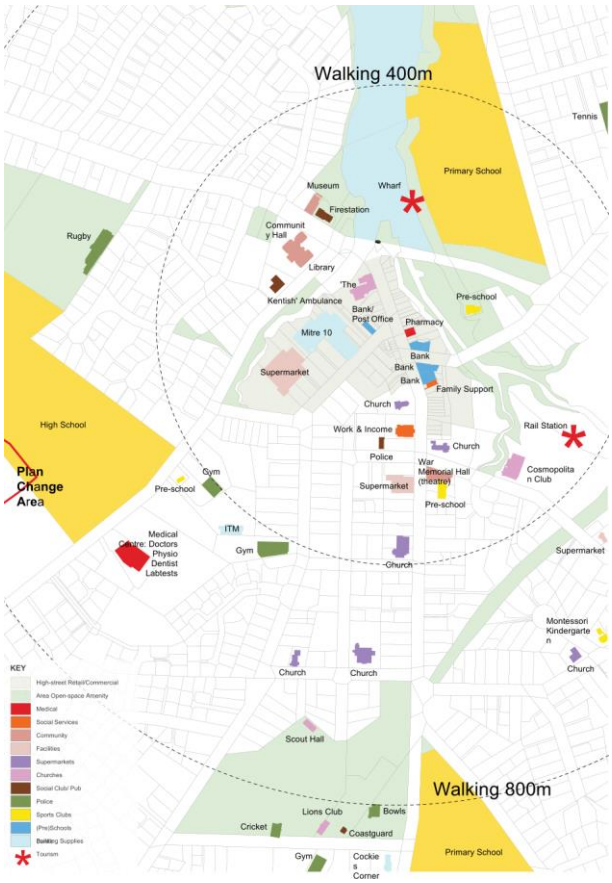
Even without being absorbed in this way, rural towns tend to decline in general when more proximal to larger urban attractors (eg Ngaruawahia in relation to Hamilton, Tirau in relation to Cambridge).

Waiuku on the other hand is a terminus catchment positioned out to the side of the other communities. At its northern end, although Auckland is just a short dinghy ride across the harbour, realistic access by car makes nearly as far from the Auckland CBD as is Hamilton. Its isolation and distinct natural environment set it apart from the other south-west settlements.



This means it is more inclined to develop facilities and services that make it more self-sufficient and to develop characteristics that are different to its neighbours. Identity is strengthened through the expression of these differences. Raglan is a good example of a similar town where all these matters apply and have produced a very distinct, robust and vigorous community.

Pukekohe is not large or dominant enough to significantly bleed Waiuku across their weak shared boundary, and its influence will only decrease as it strengthens its relationship with Manukau and the other catchments to the north. Isolation and distance weakens the Waiuku/ Manukau relationship, to the extent that Waiuku residents tend to identify the much stronger attractors of the Auckland CBD and Sylvia Park as their natural parent.



The Trip Generation and Expected Mode Share data included in the Integrated Transport Assessment (ITA) by Parlane & Associates supports the view of Waiuku being more self-sufficient than its neighbours. For the population of Waiuku itself, it cites over half the work destinations being within or very close to Waiuku. The population of the whole catchment is double that of the town. As it is a farming community and trips into Waiuku are not included as trips to work, it can be assumed that the real live/work/play travel percentage is considerably higher than 50%. To add to this, the ITA also notes that if the closest employment hubs outside the Waiuku catchment are included, then work destination trips from the town rise from half to over three quarters.

Figure 2-2 Community Infrastructure

2.3. NATURAL IDENTITY

The bulk of the catchment area is a consistent landscape (the Awhitu Peninsula) from the Manukau Heads down to the Waikato River mouth. It is an old (about 1 million yrs) and high (about 100m) active dune system, material being supplied by the central North Island volcanic area and Mt Taranaki.

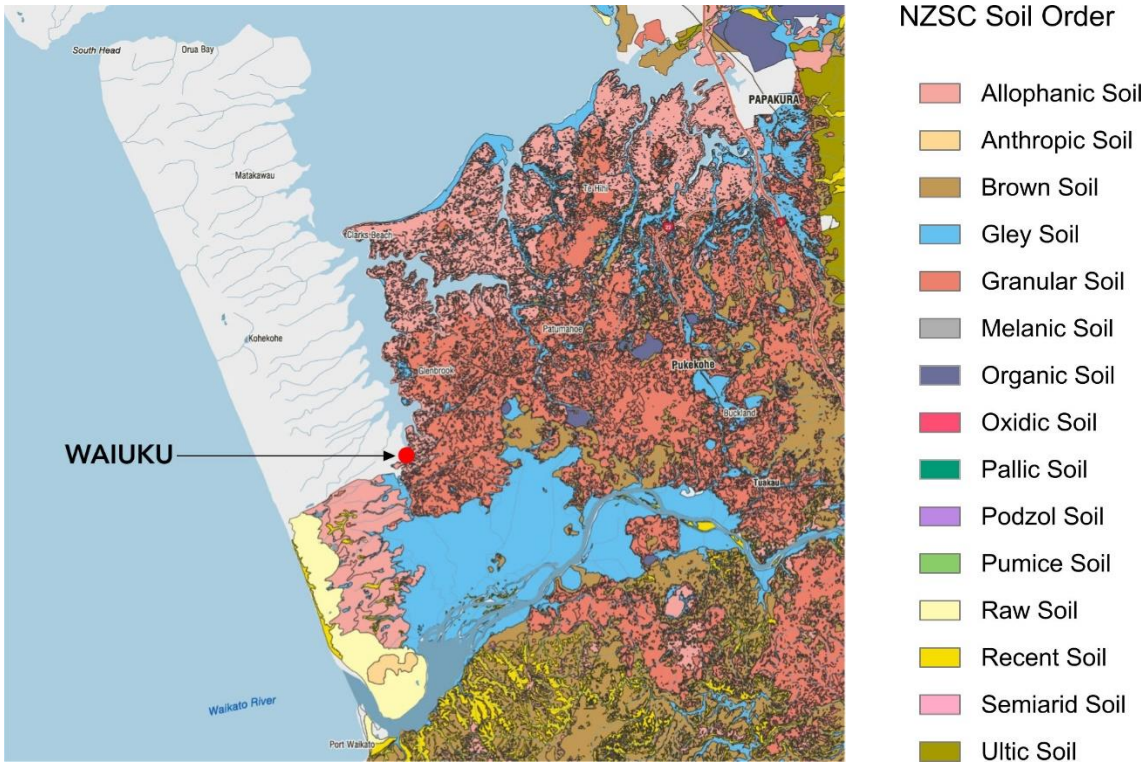


Figure 2-3 District Soil Map

Less than a quarter of the catchment area is made up of weathered volcanic rock and ash similar to the highly fertile soils around Pukekohe. A smaller area again in the south-east is comprised of Gley soils, low-lying Waikato River deposits having poor drainage. The heterogenous nature of soil type and typography has attracted productive agricultural uses more mixed, and not as intense, as those of its close neighbours.

Pre-European, the peninsula was covered by one of the largest Pohutukawa forests in New Zealand, small remnants of which can still be seen on some steep south facing slopes towards the top of the peninsula.

2.4. HISTORY

Agriculture has been at the heart of activity in the area for both Ngati Te Ata and European settlers over the last 200 years at least. Even the Waiuku origin legend has a cultivator, Tamakae, winning the hand of a high-ranking Waikato chieftainess over his orator brother Tamakou.

The area between the Waikato River and Waiuku was an important portage for Tainui for shipping food produced in the Waikato to Australia and Auckland. This trade was largely responsible for the early growth of the town in its present position. Physical evidence of these trading post origins are still in existence eg the Kentish Hotel.

Waiuku was formally marked out as a town in 1851.

The Waikato Wars (1863—4) put an end to the trading post being the primary driver for identity and economic growth, and from then it developed as an independent rural-based settlement.

The Glenbrook Steel Mill and sand mining enriched the economic make-up of the area from the mid 1960's, but not to the extent that its rural nature has been diminished.

Tourism, encouraged by advanced telecommunications and improved road access has been opening up the area to a largely Auckland market over the last few decades.

2.5. COMMERCE

Primary production and the servicing of the agricultural sector are still the mainstay of the local economy. In part due to its isolation, the breadth and strength of this service industry is greater than would be expected for a small rural town of this size. But this is also because the economic base of the area is more varied than its neighbours, including:

- Heavy engineering/ manufacturing (Glenbrook steel mill)
- Resource extraction (sand mining)
- Forestry
- Tourism

The roundness and health of the area economy as a whole is evidenced by the full tenancy and activity of the town centre itself.

2.6. CHARACTER AND LIFESTYLE

Waiuku residents see themselves as different to 'Aucklanders'. Their district is where they live and work, and it provides them most of what they need for play. They see Aucklanders coming into their district for eg the regional park, or to own a bach, and it affirms their perception that most of what they need themselves can be found locally. The extent that live-work-play are connected is expressed in their feelings of self-sufficiency and attitudes of independence.

The same independence of attitude and lifestyle is more marked in Raglan, for example, where it is exaggerated by the degree of geographical isolation. In the less isolated Waiuku this has yet to

spill over into the built environment, but as the local tourism economy strengthens, a local and more unique identity can be expected to strengthen alongside it.

2.7. BUILT ENVIRONMENT

The egalitarian nature of the Waiuku community and its prosaic concerns is reflected in the built form of the town and district; modest structures, fairly homogenous and pragmatic in form, no ostentation and frivolity. Apart from farmhouses and farm utility buildings, there are three main settlement types.

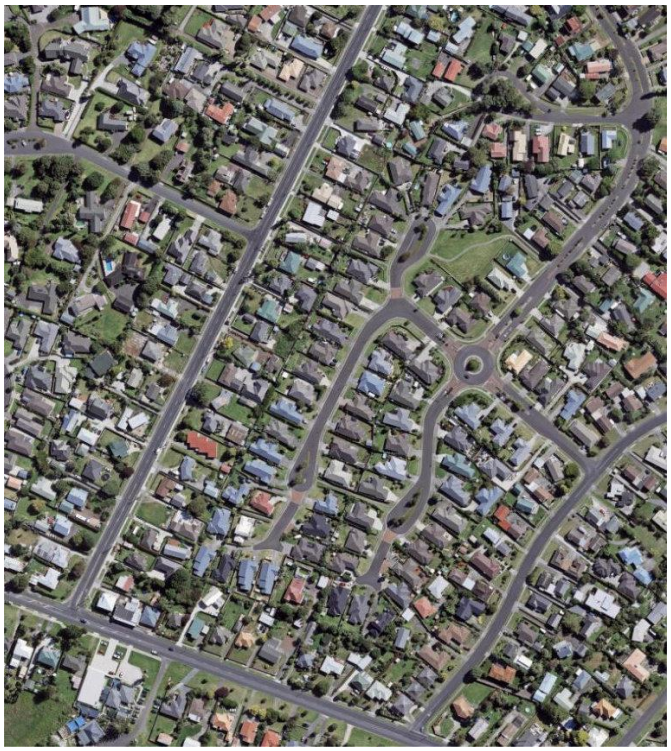


Figure 2-4 Typical suburban pattern

The suburban pattern of the town is fairly traditional for New Zealand with mostly large and badly connected blocks, front loaded lots of a range of sizes (300—1,000m^2), many rear lots and some infill housing. This pattern also applies to the new subdivision at Glenbrook.

The second pattern is similar, though much simpler and less extensive with lot sizes at the larger end of the spectrum. It is found in a string of small bach/ seaside settlements distributed around the harbour shoreline:

- Te Toru
- Awhitu
- Brook Road
- Grahams Beach
- Big Bay
- Orua Bay

Houses here are not necessarily smaller than in town, but are obviously less ornamented, and this applies particularly to site landscaping.

Figure 2-5 Typical bach settlement pattern

The third pattern is the Large-lot Residential Zone that constitutes over 30% of the residential area of Waiuku township. Houses typically have much larger footprints with many 'rear' lots having no road frontage.

Figure 2-6 Typical large-lot pattern

PART 2

3. LANDSCAPE

3.1. SHAPE

Landscapes and townscapes are most legible, more efficient and environmental management made easier when topography and built-form align. New development, especially greenfields subdivision, should as much as possible complete the build-out of landforms already containing development.

3.2. LANDFORM

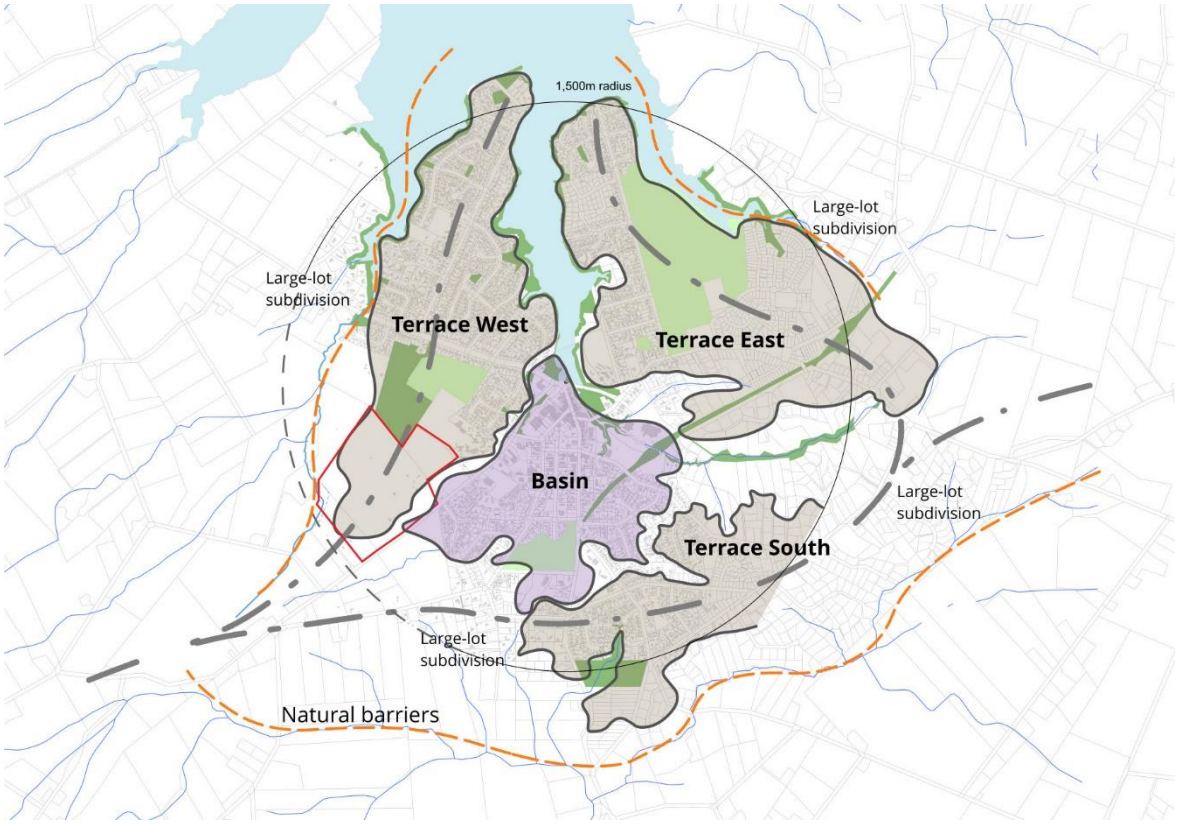


Figure 3-1 Waiuku town landforms

Waiuku is distributed across and contained within well-defined topographical forms.

The commercial town centre and older residential area sit in a basin that meets the harbour at its northern end. The basin is contained by three connected platforms or 'terraces' – a main east–

west ridge to the south and two encircling arms either side that extend as peninsulas into the harbour.

Contours suggest that the escarpment edge to the terrace forms is the former shoreline from the last interglacial period (c120,000 bp), the basin having been an enclosed shallow bay with a narrow channel to the harbour proper.

A 1,500m diameter circle centred on the heart of the town at the King/ Queen/ Constable Road intersection contains nearly all of these landforms and includes all of the existing suburban area.

Large-lot subdivision provides an effective edge and barrier for residential growth at suburban-intensity beyond most edges of the circle except the south-west quadrant. In addition, three streams and their harbour inlets provide moderate topographic barriers to development and are identified on the map by orange dashed lines.

Within the circle, the only land capable of absorbing a meaningful amount of residential development and also contained by topographic boundaries is the southern third of the west terrace landform. The proposed PC boundary covers approximately two thirds of this area.

3.3. GATEWAY

Identity, expression and legibility are all enhanced the stronger the contrast and the more coincident the boundaries and edges. The gateway created when an urban edge is marked in this way is also a strong barrier to the sprawl of inappropriate development.

Halfway along the Constable Road boundary of the PC area the escarpment that defines the town side of the west terrace crosses the road to enclose the basin formation. At this point the road rises up the escarpment and is squeezed through a narrow road cutting before the landscape opens out into the rural area proper. Coming into Waiuku from the opposite direction the effect is just as marked; the rural environment suddenly opens up to a full view of the town basin as you break through the cutting.

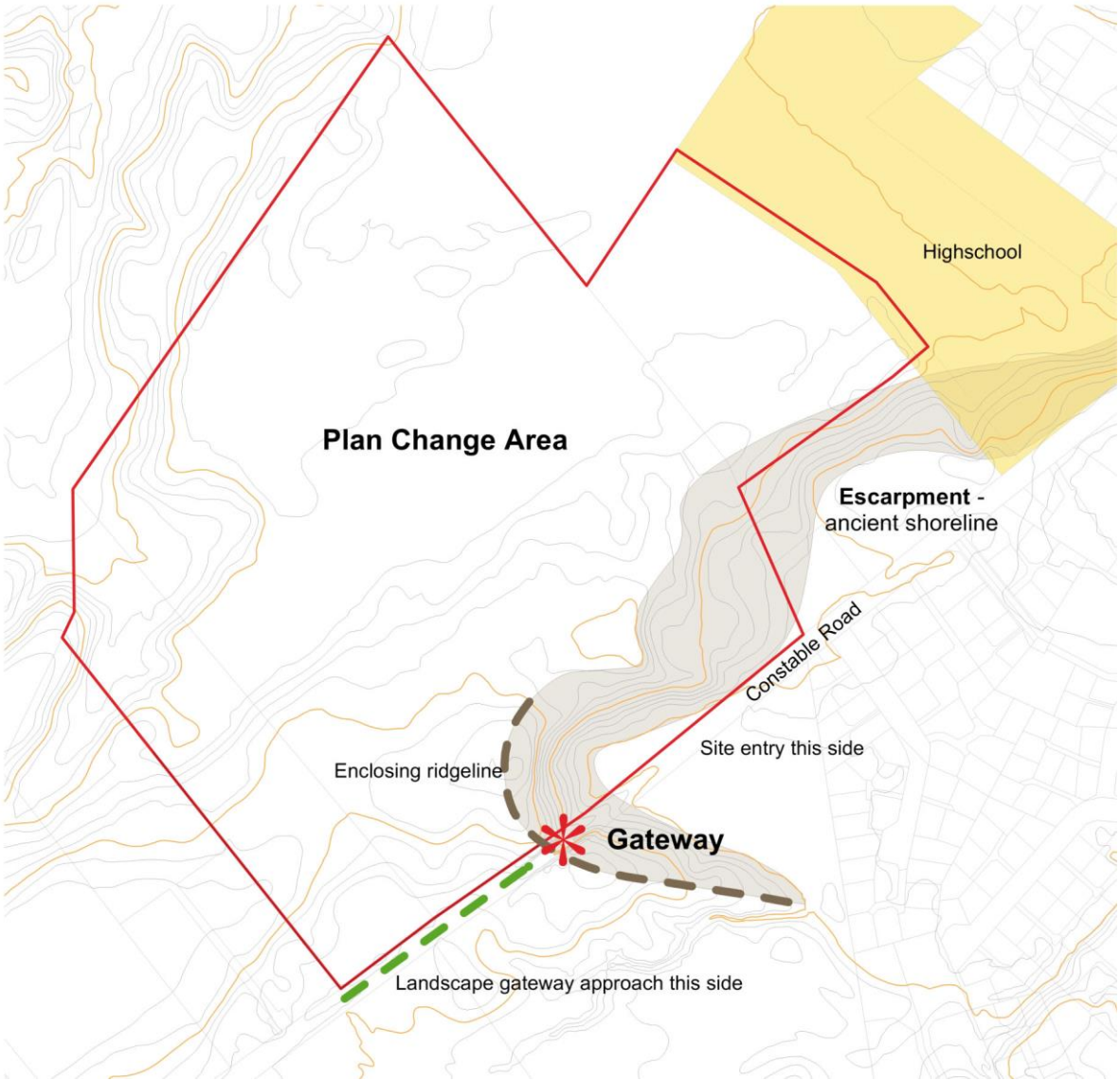


Figure 3-2 Waiuku south-west gateway

4. ISSUES/ OPPORTUNITIES

4.1. PLAYING FIELDS

Rugby fields and a large undeveloped block of council owned land designated for recreational use lie immediately to the north of the PC area. These facilities are locked in by residential development, edged by rear boundary fences, and with a single narrow and illegible vehicle entry.

Development on the south boundary provides the opportunity to unlock the amenity potential of this land for the community by providing frontage, access and through-connectivity.

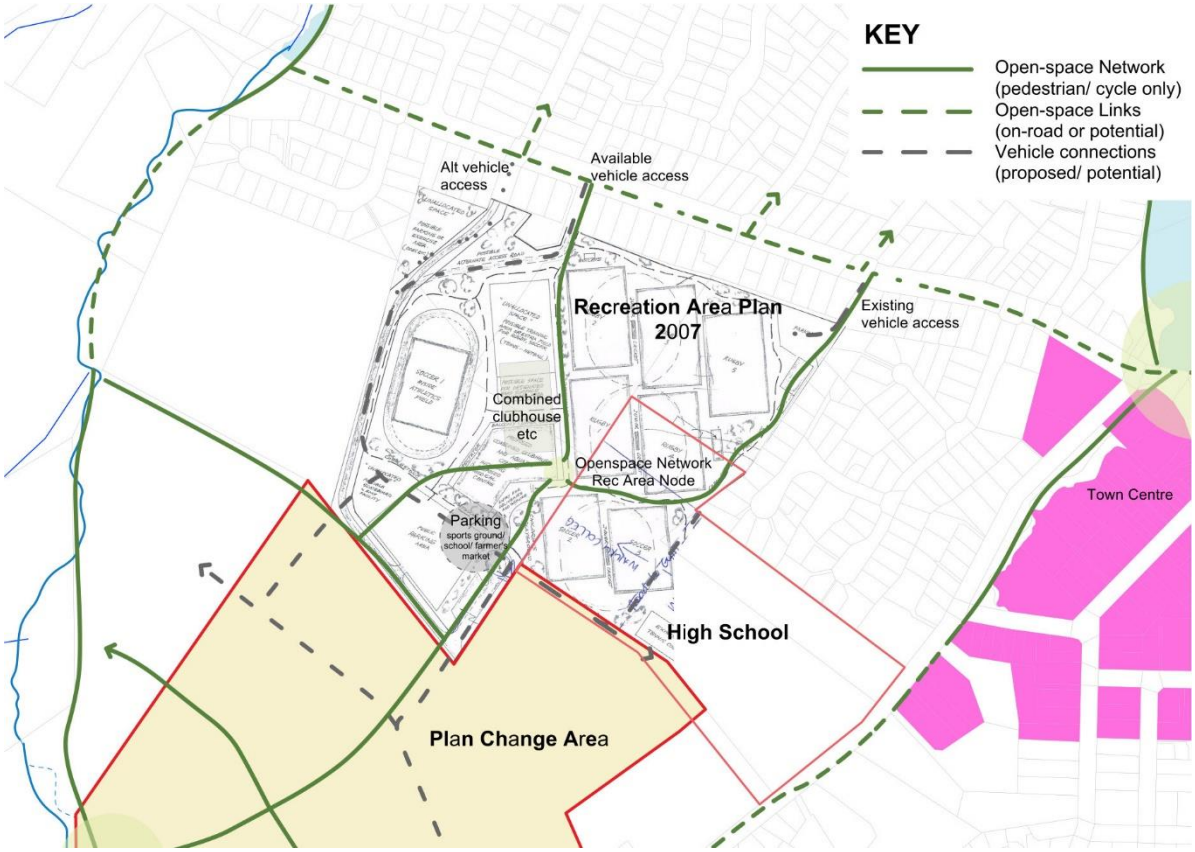


Figure 4-1 Council reserve – potential vehicle and pedestrian access

4.2. SCHOOL ACCESS/ PARKING

Waiuku Highschool is also adjacent to the PC area on its northern boundary. The Highschool is very constrained in regard to access, student parking and bus/ parent drop-off and pick-up areas. The difficulties in this regard are not easily met because the ground rises steeply from Constable Road to the buildings sitting on the edge of the higher west terrace formation. A temporary parking facility is currently being offered on the other side of Constable Road. Apart

from being a short term solution, this is not satisfactory from a traffic management and safety point of view.

Development within the PC area creates the opportunity for the school to be provided with a second vehicle entry at the rear through Council owned land via one or two connections.

These are the same connections required for the recreation area. If school connectivity were to be tackled at the same time as recreation area access and parking, then multiple synergies for the community could be extracted. Highschool, code sports and community activities all tend to take place at different times so the same facilities can be used by different groups.

It is worth noting that such amenity development need not, at least initially, be extensive, and it certainly needn't be a cost of any great significance.

However, without the primary connectivity provided by the PC area there are no realistic opportunities to manage either of these problems.

4.3. OPEN-SPACE NETWORK

Structured recreation amenity in Waiuku is provided at four 'nodes', evenly distributed about 0.8—1.5km apart, though each containing different activities.

Figure 4-2 Existing formal open-space amenity

Apart from a few small pocket parks, informal recreation amenity is largely provided by an extensive (10km long) linear park around the harbour edge. Although inherently a valuable resource, the value is compromised for the community because:

- It is not a connected and purposeful route
- It is linear – no loops
- Only two activity nodes – historic town centre and Sandspit Motorcamp and Reserve
- Largely fronted by rear yards

A nice environment or scenic outlook is not enough on its own to create value in a community open-space system. The number of people using the system and, to generate that, the number of different activities along the way and reasons for using the system are the main determinants for success.

Figure 4-3 Existing informal open-space amenity

There is an opportunity for community betterment created by the PC through provision of a connected inland node for the open-space system, thereby creating a real network. Two obvious connections are the topographic barrier of the Rangiwhea Stream and the existing Council and rugby club land. A system of loops and connected informal pocket parks, neighbourhood parks, larger code-based recreation facilities, the highschool, natural routes (the stream) AND a large

number of people to populate them could all be delivered as part of residential development of the PC area.

Figure 4-4 Potential open-space network after PC

Notable open-space amenity beyond the town is Kariotahi Beach – providing Waiuku with west coast access, and the Manukau Harbour via boat launching from town or any of the small bach communities up the Awhitu Peninsula.

A long-term goal has been expressed in the community of creating a walking/ cycle trail connecting the Manukau Harbour with Kariotahi Beach on the west coast and taking in historic and natural features along the way. This will be a project with a low return without:

- An inland open-space node to pull activity away from the harbour
- A functioning open-space network within Waiuku to populate the link.

4.4. FOOD PRODUCTION

At the moment the council recreation reserve can be maintained by incorporating it into the adjacent agricultural land-use. But once these fields become fully enclosed that becomes impossible and the council are faced with either having to maintain them for no benefit, or find some other use that can maintain them in the foreseeable future.

Gardening is the most popular recreational activity for New Zealanders, measured by participant numbers and hours engaged. It provides exercise, and vegetable/ fruit growing provide further health benefits. When undertaken publically it delivers great social and emotional good. But it has no code or rules, no official organisation to manage it, no funding streams.

There is potential in the relationship between the PC area, the council recreation land and the proposed greenway/ open-space network to deliver considerable public benefit – if not forever then at least for some years until a more valuable use can be developed for the reserve – by releaasing some of it for allotments and public orchards.

Providing public land for 'gardening' is not a new or unusual concept. While not much in evidence in Auckland, Christchurch and Wellington have both been active in this area, and it is the norm in most European towns. Farming and harvesting the commons is also a practice that sits more comfortably with the culture of tangata whenus than restricting it to privately owned land and a commercial market.

A number of activities centred around food production form synergistic relationships:

- Allottments – usually rented to residents, and with shared equipment and a level of support/ supervision
- Farmers market
- High-school hort/ ag department
- Produce made available to schools, the elderly and various social services
- Land management/ maintenance
- Extended hours of activity

Most allottment schemes are to some extent commercial. At very low cost they offer residents the opportunity to enlarge their properties on a non-permanent basis and with some support. This is a much more affordable and better option in terms of resource management than either buying a larger section or having to make a choice between amenity types on site.

The greatest benefits though, whether from rented plots or just farming the commons, are social:

- Community identity, strength and resilience
- Social engagement
- Mental health
- Reductions in crime and poverty
- Education

See Figure 4-1 and Figure 6-2 for connectivity and an indication of how an area for horticultural recreation could be integrated with the recreation reserve and supported by development.

5. HOUSING

5.1. MASTERPLAN POTENTIAL

It has proved extremely difficult for the market to provide affordable housing and a range of housing types without a degradation of housing quality. The market is broken in that it is defined by the offer, not by the demand.

Large-scaled master-planned development creates the opportunity to break this deadlock. Urban design best practice and design-led development can deliver much higher levels of amenity to residents and still protect commercial feasibility for the developer. When amenity, infrastructure and market are managed as one, then a much greater variety of housing type can be appropriately incorporated with considerably improved quality over traditional subdivision standards.

The Urban Design Concept offered up in Part 3: 6.3 and following demonstrates the range of housing types, section sizes and affordability possible from this approach applied to a development of this scale.

PART 3

6. DESIGN RESPONSE

6.1. PRINCIPLES

Values-driven design, protecting and strengthening:

- Social/ Cultural values
- Environmental values
- Economic values

The urban design concept is envisaged as a responsive design. Therefore, the spatial plan…

Is crafted to create and strengthen the identity of place through:

- Protection of landform and landscape rhythm
- Assertion of natural boundaries, features and gateways
- The block/ movement pattern responding to and following topographic form
- Maintaining the existing town scale

Honours and protects the landscape through:

- ESD – Environmentally Sensitive Design aka LID – Low Intensity Design (minimal earthworks, natural stormwater management, etc)
- Re-establishment and revegetation using local species of natural watercourses

Remembers the past and supports Tangata Whenua values through:

- Open-space linkages
- Naming
- Food production in the commons

Prioritises pedestrian interaction and movement through:

- The use of Greenways and Living Streets

- Binding the Greenways into the wider open-space network connecting to the town centre and harbour
- Small blocks, no through-roads and kinked roads to create a natural low-speed environment

Strengthens the Public Realm through:

- Increasing density and fronting houses to the public realm in order to generate as much activity in the wider open-space network as possible
- Multiple links to the existing open-space network and creating as many short loop-routes as possible
- Incorporating diverse and multiple uses within the public realm

Encourages a mixed demographic through:

- A wide diversity of lot types
- A wide diversity of building types
- Mixed uses within the commons

Employs a range of road types to fully articulate values of Link and Place:

- Greenway
- Living Street
- Local Road
- Mews Lane

6.2. OUTLINE DEVELOPMENT PLAN (ODP)

An Outline Development Plan is the primary design response. Although not intended to be spatially prescriptive, it attempts to capture all the elements required to deliver on the principles listed above.

A design (*Figure 6-2 Proposed Urban Design Concept Plan)* was prepared based on the ODP and the sample subdivision plan of the concept has been used to return realistic data for anticipated yield and the calculation of environmental effects.

The ODP is included as *APPENDIX 2: PC4-Outline Development Plan.*

6.3. PRECINCT PLAN

In response to feedback from the Council, the Landscape Architect and the independent Urban Design reviewer, a Precinct approach has been adopted for the application in order to protect the potential (identified below in this section) of the Plan Change area.

The Precinct Plan itself is a simplified version the ODP, distilled to provide a planning framework. It incorporates all elements from the ODP and the outcomes of the review that appear in the Precinct Rules.

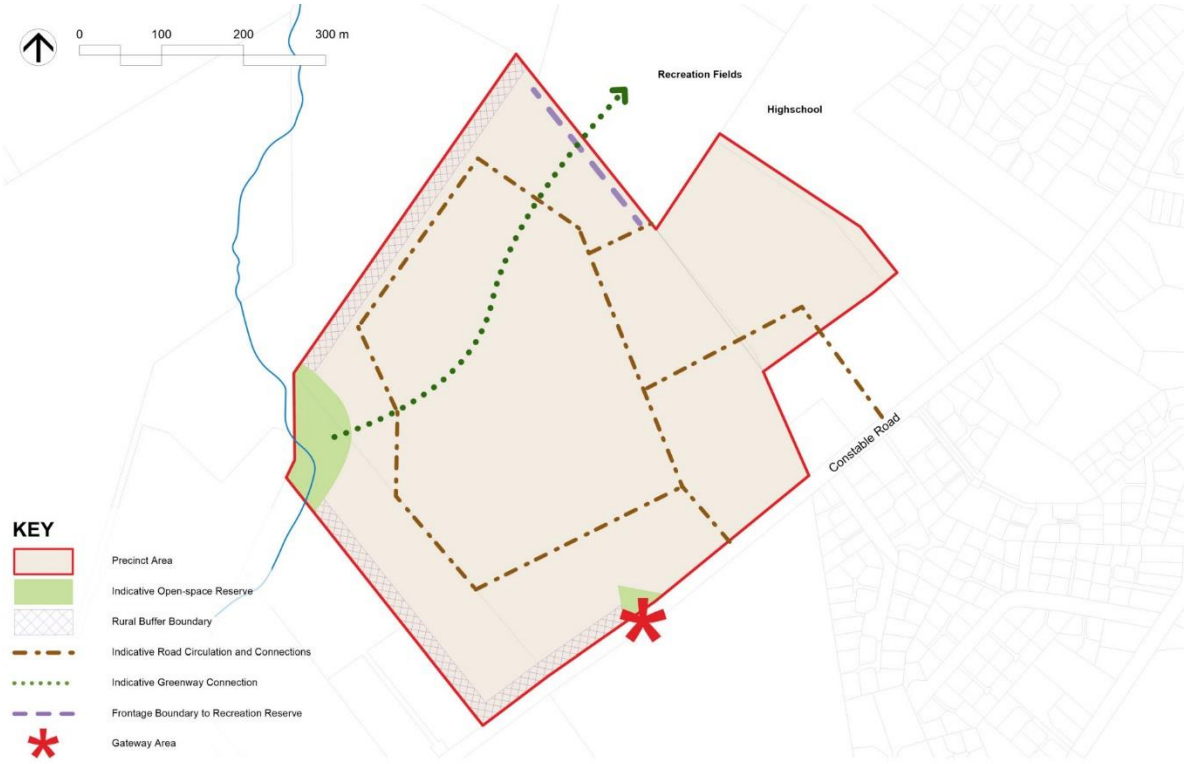


Figure 6-1 Proposed Precinct Plan

6.3.1. Gateway

The gateway is topographically driven; therefore it can be in no other position. For the concept plan, it means that the steep escarpment within the property and the road edge west of the gateway need to be handled differently from the Constable Road frontage on the town side in order to produce a distinct break between the rural and urban environments.

6.3.2. Rural Edge

The road boundary along the rural side of the Gateway needs to isolate the housing development from Constable Road with no (or very limited) access, deeper setbacks, large tree planting and heavier landscaping, etc.

Buffer development also needs to be provided to limit sprawl across unprotected rural boundaries. There are no natural edges within a reasonable distance to contain development in these directions.

6.3.3. Entry

The main site entry must be on the town side of the Gateway. Secondary connected access is provided though a subdivision currently in construction between the highschool and the PC area.

6.3.4. Road Connections

A compulsory connection is required from the main entry road to the council recreation property. This will provide access to future playing fields/ facilities/ park amenity, alternative access to the rugby club and rear access to the highschool.

This connection is spatially explicit because:

- It is the most direct connection to the highschool and rugby club
- It protects the greatest amount of useable land on the Council property for future purposes
- It allows for the longest uninterrupted PC area boundary to front the playing fields

6.3.5. Internal Roading Pattern

An outer 'collector' ring is required to ensure a fully connected vehicle network without the creation of isolated rear-lot and cul-de-sac pockets.

6.3.6. Inland Open-space Node

To function as an attractor and enable open-space connections that could build a network, this part of the site requires a distinct landscape treatment. It must be an active space, and express landscape values of naturalness as an extension/connection with the natural environment of the harbour edge via the Rangiwhea Stream.

6.3.7. Open-space Connections

A single explicit connection needs to be provided through the PC area from the inland open-space node (above) through to the recreation fields. This will open up a meaningful through-

route to bind the open-space amenity back into the wider residential area. It also provides the residents of the PC area with a near-complete 100% off-road route to the town centre, short by only a 180m link along King Street. This route takes in the rear entry the highschool. If properly fronted and supported, it will become a 'pedestrian arterial' within the site be a powerful influencer of modal shift.

A secondary open-space connection is implicit in the Precinct Plan through the inland open-space node being positioned at the top of the Rangiwhea Stream. Realising that connection is outside the scope of this plan change, though the PC enables its delivery.

6.3.8. Frontage

The Precinct Plan specifies as a minimum that the southwest boundary of the Council recreation reserve is fronted by development to increase pedestrian activity in the reserve and provide a degree of quality over-looking for safety purposes.

6.4. SUBDIVISION PLAN

6.4.1. The Urban Design Concept (UDC)

This is a draft subdivision design that gives full expression to the development principles, goals and the ODP. It is spatially accurate, realistic and feasible from a development perspective, and can be seen as the first draft in the design of a full Masterplan. The purpose of the UDC is to return realistic data for anticipated yield and the calculation of environmental effects.

The layout over 45 Constable Road in the north-east of the PC area is taken from a provisional scheme by the current owner, with the addition of a road link into the rest of the PC area. The actual layout may change in the future if developed in conjunction with an overall masterplan.

The Urban Economics Report identified a real need in the area for aged and resthome housing. A number of blocks and block clusters could be used to satisfy this need without compromising the overall circulation pattern. The area around the southwest corner indicated in the ODP as being of a lower density and requiring blind outer edges is also suitable for a more contained and inward looking development pattern that could provide for a different level of aged care. Therefore the UDC layout in this area is a plausible placeholder able to be used for density mapping (*Figure 7-1 Density Distribution Plan).*

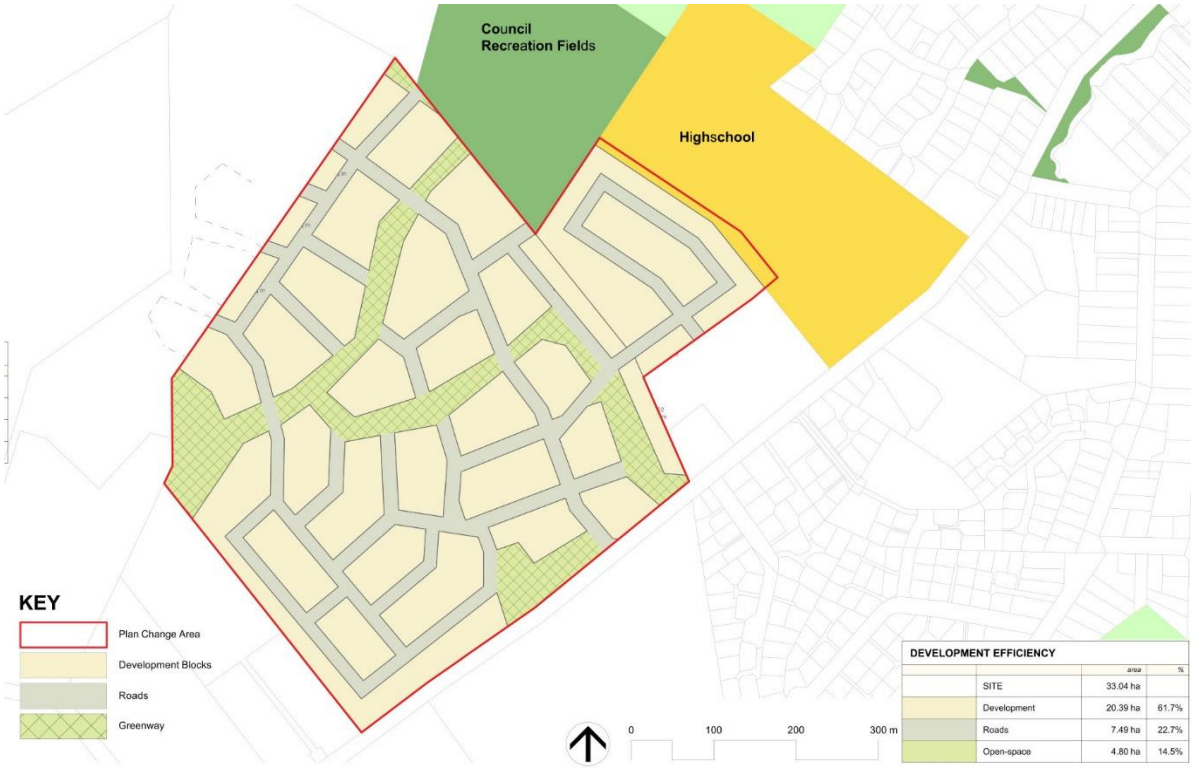


Figure 6-2 Proposed Urban Design Concept Plan

6.4.2. Design

The site was overlaid with a schematic grid to maximise block efficiency, permeability, and frontage. A primary circulation pattern was identified. Block sizes are small, though given the intended lot-size range, often a little longer than an urban design best-practice proportion of 100m x 60m.

Figure 6-3 Schematic Block Layout

The schematic design was then overlaid by a more detailed topographic map and the open-space connectivity routes from the ODP. Employing rear vehicle access for most blocks, means that it is possible for every second road to be partially or fully depopulated of vehicles.

Various links were extracted to form the open-space network. Pedestrian only frontage would be provided to all these lots, and living streets used to feed the internal access and provide visitor parking.

Blocks were then restructured, thereby breaking the tyranny of the grid and driving the block layout to respond better to underlying landscape values. Although no longer obvious in a

superficial sense (as seen in *Figure 6-2 Proposed Urban Design Concept Plan*), the grid is still regular. All the roads indicated in the schematic plan are still represented in the UDC Plan, despite some of them now becoming fully pedestrianised Greenways. It needs to be noted that these are still 'roads', performing all the functions of a road though for modes other than motor vehicles (emergency and service vehicles excepted).

Research shows that for these lots, residents will use the open-space reserve on average 8x per day. 30m away, or one lot back, usage drops to 4x per day until at 200m usage is statistically insignificant.

As well as very large increases in development efficiency and amenity provision, another important advantage of a rear access approach is that it enables the creation of two functional, high quality living courts within the lot – a larger private yard to the rear and a public yard to the front. When a maximum front setback control is employed, most of the houses line up roughly to the street. The combined benefit of these two factors means that no matter what the aspect of the lot, every house is guaranteed at least one sunny living yard for most of the day.

Figure 6-4 Solar access with two living courts

Frontage uninterrupted by vehicle crossings does more to foster a sense of community than any other factor by enabling the street – the primary open-space environment for residents – to function as a linear park and social environment.

In subdivision development it is traditional to back lots onto neighbouring properties to avoid the provision of extra infrastructure by the developer. Impenetrable divisions created by this habit are nearly always at the cost of good urban form.

6.4.3. Neighbourhood Identity

The sense of neighbourhood identity is strongest when four conditions apply:

- A well-defined and legible edge
- Limited vehicle connections across the edge
- Fully permeable internally
- Fully permeable to pedestrians across the edge

The concept plan meets all these conditions.

6.5. ROADS

This approach to the structure of the block opens up the potential to employ a much larger range of road types. In part this satisfies the directives of NZS 4404 (2010), but more relevant to residents and the community is that it maximises amenity, efficiency, and the investment in infrastructure.

Four road types are utilised in the Concept Plan. All plans below are taken from the Meadowlands development, Halswell, Christchurch.

6.5.1. Greenway

Greenway characteristics:

- Irregular 20—45m reserve width
- Open, park-like character
- Pedestrian and cycle arterial
- Footpaths shared with emergency and service vehicles
- Front door/ visitor access from the greenway
- Public yard living court at front of house for active overlooking – exemplar CPTED feature-set
- Capacity for stormwater management, LID soft engineering
- Capacity for formalised play activity
- Capacity for productive landscape eg orchard trees, vines, etc

Figure 6-5 Greenway plan

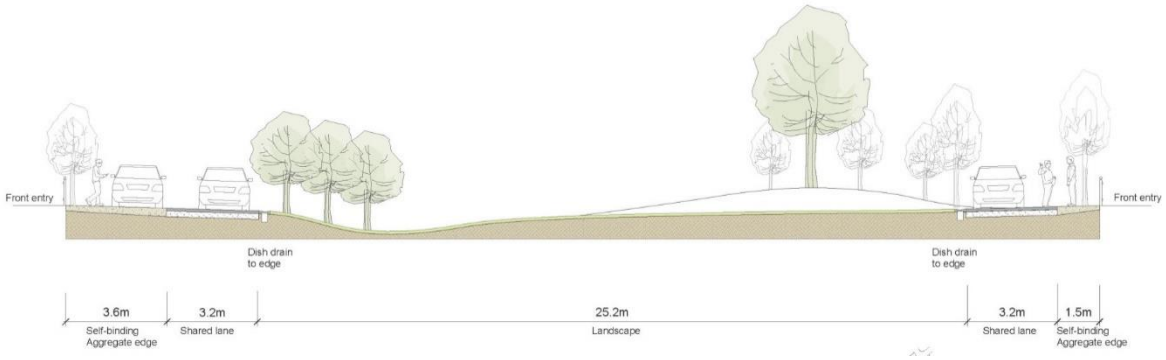


Figure 6-6 Greenway cross-section

Figure 6-7 Greenway examples

6.5.2. Living Street

Figure 6-8 Living Street Plan

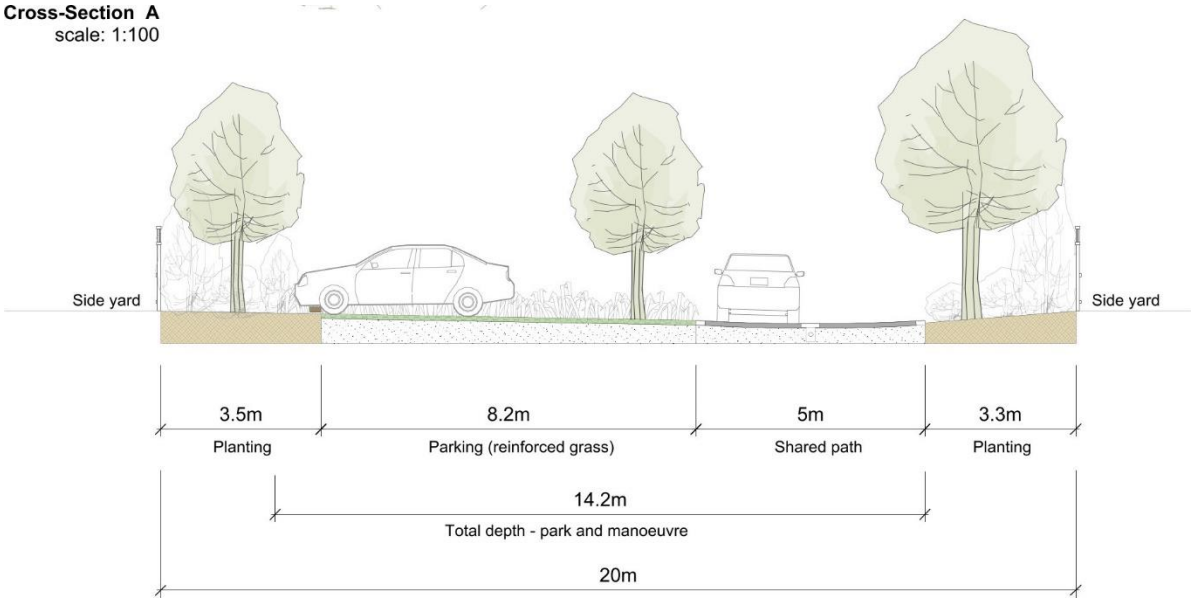


Figure 6-9 Living Street cross-section 'A'

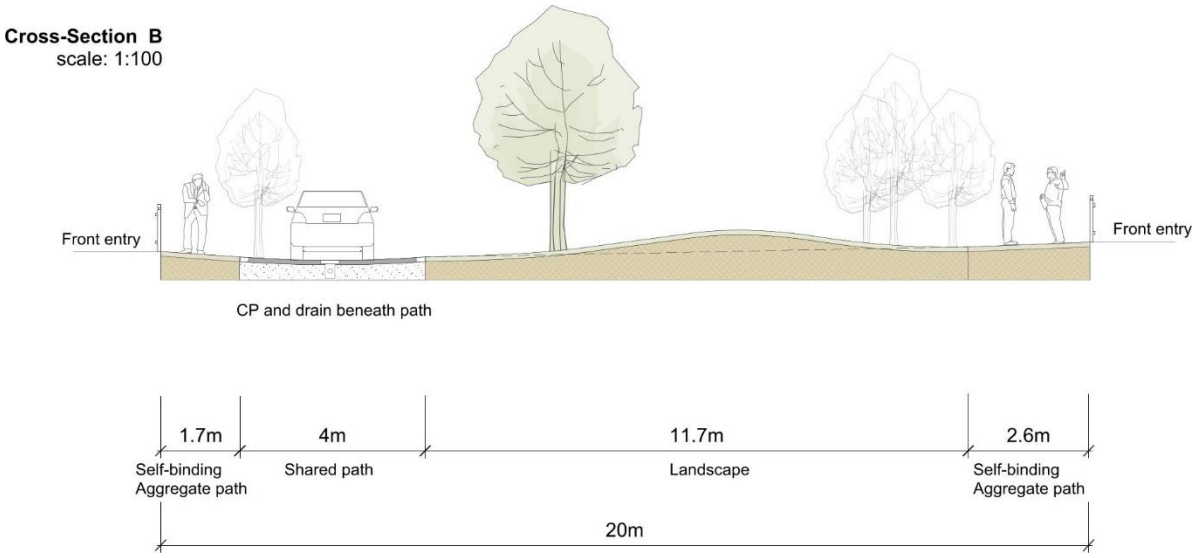


Figure 6-10 Living Street cross-section 'B'

Living Street characteristics:

- Link between Greenway and local road
- Amenity and recreation landscape – park-like environment
- Middle lots front Living Street
- Visitor parking at both ends against end-block lot side boundaries
- Constrained vehicle access to greenway

6.5.3. Local Road

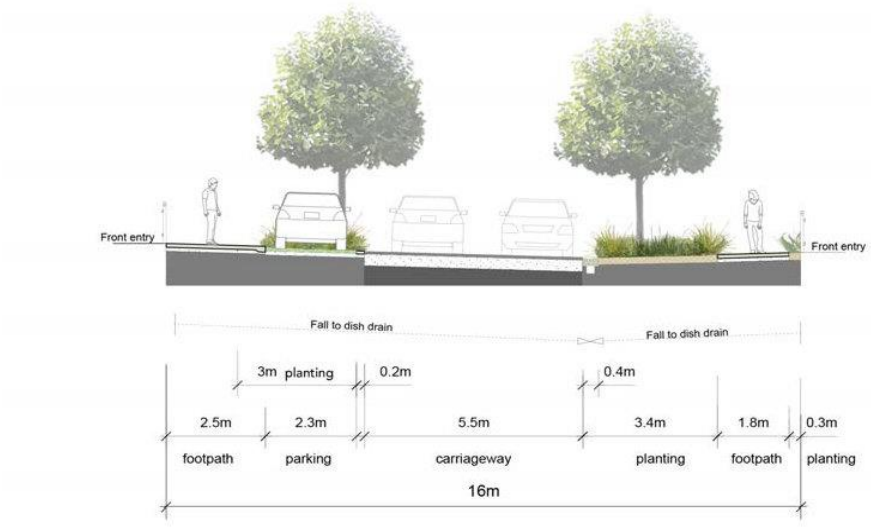


Figure 6-11 Local Road cross-section

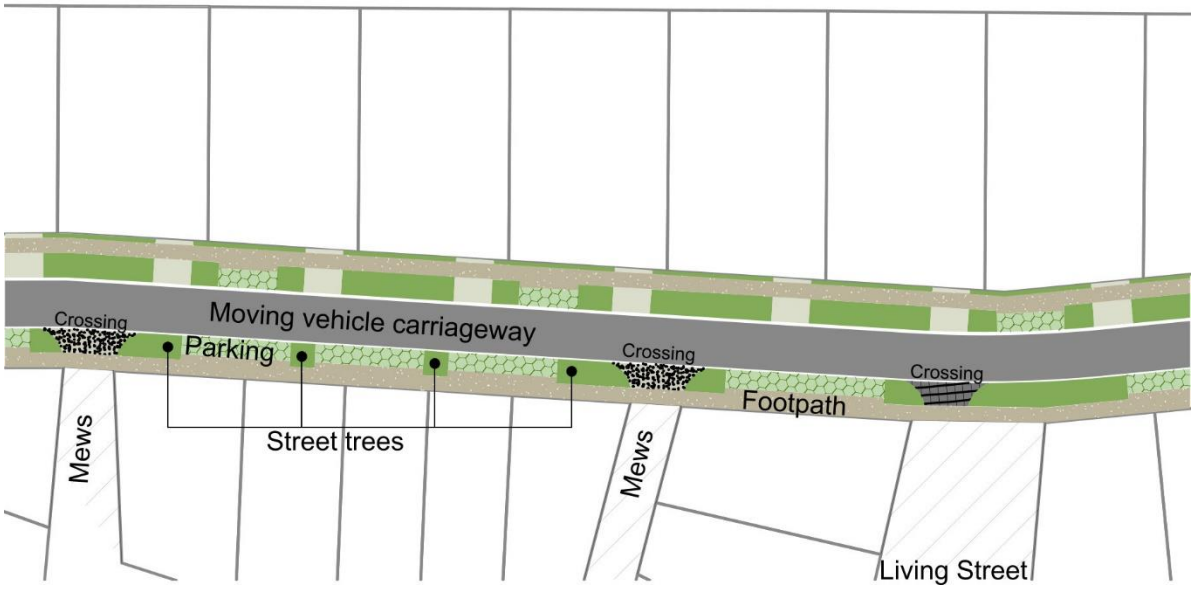


Figure 6-12 Local Road plan

Local Road characteristics:

- 18m wide reserve – entry and connecting road
- 16m wide reserve – all other roads
- 6m (kerb to kerb) moving vehicle carriageway (Road)
- Parking both sides within landscape reserve (Street)
- 2 bay parking pref max; different material to carriageway
- 1.75m—2.5m wide footpaths both sides, dependent on foot-traffic volume
- Street trees/ rain gardens/ planting in landscape reserve – LID soft engineering where possible

6.5.4. Mews Lane

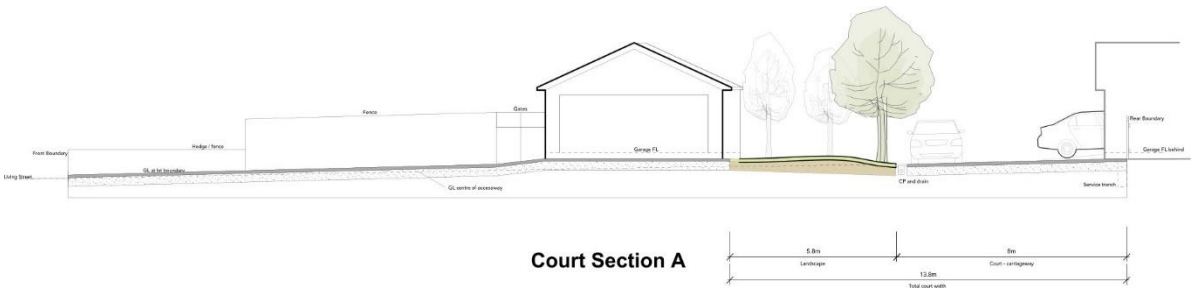


Figure 6-13 Mews Lane cross-section

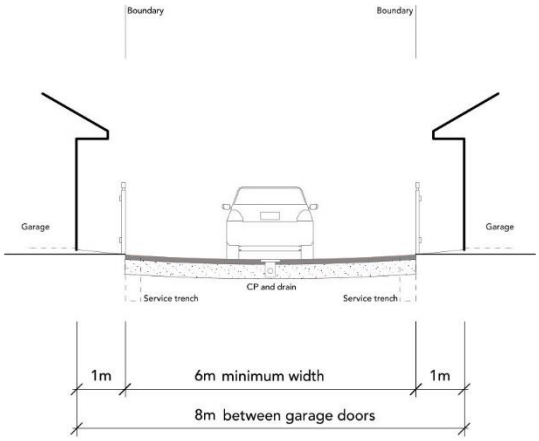


Figure 6-14 Mews Lane cross-section

Mews Lane characteristics:

- Vehicle lane inside block to rear-access lots
- 6m wide minimum (8m min between opposing garages)
- Most services contained within mews
- Privately owned (JOAL)
- Can expand to form internal court in wider blocks
- Large internal courts can contain alternative house form communities eg Loft garages
- Contains landscape where reserve width and manoeuvring allows

7. DENSITY MAPPING AND YIELD

7.1. DENSITY DISTRIBUTION

The traditional rule of thumb had it that as lot size decreases, amenity lost from within the lot must be compensated by an increase in the amenity provision within the public domain. This is a negative approach concentrating on minimum amenity provision, and assumes that developers see amenity as an unnecessary cost rather than an asset.

The more modern approach understands that servicing and public realm amenity, as well as an asset, is a cost on the whole community, forever. Amenity is increasingly being required to be provided, but it may also be existing or coincidental. Therefore, the rule of thumb is now inverted to read: an appropriate level of density must be provided to fund the level of amenity present.

The design of the Concept Plan started from the development of the open-space network for pedestrian cycle transit and environmental enhancement. This resulted in very high levels of amenity available to residents and the public, at no extra cost to the developer or the public. Higher density should then be required to be distributed around the amenity, with density decreasing as amenity decreases and vehicle movements outside the front boundary increase.

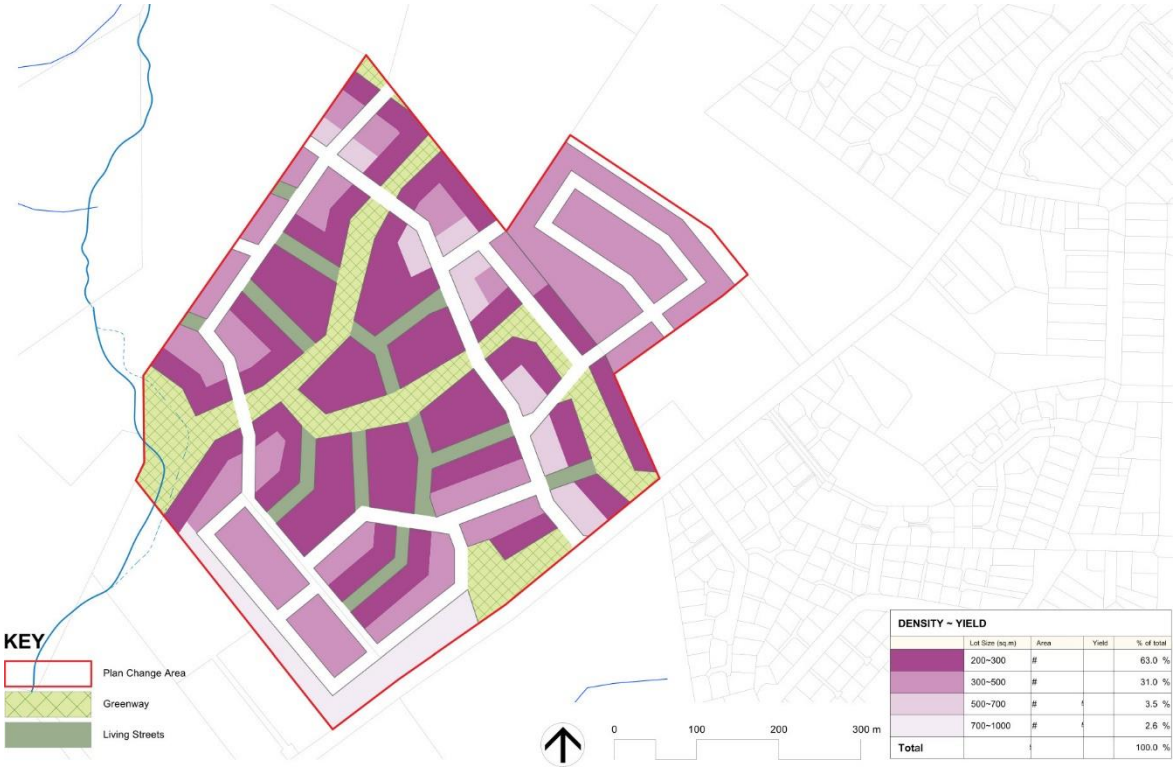


Figure 7-1 Density Distribution Plan

The new formula that drives the density response is therefore:

- Lot/residential density should be highest closest to the areas of greatest amenity and decrease as vehicle presence and movement increases.

To model different yield scenarios, average lot sizes are manipulated, relativity being maintained by the Density Distribution Plan.

A wide range of lot sizes are anticipated, and a pepper-potting approach taken to some extent in order to create a mixed demographic at the block level (see *8.YIELD SUMMARY AND THE MDRS* following).

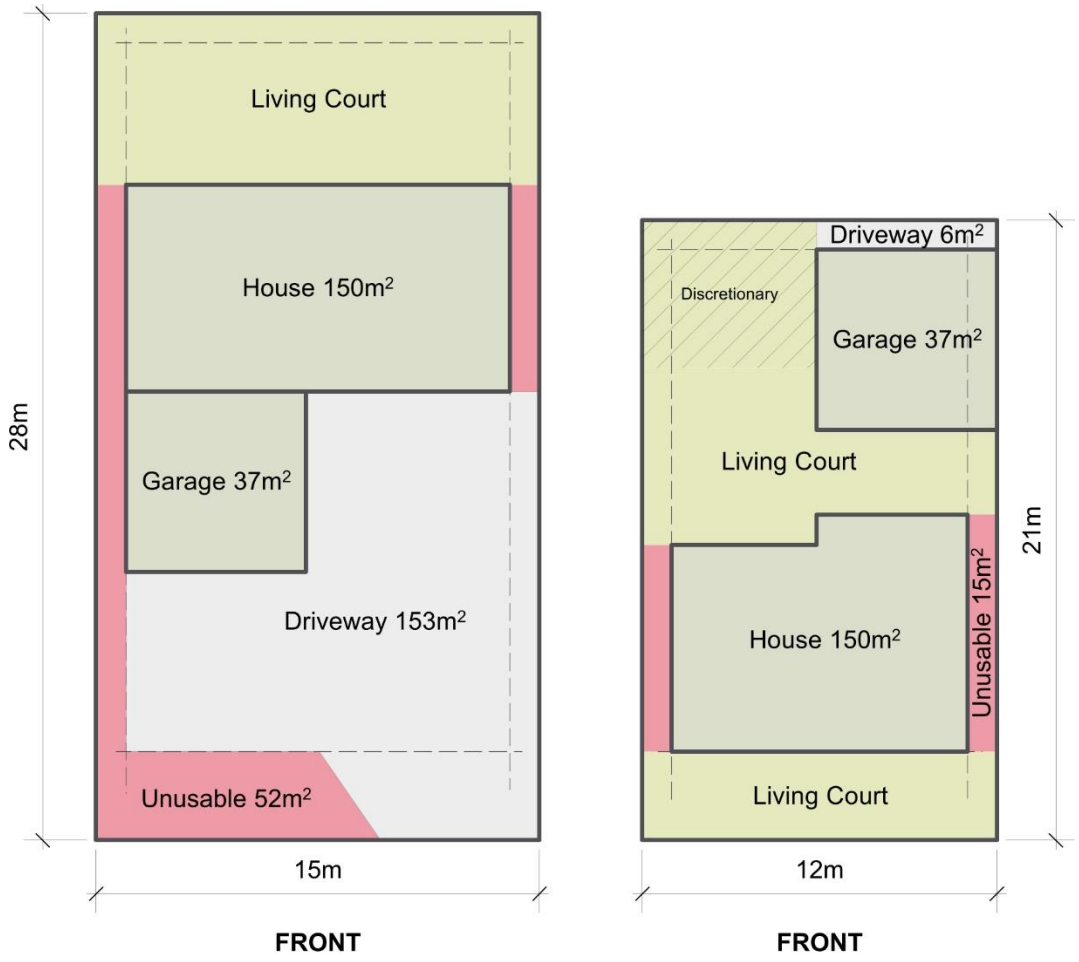
7.2. DENSITY CALCULATION

7.2.1. Lot Configuration

Rear accessed lots are up to 100% more efficient than those where the vehicle enters the lot from the street ie the same amount of amenity can be contained in a lot of half the size. In consultation with the applicants and other people from Waiuku, we set some baseline parameters that expressed what they felt were Waiuku needs for an average section:

- 150m^2 house (4 bed excl dbl garage)
- 4 vehicle parking capacity on site (car, ute, trailer, boat)
- 50—70m^2 minimum living court

For a rear access configuration complying with MHS rules, all these fit into a net 250m^2 lot; for a front access lot it increases to at least 420m^2. This comparison is only a measure of lot efficiency as a packing function. There are further, not inconsiderable, amenity gains beyond the boundary for residents with rear access configurations as seen above.



LOT COMPOSITION 420 SITE

	m2	%
LOT	420m2	
House/Garage	124m2	30%
Living Courts	87m2	21%
Driveway	157m2	37%
Unusable	52m2	12%

LOT COMPOSITION 250 SITE

	m2	%
LOT	250m2	
House/Garage	112m2	45%
Living Courts	89-117m2	47%
Driveway	6m2	2%
Unusable	15m2	6%

Figure 7-2 Front vs rear vehicle access test

A small tissue analysis was undertaken of a random sample area (16 lots) of an 'average' existing subdivision in Waiuku to get an idea of grain, scale, amenity and character. Measures were:

- Lot size
- Usable area (living yards)
- Parking and manoeuvring

For almost all lots this revealed far less efficiency than the packing of the hypothetical front access lot above. The other point to note is that most of the sample lots wouldn't have been able to realistically park four vehicles on site. The average results were:

- Lot size 683m^2 (range 310—977m^2)
- Coverage 208m^2 (30%)
- Usable (living) 108m^2 (16%)
- Driveway 147m^2 (22%)
- >Waste 220m^2 (32%)

'Waste' just means that there is no realistic use that can be applied to the area, not that it necessarily has no value. It often contains trees, or, for example, is open for sun access but is dimensionally unusable.

Comparing our hypothetical front accessed lot above with the tissue average, the extra 240m^2 size of the average site has only resulted in a 40m^2 increase in usable area. Masterplanning a greenfield development provides the opportunity to convert all the extra lot area above the baseline into usable amenity for residents.

An important use of the simple tissue is as a tool to measure existing built character against the likely outcome of the proposed scheme. Lot size is not a measure of perceived density (intensity) – rather, density is the result of the amount of land covered in buildings. Excluding the few lot-size outliers at either end of the range in the tissue set, the 'normal' 6—700m^2 sections have average building coverage of 37.7%. This is only marginally less than the MHS 40% maximum allowed in the AUP.

The surface required for paths/ paving/ vehicles tends to remain the same no matter how small the site. When lot size decreases, the percentage of impermeable coverage increases and it is this factor that usually constrains the extent of development at medium density levels. It forces much more efficiency in building footprint size, so it is not unusual to have lower % building coverage on smaller lots than larger ones where buildings tend to sprawl.

From the above therefore, the performance standards in the Auckland Unitary Plan are sufficient to protect existing character values – largely a function of building coverage – at higher lot densities.

7.2.2. House Types

A wide range of lot sizes will produce a wide range of house types. The purpose of this is to create a more mixed demographic than traditional suburbia, and to deliver a wide range of affordability options.

House types can be typologised on size/ bedroom count and then correlated to need as measured by life-stage:

- Young single
- Single
- Couple
- Small family
- Large family
- Aged couple
- Aged single

Unfortunately, up to date data doesn't exist for the relationship between real housing type need and current supply. The best we have, due to the failure of the 2018 census, are 2013 statistics. Adding to the frustration, we have no analysis of this for different localities.

- 1 bed 7.7x UNDER supply
- 2 bed 5.0x UNDER supply
- 3 bed supply neutral
- 4 bed 4.1x OVER supply
- 5 bed 3.5x OVER supply

Figure 7-3 NZ Statistics housing supply vs demand

Within the Auckland market we know that since 2013 there have been inroads made into the 1 bedroom shortfall (mainly with apartments) and also the 2 bedroom offer, but we don't know by how much. Considering the size of the shortfall, the assumption must be made that to meet the real need there should still be considerable bias towards the smaller house end of the distribution.

Matching life-stage distribution and population data, baseline house type distribution figures can be generated. Adjustments can be made for demographic growth (bias to low bed count types) and current supply (also a low bed count bias – see Figure 7-3 above).

House price is related linearly to house size, so if housing affordability is to be a social and development principle then we should try to match size to need as much as possible. However, not everyone requires an affordable house. Many people will want and be able to afford a house with more rooms than they need. This is especially so as they get older and trade down, as they still have assets, stuff and, often, grandchildren to stay. Therefore a further adjustment to a theoretical best-mix model can be made in favour of 'the spare room'.

A model has been developed that includes all these adjustments to arrive at an approximate but fair estimate of the relative proportion of house types for any development. The Density Plan distributes density in four bands. The average lot size in each band has been used to calculate a provisional total yield for the concept scheme of 632 lots *(8.4.1 Probable Market-led Yield),* which results in the following numbers for each type:

- 1 bed 10% 63 hhu's
- 2 bed 53% 333 hhu's
- 3 bed 25% 157 hhu's
- 4 bed 7% 44 hhu's
- 5 bed 5% 31 hhu's

The use of this data is that it gives an indication of the appropriate spread of house types within the design correlated to the density distribution plan and therefore lot size. However, the theoretical lot model (*Figure 7-2 Front vs rear vehicle access test*) demonstrated that when rear vehicle access to the lot is employed via a mews lane, we could physically fit a 4 bedroom home with sufficient on-site amenity within the <300m^2 band; therefore for this configuration we can say that any house type can fit on any lot.

What hasn't been modelled is how small the lot could be for the smaller house types and still provide the same amount of amenity which would have the effect of increasing overall density. Market demand and the development business model will ultimately determine the real yield.

7.2.3. Building Form

As well as bedroom count, houses can be typologised on 'active faces' – freestanding, duplex, terrace, apartment. In terms of built character, attached housing and apartments feel out of place in Waiuku at present. Waiuku simply does not have such a developed urban context to absorb these forms now without built character being dramatically affected.

Real density (as opposed to intensity) is a function of lot size, though as discussed above, lot size is not necessarily a determinant of what house type can fit on it. In general, a 2 bedroom house meeting the 'Waiuku spec' above will fit comfortably on a site around 150—200m^2 and still be freestanding. A single-bedroom house or a studio can fit on a smaller lot again and still maintain good on-site amenity.

Building form as it relates to density is not a fixed schema. Compact building forms when attached on the garages are still freestanding in terms of active faces. A high level of density doesn't necessarily require terrace or apartment forms. 1-bedroom dwellings, for example, need not be apartments. The loft-garage form is an alternative much more aligned to the existing Waiuku character. A properly designed maisonette is also an option to deliver the smaller bedroom count demand in a way that protects the existing character.

8. YIELD SUMMARY AND THE MDRS

The above matters have been used to set provisional values in the density model from which to calculate yield and environmental effects for the PC. The UDC *(Figure 6-2 Proposed Urban Design Concept Plan*) is a high-yield scheme by virtue of its open-space framework and the way the blocks are organised. It is therefore useful as a tool to extract realistic and robust high-yield data from which to calculate effects.

There is a considerable difference between a likely yield driven by the market and economic constraints and one that is technically possible under the AUP and soon to be incorporated Medium Density Residential Standards (MDRS). In addition, there are potential differences between the MDRS and the existing MHS/MHU standards.

8.1. MDRS VS MHU

The following considers the potential differences in outcome from MDRS controls as compared to the performance standards of the MHU zone. This is primarily a theoretical 'quantitative' comparison ie it doesn't take into consideration the constraints of real world block shapes and the more important drivers of community/social need and market demand.

The MDRS was prepared in response to an early report that found the AUP wasn't delivering the level of intensification through infill that was expected. The untested assumption of the report and the authors of the MDRS (unfounded, as it turns out) was that it was some of the qualitative controls in the AUP that were inhibiting development. As a consequence, the MDRS lowered quality thresholds, but without enabling, through the rules, any meaningful increase in extra housing provision.

It is worth noting at this point that there is a big difference between the impact of performance controls in greenfield development – particularly when masterplanned – and infill development.

Desktop modelling shows that infill development yield will increase marginally under MDRS (eg from 5 lots to 6, from 6 lots to 7), but only when the parent lot is between approximately 17m and 20m wide. Testing this in real case scenarios with a range of real house designs we find that either side of that range the MHS/MHU/MDRS yields are mostly equal.

The biggest difference in outcome is that the size of the buildings will increase from one 'zone' to the next – marginally so in the case of MHU > MDRS – but the number of buildings (yield) remains largely the same.

Very occasionally the more permissive MDRS HIRB control results in an extra unit being able to be fitted in at the rear.

For greenfield development the difference in yield between codes is even less, as lot size in medium density development is driven by the building design itself. As shown in this report above and using MHS standards, a free-standing 4-bedroom house with onsite parking for 4 vehicles and a large outdoor living area will fit comfortably on a 250m2 section when vehicle access is from the rear. A smaller building with less on-site amenity will reduce the lot size further.

The housing types for both codes are the same (attached, semi-detached, stand-alone, 1—3-storey) and the prevalence of one over the other in any given development will be a function of market demand and economics.

8.2. DENSITY/INTENSITY – YIELD/SIZE

At lower densities, Yield (the number of dwellings/lots) is a factor that can usually be used to calculate the effects of intensity. At higher densities this general rule doesn't hold. For example:

- The narrowest functional 3-storey house is about 5.4m wide
- The narrowest functional 2-storey house is about 4.2m wide

As building length is the same in both cases, a higher yield (density) is obtained from a less intense development (all 2-storey houses), but a 3-storey development with a lower yield will have a much higher population (double the bedroom count per house) and therefore generate higher effects eg traffic movements and waste water loads.

Another important matter to consider is that building size (the number of bedrooms) and yield (the number of lots) don't scale smoothly as % coverage and site size increase. They both increase in steps. A small increase in allowed building coverage doesn't result in an equivalent increase in yield. In real world situations, development efficiency within the lot and block will never be as high as 100%. In situations where any 'surplus area' can be redistributed to a lot that is close to a step threshold, then yield can go up by one.

But even this process is not linear. Surplus width/depth accrues only within the extent of a single block; it cannot distribute across a whole site. It will generate the extra lot only when enough nearby lots have dimensions that are 'mid-step' where the surplus can aggregate into another full site. For MDRS the increase in yield over MHU won't be 5% (the extra coverage allowed), though when blocks are over-long the margin may sometimes be as high as 1—2%.

8.3. EFFECTS

The following is a comparison of the likely difference in effects between MDRS and MHU (the AUP zone selected for the PC) as applied to greenfield development. It assumes developing to the maximum allowed by the standards rather than to real world conditions. As the MDRS is largely based on the MHU standards, the differences in effect are not expected to be significant. Specific points of variance are:

Control:	MHU	MDRS
Building Coverage:	45%	50%
Impervious Area	60%	–
Landscape Area	35%	20%
Outlook Area (Living):	6m	4m
HIRB Control (front 20m):	3.6 +73+45	4+63
HIRB Control (standard):	3+45	4+63
Front Setback	2.5m	1.5m

The matter of Building Coverage has been covered above.

There's a relationship between the Outlook Area and minimum Living Court dimensions.

- For MHU, this is 6m and 4m respectively. In some circumstances this will result in the lot having to be up to 2m longer to comply with the Outlook Area containment rules.
- For MDRS lot length will always be driven by the 4m minimum Living Court and Outlook Area dimension.

For infill development, the more permissive MDRS HIRB control has most effect on the potential built form towards the rear of the section and sometimes allows an extra lot to be formed (see above).

For greenfield development there is less difference between the MDRS control and the MHU Alternative HIRB for the front 20m of a site. The purpose of this rule in MHU is qualitative – to encourage as much of the building mass to be positioned close to the street frontage and relieve the rear to maximise on-site amenity and minimise effects on neighbours. In practice, the MDRS control will allow a small increase in the mass of the building at the front, but a large increase for buildings at the rear generating overshadowing effects on what will nearly always be neighbours' living courtyards. It will have very little effect on the overall development yield.

From an urban design perspective, the areas where potential effects are of concern can be categorised as:

- Character – urban form ('builtness', intensity, density)
- Amenity – open-space, public transport, commercial/retail offering, public safety
- Environmental – StormWater, WasteWater, Vegetation

CHARACTER EFFECTS OF MHU VS MDRS

8.3.1. Urban Form

'Builtness'

Building types for both standards are the same, but MDRS has a smaller front yard setback. Used to the full, this means for pedestrians within the development the streetscape will feel more urban, more citylike as opposed to a rural town. In addition to the greater sense of building mass, the 1.5m setback is not deep enough for the building to spill activity into a landscape from which residents can comfortably engage with street life.

Intensity

The MDRS HIRB control is slightly more permissive than the Alternative Front Control of MHU. This will have the effect, cumulative with the smaller setback (above), of increasing the sense of building mass and the proximity of buildings for pedestrians.

Density

This is usually measured as household units per hectare (hhu/ha). As discussed above, this can be expected to be slightly higher under MDRS, but not significantly so.

The potentially higher (by a small margin) population possible under MDRS is a benefit in urban design terms. The number of social interactions increase, particularly at the level of the street. This creates a higher quality public realm (see below) and can help deliver on other objectives eg modal shift.

8.3.2. Amenity

At this scale, any increase in population and diversity will better support a range of amenity:

- Increase and enhancement of open-space areas to accommodate increased level of social interaction.
- Increased public safety through higher levels of activity and overlooking.

- The economic life of the town, in particular the economic efficiency and profitability of the main street.
- The efficiency of social service provision.
- The efficiency of public transport provision.

However, in contradiction to the benefit of a higher population in this respect, the more permissive MDRS standards can be anticipated to result in a marked reduction in open-space quality and therefore amenity, particularly where that amenity is accessed directly from the front of the house.

8.3.3. Environmental Effects of MHU vs MDRS

Stormwater (SW)

The MDRS has removed the maximum Impervious Area control (60% under MHU). It has reduced the minimum Landscaped Area (35% in MHU) to 20%. Theoretically this should result in a reasonable increase in stormwater runoff. For infill development, this will be the case. However, theoretical modelling of greenfield sites at higher densities and high efficiencies where there is little or no 'left-over' space achieves general impervious coverage around 55–60%

Wastewater (WW)

Both standards can produce the same building forms and bedroom counts. There could be a small increase in WW load as a result of the extra 5% building coverage (see bedroom/yield relationship above).

Vegetation

The minimum Landscaped Area has reduced under MDRS, though modelling for greenfield sites suggests that the likely outcome will be roughly the same for both standards. Therefore the capacity of a lot and the surrounding public realm to accommodate trees and vegetation is the same.

8.4. YIELD

The Density Map *(Figure 7-1 Density Distribution Plan)* distributes four relative density settings across the site according to amenity values. Modelling (below) manipulates the lot-size range for each of those settings to arrive at a total yield for each scenario. Three scenarios have been considered.

- Low-yield – a Waiuku-centric model, denser than the existing suburban areas but still within the character range of the town.
- Medium-yield – using MDRS controls, but allowing more on-site amenity to compensate for the increased levels of intensity.
- High-yield – using MDRS controls and onsite amenity set to the minimum.

The average between Medium and High is suggested as an appropriate figure to use for calculating maximum impacts.

8.4.1. Probable Market-led Yield

That this is the first large-scale, modern subdivision to occur in Waiuku has prompted a degree of conservatism in the approach to what housing types are considered, though the distinct identity and character of the district have driven this approach as well.

Housing forms anticipated are largely freestanding, covering a range from 1—4+ bedrooms. 1 bedroom units will largely be taken up with housing for elderly residents, but other forms can be included such as loft-garages to accommodate the younger market. In regard to the correlation between lot size distribution and building type, most house types will be able to fit on any lot.

As 3-storied houses are somewhat of an anomaly in Waiuku and are more expensive to construct, the majority of houses on the smaller sections are likely to be 2-storey buildings.

DENSITY ~ YIELD (Market-Led, AUP Low)

	Lot Size (sq.m)	Area	% Area	Yield	% Yield	
	200~300	9.86 ha	48%	394	62.8 %	1-4 bedrooms
	300~500	7.83 ha	38%	196	31.2 %	2-4 bedrooms
	500~700	1.31 ha	6%	22	3.5 %	3-5+ bedrooms
	700~1000	1.39 ha	7%	16	2.6 %	3-5+ bedrooms
Total		**20.39 ha**	100%	**628**	100.0 %	

8.4.2. Theoretical Medium Yield

This scenario greatly increases the number of smaller lots and assumes terrace housing will be used on many of these.

DENSITY ~ YIELD (MDRS Medium)

	Lot Size (sq.m)	Area	% Area	Yield	% Yield	
	100~250	9.86 ha	48%	563	65.6 %	1-4 bedrooms
	250~350	4.83 ha	24%	161	18.8 %	2-4 bedrooms
	350~450	4.31 ha	21%	108	12.6 %	3-5 bedrooms
	450~600	1.39 ha	7%	26	3.1 %	3-5+ bedrooms
Total		**20.38 ha**	100%	**858**	100.0 %	

8.4.3. Theoretical High Yield

This scenario continues the bias toward smaller lots and assumes a greater proportion of attached (terrace) houses.

DENSITY ~ YIELD (MDRS High)

	Lot Size (sq.m)	Area	% Area	Yield	% Yield	
	100~200	9.86 ha	48%	657	67.9 %	1-4 bedrooms
	200~350	4.83 ha	24%	176	18.1 %	2-4 bedrooms
	350~450	4.31 ha	21%	108	11.1 %	3-5 bedrooms
	450~550	1.39 ha	7%	28	2.9 %	4-5+ bedrooms
Total		**20.38 ha**	100%	**968**	100.0 %	

9. SUMMARY

The original urban design work recommendation of MHS as the appropriate zone for this application was made on the basis that it would best match the character of a small rural town while still delivering sufficient yield to create significant public good benefits for the town.

An upgrading to MHU for the application was accepted for two reasons:

- When economics and the market are taken into account, despite the more permissive standards of MHU, the buildout is unlikely to be fundamentally different.
- MDRS will be imposed on the area. Adoption of MHU now best approximates the likely outcome in terms of planning standards.

The high-amenity sample scheme *(Figure 6-2 Proposed Urban Design Concept Plan)* has been modelled for high-yield. As 100% development efficiency is never achieved in the real world, the average of the two MDRS scenarios has been suggested as a reasonable and realistic number to be used for the calculation of effects.

910 lots is the suggested maximum yield.

If MDRS is unlikely to have much effect on the general urban form resulting from this application, it will have a very large effect on existing suburban Waiuku. The potential decrease in qualitative values from the MDRS is experienced mostly though infill development. If no greenfield housing is made available, those effects will be felt sooner rather than later (and in a less controlled way) through infill of existing SHZ and MHS zones. This will be the only way for Waiuku to accommodate population increase to support itself and the increased economic activity from empty zoned commercial/industrial land.

For a small town like Waiuku where character values are arguably far more important than in urban Auckland, contained and controlled greenfield development, if not an absolute defence, represents at least a long delay in the character change that will result from such development.

10. CONCLUSION

Taking all the urban design matters and likely changes from the introduction of the MDRS into consideration, Mixed Housing – Urban is the recommended zone for the PC area.

An urban design best-practice scheme is possible for the whole of the PC area.

A possible scheme as outlined in this report will generate an appreciable proportion of affordable houses but with much higher amenity values than a traditional suburban subdivision.

There are no negative effects from an urban design perspective on the rest of the Waiuku residential area generated by the development of the PC area.

There are many possible positive effects from residential development of the PC area in regard to the strengthening of the town centre through:

- Increased population (market size, demand)
- Proximity to the town centre

There are many possible positive effects from residential development of the PC area for the rest of the Waiuku:

- Increased local population to provide workforce as stimulation for increased commercial/ industrial activity on zoned land
- Increased support and patronage justifying the retention and expansion of existing local social services
- Expansion of open-space amenity for the town
- Reinforcement of the identity of the town

Tim King
Urban Design/ Landscape Planning Lead

7 February 2020

commonground STUDIO

11. APPENDICES

(as attachments)

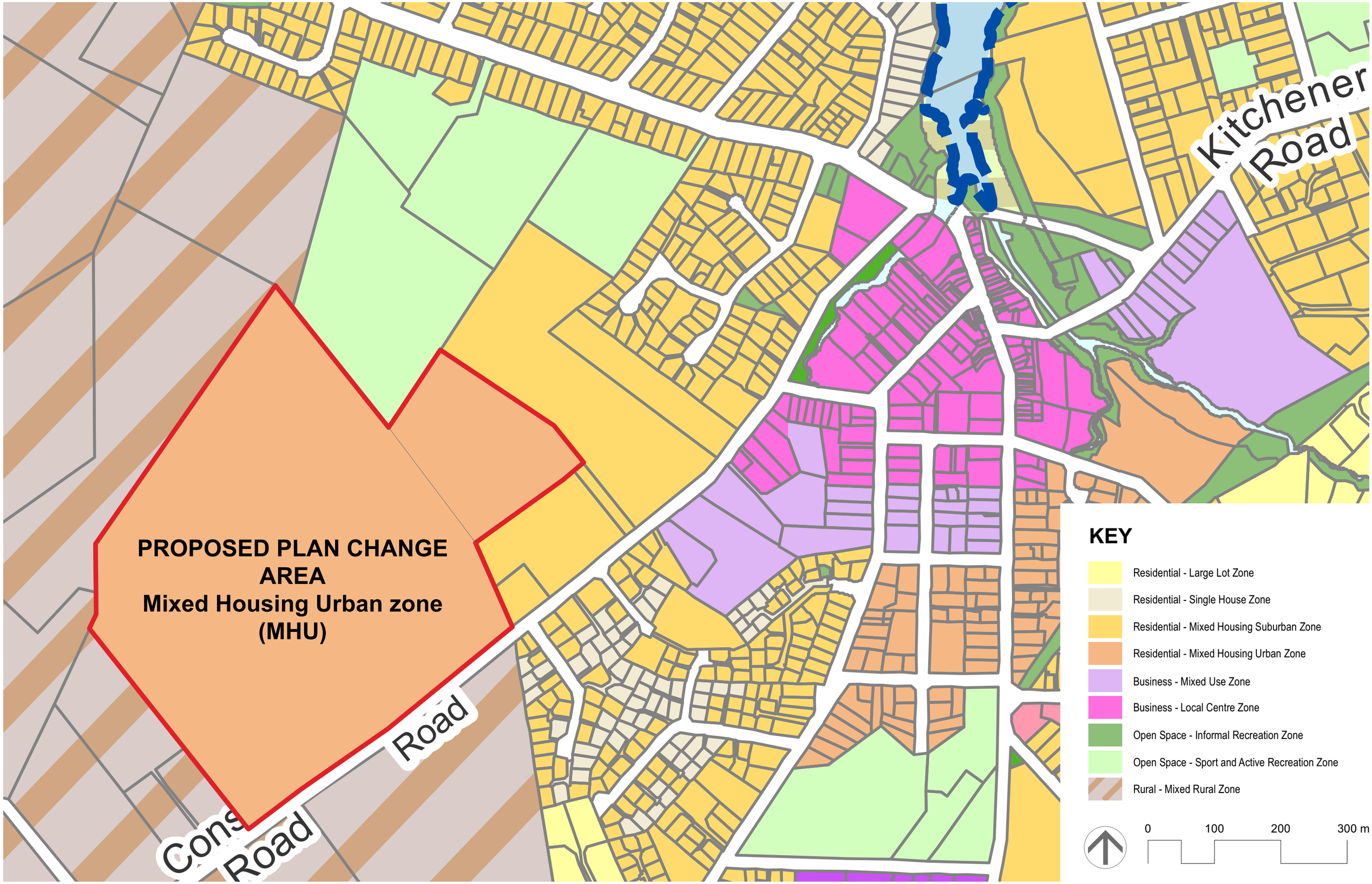
11.1. APPENDIX 1: PC3-PROPOSED ZONE

11.2. APPENDIX 2: PC4-OUTLINE DEVELOPMENT PLAN

11.3. APPENDIX 3: PC5-URBAN DESIGN CONCEPT

11.4. APPENDIX 4: PC6-DENSITY DISTRIBUTION

11.5. APPENDIX 5: PC9-PRECINCT PLAN



KEY

- Residential - Large Lot Zone
- Residential - Single House Zone
- Residential - Mixed Housing Suburban Zone
- Residential - Mixed Housing Urban Zone
- Business - Mixed Use Zone
- Business - Local Centre Zone
- Open Space - Informal Recreation Zone
- Open Space - Sport and Active Recreation Zone
- Rural - Mixed Rural Zone

0 100 200 300 m

COMMON GROUND.
office@cgstudio.co.nz Auckland, NZ T (+64) 9 302 2200
www.cgstudio.co.nz

client: Gardon Trust

rev	date	details	by
A	23/05/2021	Update key and add prperty boundaries	tk
B	17/01/2022	Change from MHS to MHU	tk
C	8/03/2022	School property to MHU	tk

scale 1:5,000 size A3
Do not scale drawings. Verify all dimensions on site.

drawn tk checked By

pr date 9/03/2022

file BASE Waiuku.vwx

project O'Hara Waiuku Plan Change

name **Proposed Zone**

project # 19002-2

PC3

Set Page

Council

Rugby Club

Recreation Fields

Open-space connection:
stream

Connection to
rear lot

Open-space
connection:
playing fields

Vehicle connection
to parking, playing
fields, school

Frontage
to reserve

Highschool

Development
outlook: Rural

Secondary
entry

Inland Node -
Open-space
Network

Development
outlook: Town

Open-space connection:
Constable Rd

Entry

Gateway

Low-density and
landscaped edge

KEY

- Plan Change Area
- Schools
- Open-space (informal)
- Open-space (formal)

COMMON GROUND.

office@cgstudio.co.nz Auckland, NZ T (+64) 9 302 2200
www.cgstudio.co.nz

client: Gardon Trust

0 100 200 300 400 m

rev	date	details	by

scale 1:10,000 size A3
Do not scale drawings. Verify all dimensions on site.

drawn tk checked By

pr date 31/05/2021

file BASE Waiuku v3.vwx

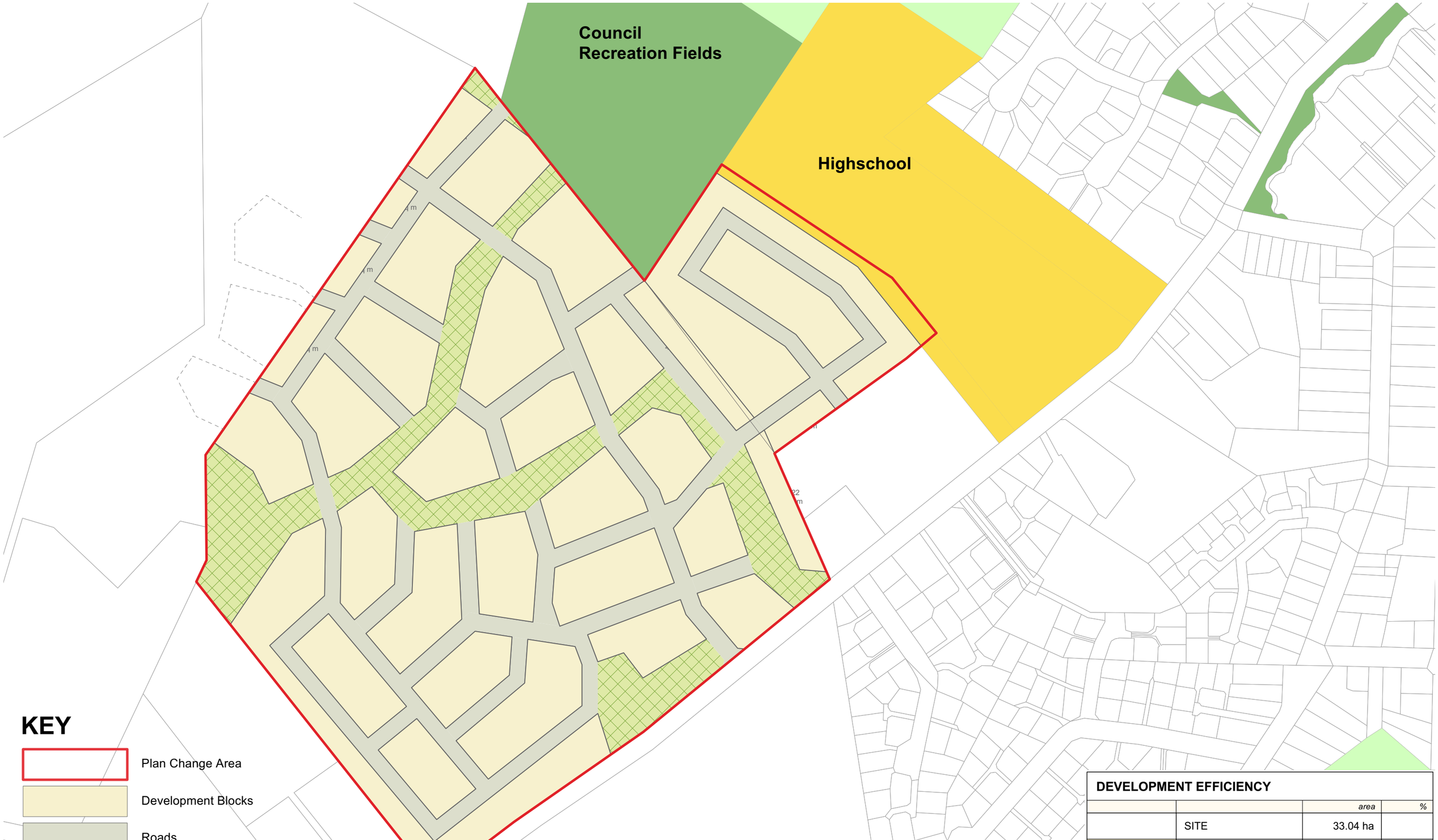
project O'Hara Waiuku Plan Change

name **Outline Development Plan**

project # 19002-2

PC4

Set Page



KEY

- Plan Change Area
- Development Blocks
- Roads
- Greenway

0 100 200 300 m

DEVELOPMENT EFFICIENCY

		area	%
	SITE	33.04 ha	
	Development	20.39 ha	61.7%
	Roads	7.49 ha	22.7%
	Open-space	4.80 ha	14.5%

rev	date	details	by
A	28/01/2021	New greenway route > block layout	tk
B	22/05/2021	New greenway route > block layout	tk
C	10/06/2021	Block layout rev 4	tk

scale 1:3,500 size A3
Do not scale drawings. Verify all dimensions on site.

drawn tk checked By

pr date 9/03/2022

file BASE Waiuku.vwx

project O'Hara Waiuku Plan Change

name Urban Design Concept

PC5

project # 19002-2

Set Page

COMMON GROUND.
office@cgstudio.co.nz Auckland, NZ T (+64) 9 302 2200
www.cgstudio.co.nz

client: Gardon Trust

KEY

- Plan Change Area
- Greenway
- Living Streets

0 100 200 300 m

DENSITY ~ YIELD

	Lot Size (sq.m)	Area	Yield	% of total
	200~300	9.86 ha	394	62.8 %
	300~500	7.83 ha	196	31.2 %
	500~700	1.31 ha	22	3.5 %
	700~1000	1.39 ha	16	2.6 %
Total		**20.39 ha**	**628**	100.0 %

rev	date	details	by
A	28/01/2021	New greenway route > block layout	tk
B	22/05/2021	New greenway route > block layout	tk
C	10/06/2021	Block layout rev 4	tk

scale 1:3,500 size A3
Do not scale drawings. Verify all dimensions on site.

drawn tk checked By

pr date 9/03/2022

file BASE Waiuku.vwx

project O'Hara Waiuku Plan Change

name **Density Distribution**

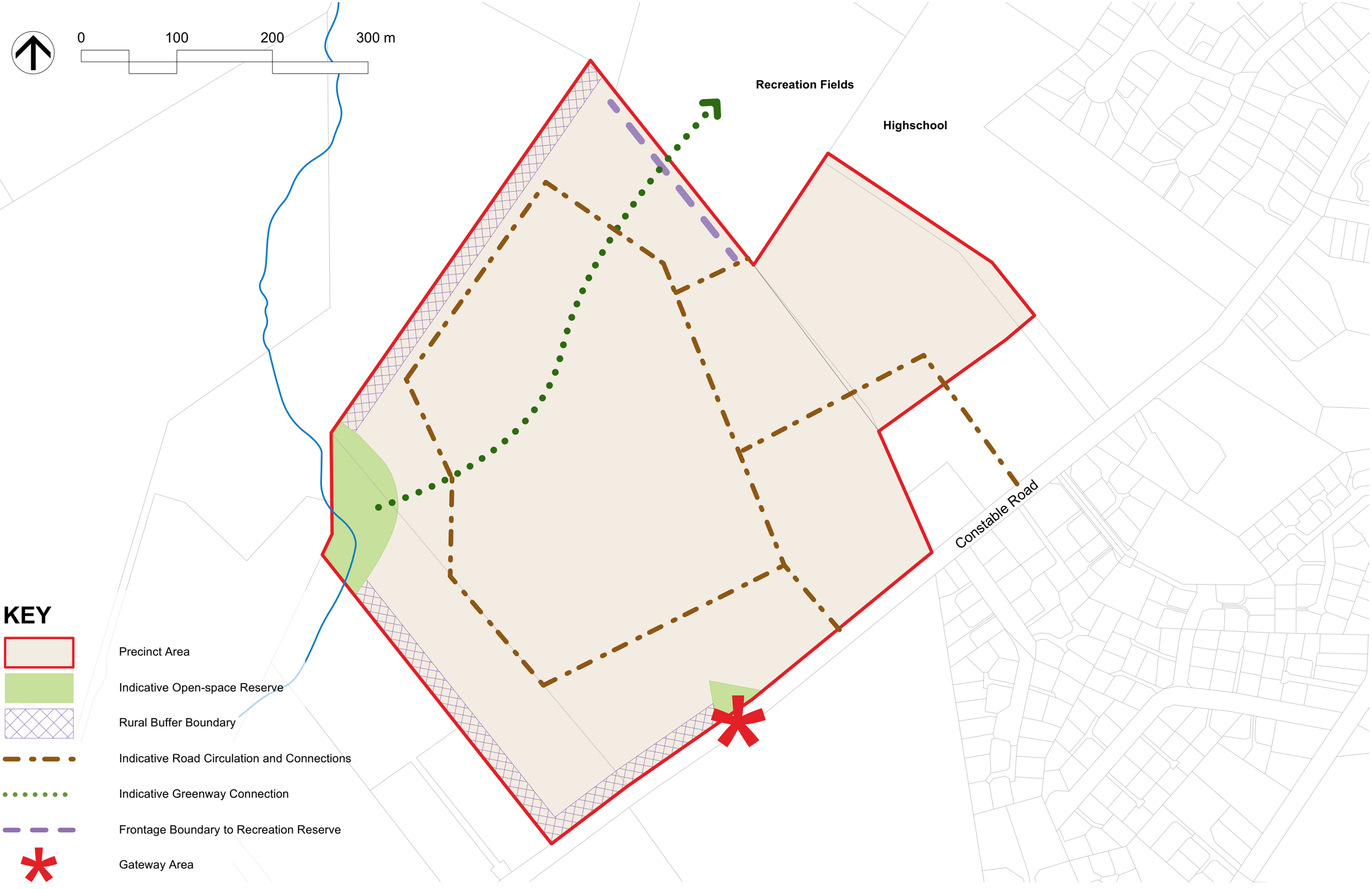
project # 19002-2

PC6

Set Page

COMMON GROUND.
office@cgstudio.co.nz Auckland, NZ T (+64) 9 302 2200
www.cgstudio.co.nz

client: Gardon Trust



KEY

- Precinct Area
- Indicative Open-space Reserve
- Rural Buffer Boundary
- Indicative Road Circulation and Connections
- Indicative Greenway Connection
- Frontage Boundary to Recreation Reserve
- Gateway Area

COMMON GROUND.
office@cgstudio.co.nz Auckland, NZ T (+64) 9 302 2200
www.cgstudio.co.nz

client: Gardon Trust

rev	date	details	by
A	6/10/2021	refined criteria to include in ODP	tk

scale 1:3,500 size A3
Do not scale drawings. Verify all dimensions on site.

drawn tk checked By

pr date 9/03/2022

file BASE Waiuku.vwx

project O'Hara Waiuku Plan Change

name Precinct Plan 1

project # 19002-2

PC9

Set Page