2.2 Rural urban boundary location - section 32 evaluation for the Proposed Auckland Unitary Plan

Contents

1 Overview and Purpose

This evaluation should be read in conjunction with Part 1 in order to understand the context and approach for the evaluation and consultation undertaken in the development of the Proposed Auckland Unitary Plan (Unitary Plan).

1.1 Scope of this Paper

This paper provides an analysis of the proposed location of the Rural Urban Boundary (the "RUB") as it relates to the Greenfield Areas for Investigation (GAFIs) detailed in the Auckland Plan's Development Strategy for the North, North-West, and Southern Areas of Auckland.

It does not include any analysis of Greenfield Areas for Investigation around rural and coastal settlements (e.g. Kingseat and Beachlands).

However, this paper considers the two satellite settlements identified in the Auckland Plan, Pukekohe and Warkworth.

This paper details the process for the identification and analysis of these greenfield areas, including community engagement, technical research, and mapping. This paper should also be read with the s32 papers for the *"Development Capacity, Supply of Land for Urban Development and Rural Urban Boundary".*

It should also be noted that this paper does not address in detail the future built form of greenfield areas contained within the RUB. These greenfield areas will be subject to structure planning exercises following confirmation of the RUB's location which will detail how built form, land use, infrastructure and related issues are to be addressed.

Lastly, following the adoption of the Auckland Plan, the RUB project was split into four different stages, given the scale and complexity of the project, as well as the resources available to undertake the project. These four stages included:

- ***Stage 1 - Updated 2010 MUL:*** *Updating the 2010 MUL to include recent Environment Court decisions and consent orders.*

- ***Stage 2 - The 'Edge Work':*** *Revising the updated 2010 MUL, (Stage 1), around the existing metropolitan urban area based on public feedback to the draft Auckland Unitary Plan.*

- ***Stage 3 - Greenfields Areas for Investigation:*** *Determining a RUB in the 'greenfield areas of investigation' identified in the Auckland Plan. The greenfield areas include the two satellite towns of Warkworth and Pukekohe.*

- ***Stage 4 -*** *Other RUB Areas includes setting the RUB for rural and coastal towns and serviced villages outside the 'greenfield areas of investigation'.*

This paper addresses the preferred RUB and associated greenfield areas as it applies Stages 2 and 3 of the RUB project. The RUB areas forming Stage 4 work will be undertaken at a later date following the notification of the Unitary Plan. The locations affected by Stage 4 will be prioritised following the Unitary Plan's notification and will then be allocated resources. It is anticipated that Stage 4 will begin the following year and will progress as the wider Unitary Plan is developed.

1.2 Resource Management Issue to be Addressed

As detailed in the s32 paper for the *"Development Capacity, Supply of Land for Urban Development and Rural Urban Boundary"*, the growth management of Auckland's urban areas is considered to be a significant resource management issue.

The growth of the urban area's footprint presents a number of environmental matters as raised by Part 2 of the Act including; water quality, heritage, and biodiversity. Furthermore, this paper addresses the regional policy statement resource management issues of the Draft Unitary Plan.

The management of the environmental effects on these issues, while also providing for Auckland's growth, requires the planning and identification of future growth areas and their associated boundaries.

1.3 Significance of this Subject

Auckland faces significant growth pressures over the coming decades, as its population grows by up to an additional million residents. These residents will need to be housed, requiring an additional 400,000 dwellings to be built. While these dwellings will be accommodated in a range of locations and types of housing, it is critical that forward planning is undertaken to ensure that these dwellings and associated developments can be efficiently delivered in appropriate locations (in preference to less suitable locations). As part of this forward planning, additional greenfield areas in appropriate locations are needed to absorb some of this growth.

Furthermore, this additional population growth requires the provision of new employment opportunities and business areas. These will be accommodated in a range of forms from industrial zones through to mixed-use centres. The Auckland Plan identifies the need for an additional 1,400 hectares of "business" greenfield land, including 1,000 hectares for large-lot business activities (such as manufacturing, logistics, and storage). It should also be noted that the 250,000 new residents of the new greenfield areas where the RUB is proposed will also require an additional 61,000 jobs.

To support these new greenfield areas there will need to be new, expanded, and upgraded transport networks, social infrastructure, and network utilities. In order to align the delivery of these other land use types and supporting services with new residential areas, it is critical to take a long-term approach to planning and land delivery. More than 80% of the Auckland region is rural and the outcomes being sought for rural areas will benefit from certainty about where future growth will not occur.

Greenfield growth could be accommodated in a variety of locations and built forms, all of which have differing environmental effects. This paper provides analysis of the various greenfield options associated with the RUB, based a broad range of criteria to address the Draft Unitary Plan regional policy statement, the Auckland Plan, and Part 2 of the Act.

While issues are also further addressed in the s32 paper *"Development Capacity, Supply of Land for Urban Development and Rural Urban Boundary",* this paper specifically details the location of the RUB and the greenfield areas it contains.

1.4 Auckland Plan

The Auckland Plan was developed under section 79 of the Local Government (Auckland Council) Act 2009. This section of the Act required the Council to:

> *(1) The Auckland Council must prepare and adopt a spatial plan for Auckland.*
> *(2) The purpose of the spatial plan is to contribute to Auckland's social, economic, environmental, and cultural well-being through a comprehensive and effective long-term (20- to 30-year) strategy for Auckland's growth and development.*
> *(3) For the purposes of subsection (2), the spatial plan will—*
>
> - *(a) set a strategic direction for Auckland and its communities that integrates social, economic, environmental, and cultural objectives; and*

- *(b) outline a high-level development strategy that will achieve that direction and those objectives; and*
- *(c) enable coherent and co-ordinated decision making by the Auckland Council (as the spatial planning agency) and other parties to determine the future location and timing of critical infrastructure, services, and investment within Auckland in accordance with the strategy; and*
- *(d) provide a basis for aligning the implementation plans, regulatory plans, and funding programmes of the Auckland Council.*

(4) The spatial plan must—

- *(a) recognise and describe Auckland's role in New Zealand; and*
- *(b) visually illustrate how Auckland may develop in the future, including how growth may be sequenced and how infrastructure may be provided; and*
- *(c) provide an evidential base to support decision making for Auckland, including evidence of trends, opportunities, and constraints within Auckland; and*
- *(d) identify the existing and future location and mix of—*
  - *(i) residential, business, rural production, and industrial activities within specific geographic areas within Auckland; and*
  - *(ii) critical infrastructure, services, and investment within Auckland (including, for example, services relating to cultural and social infrastructure, transport, open space, water supply, wastewater, and stormwater, and services managed by network utility operators); and*
- *(e) identify nationally and regionally significant—*
  - *(i) recreational areas and open-space areas within Auckland; and*
  - *(ii) ecological areas within Auckland that should be protected from development; and*
  - *(iii) environmental constraints on development within Auckland (for example, flood-prone or unstable land); and*
  - *(iv) landscapes, areas of historic heritage value, and natural features within Auckland; and*

(f) identify policies, priorities, land allocations, and programmes and investments to implement the strategic direction and specify how resources will be provided to implement the strategic direction

The development of the Auckland Plan and its RUB components were subject to both a detailed research phase and a special consultative procedure. Research underpinning those parts of the Auckland Plan that promote the RUB included:

- A multi-layered analysis (including mapping) of regional constraints and opportunities (such as natural hazards, outstanding landscapes, transport networks) that affect the location of new urban areas;
- Identification of legacy planning including plan changes and structure plans;
- Analysing demographic information, including projected population growth for the life of the Auckland Plan.

- Cross-referencing of research with other Auckland Plan workstreams including Transport, Network Utilities, Rural and Environment; and

- Transport and land use modeling.

The Auckland Plan also relied on public feedback to both *"Auckland Unleashed"* (the Auckland Plan discussion document) and the Draft Auckland Plan. Feedback was provided by a range of mechanisms and was integrated in further analysis and deliberations by Auckland Council.

The Auckland Plan produced a 30 year development strategy for Auckland. This strategy focused on a "quality compact" model, emphasising intensification within the existing urban core and additional growth focused in certain new greenfield areas, rural and coastal settlements, and some rural areas.

The overall split between growth inside and outside of the existing urban core was set at 70:40. This split seeks to accommodate up to 70% of growth within the existing urban area with the flexibility to accommodate up to 40% elsewhere (including greenfield areas, rural locations, and rural and coastal settlements).

An important component of the development strategy was the proposed use of the Rural Urban Boundary (the "RUB") to control the spread of Auckland's urban footprint. The RUB replaces the Metropolitan Urban Limits (the "MUL") and as highlighted in the s32 paper for the *"Development Capacity, Supply of Land for Urban Development and Rural Urban Boundary"*, the RUB will provide a permanent 30 year growth boundary around the urban core, satellites, as well as serviced rural and coastal settlements.

In order to determine the appropriate location for the RUB and ensure an adequate supply of greenfield land, the Auckland Plan identified three possible large growth clusters where the RUB could differ significantly from the legacy MUL. These three growth clusters were:

- A Southern Cluster focused around Karaka, Drury, Paerata, and Pukekohe

- A Western Cluster focused around Kumeu-Huapai and Whenuapai

- A Northern Cluster focused around Silverdale, Orewa, and Warkworth.

Additional possible new greenfield areas were also identified at Maraetai-Beachlands, Kingseat, and Glenbrook due to ongoing plan changes and structure planning.

The current RUB project has focused on the three main RUB clusters and this is reflected in the body of this paper. This paper also addresses those areas of the RUB identified as "edge work". This edge work involves possible site and location specific extensions to the existing MUL (and thereby the proposed RUB) and this "edge" analysis has been dealt with as a fourth cluster within this paper.

Further detail regarding RUB specific directives and guidance in the Auckland Plan will addressed within Part 2.1 of this paper.

However, it should also be noted that this paper does not provide any analysis associated with a RUB for rural and coastal serviced settlements. This analysis will be undertaken post-notification of the Draft Unitary Plan.

Further detail regarding the RUB investigation process can be found in Part 2 of this paper and the s32 paper *"Development Capacity, Supply of Land for Urban Development and Rural Urban Boundary".*

1.5 Current Situation

Current Land Delivery Overview

The Auckland urban area is currently contained within the MUL. The MUL was introduced through the Regional Growth Strategy and the subsequent Regional Policy Statement. The MUL did not contain 30 years of greenfield development capacity (as now required by the Auckland Plan) and could be altered by way of plan change processes and alterations to the Regional Policy Statement, but not by way of a private plan change.

The wider land supply and development issues facing Auckland are discussed further in the s32 paper *"Development Capacity, Supply of Land for Urban Development and Rural Urban Boundary".*

There are also a number of structure planning and plan change projects underway which have been referenced and analysed as part of the wider RUB project. This includes legacy work such as the Silverdale West Structure Plan, the Hingaia Structure Plan, and the NorSGA project.

Current Land Delivery Process

Under the current MUL growth management process, the delivery of new urban land is a lengthy and costly process. It can require a number of changes to existing planning documents including the Regional Policy Statement and underlying District Plans. These changes are needed to instigate a MUL shift and rezone the “new” metropolitan land to live urban zones. Supplementary resource consents, notices of requirement, and outline plans of works may also be needed to establish the infrastructure needed to support the MUL shift.

In order to determine and achieve any MUL shifts, it is also necessary to follow established statutory processes that can encompass an effects and planning policy assessment, public notification and submissions, hearings, and Environment Court appeals. MUL shift applications can also proceed to the High Court depending on the legal issues associated with them.

These statutory processes and assessments have been criticised for creating both uncertainty in the timeframes and costs of delivering new urban land. The RUB seeks to resolve these uncertainties by clearly identifying 30 years of future urbanised land and working closely with delivery programmes to ensure that development capacity and infrastructure is provided on-time to the market.

1.6 Information and Analysis

The analysis of the proposed RUB has been based on a detailed research and consultative based investigation. The RUB project has built on the work undertaken by previous Council’s and more recent work to develop the Auckland Plan, with additional technical analysis with input from a number of internal and external stakeholders.

Further detail regarding this analysis is contained throughout this paper, while supporting technical information has also been attached as appendices.

1.7 Consultation Undertaken

Consultation has been a key part of identifying the RUB’s preferred location. While specific detail of consultation events is provided in sections 2.2 and 3 of this paper, consultation has been undertaken using the following techniques:

- Open days, evening meetings, open mike discussions and feedback sheets
- Calls for public feedback and analysis of results
- Workshops with political representatives both at Local Board and Councillor level

- Engagement with Mana Whenua, including hui
- Stakeholder workshops
- Individual meetings
- Internal workshops with Council specialists
- The release of the RUB addendum to the March Unitary Plan draft and associated feedback process.

It should also be noted that this consultation builds upon the special consultative process that was undertaken for development of the Auckland Plan.

1.8 Decision-Making

Identifying the preferred location of the RUB has involved a series of decision-making processes, which reflects the multiple technical and consultative inputs into the project. While specific detail of individual decisions has been included within later sections of this paper, the RUB project has also sat within the wider Unitary Plan development process. This wider process has involved decision-making at a variety of levels and branches within Council.

1.9 Proposed Provisions

The proposed location of the RUB for the Draft Unitary Plan is identified within the four RUB study areas discussed in section 3 of this paper.

1.10 Reference to other Evaluations

The list below identifies the s32 evaluations of most relevance to this report. This section 32 report should be read in conjunction with these evaluations.

- 2.1 Urban Form and Land Supply
- 2.15 Mana Whenua and Cultural Heritage
- 2.19 Landscapes
- 2.22 Future Urban Zone
- 2.23 Greenfield Urban precincts
- 2.24 Urban Stormwater
- 2.25 Freshwater
- 2.26 Flodding
- 2.27 Intermittent Streams and Riperian Margins
- 2.28 Natural Hazards
- 2.30 Green Infrastructure Corridors
- 2.35 Rural Subdivision

2 Developing the RUB

2.1 Planning Principles for RUB Identification

The development of the preferred RUB has remained cognisant of the physical features which define the various RUB clusters. These physical features fall into a number of categories with their own drivers within the regional policy environment. This section will identify these features and how they affected the development of the RUB. Furthermore, this section should be read in conjunction with section 2.4 of this paper “Regional Level Policy Guidance*”* and the s32 paper *"Development Capacity, Supply of Land for Urban Development and Rural Urban Boundary".*

2.1.1 Achieving the Quality Compact City

As led by the development strategy of the Auckland Plan and addressed in section 1.4 of this paper, the future greenfield areas contained by the RUB must be able to support a “quality compact” form of urban development. This translates to land that can readily support a range of density and urban land use types which would be found in an urban area.

The development of these greenfield areas will include the provision of new town centres, residential zones, business areas, and supporting infrastructure. Land which is unable to support such development, due to matters like geotechnical conditions, has been avoided where possible.

2.1.2 Protecting Environmentally Sensitive Areas

The GAFIs are, at times, located near to a number of environmentally sensitive areas and sites. These range from estuarine reaches of shallow harbours and tidal creeks, through to stands of native bush and steep land running down to sensitive receiving environments.

The proposed RUB seeks to avoid or mitigate adverse effects on these areas and sites, by allowing for the implementation of green infrastructure corridors and minimising the need for significant earthworks (e.g. global earthworks for large developments). It also makes provision for the fact that these sites and areas will provide land for a range of recreational opportunities for future residents.

2.1.3 Focusing on Transport

Another principle of analysing the location of the RUB and associated greenfield land has been to focus development around transport networks. In particular, the location of the RUB seeks to optimise the use of existing and proposed transport infrastructure by utilising investment in public transport, such as the electrification of the rail network. Greenfield areas have been planned to contribute to achieving modal shift towards public transport, walking and cycling.

To ensure the efficient movement of people and freight, the core street and transport infrastructure has been identified, as have the transport interventions that support the preferred urban form.

The purpose of this transport focus is to promote better outcomes for communities, to reduce the cost of future transport infrastructure investment and to minimise the impacts of growth on existing assets.

2.1.4 Recognising Rural Production Systems

The proposed RUB will have effects on elements of a number of rural production systems across the region. The RUB project has sought and used information about the components and importance of these systems, as well as the environmental inputs that make them successful. In order to limit the loss or degradation of these systems, efforts have been made to understand, and where possible, avoid urbanising aquifer recharge areas and areas of elite soils.

The impacts of urbanisation on wider stream catchments have also been considered, as well as the wider economic systems associated with rural production.

2.1.5 Utilising Infrastructure

The new urban areas contained within the RUB will require a complete suite of new infrastructure, ranging from network utilities to parks and schools. This infrastructure can be costly to establish and require lengthy lead in periods given the sensitivity of some infrastructure classes (e.g. wastewater treatment).

Where possible, the RUB has sought to make use of existing infrastructure capacity and networks. This can reduce the cost of development, allow faster delivery of development capacity, and avoid adverse environmental impacts. Further premium has also been placed on areas that are easier to service with utilities, without the need for lengthy utility connections and in more geologically stable locations.

2.1.6 Avoiding Hazards

Following recent natural disasters both in New Zealand and overseas, the RUB and its associated greenfield areas have taken into account the range of natural hazards present in the Auckland Region. The main hazards facing the RUB project are associated with flooding, coastal erosion/inundation, land instability, liquefaction (due to seismic activity), and sea level rise from climate change.

The RUB project has taken an avoidance approach, seeking to clearly identify natural hazards and avoid the development of land subject to hazards. While some areas subject to hazards are still located in the RUB, it should be noted that they will be most likely used for recreation and other land uses which have a higher degree of resilience to hazards than an urban built form.

2.1.7 Protecting Cultural Heritage

Underpinning the wider considerations of the RUB project and the future direction of Auckland's urban form is recognition of the region's cultural heritage and in particular, the values of Mana Whenua.

The preferred RUB has sought to avoid culturally sensitive sites. It is also anticipated that the structure planning that will follow the confirmation of the RUB will make use of the cultural values and aspects associated with the RUB areas.

2.1.8 A Defensible RUB

Catchments with sensitive receiving environments[1] or floodplains, and land that is steep and susceptible to erosion and/or supports remnants of native bush is not suitable for urbanisation and should remain outside the urban development boundary. Each of the growth areas has been assessed in terms of suitability for urban development by a qualified landscape architect. Recommendations were made as to the type of development suitable within each landscape assessment[2] area and where a clear and defensible rural urban boundary should be located. These recommendations, together with other relevant factors, have contributed to determining the proposed RUB areas.

Topography and landscape features are key elements that enable the identification of a defensible boundary to each growth area. Where these are not strong factors, other elements such as road boundaries, high tension powerlines/corridors, noise contours or ecological habitats may contribute to defining the extent of the RUB.

The Environment Court has determined[3] that strong landscape features or constraints, such as the coastal edge, natural catchments or watersheds and prominent ridges and backdrops contribute most to the defensibility of an urban limit. In some cases a combination of these considerations provides a more robust RUB than would the individual elements on their own. For example, an arterial road following a ridgeline, as in the case of the Long Bay MUL shift to Vaughans Road, enables a more readily enforceable limit to urban development than just the road alone.

The Court also considers that the urban limit should not create "an anomaly in landscape management and land use terms."[4] Land use and management is usually determined by a variety of natural and physical conditions and consequently the viability of particular

[1] Okura/Long Bay decision A86/96, at 48.

[2] Landscape assessments are attached to this paper as appendices.

[3] Gavin H. Wallace Ltd & Orrs v Auckland Council [2012] NZEnvC120 at 112-114.

[4] Ibid at 112.

activities on that land. The proximity of land to regionally significant infrastructure or well established activities such as airports, landfills and quarries, and the potential for reverse sensitivity complaints, has also be considered in determining the RUB.

Particular emphasis has been given to the landscape assessments in determining the strongest possible physical limit to urban growth. In most cases, ridgelines (typically aligning with roads), streams and floodplains contribute to natural catchments with obvious edges or boundaries. The edges of Outstanding Natural Landscapes or Features and/or Significant Ecological Areas have in some cases provided the most discernible natural boundaries to growth areas. It is considered that these boundaries provide natural and defensible restrictions to urban development, beyond which new urban developments should be avoided. However, a further level of detailed planning may be required in terms of surveying and legally establishing the RUB and its relationship to a logical physical feature, especially where it does not necessarily align with cadastral boundaries.

2.2 Consultation/Engagement

The following discussion shows the background to, and progress of, the Auckland Plan, which introduced the concept of the Rural Urban Boundary. The Rural Urban Boundary was introduced as a key tool to support the development strategy approach of a quality compact urban form, with the associated benefits of having 60% to 70% of growth within the existing urban area, and the remainder outside.

2.2.1 Auckland Unleashed

The Auckland Unleashed discussion document was released for comments in March 2011, and was a precursor to the spatial plan for Auckland, known as the Auckland Plan. It presented the aspiration and Mayor's vision, of turning Auckland into the world's most liveable city, alongside the challenges and opportunities to making this happen. Population change and growth was identified as a primary driving force of change in Auckland, as well as the associated challenges. These included the impact on housing availability and affordability, sustaining economic growth and success, and meeting and managing the demand for infrastructure.

The discussion document stated that the Auckland Plan would create an opportunity for a more integrated approach to infrastructure planning, with specific recognition of the impact of this on the transport network. The desire for a quality compact Auckland was restated, with its support for the growth of people and jobs, directing growth into town centres and along arterial routes, and confined within an urban boundary. The key issue presented for the Rural Urban Boundary, was whether or not urban growth should be confined within some form of urban boundary. Other related issues were the proposed re-categorisation of the town centre network across Auckland and the introduction of the concepts such as satellite centres at Warkworth, Helensville, Kumeu/Huapai and Pukekohe.

2.2.2 Preferred Urban Form

The Preferred Urban Form was part of the Auckland Plan engagement process that informed the Development Strategy. Priorities for the selection of new areas for growth were considered in order of priority. Priority areas included centres, corridors and existing urban capacity, with greenfield areas identified as a lower order priority. Areas were then selected based on a process of identifying opportunities and constraints. This process considered the following factors:

- Landform and landscape
- Response to global and national issues
- Natural hazards
- Response to local environmental issues
- Opportunities to enhance existing urbanised waterways and coastal areas

- Rural production and recreation
- Infrastructure
- Economic development/business
- Distribution of retail and community services; and
- Housing.

This led to the identification of a number of “No Go” areas, which included the Waitakere/Hunua Ranges, Okura/Weiti, Albany/Paremoremo Escarpment, Riverhead/Woodhill Foothills and Pukekohe/Bombay Hills. “Targeted Areas for Restoration” were also identified.

Options for new greenfield areas were then able to be identified. These areas were considered against a number of trade-offs that needed to be resolved in order to finalise areas for future growth. These included testing against transport (road and public transport); rural production vs. urban expansion; infrastructure provision; the sub-regional employment balance; and housing affordability.

However, some final Auckland Plan conclusions were not consistent with the findings of the Preferred Urban Form constraints and opportunities analysis, such as the eastern part of the Silverdale GAFI and the introduction of the Warkworth GAFI. This was due to other factors affecting the final outcomes, such as the consideration of submissions, the market view/perspective on development and capacity provision, as well as the need to provide for up to 40% of growth outside the 2010 MUL (a decision to go to a 70/30, 60/40 split instead of 75/25).

The key difference between the final Auckland Plan and the Preferred Urban Form was that the Preferred Urban Form approach was to accommodate the majority of growth through intensification and existing greenfield areas (such as Flat Bush and Takanini) and only using newly identified greenfield areas if required. The Preferred Urban Form concept was not focused on accommodating numbers or certain physical areas. A process of verifying this approach was undertaken subsequently to inform the identification of the GAFI for their inclusion in the Auckland Plan.

The final Auckland Plan approach was to provide up to 40% of growth outside the 2010 MUL depending on uptake of expected 70% of growth through intensification. This has lead to significantly more greenfield areas being identified for investigation including a large amount of growth allocated to the satellites of Pukekohe and Warkworth.

The following Greenfield Areas for Investigation were identified in the Auckland Plan:

- Warkworth
- Silverdale - slightly larger area
- Westgate - Kumeu/Huapai/Riverhead
- Beachlands
- Drury*/Karaka
- Pukekohe
- Paerata*
- Kingseat
- Glenbrook*

*Business land focused

2.2.3 Auckland Plan

Public consultation on the draft Auckland Plan was held from September to October 2011. Submissions received were very positive about the high-level Development Strategy, in particular supporting the quality compact Auckland approach. Wide support was received for the RUB to prevent urban sprawl, provide certainty and planning for infrastructure provision. Compact and intensive residential and business development was supported around attractive, well-connected and integrated neighbourhoods. Some submitters opposed the quality compact approach, believing the RUB would restrict the growth of Auckland and would not reflect how most Aucklanders wish to live. The growth projections were questioned, as were impacts that this level of growth might have on the environment and lifestyles. Affordability of homes and the development finance model were raised as important issues to consider. The 75:25 split between intensification and greenfield growth were challenged as being unachievable. This was subsequently changed to 60% to 70% intensification and 30% to 40% greenfield growth.

Consultation and engagement with Aucklanders on key issues relating to the Auckland Plan and the Unitary Plan has been ongoing since 2011, starting with the Auckland Unleashed document. Key directions and outcomes of this consultation and engagement are discussed in section 1.7. Significant engagement with Mana Whenua, the council's advisory panels, stakeholders, and sector groups took place in 2012. This engagement informed the development of the draft plan that was released for public feedback March 2013. It included an online forum and a day-long civic forum with the public.

Phase 1 (August - December 2012) Online Discussion Forum
This platform raised issues and concerns around the scale and impact of the predicted population growth and how, or whether, Auckland can sustain and manage this growth. There were suggestions to cap, or curb the level of population growth in Auckland. Some participants advocated for a limit to growth in order to protect environmental and heritage values, while others considered a combination of high-density housing with good planning would allow for the protection of these values. Questions were raised about how growth could be managed, with general agreement that growth and intensification were reliant on improved access to an improved public transport network.

Phase 1 (October 2012) Civic Forum
The key issues raised and agreed upon at the forum included the value placed on the natural environment (harbours, beaches, streams, waterways, parks and views of the harbour or the Waitakere Ranges), good urban design, mixed neighbourhoods, retaining Auckland's character, and improved access to public transport. Other issues included the opportunities a growing population offers, improving housing affordability, while support was expressed for intensification.

Phase 1 (October and November 2012) Consultative Leaders' Forums
The major question explored at the first Forum was: "What approaches will help achieve a quality compact city as Auckland grows?" A number of key approaches that emerged are directly relevant to the RUB:

- Use market attractive locations to create the spark for urban growth / intensification
- Commit to serious public investment in infrastructure and amenity
- Give responsibility for intensification to local communities
- Use proximity to public transport to guide land use density
- Use a range of measures, planning and otherwise, to achieve diverse and affordable housing options
- Change Aucklanders' living expectations away from the quarter acre section to a terrace or apartment living situation.

The second forum focused on approaches for supporting business growth in Auckland, including the release of greenfield land for industrial activity. A number of key issues and ideas were discussed of relevance to the RUB:

- Important that all infrastructure is identified to support urban form - not just transport.
- Reliance on State Highway 1 and option for an alternative route via Weymouth
- Making sure that any new industrial areas relate well to existing urban areas and have good accessibility.
- Need to ensure protection of productive rural land for food production.
- Issue of reverse sensitivity in rural areas if urban development is allowed to encroach into horticultural areas (Pukekohe). Rural sector will continue to grow.
- Wastewater at capacity - south will have new WTP major consenting challenge
- Important that greenfield release follows a structure planning process.
- Support for a 30 year capacity built in behind the RUB, but there was concern that this will lead to land speculation.
- The need to ensure land can be released at appropriate time and not be stopped by landowners wanting greater profit.

Phase 1 (October 2012) Unitary Plan workshops with Mana Whenua
A series of Unitary Plan workshops were held at both Orewa and Manukau in October 2012 covering the key themes of growth, heritage and natural resources. The following summary focuses mainly on the issues raised and discussed at the growth workshops, were the RUB was discussed in most detail. These workshops were used to introduce the RUB project and the GAFIs. The workshops were held as the project began. Increased development in rural areas raised a number of issues for Mana Whenua in the south including:

- Reverse sensitivity towards rural activities
- Increased pressure on undeveloped areas for recreational use
- Recognition of Mana Whenua values through management plans and other methods
- Role of iwi in the decision-making process to determine the criteria for identifying suitable areas for urban development.
- Once an area (e.g. Karaka, Drury, Pukekohe, Paerata) has been identified in the Plan as an area for growth, it is very hard to remove that identification. Once an area has been tagged for growth, it has far-reaching implications.
- A number of iwi have talked with Council in the past about areas to keep away from. About 30-40% of those areas got through.
- Importance of working with infrastructure services

RUB Consultation and Engagement Programme
Consultation and engagement on the Rural Urban Boundary has been ongoing and featured a comprehensive programme to engage with local residents and resident groups, Mana Whenua, local boards, infrastructure providers, professional organisations, the Ministry for the Environment, developers, council officers, specialist consultants, and key stakeholders throughout the process. This programme ran alongside the Unitary Plan consultation programme, including combined and separate events. A large number of these events and meetings were held during and subsequent to the consultation on the draft Unitary Plan from March to May 2013.

Further details of this consultation stage can be found under the relevant RUB areas as consultation was undertaken, in most cases, separately for each investigation area.

Consultation findings were also gathered from the area planning teams on relevant Area Plan, including the Mangere/Otahuhu, Hibiscus & Bays Area Plans, and the Pukekohe Spatial Development Framework. These findings have informed the evidence base for the RUB in these clusters.

2.3 Capacities/Urban Form

This high-level exercise considered the broad theoretical capacity of the proposed greenfield areas within Rural Urban Boundary (RUB) areas, with the same methodology applied consistently throughout. This was used to test against the total additional capacity requirements for the RUB areas set out in the Auckland Plan of around 90,000 dwellings (assuming 40% of overall growth is accommodated outside the baseline 2010 Metropolitan Urban Limits). These findings represent future potential capacity, based on a mix of expected zoning and similar known greenfield development patterns. They should not be considered as a prediction of future growth.

Protection areas were calculated for the RUB areas and surrounding land, based on estimated riparian margin protection areas, with varying buffers depending on stream type and ecological value. Of the remaining land, 30% was set aside for roading, and 15% for public open space, schools, healthcare, and other uses.

The urban form of each RUB area was determined with centres of different sizes identified. Assumptions for the distribution of housing typologies across centre types were based on those achieved at Flat Bush, representing a 'centres based' approach to urban form. The site size and apartment height assumptions were consistent with the approach taken by the Unitary Plan. A lower density scenario was built into the calculations, with fewer apartment dwellings (due to fewer storeys), and larger site sizes for standalone houses. This allowed for a range to be represented to show a variation in the take-up of capacity and build out patterns.

Rural Urban Boundary Greenfield Areas Potential Capacity

The capacity modelling exercise described above gave the following dwelling outputs for the RUB areas:

	Lower Density	High Density
Huapai West	4,033	4,656
Huapai North East	952	1,224
Riverhead West	638	763
Brigham Creek	4,468	5,408
Red Hills North	6,054	7,199
North West RUB	**16,145**	**19,250**
Wainui East	5,135	6,076
Dairy Flat	14,504	17,059
Silverdale RUB	**19,639**	**23,134**
Warkworth North	1,569	1,885
Warkworth West	312	351
Warkworth South	2,973	3,849
Warkworth RUB	**4,854**	**6,085**
Hingaia	2,362	3,063
Karaka	9,774	12,003
Opaheke	7,739	10,350
Pukekohe North - Paerata	9,651	12,124

Pukekohe South	6,391	7,551
South RUB	**35,917**	**45,091**
Overall Total	**76,555**	**93,560**

2.4 Regional Level Policy Guidance

The identification of the RUB has been undertaken in accordance with the regional level planning policy established by way of the Auckland Plan and proposed under the Regional Policy Statement in the Draft Unitary Plan. The RUB project has also been engaged with the development of the Draft Unitary Plan to ensure consistency with the wider objectives and policies of that Plan.

The Auckland Plan, as addressed in section 1.4 of this paper, is the 30 year planning vision for Auckland. The RUB sits within this vision and while it is affected by the wider aspects of the Plan, the directives of the Urban (Chapter 10), Infrastructure (Chapter 12), and Transport (Chapter 13) chapters are considered the most relevant.

These directives seek the delivery of a high quality urban form which provides the broad needs of both current and future Aucklanders. These directives also raise the need to ensure that the RUB and associated urban development is undertaken in a cost-effective manner, making best use of infrastructure investments both in the social and physical infrastructure sectors. Lastly, these directives also identify a number of environmental and cultural factors which should be taken into account when determining the RUB's location and developing its associated greenfield areas.

The Draft Unitary Plan also provides a significant range of guidance for the RUB and greenfield areas within its Regional Policy Statement level objectives and policies. These objectives and policies are covered in detail within the s32 paper *"Development Capacity, Supply of Land for Urban Development and Rural Urban Boundary".* While that paper details these objectives and policies, it should be noted that they highlight similar issues to the Auckland Plan.

2.5 Economic Analysis

In the identification of the Rural Urban Boundary a key consideration included the economic effects of its location. As a core tool in the Unitary Plan to manage and provide for growth, economic growth and wellbeing is a fundamental driver for the location of the RUB. Accordingly an assessment was undertaken to determine which of the alternative RUB alternatives best provided for economic growth and development. This then could be balanced against other considerations such as social or environmental outcomes.

To ensure a robust and informed assessment, economic principles from legacy councils were used to help determine which RUB alternative which best addressed Auckland's economic growth and wellbeing requirements. Accordingly, the following criteria were used:

- Enable a range of business areas to accommodate future employment growth
- Recognise and provide for the ongoing role of the rural economy
- Ensure accessibility to employment by labour, freight etc
- Ensure infrastructure is able to support business areas and employment.
- Recognise that some land is likely to be more attractive to the market for future development than other land.

For each RUB alternative, there is an assessment against the above criteria.

2.6 Links to Other Tools and Processes

It is recognised that the RUB does not exist within a legislative vacuum, but rather forms part of a broad suite of tools to manage Auckland's growth. Some of these tools exist within an RMA context, through zoning, development controls, and rules; while others are provided for under other legislation.

Many of these other tools are focused on economic factors and controls. They include development contributions, infrastructure growth charges, and rates collection. On-going work is being undertaken by the Council to determine the most appropriate tools and processes to allow efficient delivery of development capacity.

3 RUB Clusters Analysis

3.1 Southern Cluster

As identified in section 1.4 of this paper, the various greenfield areas of investigation (and associated RUB) identified in the Auckland Plan could be generally identified in three broad clusters; the South, the North-west, and the North. This clustering of the greenfield investigation areas presented a natural way to resource and programme the wider RUB project.

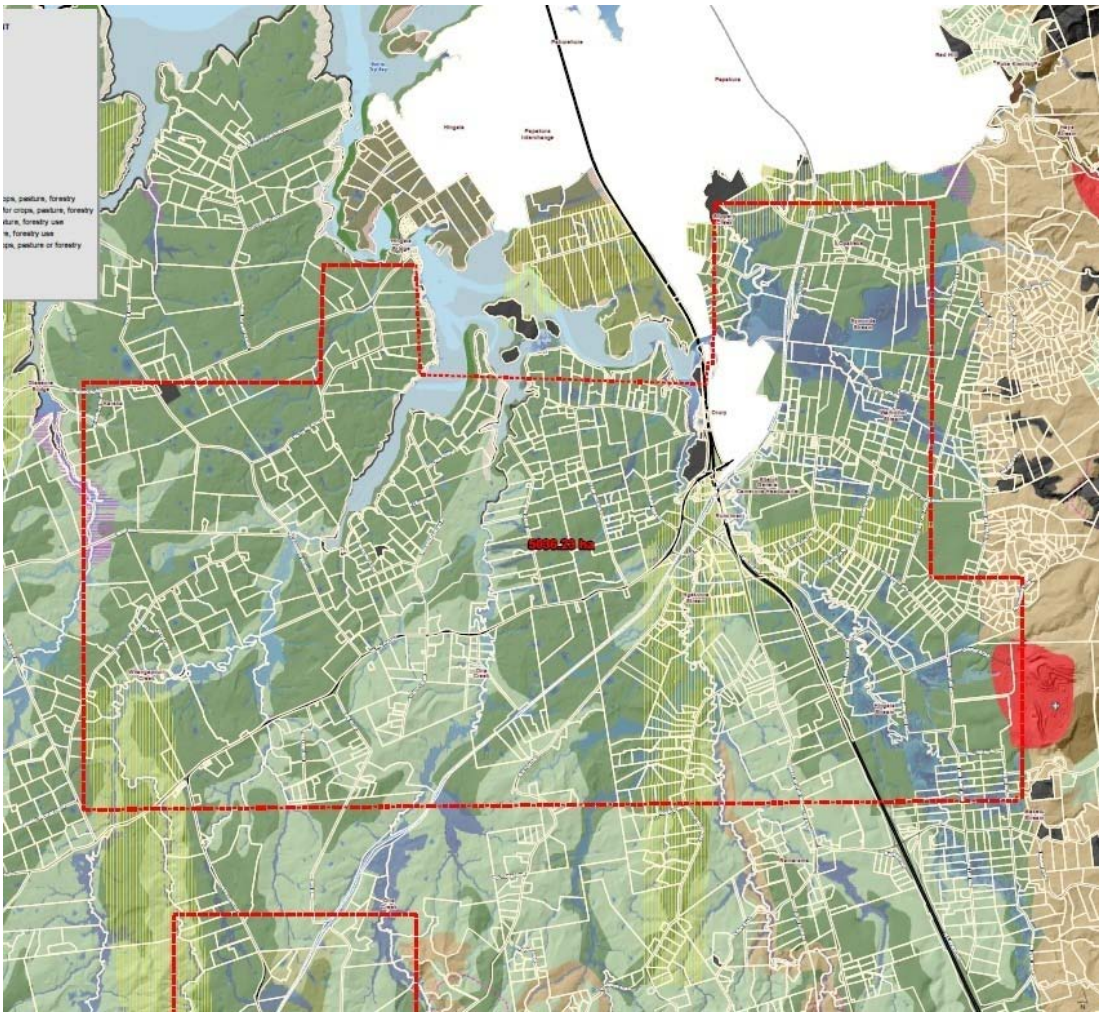
While all of these clusters have similar issues, the need to appropriately engage with local communities and deal with the specific characteristics of these locations required each cluster to be investigated independently. Given the scale of growth in each cluster, the timeframes, and the resourcing available to the project the Southern cluster was initiated first, followed later by the North-west and Northern clusters.

While each cluster has experienced different timeframes and modified approaches to engagement, the RUB project has addressed the critical issues within them all and has allowed for an appropriate level of assessment against the tests of the Act.

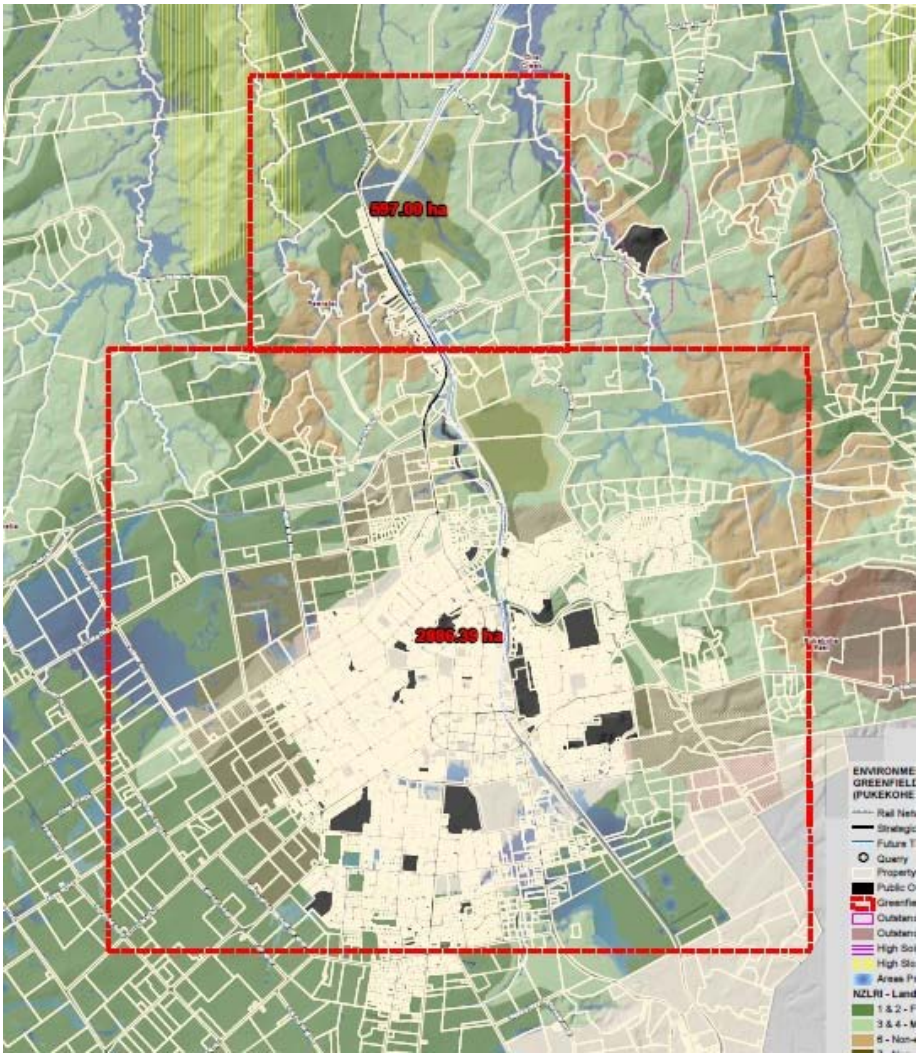
3.1.1 Introduction

The GAFI cluster in the south focuses on land around Pukekohe, Paerata, and west of Drury within the red boxes from the Auckland Plan Development Strategy, however these areas were identified in the Auckland Plan for the purposes of strategic direction setting rather than in a precise way and so they have been looked at broadly with an evaluation of potential for urban growth that has also taken in peripheral areas of Hingaia, Opaheke, Drury, Ramarama, Runciman and Buckland. Potential rural growth areas in the south such as Takanini, Alfriston, Beachlands Maraetai, Clevedon, Bombay, Kingseat, Clarkes Beach, Waiuku and Patamahoe were not investigated at this time.

Karaka Drury investigation area



Pukekohe Paerata Investigation Area



- ***Physical Geography***
  The Karaka Drury investigation area is approximately 10km wide by 5km high and contains around 5,036 ha of land including estuarine areas of the Whangapouri Creek. The land is comprised of a series of north south aligned rolling slopes divided by the Whangamaire Stream, Whangapouri Creek, Oira Creek, Ngakoroa Stream, Hingaia, Stream, and the Waihoihoi and Symmonds streams all of which drain into the Pahurehure Inlet, with flatter land east of Drury to the base of the Drury Hills[5]. Its northern extent is defined by intricate branching estuarine coastal edges of the Pahurehure Inlet. Beyond the Pahurehure Inlet and Drury Creek are more open exposed coastal pastoral flats along headlands along the southeast corner of the Manukau Harbour of Hingaia, Karakaka north and Karaka West which are divided by un-vegetated streams and with Elletts Beach defining the western extent of the investigation area.

  The Pukekohe Paerata investigation areas are approximately 5km wide by 5km high and contain around 3,483 ha of land including the urban area of Pukekohe. It has an underlying basalt geology with alluvial material in low lying gullies and craters and is noted for its highly versatile granular soils from weathering volcanic rock and ash

[5] Environmental Planning & Design Ltd, Rural / Urban Boundary (South) Alternative Area landscape Evaluations Internal Summary Report, July 2013, Landscape Evaluation Worksheet Appendices.

to the west and south of Pukekohe with brown soils to the east towards Ramarama and organic soils around the raceway and south of Paerata. West of Pukekohe the terrain is flat and undulating and to the east is a low circular crater landform identified as an outstanding natural feature[6]. Pukekohe is an urbanised town landscape with industrial development on the north south and eastern edges, new residential to the north east. The land north of Paerata is flat to rolling with steeper terrain to the west and east side. Large contiguous cultivated areas surround the slopes of Pukekohe Hill. Pukekohe is an important rural service community proposed by the Auckland Plan to become a significant urban centre in its own right with a full range of urban facilities and services and scale of up to 50,000 people.

- ***Demographics/population***
  The estimated number of dwellings within the census meshblocks that make up the Karaka Drury investigation areas at 2011 is 1,197 dwellings[7] which equates to a population of around 3,591 at 3 persons per dwelling.

  The same estimates project 1,164 dwellings within those meshblocks outside of the existing urban zones within the Pukekohe Paerata investigation areas at 2011 which equates to a population of around 3,500 persons. The current urban population of Pukekohe is between 17,000 and 26,000 people.

- ***Environmental issues***

Drained Floodplain

The Karaka Drury Investigation Area is impacted by a flood plain that historically drains into Bottle Top Bay and the Pahurehure Inlet, extending into Drury Creek and Whangapouri Creek (all part of the Pahurehure/Drury/Hingaia/Karaka estuary). Owing to roading infrastructure, farming modification and housing development, the hydrological and ecological function of the flood plain and its associated biodiversity has been considerably reduced.

Estuarine ecosystems

Estuarine mangrove ecosystems extend along the perimeter of Karaka West and Karaka North, adjacent to Hingaia, Bottletop Bay, and Pahurehure Inlet. The Pahurehure Inlet where the area drains into is highly tidal with poor natural flushing characteristics. The mangrove forest network also borders the fringe of the Cape Horn Peninsula. “It is clear that mangrove clearance has been done in the past. What remains, represents an ecologically significant mangrove ecosystem. Mangroves provide critically important ecosystem services such as: coastal land stabilisation, sediment retention, contaminant filtering, nursery for juvenile fish and habitat for other marine organisms” [8].

A recent Auckland Regional Council (ARC) State of the Environment and Biodiversity report identified sites in the Manukau Harbour at Cape Horn, Hingaia, Pahurehure and Clarkes Beach to be the healthiest with respect to ecological function. This is an alert to maintain the health of these marine ecosystems to ensure they keep providing essential ecosystem services[9].

[6] Ibid

[7] Auckland Regional Council, Capacity for Growth Study 2006, March 2010.

[8] Internal Auckland Council Report - Specialist Natural Heritage, Ecological Values of the RUB Southern Greenfields Investigation Area, July 2013, p.4

[9] Ibid p.5

Manukau Harbour

The southern arm of the Manukau Harbour adjacent to Hingaia, Karaka and Pahurehure Inlet retains some of the highest ecological values in the Manukau Harbour however the Manukau Harbour itself has significant issues with degradation owing to the impacts associated with sedimentation and pollution from stormwater, runoff and wastewater.. The extensive tidal flats in this area provide important foraging habitat for shore, wading and seabirds; many of whom are threatened national and international migrants[10].

The estuarine ecosystems of the Southern Greenfields Investigation Area provide critically important foraging habitat for shore and wading birds. These shore & wading birds and invertebrates provide an ecological engineering ecosystem service, turning-over the tidal sediments on a regular basis. The Manukau Harbour already contains problematic levels of sediment[11]. Any additional sediment may prevent the biodiversity providing the necessary ecosystem services; either being destroyed (invertebrates) or leave the area (birds). Without the tidal sediments being turned-over, there is the risk of the southern extent of the Manukau Harbour becoming anaerobic and eutrophic, where an ecological tipping point is reached[12].

Key environmental questions in relation to possible development in the Karaka Drury area include:

1. What are appropriate effects thresholds[13] to target in planning these areas to address RMA and other legal "bottom lines" and appropriately address these environmental issues?
2. What measures are needed to stay within such thresholds and are such measures practically achievable?
3. What avian species are using this foraging area including the length of their bills and depth of their prey?
4. What are the risks to invertebrates with increased depth of sediment and what species would be excluded from the area at progressive increases in depth of sediment?

- ***Economy***

The economy of the Pukekohe and Karaka Drury areas reflect their role in the Franklin and regional economy and local resources. The areas are strong in horticulture and pastoral farming (reflecting its land resource), in quarrying, in adding value to farm produce and in construction (supported by population growth)[14]. They are also strongly linked to service sector and manufacturing economies of Papakura, Manukau and the industrial areas around the Airport and Glenbrooke.

[10] Ibid p.5

[11] NIWA Cawthron Institute Auckland Council, Urban Planning that Sustains Waterbodies (UPSW): Southern RUB Case Study, Auckland Council Working Report, May 2013, p.54.

[12] Internal Auckland Council Report - Specialist Natural Heritage, Ecological Values of the RUB Southern Greenfields Investigation Area, July 2013, p5

[13] The first and most critical of these questions for determining a RUB that is consistent with achieving sustainable management of resources was addressed through the Urban Planning that Sustains Waterbodies (UPSW) research project which conducted a pilot study assessing the impacts of urban development on the values of these receiving waterbodies. The findings of this study are addressed in Auckland Council Working Report, Urban Planning that Sustains Waterbodies (UPSW): Southern RUB Case Study.

[14] Franklin District Growth Strategy, Planning the Future of Franklin 2051, 2.2.1 Structure of the Franklin Economy, p.15

The current economy of the Karaka Drury area is a rural economy that is highly influenced by its location on the periphery of Auckland. The area has some of the highest turnover per hectare of rural land in the region and highest numbers of FTE's (jobs) per hectare[15]. Vegetable growing and cropping only take up 4% of the land area in the Karaka Drury area but contribute 66% of the areas turnover and 73% of the area's FTE's. Lifestyle blocks (24%), Dairy (34%), and Livestock Grazing (34%) dominate the balance of the land use[16].The western end of the Karaka Study area has a number of dairy farms with significant capital investments in farm improvements. Glasshouse growers utilize those components making up the local production system including water, gas, quality transport links, electricity, large flat sites, capital, and complimentary service industries such as freight and packing. The area contains over 1,500 ha of land classified as Lifestyle blocks[17] however around a third of these blocks have horses which support a notable equine industry. Water in this area is sourced from the shallow Waitemata aquifer which is highly vulnerable to infiltration from stormwater and other effects of urbanization[18].

The service economy of Pukekohe is relatively small however research underpinning the Franklin District Growth strategy identified the following drivers of future economic growth:

- *"Franklin's proximity to Auckland, and its potential to accommodate a share of Auckland's rapid population growth. The scale and location of population growth is critical. The overall amount of population growth will determine the opportunity for businesses to serve household needs, while the geographic distribution of growth will determine the location of household service outlets. However, changes in the population service sector toward fewer, larger outlets serving larger markets may see an increasing share of Franklin's population needs being met outside the District;*
- *Franklin's role in the regional economy, including its capacity to accommodate employment growth and/or offer an alternative business location;*
- *the underlying strength of agriculture and horticulture enterprises, supported by good climatic and land quality, and Franklin's proximity to the domestic market in Auckland and the port facilities for exports;*
- *challenges to the primary production sector by competing demands for residential and lifestyle land;*
- *changes in the primary processing and service sectors. Dairy and meat processing is likely to concentrate into fewer, larger plants each requiring large catchment areas. This trend may put pressure on Franklin's processing facilities given the limited size of the farm land resource;*
- *sectors that have competitive advantages from location, natural resources, or the District's skills base;*
- *growth in technology and skills which provide greater opportunity to add value to goods and services; and*
- *changes in the business service sectors, toward fewer, larger outlets or facilities serving larger numbers of businesses, especially based on technological change and economies of scale."*

[15] Primary Focus, Rural Production Comparative Analysis Greenfield Study Areas, North, North West and South Auckland, April 2013.

[16] Primary Focus, Auckland South Rural Production Study Summary, April 2013, p.7.

[17] AsureQuality, Agribase data 2012.

[18] Pattle Delamore Partners, Karaka Rural Urban Boundary Waitemata Aquifer Recharge Assessment, December 2012, p.iii.

- ***Transport infrastructure***

  Transport Issues

  The primary transport issue with the Karaka Drury investigation area is the likely future congestion along SH1 with the proposed growth of the southern greenfield areas. The Pahurehure Inlaet of the Manukau Harbour provides a significant constraint for conntecting this area to the rest of Auckalnd, funneling all traffic west of SH1 through either the Drury interchange with SH1 or the Papakura interchange with SH1. While the Mill Rd corridor project is intended to provide an alternative 'north-south' route to SH1 it is important to consider that Mill Rd is to the east of SH1 while most growth is proposed in areas to the west of SH1. As SH22 develops over time it will need to change its function to resolve conflicts between through-traffic and placemaking[19].

  Current Transport Situation

  Transport connections are provided through SH1 (the Southern Motorway) and the North Island main Runk Railway Line, which passes right through the greenfield are of investigation. Most passenger rail services currently terminate at Papakura although about 40 services per day on weekdays continue to Pukekohe. State Highway 22 (Karaka Road and Paerata Road) connect Drury to Pukekohe. Along with Pukekohe East Road, SH 22 acts as the prime connection between Pukekohe and the Auckland metropolitan area.

  Significant existing congestion occurs in the peak direction along SH1 further to the north of the greenfield area of investigation – especially around the Takanini interchange and south of the connection between SH20 and SH1 at Manukau in the southbound direction during the PM peak period[20]. Preliminary modeling results suggest "the bulk of outbound car trips are travelling to relatively nearby destinations in Papakura, Manukau West (which includes Manukau City and the Airport), employment areas at East Tamaki and other parts of Franklin North"[21]. The city centre is the destination for the greatest number of public transport trips.

- ***Utility Infrastructure***

  Electricity

  There are no major electricity generation assets within the southern study area. However, beyond the study area planning approval was granted in 2005 for an 18MW wind farm on the Awhitu Peninsula.

  220 and 110kV transmission lines run through the eastern half of the study area, across the Ramarama and Drury South Alternatives. An additional transmission line runs from Drury to Glenbrook. Two grid exit points feed power to the local distribution network at Bombay and Glenbrook.

  The study area is located within Counties Power's electricity distribution service area. Counties Power have been investing in an upgrated network of sub-transmission lines and distribution lines to replace the previous network in anticipation of future growth.

  Gas

  The area is transacted by two high pressure gas lines, which form part of the North Island natural gas network (which originates in Taranaki). A gas line runs from Pukekohe to Drury with a branch running to the Glenbrook Steel Mill.

[19] Internal Council Report – Transport Strategy, Auckland Unitary Plan – Rural Urban Boundary Discussion Paper – Transport Issues, August 2013, p.38.

[20] Ibid.

[21] Ibid.

Water Supply

Large areas of the study area are currently unserviced by reticulated water supply. Both Pukekohe and Metropolitan Auckland are serviced by reticulated networks which border the northern and southern areas of the RUB study area. Properties unconnected to these networks are served by a mixture of water tanks and bore water.

The Waikato water supply pipeline runs through the study area. This pipeline feeds both Pukekohe (works underway) and Metropolitan Auckland.

Wastewater

Large areas of the study area are currently have not reticulated wastewater services and rely on on-site disposal and treatment. Pukekohe Hingaia and Drury are serviced by reticulated networks.

Wastewater from the Metropolitan Auckland is piped to the Mangere Wastewater Treatment Plant and discharged after treatment into the Manukau Harbour, while wastewater from Pukekohe is piped to the treatment plant near Tuakau and discharged after treatment into the Waikato River. A number of smaller wastewater treatment plants are located along the southern coast of the Manukau Harbour, including plants at Clarks Beach and Kingseat.

Telecommunications

The current focus for telecommunications infrastructure is improving broadband provision in New Zealand. There are two investment programmes underway, these being the Ultra Fast Broadband Iniative (UFB) and the Rural Broadband Initiative (RBI). The bulk of the study area lies outside current Ultra Fast Broadband Initiative (UFB) areas of service, with the exception of some blocks in Hingaia and around the edge of Pukekohe however many others are inside the Rural Broadband Initiative (RBI) area.

Schools

There are a number of state primary schools as well as a single intermediate and single high school in the study area. There are a mixture of rural and urban schools as well as Wesley College and the ACG Strathallan Campus private schools. There are no state tertiary instiutions based in the study area, with the nearest such facility at the Manukau Institute of Technology and Auckland University of Technology.

Medical Facilities

The study area is located within the Counties-Manukau District Health Board. Pukekohe Hospital provides the following services:

- 45 staff covering 30 beds
- an adult rehabilitation and care ward specialising in non-acute rehabilitation, palliative, and long-stay hospital care
- a mobile surgical unit every six weeks for referred minor surgery.
- maternity services, home health care, public health notices, and outpatient rehabilitation services.

Other medical services are provided at Middlemore Hospital and the Manukau SuperClinic.

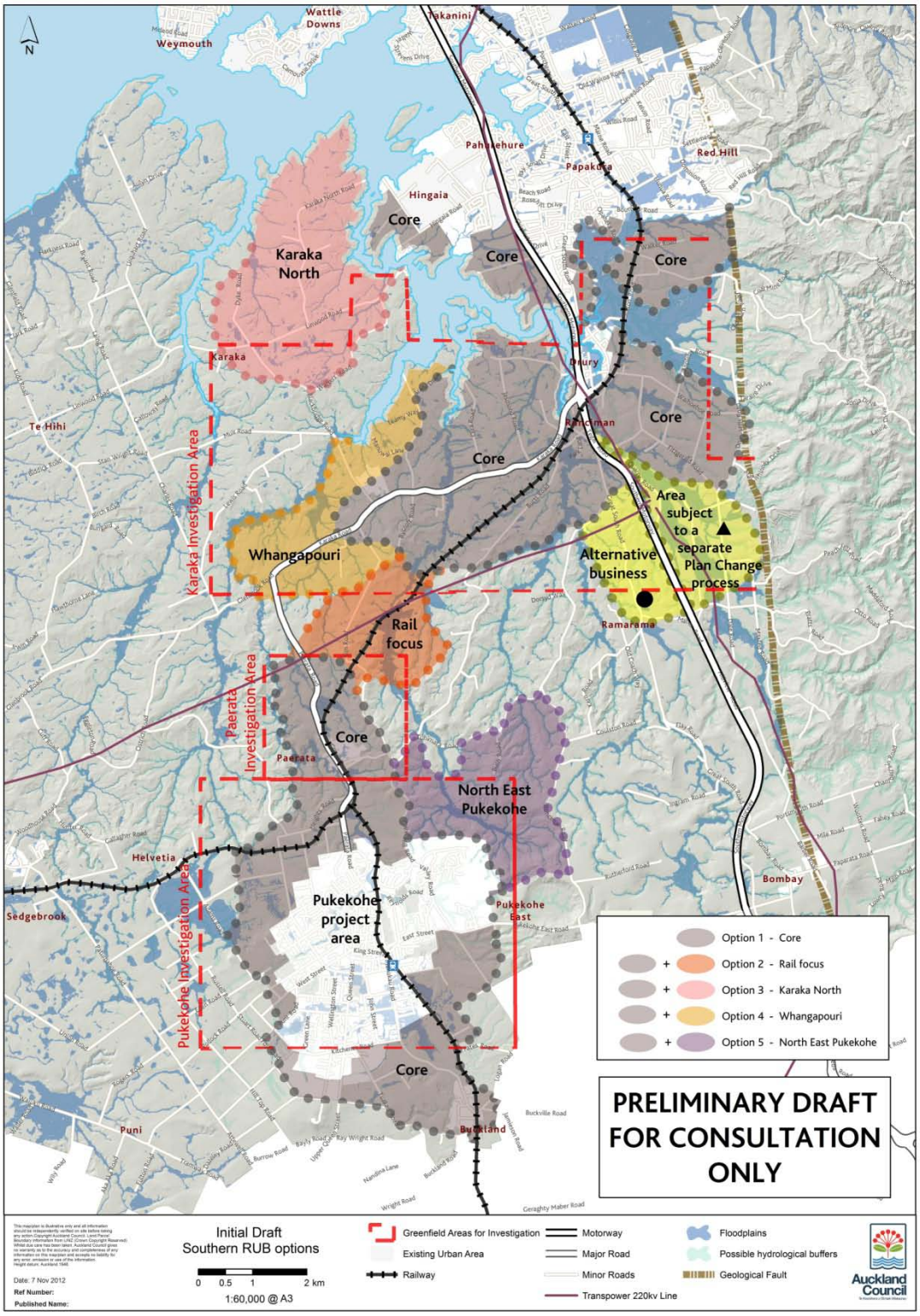
3.1.2 RUB Proposal details

- *Growth projections*
  In fulfilling legal requirements, work to produce the Auckland Plan identified the existing and future location and mix of residential business, and industrial activities within specific geographic areas within Auckland. This spatial allocation of future growth across all of the meshblocks that make up the land area of Auckland in a way that expresses the Auckland Plan development strategy and

what was known about existing structure plans and strategies providing for growth in different areas has formed the basis of the growth projections for the southern cluster investigation. An important driver in determining the RUB for these areas (but not the only driver) has been an objective to provide sufficient land supply to meet the growth projections for these areas. For the southern GAFI cluster this equates to up to 55,000 dwellings and business land for up to 35,000 jobs in planning for a high future growth scenario for Auckland.

- *Range of Alternatives and their descriptions*
  In November and December 2012 consultation was carried out on a set of indicative Alternatives for growth areas for the southern cluster comprising:
  - areas assessed as potentially suitable for inclusion within a 30 year RUB following initial technical analyses and workshops
  - Alternatives which could be combined in different ways to give different urban form, environmental and capacity outcomes
  - proposals for expanding around the urban extent of Auckland and Pukekohe oriented to existing community and transport infrastructure and utilities, the rail line and SH22.
  - "core" areas for future growth common to all Alternatives including the balance of the land on the Hingaia Peninsula outside of the MUL (300 ha's), land at Opaheke and Drury between the railway line and Drury Hills and the Drury Hills fault line (1,119ha's), land between the HV powerline route and Karaka Road (500 ha's), all of the Bremner Road Peninsular (460 ha's), land around Pukekohe roughly following the extent of Pukekohe 2051 residential and business zones proposed as the future urban footprint for Pukekohe in 2051 in the Franklin District Growth Strategy[1] (1,035 ha's) but also including additional land around the Pukekohe raceway and between Buckland and Pukekohe.
  - variation "alternative" areas included more development oriented around the rail corridor ("Rail focus"), development of the Karaka North Road Peninsula ("Karaka North") (919 ha's), additional development around the western end of Karaka Road east of the Whangapouri Creek ("Whangapouri") (548 ha's), development areas between Tuhimata Road, Grace James Road and Runciman Road "North East Pukekohe" (662 ha's).
  - all the Alternatives proposed large potential business land Alternatives on both sides of SH1 between the Ramarama Interchange and Drury including the Stevoenson Group Ltd Proposed Private Plan Change 12 (Papakura) and 38 (Franklin) 361ha Drury South industrial project, which was identified as an area subject to a separate plan change process and a 250ha area labelled "alternate business".

[1] Franklin District Council, Franklin District Growth Strategy, planning the future of Franklin 2051, August 2007, Maps 7.6 and 7.7, p 77 and 79.



The areas labelled “core” on the map of rural urban boundary.

Alternatives were initially thought to best address the principles for shaping the future RUB, being areas that were then considered likely to:

-be attractive for developing a range of housing types, centres, neighbourhoods and employment;

- avoid known sensitive environmental features and important cultural sites;

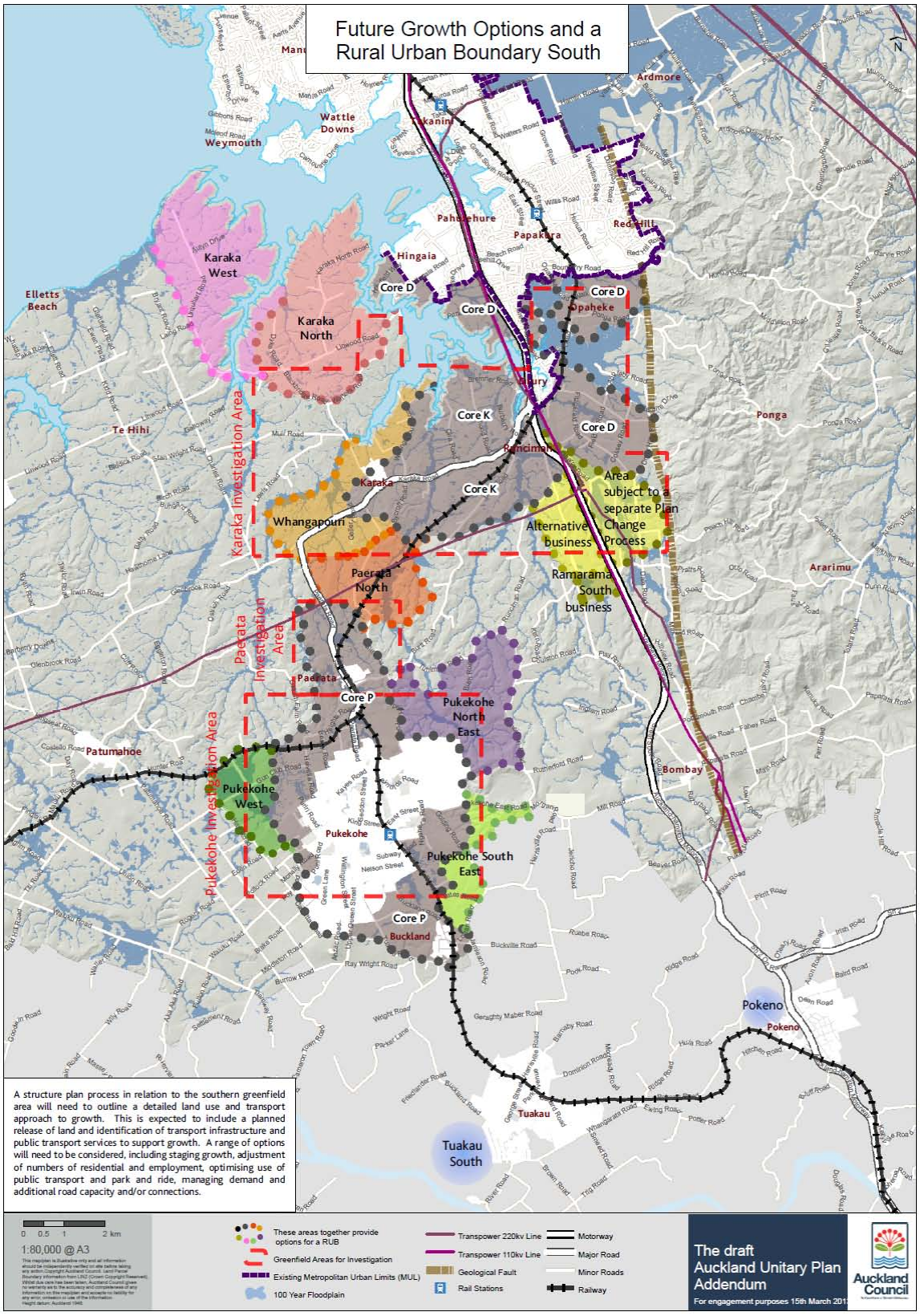
- focus development around the likely future transport network and in areas more suitable for public transport services;
- limit impacts on key parts of rural economic systems;
- provide for development in locations that can achieve cost effective provision of network utilities and services;
- limit known risks associated with coastal inundation, sea level rise, land instability, flooding, liquefaction, fault lines and other hazards.

The areas identified as coloured “alternatives” on the maps were considered to be less consistent with these principles.

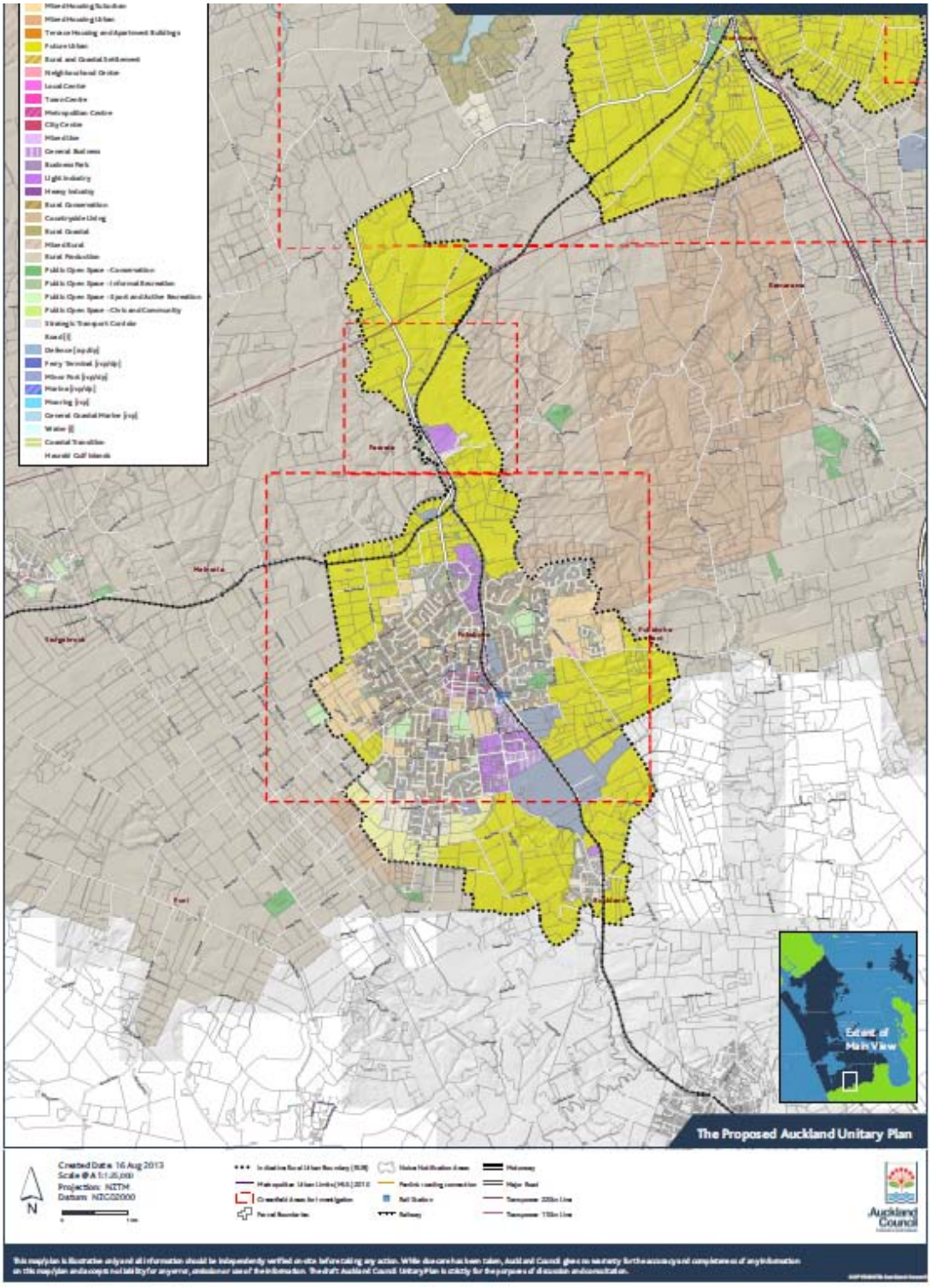
Extensive feedback was received on these initial proposals, including a number of concrete proposals for growth in additional areas in and adjoining the investigation area. Feedback recommending certain of these new proposals reoccurred frequently in the feedback, meetings, workshops and community drop-in sessions[2]. The Auckland Plan Committee decided a number of these areas were suitable for further consultation and analysis and should be added to the alternatives put out for consultation in March 2013 as part of the Draft Unitary Plan consultation[3]. These included land on the Urquhart Road Peninsula (“Karaka West”) (796 ha), additional land north of Paerata around Wesley College (“Paerata North”) (457 ha), additional potential business land directly south of Ararimu Road and between Great South Road and SH1 (“Ramarama South Business”) (55 ha), land east of Pukekohe between Logan Road, Golding Road and Pukekohe East Road (“Pukekohe South East”) (221 ha) and land west of Pukekohe around Russell Road, Gun Club Road and south of the Glenbrooke railway line (“Pukekohe West”) (294 ha). These future growth alternatives together with the previous alternatives and the resultant alternatives for a RUB in these areas are shown in the following map:

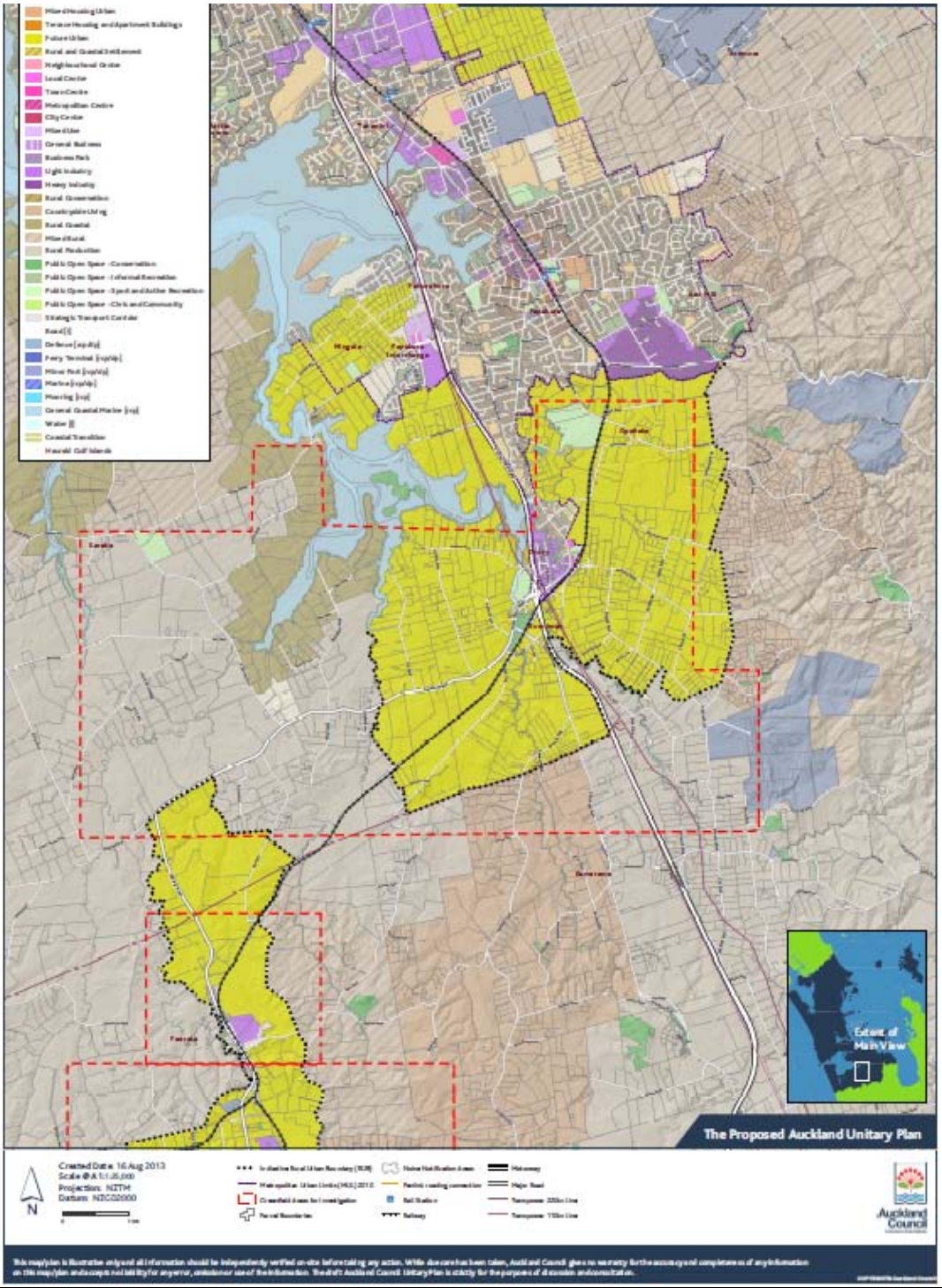
[2] Ref Consultation Report.

[3] Ref APC decision April 2013



The final proposed RUB is shown the following maps:


Extent of Main View
The Proposed Auckland Unitary Plan
Created Date: 16 Aug 2013
Scale @ A1: 25,000
Projection: NZTM
Datum: NZGD2000
N
Auckland Council


Extent of Main View
The Proposed Auckland Unitary Plan
Created Date: 16 Aug 2013
Scale @ A1: 1:35,000
Projection: NZTM
Datum: NZGD2000
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Auckland Council

3.1.3 Consultation

South RUB Consultation Process
Public consultation on the southern RUB was held in two phases. The first phase on preliminary options took place in November and December 2012, with the second phase coinciding with the Unitary Plan engagement from March to May 2013. Engagement has been ongoing and a number of events and meetings were held before, between and after these consultation periods.

November/December 2012
There was a high level of targeted engagement carried out resulting in a series of well attended and highly interactive stakeholder meetings and community consultation events that produced extensive detailed feedback. Engagement was carried out with a range of local residents and key stakeholders in a concentrated series of meetings, workshops and community drop-in sessions with over 500 people taking part. In addition to the feedback from these engagement events, 110 responses on the preliminary options were received. Respondents were asked to indicate a preference for the 5 options presented.

Option	Percent
Option 1 - Core	39%
Option 2 - Core + rail focus	33%
Option 3 - Core + Karaka North	10%
Option 4 - Core + Whangapouri	4%
Option 5 - Core + NE Pukekohe	14%

A number of further areas were suggested for consideration in the RUB. Those with the most support were the Karaka West area (to be supported by a bridge connection to Weymouth), development of land around Bombay (particularly to the east of Pukekohe), as well as some support for the area West and South East of Pukekohe.

Overall, there was clear support for growth in the core areas, with support for growth and development along the rail line between Drury and Paerata. This would result in the urban area of Auckland joining up with the Paerata and Pukekohe urban areas. This was in contrast to the views expressed that support allowing Pukekohe to grow but keeping a distinct identity and character as a separate urban area and satellite town. It was unclear if this support for the rail focus is due to the positive value attached to public transport and connectivity, or the area itself.

Workshops for internal council officers were held covering a range of environmental, heritage, transport, planning, infrastructure, and engineering issues. This workshop looked specifically at the draft indicative RUB options for the south, refining these in preparation for consultation.

Unitary Plan Feedback
A total of 523 pieces of feedback related directly to the RUB proposals in the South. Over half of these related directly to the possibility of a future transport link between Karaka and Weymouth, with a moderate proportion in support, and the vast majority in opposition to such a link. In addition to this, a significant number of proforma feedbacks were received in opposition to a link between Karaka and Weymouth.

The feedback also indicated preferences for the three scenarios presented in the Addendum to the draft Auckland Unitary Plan (West East focus, Pukekohe focus and Corridor focus). A large proportion of feedback supported all three scenarios, with the Pukekohe scenario receiving most support, followed by the Corridor scenario and then the West-East scenario. More feedback was received in opposition to the West-East scenario

than in support for it. In addition, 50 proforma feedback were also received seeking the inclusion of the Belmont area within the RUB, with live urban zoning[22].

General comments relating directly to the South area included moderate support for protecting soils and land for agricultural production, and some concern over the scale of growth beyond the existing Metropolitan Urban Limits. Moderate support was indicated in terms of support for the RUB in general (in the South).

A significant amount of feedback requested the inclusion of specific properties and areas within the RUB, in particular around Drury, Karaka, Hingaia, Pukekohe North-East and Paerata.

A number of competing values were considered during the assessment process, including technical studies and reports covering geotechnical, transport, flooding, economic, employment, cultural heritage, landscape, infrastructure, and capacity matters. These findings were considered and balanced against all feedback, in the process of determining the location of the recommended Rural Urban Boundary.

Some of the issues raised during this consultation phase were unable to be adequately addressed in detail at this stage of the planning process. These will feed into the structure planning process, when they can be addressed in more detail.

Mana Whenua Engagement

Consultation undertaken with Mana Whenua regarding the RUB proposals included the following initial meetings:

- A presentation at the 17 October 2012 Mana Whenua Unitary Plan Workshop on the RUB investigation in the south and introducing the upcoming consultation.
- 27 November 2012 a Cluster Hui for the 10 iwi authorities with Mana Whenua interests in the RUB south investigation areas invited (7 groups attended) where the RUB investigations and preliminary RUB options were presented,
- Presentation at the 16 and 18 April 2013 Mana Whenua Unitary Plan workshops,
- Meetings with Te Akitai Waiohua (7 March),
- Meetings with Ngati Tamaoho (8 February),
- Ngati Te Ata Waiohua (1 March).

The individual meetings were held with those authorities most directly affected by the proposals and reflected their requests for meetings. Te Ahiwaru, Ngai Tai, and Marutuahu Confederation (Ngati Paoa, Ngati Maru, Te Patukirikiri, Ngati Whanaunga, and Ngati Tamatera) also have significant interest in the proposals.

In summary, initial feedback from Mana Whenua focused on the following issues:

- The need for a clear role of Mana Whenua in the decision making process and for weight to be given to their views in making decisions about the RUB
- That retaining rural areas and protecting land for food production is important
- That substantial setbacks from the coast and waterways would need to be required of any development

[22] The Pukekohe/Belmont proforma feedback were allocated to Rezoning Requests rather than the Rural Urban Boundary, so are not included in the overall RUB feedback count.

- Concerns about further degradation of the Manukau Harbour, concerns about where wastewater and stormwater will end up and the need to address historic and present day harm being done to the Harbour.
- The need to address the context of the treaty settlement aspirations of Mana Whenua in this area including making decisions affecting the Harbour ahead of any iwi co-governance arrangements being secured.
- That comprehensive cultural heritage assessments of potential development areas should be undertaken before decisions are made to urbanise land.
- That development of Karaka North was opposed.

On 31 May 2013 a letter went to the southern iwi/hapu outlining the RUB proposals in the Draft Unitary Plan Addendum, offering an opportunity to meet, and proposing a brief for a cultural heritage assessment for their consideration and comment. Three subsequent meetings in regard to the brief, the appointment of a cultural heritage consultant to prepare a Cultural Heritage assessment and the initiation of the Pukekohe Area Plan consultation were were held with Ngati Te Ata, Ngati Tamaoho and Te Akitai Waiohua on 24 June, 17 June and 19 June 2013 respectively. A collective meeting was held with the Marutuahu confederation of Ngati Paoa, Ngati Maru, Te Patukirikiri, Ngati Whanaunga, and Ngati Tamatera (25 July 2013).

More specific Mana Whenua concerns from these meetings held in June and July were:

- the likely impact on the Manukau Harbour from the development of areas within the proposed RUB options.
- In particular, reference was made to rethinking wastewater disposal and stormwater disposal.
- Dame Nganeko Minhinnick and others strongly indicated that the Manukau needs to be managed to function as a foodbowl and is not to have further impact.
- That the issues have not been thought through and that the pace of investigation is too fast and the research is not in place.
- That iwi involvement is insufficient and that decisions have already effectively been made.
- Iwi/hapu are directly affected and have individual interests which they wish to have acknowledged.
- Strong and united opposition to the Karaka West and Karaka North proposals and any possible future Weymouth Karaka Bridge.
- That a Southern Cultural Heritage Overview Report (CHOR) proposed is too limited and does not allow adequate time for their proper involvement, nor is there agreement on who undertakes it.
- That the timeframe doesn't allow for adequate input from Mana Whenua to identify cultural values.
- That the expertise and knowledge of cultural values lies with Mana Whenua (not consultants).
- Protection of significant sites of cultural heritage.
- That detailed cultural heritage assessment is needed before expectations are raised as to where future urban development may occur.
- That direct resourcing of Mana Whenua is needed to support capacity to adequately input into a cultural heritage assessment.
- That an overview consultant report must not be aligned with an individual iwi and will need to focus on the key rural urban boundaries at issue.
- The choice of consultants may not be acceptable to them.
- Not seeing a place for Mana Whenua aspirations in regard to the RUB proposals on the table.
- Rates and development levy redistribution proposals to fund Manukau restoration and in some cases Mana Whenua aspirations.

Mana Whenua Groups were all sent a copy of the Draft Cultural Heritage Overview Report for the RUB in the south and further meetings were sought with them.

Mana Whenua presentations to 5 August Auckland Plan Committee meeting:
All 10 of the Mana Whenua groups with an interest in the RUB investigations in the south made an individual presentation to the 5 August APC meeting. Many of the same issues raised previously were strongly stated including the following:

Ngati Tamaoho are concerned that decisions were already made on the RUB and that the process has not involved them; there are urupa and areas in their rohe that are no go areas for development which have not been identified and it is wrong to go ahead at this time; rural areas need stronger protection from urban encroachment and Pukekohe should not be seen as a dumping ground for growth that is more challenging to accommodate in existing urban areas; NT can work positively together with Council if given more time; they oppose further development in Hingaia, Karaka West and Karaka North; assessment of cultural heritage issues to date has been inadequate.

Ngati Te Ata Waiohua are seeking new approaches to water and the governance of Manukau Harbour with Council facing up to the need to get wastewater discharges out of the Harbour, to overhaul stormwater management and use waste in innovative ways; they want to see the growth planning for the south address iwi housing needs and for the Unitary Plan to provide for iwi led developments; they are opposed to Karaka West and a possible bridge to Weymouth.

Te Akitai Waiohua stated that it is premature to raise expectations about future development ahead of detailed cultural assessment in the proposed new RUB; they have not had adequate time or involvement to consider the RUB proposals; strong caveats about the early stage of planning these areas needed in the UP; wastewater needs to be comprehensively assessed before decisions are made; Cultural Impact Assessments should be prepared by Mana Whenua and not by appointed consultants.

Te Ahiwaru spoke about the history of the Ihumatao and the effects of sewage and stormwater disposal on their Kainga/area, land confiscations, development pressure, and a devastating recent toxic dye spill in Oruarangi River. They spoke about the need to remedy adverse effects and put in place mechanisms to better protect receiving areas from the effects of development and an active partnership role for iwi in ensuring this.

Waikato Tainui made recommendations about the Unitary Plan including the need for environmental enhancement and cultural recognition and protection to ensure sustainable resource management; support for strengthening Treaty settlements, Mana Whenua, Marae & Papakainga, development, Customary Activities and Use; strengthening the recognition of IMPs in resource management and the use of joint management agreements and co-governance arrangements.

Ngai Tai ki Tāmaki spoke about the confiscation of the Hunua ranges by the Crown and their intention to establish Marae and Papakainga on their settlement lands and focus on farming and fisheries.

Marutuahu confederation of 5 iwi comments related to co-management of important cultural sites and resources and the need for better identification and protection of sites of significance to Mana Whenua were relevant to the RUB investigations.

All the iwi groups in the south reiterated the need to promote enhancement of the Manukau Harbour through the Unitary Plan, for greater Mana Whenua involvement in matters relating to water and wastewater management and for the plan to provide for Mana Whenua development aspirations on their own land.

Cultural Assessment and the Cultural Heritage Overview Report
Acknowledging that the Cultural Heritage Overview Report that Council commissioned does not attempt or claim to represent Mana Whenua views on the RUB proposals or the cultural heritage values of the area, three Mana Whenua Groups elected to submit their own feedback on the RUB proposals in the south in their own right. These feedbacks are attached as appendies 3.33, 3.34, and 3.35.

Local Board Feedback - Franklin, Papakura and Manurewa Local Boards
Franklin - Of the options consulted on in November and December 2012, the board expressed a preference for the core area together with the north-east Pukekohe option. They did not favour Karaka North or options that closed the gap between Auckland and Pukekohe, or any options extending the western extent of Pukekohe into the best agricultural land.

The main points of their feedback on the draft recommended RUB proposals were:

- that they did not support reducing the RUB south of Pukekohe around Buckland and preferred to align the RUB with the WDC boundary in anticipation of establishing a limit to the extent of future growth for Pukekohe within the WDC area.
- that the proposed RUB boundary should retain greenbelt buffers between rural and residential areas and maximise the gap between Paerata north boundary and growth west of Drury and north of Runciman. This lead to a realignment of the recommended RUB from the corner of Sim Road and Karaka Road to align with a branch of the Whangapouri Stream.
- that a mixed use zone together with the town centre zone south of King Street allows for up to 4 storey housing development around the Pukekohe Town Centre, with the same zones north of King street allowing up to 2 storeys.
- that the land immediately to the north of Grace James Road be zoned Countryside living. This lead to a reconfiguration of the recommended RUB around Grace James Road.
- an east-west linkage from State Highway 1 and an arterial route around Pukekohe, are key infrastructural requirements to support growth management outcomes sought for Franklin. This has been addressed in determining the preferred RUB for this area.
- the RUB boundary on the Bremner Road Peninsular should follow Oira Road, Karaka, running east along Karaka Road to the eastern boundary but not including number 328 (New Zealand Hothouse Limited) and their preferred land use for this area together with a larger area extending up to Walters Road being Countryside Living. This change was not agreed to (see analysis of Alternative Business in the assessment table).
- The RUB boundary should then extend east along the transmission power lines, across to Great South Road, then south to the Ararimu Road motorway interchange, encompassing land between Great South Road and State Highway 1. This change was not agreed to (see analysis of Alternative Business ithe assessment table).

Papakura - Concern was expressed over the level of local understanding of the implications of the proposals, including the scale of change, the extent of infrastructure costs, and the

potential impact on the Manukau Harbour. The board were interested in the discussions with Mana Whenua.

Manurewa - Manurewa local board were identified for consultation after feedback and submissions identified the issue of a potential link from Karaka to Weymouth. The local board was strongly opposed to a bridge from Karaka to Weymouth and sought further engagement with the local community. Clear opposition to a bridge was expressed, with concerns raised about the flow-on effects of the scale of development proposed on surrounding areas.

Draft Pukekohe Area Plan

Public engagement on the Draft Pukekohe Area Plan was undertaken from 24th June 2013 - 3rd July 2013. Public feedback was sought on a Rural Urban Boundary concept for Pukekohe (a refinement to the concepts which had been the subject of engagement in November 2012 and March-May 2013), a concept land use proposal for the growth of Pukekohe, and a Unitary Plan re-zoning proposal for the Town Centre and train station area.

Over the engagement period approximately 600 people were engaged with. The engagement events included:

- two meetings for landowners located inside the proposed RUB (but not already zoned urban) and those just outside the RUB (approximately 1 property back from the RUB line)
- one meeting for invited stakeholders
- three formal events for the general public
- two events at the local markets
- one meeting for the Franklin Youth Council
- a series of meetings with government, CCO, and utility operators

Feedback was sought via a variety of methods at public events including interactive stations, table workshops (led by a facilitator and notes taken by a scribe), and via formal Feedback Forms. Main themes on the proposed RUB concept included:

Paerata North:

- general support for growth into Paerata North
- some concern that this is too far north (could be reduced back to the bottom of Wesley College and moved eastward, or relocated to the south east)
- concern that the buffer is too small between Paerata and Drury

Paerata South:

- request to investigate the potential to spill over Sim Road to the natural ridge

Pukekohe West:

- general support for protection of elite soils (one of the top 2 priorities)
- request to move the RUB line out in the vicinity of the western indent
- requests to increase the RUB line to Heights Road

Pukekohe South:

- concerns that the Hill should be protected (no growth)
- supportive of growth west of Buckland

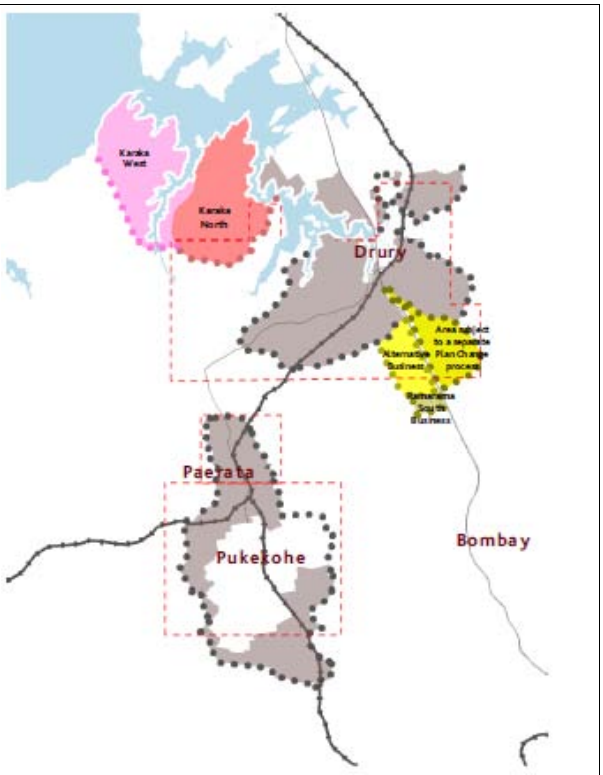
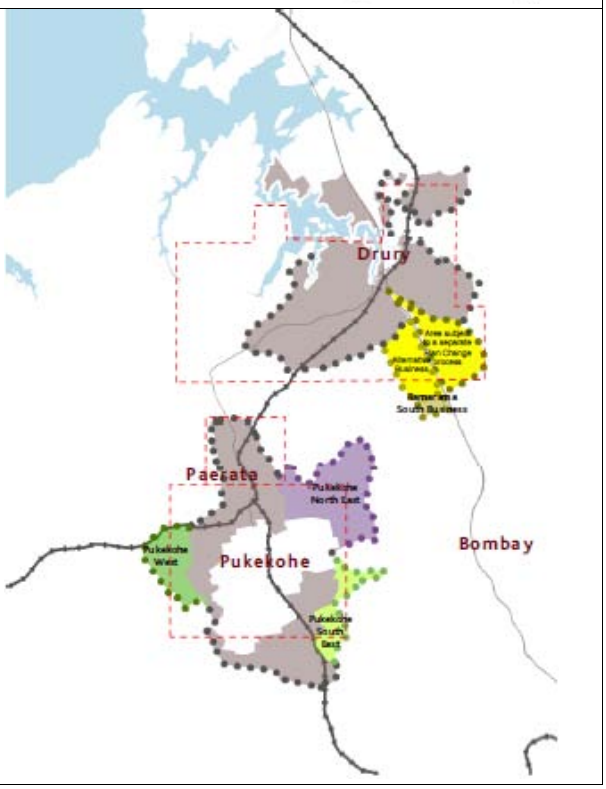
Pukekohe South East:

- general view that the growth area is acceptable
- suggestions that the growth could be accommodated in Waikato adjacent to the South East area
- request to modify the boundary around Grace James Drive and the Pukekohe Crater.

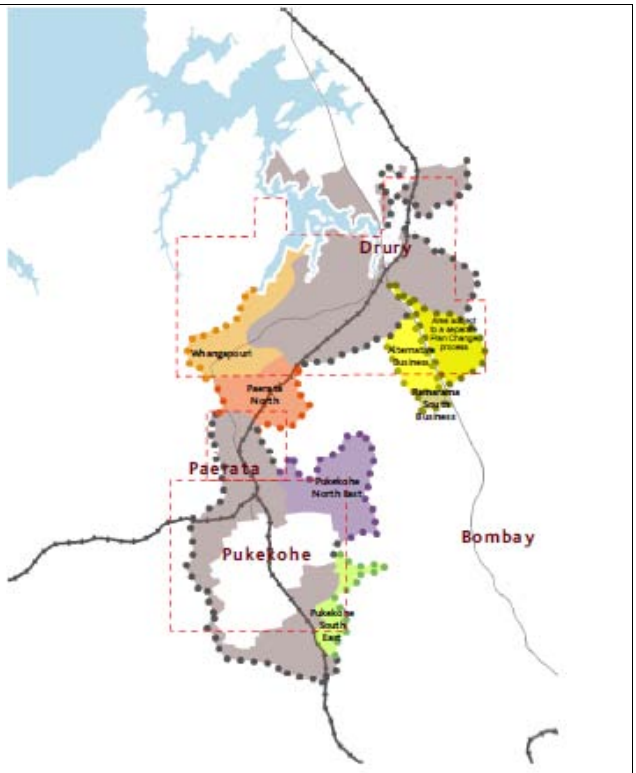
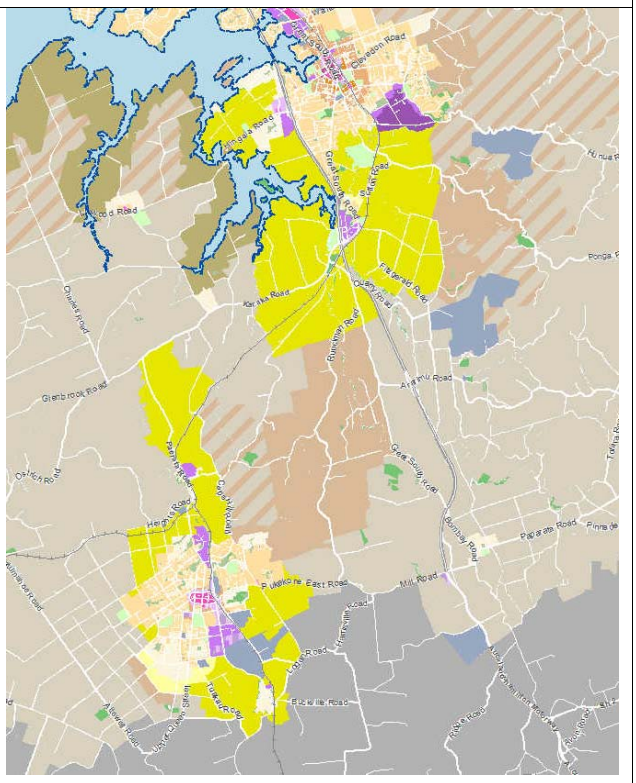
3.1.4 Alternative Analysis

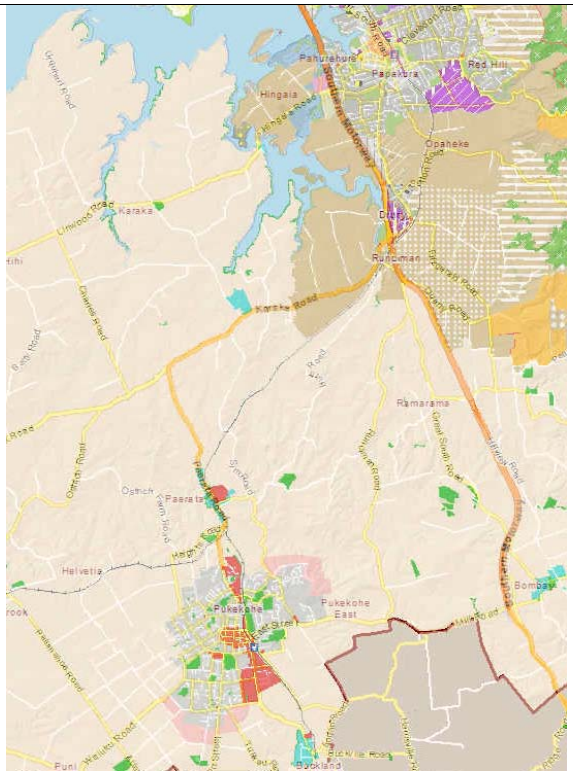
Extensive work was carried out to identify and consider the effects (environmental, cultural, economic) costs benefits and efficiency of the various potential growth areas to inform recommendations on the preferred configuration of the RUB and future growth areas for the southern cluster greenfield investigation areas. The following tables of assessment criteria seek represent a summary of this consideration.

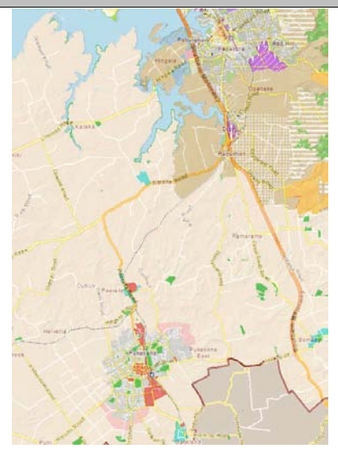
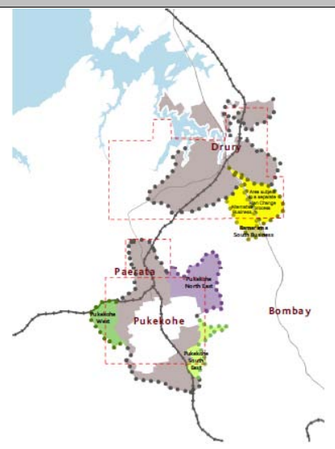
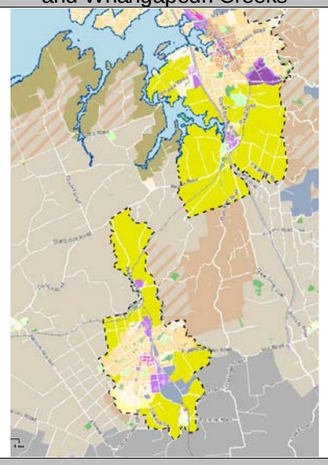
The evaluation is summarised in the following table where the status quo is compared to three ways of combining the various growth alternatives and the preferred alternative as shown in the Addendum to the draft Auckland Unitary Plan.

West East Focus	
Growth focused from west to east and in Core areas[23] High amenity area close to Pahurehure Inlet. Wastewater treatment and transport network options to service potential growth being considered. Indicative dwellings 57,400.	
Pukekohe Focus	
Growth focused on alternatives around Pukekohe and in Core areas areas. Wastewater treatment and transport network options to service potential growth being considered. Indicative dwellings 48,150. Potential to accommodate some growth at Tuakau and Pokeno, Glenbrook & Kingseat.	

[23] See 3.12 Range of Alternatives and their descriptions above for detailed description of the areas and alternatives.

Corridor Focus	
Growth focused along the transport corridors taking in growth areas in Whangapouri, Paerata, East of Pukekohe and in Core areas. Option to retain some green belt between Pukekohe and Paerata. Wastewater treatment and transport network options to service potential growth being considered. Indicative dwellings 56,800.	
Preferred RUB south	
Growth focused along the “core” areas and including additional development areas in Drury, north of Paerata and south of Pukekohe. Option to retain some green belt between Paerata and Drury. Wastewater treatment and transport network options to service potential growth being considered. Indicative dwellings 41,500.	

Preferred RUB south	
Status Quo (Operative District Plans) No growth outside current urban zoning (including rural towns and villages).	

Status Quo (Operative District Plans) No growth outside current urban zoning (including rural towns and villages)	**West-East focus** Growth focused from west to east and in Core areas	**Pukekohe focus** Growth focused on alternatives around Pukekohe and in Core areas	**Corridor focus** Growth focused along the transport corridors taking in growth areas in Whangapouri, Paerata, North and East of Pukekohe and in Core areas	**Preferred RUB** Growth focused around Hingaia, Drury, and Pukekohe and along the transport corridors at Paerata North with a green gap between Oira and Whangapouri Creeks
				

Economic effects
Market Attractiveness
This criteria compares the level of scenic amenity value of the alternative areas along the levels of capitalisation of sites relative to their land values.
A wide range of factors contribute to market attractiveness including regulatory constraints, geotechnical conditions and proximity to services and amenities and employment opportunities. All of these factors contribute to land values and are therefore factored into the coarse measurement of market attractiveness below. Scenic amenity, land values and its relationship to levels of capitalisation on sites together can only provide an indication of potential market attractiveness.

Market Attractiveness (Status Quo)	**Market Attractiveness (West East)**	**Market Attractiveness (Pukekohe Focus)**	**Market attractiveness (Corridor Focus)**	**Market attractiveness (Preferred RUB alternative)**
The status quo alternative provides for rural development and rural land use in the investigation area under the frameworks of the rural zones in the Auckland Operative District Plan (Papakura and Franklin sections). Rural amenity values and the limited number of rural properties in the area make the land desireable for lifestyle development. Highly versatile soils (predominantly class 2-3 land under the NZ Land Resource Inventory) and the majority of Auckland's elite land, a range of site sizes, good transport links, some access to useable water, established packing and handling services, good electricity and some access to capital provide the basis for a strong rural economic system. Current and future challenges to the	Karaka North and particularly Karaka West contain extensive areas of market attractive land with "aesthetically pleasant and appreciable landscape qualities" associated with coastal margins[26]. The most significant differences between land values per hectare and capital values per hectare across these areas of all the alternatives in the south gives an indication of higher levels of market attractiveness relative to other potential greenfield areas in this cluster[27].	Pukekohe West has "relatively moderate visual and scenic amenity value" associated with its working pastoral and production landscape. Pukekohe South East has a mixture of amenity attributes affected by the Pukekohe gateway and residential areas in the north, rural land uses to the east and south and recreational urban land uses to the west. Pukekohe North East has "relatively high scenic amenity values associated with contained valley landforms", the hill valley setting and wider context. Differences between land values per hectare and capital values per hectare across these areas are typical of rural areas in Auckland which gives an	Whangapouri has moderate to higher scenic amenity value associated open pastoral rural character and visually contained Whangapouri valley. Differences between land value per hectare and capital values per hectare across these areas are higher than typical of rural areas in Auckland which gives an indication of higher levels of market attractiveness at present however the same evidence suggests the clusters of lifestyle blocks around Lewis Road and Whangapouri Road are less market attractive. Paerata North has higher scenic amenity values to the east influenced by adjoining outstanding natural landscape (ONL) area. Differences between land value per hectare and capital values per hectare across these areas are typical of rural	See Core areas assessments below

[26] Environmental Planning & Design Ltd, Rural Urban Boundary (South) Alternative Area landscape Evaluations Internal Summary Report, July 2013, Landscape Evaluation Worksheet Appendices.

[27] Auckland Council Geospatial Analysis Map, RUB Alternatives South, August 2012.

<table>
<tr><td rowspan="4">market attractiveness of the status quo zoning include significant increases in the value of land[24], proliferation of lifestyle blocks in these areas[25] introducing sensitive land uses into working environments and creating land parcels that are impractical for commercial agriculture. Under this alternative the market attractiveness of the land is closely aligned with economic trends affecting the rural economy.</td><td></td><td>indication of moderate levels of market attractiveness with the exception of Pukekohe South East, which the same evidence suggests has lower levels of market attractiveness at present.</td><td>areas in Auckland which gives an indication of moderate levels of market attractiveness at present.</td><td></td></tr>
<tr><td colspan="4">Market attractiveness (Core alternatives common to all 3 scenarios and preferred RUB)
Core Hingaia has high levels of scenic amenity value from distinctive slopes and headlands adjoining the coastal margins and “high degree of aesthetic coherence”. More significant differences between land value per hectare and capital values per hectare across these areas gives an indication of higher levels of market attractiveness relative to other potential greenfield areas.

Core Drury has mixed scenic amenity qualities from its mixture of transitional rural road corridors, contiaining shelterbelts, pastoral scenic qualities, views of the Hunua Ranges hill slopes and flood plain margins, qualities which diminish closer to Drury interchange. Differences between land value per hectare and capital values per hectare across these areas are typical of rural areas in Auckland which gives an indication of moderate levels of market attractiveness at present.

Core Karaka South Bremner Rd Peninsula has extensive areas of market attractive land with pleasant and appreciable landscape qualities associated with coastal margins. South of Karaka Rd amenity has limited amenity which is “strongly influenced by SH1”and SH22 infrastructure. A considerable number of smaller lifestyle blocks on Bremner Road and closer to Drury have relatively low differences between land value per hectare and capital values per hectare across these areas but the overall picture is typical of rural areas in Auckland in terms of market attractiveness.

Core Pukekohe Area has “urban, horticultural and pastoral landscape characteristics” which “effects scenic qualities of legibility, coherence and intactness”. Differences between land value per hectare and capital values per hectare across these areas vary but are typical of rural areas in Auckland which gives an indication of moderate levels of market attractiveness at present.</td></tr>
<tr><td colspan="3">Market Attractiveness (alternatives common to all 3 scenarios)
Drury South
Provides 223 hectares (excluding the already designated Transpower site) of land physically suitable for land extensive Industrial Activities

Alternate Business
Provides around 200 hectares of land around which is physically suitable for land extensive Industrial Activities

Ramarama South
Provides around 50 hectares of land which is physically suitable for business land.</td><td>Market Attractiveness_Drury South
This area is subject to a private plan change application and was not evaluated for inclusion in the preferred RUB.</td></tr>
<tr><td colspan="5">Economic Effects
Land Fragmentation
This criteria compares the degree to which existing land subdivision and ownership patterns could restrict development potential across the different alternatives</td></tr>
<tr><td rowspan="2">Land Fragmentation (Status Quo)
Property IQ data shows that[28] the area of land in Lifestyle valuation categories in the former Franklin District increased by 6,876 ha between 1996-2010, while at the same time Pastoral and Dairy categories decreased by 25,201 and 12,518 ha over the same time period. In 2010, 79% of properties in the former Franklin District were categorised by Property IQ as Lifestyle properties based on an on-site assessment.</td><td>Land Fragmentation (West East focus)
Karaka West and Karaka North have relatively low levels of land fragmentation in an Auckland rural context with a concentration of lifestyle blocks in the middle part of Karaka North Road. A recent court decision provides for a village node development at the Dyke and Linwood Rd intersection.</td><td>Land Fragmentation (Pukekohe focus)
Pukekohe West has relatively low levels of land fragmentation in an Auckland rural context.

Pukekohe South East has moderate levels of land fragmentation with a mixture of small to medium sized sites.

Pukekohe North East has relatively low levels of land fragmentation with smaller blocks limited to sites off Runciman Rd.</td><td>Land Fragmentation (Corridor focus)
Whangapouri has several clusters of lifestyle blocks around Lewis Road and Whangapouri Road where land is more fragmented. A recent court decision provides for a village node development around the school at Blackbridge Road.

Paerata North has relatively low levels of land fragmentation.</td><td>Land Fragmentation (Preferred RUB alternative)
See Core areas assessments below</td></tr>
<tr><td colspan="4">Land Fragmentation (Core alternatives common to all 3 scenarios and preferred RUB)
Core Hingaia has moderate levels of land fragmentation in an Auckland rural context with a mixture of small to medium site sizes.

Core Drury has high levels of land fragmentation in an Auckland rural context with a large number of small site sizes.

Core Karaka South has a mixture of small and large site sizes.</td></tr>
</table>

[24] 3 to 6 x increases in land values across land use categories in the former Franklin District area between 1996 and 2010, Auckland Plan Technical Research, Rural property valuation data trends in Auckland 1996-2010, Source Rural Rates Data – Property IQ Dec 2010, 2011, p7.

[25] 72% increase in total land area of lifestyle blocks in the former Franklin District area between 1996 and 2010, Auckland Plan Technical Research, Rural property valuation data trends in Auckland 1996-2010, Source Rural Rates Data – Property IQ Dec 2010, 2011, p7.

[28] Auckland Plan Technical Research, Rural property valuation data trends in Auckland 1996-2010, Source Rural Rates Data – Property IQ Dec 2010, 2011, p7

<table>
<tr><td></td><td colspan="4">Core Pukekohe has high levels of land fragmentation in an Auckland rural context with a large number of small site sizes.</td></tr>
<tr><td></td><td colspan="3">Land Fragmentation (alternatives common to all 3 scenarios)
Drury South Business has moderate levels of land fragmentation in an Auckland rural context with mixture of small and medium sized sites.

Alternative Business has moderate levels of land fragmentation in an Auckland rural context with a mixture of small and medium sized sites but has a marked concentration of small sites around the intersection of Great South and Runciman Rd's. Moderate levels of land fragmentation adversely effects the attractiveness of this land for land extensive business activities because of the high per hectare land prices and challenges to land assembly with multiple owners.

Ramarama South Business has relatively low levels of land fragmentation in an Auckland rural context but on its own does have the size to achieve economies of scale and agglomeration benefits sought after for land extensive business.</td><td>Land Fragmentation Drury South
This area is subject to a private plan change application and was not evaluated for inclusion in the preferred RUB.</td></tr>
<tr><td colspan="5">Economic Effects
Land use efficiency
This criteria analysis how each alternative is able to accommodate the greatest yield of dwellings and jobs relative to gross area of land, enabling it to be able to make the most efficient use of existing and future public and private infrastructure investments</td></tr>
<tr><td>Land use efficiency (Status Quo)
Different rural locations and land uses can make less or more efficient use of land resources than others in a rural context. They can be highly efficient in meeting demand for rural produce and provide for long term resource utilisation in a market responsive way. But as is evident in the large differential between the cost of rural land and urban land [29]when compared to urban development proposals, rural land uses provided for under the status quo have much lower levels of capitalisation per hectare and lower value outputs urban land uses and therefore cannot be said to promote the same levels of land use efficiency.</td><td>Land use efficiency (West East focus)
The following analysis assumes the area would be developed without a bridge and road connection from Urquhart Road, Karaka to Weymouth Road, Karaka.

The Karaka West and Karaka North components of this scenario are relatively distant from public transport infrastructure. They create large "pockets" of urban development which are separated from each other to a greater extent than other scenarios. The separation of these areas from likely destinations make them less conducive to the development of more compact forms of housing and employment which means including them within the RUB is not conducive to efficient land use.</td><td>Land use efficiency (Pukekohe focus)
A number of physical constraints affect the extent to which the alternative areas around Pukekohe can be developed in a highly efficient way.

Pukekohe West. More than half of the land area of this area is within the 100 year floodplain. Although engineering solutions and the integration of playing fields and reserve areas into a development can potentially address this issue the net result is likely to be less efficient land uses.

Pukekohe South East has some areas of land which are likely to remain as recreation areas in the planning period being considered. Land directly south of the Pukekohe East volcanic crater is steeper and more challenging to develop intensively.

Pukekohe North-East with its hilly terrain and relatively high levels of slope instability makes comprehensively planned large scale compact developments more expensive than in other areas. Development is therefore less likely to be land efficient.</td><td>Land use efficiency (Corridor focus)
High degrees of orientation of growth with the existing transport network of the Whangapouri and Paerata North alternatives mean they offer greater potential for people to use multiple modes of transport, live in a range of housing types all of which reduces the need for cars, and means land use has the greatest potential to be more efficient. This alternative is more likely than others to make additional rail stations on an electrified rail corridor more viable due to the larger potential walk up catchment.</td><td>Land use efficiency (Preferred RUB alternative)
See Core areas assessments below</td></tr>
<tr><td></td><td colspan="3">Land use efficiency (alternatives common to all 3 scenarios)
Alternative Business has extensive areas of land adjoining SH1 and the HV powerline corridor and which are subject to noise and airquality effects. This reduces their potential for efficient land use alternatives. These same areas have moderate slopes which are less cost effective for lower value business land use alternatives; factors which are partially offset by the proximity to the Ramarama diamond interchange and offramps.

Ramarama South Business has relatively low levels of land fragmentation in an Auckland rural context but on its own does have the size to achieve economies of scale and agglomeration benefits sought after for land extensive business.</td><td>Land use efficiency Drury South
This area is subject to a private plan change application and was not evaluated for inclusion in the preferred RUB.</td></tr>
<tr><td></td><td colspan="4">Land use efficiency (Core alternatives common to all 3 scenarios and preferred RUB)</td></tr>
</table>

29 After controlling for other factors, evidence suggests land just inside the MUL boundary is valued (per hectare) at approximately 10 times land that is just outside the boundary, Grimes, Arthur & Yun Liang. 2010. "Spatial Determinants of Land Prices: Does Auckland's Metropolitan Urban Limit Have an Effect?", Applied Spatial Analysis and Policy 2:1, pp. 23-45.

	Widening SH1 to six lanes as far south as Drury is assumed in all land-use scenarios. Electrification of the North Island Main Trunk Line (NIMTL) and future-proofing for a third or fourth track to Puekkohe (and potentially onwards) during the next 30 years is assumed in all land use scenarios. Core Hingaia has moderate levels of connectivity to public transport infrastructure and amenities but by adding substantially to the scale of development in Hingaia it has significant potential to increase the viability of the provision of local services and amenities to .existing areas of Hingaia which makes efficient use of land more likely. Core Drury has extensive areas of flat land in close proximity to future transport links and employment, however it also has extensive areas of land within the 100 year floodplain, an area of playing fields at Opaheke, and a gliding club which may be important to retain in planning this area. Integration of playing fields and reserve areas into the development of these areas can potentially address these issues however this will reduce the overall efficiency of land use and the alternative is therefore considered moderately conducive to efficient land use. Core Drury has approximately 45ha of land close to the Boundary Road industrial area assessed as highly suitable for a range of light industrial business uses. Core Karaka South has approximately 100ha of land close to the Boundary Road industrial area assessed as highly suitable for a range of light industrial business uses. Core Karaka South The land at Bremner Road Peninsula and between Karaka Road and Runciman has high levels of connectivity to future transport links, and future amenities and gently rolling terrain with few constraints making the site suitable for being planned using the principles of transit oriented development. The integration of a number of major glass houses into the development of these areas could be challenging. Overall however, these areas are considered highly conducive to efficient land use. Core Pukekohe Extensive areas of land around the Pukekohe Racecourse Raceway and south of Paerata Dairy factory has been assessed as unsuitable for heavy industry because of the extent of organic compressible soils in this area[30] . Noise from the racecourse also effects the potential of surrounding land for compact housing. However, around 100ha's of land around the racecourse has been assessed as highly suitable for a range of light industrial business uses. Other areas around Pukekohe are highly suitable for efficient urban land uses.			
Economic Effects **Minimised infrastructure costs and impacts** This criteria analyses the extent to which the alternatives are in a location which can be serviced by existing infrastructure and facilities where there is unutilised capacity, or where capacity increases are included in the adopted infrastructure program, or where necessary capacity increases can occur at least cost. Consideration is also given to the overall resilience of this infrastructure in supporting the community. Both Opex and Capex are relevant factors.				
Minimised infrastructure costs (Status Quo) Rural land uses put minimal demands on infrastructure relative to urban development. They therefore minimise infrastructure costs. It is significantly easier and less costly to convey utility infrastructure through rural areas than urban. Rural zoning however creates a density that makes for a poor cost benefit ratio for providing utility infrastructure and services such as broadband, wastewater services, footpaths, schools, open space, street lighting and other public goods.	**Minimised infrastructure costs and impacts (West East focus)** The Karaka West and to a lesser extent Karaka North are more reliant on the provision of a new transport link from Karaka to Weymouth than other alternatives in order to avoid significant congestion effects at Papakura and Drury Interchanges and vehicle queuing effects at peak times. A new bridge between the Karaka West RUB alternative and the Weymouth peninsula is sees as the only feasible location for crossing the Pahurehure Inlet at this stage. Such an alternative would provide additional capacity and across the Pahurehure Inlet to the west of SH1 and greater network resiliency. This would be difficult to implement in an incremental manner and would pass through an existing residential community which will place constraints on providing a strategic transport route through the Weymouth peninsula without extremely expensive tunnelling. This infrastructure is not identified in the Auckland Plan or LTCCP. It is noted that providing peninsulas with a connected street network is challenging as is avoiding a transport network reliant upon a single spine road running up the middle of the peninsulas. The west east alternatives are the best alternatives from a stormwater perspective. The Karaka North and West catchments are short, therefore the	**Minimised infrastructure costs and impacts (Pukekohe focus):** The conceptual transport network for the Pukekohe land use scenario utilises the Mill Rd Realigned SH22 Option 1. This involves closing the Drury motorway interchange and moving the interchange south, with a new expressway from the interchange running along the south edge of the greenfield area. The existing SH22 route from the existing Drury SH1 interchange to the western edge of the core RUB could then be developed with a place-making focus more than a movement focus. This is the middle alternative from a stormwater perspective. Upper and lower catchments are affected in Oira and Ngakaroa stream catchments but not to the same extent as the Corridor focus. Pukekoke West has a significant flood plain and is also constrained by the railway embankment downstream. These are all upper catchment areas, attenuation of flow will be necessary to mitigate downstream flooding, requiring larger ponds/wetlands and reduced developable area. Pukekohe West. This alternative has the largest proportion of flood plain areas of all the Southern RUB areas, thus has the highest flood risks to mitigate in development. Pukekohe has higher catchment areas,	**Minimised infrastructure costs and impacts (Corridor focus)** The conceptual transport network for this option is very similar to that of the Pukekohe focus scenario. The main differences relate to the extension of the connected arterial network into the Whangapuri and Paerata North areas, the addition of a train station in the Paerata North area and the realignment of the Glenbrook Road to better avoid passing through a potential transit-oriented development around the proposed Paerata North train station. This is the worst of the three option combinations from a stormwater perspective. Development would occur in the both the upper and lower regions of the, Oira and Ngakaroa Stream catchments. Developing both the upper (Pukekohe core North East and South East) and lower ends of the catchments (Paerata North, Whangapouri and Core Karaka south) affects longer regions of the streams, as well as creating more complex flooding effects (the timing of the peak flows in the upper catchment need to be accounted for with the development in the lower catchment). Developing the upstream catchment can increase flood risk in the lower catchment, typically conveyance systems through the lower catchment need to be relatively large	**Minimised infrastructure costs and impacts (Preferred RUB alternative)** See Core areas assessments below

[30]Tonkin & Taylor Ltd, July 2013, Southern Rural Urban Boundary Geotechnical deskstudy, Figure 11 Soil Compressibility & Building Settlement Potential.

	lengths of affected streams, the size(and cost) of the conveyance systems, and the required length of stormwater management is generally smaller in comparison to the other alternatives. The catchments are not bisected by existing road or rail embankments. These catchment have the smallest proportion of flood plain areas of all the Southern RUB areas, thus have the least flood risks to mitigate in development. The Karaka North and West catchments are lower catchment areas, and attenuation requirements will not be as significant in comparison to the Pukekohe areas, thus generally smaller ponds/wetland and less expensive infrastructure.	and attenuation requirements such as ponds/wetlands will need to be larger and more expensive as a result. Pukekohe South East Top of a large catchment that drains predominantly south towards Waikato River. Attenuation is likely to be required. Pukekohe North-East Providing a connected street network in the Pukekohe North East option is challenging due to the topography of this area. This area is reliant upon a potentially expensive upgrade of Runciman Road Top of a large catchment with downstream areas subject to development. Flood risks will vary with land use therefore higher risks. Attenuation is likely to be required.	(more costly) to accept flows from the upper catchment. The railway embankment and SH22 (Karaka rd) bisect the catchment in the development areas Paerata North and Whangapouri, flows are restricted at the bridges an culverts, these features create additional constraints for designing engineering's solutions to mitigate flood risk.	
	Minimised infrastructure costs and impacts (alternatives common to all 3 scenarios) Drury South, Alternative Business and Ramarama South alternatives are all readily able to be integrated into the Conceptual transport network options considered in conjunction with proposed network interventions. From a stormwater perspective Alternative Business has the same catchment as core Karaka South so catchment effects of land use will have to be considered in conjunction with downstream land use, attenuation to mitigate downstream flooding is likely. Low energy receiving environment which is sensitive to sediment pollution. In Ramarama South Business the catchment is the same as core Karaka South so catchment effects of land use will have to be considered in conjunction with downstream land use, attenuation to mitigate downstream flooding is likely. Low energy receiving environment which is sensitive to sediment pollution			**Minimised infrastructure costs and impacts** **Drury South** area is subject to a private plan change application and was not evaluated for inclusion in the preferred RUB.
	Minimised infrastructure costs and impacts (Core alternatives common to all 3 scenarios and preferred RUB) **Transport infrastructure costs and benefits** The proposed Strategic Conceptual Transport Networks considered in analysing the RUB alternatives for the south include the implementation of the Mill Road to Drury corridor project, which extends up to Redoubt Rd and provides a primary arterial north-south corridor east of SH1. Continuing this corridor over SH1 at a new interchange just south of Drury (the existing Drury interchange could be closed in this scenario) onto an expressway which skirts the southern edge of the RUB and continues southwest to the northern edge of Pukekohe provides a high-speed and high-capacity transport connection that will ease pressure on the existing SH22 and make best use of the investment planned on the Mill Rd corridor. A strength of this option is that it can be constructed in an incremental manner, building on the rollout of the Mill Road Corridor north-to-south, utilising an upgraded existing SH22 during earlier stages of development and taking advantage of capacity enhancement on SH1 in the short to medium term. A weakness of this option is that most growth is located west of SH1 and traffic will need to cross the Pahurehure Inlet bottleneck either on SH1 or east of SH1 on the Mill Road Corridor.[31] All three land use scenarios rely on: • Rapid transit electric rail services to Pukekohe Significant improvement to bus service levels. • Changing the existing SH22 route from Drury to Pukekohe into an urban arterial and upgrading the Pukekohe East Road link into Pukekohe from Bombay. • Extending Mill Road through Papakura to Drury, on the east side of SH1. • Ensuring efficient road access to the employment areas in Drury South from SH1 plus efficient local road links. New train stations at Drury, Paerata and Karaka South are common to all three land-use scenarios. All options also include a significantly enhanced bus service – particularly for local trips within the greenfield area and as feeder services to the various train stations[32]. **Stormwater infrastructure costs and benefits** Core Hingaia has a low energy receiving environment which is sensitive to sediment pollution will increase infrastructure costs to meet environmental bottom lines. Core Drury RUB area is upstream of Drury which is an existing flood risk area. The railway embankment bisects area so will be a constraint. Culverts and bridges will need to be investigated (possibly upgraded). Low energy receiving environment which is sensitive to sediment pollution will increase infrastructure costs to meet environmental bottom lines. Core Karaka South At the bottom of two large rural catchments. Attenuation is unlikely. The railway embankment bisects area so will be a constraint. Culverts and bridges will need to be investigated (possibly upgraded). Low energy receiving environment which is sensitive to sediment pollution will increase infrastructure costs to meet environmental bottom lines.			

[31] Auckland Council Internal Report – Transport Strategy, Auckland Unitary Plan – Rural Urban Boundary Discussion Paper – Transport Issues, August 2013, pg's35-51

[32] Ibid.

<table>
<tr><td></td><td colspan="4">Core Pukekohe
Northern areas drain to a low energy receiving environment which is more sensitive to sediment pollution will increase infrastructure costs to meet environmental bottom lines. Long natural channel down- stream is likely to need flow management to manage stream bed erosion. Southern areas drain towards Waikato.</td></tr>
<tr><td colspan="5">Economic Effects
Alternatives conducive to employment growth
One of the key objectives for the RUB is to achieve an increase of land supply for business land to provide for local employment growth (as well as providing land for housing, centres and open space etc). This criteria assesses how the alternative is able to accommodate the greatest yield of business land and provide for potential jobs relative to gross area of land, enabling it to be able to make the most efficient use of existing and future public and private infrastructure investments. Land price, how flat the land is, proximity to activity centres, and to quality transport internet and electricity networks vary between these alternatives.</td></tr>
<tr><td rowspan="2">Alternatives conducive to employment growth
Status Quo
Different rural locations and land uses can be more or less job intensive than others and produce higher rates of $ turnover per hectare then others. Rural land uses are strongly export oriented and derive substantial additional off farm employment opportunities as produce goes through the supply chain.

Recent analysis shows the investigation areas in the south produce an estimated turnover of $75.1m and 452 FTE’s which equates to 0.04 jobs per hectare and $144,000 per hectare[33]. This compares unfavourably with the proposed development at Drury South which proposes to accommodate up to 6,900 jobs at Drury South and contribute up to 2.3 billion per annum to GDP with a development area of 361ha.</td><td>Alternatives conducive to employment growth (West East focus)
The following analysis assumes these areas would be developed without a bridge and road connection from Urquhart Road, Karaka to Weymouth Road, Karaka.

The Karaka West and Karaka North The separation of these areas from transport routes, likely destinations and public transport infrastructure make them less likely to create strong and diverse local centres and utilise agglomeration benefits that are conducive to employment growth.</td><td>Alternatives conducive to employment growth (Pukekohe focus)

Pukekohe West
The submission seeking the inclusion of this alternative mentions the possibility of 30 ha of business land adjoining the Glenbrook Railway. The land being flat, flood-prone and adjoining a railway line, it has a number of characteristics that make it attractive as potential business land notwithstanding the lack of ready access to the motorway and railway system.

Pukekohe South East
The Draft Pukekohe Area Plan initially identified approximately 140 ha of land around the Pukekohe race course as potential business land. Geotechnical constraints analysis indicates high levels of soil compressibility and building settlement potential in this area anticipates that addressing these issues will require a relatively low development premium relative to other areas

Pukekohe North-East
Extensive parts of the land in this alternative are steep to rolling with high slope instability potential. Addressing these issues to establishing business activities on the site would require a high development premium that is likely to preclude the establishment of extensive business land in this area.</td><td>Alternatives conducive to employment growth (Corridor focus)

Paerata North
Approximately 76ha of land north of the existing Paerata business land area has been identified as potential business land.

Whangapouri</td><td>Alternatives conducive to employment growth (Preferred RUB alternative)
See Core areas assessments below</td></tr>
<tr><td colspan="3">Alternatives conducive to employment growth (alternatives common to all 3 scenarios)
Drury South
Provides 223 hectares (excluding the already designated Transpower site) of land physically suitable for land extensive business activities. Evidence submitted and presented at the hearing for the private plan change application relating to this proposal put a strong case for the eminent need for and substantial benefits of this alternative but also raised significant issues and questions about how costs are to be addressed such that it is premature to assume that it will proceed.

Alternative Business has extensive areas of land adjoining SH1 and the HV power line corridor with moderate slopes which are less cost effective for lower value business land use alternatives however geotechnical constraints analysis anticipates that addressing these issues will require a relatively low development premium relative to other areas. The proximity of this land to the Ramarama diamond interchange and off ramps is an important benefit of this option. It provides around 200 hectares of land which is physically suitable for extensive business activities.

Ramarama South Business provides around 50 hectares of land which is physically suitable for business land. On its own does have the size to achieve economies of scale and agglomeration benefits sought after for land extensive business activities.</td><td>Alternatives conducive to employment growth
Drury South area is subject to a private plan change application and was not evaluated for inclusion in the preferred RUB.</td></tr>
</table>

[33] Primary Focus, Rural Production Comparative Analysis Greenfield Study Areas North, North West and South Auckland, April 2013, p.5

	Overall, the Alternative Business and Ramarama South Business alternatives are considered suitable business land alternatives, however in the context of the objective to identify a strategic 30 year assessment of business land supply requirements for the south, it is considered contrary to sound resource management practise to make a determination about their relative merits in the absence of greater certainty about the Private Plan change proposal at Drury South which would allow an overall assessment of the relative suitability of business land supply options in the Drury area to be made.			
	Alternatives conducive to employment growth (Core Alternatives common to all 3 scenarios and preferred RUB) <u>Core Drury</u> <u>Core Karaka South</u> <u>Core Hingaia</u> Has levels of amenity that are highly conducive to higher value residential related land uses. Feedback from NZTA is that a dedicated major new interchange to service business land in these areas is highly unlikely given its close proximity to other interchanges. <u>Core Pukekohe</u>			
	Promotes increased use of public transport, walking and cycling relative to car use	Promotes increased use of public transport, walking and cycling relative to car use	Promotes increased use of public transport, walking and cycling relative to car use	
	Facilitates the efficient movement of freight	Facilitates the efficient movement of freight	Facilitates the efficient movement of freight	
	Is contiguous, and integrates well, with existing urban areas	Is contiguous, and integrates well, with existing urban areas	Is contiguous, and integrates well, with existing urban areas	
	Compatibility of urban development with adjoining areas and land uses The proximity of SH1 and its associated noise and air quality effects make a substantial portion of the land between Great South Rd and SH1 unsuited to higher value land uses like	Compatibility of urban development with adjoining areas and land uses	Compatibility of urban development with adjoining areas and land uses	
Economic effects **Protection of productive rural land** This criteria analyses the extent to which alternatives avoid urbanising land with long term productive potential and the fewest limitations to long term productive use for the agricultural production and processing sectors.				
Productive rural land(Status Quo) Property IQ data shows that[34] the area of land in Lifestyle valuation categories in the former Franklin District increased by 6,876 ha between 1996-2010, while at the same time Pastoral and Dairy categories decreased by 25,201 and 12,518 ha over the same time period. In 2010, 79% of properties in the former Franklin District were categorised by Property IQ as Lifestyle properties based on an on-site assessment.	**Productive rural land (West East focus)** <u>Karaka West</u> 714 ha LUC 2; 51 ha LUC 3; 28 ha LUC 4 <u>Karaka North</u> 914 ha LUC 2; 3 ha LUC 3	**Productive rural land (Pukekohe focus)** <u>Pukekohe West</u> 133 ha LUC 1; 140 ha LUC 2; 21 ha LUC 3 <u>Pukekohe South East</u> 4 ha LUC 1; 116 ha LUC 2; 15 ha LUC 3; 82 ha LUC 4; 2 ha LUC 6 <u>Pukekohe North East</u> 2 ha LUC 1; 75 ha LUC 2; 258 ha LUC 3; 53 ha LUC 4; 274 ha LUC 6	**Productive rural land (Corridor focus)** <u>Whangapouri</u> 374 ha LUC 2; 154 ha LUC 3; 21 ha LUC 4 <u>Paerata North</u> 914 ha LUC 2; 3 ha LUC 3	**Productive rural land (Preferred RUB alternative)** See Core areas assessments below
	Productive rural land (Core alternatives common to all 3 scenarios and preferred RUB) <u>Core Drury and Hingaia</u> 985 ha LUC 2; 36 ha LUC 3; 6 ha LUC 6; 15 ha town <u>Core Karaka South</u> 874 ha LUC 2; 442 ha LUC 3; 11 ha LUC 4 <u>Core Pukekohe</u> 261 ha LUC 1; 585 ha LUC 2; 507 ha LUC 3; 142 ha LUC 4; 71 ha LUC 6; 15 ha town			

[34] Auckland Plan Technical Research, Rural property valuation data trends in Auckland 1996-2010, Source Rural Rates Data – Property IQ Dec 2010, 2011, p7

<table>
<tr><td></td><td colspan="4">Productive rural land (alternatives common to all 3 scenarios)
<u>Drury South Business</u>
344 ha classed as LUC 2; 8 ha LUC 3; 8ha quarry land

<u>Alternative Business</u>
77 ha LUC 2; 182 ha LUC 3

<u>Ramarama South Business</u>
6 ha LUC 2; 49 ha LUC 3</td><td></td></tr>
<tr><td colspan="6">Economic Effects
Mineral Resources and Extraction Activities
This criteria analyses the extent to which each alternative avoids significant mineral resources, including existing operations of quarries and their key access routes.</td></tr>
<tr><td>Effects on Mineral Extraction Activities (Status Quo)
Continued rural land use in the Drury Area provided for under the Status Quo District Plan in this area will limit the extent to which traffic will increase on routes to and from the quarries in the area.</td><td colspan="5">Effects on Mineral Extraction Activities (urban development alternatives)
In summary, there are no known significant mineral resources suitable for extraction within the areas proposed as future urban zones. There is therefore nothing to distinguish between the alternative areas with the exception of <u>Drury South</u> and <u>Core Drury</u> areas which will bring urban development closer to the working quarry operations of Stevensons and Fletchers at Quarry Road and Hunua Roads respectively. The Core Drury area is around 500m from the Stevensons Special Purpose Zone for the quarry however in considering any potential reverse sensitivity effects on the quarry and its economic resources it is considered that any potential impacts on the operation of the quarry from new development such as potential impediments to truck operations on their preferred transport routes should be managed can be addressed in structure planning and in considering plan changes within these areas. It is also noted that Council received feedback seeking the inclusion of the Drury South Plan Change Area adjoining the quarry within the RUB. Recommendations are similar for the Fletchers Quarry on Hunua Road, where the future urban zone is proposed to come within 1.8km of the Special Purpose Zone which provides for the quarry.</td></tr>
<tr><td colspan="6">Economic Effects
Minimises adverse effects on aquifers and recharge areas
This criteria analyses effects on aquifers and aquifer recharge areas where abstraction occurs for rural production. Development of these areas for urban purposes are likely to negatively impact on the groundwater aquifers that drain from these areas. For example a 50& increase in imperviousness results in a 50% decrease in groundwater recharge. Loss of recharge can also allow salt water to enter the aquifer removing its potential for economic use [35]. Areas where there are consents for water takes are noted below but many areas being actively farmed and sites containing houses do not require water take permits. .</td></tr>
<tr><td rowspan="2">Effects on aquifers (Status Quo)
Continued rural land use in the investigation areas under the Status Quo District Plans in these areas will limit the extent to which aquifers and their recharge areas are impacted relative to urban development. The consent system for allocating water enables water to be allocated on a sustainable basis.</td><td>Effects on aquifers (West East focus)
<u>Karaka West</u>
Significant existing water take consents for market gardening pastoral and poultry. Urbanisation of these areas is likely to have moderate negative impacts on groundwater because of its Tauranga Group alluvial material over Waitemata Group.

<u>Karaka North</u>
Significant existing water take consents for market gardening pastoral and poultry. Urbanisation of these areas is likely to have moderate negative impacts on groundwater because of its Tauranga Group alluvial material over Waitemata Group.</td><td>Effects on aquifers (Pukekohe focus)
<u>Pukekohe West</u>
Significant existing water take consents for houses, hothouse, market gardening and orchards.
Urbanisation of these areas is likely to have strong negative impacts on groundwater because of its Basalt & Tauranga Group alluvial material.

<u>Pukekohe South East</u>
Small scale existing water take consents for sports turf and equestrian activities. Urbanisation of these areas is likely to have strong negative impacts on groundwater because of its Scoria, Basalt & Tauranga Group alluvial material.

<u>Pukekohe North East</u>
Small scale existing consents for hothouse and market gardening. Urbanisation of these areas is likely to have strong negative impacts on groundwater because of its Scoria, Basalt & Tauranga Group alluvial material.</td><td>Effects on aquifers (Corridor focus)
<u>Whangapouri</u>
Significant existing water take consents for pastoral activities with some hothouse and houses. Urbanisation of these areas is likely to have moderate negative impacts on groundwater because of its Tauranga Group alluvial material & Kaawa Formation with some basalt.

<u>Paerata North</u>
Moderate scale existing water take consents for Orchards and a school. Urbanisation of these areas is likely to have moderate negative impacts on groundwater because of its Tauranga Group alluvial material & Kaawa Formation with some scoria & basalt.</td><td>Effects on aquifers (Preferred RUB alternative)
See Core areas assessments below</td></tr>
<tr><td colspan="4">Effects on aquifers (Core alternatives common to all 3 scenarios and preferred RUB)

<u>Core Drury and Hingaia</u>
Moderate scale existing water take consents for houses, sportsfields, hothouses, market gardening orchards and a poultry farm.</td></tr>
</table>

[35] Pattle Delamore Partners "Karaka Rural Urban Boundary Waitemata Aquifer Recharge Assessment", December 2012 and Auckland Regional Council - Technical Publication Number 133, "South Auckland Groundwater Kaawa Aquifer Recharge Study and Management Of The Volcanic And Kaawa Aquifers" November 2002.

	Urbanisation of these areas is likely to have moderate negative impacts on groundwater because of its Tauranga Group alluvial material over Waitemata Group some scoria & basalt. Core Karaka South The Karaka Waitemata aquifer is fully allocated under existing resource consents so consent allocations would have to be reduced and may not be sufficient to meet needs for economic activities. Significant existing water take consents for hothouses as well as some market gardening orchards Core Pukekohe Significant existing water take consents for market gardening as well as some industrial and municipal and hothouses. Urbanisation of these areas is likely to have strong negative impacts on groundwater because of its Basalt & Tauranga Group alluvial material.			
	Effects on aquifers (alternatives common to all 3 scenarios) Drury South Business Small scale existing water take consents for rural production. Urbanisation of these areas is likely to have strong negative impacts on groundwater because of its scoria, basalt and Tauranga Group alluvial material. Alternative Business Moderate scale existing water take consents for market gardening and a caravan business. Urbanisation of these areas is likely to have strong negative impacts on groundwater because of its scoria, basalt and Tauranga Group alluvial material. Ramarama South Business areas No consented water takes found in this area but land is used for market gardening. Urbanisation of these areas is likely to have strong negative impacts on groundwater because of its scoria, basalt and Tauranga Group alluvial material.			
Economic Effects **Effects on surface water bodies** This criteria analyses the extent to which each alternative minimises adverse effects to surface water bodies where abstraction occurs for rural production. This criteria is linked to that above as reducing recharge will decrease baseflow to streams at times of little or no rain. This will impact on cultural values and the integrity of the surface water bodies and their ecosystems sustained by baseflow.				
Effects on surface water bodies (Status Quo) Continued rural land use in the Drury Area provided for under the Status Quo District Plan in these areas are having will limit the extent to which traffic will increase on routes to and from the quarries in the area.	**Effects on Surface Water Bodies (all urban development alternatives)** In summary, those options closest to the coast such as Karaka North and Karaka West will have small negative impacts on base flow and freshwater quality, those farthest up in the catchments around Pukekohe will have high impacts on base flow and freshwater quality and those in between will have more moderate impacts. Development areas further from the coast are more likely to impact on streams as a greater length of stream network is			
Environmental effects **Marine Values** This criteria analyses the extent to which quality and health of marine ecosystems are maintained and enhanced in order to support human social, economic and cultural wellbeing and indigenous biodiversity. Includes consideration of native species diversity, habitat diversity, connectivity and key species. The assessments are based on three scenarios: the first assumes current stormwater and earthworks controls are used and no additional catchment management implemented to deal with the impact of current rural and urban landuse effects; the second assumes the use of the best available stormwater and earthworks controls but no additional catchment management implemented; the third assumes best available stormwater and earthworks controls and additional catchment management such as retrofitting existing drainage systems, stock exclusion and riparian plantings are implemented to deal with the impact of current rural and urban landuse effects. NIWA Cawthron Institute and Auckland Council have assessed the potential effects of a range of future urban development scenarios in the Southern RUB area on parts of the south-eastern Manukau Harbour and adjoining tidal creeks by assessing and predicting changes to estuarine sediment quality and health of estuarine benthic invertebrate communities[36].				
Marine Values Effects(Status Quo) The effects of status quo planning and land use has been modelled by the previous Southeastern	**Marine Values Effects (West East focus)** Karaka West Strong negative implications for the quality	**Marine Values Effects (Pukekohe focus)** Pukekohe West Strong negative implications for the quality	**Marine Values Effects (Corridor focus)** Whangapouri Strong negative implications for the quality	**Marine Values Effects (Preferred RUB alternative)** See Core areas assessments

[36] Moores, Harper, Batstone, Cameron - NIWA Cawthron Institute and Auckland Council Working Report, "Urban Planning That Sustains Waterbodies (UPSW): Southern RUB Case Study", May 2013.

Manukau (SEM) Harbour study[37] by monitoring and modelling the accumulation of sediment copper and zinc contaminants. The study predicted small increase in sediment accumulation rates is subestuaries, more substantial increases in copper and zinc in estuary bed-sediments with Threshold Effects Levels being exceeded over time. These provide a "sliding baseline" for the assessment of environmental outcomes predicted for the Southern RUB urban development scenarios.	and health of marine ecosystems predicted under all scenarios as well as for the safety of harvested shellfish and fish using current earthworks and stormwater controls. Best available stormwater and earthworks controls improve this scenario to small negative impacts and the addition of additional catchment management improves this to small positive implications. Area primarily drains to Whangamaire estuary which is currently quite impacted by sediment. Area will also discharge a reasonable proportion of sediment and contaminants to the wider Manukau Harbour <u>Karaka North</u> Strong negative implications for the quality and health of marine ecosystems predicted under all scenarios particularly for the Pahurehure Inlet as well as for the safety of harvested shellfish and fish using current earthworks and stormwater controls. Best available stormwater and earthworks controls improve this scenario to small negative impacts and the addition of additional catchment management improves this to small positive implications. Area partially drains to Drury Creek Estuary which currently has the best predicted ecological health within the Pahurehure Inlet area. Area also partially drains to Whangamaire estuary which is currently quite impacted by sediment	and health of marine ecosystems predicted under all scenarios particularly for the Pahurehure Inlet as well as for the safety of harvested shellfish and fish using current earthworks and stormwater controls. Best available stormwater and earthworks controls improve this scenario to small negative impacts and the addition of additional catchment management improves this to small positive implications. Area entirely drains to Drury Creek Estuary which currently has the best predicted ecological health within the Pahurehure Inlet area. <u>Pukekohe South East</u> Strong negative implications for the quality and health of marine ecosystems predicted under all scenarios particularly for the Pahurehure Inlet as well as for the safety of harvested shellfish and fish using current earthworks and stormwater controls. Best available stormwater and earthworks controls improve this scenario to small negative impacts and the addition of additional catchment management improves this to small positive implications. Area entirely drains to Drury Creek Estuary which currently has the best predicted ecological health within the Pahurehure Inlet area. <u>Pukekohe North East</u> Strong negative implications for the quality and health of marine ecosystems predicted under all scenarios particularly for the Pahurehure Inlet as well as for the safety of harvested shellfish and fish using current earthworks and stormwater controls. Best available stormwater and earthworks controls improve this scenario to small negative impacts and the addition of additional catchment management improves this to small positive implications. Area entirely drains to Drury Creek Estuary which currently has the best predicted ecological health within the Pahurehure Inlet area.	and health of marine ecosystems predicted under all scenarios particularly for the Pahurehure Inlet as well as for the safety of harvested shellfish and fish using current earthworks and stormwater controls. Best available stormwater and earthworks controls improve this scenario to small negative impacts and the addition of additional catchment management improves this to small positive implications. Area entirely drains to Drury Creek Estuary which currently has the best predicted ecological health within the Pahurehure Inlet area. <u>Paerata North</u> Strong negative implications for the quality and health of marine ecosystems predicted under all scenarios particularly for the Pahurehure Inlet as well as for the safety of harvested shellfish and fish using current earthworks and stormwater controls. Best available stormwater and earthworks controls improve this scenario to small negative impacts and the addition of additional catchment management improves this to small positive implications. Area entirely drains to Drury Creek Estuary which currently has the best predicted ecological health within the Pahurehure Inlet area.	below
	Marine Values Effects (Core alternatives common to all 3 scenarios and preferred RUB) <u>Core Drury and Hingaia</u> Strong negative implications for the quality and health of marine ecosystems predicted under all scenarios particularly for the Pahurehure Inlet as well as for the safety of harvested shellfish and fish using current earthworks and stormwater controls. Best available stormwater and earthworks controls improve this scenario to small negative impacts and the addition of additional catchment management improves this to small positive implications. Area entirely drains to Drury Creek Estuary which currently has the best predicted ecological health within the Pahurehure Inlet area. <u>Core Karaka South</u> Strong negative implications for the quality and health of marine ecosystems predicted under all scenarios particularly for the Pahurehure Inlet as well as for the safety of harvested shellfish and fish using current earthworks and stormwater controls. Best available stormwater and earthworks controls improve this scenario to small negative impacts and the addition of additional catchment management improves this to small positive implications. Area entirely drains to Drury Creek Estuary which currently has the best predicted ecological health within the Pahurehure Inlet area.			

[37] Green, M. (2008A+B) Southeastern Manukau Harbour / Pahurehure Inlet Contaminant Study. Predictions of Sediment, Zinc and Copper Accumulation under Future Development Scenarios 1,2,3 and 4. Prepared by NIWA for ARC. Auckland Regional Council Technical Report 2008/058+059

	Core Pukekohe Strong negative implications for the quality and health of marine ecosystems predicted under all scenarios particularly for the Pahurehure Inlet as well as for the safety of harvested shellfish and fish using current earthworks and stormwater controls. Best available stormwater and earthworks controls improve this scenario to small negative impacts and the addition of additional catchment management improves this to small positive implications. Area entirely drains to Drury Creek Estuary which currently has the best predicted ecological health within the Pahurehure Inlet area.			
	Marine Values Effects (alternatives common to all 3 scenarios) Drury South Business Commercial and Industrial areas are likely to have more of an effect due to the increased risk of contaminants and run-off from these areas even when using best available controls Alternative Business Commercial and Industrial areas are likely to have more of an effect due to the increased risk of contaminants and run-off from these areas even when using best available controls Ramarama South Business Commercial and Industrial areas are likely to have more of an effect due to the increased risk of contaminants and run-off from these areas even when using best available controls			
Environmental Effects **Freshwater Quality** This criteria analyses the extent to which freshwater quality is protected and enhanced. Includes consideration of public health impacts The methodology for planning the RUB and land supply analysis built in a number of assumptions including that extensive land buffers around streams in these areas will be set aside and protected as utility reserves in developing these areas. The width of buffers was adjusted for each stream based on analysis of stream values.				
Freshwater Quality Effects(Status Quo) The Macroinvertebrate Community Index (MCI) illustrates the ecological quality of rivers and streams and shows that the Ngakaroa Stream has some of the lowest ecological quality of streams in the Region (45 out of 52 sample sites) under the status quo approach to land use in the region[38]. Streams draining the market gardening areas around Pukekohe are known for carrying high levels of sediment and nitrogen from farm runoff. The UPSW study discussed above noted an adverse trajectory for environmental health indicators over the next 30 years for receiving environments including streams within the status quo.	**Freshwater Quality Effects (West East focus)** Streams in the Karaka West, Karaka North and the Bremner Rd Peninsula part of Core Karaka South have relatively short runs before discharge which limits the impacts on streams from development in these areas. With other options, streams will be impacted at multiple points and over a greater extent of area meaning that freshwater quality is less likely to be protected and enhanced. Across the board analysis Research on stream ecosystem viability indicates that in areas with high impervious cover, stream water quality tends to be poor. This decline begins to occur when imperviousness reaches 10%, and by 30% imperviousness water quality and aquatic habitats are severely degraded[39]. It is anticipated that the level of imperviousness in the possible future urban areas identified will exceed 30%, and as a result trade-off of cultural, social and environmental values in favour of economic and other social values are considered likely. Notwithstanding the potential to develop these areas incorporating strong protection of stream margins into developments and the multiple amenity water quality, flow controls and ecological benefits of this type of approach, overall, urbanisation is still a significant threat to the quality of freshwater in these areas.			
Environmental Effects **Indigenous Biodiversity** This criteria analyses the extent to which the option preserves and/or enhances areas of indigenous vegetation and habitats of indigenous fauna including terrestrial, freshwater and marine ecosystems.				
Effects on Indigenous Biodiversity (Status Quo) Most of the Franklin area has depleted biodiversity and an ecological assessment indicates low diversity according to the three principle measures (1) number of species (alpha diversity); (2) differences in species composition	**Effects on Indigenous Biodiversity (West East focus)** Karaka West Contains two large significant ecological areas (SEAs) encompassing the estuarine ecosystems of the Whangapouri and Drury Creek catchments. Indigenous biodiversity	**Effects on Indigenous Biodiversity (Pukekohe focus)** Pukekohe West Low ecological terrestrial values with intense human influences and most of the native biodiversity extirpated and replaced with exotic generalists, many of which are invasive	**Effects on Indigenous Biodiversity (Corridor focus)** Whangapouri Terrestrial Indigenous biodiversity of Whangapouri depleted owing to removal of native vegetation (habitat). Some common terrestrial native species are present but the	**Effects on Indigenous Biodiversity (Preferred RUB alternative)** See Core areas assessments below

[38] ARC State of the environment and biodiversity – Freshwater, 2010, p155

39

Allibone, R. (2001). Retaining biological values in urban streams - what is possible with storm water discharges? *In Proceedings of Second South Pacific Stormwater Conference: Rain the Forgotten Resource. Auckland, New Zealand.* , 198-206.

Collier, K. J., & Clements, B. L. (2010). Influences of catchment and corridor imperviousness on urban stream macroinvertebrate communities at multiple spatial scales. *Hydrobiologia* .

Collier, K. J., Aldridge, B. M., Hicks, B. J., Kelly, J., Macdonald, A., Smith, B. J., et al. (2009). Ecological values of Hamilton urban streams (North Island, New Zealand): constraints and opportunities for restoration. *New Zealand Journal of Ecology 33(2)* .

Schuler, T. (1994). Schueler, T.The Importance of Imperviousness. *Watershed Protection Techniques 1(3)* , 100-111.

(beta diversity); (3) measure of species richness in a specific area (gamma diversity). It has low terrestrial indigenous biodiversity owing to removal of native vegetation (habitat) and extensive modifications of the watershed and its catchments. Some common terrestrial native species are present but the terrestrial biodiversity is dominated by generalist exotic species. This situation can't be attributed to the current planning approach to these areas as the vast majority of land clearance in Franklin occurred long before current planning regimes applied. Current approaches are however considered likely to promote continuation of existing land use outcomes and similar outcomes for biodiversity.	is similar to the range of species and ecosystem communities such as: Hingaia, Ramarama, Drury and Pukekohe. Overall score: moderate negative impact. <u>Karaka North</u> Indigenous biodiversity is depleted owing to removal of native vegetation (habitat) with some common native species present but dominated by generalist exotic species. If Karaka North is chosen as a growth area, significant habitat rehabilitation is required to encourage the restoration of a natural diversity of native biodiversity; including all taxonomic groups. Overall score: strong negative impact.	pests. Overall score: strong negative impact. Overall score: strong negative impact. <u>Pukekohe South East</u> Low ecological terrestrial values with intense human influences and most of the native biodiversity extirpated and replaced with exotic generalists, many of which are invasive pests. Overall score: strong negative impact. <u>Pukekohe North East</u> Indigenous biodiversity has been largely displacement with most of the indigenous species extirpated from the area. Heavy agricultural use of the land would limit the re-colonisation of the area by native biodiversity. Overall score: small negative impact.	terrestrial biodiversity is dominated by generalist exotic species. Brackish water and marine species use the habitat provided by the Whangapouri Creek. Native wading and shore bird species have been recorded from the area. The following threatened species have been recorded from the Whangapouri/Karaka/Hingaia/Manukau Harbour area: White heron Egretta alba modesta, Grey Duck Anas superciliosa superciliosa, Brown teal Anas chlorotis "North Island", Wrybill, ngutu-pare Anarhynchus frontalis, Caspian tern Sterna caspia, Northern New Zealand dotterel Charadrius obscurus aquilonius, Reef heron Egretta sacra sacra, New Zealand pigeon, kereru, kukupa Hemiphaga novaeseelandiae , Red-billed gull Larus novaehollandiae scopulinus, White-fronted tern Sterna striata striata, North Island fernbird, Matata Bowdleria punctata vealeae, Banded rail Gallirallus philippensis assimilis, Black shag Phalacrocorax carbo novaehollandiae, Spotless crake Porzana tabuensis plumbea, Little black shag Phalacrocorax sulcirostris. The following migratory species have been recorded from the Whangapouri/Karaka/Hingaia/Manukau Harbour area: Lesser knot Calidris canutus Bar-tailed godwit Limosa lapponica.. Overall score: moderate negative impact. <u>Paerata North</u> Characterised by high human activity impacts from agricultural land use, industry, vehicle movements and general human activities and disruption to its biodiversity. Few native species tolerate such disturbance and only robust generalist native and exotic species remain. Overall score: small negative impact.	
	Effects on Indigenous Biodiversity (Core alternatives common to all 3 scenarios and preferred RUB) <u>Core Drury and Hingaia</u> The Core Drury Opaheke growth option has low terrestrial indigenous biodiversity owing to removal of native vegetation (habitat). It contains some common terrestrial native species but with the terrestrial environment dominated by generalist exotic species. Overall score: strong negative impact. <u>Core Karaka South</u> The core area of Karaka south is an area of high human activity with regard to agricultural land use, industry, vehicle movements and general human activities. As a result, the biodiversity of this area is constantly being disrupted and impacted by human activities. Very few native species are capable of tolerating such disturbance and only the robust generalist native and exotic species remain. Overall score: moderate negative impact. <u>Core Pukekohe</u> Owing to human modification of the terrestrial environment, ecological values are low and biodiversity is dominated by generalists. Overall score: strong negative impact.			
	Effects on Indigenous Biodiversity (alternatives common to all 3 scenarios) <u>Drury South Business</u> Not assessed as it is subject to a separate private plan change process. <u>Alternative Business</u> Has some common terrestrial native species are present but the terrestrial biodiversity is dominated by generalist exotic species. Overall score: strong negative impact. <u>Ramarama South Business</u> Has low terrestrial indigenous biodiversity owing to removal of native vegetation (habitat). Contains some common terrestrial native species but terrestrial environment dominated by generalist exotic species. Extensive rehabilitation and recovery of the biodiversity and terrestrial habitat is required in the Ramarama area to reinstate the ecological function of terrestrial ecosystems. Overall score: moderate negative impact.			

Environmental Effects
Terrestrial Environments
This criteria analyses the extent to which the quality and ecological health of terrestrial ecosystems are maintained and enhanced. Includes consideration of native species diversity, habitat diversity, connectivity and key species.

Effects on terrestrial ecosystems (Status Quo)	**Effects on terrestrial ecosystems (West East focus)** <u>Karaka West</u> Contains two large significant ecological areas (SEAs) encompassing the estuarine ecosystems of the Whangapouri and Drury Creek catchments. Surveys of the Karaka area have shown that the biodiversity emulates the rest of the Franklin area in being composed of common native species and generalist exotic species. Traditional pastoral land use practices have modified this area with the majority of the native vegetation removed which has resulted in the widespread destruction of natural terrestrial ecosystems and the loss of associated ecosystem services. Overall score: moderate negative impact. <u>Karaka North</u> This area is highly degraded with terrestrial ecosystems mainly destroyed with minimal ecosystem services (vegetation, pollination, water purity, seed dispersal) being provided. No SEAs identified in Unitary Plan. Minor streams identified. Ephemeral streams and small water bodies most probably filled-in. Intensive agricultural land use has cleared >95% of native vegetation. Residential intensification will create further degradation – requirement for restoration and re-establishment of ecosystems. Residential intensification will impact the Manukau Harbour – requirement for mitigation measures. Overall score: strong negative impact.	**Effects on terrestrial ecosystems (Pukekohe focus)** <u>Pukekohe West</u> Pukekohe West should be avoided as areas for projected growth. It is critically important that these areas are protected for their land use potential for horticulture. Although the terrestrial ecological values in these two areas are minimal, it would be a retrograde step to alter, modify or destroy the ecosystem services of the high class and elite soils in this area. Overall score: strong negative impact. <u>Pukekohe South East</u> Both Pukekohe West and South East should be avoided as areas for projected growth. It is critically important that these areas are protected for their land use potential for horticulture. Although the terrestrial ecological values in these areas are minimal, it would be a retrograde step to alter, modify or destroy the ecosystem services of the high class and elite soils in this region. Overall score: strong negative impact. <u>Pukekohe North East</u> If rural land is to be used for the growth in the southern RUB, Pukekohe North East would most probably be the preferred option. The land is highly degraded and only one very small SEA exists. The area has very low terrestrial ecological values. Overall score: small negative impact.	**Effects on terrestrial ecosystems (Corridor focus)** <u>Whangapouri</u> Whangapouri area is highly degraded. Terrestrial ecosystems mainly destroyed with minimal ecosystem services (vegetation, pollination, water purity, seed dispersal) being provided. No SEAs identified in Unitary Plan. Survey conducted by Biodiversity and Natural Heritage teams – refer UP GIS map. Proposed development encroaches on eastern boundary of Whangapouri Creek and covers a large part of Whangapouri Creek catchment. Whangapouri is similar to Karaka North where intensive agricultural land use has cleared >95% of native vegetation. Residential intensification will create further degradation – requirement for restoration and re-establishment of ecosystems. Residential intensification will impact the Whangapouri Creek catchment and consequently the Manukau Harbour. There is a requirement for mitigation measures to be implemented for ecological restoration. Overall score: moderate negative impact. <u>Paerata North</u> Paerata North has very few fragments of native vegetation remaining with the majority of the terrestrial environment modified by agricultural land use. Overall score: small negative impact.	**Effects on terrestrial ecosystems (Preferred RUB alternative)** See Core areas assessments below
	Effects on terrestrial ecosystems Core alternatives common to all 3 scenarios and preferred RUB) <u>Core Drury and Hingaia</u> As with other areas of the southern RUB GFIAs, the terrestrial environment of the Core Drury Opaheke growth option area has been highly modified with very little remaining of the natural functioning of the terrestrial ecosystems. The Core Drury Opaheke growth option area is a mix of urban sprawl, rural production land and countryside living. Any further growth in this area is likely to cause further degradation of the terrestrial environment and further compromise the water quality of the southern reaches of the Manukau Harbour. Overall score: strong negative impact. <u>Core Karaka South</u> Like the most of Franklin, this is highly degraded with most of the terrestrial environment modified to such a degree that most ecosystems have lost their ability to provide ecosystem services. It is heavily influenced by the marine and freshwater environments and equally, any further development in this area will impact all three environments (terrestrial, freshwater and marine). It will be critically important to protect the high values of the Manukau Harbour, which in its southern extent, represent some of the last remaining high ecological values of the Manukau marine ecosystem. Overall score: moderate negative impact. <u>Core Pukekohe</u> Pukekohe has developed as a ribbon village spread along a main road, but has expanded into a satellite centre servicing the dominant agricultural infrastructure of the area. Historically, the Pukekohe area has been a bread basket for centuries; first for mana whenua and now providing produce for Auckland, New Zealand and exports. Owing to the presence of high quality soils, the vegetation has been removed and traditional Maori gardens have been replaced by industrial scale market gardens. As a consequence, the natural terrestrial environment has been extensively modified. Overall score: strong negative impact.			
	Effects on terrestrial ecosystems (alternatives common to all 3 scenarios) <u>Drury South Business</u> Not assessed as it is subject to a separate private plan change process. <u>Alternative Business</u>			

	There are three small SEAs in the alternative business area of Drury South identified in the draft UP. There are other small fragments of native vegetation but less than 5% of the alternative business area of Drury South retains native vegetation. The terrestrial environment of the alternative business area of Drury South has been highly modified with very little remaining of the natural functioning of the terrestrial ecosystems. The ecosystems have been degraded to such an extent that it is highly probable that the services they provide are at a minimal level. Services such as pollination, flood control, nutrient cycling, provision of fibre and timber, weather moderation will be either non-existent or significantly reduced. Business intensification will create further degradation such as soil compaction, more hard surfaces, earth works and pollution. There is a strong requirement for restoration and re-establishment of ecosystems. Business intensification will impact the Hingaia and Makatu catchments and consequently the Manukau Harbour. There is a requirement for mitigation measures to be implemented for ecological restoration. Overall score: strong negative impact. <u>Ramarama South Business</u> The area of the Ramarama growth option contains a greater number of SEAs compared to the Drury, Whangapouri and Karaka areas. The Ramarama area still has over 90% of its terrestrial vegetation removed compared to pre human colonisation (circa 14th century). As with other areas of the southern RUB GFIAs, the terrestrial environment of the Ramarama growth option area has been highly modified with very little remaining of the natural functioning of the terrestrial ecosystems. Some terrestrial habitat remains in the steeper gullies of the Ramarama area which may have retained some of its ecosystem function. Overall score: moderate negative impact.			
Environmental effects **Effects on natural character, natural features and landscapes** This criteria assesses the extent to which the alternatives protect landscape values, natural features and the natural character of the coastal environment (including the coastal marine area), wetlands, lakes, rivers and their margins A series of landscape evaluation of alternatives has been carried out by Environmental Plan and Design (ENPAD) which provides a technical understanding of the underlying landscape character, likely landscape effects of potential landuse change and potential landscape change boundaries.				
(Status Quo)	**(West East focus)** <u>Karaka West</u> • Large discrete area of potential greenfield development. Relatively remote in relation to urban infrastructure provision -Carefully consider access and connectivity (traffic management issue) • Avoid urban development on western coastal terrace, north eastern coastal margin headlands and hill slopes south of Laing Rd • Concentrate potential development within peninsula core generally to the east of Urquhart Rd • Consider landscape capacity in the context of a wider integrated landscape planning strategy that reflects exiting urban development patterns of the Pahurehure Inlet including Karaka North and the Hingaia Peninsula (Kingseat, Waiau Pa, and Clarkes Beach). <u>Karaka North</u> • Large discrete area of potential greenfield development • Generally avoid urban development on western, eastern and southern slopes • Concentrate potential development within peninsula core generally to the north of Walters Rd • Consider landscape capacity in the context of a wider integrated landuse planning strategy that reflects exiting urban development patterns of the Pahurehure Inlet • Relates to current pattern of urban development of Hingaia Peninsula • A further key consideration for this area (and for wider pattern of potential urban	**(Pukekohe focus)** <u>Pukekohe West</u> • Northern areas most floodplain sensitive • Generally restricted opportunity to the north of Gun Club Road and west of Schlaepfer Road • Opportunity for comprehensive development approaches that considers recessive lowland areas within the context of surrounding minor hill features from Hart Rd east to Kauri Rd • Represents the opportunity to provide logical extension of existing urban settlement and development of existing urban grid as part of the consolidated and comprehensive development of Pukekohe and areas to the west of Pukekohe • Areas to the west of Pukekohe generally less topographically constrained than areas to the north and east of town center. <u>Pukekohe South East</u> • Northern areas least capacity for urban development – potential for clustered rural residential development aligned with environmental enhancement • Southern areas represents the opportunity to provide logical extension of existing urban settlement and development of existing urban structure as part of the consolidated and comprehensive development of Pukekohe and areas to the east of Pukekohe • Consider within the context of the consolidated and integrated development of Pukekohe as a main rural satellite center building on existing urban structure • Areas to the west of Pukekohe generally less topographically constrained than areas to the north and east of town center Represents the opportunity to provide	**(Corridor focus)** <u>Whangapouri</u> • Potential for urban development in the south in association with Paerata Area • Potential development to the north of SH22 – however consider open rural character values in relation to southern development potential and Scenic Amenity of SH22 corridor and concept of rural open space continuum between Pukekohe and Drury • Avoid urban development on northern coastal peninsula to maintain spatial separation with Karaka North area • Consider southern areas in regard to development options for Paerata area • Key consideration for this area (and for wider pattern of potential urban development in the south) is the management of patterns of urban development aligned with SH22 corridor (perceptions of sprawl – inefficient urban structure) and the effects of such patterns on existing rural character. <u>Paerata North</u> • Significant issues likely in relation to wider landscape character change and conversion of current open rural character to an urban environment in the east • (Paerata North). Avoid urban development to the east of Sim Rd and Oira Stream • Moderate development opportunity about existing Wesley College area • Consider Paerata area in regard to development options for southern Whangapouri area • The management of patterns of urban development aligned with SH22 corridor (perceptions of sprawl – inefficient urban	**(Preferred RUB alternative)** See Core areas assessments below

	development in the south) is the management of patterns of urban development aligned with SH22 corridor (sprawl – inefficient urban structure) and the effects of such patterns on existing "open pastoral" rural character • Avoiding urban development of southern slope areas south of Walters Rd would contribute to an overall strategy to maintain existing open pastoral character of the SH22 corridor.	logical eastward extension of existing urban settlement <u>Pukekohe North East</u> • Generally not suited for urban intensification • Possible further development of a range of rural residential development typologies associated with environmental enhancement opportunities appropriate for the wider landscape context • Eastern Pukekohe generally more topographically constrained than areas to the north, west and south west of town center • Generally avoid sprawling corridor development along Pukekohe East Rd in the east and Paerata Rd in the north.	structure) • Consider necessity for northern corridor growth in relation to comprehensive development of existing Pukekohe urban grid and the westward development of Pukekohe Hill.	
	Productive rural land (Core alternatives common to all 3 scenarios and preferred RUB) <u>Core Drury and Hingaia</u> <u>Opaheke</u> • area includes a number of distinct areas. Walker Rd area demonstrates a number of attributes that suggest a higher capacity to accommodate a greater range of urban development • Integration of natural drainage patterns and land uses on or near floodplains a key consideration • Capacity for small areas of urban extension in the west • Patterns of development in the south to consider wider adjoining areas to the south and management / integrated use of floodplain as part of urban structure planning. • Suggest development of Ponga Rd South in conjunction with Hingaia –Opaheke (B) area and future structure planning of Papakura-Drury town centers and future transport planning (Rail Corridor and Mill Road Corridor) <u>Drury</u> • Landscape capacity for urban development in the south with existing rural character influenced by built form (glasshouses and rural residential development) and a series of visually contained areas (results from varied terrain) • Similar opportunity (less variation of terrain) in the north however need to address northern boundary and integration of natural drainage patterns and land uses on or near floodplains as a key consideration - • Opportunity to enhance / define and rationalize Drury 'town center' and integrate with major transport infrastructure • Lack of defined northern landscape boundary a potential issue – consider integration and management of northern floodplain areas and extend boundary to Ponga Rd in the north • Suggest development of area in conjunction with Hingaia – Opaheke (A) with future structure planning of Papakura-Drury town centers and future transport planning (Rail Corridor and Mill Road Corridor) <u>Hingaia</u> • Overall area reflects transitional landscape qualities – particularly in the north,strongly suggesting further comprehensive urban structure planning to appropriately reflect an area of relatively high potential residential amenity. • Area forms the northern portion of the Drury Creek system between Pahurehure Inlet and the Slippery Creek mouth – Development opportunities to consider wider potential patterns of development of Karaka South area – particularly integration of open space planning and management of coastal margins • Western headlands and northwestern coastal margins strongly relate to Karaka North Peninsula which is part of the southern Pahurehure Inlet coast and associated peninsula landforms – consider management of coastal amenity for immediate Hingaia Bridge area and adjoining coastal margins both east and west. <u>Core Karaka South</u> • Generally avoid urban development west of Oira Stream corridor to reinforce open pastoral landscape character of SH22 corridor between Pukekohe and Drury • Clearly define southern boundary – recommend steep scarp to the south of Burt Rd • Bycroft Rd and Woodlyn Drive not generally suitable for urban development • Concentrate potential development to the north of Burt Rd and SH22 and to the east of Oira Rd and Jesmond Road • Key consideration for this area (and for wider pattern of potential urban development in the south) is the management of patterns of urban development aligned with SH22 corridor (sprawl – inefficient urban structure) and the effects of such patterns on existing rural character. <u>Core Pukekohe</u> • Align key landforms, existing settlement patterns and existing urban grid framework through comprehensive development of Pukekohe and Pukekohe Hill and adjoining areas • Expand option area and existing urban grid to the south (Ray Wright Rd) west (Patumahoe Rd) and North (Gun Club Rd) • Avoid further eastern hill sprawl and sprawl along eastern corridor (Pukekohe East Rd) • Avoid sprawl along northern road corridor and contain intensive urban form south of Heights Rd • Consolidate Buckland as a southern gateway – node and expand to the east to Jamison Rd area • Reinforce compact urban center in a wider rural context. Good opportunity for high quality urban living environments can result. • Key consideration for this area (and for wider pattern of potential urban development in the south) is the management of patterns of urban			

development aligned with SH22 corridor (sprawl – inefficient urban structure) and the effects of such patterns on existing rural character
- Maintain open pastoral character between Pukekohe and Paerata and between Paerata and Drury / Karaka
- Areas to the west of Pukekohe generally less topographically constrained than areas to the north and east of town center
- Consider Buckland and South East Pukekohe (to Jameson Rd) in context of immediately adjoining areas outside of Auckland Council jurisdiction.

(alternatives common to all 3 scenarios)

Drury South Business

Subject to a separate plan change process

Alternative Business

- Business urban development is likely to be restricted by landform and terrain diversity where such diversity occurs
- Significant issues likely in relation to wider landscape character change and conversion of current open rural character to an urban commercial environment.
- Limited urban business development may be possible however area presents considerable physical and perceptual landscape limitations
- Less restricted areas are more appropriate for large format built form.
- Possible efficiencies and linkages and connections with potential Great South Road-Ararimu Rd-Mill Road Corridor "block" with Drury interchange in the north and Ararimu interchange in the south inclusive of Plan change area in the east and Drury / Karaka in the North. This would reflect a fundamental change in landscape character for the entire mid Hingia visual catchment.
- Less challenging areas for business landuse exist in the Investigation Area where expansive areas of relatively flat terrain predominate including Burt Road, Karaka; Walker Rd, Opaheke; Helvetia Rd & Station Rd Pukekohe.

Ramarama South Business

- Business use proposed – area particularly sensitive to large format business development with potential for considerable contrast of urban and existing rural character
- Possible limited opportunity for masterplanned sensitive business development (Business Park typologies) however consider wider context of any adjoining or future development
- Possible development opportunity of a range of rural residential or clustered urban residential development typologies associated with environmental enhancement appropriate for the wider landscape context – develop Ramarama as a more consolidated rural settlement
- Current option area limited to the south – comprehensive development planning and future urban opportunity to consider more extensive areas to the south as part of a more logical physical landscape character area
- Future landuse planning for Ramarama as a rural service or future settlement node – include consideration of southern Alternative Business Area (in part)
- Consider potential business use in regard to Drury South area and future Mill Rd corridor as well as interconnectivity between Drury and Ararimu Rd interchanges, Mill Rd corridor and Great South Rd.

Environmental effects

Slope instability, Liquefaction and Settlement effects

This criteria analyses the extent to which alternatives are prone to slope instability including coastal erosion, liquefaction and loss of strength under earthquake shaking and associated lateral spreading and settlement, and settlement of compressible soils such as peat/organic matter prone to degradation and settlement. A technical study of these issues was undertaken to inform this analysis based largely on existing information[40].

Slope instability, Liquefaction and Settlement effects (Status Quo)	**Slope instability, Liquefaction and Settlement effects (West East focus)**	**Slope instability, Liquefaction and Settlement effects (Pukekohe focus)**	**Slope instability, Liquefaction and Settlement effects (Corridor focus)**	**Preferred RUB alternative**
The majority of land within the GAFI south are considered geotechnically suitable for development, but with various degrees of engineering control required to remedy or mitigate the risk or impact of hazards.	Karaka West Expected to have medium soil compressibility potential and liquefaction potential, high lateral spread risk around coastal and stream edges and low slope instability potential other than land north of Glassons Bridge which has medium slope instability potential. Karaka North Expected to have medium soil compressibility potential and liquefaction potential, high lateral spread risk around coastal and stream edges and low slope	Pukekohe West Expected to have low soil compressibility potential and low liquefaction potential, low lateral spread risk and low slope instability potential. Pukekohe South East Expected to have some areas of high soil compressibility and liquefaction potential around the Pukekohe racecourse, low lateral spread risk and some small areas of medium slope instability potential. Pukekohe North East	Whangapouri Expected to have extensive areas of medium soil compressibility and liquefaction potential and high lateral spread risk around the coastal and river edges and low slope instability potential. Paerata North Expected to have extensive areas of medium liquefaction potential, soil compressibility potential and medium slope instability potential.	In general the geotechnical hazards and development constraints identified in the scenarios are unlikely to preclude future urban development of land, however they will have an associated premium for development from more significant engineering oversight and input and will also affect the suitability of areas for certain development typologies.

[40] Tonkin & Taylor, "Southern Rural Urban Boundary Geotechnical Desk Study", June 2013.

	instability potential.	Expected to have low soil compressibility potential and liquefaction potential, low lateral spread risk and extensive areas of high slope instability potential.		
	Slope instability, Liquefaction and Settlement effects (Core alternatives common to all 3 scenarios and preferred RUB) Core Drury and Hingaia Expected to have low slope instability potential, medium soil compressibility potential and liquefaction potential, high lateral spread risk around coastal and stream edges other than land around Drury and Waihoehoe and Fitzgerald Roads which has low potential for these effects. Core Karaka South Expected to have predominantly low slope instability potential with the exception of land around Bycroft Road which is medium to high, medium soil compressibility and liquefaction potential and high lateral spread potential around coastal and stream margins. Core Pukekohe Expected to have low slope instability potential, liquefaction potential, and soil compressibility potential with the exception of land around Pukekohe Racecourse and south of Paerata which has high soil compressibility potential and west of Paerata Road where slope instability potential is high.			
	Slope instability, Liquefaction and Settlement effects (alternatives common to all 3 scenarios) Drury South Business Subject to separate plan change process and not analysed. Alternative Business and Ramarama South Business Expected to have low slope instability, liquefaction and compressibility potential risk effects.			
Cultural Effects **Historic heritage effects** This criteria analyses the extent to which each alternative protects historic heritage values, including built heritage, archaeological sites and sites of significance to Maori. Numbers of archaeological sites in an area can reflect the extent of surveying and public access to an area as well as its significance or sensitivity as a cultural heritage area. For this reason Mana Whenua feedback is the principle source of information about potential adverse effects on sites of significance to Maori. Identification of sites of significance to maori is a significant long term project for Council and the Unitary Plan. Although there has not been sufficient time for to compile complete assessments on these matters to inform decision making on the RUB in partnership with Mana Whenua, an extensive amount of useful feedback has been obtained. The assessment of options against this criteria below relies on Mana Whenua interpretation and understanding the history with reference to sources identified in the following report "Heritage Consultancy Services, RUB South Cultural Heritage Overview Report, 25 August 2013". All of these areas are important to the Mana Whenua groups relating these areas and urban development in these areas presents an inherent risk to these values; coastal and estuarine areas, streams, hills and the Manukau Harbour particularly so[41].				
Historic heritage **Status Quo** Retaining these areas in a rural land use regime presents both an inherent risk to these values and a level of protection. Substantial scope for land modification is permitted under the rural zones that apply in these areas. On the other hand, feedback from Mana Whenua points out the adverse effects of houses and roofs in a landscape covering up or erasing the values of significant sites. The application of Future Urban zoning in these areas may allow for a set of responses and protection of sites and values to be incorporated into any development of these areas.	**Historic heritage (West East focus)** Karaka West and Karaka North The cultural heritage site inventory shows substantial numbers of archaeological sites along the edge. Comments from Mana Whenua reinforce this with feedback noting the importance of this area together with Hingaia, and Karaka West in the history of Maori settlement around the Manukau. Mana Whenua feedback has consistently expressed opposition to including these areas in the RUB. Karaka Point Pa, Shark Island and the Maori owned land at the end of Uquhart Road in Karaka West are of particular significance to Mana Whenua. Drury Creek and its shoreline has been identified as sites of significance to Mana Whenua	**Historic heritage (Pukekohe focus)** Pukekohe West The Pukekohe Confiscation Block comprising the western half of existing Pukekohe, the Pukekohe West alternative and land south of Pukekohe has been identified as sites of significance to Mana Whenua. Pukekohe South East Pukekohe East Volcanic Crater has been identified as a site of significance to Mana Whenua. Pukekohe North East The Oira Creek, Pukekohe East Volcanic Crater and nearby Pukekohe East Church have been identified as sites of significance to Mana Whenua.	**Historic heritage (Corridor focus)** Paerata North The Whangapouri Stream has been identified as a site of significance to Mana Whenua Whangapouri The Whangapouri Stream has been identified as a site of significance to Mana Whenua	**Historic heritage (Preferred RUB)** See Core areas assessments below
	Historic heritage (alternatives common to all 3 scenarios) Alternative Business Great South Road, the Tuhimata Confiscation Block in Runciman, and the Ramarama area has been identified as sites of significance to Mana Whenua			**Historic heritage** Drury South The Pokeno Confiscation Block which extends from

[41] Auckland Council GIS Map, "Cultural Heritage Features and Indicative Rural Urban Boundary options South", 18 July 2013

	Ramarama South Business Great South Road, the Tuhimata Confiscation Block in Runciman, and the Ramarama area has been identified as sites of significance to Mana Whenua	Quarry Road in the Drury South area along SH1 past Bombay and into the Hunua ranges, the Ararimu Track along the lower ridges of the Hunua ranges, Hingaia Stream, Maketu Stream , Ramarama and Pukekura Puna (Spring) have been identified as sites of significance to Mana Whenua.
	Historic heritage (Core Alternatives common to all 3 scenarios and preferred RUB) The application of Future Urban zoning in these areas may allow for a set of responses and protection of sites and values to be incorporated into any development of these areas Core Hingaia Hingaia Peninsula has been identified as a site of significance to Mana Whenua Core Drury Mangapikopiko Wetland, Waipokapu Stream (Hays Stream), Mangapu Stream (Symonds Stream), Opaheke kainga/pa site in Drury, Otuwairoa Stream (Slippery Creek) and Waihoehoe Stream (Waihoihoi Stream) have been identified as sites of significance to Mana Whenua. Core Karaka South Hingaia Stream has been identified as a site of significance to Mana Whenua. Core Pukekohe Mana Whenua groups have expressed strong support for the development of strong and prosperous future for Pukekohe that incorporates growth which enhances it as an employment centre and a high quality service centre.	
Cultural Effects **Maori relationship with environmental values effects** This criteria analysis the extent to which the alternative provides for the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga Feedback from mana whenua is that this relationship includes reference as to how their ancestral lands, water, sites, waahi tapu and other taonga may be protected and enhanced – and minimise further desecration of these taonga.		
Maori relationship with environmental values effects **Status Quo** A significant theme in feedback from Mana Whenua has been that the status quo does not meet the expectations of Maori to provide them an enduring and secure relationship with their ancestral lands, water sites and other taonga. There is profound dismay at the legacy of the past in terms of European settlement, property transactions, growth of the city, imposition of wastewater and there is also dismay at the poor outcomes being delivered by present day developments.	**Maori relationship with environmental values effects** **(All scenarios and alternatives)** A process for building an understanding of the effects on Maori relationships with their taonga has begun in good faith and is ongoing. It has not however been completed such that a comprehensive picture of these values can be described for each part of these potential development areas. This analysis therefore focuses on both generalities and specific information where it has been shared. It is also clear from the consistent themes raised by Mana Whenua that generalities are vitally important to address. • All of the options involve development that is likely to impact on the ecological health of streams and the Pahurehure Inlet. There are opportunities to avoid or mitigate these effects however the extent of proposed growth means significant changes are very likely. • The proposals will all prompt the need to explore options for large scale wastewater disposal either to the Pahurehure Inlet, Manukau Harbour proper, to land, to the Waikato River or a combination of options all of which are problematic for the iwi groups Council has consulted. • Many site specific issues could be addressed as part of developing structure plans and plan changes for these areas by protecting areas, securing access to and setbacks from the coast and other measures however earmarking land for future development by including them in the RUB is likely to trigger investments that generate momentum and commitments to securing the development of land. • In terms of what specific feedback has been provided that can be summarised in this analysis, Mana Whenua have consistently and strongly opposed the inclusion of Karaka West, Karaka North and the establishment of a major new wastewater treatment facility discharging in to the Manukau Harbour or a bridge to Weymouth.	

3.1.5 Preferred RUB for the South

Boundaries of preferred RUB Alternative

Hingaia

The whole of the Hingaia Peninsula is earmarked for urban development on the basis of it previously being structure planned for urban development, having market attractive land adjoining existing urban areas and infrastructure with relatively few physical development constraints. Standout issues particular to these areas to be resolved with development include avoiding degradation of the Pahurehure Inlet, connecting urban areas and infrastructure across the peninsula, public interface and geotechnical issues along the coast and addressing and significant cultural heritage values. The development areas are considered suitable for a mixture of residential typologies including a local centre offering land supply capacity of around 2-3,000 dwellings.

Opaheke and Drury

The existing urban limit around Papakura is extended out over all of the rural zoned land below the Hunua Ranges with the base of the ranges and the end of the relatively flat land east of Drury forming the natural limit to the RUB. This includes rezoning substantial areas within the 100 year floodplain, the Papakura Golf Course site and the Auckland Gliding Club to future urban that raise significant issues to be worked through in planning the details of how these areas will develop. The development areas inside the RUB are considered suitable for a mixture of urban and open space typologies including a town centre and 3 local centres offering land supply capacity of around 8-10,000 dwellings and 45 hectares of light industrial land.

Bremner Road Peninsula and Karaka South

The proposal promotes the inclusion of the whole of the Bremner Road Peninsula in the RUB to the strong natural boundary of Oira Creek. South of Karaka and Burtt Roads, the RUB is defined by the HV powerlines which pass through the Runciman area and which also form a logical route for a future road arterial to service the new growth areas. Avoiding degradation of the Pahurehure Inlet, managing the public interface and geotechnical issues and significant cultural heritage values along the coast as well as maximising the opportunity that this area presents for a strongly transit oriented development adjoining a future rail station, as well as providing for a number of nationally significant growing operations are particular issues to be addressed in developing these areas. Impacts on the Waitemata Aquifer and streams are a significant potential tradeoff with these proposals. The development areas are considered suitable for a mixture of residential typologies including a major centre and 3 local centres offering land supply capacity of around 10-12,000 dwellings and 120 hectares of light to heavy industrial land.

Paerata North and Pukekohe North

The RUB is proposed to provide for development south of Karaka Road and on both sides of Paerata Road (SH22) excluding land between Oira Creek and a branch of Whangapouri Creek to form a green buffer. West of Paerata the RUB follows a series of strong contours and breaks in slope that form a reasonably discernable natural limit to the readily developable land in this area. The railway line and Sim Road (both where it is formed and where it is a paper road) forms the eastern boundary to the norther part of this new development area. Patches of land east of Sim Road and Cape Hill road are potentially

developable however Sim Road and Cape Hill Road are considered most likely to form a more robust long term urban extent than accommodating additional more isolated pockets of urban development to the east. Avoiding degradation of the Pahurehure Inlet and streams, maximising the opportunity that this area presents for a strongly transit oriented development adjoining a future rail station, balancing place making with the arterial function of SH22 are particular issues to be addressed in developing these areas. The development areas are considered suitable for a mixture of residential typologies including a major centre and 3 local centres offering land supply capacity of around 10-12,000 dwellings and 120 hectares of light to heavy industrial land.

Pukekohe West, South and East

The urban extent at the north west corner of Pukekohe is proposed to follow Heights Road (formed and paper road) north of the Glenbrook Railway line. A western limit for Pukekohe is an amalgam of property boundaries and roads that seek to limit the long term growth of Pukekohe over elite productive land while incorporating the Belmont Plan change in the RUB and excluding Pukekohe Hill. The Runciman area and land between Runciman Rd, Tuhimata Road and Grace James Road has been left out of the RUB with Grace James and the lifestyle blocks to the north and east of Grace James forming a soft edge to the RUB in this area. To the south and east of Pukekohe the RUB follows the boundary with Waikato District in anticipation of an appropriate southern and eastern extent of Pukekohe lying outside of the Auckland Boundary. The RUB around Pukekohe East crater seeks to provide for some development land immediately adjoining the Pukekohe East volcanic crater without encroaching to where it would impact on its important natural feature values and to deliberately avoid the potential for development to sprawl along Pukekohe East Road. Avoiding degradation of the Pahurehure Inlet and streams, potential impacts on the Kaawa aquifer and streams, managing flood risks, preserving the potential for rural production on productive land and managing traffic flows around Pukekohe are particular challenges to be addressed in developing these areas. The development areas are considered suitable for a mixture of residential typologies including 3 local centres offering land supply capacity of around 6-8,000 dwellings and 76 hectares of light industrial land.

Alternatives not included in preferred RUB Alternative

All of the land in and around the GAFI in the south has a range of advantages and disadvantages as potential urban development areas with few absolute constraints but presenting a multiple of serious issues. The following is a summary of why a number of options in the Draft Unitary Plan Addendum are not considered appropriate for urban development during the next 30 years.

Karaka West and Naraka North

These areas are not preferred because of their relative separation and isolation from existing and planned potential transport routes and relatively limited scope for local employment, local services and other components needed to build strong communities and promote good urban outcomes and the sustainable management purpose of the RMA. Development of these areas is strongly opposed by Mana Whenua and although cultural heritage assessment is progressing rather than being able to be described as conclusive, part II requirements of the RMA regarding these matters present particular challenges to including these areas in the RUB. These areas are relatively dependent on a road connection and bridge from Karaka West to Weymouth which initial cost estimates suggest will create

considerably greater transport costs than providing for development land in the preferred configuration of the RUB as well as being likely to significantly impact on amenity values in Weymouth. Karaka West is relatively inefficient to service with high standard public transport.

Alternative Business and Ramarama South

These areas form part of an attractive rural gateway to Auckland as people descend from the Bombay Hills towards Drury at which point the future land use is proposed to become highly urbanized in the future. The land to the west of Great South Road has been the subject of a long running environment case and is considered more appropriately left within that countryside living context. East of Great South Road just over 1/4 of the land is identified on planning maps as having recorded air quality below health standards. This, together with the HV powerline designation along the eastern half of the site and the SH1 road noise make much of this area suitable for residential. Developing the remaining land for business land will create substantial pressure for urbanization on the western side of Great South Rd and undermine outcomes sought for the Runciman area and Great South Rd is not considered to be a strong RUB boundary in this regard. Council has had support from NZTA for developing a RUB that avoids extending ribbon development along the State Highway network. Without predetermining the Drury South Plan change, providing business land at Drury South may prove to represent better resource management than these areas.

Pukekohe West

An strong theme in feedback on the RUB proposals was to avoid or limit the extent of urbanisation on highly productive land and Pukekohe West contains substantial areas of land identified as LUC category 1 – elite land. The Proposed Auckland Unitary Plan takes a more precautionary approach to developing within floodplains than previous planning regimes and it is considered contrary to this strategic direction to earmark this area for urban development when more than half of the site is within the floodplain.

Pukekohe North East

The convoluted topography and geotechnical constraints of this area mean that it has limited scope for the sort of comprehensively planned large scale developments and well connected street networks that provide for efficient land use and potentially affordable developments. This area is relatively inefficient to service with high standard public transport.

3.1.5 RUB South Overall Conclusions

Choosing the most appropriate configuration of the RUB method in the south to achieve the relevant objective(s) requires an overall assessment of the efficiency and effectiveness of the alternatives. These proposals require balancing effectiveness and efficiency due to the high levels of risk, inconsistent levels of information and uncertainty about the range of potential development outcomes following structure planning and plan changes as well as partial information of cultural heritage values, and infrastructure and servicing costs.

On balance the preferred RUB is considered the most appropriate way to achieve the relevant objectives and therefore the purpose of the RMA. The preceding table above contains a detailed summary evaluation of whether, having regard to their efficiency and effectiveness, the methods proposed are the most appropriate for achieving the objectives.

This evaluation has taken into account: the benefits and costs, the risk of acting or not acting, uncertainty, insufficient information about the subject matter and other alternatives.

In each case the evaluation concludes that the preferred RUB proposed meets those tests. It is therefore concluded that the preferred alternative is appropriate and necessary and will assist in promoting integrated and sustainable management of Auckland's resources as required under the Resource Management Act.

3.2 North-West Cluster

3.2.1 Introduction

The North-West cluster covers the GAFI around the rural settlements of Whenuapai and Red Hills, and Kumeu-Huapai and Riverhead. The proximity of these areas to metropolitan Auckland and state highway transport networks makes them suitable for greenfields growth over the next 30 years. Currently, there is a low level of development with zones ranging from general rural to countryside living and residential housing typical of small rural townships. All areas have traditionally been important for horticultural and pastoral activities, due to a wide range of soil types from highly versatile to quite poor quality.

Whenuapai supports the New Zealand Defence Force's airbase and, together with the growing business area of Westgate, provides quite contrasting future opportunities to those in Red Hills, Kumeu-Huapai and Riverhead.

Demographics/Population
The majority of the North-West GAFI area is rural in nature with rural activities and countryside living. For the three towns in the area: the population of Riverhead was reported as 1,300 people at the 2006 Census. The Kumeu-Huapai area contains 566 dwellings, based on a 2011 count. In addition, the Huapai North area contains 76 dwellings, and Huapai South 43 dwellings, based on a 2011 count.

Physical Geography
This GAFI is situated on a series of low-lying coastal and river plains through to a series of steep-sided river valleys and streams. To the south of the cluster are rising hills forming the Red Hills and south Kumeu growth areas, while to the north of the cluster area is the Riverhead Forest which is made up of gullies and rugged terrain. Riverhead is flanked to the east by an upper reach of the Waitemata Harbour and Rangitopuni Stream, while the existing township of Kumeu-Huapai lies in a floodplain of the Kumeu River. Whenuapai is particularly low-lying and is bounded to the west by Brigham Creek and to the north and north-east by the Upper Waitemata Harbour.

Flooding periodically occurs along watercourses and the coastal margins, while some areas are susceptible to liquefaction or instability.

Environmental
This cluster sits within the catchments of the Upper Waitemata Harbour and the Kaipara Harbour. The Kaipara Harbour is fed by the Kumeu River, which flows from a large catchment reaching up in to the foothills of the Waitakere Ranges. The source of the Rangitopuni Stream is in Dairy Flat, from where it flows all the way past Riverhead to the Upper Waitemata Harbour.

Both of the Kaipara and Upper Waitemata catchments feature a number of sensitive terrestrial, estuarine and marine environments. The Upper Waitemata is a low energy, estuarine environment, which has been adversely affected by legacy urban development. In contrast the Kaipara Harbour catchments are the least developed of Auckland's three harbours and provides a number of important ecological services (such as acting as a major fish breeding location).

The study area has been extensively modified by human occupation, including the clearance of the majority of original vegetation and its replacement with farming, horticulture, and peri-urban activities.

Economy

While the local economy benefits from its proximity to the services and employment options provided by Metropolitan Auckland, the existing settlements within the cluster also function as important service towns for the wider rural area. The Whenuapai Airbase and the expanding Westgate complex are important centres of local employment.

The cluster supports a number of productive rural activities, largely associated with horticulture and viticulture production. These activities often involve niche retail activities on the main highway with sales of produce directly to the public.

Tourism also plays an important role, with the area being promoted for the "Kumeu Wine Trail", the Riverhead Ferry and Tavern, and as a gateway to the Kaipara Harbour, west coast beaches and Woodhill Forest.

Transport Infrastructure

The cluster area is currently served by two state highways (16 and 18), which connect it to the North Shore and the Isthmus areas of Metropolitan Auckland. The North Auckland main trunk line also passes through the study area, and while it is important for the transportation of freight, it does not currently provide commuter services.

The Whenuapai Airbase is also located in the north-eastern portion of the cluster. This airbase previously served as Auckland's international airport and currently houses the Royal New Zealand Air Force's maritime patrol and transport squadrons. It is also home to the Royal New Zealand Navy's helicopters.

Physical and Social Infrastructure

The cluster area features a number of infrastructure assets which serve local, regional, and national needs.

With regards to energy infrastructure, the study area forms a key component of three nationally critical networks. The national grid, Vector's major gas main, and Marsden Point to Wiri oil pipeline all transect the wider area. Each of these is critically important for the transmission of energy across New Zealand. It should also be noted that the oil pipeline has a major pumping station in proximity to the study area.

Kumeu-Huapai and Riverhead are now connected to the metropolitan water supply and wastewater networks. The wastewater network is currently connected to the Mangere Wastewater Treatment Plant via a series of main trunk sewers, although it is planned to redirect the flow of wastewater to the Rosedale Wastewater Treatment Plant following the construction of a sewer under the Upper Waitemata in the 2020s.

The cluster is also serviced by broadband infrastructure. Within heavily developed areas and previously identified “future urban” locations, broadband services are planned under the UFB programme of works. Outside these areas, broadband is supplied and/or planned under the RBI.

With regard to social infrastructure, the cluster is located within the Waitemata District Health Board area of service. This DHB provides a number of health services from two major hospitals, Waitakere Hospital in Henderson and North Shore Hospital in Takapuna. There are a number of schools in the cluster area, including primary schools in Huapai, Riverhead and Whenuapai and two new schools at Hobsonville.

Cultural Issues

The North-West has a rich history of occupation and an area that is important route between places (eg portage between harbours). Mana Whenua groups which indicated that they wished to be involved in the RUB project for this area included Te Runanga o Ngati Whatua, Ngati Whatua o Kaipara, Ngati Whatua o Orakei and Te Kawerau a Maki. Issues that were raised included environmental effects of urbanisation, such as on water quality, stormwater and flooding, biodiversity and ecology; the sensitivity of cultural landscapes and protection of sites and areas of significance, opportunities that urbanisation may provide for development of housing and Marae and how areas proposed for commercial redress through Treaty of Waitangi settlements could be developed as part of urbanisation.

Planning History

There has been considerable legacy planning work undertaken in the North-West, this includes work undertaken by both Rodney District Council and Waitakere City Council.

The work on NorSGA, is probably the most far pertinent as it set up a framework for how urbanisation could be progressed in the wider Westgate / Massey North and Hobsonville, Whenuapai, Red Hills areas. This was articulated through the Waitakere Growth Management Strategy (Reference) which focused on planning around the new centre of Massey North / Westgate, which has now been identified as a metropolitan centre, and the transport linkages to the city centre and the North Shore provided by State Highways 16 and 18. This work was concerned with the provision of land for both housing and employment. Planning for many of the areas within NorSGA are currently being implemented, ie Hobsonville, Massey North, Hobsonville Corridor. Legacy work also proposed timings for when growth would be planned for other areas within the NorSGA area these included Scott Point (concept planning timeframe long term 2020+) Whenuapai (concept planning timeframe long term 2021-2050) Red Hills (concept planning timeframe long term 2020+Trig Road (concept planning timeframe medium term 2011 - 2021).

Legacy planning undertaken by Rodney District Council included structure planning and plan changes for Kumeu and Huapai (Huapai North Plan Change now operative). For Riverhead a structure plan and plan changes for Riverhead North and South have been approved and new subdivision is currently underway. Land was also zoned as Future Urban in Huapai South however a plan change for this was not progressed.

3.2.2 RUB Proposal details

The Auckland Plan provided the basis for the population growth proposed to be accommodated in the North-Western Cluster. This Plan identified the need for 19,000 dwellings to be accommodated over the next 30 years, in addition to growth proposed within the existing rural towns of Kumeu-Huapai Riverhead and Whenuapai.

The Plan also proposed additional employment growth, for both land expansive industry and commercial activities. In particular, Whenuapai was identified as an area that could provide some land to accommodate land extensive business.

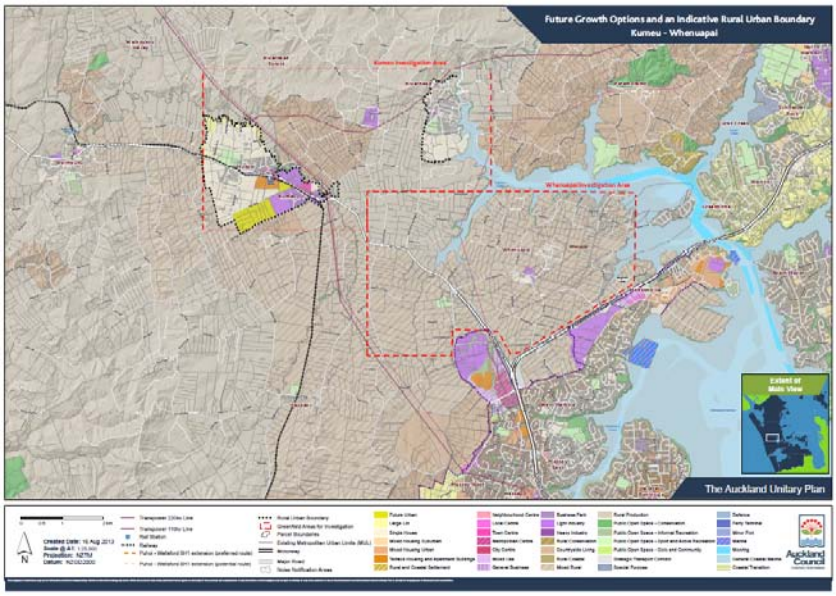
In developing the recommended RUB technical information and consultation was reviewed to inform a range of alternatives. The alternatives assessed below represent a selection of the ideas investigated over time as part of the project as to how growth could be accommodated within the general North-Western greenfield areas for investigation areas of Kumeu, Huapai, Riverhead and Whenuapai.

The alternatives are:

- The Status Quo
- The Indicative Options from the Addendum to the Draft Unitary Plan (March 2013)
- Construct - illustrating an amalgam of ideas that were suggested and explored as part of feedback
- Recommended RUB

These alternatives were assessed against the Status Quo and are described below:

Alternative - Status Quo



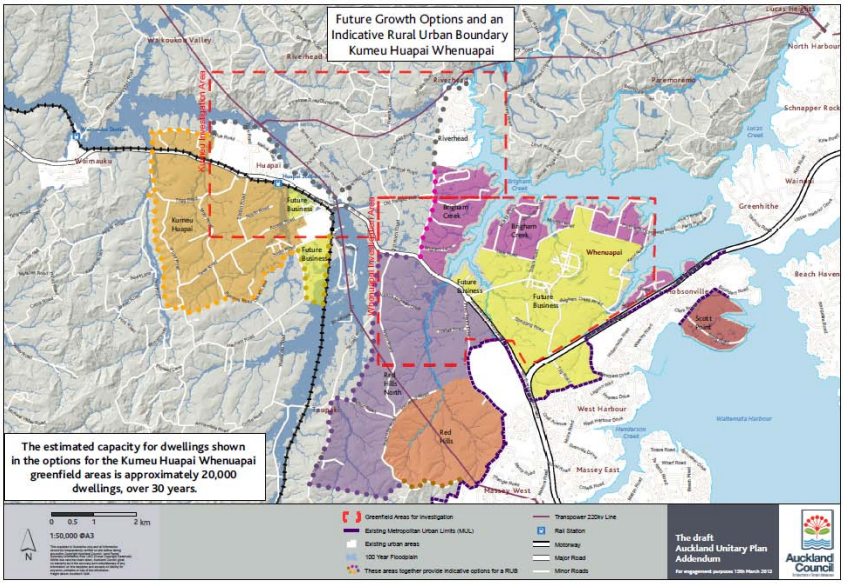
This alternative assumes that the RUB is drawn to replace with the existing MUL and around the existing urban extent of the rural towns and villages, including areas already zoned as Future Urban (as part of the work of the legacy councils). Growth in the rural areas would, in this alternative, therefore be limited to that which is permitted in the rural zones (i.e. Rural production, mixed rural and countryside living).

The towns of Kumeu-Huapai, Riverhead and Whenuapai would continue as discrete settlements, linked to the city and the North Shore by State Highways 16 and 18. The towns in the area would provide rural services and day-to-day needs, with many residents travelling to the Metropolitan Urban Area to access employment, as well as recreational, social and shopping needs.

Whenuapai maintains its diversity of rural, suburban and lifestyle choices. The potential for Whenuapai Airbase to continue its mandate (operation for defence purposes) as per its designation is maintained

The rural areas are maintained as rural production, mixed rural and countryside living with a diversity of lifestyle living and rural activities including, horticulture and viticulture.

Alternative 1 - Indicative Options in the Draft Addendum to the Draft Unitary Plan



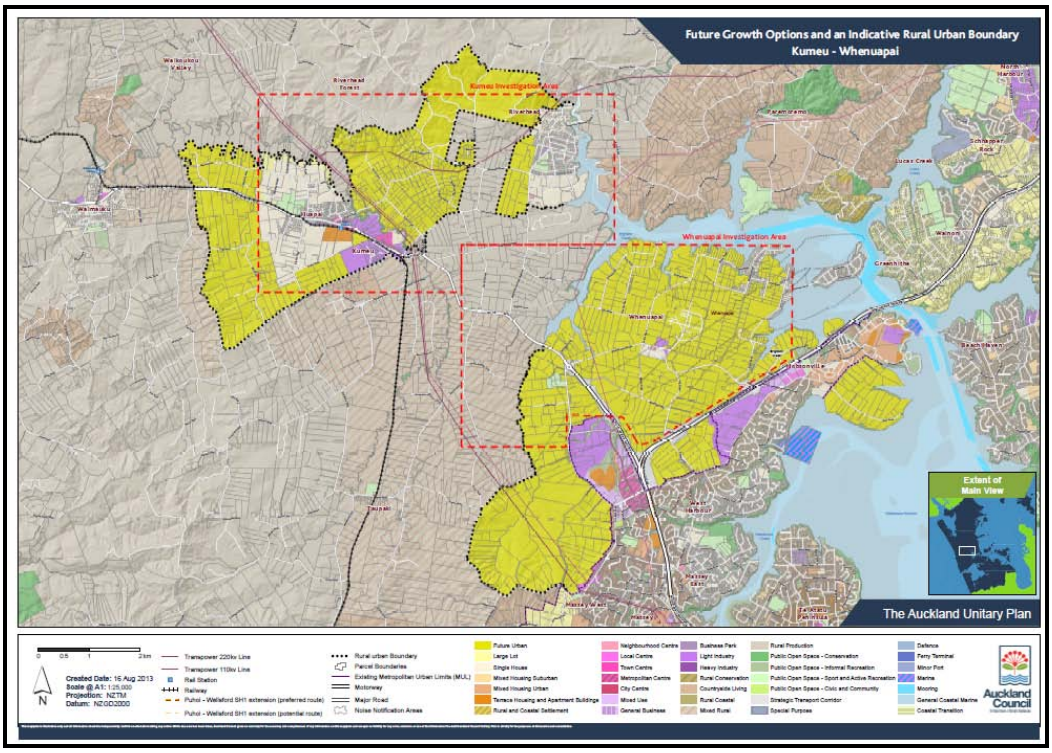
This alternative maximises opportunities for growth which are contiguous with the Metropolitan Urban Area in the North-West. It includes areas that adjoin Massey North / Westgate (the Alternative calls this area Red Hills North - with the boundary to the area being Nixon Road and Taupaki Road). Riverhead can be considered part of this contiguous urban area, spreading to SH 16. Whenuapai, including the land in the vicinity of Ockleston Road and Clarks Point, is also included in this area.

Kumeu-Huapai remain separate from the urban area and the alternative uses the productive land north of SH16 and the area around the Kumeu River south of SH 16 as a green buffer. For Kumeu-Huapai there is a significant area to the south and west of the existing urban area that is encompassed within the RUB.

Land at Whenuapai is identified as having significant potential for employment. Additional land is indicated as having potential for business to the south of Kumeu-Huapai.

The area of land to be urbanised for this alternative is approximately 2714.6 ha with an estimated capacity of 20,000 dwellings over 30 years.

Alternative 2 illustrating an amalgam of ideas that were suggested and explored as part of feedback



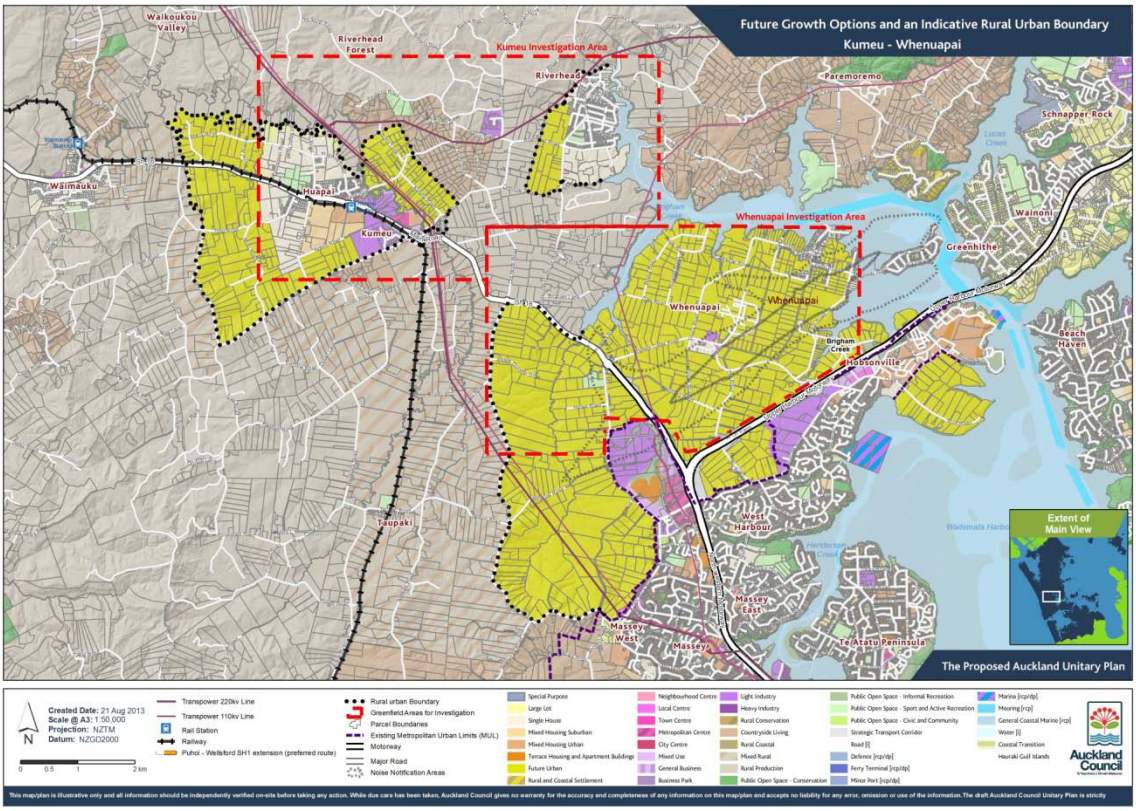
This alternative scales back the emphasis on contiguous growth adjoining the metropolitan urban area. In this case Brigham Creek forms the rural boundary for the Red Hills North area. This provides a strong visual gateway to the rural area of Rodney and provides a buffer between the metropolitan urban area from the rural town

However, in this alternative the towns of Riverhead and Kumeu-Huapai are effectively joined by a lower density (large lot residential) band of development that encompasses existing countryside living and the areas of the Riverhead Forest adjacent to Riverhead. This land incorporates an area of the Riverhead Forest to be received by Te Kawerau a Maki as part of commercial redress, which they wish to develop for urban activities.

Whenuapai is indicated as being developed with some land for land extensive business activities being assumed in this alternative, again the retention of the Whenuapai Airbase for its current defence roles is assumed. This alternative however does not include additional land to the south of Kumeu for business.

The area of land to be urbanised in this alternative is approximately 1675 ha with an estimated capacity of 14,000 dwellings over 30 years (high projection).

Alternative 3 - Recommended RUB for Proposed Draft Unitary Plan



In this alternative the boundary for the Red Hills North area is drawn at Taupaki Road / Nixon Road (the catchment boundary for Brigham Creek) to maximise growth adjoining the metropolitan urban area. Land in the Kumeu River catchment adjacent to Red Hills and is maintained in rural. At the same time it limits growth for Riverhead so that it extends westwards, rather than south to meet State Highway 16 as identified in Alternative 1. A buffer of countryside living and rural land is maintained between the Kumeu-Huapai and Riverhead settlements.

Growth in Kumeu and Huapai encompasses an area to the north east (across the Kumeu River) which is currently countryside living as well as land to the south and west en compassed by ridgelines along Puke Road and Tawa Road.

The area of land to be urbanised for this alternative is approximately 1527 ha with an estimated capacity of 16,145 – 19,250 dwellings over 30 years.

Additional Areas Investigated as part of the North-West
The North-Western RUB Project also encompassed an additional three separate areas for investigation; Scott Point, Trig Road and Red Hills. These areas were not originally part of the North-Western GAFI, but they are contextually linked to the North-Western Cluster and for this reason were included in the project.

The three areas are part of the “pipeline” sites identified in the Auckland Plan (that is sites already signalled in legacy planning documents) for future urbanisation but without planning having been progressed to Structure Plan or Plan Change stage.

The potential capacities of these areas are not included in 19,000 target for the cluster. These areas are included as a consistent area for inclusion in the RUB in each of the alternatives to the status quo.

3.2.3 Consultation

Informal consultation on Future Growth Options and an Indicative Rural Urban Boundary for the North, North West and South was undertaken as part of the Draft Unitary Plan process. Informal feedback was invited on Indicative Options from 15 March to 31 May 2013. During this time, targeted engagement was undertaken for the RUB which resulted in a series of well attended community consultation events with over 550 people attending events in the North and North West. This included public meetings held in Warkworth, Silverdale and Kumeu. The Kumeu meeting was held on 1 May 2013 at the Kumeu Community Centre. In combination with the work on the North West RUB, a brochure showing an indicative RUB option for each area was prepared and distributed within and around the GAFI areas. An additional meeting at Scott Point was held, at the request of residents, to discuss issues related to that area.

Post the notification of the Draft Unitary Plan, on-going engagement has occurred on the RUB with Local Boards and Mana Whenua.

The key points on the North-West RUB from feedback as part of the Unitary Plan process, and from Mana Whenua and Local Board engagement are detailed below.

Unitary Plan Feedback
A total of 151 pieces of feedback related directly to the North-West.

Key feedback relating to the North-West included significant support for the inclusion of both Scott Point and Red Hills within the RUB. There was general support for urban growth at Kumeu-Huapai, Brigham Creek and Whenuapai, with some concern expressed over the business use of land at Whenuapai. A moderate proportion of respondents were in favour of some growth at Riverhead, while others proposed further growth at Waimauku. In addition there were 27 pro-forma feedback responses seeking the inclusion of Scott Point within the RUB.

General comments relating directly to the North-West area included significant support for keeping settlements distinct and avoiding sprawl; significant support for maintaining a greenbelt between the existing urban areas and new growth areas; moderate support for protecting soils and land for agricultural production; and some concern over the scale of development. Mixed views were expressed in terms of support for the RUB in general (in the North-West).

Mana Whenua Engagement
Meetings with Mana Whenua were held in March, June, July and August 2013 to discuss the North-West RUB and related matters. General concerns emerged regarding timeframes for consultation and need for on-going consultation, other key issues are summarised below:

- Ngāti Whatua o Kaipara identified ridges in the area that hold importance, the potential to create freshwater wetlands, and supported the daylighting of streams. They expressed a preference for development between Riverhead and Huapai, and the avoidance of land south of Kumeu. Concern was expressed regarding extending urban development west of Tapu Road, Huapai and the need to maintain a buffer between Huapai and Waimauku. Reverse sensitivity was also raised in relation to development at Whenuapai. Recognition of Maori names was also requested.

- Te Rūnanga o Ngāti Whātua raised concerns about stormwater and wastewater, in particular the disposal in forestry. The Woodhill forest area has cultural significance. They raised the potential for future ways of working together incorporating learnings from other projects to identify sites of significance.
- Ngati Whatua o Orakei raised concerns about natural heritage, in particular expectations on the management / promotion of natural resources such as native vegetation, waterways and harbour receiving environments. They indicated that these are under pressure currently in RUB areas eg Hobsonville. Advocated for a compact city with intensification concentrated in existing urban areas – indicated that greenfield development detracts from the advantages urban intensification offers.
- Te Kawerau Iwi Tribal Authority identified that the southern portions of the Riverhead Forest are to be returned to the Iwi through the Treaty settlement process. A request was made for this land to be included within the RUB to enable development; concerns were raised that if this land is outside the RUB the economic basis of the tribe could be affected. The significance of the cultural landscape was also acknowledged and ridgelines mentioned particularly, with a recommendation put forward that planning mechanisms be developed to protect ridgelines within the RUB options.

Local Board Feedback – Rodney, Upper Harbour Local and Henderson-Massey Boards.
Feedback from Local Boards includes that from workshops undertaken. As well Local Boards put forward feedback to the Governing Body in July 2013, the following incorporates key points from these.

Rodney Local Board

- Staging of release of land to align with infrastructure, developers' budgets – (Note: the Forward Land and Infrastructure Delivery Programme work will determine this)
- Future urban zoning in RUB is problematic e.g. land banking and uncertainty if not rezoned quickly - need a way of managing implementation of different stages within RUB
- Support for area from Riverhead Road, the full length of Koraha Road and Oraha Road as far east as Burns Lane be zone single house Residential in the Unitary Plan
- The existing townships ie Kumeu-Huapai / Riverhead and Waimauku should be kept separate with rural buffers
- Intensification of existing Countryside Living to the north of Kumeu to large lot residential supported
- The entrances (gateways) to the towns from the State Highway should remain rural – (ie Riverhead should not extend as far as SH16)
- The extension of the RUB to the west of Riverhead as far as the stream excluding the highly productive soils in the area south of Riverhead around Lathrope Road is supported
- There should be a clear buffer between urban development at Westgate and the towns in Rodney eg urban development should stop at Brigham Creek and Taupaki be identified as countryside living.

Upper Harbour Local Board

- Whenuapai - supported its inclusion within the RUB; asked for a detailed structure plan process (framework plan) to determine the appropriate mix of development activities and scale of development and staging for release of land; requested that infrastructure be in place concurrent with the release of land for residential development;

- Whenuapai business activities - opposed industrial uses west of the as currently contemplated in the Addendum to Unitary Plan; and subsequently the Board indicated support for Brigham Creek Rd as boundary for potential future business.
- Whenuapai Airbase - Maintain designation & noise contours e.g. Fred Taylor Drive - area should be future business, not residential.
- Land around Whenuapai, Brigham Creek Road and North of the motorway (SH18). It offers the opportunity for large lot residential development. Accept that over time this area is appropriately developed for urban development and rural lifestyle blocks and that this block should be brought within the RUB. Does not support industrial and employment use within this block as there is significant employment opportunities elsewhere within the NORSGA area and these are the appropriate locations for that activity. This area is targeted for inclusion within the RUB and for development of housing along the coastal margins each of the airfield and employment/industry west of the airfield.
- If the issues of noise from the airport flight-paths make the area unsuitable for intensive residential development then the Board's view is that this land should remain for rural lifestyle blocks and countryside living rather than be developed for employment activity.
- Support for Monterey Park (Clark Point) being included within the RUB with the Environment Court process determining extent of that development.
- Support for inclusion of Scott Point within the RUB as a logical extension of the Hobsonville Development. The framework plan for this area will need to address matters such as infrastructure, open space, sportsfields and community facilities.

Henderson-Massey Local Board

- Trig Rd West should be identified as a Special Housing Area for the Housing Accord as based on legacy work it is ready for its rezoning.
- Westgate/Massey North centre, concern expressed about provision of open space and the need to identify and purchase land before development occurs
- If the RUB is to include Whenuapai/Trig Rd area, land should be identified for a sports precinct (Public Open Space).
- The land in Red Hills ie Fred Thomas and Trig Roads should be identified as Future Urban as this land is already anticipated as part of the urban expansion of Auckland (refer Change 6 to the ARPS).

Feedback from meetings and RUB questionnaires

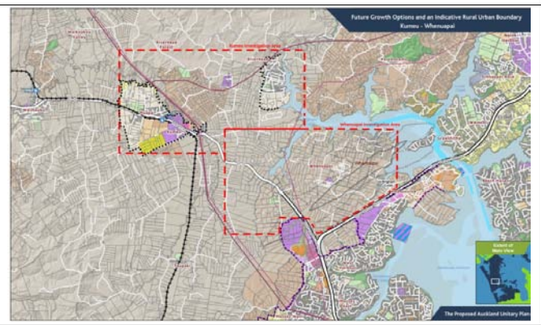
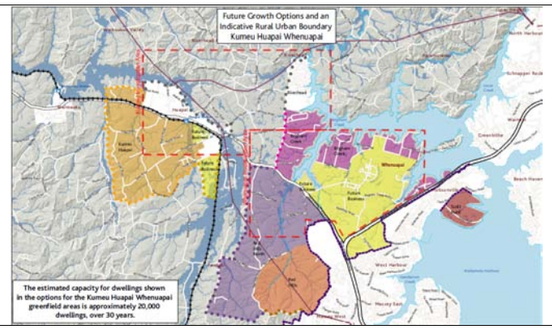
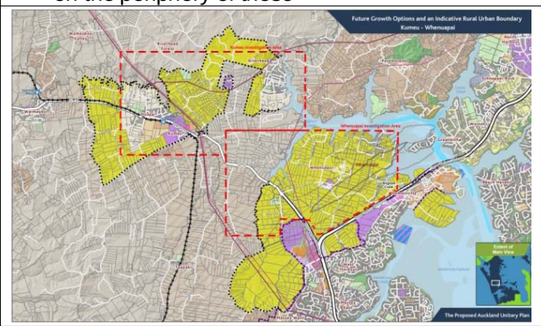
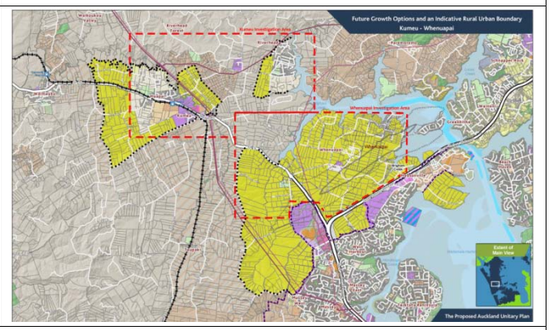
At the public meeting held in Kumeu on 1 May 2013 comments, by way of a questionnaire, were encouraged from attendees to capture opinion on the indicative RUB and any concerns, ideas or alternative suggestions. A total of 28 forms were returned, raising the following points:

- In terms of future business land, a similar number of respondents were in support and opposition to the location of marked future business land in the indicative options. Comments such as "Whenuapai should remain greenbelt because of the impacts on the ", expressed desire to retain greenbelts and marine values. Respondents also stated they didn't think the area required any additional future business.
- A significant number of respondents agreed that existing countryside living areas around Kumeu and Riverhead could be further intensified with urban development if done so correctly and with public consultation. Respondents highlighted the following

key issues of transport, infrastructure, integrity of the area, retaining village feel and character, and maintaining larger sections to avoid terraced housing or apartment style living.

- A significant number of respondents considered the impacts of urban development on the Upper Harbour receiving environment to be an important issue. Comments included “do not wish to live in a concrete jungle” and “there must be a natural environment around us”.
- Most respondents indicated they would like to see existing urban areas (Kumeu, Huapai, Riverhead and Whenuapai) kept physically separate from each other.
- Some respondents believed the indicative RUB option provided a defendable boundary to urban development and expressed the need to avoid urban sprawl.
- Areas identified to remain rural instead of urban included the Kumeu Wine Trail, Muriwai, Riverhead, Whenuapai village, area between SH16 and Riverhead, Woodhill Forest, Kaipara Harbour, the greenbelt and any productive land already existing.

3.2.4 Alternative Analysis

	Status Quo **No growth outside current urban zoning (including rural towns and villages)**	**Alternative 1 –** **Indicative Options in the Addendum to the Draft Unitary Plan** • Maximising opportunities for growth which is contiguous with the metropolitan urban area in the North-West (ie adjoining Massey North and Westgate, Riverhead and all of Whenuapai)	**Alternative 2 –** **Amalgam exploring some of the key suggestions put forward** • Providing a lesser amount of contiguous growth adjoining the metropolitan urban area • Growth focused on rural towns (Kumeu-Huapai and Riverhead)) including area of lower density on the periphery of these	**Alternative 3 –** **Recommended RUB for Proposed Unitary Plan** • Maximising contiguous growth while ensuring that communities retain their separateness • Urban development in communities is configured to provide a compact form
				
Environmental Effects	**Marine Environments** • Refer to North and West RUB Marine Receiving Environments: Review of Existing Information for a review of information on this topic. **Current Practice** This assessment is based on current stormwater and earthworks controls being used and no additional catchment management implemented to deal with the impact of current rural and urban land use effects from the wider contributing catchment. This assessment also only includes effects from sediment and contaminants on receiving environmental quality which in turn affects biota (benthic organisms, birds, fish etc) and human use and values. This assessment is also based on broad principles learnt from the southern RUB modelling exercise rather than specific modelling data for these areas so is more subjective. This assessment does not include disturbance effects of development from pets, people, noise etc and the use of the area on important bird values. The extent to which quality and health of marine ecosystems are maintained and enhanced in order to support human social, economic and cultural wellbeing and indigenous biodiversity. Includes consideration of public health impacts. Includes consideration of native species diversity, habitat diversity, connectivity and key species. •			
	• While there will be little development there will be a gradual decline in receiving environment health due to ongoing stressors from existing urban and rural landuse practices.	• more impact on Kaipara River and Brigham Creek but less on Rangitopuni Stream than other alternatives, less steep land used than Alternative 2 so lower risk of sediment impact. • If current earthworks and stormwater controls are used and no additional catchment management is implemented then based on Moores et al. (2013) and local studies strong negative implications for the quality and health of marine ecosystems in the Upper Waitemata and Kaipara Harbours are predicted under all scenarios. Public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plants but increased sediment and contaminant levels from development will also impact the quality and safety of harvested shellfish and fish.	• Fewer dwellings but more steep land included so more risk of sediment impact - probably similar risk to Alternative 3, otherwise as per general comment under Alternative 1, that while there will be little development there will be a gradual decline in receiving environment health due to ongoing stressors from existing urban and rural landuse practices.	• less impact on Kaipara River and Brigham Creek but more on Rangitopuni Stream than Alternative 1, less steep land used so lower risk of sediment impact, otherwise as per general comment under Alternative 1, that while there will be little development there will be a gradual decline in receiving environment health due to ongoing stressors from existing urban and rural landuse practices.
	Marine Environments • Refer to North and West RUB Marine Receiving Environments: Review of Existing Information for a review of information on this topic. **Best Controls + No Catchment** This assessment is based on using the best available stormwater and earthworks controls for the developed area but no additional catchment management implemented to deal with the impact of current rural and urban land use effects within the same wider catchment area but outside the area to be developed. This assessment also only includes effects from sediment and contaminants on receiving environmental quality which in turn affects biota (benthic organisms, birds, fish etc) and human use and values. This assessment is also based on broad principles learnt from the southern RUB modelling exercise rather than specific modelling data for these areas so is more subjective. This assessment does not include disturbance effects of development from pets, people, noise etc and the use of the area on important bird values. Extent to which quality and health of marine ecosystems are maintained and enhanced in order to support human social, economic and cultural wellbeing and indigenous biodiversity. Includes consideration of public health impacts. Includes consideration of native species diversity, habitat diversity, connectivity and key species. •			
	• While there will be little development there will be a gradual decline in receiving environment health	• More impact on Kaipara River and Brigham Creek but less on Rangitopuni Stream than other	• Fewer dwellings but more steep land included so more risk of sediment impact - probably similar	• Less impact on Kaipara River and Brigham Creek but more on Rangitopuni Stream than Alternative 1,

	due to ongoing stressors from existing urban and rural landuse practices.	alternatives, less steep land used than Alternative 2 so lower risk of sediment impact. • If best earthworks and stormwater controls are used but no additional catchment management is implemented then based on Moores et al. (2013) and local studies moderate negative implications for the quality and health of marine ecosystems in Upper Waitemata and Kaipara Harbours are predicted under all scenarios as still quite high rural and existing urban impact. Public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plants but increased sediment and contaminant levels from development will also impact the quality and safety of harvested shellfish and fish.	risk to Alternative 3, otherwise as per general comment under Alternative 1	less steep land used so lower risk of sediment impact, otherwise as per general comment under Alternative 1
	Marine Environments • Refer to North and West RUB Marine Receiving Environments: Review of Existing Information for a review of information on this topic. **Best Controls + Catchment** The assessment for marine environments is based on using the best available stormwater and earthworks controls and implementing additional catchment management to deal with the impact of current rural and urban land use effects within the same wider catchment area but outside the area to be developed. This assessment also only includes effects from sediment and contaminants on receiving environment quality which in turn affects biota (benthic organisms, birds, fish etc) and human use and values. This assessment is also based on broad principles learnt from the southern RUB modelling exercise rather than specific modelling data for these areas so is more subjective. This assessment does not include disturbance effects of development from pets, people, noise etc and the use of the area on important bird values. The extent to which quality and health of marine ecosystems are maintained and enhanced in order to support human social, economic and cultural wellbeing and indigenous biodiversity. Includes consideration of public health impacts. Includes consideration of native species diversity, habitat diversity, connectivity and key species. •			
	• While there will be little development there will be a gradual decline in receiving environment health due to ongoing stressors from existing urban and rural landuse practices.	• more impact on Kaipara and Brigham but less on Rangitopuni than other alternatives, less steep land used than Alternative 2 so lower risk of sediment impact. • If best earthworks and stormwater controls are used and additional catchment management is implemented then based on Moores et al. (2013) and local studies neutral to small positive implications for the quality and health of marine ecosystems in UWH and Kaipara are predicted under all scenarios. Note that rural catchment management throughout the wider contributing catchment would make a significant difference for the Kaipara but would need to be on a massive scale and would incur significant cost. Similar for Upper Waitemata Harbour but on a smaller scale. Public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plants but increased sediment and contaminant levels from development will also impact the quality and safety of harvested shellfish and fish.	• less dwellings but steep so more risk of sediment impact - probably similar risk to Alternative 3, otherwise as per general comment under Alternative 1	• less impact on Kaipara and Brigham but more on Rangitopuni than Alternative 1, less steep land used so lower risk of sediment impact, otherwise as per general comment under Alternative 1
	Coastal Erosion, Inundation and Liquefaction Risk • Not developing additional areas in the North-West for urban activities will limit the risks for additional structures or habited areas that may be damaged by coastal erosion or be subject to inundation	**Coastal Erosion, Inundation and Liquefaction Risk** • This alternative contains coastal fringe land in Whenuapai and coastline along Brigham Creek. Latest information indicates that land 10-20 metres inland may be affected by coastal erosion and inundation risks. Noted that the capacity work done as part of the RUB project provided an indicative coastal margin of 100 m to account for factors that may be needed to be taken into account, including	**Coastal Erosion, Inundation and Liquefaction Risk** • This alternative fringe coastal land in Whenuapai.. Unlike Alternative 1 this does not include land on the western side of Brigham Creek (extending Riverhead southwards). Latest information indicates that land 10-20 metres inland may be affected by coastal erosion and inundation risks. Noted that the capacity work done as part of the RUB project provided an	**Coastal Erosion, Inundation and Liquefaction Risk** • This alternative fringe coastal land in Whenuapai.. Unlike Alternative 1 this does not include land on the western side of Brigham Creek (extending Riverhead southwards). Latest information indicates that land 10-20 metres inland may be affected by coastal erosion and inundation risks. Noted that the capacity work done as part of the RUB project provided an indicative coastal margin

		coastal erosion and inundation.	indicative coastal margin of 100 m to account for factors that may be needed to be taken into account, including coastal erosion and inundation.	of 100 m to account for factors that may be needed to be taken into account, including coastal erosion and inundation.
	Land Instability • Does not extend urbanisation over areas which may have instability challenges, risks with areas already for development have been quantified through previous work • For an understanding of geotechnical issues Refer to report by Tonkin and Taylor	**Land Instability** • Areas of gently rolling land with some steeper slopes along coast • For an understanding of geotechnical issues Refer to report by Tonkin and Taylor	**Land Instability** • Of the alternatives this includes the largest area of steep slopes near Riverhead and Red Hills that may be prone to erosion • For an understanding of geotechnical issues Refer to report by Tonkin and Taylor	**Land Instability** • Includes steep slopes in Red Hills that are prone to erosion • For an understanding of geotechnical issues Refer to report by Tonkin and Taylor
	Aquifers and Recharge Areas Located within the ACRP: ALW Kumeu High Use Aquifer Management Area. Most groundwater recharge is expected to be in the exposed Waitemata Group rocks in the hill areas to the north (Riverhead) and, west and south (Waitakere Ranges) respectively. The main aquifer is the Waitemata Group. The Waitemata Group is overlain by up to 65 metres of more recent alluvial, Tauranga Group sediment and peat. Tauranga Group sediment and peat is located in the flatter areas between Huapai, Kumeu, Taupaki, Whenuapai and Riverhead. There may be some limited vertical leakage from these more recent sediments recharging the underlying Waitemata Group rock aquifer. Recharge to the Waitemata Group is estimated to be 1% to 4% of rainfall. If the Waitemata Group is urbanised recharge will reduce. Urbanisation will result in increase in areas of impervious surfaces. Impervious surfaces reduce recharge to groundwater and increase surface water runoff. The greater the area of urbanisation the greater the potential reduction / negative impact on groundwater recharge. However water services in urbanised areas leak to some extent. This is expected to contribute to recharge. Development of the area is expected to have a small to moderate effect on recharge to the Kumeu, High Use Aquifer Management Area. The extent of the effect is also dependant on how much of the proposed development is located in the primary recharge areas. There is anticipated to be significant rural production in the area that relies on surface water abstraction for irrigation. Urbanisation under all three proposed scenarios will increase impervious area and therefore increase surface water runoff. Scenario 1 is expected to have a greater effect as it covers a larger area around the Kumeu River catchment, where there is expected to be a greater concentration of growers. The critical period for irritation of rural production is in the dry summer months when rainfall and consequent runoff is the lowest. Reduction in groundwater recharge from urbanisation to more recent alluvial, Tauranga Group sediment is expected to have some a significant effect on surface water summer low flows.			
	Aquifers and Recharge Areas • Limited effect as area will not be urbanised, development will be of a scale permitted for rural and countryside living	**Aquifers and Recharge Areas** • This alternative includes urbanisation of the primary recharge area between Brigham Creek and Nixon Road, its effect would therefore be greater than the status quo and alternative 2.	**Aquifers and Recharge Areas** • This alternative does not include the primary recharge area between Nixon Road and / Brigham Creek, the effect is therefore less than that of Alternatives 1 and 3,	**Aquifers and Recharge Areas** • This alternative includes urbanisation of the primary recharge area between Brigham Creek and Nixon Road, its effect would therefore be greater than the status quo and alternative 2.
	Biodiversity • Restricting growth to the existing urban areas (plus rural growth eg countryside living) would limit the environmental impacts that may occur with additional residential and business development. • Limited potential to add to the network of open spaces and coastal habitat as there will be little additional development and therefore few development contributions to enable this • There is an outstanding natural landscape (ONL) to the north of the Kumeu River west of Huapai. • There are significant ecological areas (SEAs) along parts of the Kumeu River and around some areas of coastline (near Riverhead, Whenuapai and Scott Point)	**Biodiversity** • Urbanisation carries the potential for fragmentation of existing wildlife habitats and populations. Threatened species have been recorded in the environments within the North-Western Cluster area • Opportunities to provide an approach to design and construction providing enhanced treatment, and restore and maintain buffers and corridors along streams, estuaries and harbour edges. This provides opportunities for habitat and amenity enhancement • This includes potential to add to the network of green areas that constitute the North-West Wildlink (Note: North-West Wildlink connects the Islands of the Hauraki Gulf with the Waitakere Ranges through a series of green corridors, The aim is to restore the connections) • The ONL would form a backdrop to urban areas.	**Biodiversity** • Similar to Alternative 1, urbanisation carries the potential for fragmentation of existing wildlife habitats and populations. Threatened species have been recorded in the environments within the North-Western Cluster area • Opportunities to provide an approach to design and construction providing enhanced treatment, and restore and maintain buffers and corridors along streams, estuaries and harbour edges. This provides opportunities for habitat and amenity enhancement • This includes potential to add to the network of green areas that constitute the North-West Wildlink (Note: North-West Wildlink connects the Islands of the Hauraki Gulf with the Waitakere Ranges through a series of green corridors, The aim is to restore the connections) • However, this alternative establishes a continuum for urban scale growth across the area between Kumeu-Huapai and Riverhead which may limit some of the areas currently used as wildlife corridors, this includes the Riverhead Forest area suggested for urbanisation. Information suggests that native bats are active in this area.	**Biodiversity** • Similar to Alternative 1, urbanisation carries the potential for fragmentation of existing wildlife habitats and populations. Threatened species have been recorded in the environments within the North-Western Cluster area • Opportunities to provide an approach to design and construction providing enhanced treatment, and restore and maintain buffers and corridors along streams, estuaries and harbour edges. This provides opportunities for habitat and amenity enhancement • This includes potential to add to the network of green areas that constitute the North-West Wildlink (Note: North-West Wildlink connects the Islands of the Hauraki Gulf with the Waitakere Ranges through a series of green corridors, The aim is to restore the connections) • The ONL would form a backdrop to urban areas.

			• The ONL would form a backdrop to urban areas. This alternative is adjoining an area that is listed as an SEA for the Riverhead Forest. Landscape analysis (see Report	
	Landscape • This area does not have any notations covering it that relate to outstanding or high landscape values. • However, there are some areas of ONLs in close proximity to the GAFI, for instance the northern side of the Kumeu River. The status quo limits the scale of development in the rural areas and therefore provides for the retention and protection of the main landscape elements in the North-West these include the coastal landscapes in Brigham Creek and Whenuapai the rolling hills and steeper land north and south of Kumeu forming a backdrop to existing towns. • The Status Quo also provides for the retention of the gateway at Brigham Creek to the largely pastoral, land in the rural areas and provides a distinct separation from the urban area of Auckland. • Changes of this scale may impact on amenity levels , these will be dependent to an extent on the rate of change of development • Gateways to rural towns would have to be provided at structure plan stage through design • Refer to Landscape Assessment	**Landscape** • To some extent this alternative uses roads as boundaries rather than using natural catchments to define limits to urbanisation (eg the extension of Red Hills / Red Hills North into the Kumeu River catchment) • Gateways to rural towns would have to be provided at structure plan stage through design • The gateway to the rural area is shortened and in this alternative starts at the Taupaki Road roundabout. • This alternative is proximate to the ONL to the North of Kumeu River, urbanisation in this vicinity may mean a change in perception of the landscape values • Brigham Creek is characterised by Upper Waitemata harbour inlets. Further intensification of coastal fragments will have an effect on the perception of the landscape of these areas. The greatest impacts will be on coastal edges from Riverhead to Herald Island, to the East of this the character changes from Upper Waitemata to Middle Waitemata (Greenhithe Bridge). • Stays clear of northern hills (context setting) • Refer to Landscape Assessment	**Landscape** • Landscape and floodplain boundaries to define the RUB • Clear gateway to rural town provided at Brigham Creek • Large lot – loss of rural amenity between Kumeu-Huapai and Riverhead. Without environmental enhancement this has the potential to be inconsistent with the general principle of staying out of the northern hills (seen as context setting for wider area). • Acknowledge that north of the Kumeu River there are a number of components of highly valued landscapes (steep slopes, vegetated slopes, river) which frame Riverhead. Some development may provide an opportunity for enhancement of North Kumeu riverbank / slope however location and scale of development would have to be handled sensitively or they would negatively impact on landscape values. • In order to assess the landscape implications of this alternative fully further assessment of the landscape effects would need to be undertaken • Refer to Landscape Assessment	**Landscape** • RUB boundaries formed largely by landscape defining elements (eg floodplains and catchment boundaries). • Gateways to rural towns would have to be provided at structure plan stage through design • Stays clear of northern hills (context setting) • This alternative is proximate to the ONL to the North of Kumeu River, urbanisation in this vicinity may mean a change in perception of the landscape values • Effect on coastal fringes not as great as in Alternative 1 for Brigham Creek area as this area is not urbanised (south of Riverhead) • Refer to Landscape Assessment
	Research on stream ecosystem viability indicates that in areas with high impervious cover, stream water quality becomes severely degraded. This is caused by increases in temperature, altered flow regimes and increased pollution and sediment. The decline begins to occur when imperviousness reaches 10%, and by 30% imperviousness water quality and aquatic habitats are severely degraded. It is anticipated that the level of imperviousness in the possible future urban areas identified in the investigation areas will exceed 30%. Freshwater Ecosystems of New Zealand (FENZ) is a national set of spatial data layers created by DOC containing information on rivers, lakes and wetlands. The National and Regional rankings are based on connectivity and riparian and in-stream biodiversity values.			
	Fresh water environments • Located in area of medium / low national and medium regional FENZ ranking (reflects existing urbanisation impact on freshwater environment). Also covers a small area.	**Fresh water environments** • Located in area of medium national and high regional FENZ ranking with existing urban areas low national and medium regional FENZ ranking	**Fresh water Environments** • As for Alternative 1 but with less intensive urbanisation / lower number of dwelling so expect lower negative impact than other alternatives (with exception of status quo)	**Fresh water Environments** • As for Alternative 1
	Stormwater • The Upper Waitemata Harbour is a low-energy receiving environment, it is important to protect riparian corridors, by protecting flood plains and riparian margins you can limit the damage • An incremental amount of development commensurate with existing largely rural zonings will mean little additional risk of flooding, however there are areas in the North-West GAFI that area already within flood prone areas. • The cost of stormwater infrastructure for the North and Northwest will be dependent on the level of treatment required for stormwater discharges. It is possible, that a similar scale and cost of treatment to that in the Southern RUB area will required given the sensitive nature of the catchments (eg	**Stormwater** • This alternative extends into the Kumeu River catchment to the west of Red Hills. This extension creates the potential for additional flooding risk, through increase of impervious surfaces, along the Kumeu River including in the vicinity of Taupaki and the urban areas of Kumeu and Taupaki • All development alternatives are dependent on the rules that govern development, a best practice approach will be required to limit impacts from stormwater. In Structure Planning and implementation it will be important to avoid streams and floodplains (eg incorporating green corridors into design). • Work on ICMP currently in Scott Point	**Stormwater** • Respects catchment boundaries (eg boundary does not cross into the Kumeu River catchment) • Limits the impacts on the catchment of the Kumeu River above Kumeu and Huapai, this catchment has existing problems related to flooding at Taupaki and through the urban areas of Kumeu and Huapai • Slightly better alternative in terms of stormwater effects than other alternatives because development is restricted to one side • Less development higher up in the catchment More steep land included in this alternative, this combined with soil type means more likely to impact on stream erosion. Uncertainty regarding Urban design, areas have not been investigated	**Stormwater** • Respects catchment boundaries (eg boundary does not cross into the Kumeu River catchment) • Limits the impacts on the catchment of the Kumeu River above Kumeu and Huapai, this catchment has existing problems related to flooding at Taupaki and through the urban areas of Kumeu and Huapai • maximises the development in the Brigham Creek catchment (south of SH 16) developing the Red Hills area of the catchment • All development alternatives are dependent on the rules that govern development, a best practice approach will be required to limit impacts from stormwater. In Structure Planning and implementation it will be important to avoid

	Upper Waitemata),		– to a level where unknown • All development alternatives are dependent on the rules that govern development, a best practice approach will be required to limit impacts from stormwater. In Structure Planning and implementation it will be important to avoid streams and floodplains (eg incorporating green corridors into design). •	streams and floodplains (eg incorporating green corridors into design).
Social effects	• These rural areas are valued as they provide relief from the city, recreation needs • Provision of a range of rural lifestyle choices, • Transportation rural densities and distribution of population mean that it is difficult to provide the transportation infrastructure that is available in the urban area • Reliance on vehicular transport • Limited social infrastructure • Limited funding for new recreation areas and open spaces due to little development funding available from development contributions	• In terms of the marine environment, public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plants but increased sediment and contaminant levels from development will also impact the quality and safety of harvested shellfish and fish. • Additional development will provide for open space contributions which will provide opportunities for increased recreation areas in the North-West. This will have positive benefits for both new urban residents living within the RUB and those living in the North-West rural areas • There will also be potential for new urban areas in the North-West to provide centres-based development, this will enable communities to have improved access to shopping, health services and community facilities • Increased population and urban densities within the RUB will also provide school and other facilities to be provided • The areas proposed include some significant areas which have potential for employment near residential areas which will reduce travelling time and costs.	• In terms of the marine environment, public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plants but increased sediment and contaminant levels from development will also impact the quality and safety of harvested shellfish and fish. • Additional development will provide for open space contributions which will provide opportunities for increased recreation areas in the North-West, This will have positive benefits for both new urban residents living within the RUB and those living in the North-West rural areas • There will also be potential for new urban areas in the North-West to provide centres based development, this will enable communities to have improved access to shopping, health services and community facilities • Increased population and urban densities within the RUB will also provide school and other facilities to be provided • The areas proposed include some significant areas which have potential for employment near residential areas which will reduce travelling time and costs. • In this alternative the area within the RUB between Kumeu-Huapai and Riverhead, is predicated on large lot residential development. This will be more difficult to service (roading, public transport and facilities) because of the lower density population and it will be harder to enable the development of community identity. Residents within this area will be more likely to use car based transport to access employment, day to day needs and recreation.	• In terms of the marine environment, public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plants but increased sediment and contaminant levels from development will also impact the quality and safety of harvested shellfish and fish. • Additional development will provide for open space contributions which will provide opportunities for increased recreation areas in the North-West, This will have positive benefits for both new urban residents living within the RUB and those living in the North-West rural areas • There will also be potential for new urban areas in the North-West to provide centres based development, this will enable communities to have improved access to shopping, health services and community facilities • Increased population and urban densities within the RUB will also provide school and other facilities to be provided • The areas proposed include some significant areas which have potential for employment near residential areas which will reduce travelling time and costs. • Potential for improved public transport services
Cultural Effects	• the rural environment and the limited activities provided for enables a greater degree of retention and protection of sites which have cultural significance. This includes sites of significance to Mana Whenua and those for other communities. • Continuing with the Status Quo would have the effect of providing greater protection for significant sites, cultural landscapes than should any of the area be urbanised. Urbanisation and the site preparation and construction phases pose significant risks. Consultation has indicated that within the greenfield areas for investigation there are places which have special significance including cultural landscapes, geographic features	• Urbanisation of the areas within the indicative alternatives would have potential to impact adversely on values and areas of significance for Mana Whenua • There will be the potential degradation of water quality through sediment runoff and post development there are potential effects from stormwater contaminants (see comments in Environmental effects section). The areas for development have catchments which drain to the Upper Waitemata and Kaipara Harbours. These are traditionally important areas for Mana Whenua. • In terms of wildlife corridors the construction and development phases will have considerable	• The cultural implications of this alternative are similar to those of other alternatives with regard to the need to respect values associated with environmental issues and culturally significant areas. • This alternative also extends into the area south and west of Kumeu – Huapai that has been identified as being culturally significant. • The major difference is that large lot residential is provided for in the Riverhead Forest Blocks adjoining the town of Riverhead, as part of a wider continuum of large lot zoning stretching from Kumeu-Huapai to Riverhead. The inclusion of this Riverhead Forest land would enable	• Urbanisation of the areas within the indicative alternatives would have potential to impact adversely on values and areas of significance for Mana Whenua • There will be the potential degradation of water quality through sediment runoff and post development there are potential effects from stormwater contaminants (see comments in Environmental effects section). The areas for development have catchments which drain to the Upper Waitemata and Kaipara Harbours. These are traditionally important areas for Mana Whenua. • In terms of wildlife corridors the construction and

	such as ridgelines, and the biodiversity present. • In the North-West Mana Whenua have indicated that they have concerns for environmental values particularly the health of the Upper Waitemata and the Kaipara Harbours, both of which could be impacted depending on the alternatives chosen. • Concern has also been expressed for wildlife, both flora and fauna, and the need to support green spaces, wildlife corridors and particularly the North-West Wildlink. In the Status Quo Alternative there is protection of existing coastal margins and esplanade reserves but there would be little ability to extend this work with additional reserve contributions from urban development. • Continuation of rural activities would also mean that sedimentation and post construction contaminants from stormwater run-off in these areas would be little changed. • There are also strong European associations with the area which have been expressed. Kumeu has long been established as an area of orcharding, horticulture and viticulture and this provides a sense of identity and character. • Refer to Cultural Heritage Overview Report	impacts on sedimentation, the amount of sedimentation will depend on the development approach chosen (see environmental effects section above) • There are also opportunities for habitat restoration and protection as part of development by vesting of reserves, creation of esplanade reserves, stormwater treatment areas. • The alternative extends the Kumeu- Huapai urban area to the south and West, comment from one Mana Whenua group has since indicated that the ridges in this area are culturally significant and they would not be able to support growth in this direction (ie not further west than Tapu Road). • Care would also need to be taken in areas in close proximity to coast line and river margins, • Refer to Cultural Heritage Overview Report	realisation of the aspirations for this land to be utilised for affordable housing and housing for Mana Whenua. However, the form of this development is not fully understood and more information is needed to make final comments on the implications of this. • Refer to Cultural Heritage Overview Report	development phases will have considerable impacts on sedimentation, the amount of sedimentation will depend on the development approach chosen (see environmental effects section above) • There are also opportunities for habitat restoration and protection as part of development by vesting of reserves, creation of esplanade reserves, stormwater treatment areas. • The alternative extends the Kumeu- Huapai urban area to the south and West, although this area has been decreased from that shown in Alternative 1. Comment from one Mana Whenua group has since indicated that the ridges in this area are culturally significant and they would not be able to support growth in this direction (ie not further west than Tapu Road). • Care would also need to be taken in areas in close proximity to coast line and river margins, • Refer to Cultural Heritage Overview Report
Economic Effects	• The status quo alternative provides no additional Greenfield land for employment growth. In the absence of additional greenfield land approximately 55,000 new employees will have to be located in existing business areas. While there is likely to be some ability to intensify Group 2 business activities (retail, office, service industries etc) significant pressure on existing business areas would result. Auckland already has an undersupply of land for Group 1 business activities (manufacturing, wholesale trade, logistics, transport and storage etc). It is considered critical to Auckland's economic and productivity growth that up to 1,000hectares of new greenfield land be supplied for these activities, whilst 400hectares for retail, offices and other group 2 activities. • The status quo alternative does the most to recognise and preserve rural economy activities, as it excludes further urban incursion into rural areas. • Existing transport congestion particularly on the north western (SH 16) motorway and surrounds indicates the difficulties of accessibility to and from employment areas, of freight movements and labour accessibility. Additional employment areas in new greenfield areas are likely to improve accessibility as new employment areas will be nearer residents. • Current infrastructure struggles at times to support the status quo alternative. Transport infrastructure in particular is hard pressed to move people and freight from the west to more central locations for	• Alternative 1 provided approximately 1593 hectares of additional greenfield land for residential and business activities. Of this approximately x hectares were in Kumeu south and Whenuapai identified for future business, predominantly Group 1 business activities. In addition, in determining the location for the RUB officers have applied a centres based approach in which 'future urban land' behind the RUB will contain a range of different sized urban centres. Within these centres will be significant capacity for Group 2 activities, especially retail, office and services. Accordingly, this alternative goes a long way in providing sufficient business areas to accommodate future employment growth. • This alternative will impact on rural production. Whilst strong efforts were made to avoid high class soils, where the most valuable rural soil resource is located, factors such as accessibility to existing centres etc has meant some Class 2 and 3 soils are impacted by this alternative and some rural production areas will be lost and replaced with urban activities. These soils are the most prevalent in the North-West GAFI area and this will have to be a factor that is weighed up in how much land is utilised for urbanisation against other factors • Existing transport congestion particularly on the north western (SH 16) motorway and surrounds indicates the difficulties of accessibility to and from employment areas, of freight movements and labour accessibility. This alternative adds significant amount of new employment activity, both Group 1 business activities in Kumeu south and Whenuapai and Group 2 business activities in the variety of new	• The construct RUB alternative provides approximately 1675 hectares of additional greenfield land for residential and business activities. This alternative does not provide any additional land for future business over and above that identified in Alternative 1. Hence this alternative does not provide any significant change to the enablement of a range of business areas over and above that in Alternative 1. • A key change introduced by this alternative is the expanded urban area between Riverhead and Kumeu north of approximately 280hectares. This is anticipated to be large lot residential and therefore unlikely to provide any additional business component. However it would take up additional hectares of rural production land. While not a significant amount, this alternative does adversely impact on rural production in the Kumeu/Riverhead area. • Existing transport congestion particularly on the north western (SH 16) motorway and surrounds indicates the difficulties of accessibility to and from employment areas, of freight movements and labour accessibility. This alternative scales back urban growth adjacent to the existing urban boundary thereby exacerbating trip distances to central locations via State Highway 16 as people located further out are required to travel into central locations. This would be mitigated somewhat by the provision of new employment activity, both Group 1 business activities in Kumeu south and Whenuapai and Group 2 business activities in the variety of new centres.	• The proposed RUB alternative provides approximately 1528 hectares of additional greenfield land for residential and business activities. This alternative does not provide any additional land for future business over and above that identified in Alternative 1. Hence this alternative does not provide any significant change to the enablement of a range of business areas over and above that in Alternative 1. • The proposed alternative seeks to maximise contiguous growth, whilst maintaining a measure of separateness between rural settlements. Rural areas near to existing urban areas (Huapai, Kumeu etc) are affected in this alternative, rather than expansion into more remote rural areas such as Taupaki. Provides greater protection of soils in the vicinity of Riverhead than Alternative 1. It also seeks to avoid flood prone and inundation areas, thereby reducing the costs impacts of flood events etc. • Existing transport congestion particularly on the north western (SH 16) motorway and surrounds indicates the difficulties of accessibility to and from employment areas, of freight movements and labour accessibility. This alternative seeks to maximise growth close to existing urban areas, thereby maximising the potential for shorter trips between places of residence and likely places of work. This is reinforced in this alternative by the provision of new places of employment, both Group 1 business activities in Kumeu south and Whenuapai and Group 2 business activities in the variety of new centres. As in the previous

	work and freight to Auckland Port. • This alternative does not identify additional greenfield business areas. Legacy work undertaken by Waitakere District Council signalled the urgent need for additional business land and highlighted the wider Whenuapai area as a potential location for new business land. As part of this legacy work, there was strong market feedback of the desirability for more business land in this vicinity. In the absence of such land, this alternative scores poorly.	centres. Once developed the new employment areas provided in this alternative will be more closely located to areas of residence and therefore should enhance accessibility for labour. This alternative is unlikely to enhance freight accessibility however. • Current infrastructure struggles at times to support the status quo alternative, and will require investment to support the Greenfield areas signalled in this alternative. Transport infrastructure in particular will come under additional pressure to move people and freight from the west to more central locations for work and freight to Auckland Port. This will be mitigated somewhat as people located in the west are likely to find new employment locally and not require to make trips to central locations for work. • The Greenfield business areas contained in this alternative reflect legacy work over many years to identify and zone for business, especially group 1 business activities. Accordingly there is strong market support for development in these business areas. In terms of market attractiveness for residential growth, Red Hills and the area immediately to its west have strong market attractiveness with good landscape and accessibility. This is true also for the area around Hobsonville and Whenuapai surrounds. Less market attractive are areas adjoining the coast such as Brigham Creek and Riverhead, where property is highly valued and expensive to develop. The same is true of the area immediately south of Kumeu and Huapai, but due to potential flooding issues and the south facing nature of many sites here.	As in the previous alternative, once developed the new employment areas provided in this alternative will be more closely located to areas of residence and therefore should enhance accessibility for labour. This alternative is unlikely to enhance freight accessibility however. It is also noted that for this alternative the expansion into the Kumeu north/Riverhead area is likely to lead to more local trips as residents travel to their local centres in Kumeu and Westgate. • Current infrastructure struggles at times to support the status quo alternative, and will require investment to support the greenfield areas signalled in this alternative. Transport infrastructure in particular will come under additional pressure to move people and freight from the west to more central locations for work and freight to Auckland Port. This will be mitigated somewhat as people located in the west are likely to find new employment locally and not require to make trips to central locations for work. • The Greenfield business areas contained in this alternative reflect legacy work over many years to identify and zone for business, especially Group 1 business activities. Accordingly there is strong market support for development in these business areas. Analysis is not complete to enable assessment of the market attractiveness for residential growth, for this alternative.	alternative, once developed the new employment areas provided in this alternative will be more closely located to areas of residence and therefore should enhance accessibility for labour. This alternative is unlikely to enhance freight accessibility however. It is also noted that for this alternative the expansion into the Kumeu north/Riverhead area is likely to lead to more local trips as residents travel to their local centres in Kumeu and Westgate. • Current infrastructure struggles at times to support the status quo alternative, and will require investment to support the greenfield areas signalled in this alternative. Transport infrastructure in particular will come under additional pressure to move people and freight from the west to more central locations for work and freight to Auckland Port. This will be mitigated somewhat as people located in the west are likely to find new employment locally and not require to make trips to central locations for work. • The Greenfield business areas contained in this alternative reflect legacy work to identify and zone for business, especially Group 1 business activities in the Whenuapai area. There is strong market support for development in these business areas. However, the alternative does not include the business land to the south of Kumeu identified in Alternative 1, this recognises the geotechnical and flooding risks associated with development of this land. It also recognises that additional business land provided for in Whenuapai would be accessible to Kumeu-Huapai residents. • Analysis is not complete to enable assessment of the market attractiveness for residential growth, for this alternative.
Rural Productivity	• The majority of the land in the North-West study area is Class 2 and 3 soils, a rare resource in the North and North West of Auckland, The retention of rural production and mixed rural zoned land would provide potential for the retention of these soil resources and rural production clusters which are apparent in the north-west. • In Whenuapai there is an economic cluster of fruit, flower and nursery growing industries. There is also a niche industry identified supplying vines for vineyards. • The Kumeu area generates $4 million turnover per hectare whereas the Whenuapai area generates $5 million per hectare. There is an economic cluster of plant nurseries and flower growing in the area. Land to the south of Riverhead is often referred to as the “golden triangle of soils”. A status quo approach would protect this resource.	• The majority of the land in the North-West study area is Class 2 and 3, this is a rare resource in the North and North West of Auckland, The retention of rural production and mixed rural zoned land would provide potential for the retention of a portion of these soil resources and rural production clusters, • The extent of this alternative retains some of the established vineyards within the rural area, while others in the Red Hills North area and Kumeu will be within the area proposed for urbanisation. • Conversely, the inclusion of this land in the RUB makes available land which has been identified as being low development premium, amongst the only areas within the North-West that fits this description. This land being both close to Massey North /Westgate and relatively affordable in terms of development makes it an important opportunity	• The majority of the land in the North-West study area is Class 2 and 3, this is a rare resource in the North and North West of Auckland. • The retention of rural production and mixed rural zoned land would provide potential for the retention of some of these soil resources and rural production clusters. The additional land for urbanisation in the Kumeu-Huapai –Riverhead area is largely countryside living. However, the land identified as large lot also includes the Riverhead Forest. • Retains more land currently in vineyards in the Kumeu area compared with Alternatives 1 and 3. • However the land in Whenuapai which is currently the most productive in the North-West ($5 Million turnover) will be zoned for urbanisation. This will compromise the rural	• The majority of the land in the North-West study area is Class 2 and 3, this is a rare resource in the North and North West of Auckland. • The retention of rural production and mixed rural zoned land would provide potential for the retention of a portion of these soil resources and rural production clusters. • As with Alternative 1, the extent of this alternative retains some of the established vineyards within the rural area, while others in the Red Hills North area and Kumeu will be within the area proposed for urbanisation. • Conversely, the inclusion of this land in the RUB makes available land which has been identified as being low development premium, amongst the only

	• The identity of the area is also associated with viticulture, especially in the Kumeu and Huapai area this includes marketing of the tourist aspect of vineyards. Vineyards in this area form an economic cluster. However, the site of Constellation Wineries is already within the FUZ. • In terms of surface water abstraction for irrigation, the status quo will have the least impact on surface water runoff as it will involve relatively small impervious area increases commensurate with rural and countryside living activities • Refer to North and North West Auckland Rural Production Report	for urbanisation • There is anticipated to be significant rural production in the area that relies on surface water abstraction for irrigation. Urbanisation will increase impervious area and therefore increase surface water runoff. This alternative is expected to have a greater effect as it covers a larger area around the Kumeu River catchment, where there is expected to be a greater concentration of growers. The critical period for irritation of rural production is in the dry summer months when rainfall and consequent runoff is the lowest. Reduction in groundwater recharge from urbanisation to more recent alluvial, Tauranga Group sediment is expected to have some a significant effect on surface water summer low flows. • There is anticipated to be significant rural production in the area that relies on surface water abstraction for irrigation. Urbanisation under all three proposed scenarios will increase impervious area and therefore increase surface water runoff. Scenario 1 is expected to have a greater effect as it covers a larger area around the Kumeu River catchment, where there is expected to be a greater concentration of growers. The critical period for irritation of rural production is in the dry summer months when rainfall and consequent runoff is the lowest. Reduction in groundwater recharge from urbanisation to more recent alluvial, Tauranga Group sediment is expected to have some a significant effect on surface water summer low flows. • Refer to North and North West Auckland Rural Production Report	activities currently providing employment and economic return for the area. • There is anticipated to be significant rural production in the area that relies on surface water abstraction for irrigation. Urbanisation will increase impervious area and therefore increase surface water runoff. This alternative involves a smaller increase around the Kumeu river catchment and the effects are expected to be less than for alternative 1. • Refer to North and North West Auckland Rural Production Report	areas within the North-West that fits this description. This land being both close to Massey North /Westgate and relatively affordable in terms of development makes it an important opportunity for urbanisation. • There is anticipated to be significant rural production in the area that relies on surface water abstraction for irrigation. Urbanisation will increase impervious area and therefore increase surface water runoff. This alternative involves a smaller increase around the Kumeu river catchment than alternative 1 and therefore the effects are expected to be less than for that alternative. • Refer to North and North West Auckland Rural Production Report
	Noise Whenuapai Airbase • The noise notification areas set constraints for activities, business uses less susceptible to noise effects. In this case the alternative does not place more dwellings within the air noise notification areas for Whenuapai Airbase (above the existing zoning provisions) and therefore limits additional costs from reverse sensitivity, and enables the continuation of activities for defence purposes.	**Noise Whenuapai Airbase** • This alternative increases urban development within the noise notification areas, This alternative canvassed specific areas for business and residential emphasis and in this case by suggesting residential emphasis for land in specific areas of Brigham Creek and Red Hills North it increased the number of dwellings that would theoretically be within the noise notification areas. This situation would lead to the potential for greater reverse sensitivity issues, with perhaps uncertainty for NZDF over the operation of the Airbase. It would also increase costs for residential construction in these areas to provide greater noise attenuation of dwellings. There may also be additional costs for other sensitive activities such as schools (depending on their location) which would mean additional costs to provide an appropriate acoustic environment • Dwellings and classrooms in Transport Corridor Separation Areas are required to be	**Noise Whenuapai Airbase** • This alternative increases urban development within the noise notification areas, While the alternative shows a FUZ over the whole area, the alternative is predicated on locating business within areas that are covered by noise notification areas and conversely residential areas outside the noise notification areas. Even so there may be some increase in the number of dwellings and sensitive uses that would theoretically be within the noise notification areas (but markedly smaller from those in Alternative 1). This situation may lead to a smaller potential for greater reverse sensitivity issues for NZDF over the operation of the Airbase. It would also have some increased costs for residential construction in these areas to provide greater noise attenuation of dwellings. There may also be additional costs for other sensitive activities such as schools (depending on their location) which would mean additional costs to provide	**Noise Whenuapai Airbase** • This alternative increases urban development within the noise notification areas. While the alternative shows a FUZ over the whole area, the alternative is predicated on locating business within areas that are covered by noise notification areas and conversely residential areas outside the noise notification areas (as for Alternative 2). Even so there may be some increase in the number of dwellings and sensitive uses that would theoretically be within the noise notification areas (but markedly smaller from Alternative 1). This situation may lead to a smaller potential for greater reverse sensitivity issues for NZDF over the operation of the Airbase. It would also have some increased costs for residential construction in these areas to provide greater noise attenuation of dwellings. There may also be additional costs for other sensitive activities such as schools (depending on their location) which would mean additional costs to provide an appropriate acoustic environment (although to a lesser extent than for

		designed, screened or insulated to enable them to comply with maximum noise levels, for the North-West RUB areas for this alternative this is an issue particularly applicable to SH 16 and SH 18, the Riverhead – Coatesville Highway, and Fred Thomas Drive. For this alternative that will require consideration of how development along SH 16 in particular would be treated. However, this dovetails with feedback that there should be a buffer along the highway so that the rural gateway of Rodney is maintained. There is also some overlap with effects noise notification areas	an appropriate acoustic environment (although to a lesser extent than for the Alternative 1). • Dwellings and classrooms in Transport Corridor Separation Areas are required to be designed, screened or insulated to enable them to comply with maximum noise levels, for the North-West RUB areas this is applicable to SH 16 and SH 18, the Riverhead – Coatesville Highway, Brigham Creek Road and Fred Thomas Drive. For this alternative that will require consideration of how development along SH 16 in particular would be treated. However, this dovetails with feedback that there should be a buffer along the highway so that the rural gateway of Rodney is maintained. There is also some overlap with effects noise notification areas	Alternative 1). • Dwellings and classrooms in Transport Corridor Separation Areas are required to be designed, screened or insulated to enable them to comply with maximum noise levels, for the North-West RUB areas this is applicable to SH 16 and SH 18, the Riverhead – Coatesville Highway, Brigham Creek Road and Fred Thomas Drive. For this alternative that will require consideration of how development along SH 16 in particular would be treated. However, this dovetails with feedback that there should be a buffer along the highway so that the rural gateway of Rodney is maintained. There is also some overlap with effects noise notification areas • Need a buffer to mitigate against air pollution from SH 16 to where there is adjoining residential development ie 100 m buffer either side recommended
Transportation	• The metropolitan centre at Westgate / Massey North would have a relatively small catchment, which is cut off from it by surrounding motorways making access difficult and increasing the potential that people within the catchment would use other alternatives. • Limiting growth in the North-West will decrease the justification for PT initiatives. • From a transport perspective there has been significant investment in transportation. The Status Quo would make it hard to get the best value from the investments made • Refer to Auckland Unitary Plan – Rural Urban Boundary Discussion Paper Transport Issues	• Significant expansion of Riverhead southwards may create pressure for a bridge across Brigham Creek linking Riverhead with Whenuapai. • The separateness of Riverhead from other urban areas in the North-West means that there will be a cost to upgrading the Coatesville _ Riverhead Highway as it is flanked by rural areas not by development • Growth closer to the urban area would be more accessible to • Transport modelling suggests that the conceptual model developed can generally support the level of growth proposed for this area. • Refer to Auckland Unitary Plan – Rural Urban Boundary Discussion Paper Transport Issues	• This configuration will, because of its lower density be more expensive to service with Public transport • Where low density is provided it is difficult to provide Public transport in a cost effective manner • More expensive to provide roading on a per lot basis • The Any areas that are more hilly (eg towards Riverhead will also be more expensive in terms of roading and providing a connected street pattern • The decrease in the catchment which is contiguous with the Massey North /Westgate metropolitan Centre will make it more difficult to sustain a busway to Kumeu –Huapai • Transport modelling suggests that the conceptual model developed can generally support the level of growth proposed for this area • Refer to Auckland Unitary Plan – Rural Urban Boundary Discussion Paper Transport Issues	• There will be additional costs for roading linking Huapai North with the commercial area of Kumeu-Huapai. This is because of the topography and the need to bridge the Kumeu River to provide a connected street pattern. • Transport modelling suggests that the conceptual model developed can generally support the level of growth proposed for this area • The Council's Transport Strategy Team has been working closely with Auckland Transport and the New Zealand Transport Agency to develop the likely transport infrastructure needed to support the various GAFIs. This has provided an indicative cost for this alternative of $1-1.3 billion. It should be noted that these costs are based on preliminary 'per kilometre' rates and are highly indicative given the uncertainty of factors like final land use patterns, levels of service, design specific engineering, and route geotechnical conditions. Furthermore, these costs generally relate only to the provision of arterial roads and major public transport infrastructure in the greenfield areas. Therefore, they do not include local roads built by developers, projects already included in the Auckland Plan in the greenfield areas (e.g. Puhoi-Warkworth, Penlink, electrification to Pukekohe etc.) or possible required projects outside the greenfield areas which are over and above what is included in the Auckland Plan (e.g. further rail track provision to enable express running of services from the south).. Further analysis is underway to gain a better understanding of likely future transport costs in the greenfield areas. These costs will need to be financed by a variety of means and sources, including both local and central government. • Refer to Auckland Unitary Plan – Rural Urban Boundary Discussion Paper Transport Issues
Geotechnical	• Limiting growth means that there is no further	• This alternative extends into an area south of	• This alternative retains more rural activities and	• The extent of this alternative retains some of the

	encroachment into areas that have geotechnical issues, above development that is able to be done under rural zoning. • There are already significant issues with flooding in the Taupaki area which then impacts on the towns of Kumeu-Huapai. Retaining the status quo means that this is no exacerbated to any degree. There are also issues with soils in this area to the south of Kumeu Huapai, due to their high compressibility. • Many of the areas within the Kumeu-Huapai area have a high or medium development premium (requiring earthworks and civil infrastructure typical of locations with known instability) • For an understanding of geotechnical issues Refer to report by Tonkin and Taylor	Kumeu-Huapai where there are geotechnical issues (compressible soils), steeper slopes and flooding areas • For an understanding of geotechnical issues Refer to report by Tonkin and Taylor	viticulture in the Red Hills North area west of Brigham Creek which would be urbanised in the other two alternatives. The trade-off is a lower capacity. • The area West of Brigham Creek is not included in this alternative which limits the catchment for the Massey North/ Westgate metropolitan centre and does not capitalise on land which has a low development premium, geotechnically. • The area of large lot development proposed for development in the Riverhead Forest • For an understanding of geotechnical issues Refer to report by Tonkin and Taylor	established vineyards within the rural area, while others in the Red Hills North area and Kumeu will be within the area proposed for urbanisation. Conversely, the inclusion of this land in the RUB makes available land which has been identified as being low development premium, amongst the only areas within the North-West that fits this description. This land being both close to Massey North /Westgate and relatively affordable in terms of development makes it an important opportunity for urbanisation. • In Kumeu South urban development is located in areas that are easier to develop ie those areas that avoid steeper land or land which has greater incidence of compressibility or liquefaction risk. • For an understanding of geotechnical issues Refer to report by Tonkin and Taylor

Responses to feedback
Response to Consultation - North-West

The following key issues were raised throughout the consultation process from a range of respondents:

Issue	Response
Importance of rural activities	The importance of rural activities, in particular, horticulture and viticulture, and their contribution to the economy and tourism have been acknowledged throughout the process, with limited productive land identified for future urban development. Where productive land has been proposed within the RUB, the most effective and efficient land to support a quality compact city has been identified, seeking to maximise contiguous urban growth, use of existing infrastructure networks, as well access to employment, transport and town centres.
Retention of rural towns as distinct and separate, character	The recommended RUB has responded to feedback seeking to retain the character of rural towns, with less future growth recommended for Riverhead and Kumeu-Huapai, supported by a more compact urban form. Future growth west of Red Hills towards Taupaki has also been scaled back.
Amount and location of business land at Whenuapai and Kumeu	There is a significant demand for land extensive business land to be identified within the RUB. These locations have many of the attributes required (relatively flat, large land parcels, proximity and accessibility to the State Highway network, proximity to residential/employment catchment and good connections with other employment land).
Role of Whenuapai Airbase	The Whenuapai Airbase will be retained for defence and search and rescue purposes. This will be addressed in more detail through the structure planning process.
Southern extent of Kumeu-Huapai	The area to the south of Kumeu-Huapai has been reduced in response to geotechnical and flooding issues. Further concerns were raised about development west of Tapu Road and maintaining an appropriate separation between Kumeu and Waimauku. These issues will need further discussion and consideration in the next phase of the Unitary Plan submissions.
Maintaining a visual gateway the rural area	The recommended RUB follows the catchment boundary, in order to support existing centres, and provide sufficient, suitable land for urban development. Maintaining a visual gateway can be addressed in more detail through the structure planning process.

Expansion of Riverhead	The recommended RUB has responded to feedback preferring an expansion to the west over expansion south.
Riverhead Forest	Inclusion of this area in the RUB has not been supported for the following reasons: it does not support a compact urban form; significant environmental issues; limited capacity; and it does not support a defendable RUB boundary. There is potential for alternative ways of providing appropriate development on the land as part of a commitment to on-going dialogue.
Clark Point	The recommended RUB has responded to feedback seeking to include this area as it is aligned with the decision to urbanise the wider Whenuapai area. An appeal to a resource consent is currently being appealed; the decision on this will provide a framework for consideration of the urban form and activities in this area.
Scott Point	The recommended RUB has responded to feedback seeking to include this area as it is surrounded by areas that are either urbanised or in the process of being urbanised.

A number of competing values were considered during the assessment process, including technical studies and reports covering geotechnical, transport, flooding, economic, employment, cultural heritage, landscape, infrastructure, and capacity matters. These findings were considered and balanced against all feedback, in the process of determining the location of the recommended Rural Urban Boundary.

Some of the issues raised during this consultation phase were unable to be adequately addressed in detail at this stage of the planning process. These will feed into the structure planning process, when they can be addressed in more detail.

3.2.5 Preferred Alternatives for the North-West

The Auckland Plan, Development Strategy, identified the North-West as an area with potential capacity for 19,000 additional dwellings together with land for employment. The Growth Options and Indicative RUB put forward as part of the Addendum to the Draft Unitary Plan provided land to meet this capacity while addressing issues that had been identified including separation of rural towns, the effects on the Upper Harbour receiving environment, flooding issues, countryside living, transport links, the need for employment land and defining a defendable RUB boundary.

Feedback representing a range of views was received focussing on the scale and form of the proposed urban growth in the North-West as put forward in the Addendum. While a number of submitters, were generally supportive of the options and indicative RUB and made suggestions for particular locations which they believed would be appropriate for urban development others were opposed to an urban scale of development and wanted the retention of rural activities and character.

The preferred alternative, put forward in this section 32, supports the concept of a compact urban Auckland while accommodating the capacity proposed from Auckland Plan for the North-West RUB of 19,000 dwellings, The recommended proposal for the North West would bring approximately 1527 ha into the RUB with an estimated capacity of 16,145 – 19,250 dwellings over 30 years. This is a significant area for Auckland because of its proximity to

Westgate / Massey North and the ability to provide development which fits the quality, compact model - centres approach. This is in contrast to the lower density, expansive alternative which had a similar, if not larger area proposed for urbanisation with a smaller capacity. As well this lower density form would be more difficult to infill later if a more capacity was needed at a later time.

As stated, the Auckland Plan has a focus on providing for growth which is contiguous to the existing metropolitan urban area of Auckland. Development that is contiguous to the metropolitan area is advantageous particularly for infrastructure provision. In the North-West the preferred RUB would support the significant development and investment that is already being targeted to the NorSGA area and in particular the Massey North /Westgate metropolitan centre. Currently, the catchment for this centre is largely rural or not easily accessed due to the urban and state highway pattern. Providing for development over the extent of the Red Hills North area will create a more accessible catchment for the Massey North /Westgate centre that will also be able to support transport, including public transport initiatives. Urbanisation of this area would support the Busway to the north-west towns of Kumeu-Huapai. In terms of compact city approach it is also an area which provides accessibility to both residential land and employment land.

There must also be a weighing of the costs and benefits that development in the North-West might bring including effects on rural economic clusters and soils that will be lost including effects on rural economic clusters and soils that will be urbanised. It is acknowledged that urbanisation of the North –West will mean the loss of Class 2 and 3 soils. All urbanisation in the North-West will have impacts on these soils as they spread over the GAFI. However, the preferred alternative locates development away from significant clusters of rural activity while acknowledging that in some areas (eg Whenuapai) the soils will be sacrificed to provide a more sustainable urban form.

The environmental effects of urbanisation also could be significant; the North-West GAFI is located in a sensitive environment, already compromised by urban and rural activities. In this regard the sentiments expressed by Mana Whenua were particularly relevant setting expectations for management / promotion of natural resources such as native vegetation and waterways / harbour receiving environments, recognising that areas for urbanisation are particularly vulnerable to environmental pressure. Information suggests that for urbanisation of this area it will be important to ensure that best practice in association with a whole of catchment approach to planning and implementation will be essential if Auckland is to enable urbanisation while safeguarding environmental baselines.

The recommended RUB is predicated on defendable boundaries with natural catchment boundaries and the edge of floodplains forming the majority of the RUB line itself. In particular, Taupaki Road / Nixon Road provides a defendable boundary as a catchment and cadastral boundary. Development is not extended into the next catchment (Kumeu River) in order to minimise additional flooding impacts in this catchment. Similarly the boundaries at the south of Kumeu are ridgelines.

The points made by submitters about the importance of rural activities, particularly horticulture and viticulture and the contribution these make to the economy, including tourism, as well as the character of rural towns are acknowledged. In deciding on a preferred alternative and recommended RUB these were taken into consideration. However, the location of the North-West GAFI area, in close proximity and easily accessible to the Auckland urban area, mean that there are advantages to maximising contiguous growth in this area and achieving the Auckland Plan capacities. As stated above, these advantages relate to the provision of infrastructure, access to employment and transport as well as providing a more sustainable residential and business catchment for the newly establishing Westgate / Massey North metropolitan centre.

In considering the feedback, the analysis of the alternatives and technical information, reinforced the view that land can be valued for a number of competing reasons (eg land valued for rural productivity and amenity may be also have attributes that make it attractive for residential uses). Similarly, there are constraints and risks in the North-West which makes development difficult (including flooding, geotechnical conditions, slope, environmental sensitivities and ecological values). These factors mean that it is important to use any land urbanised in the most effective and efficient way, that supports the concept of the quality compact city. Planning for densities of an urban scale within the RUB will be an essential part of this philosophy. If such densities are achieved it will mean greater efficiencies will be achieved in terms of the amount of rural land that will be required to be incorporated within the RUB. Conversely, the greater the densities within the RUB the less rural land will be required for urban development. In other words, lower densities will require more land for urban development and therefore will promote urban sprawl. Notwithstanding this, there is a balance to be achieved between density and development that respects human scale and the environment.

Retaining separation and distinctiveness of rural towns was a recurring concern of submitters. The preferred RUB, amends the proposal put forward in the Addendum to the Draft Unitary Plan. In particular amendments were made to Kumeu – Huapai (northern expansion added closer to town centre) and Riverhead (west rather than south expansion) to provide more compact RUB boundaries around them.

Specific concerns were raised about drawing the line RUB at Taupaki Road / Nixon Road rather than maintaining the legacy boundary of Brigham Creek. Brigham Creek is seen as the gateway to the rural area of Rodney. However, consideration of submissions and weighing this with technical information indicated that it was more appropriate to draw the RUB at the catchment boundary, this providing land that was significant in terms of supporting the Westgate / Massey North centre and infrastructure provision. This land within the Red Hills North catchment has also been identified as potentially one area within the North-West that is easier to develop from a geotechnical perspective with much of the land here having a low development premium, due to fewer geotechnical constraints and risks. Inclusion of this area also provides additional land which is clear of the air noise boundaries from Whenuapai Airbase. The importance of providing a clear visual gateway to the rural area is acknowledged and it will be important that this is addressed at Structure Plan stage to reinforce the rural buffer provided.

Inclusion of the Red Hills area within the RUB was generally supported through feedback and technical work including legacy planning. This area is included within the RUB as it is supportive of the Westgate / Massey North centre, it is contiguous with the metropolitan urban area, offers an ownership patterns signal its potential for comprehensive development, and supports a whole of catchment approach to planning. However, there are still issues including stormwater which will need to be resolved as part of further planning at the structure plan stage.

The concept of urbanisation of Whenuapai brought forward a range of views, a number of people wanted to retain the rural activities, particularly horticulture, and the lifestyle living options that currently predominate in this area. There were also a number of concerns relating to the retention of the Whenuapai Airbase and its defence purpose. In terms of the urbanisation of this area, while the importance of protecting Class 2 and 3 soils is recognised in this case the strategic nature of Whenuapai and its proximity to the State Highway network, and the Auckland urban area mean that it is more appropriate in accommodating growth for this area to be urbanised. While this report recommends a Future Urban Zone over Whenuapai it will be important to work with the community, including the NZDF, at

structure planning stage to ensure issues such as reverse sensitivity related to activities at the Airbase on any additional residential to activities are taken into account.

Research has indicated that there is a deficit of approximately 1000 ha for land extensive business over the next 30 years. Whenuapai has been identified in legacy work as an area with many attributes needed for business activities (eg relatively flat, large land parcels, proximity and accessibility to the State Highway network, proximity to a residential / employment catchment and connections to other employment land at Westgate/Massey North). As a result of considering submissions and consultation the maps were amended to more specifically identify business land as being south of Brigham Creek Road. The maps were also amended to acknowledge the Whenuapai Airbase. Consultation with New Zealand Defence Force indicated that they intended to retain the Airbase for defence and search and rescue purposes.

In light of feedback about the Airbase, and in particular the associated noise notification areas, the distribution of potential residential and business areas was reconsidered and some amendments made to the types of activities that would probably be located in these areas. This included the triangle bounded by Fred Thomas Drive / State Highway 16 and the Westgate / Massey North centre. While this information was important for understanding urban form, capacity work and effects it is noted that it is not translated into the maps that are proposed for inclusion in the notified version of the Unitary Plan as land brought into the urban area as part of this exercise is zoned as Future Urban. Structure Planning, of areas confirmed as Future Urban through decisions on the Unitary Plan will see more detailed consideration of specific zoning. The importance of implementation through structure planning was a theme through a number of submissions.

There are however also opportunities to provide more market attractive coastal residential development on the west of the Whenuapai area. This is a location where there could be synergies between residential location and employment co-location.

The areas in the vicinity of Ockleston / Sinton Roads and Clark Point (Monterey) are similarly included within the RUB. Feedback on Clark Point, in particular was supportive of its inclusion within the RUB. Inclusion of these areas is supported in the preferred alternative as it is in alignment with the decision to urbanise the wider Whenuapai area. However, the form or intensity of this urbanisation is not part of this process, but rather will be decided separately. Currently, an appeal is in progress on a resource consent for Monterey.

In the Kumeu Huapai area development in the preferred RUB has been focused on areas which are easily accessible to existing urban areas. This includes land to the north which is currently zoned for countryside living. The amended area for urbanisation within the RUB north of Kumeu – Huapai integrates land, currently zoned countryside living, to the north of the Kumeu River (in the area of Burns lane, Oraha and Koraha Roads) into the RUB. This land forms a plateau clear of flooding with potential for comprehensive development in close proximity to the town and potential for a high level of amenity with views to the Kumeu River and in some cases beyond to the Waitakere Ranges.

The southern extent of Kumeu-Huapai identified in the Addendum to the Draft Unitary Plan has been reduced, to acknowledge issues particularly regarding geotechnical and flooding, however they do not provide a solution for all the concerns voiced by Mana Whenua regarding development west of Tapu Road, and an appropriate separation between Kumeu and Waimauku and these issues still need more discussion and consideration in the next phase of the Unitary Plan submissions. Related to this a number of feedback points suggested a preference for development in the area between Kumeu and Riverhead, in some cases this was by way of subdivision of countryside living to a scale that would be considered large lot residential, in other case more intense residential development was

suggested. The preferred alternative developed provides for urbanisation in the areas of countryside living closer to Kumeu-Huapai town centre, it rejects the idea of including all the countryside living to the north of Kumeu –Huapai as a band of large lot residential as this would provide a relatively small increase in capacity while weakening the rural buffer between Kumeu-Huapai and Riverhead.

This leads on to consideration of the extent and form of development at Riverhead. The weighing of feedback and technical information suggested a westwards expansion was more appropriate than extending further south to State Highway 16. Riverhead is expanded to the west rather than south, maximising the retention of clusters rural economic activities while establishing a compact form focused on the existing centre of Riverhead the boundaries are established by natural features such as the edge of floodplains, streams, and consideration of the HV powerlines. The Riverhead Forest as a backdrop is also acknowledged. The RUB is not extended into the Riverhead Forest to the North of the town this is considered an area where there needs to be more study of rural alternatives for development in association with the landowners. This was considered in context with the request that land within the Riverhead Forest be included within the RUB for urban scale of development. While inclusion of this area in the RUB is not supported for reasons including, compact urban form, environmental issues, capacity, integrity of a defendable RUB boundary, there is potential for alternative ways of providing an appropriate level of development on the land as part of a commitment to on-going dialogue.

As well as the Red Hills area (see above) which is identified in legacy work, there are two other areas from legacy planning which are put forward for inclusion within the RUB; these are Scott Point and Trig Road.

In feedback regarding Scott Point there was general support for its inclusion in the RUB, this reinforces its identification for urbanisation through legacy planning. The preferred alternative put forward as part of this report acknowledge that contextually Scott Point is surrounded by areas that are either urbanised or in the process of being urbanised. The issue here is more about how this is achieved in a manner that makes the most appropriate use of a site which has many attributes which are attractive for urbanisation. It will be important to ensure that the development that is being implemented at Hobsonville is supported by future development at Scott Point.

In the case of Trig Road, the preferred alternative envisages that this will be within the RUB. Again it is considered efficient and effective for this area, in close proximity to the Auckland urban area and the Westgate /Massey North centre to be urbanised. This will provide a more sustainable catchment for the centre. Additionally, the land has good accessibility to transport and will assist in supporting a more sustainable public transport service along Hobsonville Road. It provides opportunities for residential that complement existing developments to the east and south in proximity to employment opportunities in business areas including land at Whenuapai that is proposed as being within the RUB.

3.3 Northern Cluster

3.3.1 Introduction

The Northern cluster features two geographically distinct study areas, these being in Silverdale-Dairy Flat and Warkworth. These study areas have been described and analysed separately below.

It is noted that the RUB Indicative Options contained within the Draft Unitary Plan Addendum did not indicate development in the southern part of Dairy Flat and were referred to as the Silverdale Greenfield Areas for Investigation (GAFI) or study area. However, following analysis of feedback and technical work, in particular environmental and geotechnical information, the greater Dairy Flat area is now included as part of the recommended RUB and the eastern part of the GAFI in Silverdale (Weiti/Okura) is excluded. Given this, the Silverdale area is now referred to as the Silverdale-Dairy Flat area.

Physical Geography

The Silverdale-Dairy Flat area features a variety of topography. In the north of the study area, the Wainui area contains some steep terrain intersected by gullies and creeks, while the south of the Wainui area features gently sloping hills, valleys, and plains. To the north of the study area is the Weiti River, while to the east is Okura/Weiti which contains significant areas of vegetation and a large area of steep coastal hills.

The Warkworth area features a number of steep valleys and ridgelines, with gentler terrain towards the southwest and northeast of the area. Warkworth is also bisected by the Mahurangi River and the numerous streams which drain into it. A branch of the Mahurangi River runs north-south to the west of Warkworth and then runs east-west into the Mahurangi River itself. To the north and south of the Warkworth Investigation Area lie significant stands of bush.

Demographics/Population

The population of Warkworth as at the 2006 Census was 3,270. The Silverdale Dairy Flat area comprises mostly a rural population including Countryside Living particularly in the vicinity of Dairy Flat and Okura.

Environmental Issues

The Silverdale-Dairy Flat area is split between two catchments. The northern half of the area drains to the Hauraki Gulf, where as the bottom half (approximately) drains to the Upper Waitemata Harbour (UWH). As highlighted in section 3.2.1 of this paper, the Upper Waitemata is a low energy environment which has already been affected by urban development. In contrast, the Hauraki Gulf is fed by the Weiti and Okura Rivers which have been subject to lengthy planning processes to protect the sensitive receiving environment, including the Long Bay Marine Reserve and the Hauraki Gulf, which is known to be in a degraded state. For this reason, the area east of the northern motorway has not been recommended as suitable for urban development.

However, the proposed RUB area has been more extensively modified by human occupation, with the removal of the majority of native vegetation and its replacement with farming and peri urban activities. Extensive modification has also occurred in terms of the draining/modification of freshwater systems. Current vegetation is largely exotic and focused on supporting pastoral farming. There are however significant areas of SEA land either aside of Sunnyside Road and leading down o Potter Road. There are also some patches of regenerating Kauri forest along Potter Road, Sunnyside Road and extending west to the Riverhead forest and east Coast Bays Road. There are ecological connections running from Okura/Weiti along Wrights Road, Albany Heights Road to Potter and Sunnyside Roads.

This corridor continues along Robinson Road and the Rangitopuni River catchment to the Riverhead forest. Native bats are known to use this corridor as rooting and foraging habitat.

Flooding occurs in this area along water courses while large areas of land instability, particularly in the north and west, is present.

The Warkworth area is notable for the environmental values associated with the Mahurangi River and its catchment. The catchment features forest fragments, particularly to the North, northwest and south of Warkworth township. There are also large areas of cleared farmland, which is used for pastoral farming, although to the Northwest of the town is a concentration of horticulture and viticulture activities. There are species, some threatened with extinction, that use the Mahurangi marine/terrestrial area as breeding and foraging habitat.

Areas of flooding occur to the west of Warkworth.

Economy

In terms of economic characteristics of the cluster areas, the Silverdale-Dairy Flat area features a number of rural related activities, including pastoral farming and countryside living. These support home based businesses and employ a number of FTE's contributing to the local economy.

There are a number of smaller service activities present, with a small settlement at Dairy Flat which serves a wide rural catchment. The northern portion of the area is also interspersed with urban commercial activities, given its proximity to the Orewa and Silverdale urban areas.

Within this area are also economically important facilities including the North Shore airfield and the Snowplanet tourism and other recreation activities. To the west of the area are the important sub regional resources; aggregates and the Redvale landfill.

Warkworth is a rural service centre for the wider rural economy of North Auckland. It serves the smaller coastal settlements such as Matakana and Sandspit, as well as the North Auckland rural hinterland. Rural economic activities include pastoral farming, viticulture and horticulture. Warkworth also has an active tourism sector given its "gateway" status to a number of popular East Coast beaches.

Transport Infrastructure

The Silverdale-Dairy Flat area is connected to the Auckland Metropolitan Area by State Highway 1, with access to the Highway by a full interchange at the southern urban edge of Silverdale. Congestion along this stretch of the motorway can be significant at peak times. To alleviate congestion and to allow further development in the area to progress, construction of Penlink is programmed in Councils Long Term Plan to begin in 2018. The western half of the area is also served by the Dairy Flat Highway, which connects Silverdale to Albany Village.

Warkworth is located on State Highway 1, which bisects the town on a north-south access. The state highway is accessible from two major intersections, with the intersection to Matakana and Sandspit Roads. This intersection is recognised for congestion during peak holiday periods. It is also planned to replace the existing state highway corridor with a new corridor to the West of Warkworth as part of the "Roads of National Significance" programme. The existing corridor will be retained without a state highway designation.

Physical and Social Infrastructure
The Silverdale-Dairy Flat area is largely unserviced by reticulated water and wastewater. To the north of the area, Orewa and Silverdale are connected to the Army Bay Wastewater Plant, while to the south, the Metropolitan area is serviced by the Rosedale Wastewater Plant. Water supply is provided from the south via cross harbour mains, as well as a potable water main that runs along State Highway 1.

Warkworth features small reticulated water and wastewater networks. Water is currently sourced from the Mahurangi River, although this supply is to be replaced by a new ground water source to the Northwest of the town. A wastewater treatment plant is located to the east of the town and following treatment, wastewater is discharged into the Mahurangi River.

Both Silverdale-Dairy Flat and Warkworth are served by reticulated electricity supplies, although neither any Transpower corridors. Both are also connected to the national natural gas grid.

Silverdale-Dairy Flat is largely contained within the RBI area of service, although the northern areas of the study area are located within an UFB area of service. Warkworth is largely located outside the RBI and UFB areas of service. It should also be noted that to the south of Warkworth is the Warkworth Satellite Station, which is a communications facility of national importance.

Both Silverdale-Dairy Flat and Warkworth are located within the Waitemata District Health Board area of service. Both areas feature a number of existing schools and education facilities, with the Albany Campus of Massey University located near Dairy Flat.

Cultural Issues
The North has a rich history of occupation particularly in and around the coastal areas of Warkworth and Silverdale. Mana Whenua groups who indicated that they wished to be involved in the RUB project for this area included Te Rununga o Ngati Whatua, Ngati Whatua o Kaipara, Ngati Whatua o Orakei and Ngati Manuhiri and Te Kawerau a Maki. Issues that were raised included environmental effects of urbanisation such as water quality, stormwater and flooding, biodiversity and ecology; the sensitivity of cultural landscapes and protection of sites and areas of significance, opportunities that urbanisation may provide for development of housing and Marae and peoples preferences for location. The issue of using Maori place names was also raised.

Planning History
There has been considerable legacy planning work undertaken in the North. This includes work undertaken by the former Rodney District Council and the Auckland Council.

With respect to the Silverdale-Dairy Flat area, Silverdale has undergone significant change in the last five years, in terms of the rapid growth of its business centre in conjunction with the new residential area of Millwater. These have been underpinned by a number of structure plans in Silverdale, together with various plan changes. The Hibiscus Coast Gateway Zone, just south of Silverdale and east of State Highway 1, is predicted to grow further once appeals to a plan change for the area have been settled. A structure plan for Silverdale West has also been drafted and this will primarily enable the development of Group 1 business activities in the area just west of the State Highway 1 and bounded by Dairy Flat Highway and Wilks Road. Both the Hibiscus Coast Gateway Zone and the Silverdale West development area have been previously constrained by the existing extent of the Metropolitan Urban Limit.

The Auckland Plan identified Silverdale as a Transformation Area and the Development Strategy earmarked around it a Greenfield Area for Investigation.

There has been little attention, in terms of planning, for significant new developments in Dairy Flat, although Vision Rodney, Planning Rodney and the Rodney Rural Strategy, together with the Rodney District Plan, set the planning context and direction for the entire Rodney District. Private plan changes or significant resource consent applications have been approved for land around the North Shore Aero Club (an aeropark subdivision), Weiti Station and Weiti Forest Park Special 8 zone. Other plan changes have been approved within the existing MUL such as Orewa West, Peninsula Golf Course and Silverdale Industrial zone.

Important Environment Court decisions that potentially affect the Silverdale GAFI are related to development proposals in the Long Bay-Okura area and led to the Okura Policy Area in the Rodney and North Shore District Plans. The Okura Policy Area affords greater recognition and protected of the Okura catchment.

With regard to Warkworth, Vision Rodney, Planning Rodney and the Rodney Rural Strategy, together with the Rodney District Plan, formerly set the planning context and direction for the entire Rodney District. In the Auckland Plan, Warkworth is identified a satellite town with its population growing to 20,000 over the next 30 years. This is a significant change in direction for the town from its 2004 Structure Plan, where a population of up to 8,800 was projected by 2050. However, the town and its outlying rural and coastal settlements of Snells Beach, Leigh, Omaha and Matakana have sustained marked growth in the last ten years, leading to structure plans and subsequent plan changes for Omaha and Matakana. Significant plan changes and subdivision applications have been approved in Warkworth, such as the Woodcocks Road and Hudson Road business parks and the development of a large, new residential area between Wilson, Mckinney and Pulham Roads.

3.3.2 RUB Proposal Details

The Auckland Plan provides the basis for the population growth proposed to be accommodated in the Northern Cluster. This identified Warkworth as one of two satellite towns in Auckland which could accommodate a population of 20,000 or an additional 4,000 dwellings over 30 years. This figure is over and above the 8,800 population planned for Warkworth through the 2004 Warkworth Structure Plan (produced by the Legacy Council) as discussed above.

For the Silverdale area, the Auckland Plan suggested a figure of 12,000 dwellings to be accommodated over a 30 year timeframe.

The Auckland Plan also proposed additional employment growth in the Greenfield areas for both land expansive industry and commercial activities.

The RUB Alternatives

In developing the recommended RUB technical information and consultation was reviewed to inform a range of alternatives. The alternatives assessed below represent a selection of the ideas investigated over time as part of the project as to how growth could be accommodated within the northern GAFIs of Warkworth and Silverdale.

The alternatives are:

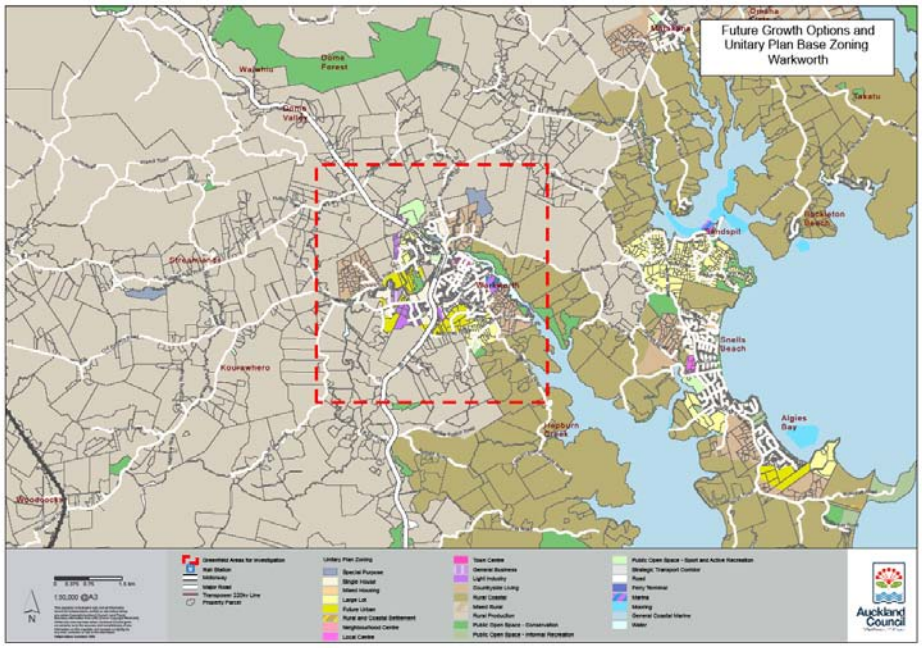
- The Status Quo
- The Indicative Options from the Addendum to the Draft Unitary Plan (March 2013)
- Amalgam exploring some of the key suggestions put forward

- Recommended RUB for the Proposed Unitary Plan

For each area, these four alternatives were assessed against the Status Quo and are described below:

Warkworth

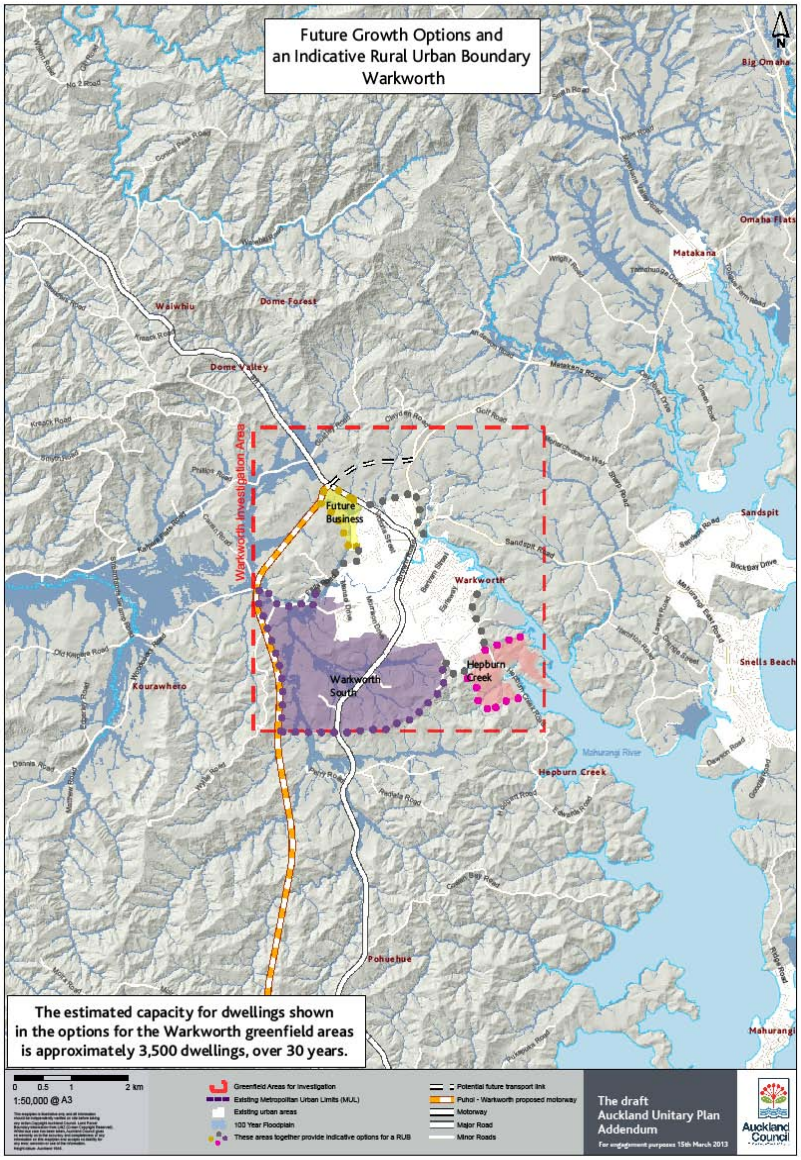
Alternative One -The Status Quo



The Status Quo Alternative assumes that the RUB is drawn to replace with the existing MUL around the existing urban extent of Warkworth, including areas already zoned as Future Urban (as part of the Warkworth Structure Plan (2004) undertaken by the legacy council). Growth in the rural areas would, in this alternative, therefore be limited to that which is permitted in the rural zones (i.e. Rural Production, Mixed Rural and Countryside Living).

The town of Warkworth would continue to grow naturally as a discrete town within the parameters of the Warkworth Structure Plan and subsequent Plan Changes to give effect to the Structure Plan (2004). The town would ultimately grow to a total population of 8,800.

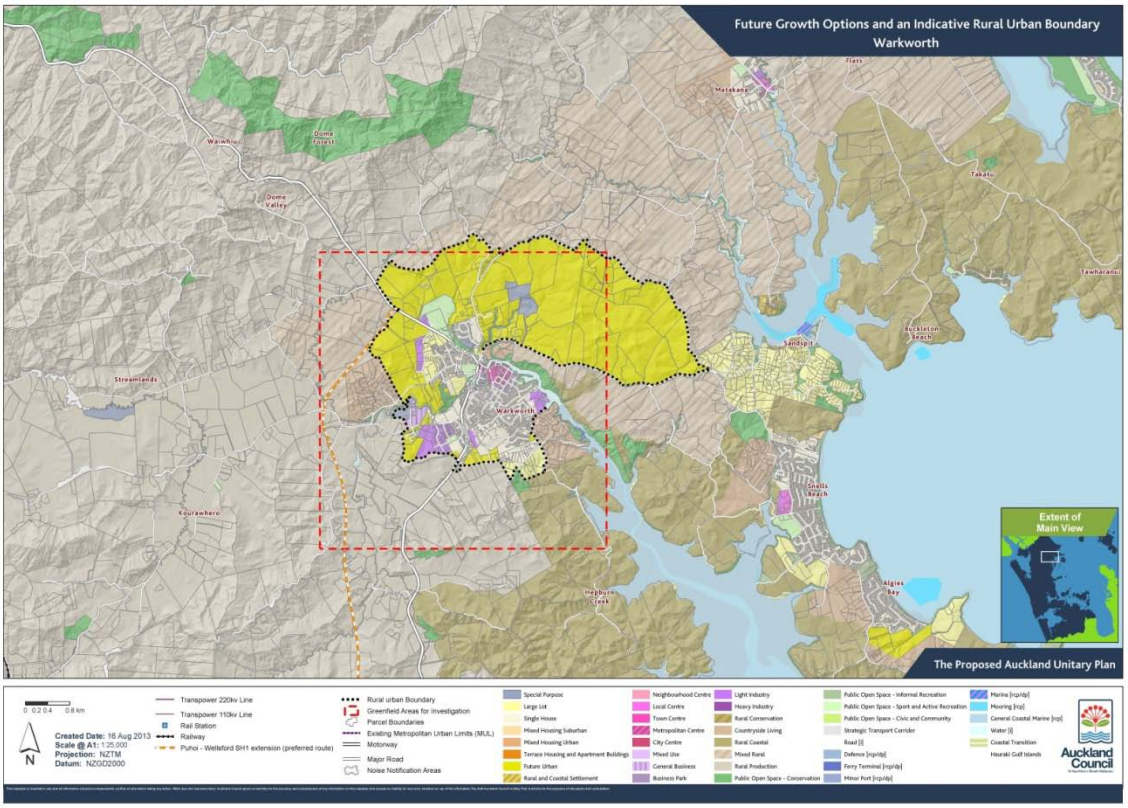
Alternative Two - Indicative Options in the Addendum to the Draft Unitary Plan



This alternative maximises opportunities for growth to the south of Warkworth, using the proposed Puhoi to Warkworth motorway alignment as the western boundary and natural features of topography as the eastern and southern boundaries. The smaller area of Hepburn Creek, adjacent to the Mahurangi River is also included in this alternative. Hepburn Creek is characterised by fairly steep topography and physically isolated from the urban area of Warkworth. Being adjacent to the Mahurangi River, it is an attractive rural area. A small amount of future business land is included to the north of Warkworth around the Hudson Road area and adjacent to SH 1.

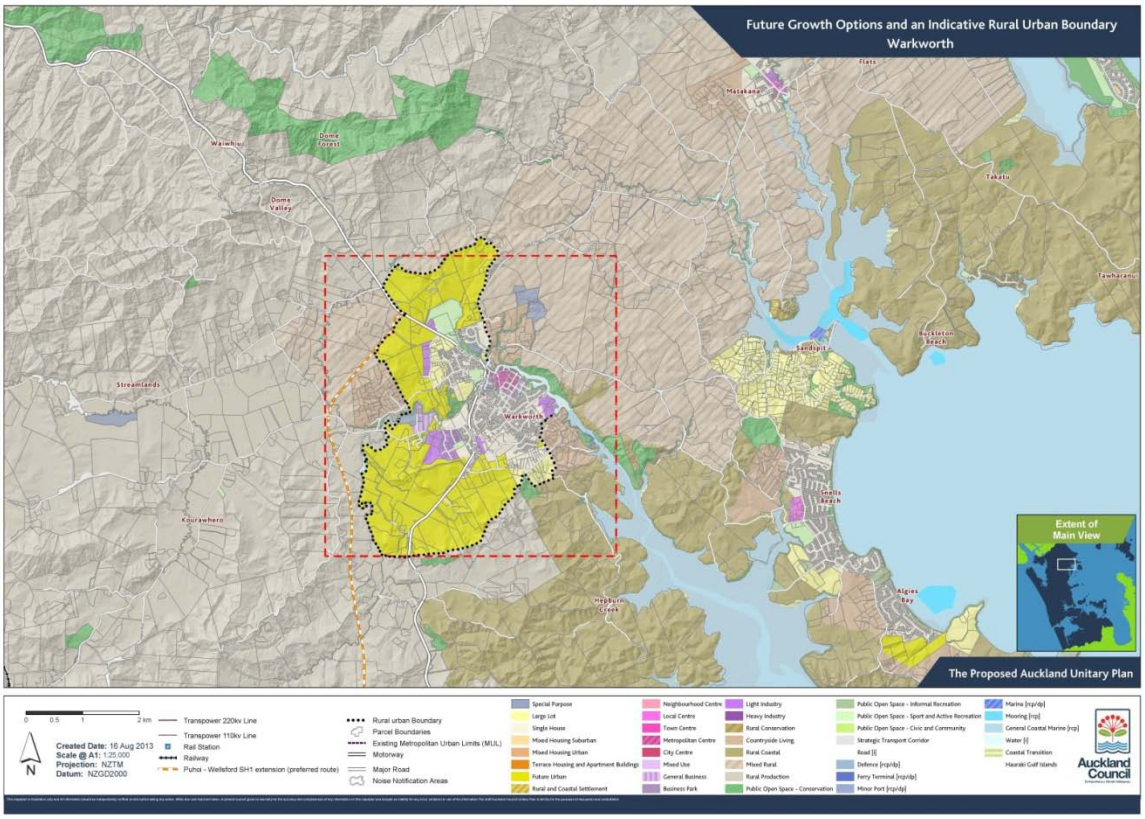
The area of future urban land proposed within the RUB in this alternative totals approximately 617 hectares and would provide approximately 3,500 dwellings.

Alternative Three –Amalgam exploring some of the key suggestions put forward



This alternative replaces the growth in the south of Warkworth with expansive growth in the north and north east particularly east of Matakana Road, linking Warkworth up with Sandspit. Growth is also indicated east of State Highway 1 through to Clayden Road. This alternative also includes some business growth around the Hudson Road area as well as some future urban east of the Viv Davie-Martin Drive Countryside Living area. The total area of future urban land within Alternative Three is approximately 969 hectares.

Alternative Four - The Recommended RUB for the Proposed Unitary Plan



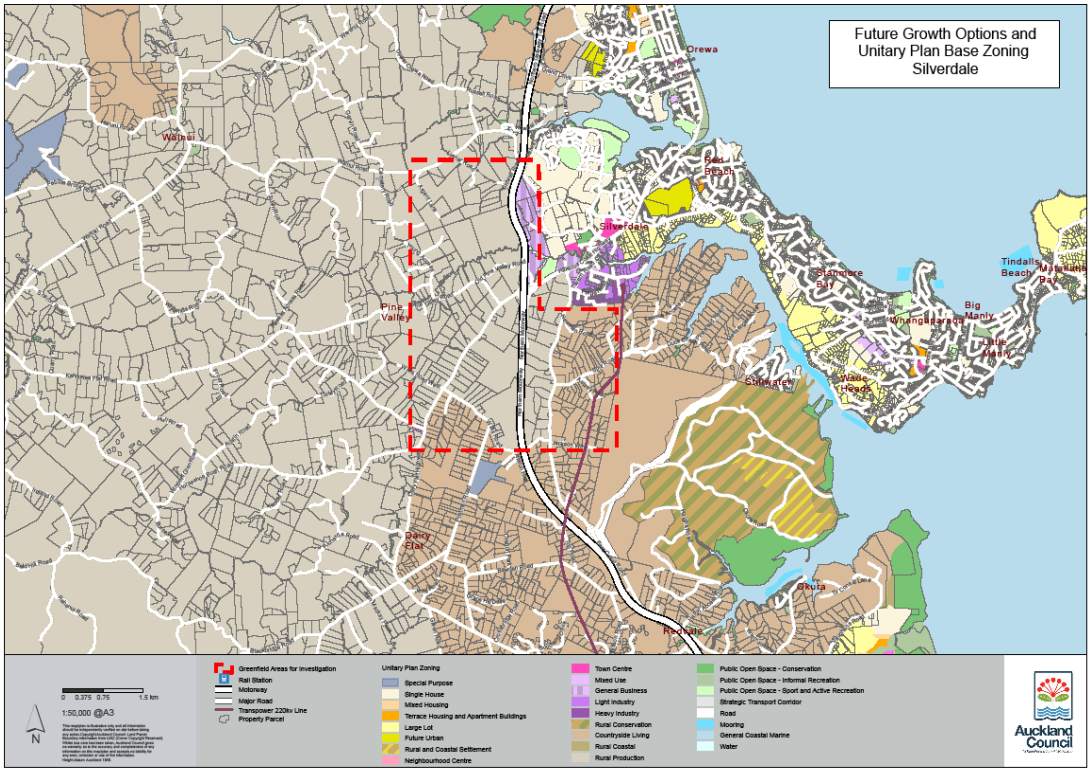
Alternative Four maximises opportunities for growth to the south and north of Warkworth. The southern area used the natural feature of the water coarse as the western boundary, thereby keeping a buffer between the RUB and the proposed Puhoi to Warkworth motorway. The Outstanding Natural Landscape (ONL) is used as the eastern and southern boundaries. This alternative keeps the steeper areas and areas adjacent to the Mahurangi River such as Hepburn Creek and along Sandspit Road free of growth. The area to the north of Warkworth around the existing Showgrounds is bounded by State Highway 1, Goatley Road, Clayden Road and Matakana Road.

This alternative also includes an area to the east of State Highway 1 around the Hudson Road business area and west of Viv Davie - Martin Drive.

The area of future urban land proposed within the RUB in this Alternative Four totals approximately 591 hectares and would provide between approximately 4,854 and 6,085 dwellings.

Silverdale

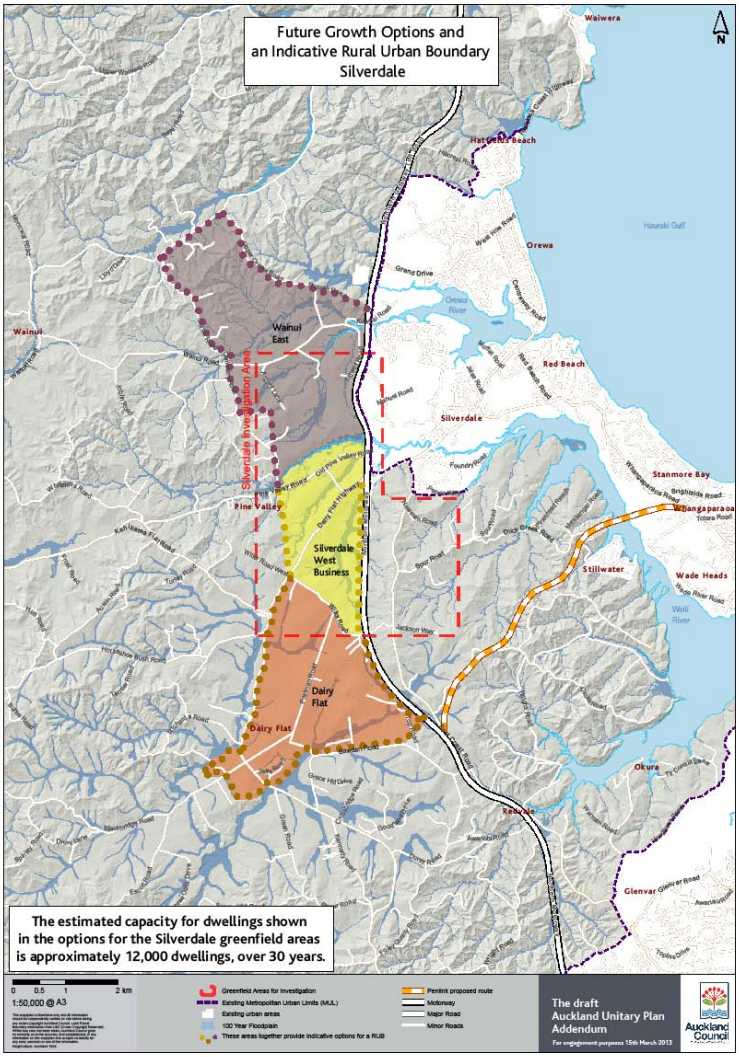
Alternative One - The Status Quo



This alternative assumes that the RUB is drawn to replace the existing MUL around the existing urban areas including within the areas already zoned as Future Urban (as part of the work of legacy councils). Growth in the rural areas would, in this alternative, therefore be limited to that which is permitted in the rural zones (i.e. Rural Production, Mixed Rural and Countryside Living).

Much of the land in Silverdale and Dairy Flat is zoned Countryside Living and so therefore would continue unaffected by future urban zoning. The North Shore Airfield continues with a special purpose zone adjacent to Countryside Living.

Alternative Two - Indicative Options in the Addendum to the Draft Unitary Plan

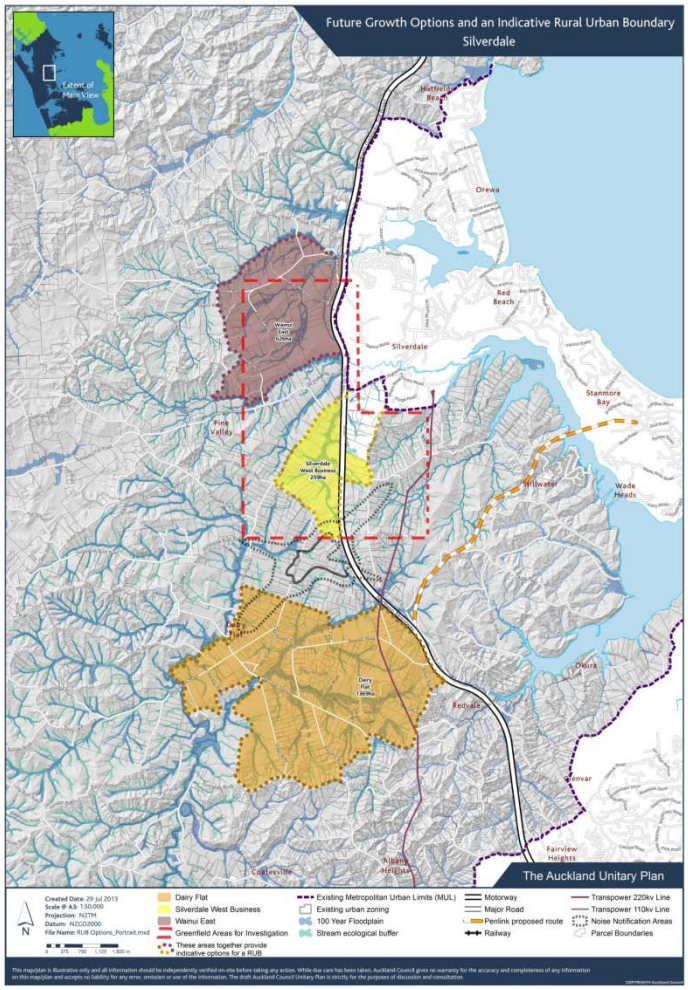


Alternative Two was included in the Addendum to the Draft Unitary Plan. It provides contiguous growth from Weranui Road (Wainui East) in the north through to Bawden Road (Dairy Flat) in the south. It includes approximately 450 hectares of proposed business land contiguous with the Wainui East area and the Dairy Flat area. Also included is Silverdale West which has had legacy planning undertaken for the area, as well as the Pine Valley area just south of the Weiti Stream. The Wainui East area is contiguous with the existing urban area of Silverdale and Orewa. This alternative proposes that part of the Countryside Living areas in Dairy Flat/Silverdale become Future Urban.

Due to the environmental sensitivity and land stability issues of the Okura/Weiti catchment discussed in section 3.3.1 of this report, State Highway 1 forms the eastern boundary of Alternative Two. Dairy Flat Highway as well as natural features forms the western boundary of this Alternative and the Outstanding Natural Landscape (ONL) which lies to the west of the Dairy Flat area is avoided in this alternative.

Alternative Two provides for a total of approximately 1,835 hectares of future urban land within the RUB which would provide approximately 12,000 dwellings.

Alternative Three - Amalgam exploring some of the key suggestions put forward



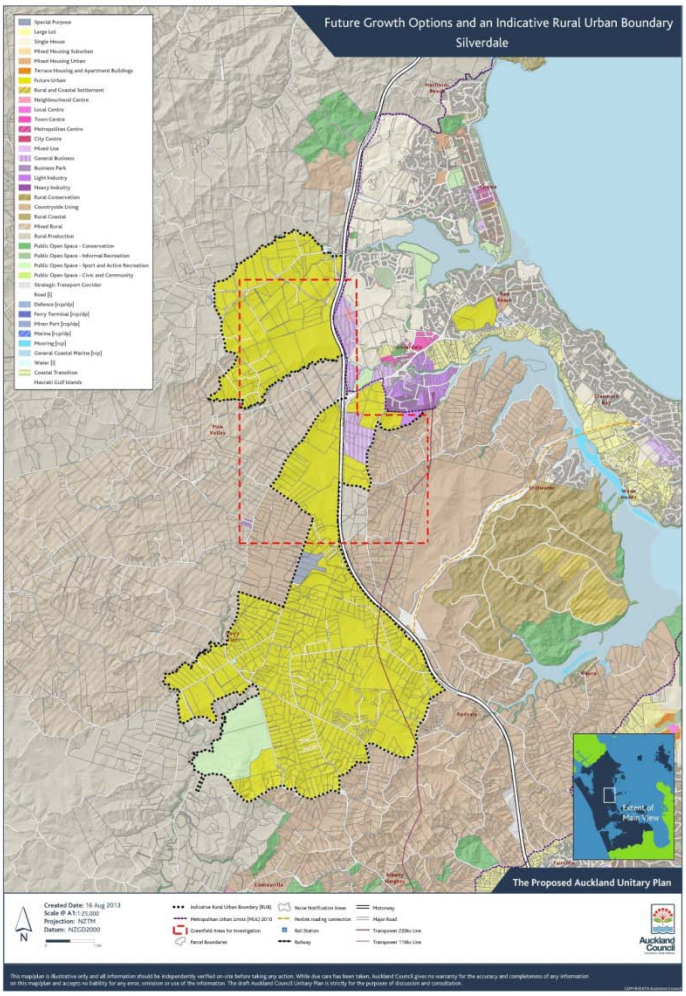
This alterative focuses most of the growth in Diary Flat with some growth in the north (Wainui East). The Wainui East area in this alternative has been reduced compared to the Addendum Alternative and uses the Orewa River as the northern boundary and the Weiti Stream as the southern boundary. The western boundary is a combination of Cemetery Road and the Outstanding Natural Feature (ONL). The Dairy Flat area uses a combination of State Highway 1, natural features (such as the ONL), and roads as the boundaries.

In this alternative, the Pine Valley area remains rural and therefore provides a separation between the proposed urban area of Wainui East and the proposed business area of Silverdale West (which has been subject to previous structure planning under the legacy council). In this alterative, Wainui East becomes closely connected to the existing urban area of Silverdale and Orewa.

The Dairy Flat area is large in scale and is separate from the industrial area of Silverdale West and the existing urban area of Albany Heights to the south. This alternative, while increasing the size of the Dairy Flat area, avoids Okura/Weiti as well as the North West Wildlife Link.

The North Shore Airfield, in this Alternative, is outside of the RUB and therefore maintains the Countryside Living Zone around it.

Alternative Four - Recommended RUB for Proposed Unitary Plan



This alternative is similar to the amalgam alternative above (Alternative Three) except that the Dairy Flat area is contiguous with the Silverdale West area and therefore the North Shore Aerodrome will have a Future Urban zoning surrounding it.

This alternative adds slightly more Future Urban zoned land than the previous alternative with a total of 2,277 hectares of Greenfield land being identified. This would provide between approximately 19,639 and 23,134 dwellings.

3.3.3 Consultation

Informal consultation including an opportunity to provide feedback on Future Growth Options and an Indicative Rural Urban Boundary for the North and North West was undertaken as part of the Draft Unitary Plan process from 15 March to 31 May 2013. The Indicative Options for these areas were included in the Addendum to the Draft Unitary Plan.

During this time, targeted engagement was undertaken for the RUB which resulted in a series of well attended community consultation events with over 550 people attending events in the North and North West. This included public meetings and drop in sessions held in

Warkworth, Silverdale and Kumeu. As well as these events which were specific to the RUB, officers attended relevant Unitary Plan and Local Board run events, within the North and North-West, held during this time to provide information about the indicative options. In combination with the work on the North West RUB, a brochure showing an indicative RUB option for each area was prepared and distributed within and around the GAFI areas.

Post the notification of the Draft Unitary Plan, on going engagement has occurred on the RUB with Local Boards and Mana Whenua. As a result of the consideration of feedback and technical work, it was considered necessary to hold an additional public meeting on 30 June 2013 to inform residents and landowners in the Dairy Flat area of potential changes to the RUB for the Silverdale-Dairy Flat area prior to the notification of the Proposed Unitary Plan. Over 280 people attended this meeting.

Unitary Plan Feedback
A total of 161 pieces of feedback related directly to the North, with 72 focussed on Warkworth and 58 focussed on Silverdale.

Key feedback relating to Warkworth included moderate support for further urban growth to the north and north-east of the town centre; moderate levels of concern over the suitability of the Hepburn Creek area for development given its proximity to the waterway and the protection of conservation areas; and a moderate level of support for extending the RUB south of Warkworth to include land in the areas of Valerie Close and Perry Road.

A moderate level of opposition was expressed to the scale of growth in Warkworth. Concerns were also presented about the provision of infrastructure; the separation between Warkworth, Matakana and Sandspit; the maintenance of a greenbelt; as well as the protection of soils for agricultural production.

Key feedback relating to Silverdale included moderate support for Dairy Flat being included in the RUB; moderate levels of support for the RUB in general (at Silverdale); and moderate support for scaling back the proposed urban area at Wainui East to avoid steep land. There was mixed feedback about development to the east of State Highway 1 at Silverdale, with some wanting to avoid this land for environmental reasons, and other feedback seeking development opportunities. Some concern was raised about the nature and intensity of growth in the area.

Mana Whenua Engagement

Key meetings with Mana Whenua were held in March, June, July and August 2013 to discuss the RUB and related matters. General concerns emerged regarding timeframes for consultation and need for on-going consultation, other key issues for are summarised below:

Warkworth

- Ngāti Whatua o Kaipara raised concerns over the water take, and infrastructure provision. Environmentally sensitive land was identified to the south, with the Hochstetters frog and habitat in need of protection. Pohue-hue Creek south of Warkworth was also identified as being culturally significant. There was preference for land to the north to be identified for development, towards Leigh rather than the south-west.
- Te Rūnanga o Ngāti Whātua identified a preference to avoid the Matakana side of Warkworth, with productive land not easily replaced. Water capacity and supply issues were also raised as important considerations, with protection of waterways being a major concern.

- Te Kawerau a Maki identified potential for development on the northern side of the river.
- Ngāti Manuhiri expressed concerns over increasing pressure on the Mahurangi River, as well as infrastructure provision. The need for a second access point onto Matakana Road was also highlighted.
-
- Silverdale
- Ngāti Whatua o Kaipara identified cultural issues associated with ridge and old trails. A preference for further investigation of the area to the south, rather than the area further north, especially north of Wainui Road. Redvale landfill was discussed with concerns over reverse sensitivity and proximity of development to the landfill operation. A request to exclude the cemetery and golf course from the RUB. The importance of Pukekohe Hill was reinforced, as well as a preference to see the Wainui area reduced.
- Te Rūnanga o Ngāti Whātua raised the building of a marae at Silverdale/Wainui. Potential options for development around Wainui Road were raised.
- Te Kawerau a Maki queried the option of development around the Redvale area. There was general agreement with the revised proposals, including Dairy Flat and the reduction of the Wainui Eaat area.
- Ngāti Manuhiri raised concerns over impacts to the Weiti catchment, and the cultural significance of Puhinui Falls. Archaeological sites are present in the area, with the coast and rivers having significance. They also suggested that Pine Valley could go urban rather than further down into Dairy Flat and that they do not support development east of SH1.

Local Board Feedback - Rodney Local Board & Hibiscus & Bays Local Board

General Comments

- Essential to have the appropriate infrastructure in place prior to growth being accommodated i.e. water supply, wastewater treatment, stormwater management, transport and social/recreation needs.
- Future growth is to be well planned and staged
- Clear and enforceable rules to be in place to ensure that there is no creep of development into future urban areas until they are rezoned
- Rural greenbelts which could include Countryside Living should be retained between each town and village and metropolitan Auckland.

Silverdale/Wainui/Dairy Flat

- Important to have strong geographical boundaries rather than roads
- Structure planning needed to determine staging of rezoning and development
- Growth on western side of motorway is dependant on Penlink
- Existing development reliant on Wainui Ramps & then Penlink
- Importance of airfield and landfill in determining new areas for intensification - reverse sensitivity issues
- Zoning and RUB need to work together - some areas need live zoning now, as well as planning for 30 years
- Generally supportive of green buffer areas between business and residential areas. Countryside living can serve as buffer. Retain a greenbelt between Silverdale and Auckland
- Support withdrawal of northern RUB boundary back to the watercourse north of Wainui Rd.

- Future business area of Silverdale West is supported however request that this area be limited to the triangle within Wilks Rd, the motorway and Dairy Flat Rd.
- RUB to extend south to join with the eastern side of the Greens Rd reserve. New urban area to be limited to Green Rd, Kennedy Rd and SH17 and should not extend as far east as the motorway
- Zone land outside the RUB and adjoining the western and southern sides of the Green Rd reserve Countryside Living.
- RUB line to the west should follow a defendable natural boundary or a main road
- The removal of any future urban area between Dairy Flat Highway and the watercourse ion the northern side of Old Pine Valley Road in support
- Consider removing the aerodrome from within the RUB in the area south of Wilks Rd
- Future specific investigation should be undertaken in all areas of the proposed Silverdale RUB to determine the appropriateness of land for urban development prior to areas being rezoned future urban.

Warkworth

- The Structure Plan for Warkworth as well as the Area Plan for Rodney should be prioritised in order to determine the appropriate future land uses within the rural urban boundary.
- Maintain separation between Warkworth, Matakana and Snells Beach - avoid ribbon development
- Support for the RUB north from the showgrounds to Goatley Rd adjoining Matakana Rd in the west and further provision of urban land east of Matakana Rd from Clayden Rd to Sandspit Rd south of the quarry should not occur within the 30 year timeframe.
- Concern over future development extending along Sandspit Rd due to traffic effects
- Support for the southern RUB boundary to the ridge
- Be aware of areas of flooding and liquefaction
- Need to plan for appropriate amount of industrial land and local employment
- Support for the area west of Hudson Rd and east of the existing Countryside Living area being zoned future urban
- Support to include the intensification of the Viv Davie Martin Drive Countryside Living area to the west of Warkworth within the RUB
- The western boundary of RUB should finish at the natural stream boundary rather than the proposed Puhoi to Warkworth motorway alignment
- Watercare consent is only for 12,000 residents
- Oppose intensification of Hepburn Creek due t landscape, character, servicing and roading issues
- Density within the RUB should be based on Single House zone density as a minimum being 500m^2.

Feedback from meetings and RUB questionnaires

At the public meeting held at Silverdale on 6 May 2013, and Warkworth on 8 May 2013 comments were encouraged from attendees to capture opinion on the indicative RUB and any concerns, ideas or alternative suggestions. A total of 16 forms were returned at the Warkworth event and a total of 9 forms were returned at the Silverdale event.

For Silverdale, a number of issues and comments were raised at the drop-in sessions, in particular the North Shore Aero Club's future, the role of Penlink servicing additional areas and concerns for accessibility to efficient networks and motorways. Further points are summarised below:

- A significant number of respondents considered the impact of urban development on the Weiti River receiving environment to be an important issue, with comments such as “the health of river, estuary and sea is a priority” and “the Weiti catchment needs to remain in its current state to help preserve the current environmental values”.
- Most respondents indicated they would like to keep existing urban areas such as Silverdale West and Dairy Flat physically separate from each other.
- More people disagreed with the location and amount of future business land identified in the indicative options map, with some agreeing with what was proposed. Of those that agreed to future business, they also commented there would be a need for additional transport infrastructure such as busways and onramps before development occurred. People that opposed believed it felt the area was “overrun with too much business and empty sites” that should be utilised first.
- Some respondents believed the indicative RUB option provided a defendable boundary to urban development.
- Areas that were identified to remain rural instead of urban were; Peninsula Golf Course, Weiti River, Upper Orewa Road, Wainui East, Silverdale West and the estuary boundaries.
- Rate increases was also raised as a major concern for some people

For Warkworth, a number of issues and comments were raised at the drop-in session, in particular the need for more efficient and better linked public transport networks to Auckland City, the concern of a 20,000 Warkworth population and the issue of losing its rural character. Further points are summarised below:

- A significant number of respondents agreed that existing countryside living areas around Warkworth could be further intensified with urban development.
- Most respondents considered the impact of urban development on the Mahurangi River receiving environment to be an important issue.
- A significant proportion of respondents disagreed with the location and amount of future business land identified in the indicative options map being insufficient.
- Some respondents agreed the indicative RUB options could provide a defendable boundary to urban development.
- Areas that were identified to remain rural instead of urban were; Hepburn Creek, Sandspit Peninsula, Algies Bay and Morrison Drive.
- Improvements to the current infrastructure such as traffic, parking, sewage and water supply were highlighted as a key issues as well as the lack of industrial zoning in the area.
- Responses indicated that the development of Warkworth should be focused around it’s centre, the river was also highlighted as being important to the community.

3.3.4 Alternatives Analysis

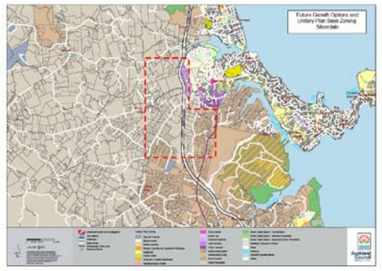
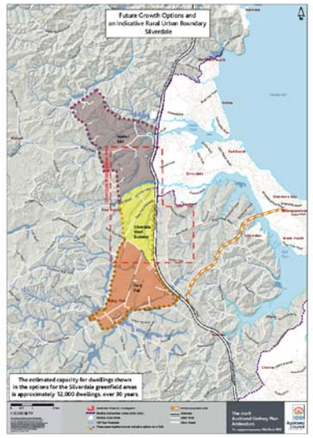
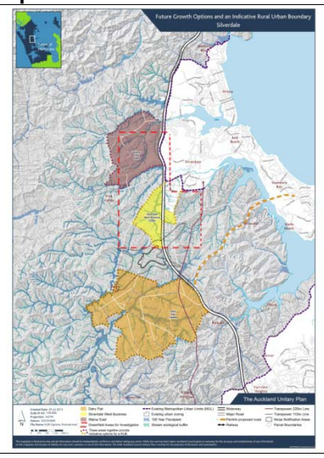
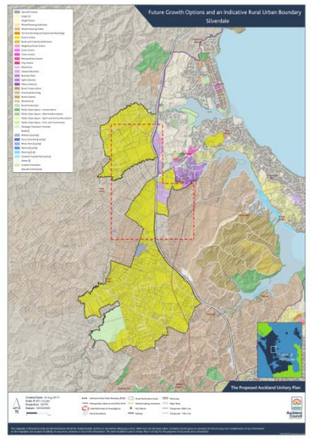
Various environmental effects of urbanisation of the RUB alternatives have been analysed and conclusions have been reached as to the preferred alternative therefore the recommended RUB based on technical analysis. It should be noted that Alternative 2 was the scenario included int eh Addendum to the Draft Unitary Plan and public feedback on it has been considered. For both Warkworth and Silverdale-Dairy Flat the fourth alternative has evolved as the recommended RUB option.

The following table compares the four development alternatives for the Warkworth and Silverdale Greenfield Areas for Investigation in relation to effects including environmental, social, cultural, economic and transport.

Although the Okura/Weiti area has not been included in any of the alternatives, it has been considered in terms of potential environmental, social, economic, cultural and transport effects that large scale development would have on the area.

3.2.4 Option Analysis

Silverdale

Effects	Alternative 1 - Status Quo Alternative	Alternative 2 – Indicative options in the Addendum to the Draft Unitary Plan	Alternative 3 –Amalgam exploring some of the key suggestions put forward	Alternative 4 –Recommended RUB for Proposed Unitary Plan
				
Environmental Effects	**Marine Environments - General Comments** The following general comments were made in relation to the coastal and marine assessment for the Silverdale investigation area:: • Orewa, Okura and the lower part of Weiti Estuary are already showing signs of sediment stress and have been identified as important areas for wading birds (Coastal plan map series 8 - SEAMw in the UP) and as Significant Ecological Areas for various other reasons. Weiti catchment drains to Karapiro Bay and Okura Estuary which are both in a marine reserve. • UWH area may be close to tipping point due to existing sediment and contaminant pressures and also drains to the central Waitemata Harbour. Orewa, Okura and the lower part of Weiti Estuary have been identified as important areas for wading birds (Coastal Plan map series 8 - SEAMw in the UP) and as Significant Ecological Areas for various other reasons. The Okura catchment drains to Karapiro Bay and Okura Estuary which are both in a marine reserve and already showing signs of sediment stress.			
	Marine Environments - Explanation **Current Practice** This assessment is based on current stormwater and earthworks controls being used and no additional catchment management implemented to deal with the impact of current rural and urban land use effects from the wider contributing catchment. This assessment only includes effects from sediment and contaminants on receiving environmental quality which in turn affects biota (benthic organisms, birds, fish etc), as well as human use and values. This assessment is also based on broad principles learnt from the southern RUB modelling exercise rather than specific modelling data for these areas and so is more subjective. This assessment does not include disturbance effects of development from pets, people, noise etc and the use of the area on important bird values. The extent to which quality and health of marine ecosystems are maintained and enhanced in order to support human social, economic and cultural wellbeing and indigenous biodiversity. Includes consideration of public health impacts. Includes consideration of native species diversity, habitat diversity, connectivity and key species. The Okura system is connected to the Weiti system. The sensitivity of these receiving environments is the key reason for not proposing urban development in the eastern side of the GAFI.			
	The effect of no RUB depends on what is happening in existing catchments and the sort of improvements that might be expected form the application of improved controls (eg through the UP and in the future through replacing BPO management with a limits based approach). The status quo alternative would support the assumption that avoiding impacts in the first place (eg through not developing) rather than trying to reverse impacts after they have occurred is easier. In general, unless there is already extensive urbanisation within a large area of the catchment or the coastal receiving environment is already seriously degraded, the status quo alternative is better	This alternative encroaches on the Waiwera catchment and has more business area (higher risk) but lower number of dwellings and therefore less potential effect on the UWH (Rangitopuni). If current earthworks and stormwater controls are used and no additional catchment management is implemented then based on Moores et al. (2013) and local studies strong negative implications for the quality and health of marine ecosystems in Orewa, Weiti and UWH are predicted under all scenarios. Public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plants but increased sediment and contaminant levels	Alternative 3 avoids development in the Waiwera catchment and there are a lower number of dwellings than Alternative 2. However, there is more impact on UWH (Rangitopuni) than Alternative 2. Otherwise the general comments under Alternative 2 apply. Additional points to note for this alternative are: • Orewa, Okura and the lower part of Weiti Estuary are already showing signs of sediment stress and have been identified as important areas for wading birds (Coastal plan map series 8 - SEAMw in the UP) and as Significant Ecological Areas for various other reasons. Weiti catchment drains to Karapiro Bay and Okura Estuary which are both in a marine reserve. • UWH area may be close to tipping point due to existing sediment and contaminant pressures and	Alternative 4 has more impact overall due to greater number of dwellings and more impact on UWH (Rangitopuni), otherwise as per general comment under Alternative 2.

	than the development alternatives. However, notwithstanding this it is noted that even with no development, there is still a gradual decline in receiving environment health due to ongoing stressors from existing urban and rural landuse practices.	from development will also impact the quality and safety of harvested shellfish and fish.	also drains to the central Waitemata Harbour.	
	Marine Environments - Explanation **Best Controls + No Catchment** This assessment is based on using the best available stormwater and earthworks controls for the developed area but no additional catchment management implemented to deal with the impact of current rural and urban land use effects within the same wider catchment area but outside the area to be developed. This assessment also only includes effects from sediment and contaminants on receiving environmental quality which in turn affects biota (benthic organisms, birds, fish etc) and human use and values. This assessment is also based on broad principles learnt from the southern RUB modelling exercise rather than specific modelling data for these areas so is more subjective. This assessment does not include disturbance effects of development from pets, people, noise etc and the use of the area on important bird values. Extent to which quality and health of marine ecosystems are maintained and enhanced in order to support human social, economic and cultural wellbeing and indigenous biodiversity. Includes consideration of public health impacts. Includes consideration of native species diversity, habitat diversity, connectivity and key species.			
	The effect of no RUB depends on what is happening in existing catchments and the sort of improvements that might be expected form the application of improved controls (eg through the UP and in the future through replacing BPO management with a limits based approach). The status quo alternative would support the assumption that avoiding impacts in the first place (eg through not developing) rather than trying to reverse impacts after they have occurred is easier. In general, unless there is already extensive urbanisation within a large area of the catchment or the coastal receiving environment is already seriously degraded, the status quo alternative is better than the development alternatives. However, notwithstanding this it is noted that even with no development, there is still a gradual decline in receiving environment health due to ongoing stressors from existing urban and rural landuse practices.	This Alternative encroaches on the Waiwera catchment and has more business area (higher risk) but lower number of dwellings and therefore less potential effect on the UWH (Rangitopuni). If best earthworks and stormwater controls are used but no additional catchment management is implemented then based on Moores et al. (2013) and local studies moderate negative implications for the quality and health of marine ecosystems in Orewa, Weiti, and UWH are predicted under all scenarios as the catchments are still quite high rural and existing urban impact Public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plants but increased sediment and contaminant levels from development will also impact the quality and safety of harvested shellfish and fish.	Alternative 3 stays out of Waiwera catchment and there are a lower number of dwellings than Alternative 2 however there is more impact on UWH (Rangitopuni) than Alternative 2, otherwise as per general comment under Alternative 2 Additional points to note for this alternative are: Orewa, Okura and the lower part of Weiti Estuary are already showing signs of sediment stress and have been identified as important areas for wading birds (Coastal plan map series 8 - SEAMw in the UP) and as Significant Ecological Areas for various other reasons. Weiti catchment drains to Karapiro Bay and Okura Estuary which are both in a marine reserve. UWH area may be close to tipping point due to existing sediment and contaminant pressures and also drains to the central Waitemata Harbour.	Alternative 4 has more impact overall due to a greater number of dwellings and more impact on UWH (Rangitopuni), otherwise as per general comment under option 1 Additional points to note for this alternative are: Orewa, Okura and the lower part of Weiti Estuary are already showing signs of sediment stress and have been identified as important areas for wading birds (Coastal plan map series 8 - SEAMw in the UP) and as Significant Ecological Areas for various other reasons. Weiti catchment drains to Karapiro Bay and Okura Estuary which are both in a marine reserve. UWH area may be close to tipping point due to existing sediment and contaminant pressures and also drains to the central Waitemata Harbour.
	Marine Environments - Explanation **Best Controls + Catchment** The assessment for marine environments is based on using the best available stormwater and earthworks controls and implementing additional catchment management to deal with the impact of current rural and urban land use effects within the same wider catchment area but outside the area to be developed. This assessment also only includes effects from sediment and contaminants on receiving environment quality which in turn affects biota (benthic organisms, birds, fish etc) and human use and values. This assessment is also based on broad principles learnt from the southern RUB modelling exercise rather than specific modelling data for these areas so is more subjective. This assessment does not include disturbance effects of development from pets, people, noise etc and the use of the area on important bird values. The extent to which quality and health of marine ecosystems are maintained and enhanced in order to support human social, economic and cultural wellbeing and indigenous biodiversity. Includes consideration of public health impacts. Includes consideration of native species diversity, habitat diversity, connectivity and key species.			
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	place (eg through not developing) rather than trying to reverse impacts after they have occurred is easier. In general, unless there is already extensive urbanisation within a large area of the catchment or the coastal receiving environment is already seriously degraded, the status quo alternative is better than the development alternatives. However, notwithstanding this it is noted that even with no development, there is still a gradual decline in receiving environment health due to ongoing stressors from existing urban and rural landuse practices.	for the quality and health of marine ecosystems in Orewa, Weiti and UWH are predicted under all scenarios. It is noted that additional catchment management (throughout the wider contributing catchment) would need to focus more on urban issues for Orewa Estuary and more on rural issues for Rangitopuni and Weiti Estuaries. Public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plants but increased sediment and contaminant levels from development will also impact the quality and safety of harvested shellfish and fish. Additional points to note for this alternative are: Orewa, Okura and the lower part of Weiti Estuary are already showing signs of sediment stress and have been identified as important areas for wading birds (Coastal plan map series 8 - SEAMw in the UP) and as Significant Ecological Areas for various other reasons. Weiti catchment drains to Karapiro Bay and Okura Estuary which are both in a marine reserve. UWH area may be close to tipping point due to existing sediment and contaminant pressures and also drains to the central Waitemata Harbour.	identified as important areas for wading birds (Coastal plan map series 8 - SEAMw in the UP) and as Significant Ecological Areas for various other reasons. Weiti catchment drains to Karapiro Bay and Okura Estuary which are both in a marine reserve. UWH area may be close to tipping point due to existing sediment and contaminant pressures and also drains to the central Waitemata Harbour.	map series 8 - SEAMw in the UP) and as Significant Ecological Areas for various other reasons. Weiti catchment drains to Karapiro Bay and Okura Estuary which are both in a marine reserve. UWH area may be close to tipping point due to existing sediment and contaminant pressures and also drains to the central Waitemata Harbour.
	Freshwater - Aquifer Recharge The area is largely located within the Orewa Waitemata aquifer. The wider Orewa Waitemata aquifer catchment covers an area of 20 km2. It has a water availability of 858,000 m3/year (ACRP: ALW Schedule 2 Aquifer Water Availabilities & Levels). In the Silverdale and Dairy Flat areas the Waitemata Group is overlain by local occurrences of older limestone and mudstone. Groundwater recharge is expected to be negligible in such areas of limestone and mudstone. Recent alluvial sediments overly the Waitemata Group in river valleys.			
	In order to ensure the ecological and economic functions of aquifers are maintained. Surface water bodies and aquifers interact and changes to groundwater hydrology can have impacts on the values of surface water bodies. No further change anticipated	In order to ensure the ecological and economic functions of aquifers are maintained. Surface water bodies and aquifers interact and changes to groundwater hydrology can have impacts on the values of surface water bodies. Greatest impact on aquifer anticipated	In order to ensure the ecological and economic functions of aquifers are maintained. Surface water bodies and aquifers interact and changes to groundwater hydrology can have impacts on the values of surface water bodies. Some impact, greater than Status Quo but less than Alternatives 2 and 4.	In order to ensure the ecological and economic functions of aquifers are maintained. Surface water bodies and aquifers interact and changes to groundwater hydrology can have impacts on the values of surface water bodies.More impact expected than Alternatives 1 and 3, but less than Alternative 2.
	Freshwater - Surface Water There is not anticipated to be significant rural production in the area that relies on surface water abstraction for irrigation. Urbanisation under all three proposed scenarios will increase impervious area and therefore increase surface water runoff. The critical period for irritation of rural production is in the dry summer months when rainfall and consequent runoff is the lowest. Any reduction in groundwater recharge from urbanisation is not expected to have a significant effect on surface water flows.			
	Little change under Status Quo	This alternative potentially has the greatest impact on surface water flows due to the greatest area of impervious surface.	Some impact from this alternative, but less than Alternative 1.	Some impact from this alternative, but less than Alternative 1.
	Freshwater - Stream Ecosystem Health Research on stream ecosystem viability indicates that in areas with high impervious cover, stream water quality becomes severely degraded. This is caused by increases in temperature, altered flow regimes and increased pollution and sediment. The decline begins to occur when imperviousness reaches 10%, and by 30% imperviousness water quality and aquatic habitats are severely degraded. It is anticipated that the level of imperviousness in the possible future urban areas identified in the investigation areas will exceed 30%.			
	Extent to which quality and health of freshwater ecosystems are maintained and enhanced. Includes consideration of native species diversity, habitat diversity,	Extent to which quality and health of freshwater ecosystems are maintained and enhanced. Includes consideration of native species diversity, habitat diversity, connectivity	Extent to which quality and health of freshwater ecosystems are maintained and enhanced. Includes consideration of native species diversity, habitat diversity, connectivity and key species, and public health impacts.	Extent to which quality and health of freshwater ecosystems are maintained and enhanced. Includes consideration of native species diversity, habitat diversity, connectivity and key species, and public health impacts.

	connectivity and key species, and public health impacts. Some loss of streams and interruption of stream networks.	and key species, and public health impacts. This alternative has the greatest impact in terms of loss of streams, interruption of stream networks and ecosystems.	This alternative has the greater impact in terms of loss of streams, interruption of stream networks and ecosystems than the Status Quo, but less than Alternative 2.	Like Alternative 3, this alternative has the greater impact in terms of loss of streams, interruption of stream networks and ecosystems than the Status Quo, but less than Alternative 2.
	Stormwater • The Upper Waitemata Harbour is a low-energy receiving environment, it is important to protect riparian corridors, by protecting flood plains and riparian margins you can limit the damage • An incremental amount of development commensurate with existing largely rural zonings will mean little additional risk of flooding. However there are areas in the Warkworth GAFI that area already within flood prone areas particularly to the west of Warkworth. • The cost of stormwater infrastructure for the North and will be dependent on the level of treatment required for stormwater discharges. It is possible, that a similar scale and cost of treatment to that in the Southern RUB area will be required given the sensitive nature of the catchments.	**Stormwater** • All development alternatives are dependent on the rules that govern development; a best practice approach will be required to limit impacts from stormwater. • In Structure Planning and implementation it will be important to avoid streams and floodplains (eg incorporating green corridors into design).	**Stormwater** • All development alternatives are dependent on the rules that govern development; a best practice approach will be required to limit impacts from stormwater. • In Structure Planning and implementation it will be important to avoid streams and floodplains (eg incorporating green corridors into design).	**Stormwater** • All development alternatives are dependent on the rules that govern development; a best practice approach will be required to limit impacts from stormwater. • In Structure Planning and implementation it will be important to avoid streams and floodplains (eg incorporating green corridors into design).
	Biodiversity The Status Quo Alternative would assist with the protection of SEAs and ONLs that exist around the Dairy Flat and Silverdale areas including the Wainui Valley. In some cases, they can be used to define the limits of urban development. However in a Status Quo scenario, extensive urbanisation of the rural area will not occur and therefore it will be easier to avoid SEAs and ONLs and consequently maintain biodiversity notwithstanding the risk that some rural activities can also adversely impact on biodiversity as well if not managed properly. The Status Quo Alternative will also mean there is less chance of introducing pests and disease into these environments as a result of increased human activity In Dairy Flat, the main areas of SEA and/ or covenants are to the south of Durey and Awanohi Roads and form a vital part of the North-West Wildlink. There are many statutory covenants throughout this area which form vital links within the North-West Wildlink. The new Green Road park would not make up for the loss of any of these covenanted areas, although the northern edge of the park is an SEA and together with adjoining stands of regenerating Kauri forest on privately owned land in the Sunnyside Rd/Kennedy Rd area, there is the potential to strengthen linkages between Horseshoe Bush and other DOC reserves in the Albany-Dairy Flat area. The protection of waterways	**Biodiversity** Alternative 2, as with Alternatives 3 and 4, propose extensive urbanisation of the Dairy Flat – Silverdale area and therefore an adverse effect on biodiversity is a risk with all alternatives. Notwithstanding this, urbanisation of rural areas provides an opportunity to protect and enhance areas of ecological significance. Alternative 2 avoids ONLs and SEAs in Dairy Flat but includes the SEA in the Pine Valley area. Development in this area may compromise the ecosystems within the SEA as well as create potential downstream effects for the sensitive Weiti Catchment. The forested areas to the south of Dairy Flat are also avoided in this alternative which includes the regenerating Kauri forests. This alternative also avoids the North West Wildlink. While this alternative poses less threat to biodiversity generally than Alternatives 3 and 4, it does however miss the opportunity to properly plan and incorporate/protect the wider area of Green Rd park which includes an area of the ONL and areas of native bush on privately owned land. North of Dairy Flat there is low biodiversity due to pastoral areas particularly between the Dairy Flat Highway and State Highway 1.	**Biodiversity** Alternative 3, as with Alternatives 2 and 4, propose extensive urbanisation of the Dairy Flat – Silverdale area and therefore an adverse effect on biodiversity is a risk with all alternatives. Notwithstanding this, urbanisation of rural areas provides an opportunity to protect and enhance areas of ecological significance. Alternative 3 avoids ONLs and the SEAs located in the Pine Valley area and to the south of Dairy Flat. Development in this area should be avoided as it may compromise the ecosystems within the SEA as well as create potential downstream effects for the sensitive Weiti Catchment. The SEA on the northern edge of the park has been included within the RUB in this alternative together with adjoining stands of regenerating Kauri forest on privately owned land in the Sunnyside Rd/Kennedy Rd area. This provides some opportunity to recognise the strategic importance of this public open space and to enable it to be properly planned, and incorporated in structure planning for the wider area. There is also an opportunity to strengthen linkages between Horseshoe Bush and other DOC reserves in the Albany-Dairy Flat area. The protection of waterways in the area by way of setbacks should facilitate linkages between some of these terrestrial habitats, where appropriate. However, it is important to protect this regenerating Kauri from urban development, especially as it is currently free from Kauri Dieback. North of Dairy Flat there is low biodiversity due to pastoral areas particularly between the Dairy Flat Highway and State Highway 1.	**Biodiversity** Alternative 4, as with Alternatives 2 and 3, propose extensive urbanisation of the Dairy Flat – Silverdale area and therefore an adverse effect on biodiversity is a risk with all alternatives. Notwithstanding this, urbanisation of rural areas provides an opportunity to protect and enhance areas of ecological significance. Alternative 4 avoids ONLs and the SEAs located in the Pine Valley area and to the south of Dairy Flat. However, the ONL to the west of Green Rd park and the SEA on the northern edge of the park have been included within the RUB in this alternative together with adjoining stands of regenerating Kauri forest on privately owned land in the Sunnyside Rd/Kennedy Rd area. This provides a greater opportunity than in Alternatives 1, 2 and 3 to recognise the strategic importance of this public open space and to enable it to be properly planned, and incorporated in structure planning for the wider area. There is also an opportunity to strengthen linkages between Horseshoe Bush and other DOC reserves in the Albany-Dairy Flat area. The protection of waterways in the area by way of setbacks should facilitate linkages between some of these terrestrial habitats, where appropriate. However, it is important to protect this regenerating Kauri from urban development, especially as it is currently free from Kauri Dieback. North of Dairy Flat there is low biodiversity due to pastoral areas particularly between the Dairy Flat Highway and State Highway 1.

	in the area by way of setbacks should facilitate linkages between some of these terrestrial habitats, where appropriate. However, it is important to protect this regenerating Kauri from urban development, especially as it is currently free from Kauri Dieback. North of Dairy Flat there is low biodiversity due to pastoral areas particularly between the Dairy Flat Highway and State Highway 1. Just north of Pine Valley Road is a SEA which provides an important backdrop to the Weiti Stream. Development in this area should be avoided as it may compromise the ecosystems within the SEA as well as create potential downstream effects for the sensitive Weiti Catchment.			
	Coastal Erosion and Inundation The Silverdale Investigation Area is too far inland to be impacted by coastal erosion and inundation.	**Coastal Erosion and Inundation** The Silverdale Investigation Area is too far inland to be impacted by coastal erosion and inundation.	**Coastal Erosion and Inundation** Silverdale Investigation Area is too far inland to be impacted by coastal erosion and inundation.	**Coastal Erosion and Inundation** The Silverdale Investigation Area is too far inland to be impacted by coastal erosion and inundation.
	Liquefaction Even with no Greenfield growth there would still be some development occurring which would be subject to some risk of liquefaction.	**Liquefaction** The areas identified in Alternative 2 have only a small risk of liquefaction.	**Liquefaction** The areas identified in Alternative 3 have only a small risk of liquefaction.	**Liquefaction** The areas identified in Alternative 4 have only a small risk of liquefaction.
	Land Instability Development would continue to take place in an ad hoc way including in areas with geological issues. The RUB work provides the opportunity to identify areas prone to instability and direct development away from these areas. It also provides the opportunity to structure plan and undertake subsequent large scale development which would give the opportunity for large scale earthworks rather than site by site).	**Land Instability** There is general instability and compressible soils in the Silverdale area which would require some earthworks to create building platforms and reduce the risk of subsidence. However, the northern part of Wainui East in this alternative is particularly steep with compressible soils making it unsuitable for urban development.	**Land Instability** There is general instability and compressible soils in the Silverdale area which would require some earthworks to create building platforms and reduce the risk of subsidence. Alternative 3 seeks to avoid the steepest slopes in the Wainui East area.	**Land Instability** There is general instability and compressible soils in the Silverdale area which would require some earthworks to create building platforms and reduce the risk of subsidence. Alternative 4 seeks to avoid the steepest slopes in the Wainui East area.
	Landscape The status quo limits the scale of development in the rural areas and therefore provides for the retention and protection of the main landscape elements in Silverdale which are characterised by: • areas of ONL to the north in the Wainui area forming key visual landscape patterns as well as ONL areas to the south west around Green Rd forming a visual backdrop to the Dairy Flat area • strong rolling rural hill country that frames coastal margins in and around Weiti/Okura and are important in regard to Natural Character • The Okura River Hills with strong landscape sensitivity and high adjoining landscape and natural character values (ONL) of the Okura River and includes	**Landscape** This alternative includes the steeper visually significant land to the north of Wainui and runs close to the ONL. Urban development this close to the ONL would have an adverse impact on the amenity values and landscape character of the ONL. Alternative 2 includes development through the Lower Pine Valley Road Area, the North Shore Airfield and part of the flatter terrain of Dairy Flat. The Lower Pine Valley Rd area is a well defined downland valley and is relatively discrete and exposed to the Dairy Flat Highway to the south. It includes a number of more elevated flatter terrace areas and vegetated Weiti Stream corridor. It backs onto an SEA. This area has strong capacity to accommodate urban development from a	**Landscape** This alternative does not include the steeper visually significant land to the north of Wainui and therefore protects the value of the ONL to the north. Alternative 3 does not include development through the Lower Pine Valley Road Area and the North Shore Airfield. However, it does include the flatter terrain of Dairy Flat, as well as further south into Green Rd, Blackbridge Rd and Dairy Stream East and North as a separate large settlement. These areas have significant potential for urban development from a landscape perspective however the southern boundary needs to be mindful of the steeper terrain, indigenous vegetation and ONL in this vicinity.	**Landscape** This alternative does not include the steeper visually significant land to the north of Wainui and therefore protects the value of the ONL to the north. Alternative 4 does not include development through the Lower Pine Valley Road Area but does include the North Shore Airfield up to Postman Rd and the flatter terrain of Dairy Flat, as well as further south into Green Rd, Blackbridge Rd and Dairy Stream East and North as a separate large settlement. These areas have significant potential for urban development from a landscape perspective however the southern boundary needs to be mindful of the steeper terrain, indigenous vegetation and ONL in this vicinity.

<table>
<tr><td></td><td>DoC Scenic Reserve
• The Weiti Hills of predominately steep coastal forestry hill country and small areas of indigenous vegetation with strong landscape sensitivity.
• river valleys including Orewa River and Weiti River
• extensive areas of flat to undulating terrain in Dairy Flat/Postman Rd area between Rangitopuni Stream and Dairy Stream systems which are characterised by pastoral landcover and established and extensive patterns of rural residential settlement</td><td>landscape view point. The area around the North Shore Airfield and further south into Dairy Flat have also have a strong capacity to accommodate urban development from a landscape view point due to the flat to moderate terrain. Areas further south into Blackridge Rd, Green Rd Dairy Stream East and North also have potential for urban development but are not included in this alternative.</td><td></td><td></td></tr>
<tr><td>Social Effects</td><td colspan="4">Explanation
Meeting Daily Needs
The RUB should improve accessibility to town centre social services infrastructure and amenities, such as libraries, community centres, health and welfare services, open space and recreation facilities and shops. Growth provides opportunities for new and added services in current rural areas, where these services may be non-existent or sparsely situated.

This is particularly important for children, young people, the elderly and disabled, who cannot drive or may find access to public transport difficult. Ease of access assists with improving health of the community, the affordability of meeting daily needs and a sense of well-being and connectedness.

Employment Opportunities
RUB areas include business land with opportunities for local employment for new and existing residents. Working locally reduces people’s day to day costs and may provide a better quality of life by reducing travel time between home and work.

Education Opportunities
As areas grow, there are increased opportunities for education services from early childhood learning centres to tertiary institutions and a range of other community education services. Therefore, access to education overall is improved and this leads to raise levels of literacy, numeracy, trade and other skills. Pathways into employment can also be more obvious and accessible for people, which in turn can increase the economic and social well-being of the community as a whole.

Improved Infrastructure
Extending urban areas and settlements by way of the RUB should enable improved infrastructure services for water supply, wastewater and transportation. Economies of scale can be realised by providing certain residential densities and numbers, and increased business land within the RUB, which then leads to investment in infrastructure. New and existing residents will be able to connect to centralised water services infrastructure, potentially freeing up land on their properties. There is also the potential for access to a more frequent and conveniently located public transport network.

Open Space, Waterways and Natural Environment
The extent of RUB areas is in some cases determined by natural features such as waterways, the coastline, floodplains, ONLs and SEAs. The location of residential areas near these provides people with easy access to the natural environment which may have benefits for health, fitness and well-being. In many cases, through structure planning which will be required within the RUB, linkages through the urban environment to the natural environment and open spaces can be developed by way of open space, walkway and cycleway networks. There may also be opportunities for food gathering from natural areas and cultivated areas such as parks and community gardens.

Overall Community Safety and Cohesiveness
RUB areas require structure planning which can facilitate well planned and connected communities. A sense of well-being and community cohesiveness improves with the availability of social and physical infrastructure that meets people’s needs on a daily basis. RUB areas that extend from existing urban areas enable more facilities and services to be provided to complement and improve on those of the existing community, which due to a low population base may be lacking in some way.</td></tr>
<tr><td></td><td>Meeting Daily Needs

Currently the daily needs of residents are met by a limited number of amenities in Dairy Flat, and residents must travel to Silverdale, Orewa or Albany for other retail and community services, such as libraries, health and community facilities.

These are not easily accessed for those who cannot drive, as there is limited public transport.</td><td>Meeting Daily Needs

The RUB will enable residents in the lifestyle areas around Silverdale and Dairy Flat to have access to new amenities and services that will be most likely located in new created local centres in Wainui East and Dairy Flat. In addition, access to existing shops and amenities in Silverdale and Orewa should be improved as the added population base makes public transport services more viable. This particularly assists children, young people, the</td><td>Meeting Daily Needs

The RUB will enable residents in the lifestyle areas around Silverdale and Dairy Flat to have access to new amenities and services that will be most likely located in new created local centres in Wainui East and Dairy Flat. In addition, access to existing shops and amenities in Silverdale and Orewa should be improved as the added population base makes public transport services more viable. This particularly assists children, young people, the elderly and disabled.</td><td>Meeting Daily Needs

The RUB will enable residents in the lifestyle areas around Silverdale and Dairy Flat to have access to new amenities and services that will be most likely located in new created local centres in Wainui East and Dairy Flat. In addition, access to existing shops and amenities in Silverdale and Orewa should be improved as the added population base makes public transport services more viable. This particularly assists children, young people, the elderly and disabled.</td></tr>
</table>

	Employment Opportunities Employment opportunities exist within the Rural Productive zone and further afield in Silverdale, Hibiscus Coast, Albany, North Shore and the Auckland CBD. The range of employment opportunities is limited locally, and generally requires reliance on the limited public transport service or use of private vehicles. **Education Opportunities** With only one primary school in Dairy Flat, children must travel some distance within this area for education. There are a number of secondary schools in Millwater, Orewa, the North Shore, and Whangaparaoa, but students need to travel each day to these. The only tertiary education provided is in Albany, which some young people have difficulty accessing. **Infrastructure** Silverdale and Dairy Flat have a reasonable highway system running north-south, and an obvious network of arterial roads. The most difficult terrain is in Wainui East and just north of Albany, where servicing by roads is reduced. There are no centralised stormwater, wastewater and water supply networks east of the Northern Motorway in Silverdale and Dairy Flat. Properties have on site systems to manage their three waters needs. **Open Space, Waterways and Natural Environment** The area is predominantly rural with some Outstanding Natural Landscapes, Significant Ecological Areas, reserves and open space. A number of important waterways exist in the area, and the natural and rural environment is valued by local residents **Overall Community Safety and Cohesiveness** The Silverdale/Dairy Flat area is made up of a range of rural producers and lifestyle block owners. There appears to be a strong sense of community to be expected in a peri-urban area. Theft from rural properties can be a problem due to their isolation.	elderly and disabled. **Employment Opportunities** Growth in the Silverdale/Dairy Flat area and in particular the Silverdale West Business area will provide a large area of business activity which provides employment opportunities. There is also the potential to identify, through future structure planning, a range of other business land around the North Shore airfield and in new local centres, providing further employment opportunities. Improved public transport throughout this area enable a greater range of people to access work, such as young people and the disabled. **Education Opportunities** As the Silverdale/Dairy Flat area grows there will be a need for more education services, from preschool facilities to secondary and tertiary schools. The growth in this area may make it attractive for tertiary providers to set up a campus to serve the wider Hibiscus Coast and Whangaparaoa area. It is likely that the existing Dairy Flat primary school will have to expand. **Improved Infrastructure** Growth in the Silverdale/Dairy Flat area would require appropriate three waters servicing, together with improved transportation networks. Due to its spread out configuration over some difficult terrain, this alternative would be more costly to service with infrastructure than Alternative 2, but it does provide residents with the benefits of a centralised water supply, wastewater and stormwater treatment system. **Open Space, Waterways and Natural Environment** This alternative does not maximise residential development around the Green Road park in Dairy Flat, making it less accessible for many of the new residents who could be located around it (as per other alternatives). The location of growth over relatively difficult terrain in Wainui East may not be conducive to the development of easily accessed sites and accessways for the disabled and elderly population. **Overall Community Safety and**	In Dairy Flat, this Alternative provides more growth around a large open space area (154ha), which could become a hub for community and recreation facilities. The size of the Dairy Flat RUB and the potential to bring Penlink across into the area is conducive to the development of a new town centre and its associated retail and service amenities. **Employment Opportunities** Growth in the Silverdale/Dairy Flat area, and in particular the Silverdale West Business area will provide a large area of business activity which provides employment opportunities. There is also the potential to identify, through future structure planning, a range of other business land around the Penlink interchange and in new centres, providing further employment opportunities. The likelihood of a new town centre in Dairy Flat will enable a further range of employment types to be provided. The absence of the RUB around the North Shore airfield reduces the amount of potential business land that could be located here, reducing the opportunities for employment compared with Alternative 2. Improved public transport throughout this area enable a greater range of people to access work, such as young people and the disabled. **Education Opportunities** As the Silverdale/Dairy Flat area grows there will be a need for more education services, from preschool facilities to secondary and tertiary schools. The growth in this area may make it attractive for tertiary providers to set up a campus to serve the wider Hibiscus Coast and Whangaparaoa area. It is likely that, while the existing Dairy Flat primary school will have to expand, a further primary school will be developed in the new dairy Flat south area, and that this would be the area that a new high school would also be developed. **Improved Infrastructure** Growth in the Silverdale/Dairy Flat area would require appropriate three waters servicing, together with improved transportation networks. The separation of the growth areas makes this potentially the least cost effective alternative to service, although Wainui East and Silverdale West might be best serviced by connecting to existing networks in Silverdale. Dairy Flat would require its own infrastructure networks. The size of the Dairy Flat area, potentially makes the legacy Penlink project more cost effective if Dairy Flat to the west is also service by Penlink. For the community, it enables a further alternative to access SH1, as opposed to via the congested Silverdale interchange or via Albany.	In Dairy Flat, this Alternative provides more growth around a large open space area (154ha), which could become a hub for community and recreation facilities. The size of the Dairy Flat RUB and the potential to bring Penlink across into the area is conducive to the development of a new town centre and its associated retail and service amenities. **Employment Opportunities** Growth in the Silverdale/Dairy Flat area and in particular the Silverdale West Business area will provide a large area of business activity which provides employment opportunities. There is also the potential to identify, through future structure planning, a range of other business land around the North Shore airfield, the Penlink interchange and in new centres, providing further employment opportunities. The likelihood of a new town centre in Dairy Flat will enable a further range of employment types to be provided. Improved public transport throughout this area enable a greater range of people to access work, such as young people and the disabled. **Education Opportunities** As the Silverdale/Dairy Flat area grows there will be a need for more education services, from preschool facilities to secondary and tertiary schools. The growth in this area may make it attractive for tertiary providers to set up a campus to serve the wider Hibiscus Coast and Whangaparaoa area. It is likely that, while the existing Dairy Flat primary school will have to expand, a further primary school will be developed in the new dairy Flat south area, and that this would be the area that a new high school would also be developed. **Improved Infrastructure** Growth in the Silverdale/Dairy Flat area would require appropriate three waters servicing, together with improved transportation networks. Despite, Wainui East being separated from the Silverdale West and dairy Flat growth areas, this appears to be the most compact alternative to service. Wainui East could potentially be better connected to Orewa and Millwater infrastructure. The size of the Dairy Flat area, potentially makes the legacy Penlink project more cost effective if Dairy Flat to the west is also serviced by Penlink. For the community, it enables a further alternative to access SH1, as opposed to via the congested Silverdale interchange or via Albany. **Open Space, Waterways and Natural Environment** The greatest growth area adjoins the Green Road park

		Cohesiveness Alternative 2 provides intensification which should lead to a more cohesive community than the Status Quo. A sense of community safety will depend on the location of community services, within this area. These could potentially end up being quite spread out, which may mean the community feels less cohesive and safe than other alternatives.	**Open Space, Waterways and Natural Environment** The greatest growth area adjoins the Green Road park which will be more readily accessible to the community than Alternative 2. Existing waterways are likely to provide opportunities as a potential natural walkway network through the growth areas and should enhance community well-being and physical health. However, the distance between the three growth areas is not conducive to public access to the wider waterway system and potential recreation areas. **Overall Community Safety and Cohesiveness** Within the Wainui East and Dairy Flat growth areas a sense of community cohesive ness and safety should evolve, albeit in quite distinct comunities due to their separation. The presence of the Silverdale West Business area, the North Shore airfield and large tracts of non-urban land means that as a whole the growth area fragmented.	which will be more readily accessible to the community that Alternative 1. Existing waterways are likely to provide opportunities as a potential natural, walkway network through the growth areas and should enhance community well-being and physical health. **Overall Community Safety and Cohesiveness** Alternative 4 provides intensification which should lead to a more cohesive community than the Status Quo. Most of the growth will be concentrated in the Dairy Flat area, where the provision of a range of community services and facilities should encourage a sense of community cohesiveness and safety. **Meeting Daily Needs** The RUB will enable residents in the lifestyle areas around Silverdale and Dairy Flat to have access to new amenities and services that will be most likely located in new created local centres in Wainui East and Dairy Flat. In addition, access to existing shops and amenities in Silverdale and Orewa should be improved as the added population base makes public transport services more viable. This particularly assists children, young people, the elderly and disabled. In Dairy Flat, this Alternative provides more growth around a large open space area (154ha), which could become a hub for community and recreation facilities. The size of the Dairy Flat RUB and the potential to bring Penlink across into the area is conducive to the development of a new town centre and its associated retail and service amenities. **Employment Opportunities** Growth in the Silverdale/Dairy Flat area and in particular the Silverdale West Business area will provide a large area of business activity which provides employment opportunities. There is also the potential to identify, through future structure planning, a range of other business land around the North Shore airfield, the Penlink interchange and in new centres, providing further employment opportunities. The likelihood of a new town centre in Dairy Flat will enable a further range of employment types to be provided. Improved public transport throughout this area enable a greater range of people to access work, such as young people and the disabled. **Education Opportunities** As the Silverdale/Dairy Flat area grows there will be a need for more education services, from preschool facilities to secondary and tertiary schools. The growth in this area may make it attractive for tertiary providers to set up a campus to serve the wider Hibiscus Coast and Whangaparaoa area.

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Cultural Effects	**Cultural Heritage** The rural environment and the limited activities provided for enables a greater degree of retention and protection of sites which have cultural significance. This includes sites of significance to Mana Whenua and those for other communities. The status quo alternative would have the effect of providing greater protection for significant sites, cultural landscapes than should any of the area be urbanised. Urbanisation and the site preparation and construction phases poses a significant risk to cultural heritage. Consultation has indicated that within the GAFI areas there are places that have special significance including cultural landscapes, geographic	**Cultural Heritage** Urbanisation of the areas within Alternative 2 would have the potential to impact adversely on values and areas of significance for Mana Whenua. Of particular concern to Mana Whenua are: • The development area within Wainui East is subject to cultural constraints including some steep slopes and a number of significant ridges in the northern section of the Wainui East development area. These ridges have cultural significance to iwi and are therefore not appropriate for development. • The cemetery at Cemetery Rd as a significant cultural site • Development within the Wainui East area could only be considered in time if Orewa	**Cultural Heritage** Urbanisation of the areas within Alternative 3 would have the potential to impact adversely on values and areas of significance for Mana Whenua. Of particular concern to Mana Whenua are: • The development area within Wainui East is subject to cultural constraints including the cemetery at Cemetery Road which has significance to iwi. • Development in this area could only be considered in time if Orewa is intensified. • Pukekohe Hill is culturally significant. • Need to be mindful of the northwest wild link that lies to the south of Dairy Flat and connects to Okura in the east. • Alternative 4 would impact on cultural issues in the Wainui East area but less than Alternative 2 as this Alternative does not include the steeper northern part of Wainui East.	**Cultural Heritage** Urbanisation of the areas within Alternative 4 would have the potential to impact adversely on values and areas of significance for Mana Whenua. Of particular concern to Mana Whenua are: • The development area within Wainui East is subject to cultural constraints including the cemetery at Cemetery Road which has significance to iwi. • Development in this area could only be considered in time if Orewa is intensified. • Pukekohe Hill is culturally significant. • Need to be mindful of the northwest wild link that lies to the south of Dairy Flat and connects to Okura in the east. • Alternative 4 would impact on cultural issues in the Wainui East area but less than Alternative 2 as this Alternative does not include the steeper northern part of Wainui East.

	features such as ridge lines, water for its wairua and biodiversity. In the north, Mana Whenua have indicated that they have concerns for environmental values particularly the health of the Upper Waitemata Harbour and the Okura Estuary both of which could be impacted depending on the options chosen. Concern has also been expressed for wildlife, both flora and fauna and the need to support green spaces, wildlife corridors particularly the North-West Wildlink. The status quo alternative would continue with protection of existing coastal margins, esplanade reserves and Outstanding Natural Landscapes but there would be little ability to extend this network with additional reserve contributions from urban development. Continuation of rural activities would also mean that sedimentation and post construction contaminants from stormwater runoff in these areas would not change significantly. Overall the Status Quo Alternative would be better than Alternatives 2-4 in terms of impacts on Cultural Heritage.	is intensified • Pukekohe Hill is culturally significant. • Need to be mindful of the northwest wild link that lies to the south of Dairy Flat and connects to Okura to the east. • Alternative 1 would impact on cultural issues in the Wanui East area and in particular in the steeper northern part of Wainui East. • The continuation of a rural service area to the west of the Dairy Flat Highway is important to iwi. Alternative 2 may impact on this. There is very little recorded historic heritage in the Silverdale Investigation area however this may also be as a result of the absence of archaeological survey as well as the fact that the area may not have been particularly suitable for pre-European Maori occupation.	• The continuation of a rural service area to the west of the Dairy Flat Highway is important to iwi. Alternative 4 avoids this. There is very little recorded historic heritage in the Silverdale Investigation area however this may also be as a result of the absence of archaeological survey as well as the fact that the area may not have been particularly suitable for pre-European Maori occupation.	• The continuation of a rural service area to the west of the Dairy Flat Highway is important to iwi. Alternative 3 avoids this. There is very little recorded historic heritage in the Silverdale Investigation area however this may also be as a result of the absence of archaeological survey as well as the fact that the area may not have been particularly suitable for pre-European Maori occupation.
Rural Production	**Soils** The majority of land in Silverdale is Class 4 with small pockets of Class 3 land. There are not many rural intensive land uses in the area. A small amount of vegetable growing occurs, as well as low productive pastoral activities, 45.9% of the total lifestyle area of 20ha and under is dominated by lifestyle blocks of 4ha and under. The area generates $1,584 turnover per hectare. With no large scale development in the rural areas, the status quo alternative would maintain the current rural and rural production activities in the area including the lifestyle the area has to offer through Countryside Living. This would enable the continuation of a financial turnover for the area. It would also mean the land is kept as rural for future generations.	**Soils** The majority of land in Silverdale is Class 4 with small pockets of Class 3 land. There are not many rural intensive land uses in the area. A small amount of vegetable growing occurs, as well as low productive pastoral activities.45.9% of the total lifestyle area of 20ha and under is dominated by lifestyle blocks of 4ha and under. The area generates $1,584 turnover per hectare. While the countryside living lifestyle currently offered in the area would be compromised there would be very little impact on soils given the quality of the soils in the area is not as good as in other parts of Auckland. With regard to Countryside Living however this alternative doesn't extend over as much of the Countryside Living area as Alternatives 3 and 4. While there will be some loss of rural production due to development in the area, that loss would not be as high as in other parts of Auckland.	**Soils** The majority of land in Silverdale is Class 4 with small pockets of Class 3 land. There are not many rural intensive land uses in the area. A small amount of vegetable growing occurs, as well as low productive pastoral activities. There is also a lot of Countryside Living in the area. Therefore there would be very little impact of development on soils and consequently rural production in the area. While the countryside living lifestyle currently offered in the area would be compromised and would largely disappear there would be very little impact on soils given the quality of the soils in the area is not as good as in other parts of Auckland. While there will be some loss of rural production due to development in the area, that loss would not be as high as in other parts of Auckland.	**Soils** The majority of land in Silverdale is Class 4 with small pockets of Class 3 land. There are not many rural intensive land uses in the area. A small amount of vegetable growing occurs, as well as low productive pastoral activities. There is also a lot of Countryside Living in the area. Therefore there would be very little impact of development on soils and consequently rural production in the area. While the countryside living lifestyle currently offered in the area would be compromised and would largely disappear there would be very little impact on soils given the quality of the soils in the area is not as good as in other parts of Auckland. While there will be some loss of rural production due to development in the area, that loss would not be as high as in other parts of Auckland.
Economic Effects	The status quo alternative provides no additional greenfield land for employment growth. In the absence of additional greenfield land approximately 55,000 new employees will have to be located in existing	Alternative 2 provides approximately 450 hectares of new business land in the Silverdale West area. This reflect, but expands on, legacy work that had advanced the need for predominantly Group 1 business activities to	Alternative 3 provides a total of 229 hectares of new business land for future growth of Group 1 business activities as well as Group 2 sectors in the new townships. Less land around the North Shore Aerodrome is identified	Alternative 4 provides 229 hectares of new business land in Silverdale West. This reflects legacy work to accommodate the need for predominantly Group 1 business activities to provide for ongoing growth in these industrial sectors in the wider Hibiscus Coast and Rodney

	business areas throughout the region. While there is likely to be some ability to intensify Group 2 business activities (retail, office, service industries etc) significant pressure on existing business areas would result. Auckland already has an undersupply of land for Group 1 business activities (manufacturing, wholesale trade, logistics, transport and storage etc). It is considered critical to Auckland's economic and productivity growth that up to 1,000 hectares of new greenfield land be supplied for these activities, whilst 400 hectares for retail, offices and other Group 2 activities. The status quo alternative does the most to recognise and preserve rural economy activities, as it excludes further urban incursion into rural areas. In the absence of transport modelling there is insufficient information to make a fully informed assessment of accessibility. However existing transport congestion is caused as residents in Orewa and Whangaparaoa commute to work in central Auckland and the North Shore. Additional employment in new greenfield areas is likely to improve accessibility as new employment areas will be nearer residents. Current infrastructure struggles at times to support the status quo alternative. Transport infrastructure in particular is hard pressed to move people and freight from their places of residence to more central locations for work and freight to Auckland Port. This alternative does not identify additional greenfield business areas. Legacy work undertaken by Rodney District Council signalled the need for additional business land and highlighted Silverdale West as a good location for new business land. As part of this legacy work, there was strong market feedback of the desirability for more business land in this vicinity. In the absence of such land, this alternative scores poorly.	provide for ongoing growth in these industrial sectors in the wider Hibiscus Coast and Rodney area. This alternative also provides for Group 2 retail, office and service sectors in the new townships that will be created in the future urban zone. Alternative 2 includes expansion of urban activities into Wainui East and in the south to dairy Flat. The area to the north is hilly, dropping down to a variety of streams and creeks and a floodplain creating the Orewa River. The nature of this land means that it is not a particularly valuable rural production area, though it contains a range of rural activities. To the south, around Dairy Flat, this alternative seeks to urbanise a quite large area or rural land encompassing the North Shore aerodrome and surrounds. While the aerodrome would likely remain operating there would likely be some reverse sensitivity impacts possibly impeding future expansion in aeronautical business activities. In the absence of transport modelling there is insufficient information to make a fully informed assessment of accessibility. However, this alternative would rely on existing on ramps to the State Highway 1 plus an on-ramp and Penlink to aid commuting between Whangaparaoa and the new business area at Silverdale West. The proposed Penlink is the most obvious new infrastructure needed to service growth in this alternative, however additional infrastructure will also be required to service the growth in Wainui, Silverdale west and Dairy Flat. This alternative provides for a large amount of additional greenfield business land. It is arguable whether local growth will be sufficient to justify this extent of new land. However, there is strong demand for additional business land in the wider vicinity (Albany, Hobsonville) and therefore market demand is anticipated to be strong. In terms of market attractiveness for residential growth, the Wainui East area is highly attractive, due in part to its varied topography making section prices reasonable. Elsewhere there is stronger demand and costs increase making the areas to the south less market attractive for redevelopment. **Infrastructure Costs**	for urban growth, reflecting a need to protect the aerodrome from reverse sensitivity and recognising the difficulties of urbanising existing lifestyle blocks. In the absence of transport modelling there is insufficient information to make a fully informed assessment of accessibility. It is likely however that this alternative would have similar accessibility challenges as Alternatives 2 and 4. Once again, Penlink is the most obvious infrastructure requirement to service future growth, but servicing to Wainui and Silverdale West would also be required. This alternative provides for a significant amount of additional greenfield business land however less than Alternatives 2. Given recent growth rates clearly this area could support additional business land. It is likely that local growth will be sufficient to justify the 270 hectares of new business land. Accordingly, market demand is anticipated to be strong. The market attractiveness for this alternative is very similar to Alternative 4. The market attractiveness of developing land adjacent to the North Shore Aerodrome is likely to be low, due to their current high demand/price and difficulties of reverse sensitivity. In terms of market attractiveness for residential growth, the remaining area of Wainui East is highly attractive, as is Silverdale West. Section sizes and prices are reasonable, hence redevelopment could be possible. Elsewhere there is stronger demand and costs increase making the areas to the south less market attractive for redevelopment. **Infrastructure Costs** *Water Supply* Servicing the Silverdale-Dairy Flat RUB area with potable water is easier than wastewater. An existing trunk water main runs beneath the Northern Motorway corridor and will able to serve some of the growth proposed. Additional investment will be required, but this can be programmed as part of wider network improvements. *Wastewater* Silverdale and Weiti areas of the RUB can be connected to an existing wastewater network, which runs to the Army Bay Wastewater Treatment Plant. The Dairy Flat area is more problematic, given its distance from the Army Bay serviced wastewater . Therefore, construction of a standalone wastewater treatment plant is more likely, albeit costly given the new infrastructure needed and the sensitivity of the likely receiving environments for any treated wastewater discharges. It is possible that these wastewater costs may be similar to those for the southern RUB, although servicing costs	area. This alternative also provides for Group 2 retail, office and service sectors in the new townships that will be created in the future urban zone. Alternative 4 reduces expansion into rural areas of Wainui East. It also seeks to avoid urbanisation of the flood plain area near Pine Valley Road. In compensation, it identifies more urban expansion into Dairy Flat down to Potter Road. This impacts on a large area of rural activity - however many of these rural activities are lifestyle blocks. Therefore this alternative impacts less on rural production than it first appears. In the absence of transport modelling there is insufficient information to make a fully informed assessment of accessibility. However, much like Alternatives 2 and 3 this alternative would rely on existing on ramps to the State Highway 1 plus an on-ramp and Penlink to aid commuting between Whangaparaoa and the new business area at Silverdale West. The proposed Penlink is the most obvious new infrastructure needed to service growth in this alternative, especially given the extent of future growth in Dairy Flat. Additional infrastructure will also be required to service the growth in Wainui and Silverdale West. This alternative provides for a significant amount of additional greenfield business land, but less than Alternative 1. Given recent growth rates clearly this area could support additional business land. It is likely that local growth will be sufficient to justify the 229 hectares of new business land. Accordingly market demand is anticipated to be strong. In terms of market attractiveness for residential growth, the remaining area of Wainui East is highly attractive, as is Silverdale West. Section sizes and prices are reasonable, hence redevelopment could be possible. Elsewhere there is stronger demand and costs increase making the areas to the south less market attractive for redevelopment. **Infrastructure Costs** *Water Supply* Servicing the Silverdale-Dairy Flat RUB area with potable water is easier than wastewater. An existing trunk water main runs beneath the Northern Motorway corridor and will able to serve some of the growth proposed. Additional investment will be required, but this can be programmed as part of wider network improvements. *Wastewater* Silverdale and Weiti areas of the RUB can be connected to an existing wastewater network, which runs to the Army Bay Wastewater Treatment Plant. The Dairy Flat area is more problematic, given its distance from the Army Bay serviced wastewater . 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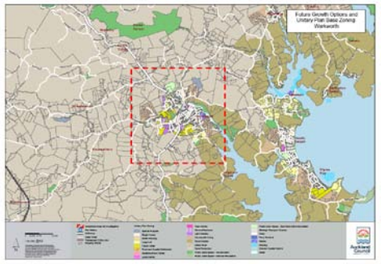
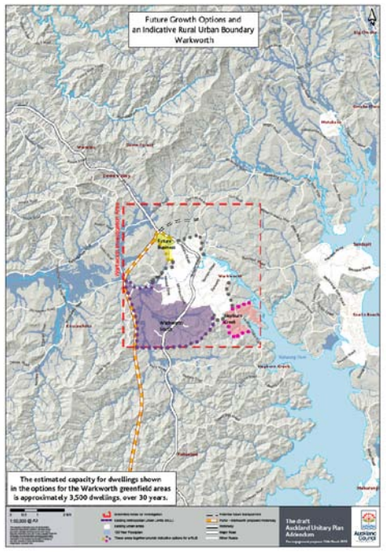
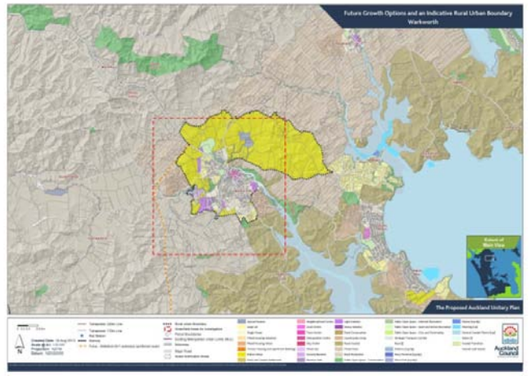
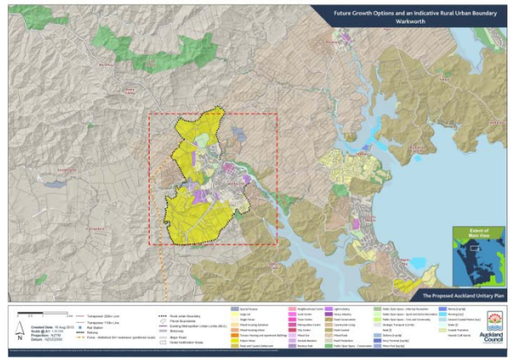
Transport	No further growth in Silverdale, the status quo, would disadvantage future investment in public transport improvements including the extension of the northern busway to Silverdale. However, even pipeline growth is being stalled due to the need to address existing congestion issues in Silverdale/Milllwater. These are expected to be alleviated by the commencement of construction of ramps at Wainui Road/SH1 this year and Penlink in 2018.	Alternative 2 includes the development of Wainui East which to the north of the area is very steep and hilly terrain. Constructing sufficient transport infrastructure would be costly and challenging in such terrain. It would also mean that it would be difficult to achieve sufficient development densities to support public transport use in the area as well as a connected street network. A revised Penlink interchange and associated potential bus way station provides a high level of access to the motorway and public transport in the Dairy Flat area however, Alternative 1 does not take full advantage of this.	Alternative 3 excludes the steep northern part of Wainui East which makes it a better alternative than Alternative 2 A revised Penlink interchange and associated potential bus way station provides a high level of access to the motorway and public transport in the Dairy Flat area. Alternative 3 which includes significant growth in the Dairy Flat south area takes full advantage around the future Penlink interchange. Alternative 3 with a large development area in Dairy Flat provides the opportunity to locate a new town centre that would be of a scale that can provide local employment and services within walking and cycling distance.	Alternative 4 excludes the steep northern part of Wainui East which makes it a better alternative than Alternative 2. A revised Penlink interchange and associated potential bus way station provides a high level of access to the motorway and public transport in the Dairy Flat area. Alternative 3 which includes significant growth in the Dairy Flat south area takes full advantage around the future Penlink interchange. Alternative 4 with a large development area in Dairy Flat provides the opportunity to locate a new town centre that would be of a scale that can provide local employment and services within walking and cycling distance.

			The proposed RUB in Alternative 3 allows a separation between the development area of Dairy Flat and the industrial area of Silverdale West. The North Shore Airfield is therefore excluded from the RUB which means that adverse effects from the airfield on future residents in the area and reverse sensitivity effects would be minimized. Alternative 3 excludes the steep northern part of Wainui East which makes it a better alternative than Alternative 2 A revised Penlink interchange and associated potential bus way station provides a high level of access to the motorway and public transport in the Dairy Flat area. Alternative 3 which includes significant growth in the Dairy Flat south area takes full advantage around the future Penlink interchange. Alternative 3 with a large development area in Dairy Flat provides the opportunity to locate a new town centre that would be of a scale that can provide local employment and services within walking and cycling distance. The proposed RUB in Alternative 3 allows a separation between the development area of Dairy Flat and the industrial area of Silverdale West. The North Shore Airfield is therefore excluded from the RUB which means that adverse effects from the airfield on future residents in the area and reverse sensitivity effects would be minimized. The Council's Transport Strategy Team has been working closely with Auckland Transport and the New Zealand Transport Agency to develop the likely transport infrastructure needed to support the various GAFIs. This has provided a range of indicative costs for servicing the GAFIs. For Alternative 3 the indicative cost is in the range of $610-770 million. It should be noted that these costs are based on preliminary 'per kilometre' rates and are highly indicative given the uncertainty of factors like final land use patterns, levels of service, design specific engineering, and route geotechnical conditions. Furthermore, these costs generally relate only to the provision of arterial roads and major public transport infrastructure in the greenfield areas. Therefore, they do not include local roads built by developers, projects already included in the Auckland Plan in the greenfield areas (e.g. Puhoi-Warkworth, Penlink, electrification to Pukekohe etc.) or possible required projects outside the greenfield areas which are over and above what is included in the Auckland Plan (e.g. further rail track provision to enable express running of services from the south).. Further analysis is underway to gain a better understanding of likely future transport costs in the greenfield areas. These costs will need to be financed by a variety of means and sources, including both local and central government.	The motorway interchange at Silverdale and where Penlink joins SH1 will be areas with best access to SH1 and are therefore the most suitable locations for land extensive business activities. Traffic generated by development in this area has the potential to overwhelm the key freight route of SH1 and its motorway interchanges. Proving local employment and encouraging the use of public transport, walking and cycling will be critically important to minimise peak time car travel from this area heading south. The proposed RUB in Alternative 4 provides contiguous growth between Dairy Flat and Silverdale West and therefore includes the North Shore Airfield inside the RUB. Enabling residential development around the airfield would likely generate adverse effects for residents and result in reverse sensitivity effects for the ongoing operation of the airfield. The Council's Transport Strategy Team has been working closely with Auckland Transport and the New Zealand Transport Agency to develop the likely transport infrastructure needed to support the various GAFIs. This has provided a range of indicative costs for servicing the GAFIs. For Alternative 4 the indicative cost is in the range of $610-770 million. It should be noted that these costs are based on preliminary 'per kilometre' rates and are highly indicative given the uncertainty of factors like final land use patterns, levels of service, design specific engineering, and route geotechnical conditions. Furthermore, these costs generally relate only to the provision of arterial roads and major public transport infrastructure in the greenfield areas. Therefore, they do not include local roads built by developers, projects already included in the Auckland Plan in the greenfield areas (e.g. Puhoi-Warkworth, Penlink, electrification to Pukekohe etc.) or possible required projects outside the greenfield areas which are over and above what is included in the Auckland Plan (e.g. further rail track provision to enable express running of services from the south).. Further analysis is underway to gain a better understanding of likely future transport costs in the greenfield areas. These costs will need to be financed by a variety of means and sources, including both local and central government.
General	**Cultural Effects**			

Comments about the Okura/Weiti Area	There are considerable historic heritage constraints from known archaeological sites in Weiti which is the area south of Stillwater, east of East Coast Rd and north and west of the Weiti and Okura Rivers. The Weiti sites form an archaeological landscape that represents a considerable constraint on future development. There is a largely intact archaeological landscape which contains layered evidence of pre European Maori occupation, a continued Maori presence into the 19th Century and 19th Century European agriculture. It is considered that given the extent of urban development north of the Waitemata Harbour, this landscape may be locally unique. **Environmental Effects** **Marine Environments** Sensitive area including marine reserve and wading birds and therefore should be left alone. It is noted there are previous Environment Court decisions relating to this area. Additional comments include that Orewa, Okura and the lower part of Weiti Estuary are already showing signs of sediment stress and have been identified as important areas for wading birds (Coastal Plan map series 8 - SEAMw in the UP) and as Significant Ecological Areas for various other reasons. The Weiti catchment drains to Karapiro Bay and Okura Estuary which are both in a marine reserve. UWH area may be close to tipping point due to existing sediment and contaminant pressures and also drains to the central Waitemata Harbour. **Biodiversity** Extremely sensitive and considered a no – go from a biodiversity perspective **Instability** Steep land and geology in that area would need major earthworks **Liquefaction** There are small pockets but comparatively not a major issue **Soils** The majority of the land at Weiti Forest has been mapped as land use capability (LUC) Class 6. There is a small pocket of LUC Class 3 and a larger pocket of LUC Class 4. LUC class 6 (or 7) is typical of plantation forestry activity. With regard to Okura, soils are heavy clays, and old soils since it's in forestry and tends to be on lower class land. Starts to go into class 6 land and therefore is not prime land.

Warkworth

	Alternative 1 – The Status Quo	Alternative 2 – Indicative Options in the Addendum to the Draft Unitary Plan	Alternative 3 – Amalgam exploring some of the key suggestions put forward	Alternative 4 – Recommended RUB for the Proposed Unitary Plan
				
Environmental Effects	**Marine Environments – General Comments** The following general comments were made in relation to the coastal and marine assessment for the Warkworth Investigation Area: In terms of the coastal and marine assessment for the Warkworth GAFI, it was noted that the Mahurangi Harbour is already under stress from sediment and is an important aquaculture area and nursery for juvenile fish. The whole harbour is designated as SEA2 and certain side arms SEA1 with Te Kapa inlet also identified as an important area for wading birds (Coastal Plan map series 8 - SEAMw in the Unitary Plan). It was also noted that the Mahurangi is particularly susceptible to soil erosion and harbour infilling because parts of the catchment have steep slopes and soils which do not easily absorb rain. Furthermore, the area experiences relatively high rainfall and more high-intensity storm events compared to other parts of the region.			
	Marine Environments **Current Practice** This assessment is based on current stormwater and earthworks controls being used and no additional catchment management implemented to deal with the impact of current rural and urban land use effects from the wider contributing catchment. This assessment also only includes effects from sediment and contaminants on receiving environmental quality which in turn affects biota (benthic organisms, birds, fish etc) and human use and values. This assessment is also based on broad principles learnt from the southern RUB modelling exercise rather than specific modelling data for these areas so is more subjective. This assessment does not include disturbance effects of development from pets, people, noise etc and the use of the area on important bird values. The extent to which quality and health of marine ecosystems are maintained and enhanced in order to support human social, economic and cultural wellbeing and indigenous biodiversity. Includes consideration of public health impacts. Includes consideration of native species diversity, habitat diversity, connectivity and key species.			
	The effect of no RUB depends on what is happening in existing catchments and the sort of improvements that might be expected form the application of improved controls (eg through the UP and in the future through replacing BPO management with a limits based approach). The status quo alternative would support the assumption that avoiding impacts in the first place (eg through not developing) rather than trying to reverse impacts after they have occurred is easier. In general, unless there is already extensive urbanisation within a large area of the catchment or the coastal receiving	This Alternative would score slightly better than the other options if the Hepburn Creek area was removed (high sediment risk) as the option covers a smaller area and has a lower number of dwellings thus reducing the risk of effects on the receiving environment. However, if current earthworks and stormwater controls are used and no additional catchment management is implemented then based on Moores et al. (2013) and local studies strong negative implications for the quality and health of marine ecosystems in Mahurangi Harbour are predicted under all scenarios.	If current earthworks and stormwater controls are used and no additional catchment management is implemented then based on Moores et al. (2013) and local studies strong negative implications for the quality and health of marine ecosystems in Mahurangi Harbour are predicted under all scenarios. Public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plant but increased sediment and contaminant levels from development will also impact the quality and safety of harvested.	If current earthworks and stormwater controls are used and no additional catchment management is implemented then based on Moores et al. (2013) and local studies strong negative implications for the quality and health of marine ecosystems in Mahurangi Harbour are predicted under all scenarios. Public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plant but increased sediment and contaminant levels from development will also impact the quality and safety of harvested shellfish and fish.

	environment is already seriously degraded, the status quo alternative is better than the development alternatives. However, notwithstanding this it is noted that even with no development, there is still a gradual decline in receiving environment health due to ongoing stressors from existing urban and rural landuse practices.	Public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plant but increased sediment and contaminant levels from development will also impact the quality and safety of harvested shellfish and fish.		
	Marine Environments **Best Controls + No Catchment** This assessment is based on using the best available stormwater and earthworks controls for the developed area but no additional catchment management implemented to deal with the impact of current rural and urban land use effects within the same wider catchment area but outside the area to be developed. This assessment also only includes effects from sediment and contaminants on receiving environmental quality which in turn affects biota (benthic organisms, birds, fish etc) and human use and values. This assessment is also based on broad principles learnt from the southern RUB modelling exercise rather than specific modelling data for these areas so is more subjective. This assessment does not include disturbance effects of development from pets, people, noise etc and the use of the area on important bird values. Extent to which quality and health of marine ecosystems are maintained and enhanced in order to support human social, economic and cultural wellbeing and indigenous biodiversity. Includes consideration of public health impacts. Includes consideration of native species diversity, habitat diversity, connectivity and key species.			
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	Marine Environments **Best Controls + Catchment** The assessment for marine environments is based on using the best available stormwater and earthworks controls and implementing additional catchment management to deal with the impact of current rural and urban land use effects within the same wider catchment area but outside the area to be developed. This assessment also only includes effects from sediment and contaminants on receiving environment quality which in turn affects biota (benthic organisms, birds, fish etc) and human use and values. This assessment is also based on broad principles learnt from the southern RUB modelling exercise rather than specific modelling data for these areas so is more subjective. This assessment does not include disturbance effects of development from pets, people, noise etc and the use of the area on important bird values. The extent to which quality and health of marine ecosystems are maintained and enhanced in order to support human social, economic and cultural wellbeing and indigenous biodiversity. Includes consideration of public health impacts. Includes consideration of native species diversity, habitat diversity, connectivity and key species.			
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	assumption that avoiding impacts in the first place (eg through not developing) rather than trying to reverse impacts after they have occurred is easier. In general, unless there is already extensive urbanisation within a large area of the catchment or the coastal receiving environment is already seriously degraded, the status quo alternative is better than the development alternatives. However, notwithstanding this it is noted that even with no development, there is still a gradual decline in receiving environment health due to ongoing stressors from existing urban and rural land use practices.	and additional catchment management is implemented then based on Moores et al. (2013) and local studies small positive outcomes for the quality and health of marine ecosystems in Mahurangi Harbour are predicted under all scenarios as addressing rural sediment loads throughout the entire contributing Mahurangi catchment would make a big difference but will incur significant cost. Public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plant but increased sediment and contaminant levels from development will also impact the quality and safety of harvested shellfish and fish.	Public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plant but increased sediment and contaminant levels from development will also impact the quality and safety of harvested shellfish and fish.	Public health impacts are difficult to assess without knowing what upgrades / capacity are proposed for the treatment plant but increased sediment and contaminant levels from development will also impact the quality and safety of harvested shellfish and fish.
	Freshwater - Aquifers and Recharge Areas The main aquifer is the Waitemata Group. In some areas the Waitemata Group is overlain by scattered local occurrences of older limestone and mudstone. Recent alluvial sediments overly the Waitemata Group in river valleys. The wider catchment covers an area of 57 km2. Excluding the areas of limestone and mudstone (in the north east) where groundwater recharge is expected to be negligible, the groundwater recharge area is 52 km2. Groundwater flows from the elevated areas in the north (Dome Valley) and south (Moirs Hill) in the direction of the left and right branches of the Mahurangi River, converging near Woodcocks Road and then flows east towards Warkworth. There are no serious concerns with respect to the effect of urbanisation of the Warkworth area on groundwater recharge. Recharge to the Waitemata Group and limestone /mudstone is estimated to be 5.7% and 1.3% of rainfall respectively. If the Waitemata Group is urbanised recharge is estimated to reduce 5% of rainfall. In order to ensure the ecological and economic functions of aquifers are maintained. Surface water bodies and aquifers interact and changes to groundwater hydrology can have impacts on the values of surface water bodies.			
	The status quo alternative would not make a significant difference to aquifers and recharge areas in Warkworth as Warkworth itself and the abutting rural areas are largely outside the recharge areas due to the underlying limestone geology. The aquifer recharge areas lies under the existing urban area.	Groundwater flows from the elevated areas in the north (Dome Valley) and south (Moirs Hill) in the direction of the left and right branches of the Mahurangi River, converging near Woodcocks Road and then flows east towards Warkworth. Warkworth itself and the abutting rural areas are largely outside these recharge areas due to the underlying limestone geology. Groundwater sources in the area are also utilised for agricultural purposes, which when combined with the new groundwater take for Warkworth's potable water supply will be fully allocated.	This alternative would not make a significant difference to aquifers and recharge areas in Warkworth as Warkworth itself and the abutting rural areas are largely outside the recharge areas due to the underlying limestone geology. The aquifer recharge areas lies under the existing urban area.	Groundwater flows from the elevated areas in the north (Dome Valley) and south (Moirs Hill) in the direction of the left and right branches of the Mahurangi River, converging near Woodcocks Road and then flows east towards Warkworth. Warkworth itself and the abutting rural areas are largely outside these recharge areas due to the underlying limestone geology. Groundwater sources in the area are also utilised for agricultural purposes, which when combined with the new groundwater take for Warkworth's potable water supply will be fully allocated.
	Freshwater - Surface Water There is not anticipated to be significant rural production in the area that relies on surface water abstraction for irrigation. The main use of surface water from the Mahaurangi River in the location is for potable supply. Watercare applied for replacement consent to surface water from the Mahurangi River for municipal supply to Warkworth township. Watercare intends supply to be met from groundwater after five years with surface water used only for emergency. This is because of the greater cost of surface water treatment due to the poorer quality of the water.			
	No change - neutral	Water is abstracted from both surface water bodies and aquifers for economic reasons. These water bodies interact and changes to surface water hydrology can have impacts on groundwater. Some impact.	Water is abstracted from both surface water bodies and aquifers for economic reasons. These water bodies interact and changes to surface water hydrology can have impacts on groundwater. Some impact	Water is abstracted from both surface water bodies and aquifers for economic reasons. These water bodies interact and changes to surface water hydrology can have impacts on groundwater. Some impact.
	Freshwater - Stream Ecosystem Health Research on stream ecosystem viability indicates that in areas with high impervious cover, stream water quality becomes severely degraded. This is caused by increases in temperature, altered flow regimes and increased pollution and sediment. The decline begins to occur when imperviousness reaches 10%, and by 30% imperviousness water quality and aquatic habitats are severely degraded. It is anticipated that the level of imperviousness in the possible future urban areas identified in the investigation areas will exceed 30%.			
	Extent to which quality and health of freshwater ecosystems are maintained and enhanced. Includes consideration of public health impacts.	Extent to which quality and health of freshwater ecosystems are maintained and enhanced. Includes consideration of public health impacts.	Extent to which quality and health of freshwater ecosystems are maintained and enhanced. Includes consideration of public health impacts. Includes	Extent to which quality and health of freshwater ecosystems are maintained and enhanced. Includes consideration of public health impacts. Includes

	Includes consideration of native species diversity, habitat diversity, connectivity and key species. Some continued change to stream systems	Includes consideration of native species diversity, habitat diversity, connectivity and key species. More impact on stream systems than Alternatives 1 and 3.	consideration of native species diversity, habitat diversity, connectivity and key species. Some continued change to stream systems	consideration of native species diversity, habitat diversity, connectivity and key species. More impact on stream systems than Alternatives 1 and 3.
	Stormwater • The Mahurangi River is an already degraded low-energy receiving environment. It is important to protect riparian corridors. By protecting its riparian margins it is possible to limit further adverse effects and potentially assist its restoration. • An incremental amount of development commensurate with existing largely rural zonings will mean little additional risk of flooding. However there are areas in the Warkworth GAFI that area already within flood prone areas particularly to the west of Warkworth. • The cost of stormwater infrastructure for the North and will be dependent on the level of treatment required for stormwater discharges. It is possible, that a similar scale and cost of treatment to that in the Southern RUB area will required given the sensitive nature of the catchments.	**Stormwater** • All development alternatives are dependent on the rules that govern development; a best practice approach will be required to limit impacts from stormwater. • In Structure Planning and implementation it will be important to avoid streams and floodplains (eg incorporating green corridors into design).	**Stormwater** • All development alternatives are dependent on the rules that govern development; a best practice approach will be required to limit impacts from stormwater. • In Structure Planning and implementation it will be important to avoid streams and floodplains (eg incorporating green corridors into design).	**Stormwater** • All development alternatives are dependent on the rules that govern development; a best practice approach will be required to limit impacts from stormwater. • In Structure Planning and implementation it will be important to avoid streams and floodplains (eg incorporating green corridors into design).
	Coastal Erosion and Inundation Even with the continuation of status quo, some development will probably continue along the coast. Inclusion of the RUB areas wouldn't make a significant difference to the amount of development along the coast as the RUB alternatives do not focus growth around the coast anyway. Coastal inundation in not a major risk in the Warkworth area.	**Coastal Erosion and Inundation** Alternative 2 fringes on the coast but coastal erosion and inundation is not significant in this area. The risks of coastal erosion and inundation would be slightly greater with Alternative 2 due to the inclusion of Hepburn Creek being closer to the coast however it is not a major consideration.	**Coastal Erosion and Inundation** Coastal erosion and inundation is not a significant risk for Alternative 3 as there would be no development near coastal areas.	**Coastal Erosion and Inundation** Coastal erosion and Inundation is not a significant risk for Alternative 4 as there would be no development near coastal areas.
	Liquefaction The likelihood of earthquakes occurring in the Warkworth area is slim because it is far away from a fault line and therefore liquefaction is not a high risk in the Warkworth area. Consequently, the the status quo alternative wouldn't be too different from the other alternatives in terms of exposure to risk except that if there were an event there it would have less of an impact due to less buildings being present.	**Liquefaction** The likelihood of earthquakes occurring in the Warkworth area is slim because it is far away from a fault line. There are small areas of potential liquefaction, but not a significant consideration for this alternative. Refer Alternative 1 comments.	**Liquefaction** The likelihood of earthquakes occurring in the Warkworth area is slim because it is far away from a fault line. There are small areas of potential liquefaction, but not a significant consideration for this alternative. Refer Alternative 1 comments.	**Liquefaction** The likelihood of earthquakes occurring in the Warkworth area is slim because it is far away from a fault line. There are small areas of potential liquefaction, but not a significant consideration for this alternative. Refer Alternative 1 comments.
	Biodiversity SEAs and ONLs exist on the periphery of Warkworth and in some cases they can be used to define the limits of urban development. There are a number of streams that contribute to the Mahurangi catchment which, with the appropriate setbacks, can provide natural corridors for wildlife and where appropriate, walking access. Fragments of forest exist along this catchment and are important ecosystems. Where possible, important habitats can be	**Biodiversity** Development in Warkworth south via Alternative 2 has the potential to compromise biodiversity of the streams/water courses in this area. While there would be some opportunities to provide setbacks along the Mahurangi River adjacent to the Hepburn Creek development area which is important for public access, there would still be some risk to biodiversity. This alternative mostly avoids the ONL areas.	**Biodiversity** No development to the south would have a positive impact on the biodiversity of this area particularly for the streams and waterways. Therefore development to the north and east of Warkworth is preferred in order to protect biodiversity. The impact on biodiversity in this area would not be significant. The ONL areas are avoided in this alternative.	**Biodiversity** Development in Warkworth south has the potential to compromise biodiversity of the streams/water courses in this area. However, this alternative is better than Alternative 2 as it does not include the water course to the west. Rather, it uses the stream as the RUB boundary. It also avoids the ONL areas. Biodiversity would be not impacted on if development were to go to the north around Goatley Rd and Clayden Road.

	retained by way of covenants or inclusion in the open space network as part of reserve contributions from the subdivision process. Symptoms of Kauri Dieback disease have been noted in the Warkworth area and this needs continued monitoring with the implementation of prevention measures as the population grows. Stands not exhibiting signs of the disease should be protected. The Hochstetter's Frog is a threatened species which has been found both north of Goatley Road and in the Moirs Hill area, south of Warkworth. Encroachment of urban development into these areas will disrupt the habitat of this species. The status quo alternative, resulting in no urban development on the periphery of Warkworth, would be a significant benefit to biodiversity for the area, particularly in the south.			
	Land Instability Some development would continue in Warkworth even with the status quo alternative but as instability is not a major concern in Warkworth as in other areas of Auckland the implications of status quo would not be significant.	**Land Instability** Warkworth comprises a few pockets of unstable land however Alternative 2 seeks to avoid areas of risk.	**Land Instability** Warkworth comprises a few pockets of unstable land however the development area to the north poses some moderate risk.	**Land Instability** Warkworth comprises a few pockets of unstable land however development to the north poses some moderate risk.
	Landscape The status quo limits the scale of development in the rural areas and therefore provides for the retention and protection of the main landscape elements in Warkworth. These include: • Steep forested hill country which frames the adjoining lowland areas – key visual landscape patterns including large areas of ONL • Moderate to steep harbour hill country margins which are important areas in regard to Natural Character • Strong rolling pastoral hill country including a number of extensive valley systems and key ridgelines The bush covered slopes adjacent to the Mahurangi River form a backdrop to the existing town. Warkworth town is also well contained by the steeper slopes to the north and south.	**Landscape** This alternative uses natural boundaries in the south to define limits to urbanisation however uses a future road boundary to the west (Puhoi to Warkworth proposed motorway). A number of road boundaries are used to the north and west and the existing town and future business areas. Hepburn Creek is included in this alternative and uses largely natural landscapes as boundaries. The inclusion of Hepburn Creek from a landscape view point has issues around the ability to come up with a satisfactory urban pattern due to the steep slopes, ONL and indigenous vegetation in the area. The use of a proposed motorway boundary that has the potential to be altered prior to its construction is considered to be not the most appropriate boundary to use. The "gateway" to Warkworth from the south would appear in this alternative to sprawl south over a wide area.	**Landscape** Alternative 3 places most growth in the north east and uses roads as boundaries. From a landscape view point this alternative has some merit particularly closer in to Warkworth town as there would be opportunities to restore intensive drainage patterns however there would still be some significant landscape challenges particularly in relation to managing the construction phase and the adverse effect into the Mahurangi,	**Landscape** Alternative 4 uses natural boundaries (ONL) in the south and to the west (the watercourse) to define limits to urbanisation. It does not include land between the watercourse and the proposed motorway alignment. A number of road boundaries are used to the north and west and around the existing town and future business areas. Hepburn Creek is not included in this alternative and therefore avoids this sensitive area.
Rural Production	**Soils** Warkworth is dominated by Class 3, 4 and 6 soils. 49% of the total lifestyle area of 20ha and under is dominated by lifestyle blocks of 4ha and under. The area generates $1,517 turn over per hectare. With no large scale development in the rural areas, the status quo alternative would maintain the current rural and rural production activities in the area including the lifestyle the area has to	**Soils** Warkworth has some of the oldest Ultic soils in Auckland which means they are generally not very good as prime agricultural land. These soils are weaker clay soils and therefore not free draining. The bulk of Class 3 soils are in the south. However, most of Warkworth is Class 4 & 6 and therefore not prime agricultural land. In terms of impacts on productive soils and rural production, all alternatives for Warkworth are	**Soils** Warkworth has some of the oldest Ultic soils in Auckland which means they are generally not very good as prime agricultural land. These soils are weaker clay soils and therefore not free draining. The bulk of Class 3 soils are in the south. However, most of Warkworth is Class 4 & 6 and therefore not prime agricultural land. In terms of impacts on productive soils and rural production, all alternatives for Warkworth are generally good for development compared with other parts of	**Soils** Warkworth has some of the oldest Ultic soils in Auckland which means they are generally not very good as prime agricultural land. These soils are weaker clay soils and therefore not free draining. The bulk of Class 3 soils are in the south. However, most of Warkworth is Class 4 & 6 and therefore not prime agricultural land. In terms of impacts on productive soils and rural production, all alternatives for Warkworth are generally

	offer through Countryside Living. This would enable the continuation of a financial turnover, although relatively small, for the area. It would also mean the land is kept as rural for future generations.	generally good for development compared with other parts of Auckland with high quality soils. Alternative 2 is unlikely to have an impact on rural production in the areas indicated for development.	Auckland with high quality soils. Alternative 3 is unlikely to have an impact rural production in the areas indicated for development.	good for development compared with other parts of Auckland with high quality soils. Alternative 4 is unlikely to have an impact on rural production in the areas indicated for development.
Social Effects	**Meeting Daily Needs** The RUB should improve accessibility to town centre social services infrastructure and amenities, such as libraries, community centres, health and welfare services, open space and recreation facilities and shops. Growth provides opportunities for new and added services in current rural areas, where these services may be non-existent or sparsely situated. This is particularly important for children, young people, the elderly and disabled, who cannot drive or find access to public transport difficult. Ease of access assists with improving health of the community, the affordability of meeting daily needs and a sense of well-being and connectedness. **Employment Opportunities** RUB areas include business land with opportunities for local employment for new and existing residents. Working locally reduces people's day to day costs and may provide a better quality of life by reducing travel time between home and work. **Education Opportunities** As areas grow, there are increased opportunities for education services from early childhood learning centres to tertiary institutions and a range of other community education services. Therefore, access to education overall is improved and this leads to raise levels of literacy, numeracy, trade and other skills. Pathways into employment can also be more obvious and accessible for people, which in turn can increase the economic and social well-being of the community as a whole. **Improved Infrastructure** Extending urban areas and settlements by way of the RUB should enable improved infrastructure services for water supply, wastewater and transportation. Economies of scale can be realised by providing certain residential densities and numbers, and increased business land within the RUB, which then leads to investment in infrastructure. New and existing residents will be able to connect to centralised water services infrastructure, potentially freeing up land on their properties. There is also the potential for access to a more frequent and conveniently located public transport network. **Open Space, Waterways and Natural Environment** The extent of RUB areas is in some cases determined by natural features such as waterways, the coastline, floodplains, ONLs and SEAs. The location of residential areas near these provides people with easy access to the natural environment which may have benefits for health, fitness and well-being. In many cases, through structure planning which will be required within the RUB, linkages through the urban environment to the natural environment and open spaces can be developed by way of open space, walkway and cycleway networks. There may also be opportunities for food gathering from natural areas and cultivated areas such as parks and community gardens. **Overall Community Safety and Cohesiveness** RUB areas require structure planning which can facilitate well planned and connected communities. A sense of well-being and community cohesiveness improves with the availability of social and physical infrastructure that meets people's needs on a daily basis. RUB areas that extend from existing urban areas enable more facilities and services to be provided to complement and improve on those of the existing community, which due to a low population base may be lacking in some way.			
	Meeting Daily Needs Warkworth is relatively well serviced at present with a variety of shops, two supermarkets, a library, community centre and other health and welfare facilities. Continued growth, aside from growth earmarked by the RUB, will place increasing pressure on these facilities. Public transport to services and amenities has been an on-going issue for non-drivers, and a shuttle service has been initiated. A greater scale of growth would enable added services to be more cost effective. **Employment Opportunities** Demand for more industrial land exists already in Warkworth and there is a need for more local employment opportunities. Some residents commute into Auckland for work each day. **Education Opportunities** Warkworth currently has one primary and one secondary school, which attract students from a	**Meeting Daily Needs** Accessibility to new and expanded town centre social services infrastructure and amenities, such as libraries, community centres, health and welfare services, open space and recreation facilities and shops, will be improved as the growing population makes the provision of these more cost effective. The growth areas are located in close proximity to the existing township, making them easily accessible. This will contribute to improving the health of the community, the affordability of meeting daily needs and a sense of well-being and connectedness. **Employment Opportunities** It is assumed that some employment opportunities would be available in the southern RUB as a local centre is likely to develop. However, access to the proposed future Business land is more difficult. **Education Opportunities**	**Meeting Daily Needs** This alternative is the least compact and therefore potentially provides the lowest level of accessibility to services and amenities within existing Warkworth. It would split Warkworth either by the Mahurangi River and require another town centre, potentially replicating services and amenities for residents to ensure everyone had equal access to these. This makes it less efficient than Alternative 3 in terms of the cost effectiveness of providing social services and amenities to meet daily needs. If these cannot be replicated, a wider public transport network would need to be developed to ensure residents could meet their daily needs from within the existing town centre. However, the issue of the presence of SH1 as a barrier to accessibility is less of an issue if this alternative occurs, although Sandspit Rd and the Mahurangi River are potentially also physical barriers to the existing town centre's amenities. **Employment Opportunities**	**Meeting Daily Needs** Accessibility to new and expanded town centre social services infrastructure and amenities, such as libraries, community centres, health and welfare services, open space and recreation facilities and shops, will be improved as the growing population makes the provision of these more cost effective. This is particularly important for children, young people, the elderly and disabled, who cannot drive or find access to public transport difficult. While the growth area in the north makes the RUB less compact than Alternative 2, it may enable some amenities and services to also be located to the north of Warkworth. Otherwise, improved public transport will be needed from this area into the centre, to ensure new and existing residents in the North can readily access the services and amenities. However, SH1 may provide a barrier for some residents within the Southern RUB and for those in the

	wide area. There are a number of pre-school facilities, but limited tertiary education and skills training opportunities. **Improved Infrastructure** New consents have been granted for a new water supply and this is expected to be operational within two years in conjunction with the existing take from the Mahurangi River.	As areas grow, there are increased opportunities for education services from early childhood learning centres to tertiary institutions and a range of other community education services. Existing schools are located west of the Warkworth Town Centre. Access to these becomes more difficult the further out urban growth is located. However, given the expected amount of growth, new schools would likely be planned and located in the new area of critical mass. This alternative potentially meets this criterion, although people living in the Hepburn Creek area would have to travel further to these services. **Improved Infrastructure** Extending urban areas and settlements by way of the RUB should enable improved infrastructure services for water supply, wastewater and transportation. Economies of scale can be realised by providing certain residential densities and numbers, and increased business land within the RUB, which then leads to investment in infrastructure. In terms of infrastructure provision, Warkworth is already a serviced town. Extending infrastructure out to growth areas in this Alternative, will benefit existing residents in the growth areas, but may cause more cost to all residents compared with more compact alternatives. **Open Space, Waterways and Natural Environment.** This alternative provides good opportunities for the development of easily accessible natural areas around existing streams and the coastline. These can provide social benefits in terms of people's sense of wellbeing and connectedness to the natural environment, open space and a range of recreational opportunities. This alternative is bounded by the Mahurangi River to the East and an ONL and protected natural areas to the South. **Overall Community Safety and Cohesiveness** RUB areas that extend from existing urban areas enable more facilities and services to be provided to complement and improve on those of the existing community, which due to a low population base may be lacking in some way. This engenders a sense of community cohesiveness. Although not the most compact Alternative, facilities and services are likely to be developed in the South that build on or complement existing ones. This will enable Warkworth to grow in a cohesive way,	It is assumed that some employment opportunities would be available in the new North-Eastern growth area as a local centre would likely develop. However, while access to the proposed future Business land is easier than Alternative 2, access to work in the Warkworth Town Centre is more difficult. **Education Opportunities** As areas grow, there are increased opportunities for education services from early childhood learning centres to tertiary institutions and a range of other community education services. Existing schools are located west of the Warkworth Town Centre. However, given the expected amount of growth, new schools would likely be planned and located in the new area of critical mass. As this alternative is the least compact, new schools in the North-Eastern growth area would likely be needed to provide education opportunities for new residents in the area. **Improved Infrastructure** Extending urban areas and settlements by way of the RUB should enable improved infrastructure services for water supply, wastewater and transportation. Economies of scale can be realised by providing certain residential densities and numbers, and increased business land within the RUB, which then leads to investment in infrastructure. In terms of infrastructure provision, Warkworth is already a serviced town. Locating most of the new growth to the North and North-East of Warkworth is the least cost effective compared with other alternatives, due to the size of the new area to be serviced and its distance from existing infrastructure. The servicing of a large growth area to the North-East of the existing township and on the opposite side of the Mahurangi River is potentially more problematic than servicing areas that are adjoining existing infrastructure networks. **Open Space, Waterways and Natural Environment** Growth of Warkworth to the north and North-East provides a good residential catchment around the Warkworth Showgrounds, but provides the least variety of open space and natural environment options. This alternative has the least natural and open space areas demarcating the RUB boundaries. **Overall Community Safety and Cohesiveness** RUB areas that extend from existing urban areas enable more facilities and services to be provided to complement and improve on those of the existing community, which due to a low population base may be lacking in some way.	Northern RUB. **Employment Opportunities** Providing more growth to the North of Warkworth, enables greater accessibility to employment opportunities provided by the proposed Business land. **Education Opportunities** As areas grow, there are increased opportunities for education services from early childhood learning centres to tertiary institutions and a range of other community education services. Existing schools are located west of the Warkworth Town Centre. However, given the expected amount of growth, new schools would likely be planned and located in the new area of critical mass. As this alternative is the most compact, new schools in the southern growth area would likely be provided, although it does also provide a greater catchment for the existing schools as well. New residents in the Warkworth North area would have the lowest accessibility, although the existing schools could cater for them. **Improved Infrastructure** Extending urban areas and settlements by way of the RUB should enable improved infrastructure services for water supply, wastewater and transportation. Economies of scale can be realised by providing certain residential densities and numbers, and increased business land within the RUB, which then leads to investment in infrastructure. In terms of infrastructure provision, Warkworth is already a serviced town. As the most compact alternative, infrastructure provision will be more cost effective, and therefore impact least financially on existing and new residents. **Open Space, Waterways and Natural Environment** This alternative provides similar social benefits to Alternative 3, without the opportunities for coastal access. The growth area in Warkworth North however, has been focused around the Warkworth Showgrounds which provides additional support to active sports and activities that will be located there. This alternative therefore provides an extension of open space and natural environment opportunities with access to the greatest variety of recreational options. This alternative is bounded by a stream to the West and an ONL and protected natural areas to the South and East. **Overall Community Safety and Cohesiveness**

		although the lack of growth in the northern part of Warkworth may mean that there is a lack of equity in accessibility to service and sense of community in this area.	As the least compact alternative there is a greater chance that community services will need to be duplicated. Because it is separated from the Warkworth by the Mahurangi it is more likely that the area will develop in a way that is less cohesive with existing Warkworth.	RUB areas that extend from existing urban areas enable more facilities and services to be provided to complement and improve on those of the existing community, which due to a low population base may be lacking in some way. As the most compact Alternative, facilities and services are likely to be developed that build on or complement existing ones, and Warkworth will grow in a more cohesive way.
Cultural Effects	**Cultural Heritage** The rural environment and the limited activities provided for enables a greater degree of retention and protection of sites which have cultural significance. This includes sites of significance to Mana Whenua and those for other communities. The status quo alternative would have the effect of providing greater protection for significant sites, cultural landscapes than should any of the area be urbanised. Urbanisation and the site preparation and construction phases poses a significant risk to cultural heritage. Consultation has indicated that within the GAFI areas there are places that have special significance including cultural landscapes, geographic features such as ridge lines, water for its wairua and biodiversity. In the north Mana Whenua have indicated that they have concerns for environmental values particularly the health of the Mahurangi and the biodiversity of Warkworth south both of which could be impacted depending on the options chosen. Concern has also been expressed for both flora and fauna and the need to support green spaces and wildlife corridors. The status quo alternative would continue with protection of existing coastal margins and esplanade reserves but there would be little ability to extend this network with additional reserve contributions from urban development. Continuation of rural activities would also mean that sedimentation and post construction contaminants from stormwater runoff in these areas would not change significantly. There are also strong European associations with the area which have been expressed. Overall the Status Quo Alternative would be better than Alternatives 2-4 in terms of impacts on Cultural Heritage.	**Cultural Heritage** Urbanisation of the areas within Alternative 2 would have the potential to impact adversely on values and areas of significance for Mana Whenua. Of particular concern to Mana Whenua are: • the ecological, cultural and health impacts on the Warkworth south area particularly in terms of development over aquifer recharge areas (Mahurangi Aquifer), stormwater overflow into the Mahurangi, and the existence of the Hochstetters Frog in the area. There are a number of archaeological sites (pre-European Maori or historic) located along and near to the Mahurangi River and therefore the inclusion of the Hepburn Creek area as a development area in Alternative 1 would have a significant impact on these sites. Also of note is an archaeological landscape that may be fairly intact along the banks of the Mahurangi River. While not as extensive and perhaps not as significant as Weiti in Silverdale, it represents a significant constraint on future development. 19th Century European presence is also concentrated on the banks of the Mahurangi. It is noted that there are a number of built heritage sites within Warkworth township and Warkworth has always been recognised for its character and high level of attractiveness. As all the proposed development options are on the periphery of Warkworth, in the rural areas, all alternates have no direct impact on the built heritage within the town of Warkworth.	**Cultural Heritage** Issues that have been raised by iwi regarding Alternative 3 include: • Growth towards Snells Beach, linking up with Sandspit is preferred to growth in the south of Warkworth for the reasons outlined in Alternative 1 and Alternative 2. It is accepted by iwi that the population will grow and that it makes sense to have Matakana, Sandspit and Warkworth closer together. There are a number of archaeological sites (pre-European Maori or historic) located along and near to the Mahurangi River and therefore development to the north east of Warkworth may have an impact on these depending on the specific location of development near the northern side of the Mahurangi River. Also of note is an archaeological landscape that may be fairly intact along the banks of the Mahurangi River. While not as extensive and perhaps not as significant as Weiti in Silverdale, it represents a significant constraint on future development. 19th Century European presence is also concentrated on the banks of the Mahurangi. It is noted that there are a number of built heritage sites within Warkworth township and Warkworth has always been recognised for its character and high level of attractiveness. As all the proposed development options are on the periphery of Warkworth, in the rural areas, all alternates have no direct impact on the built heritage within the town of Warkworth.	**Cultural Heritage** Issues that have been raised by iwi regarding Alternative 4 include: • Concern about ecological, cultural and health impacts on the Warkworth south area particularly in terms of development over aquifer recharge areas (Mahurangi Aquifer), stormwater overflow into the Mahurangi, and the existence of the Hochstetters Frog in the area. There are a number of archaeological sites (pre-European Maori or historic) located along and near to the Mahurangi River and therefore the exclusion of Hepburn Creek in Alternative 4 will help to protect these sites from the threat of development. A reduced development area in the south of Warkworth as proposed in Alternative 4 will avoid known sites in the vicinity of southern Warkworth and the Mahurangi River. Also of note is an archaeological landscape that may be fairly intact along the banks of the Mahurangi River. While not as extensive and perhaps not as significant as Weiti in Silverdale, it represents a significant constraint on future development. 19th Century European presence is also concentrated on the banks of the Mahurangi. In terms of this issue, Alternative 4 has the least impact of the three RUB options. It is noted that there are a number of built heritage sites within Warkworth township and Warkworth has always been recognised for its character and high level of attractiveness. As all the proposed development options are on the periphery of Warkworth, in the rural areas, all alternates have no direct impact on the built heritage within the town of Warkworth.
Economic	The status quo alternative provides no additional	Alternative 2 recognises the role of existing	Alternative 3 significantly reduces the extent of growth in	Alternative 4 reduces the extent of growth in the south

Effects	greenfield land for employment growth. In the absence of additional greenfield land approximately 55,000 new employees will have to be located in existing business areas throughout the region. While there is likely to be some ability to intensify Group 2 business activities (retail, office, service industries etc) significant pressure on existing business areas would result. Auckland already has an undersupply of land for Group 1 business activities (manufacturing, wholesale trade, logistics, transport and storage etc). It is considered critical to Auckland's economic and productivity growth that up to 1,000 hectares of new greenfield land be supplied for these activities, whilst 400 hectares for retail, offices and other group 2 activities. The status quo alternative does the most to recognise and preserve rural economy activities and Warkworth as a rural service town, as it excludes further urban expansion of the existing town into rural areas. In the absence of transport modelling there is insufficient information to make a fully informed assessment of accessibility. However existing transport congestion is caused as Aucklanders travel north on weekends and holidays. A pinch point at the Hill Street intersection. These impacts on tourists and locals alike. A proposal to upgrade this intersection, plus the development of the Puhoi-Warkworth Highway is likely to alleviate both holiday traffic and local traffic. Current infrastructure struggles at times to support the status quo alternative. Water supply is a particular constraint in Warkworth should it grow significantly. This status quo alternative still anticipates growth to 20,000 residents, but without any additional Greenfield land. This will require significant upgrade of water and wastewater infrastructure. Transport infrastructure will struggle to service a significantly an intensified Warkworth as more people seek to access places of employment locally and elsewhere. This alternative does not identify additional greenfield business areas. Legacy work undertaken by Rodney District Council signalled the need for additional business land. As part of this legacy work, there was strong market feedback of the desirability for more business land in this vicinity. In the absence of such land, this alternative scores poorly. **Infrastructure Costs** Warkworth is served by its own water and	Warkworth business area as the key source of future business growth, particularly for Group 2 retail, office and service sectors. Some 45 hectares additional business land, predominantly for Group 1 manufacturing, logistics etc sectors is provided to the north-west to accommodate growth in these sectors that are unable to locate in the town centre. Alternative 2 includes expansion of urban activities to the south of Warkworth and to the south-east around Hepburn Creek. While neither of these areas are particularly strong rural production areas, they do contain a range of rural production activities. This Alternative impacts fairly minimally on the rural economy activities. In the absence of transport modelling there is insufficient information to make a fully informed assessment of accessibility. However this alternative extends most future growth to the south of Warkworth. This is likely to exacerbate any north-south traffic congestion as residents seek to access places of work in Warkworth centre and the new business area in north-west Warkworth, from their residences in the south. This is unlikely to be significant. Current infrastructure supporting the current business area in central Warkworth is expected to be able to accommodate additional growth. In order to support growth in the new north-west business area, the proposed Puhoi-Warkworth highway is likely to greatly aid internal transport movements by separating highway traffic from other traffic. Water supply limits are likely to be reached but alternative sources are currently being investigated. This alternative provides for a relatively small amount of additional greenfield business land. However, there is strong demand for additional business land within the vicinity and therefore market demand is anticipated to be strong. In terms of market attractiveness for residential growth, the Hepburn Creek area as poor market attractiveness as existing sites are highly sought after and relatively expensive due to the very high amenity and landscape appeal. The market signals that areas to the immediate south of Warkworth are similarly challenging, although where there are existing large lots there is strong market feasibility for redevelopment. **Infrastructure Costs** Warkworth is served by its own water and wastewater networks. *Water Supply* Potable water is currently provided by an intake on	the south of Warkworth, removes growth in the Hepburn Creek area and replaces these with extensive growth around Warkworth north-east. An additional business area is provided in Warkworth West predominantly for Group 1 manufacturing, logistics etc sectors to accommodate growth in these sectors. This increases future land for these activities to 92 hectares. Alternative 3 reduces growth to the south but includes significant expansion into Warkworth North and north-east. In the north, the area has fairly poor quality soils, with corresponding types of rural production. To the north-east the soils improve and slope reduces making this area a better rural production area. Accordingly, this alternative impacts more significantly on rural economy activities. In the absence of transport modelling there is insufficient information to make a fully informed assessment of accessibility. However this alternative extends future growth to Warkworth North and north-east. This is likely to impact less on internal congestion, compared to Alternative 2 as trips will come from sources in the north and south. However urban growth to the east is likely to create a demand for an additional crossing of the Mahurangi River to enable easier access into Warkworth centre. Current infrastructure supporting the current business area in central Warkworth is expected to be able to accommodate additional growth. In order to support growth in the new north-west business area, the proposed Puhoi-Warkworth highway is likely to greatly aid internal transport movements by separating highway traffic from other traffic. The proposal to remedy the Hill Street intersection will further ameliorate potential congestion from this alternative. An additional bridge over the Mahurangi River may be required to cater for urban growth to the north-east. Water supply limits are likely to be reached but alternative sources are currently being investigated. This alternative provides for some significant additional greenfield business areas. Based on historical strong demand for business growth opportunities, this alternative is likely to be highly market attractive to business redevelopment. Analysis is not complete to enable assessment of the market attractiveness for residential growth, for this alternative. However this alternative avoids poor market attractive areas such as Hepburn Creek and thus is likely to be more market attractive than the other alternatives. **Infrastructure Costs** Warkworth is served by its own water and wastewater networks. *Water Supply*	of Warkworth and removes growth in the Hepburn Creek area. These are replaced by growth to the Warkworth North. An additional business area is provided in Warkworth West predominantly for Group 1 manufacturing, logistics etc sectors to accommodate growth in these sectors. This increases future land for these activities to 92 hectares. Alternative 4 reduces growth to the south but includes expansion of 170 hectares into Warkworth North. This area currently contains a range of rural production activities, but in general this is fairly poor quality soils, with corresponding types of rural production. This alternative impacts fairly minimally on the rural economy activities. In the absence of transport modelling there is insufficient information to make a fully informed assessment of accessibility. However this alternative extends future growth both to the south of Warkworth and to Warkworth North. This is likely to impact less on internal congestion, compared to Alternative 2 as trips will come from sources in the north and south. Current infrastructure supporting the current business area in central Warkworth is expected to be able to accommodate additional growth. So to, to support growth in the new north-west business area. The proposed Puhoi-Warkworth highway is likely to greatly aid internal transport movements by separating highway traffic from other traffic. The proposal to remedy the Hill Street intersection will further ameliorate potential congestion from this alternative. Water supply limits are likely to be reached but alternative sources are currently being investigated. This alternative provides for some significant additional greenfield business areas. Based on historical strong demand for business growth opportunities, this alternative is likely to be highly market attractive to business redevelopment. Analysis is not complete to enable assessment of the market attractiveness for residential growth, for this alternative. However this alternative avoids poor market attractive areas such as Hepburn Creek and thus is likely to be more market attractive than the other alternatives. **Infrastructure Costs** Warkworth is served by its own water and wastewater networks. *Water Supply* Potable water is currently provided by an intake on the Mahurangi River, although consent has been granted to take water from a new groundwater source This replacement source will provide potable water for a population of 12,000. The switching to the new groundwater source will provide significant capacity

	wastewater networks. *Water Supply* Potable water is currently provided by an intake on the Mahurangi River, although consent has been granted to take water from a new groundwater source. This replacement source will provide potable water for a population of 12,000. The switching to the new groundwater source will provide significant capacity improvements and is also a cheaper water source to treat for human consumption.	the Mahurangi River, although consent has been granted to take water from a new groundwater source This replacement source will provide potable water for a population of 12,000. The switching to the new groundwater source will provide significant capacity improvements and is also a cheaper water source to treat for human consumption. However, additional water source(s) will be needed and work is underway to determine possible sources, as well as the cost implications for these additional sources. *Wastewater* Warkworth's wastewater network and wastewater treatment plant will also require upgrades to meet the planned growth for the RUB. The current wastewater treatment plant is located in close proximity to the town centre and discharges into the Mahurangi River. Additional work will be required to determine the appropriate design and operation of the wastewater network given the sensitivity of the receiving environment and the treatment quality needed. *Stormwater* The RUB project, while not detailing the structure plans for the respective RUB areas, has reviewed the stormwater infrastructure needs for the GAFIs. The RUB project has also based development capacities on best practice stormwater principles. This is due in part to the sensitive nature of many of the receiving environments affected by the urbanisation of the GAFIs.	Potable water is currently provided by an intake on the Mahurangi River, although consent has been granted to take water from a new groundwater source This replacement source will provide potable water for a population of 12,000. The switching to the new groundwater source will provide significant capacity improvements and is also a cheaper water source to treat for human consumption. However, additional water source(s) will be needed and work is underway to determine possible sources, as well as the cost implications for these additional sources. *Wastewater* Warkworth's wastewater network and wastewater treatment plant will also require upgrades to meet the planned growth for the RUB. The current wastewater treatment plant is located in close proximity to the town centre and discharges into the Mahurangi River. Additional work will be required to determine the appropriate design and operation of the wastewater network given the sensitivity of the receiving environment and the treatment quality needed. *Stormwater* The RUB project, while not detailing the structure plans for the respective RUB areas, has reviewed the stormwater infrastructure needs for the GAFIs. The RUB project has also based development capacities on best practice stormwater principles. This is due in part to the sensitive nature of many of the receiving environments affected by the urbanisation of the GAFIs.	improvements and is also a cheaper water source to treat for human consumption. However, additional water source(s) will be needed and work is underway to determine possible sources, as well as the cost implications for these additional sources. *Wastewater* Warkworth's wastewater network and wastewater treatment plant will also require upgrades to meet the planned growth for the RUB. The current wastewater treatment plant is located in close proximity to the town centre and discharges into the Mahurangi River. Additional work will be required to determine the appropriate design and operation of the wastewater network given the sensitivity of the receiving environment and the treatment quality needed. *Stormwater* The RUB project, while not detailing the structure plans for the respective RUB areas, has reviewed the stormwater infrastructure needs for the GAFIs. The RUB project has also based development capacities on best practice stormwater principles. This is due in part to the sensitive nature of many of the receiving environments affected by the urbanisation of the GAFIs.
Transport	A no growth option for Warkworth from a transport perspective would be advantageous as it would reduce need for local spending on local roading networks. However, growth does further support the proposed Puhoi to Warkworth motorway in terms of making the most efficient use of infrastructure.	Alterative 2 which enables the majority of growth to occur to the south of Warkworth. Putting a large amount of growth in this area may create pressure for an additional interchange to service the new urban area south of Warkworth which, if constructed, may be costly and have an adverse effect on the operation of the motorway. In this alternative the RUB extends right up the proposed Puhoi to Warkworth motorway and as the designation has not yet been confirmed, any additional land that is required for the motorway alignment that falls within the RUB could make construction more expensive and challenging. In terms of the Hepburn Creek, access to this area is poor and improvements would be extremely difficult due to the terrain and environmental constraints of the area. This area would also be difficult to serve with a connected street network given its hilly terrain and isolation. In all options, achieving a modal shift to public transport may be more challenging than other Greenfield areas due to its relative isolation and not being near existing rail or bus way infrastructure. The Hepburn Creek area in particular is isolated	Alternative 3 focuses growth in the north and north east which at a broad scale takes advantage of the benefits of the proposed Puhoi to Warkworth motorway, namely the north being more accessible. However, at a more local scale, growth towards the northeast of Warkworth may put pressure on the need for an additional connection across the Mahurangi to existing Warkworth. Without such a connection it would be difficult to achieve a well connected street network back to the existing town of Warkworth as well as the promotion of walking, cycling or public transport. The existing Sandspit Rd is a major route between Warkworth, Snells Beach and Sandspit and therefore any development on or near this road would need to be cognisant of the current function of this road. In all options, achieving a modal shift to public transport may be more challenging than other Greenfield areas due to its relative isolation and not being near existing rail or bus way infrastructure.	Alterative 4, while reduced in size slightly compared to Alternative 2, still enables the majority of growth to occur to the south of Warkworth. A large amount of growth in the south may create pressure for an additional interchange to service the new urban area south of Warkworth which, if constructed, may be costly and have an adverse effect on the operation of the motorway. This Alternative is better than Alternative 2 in that there is no risk of the proposed motorway alignment requiring additional land inside the RUB through the process of confirming its alignment given that the stream is used as the western RUB boundary rather than the proposed motorway. Alternative 4 proposes a development area in the north including some business land. The Puhioi to Warkworth motorway will make this northern part of Warkworth very accessible and development here will not have to pass through all of Warkworth to access the motorway. The accessibility of north Warkworth would be very beneficial to freight vehicles. The Puhoi to Warkwoth motorway will make the northern part of Warkworth the main access point which means that some traffic may need to travel north through existing Warkworth to head south to

		and unlikely to promote walking or cycling or be easily served by public transport.		Auckland, minimizing the extent to which the motorway will remove traffic from the existing SH 1. In all options, achieving a modal shift to public transport may be more challenging than other Greenfield areas due to its relative isolation and not being near existing rail or bus way infrastructure. The Council's Transport Strategy Team has been working closely with Auckland Transport and the New Zealand Transport Agency to develop the likely transport infrastructure needed to support the various GAFIs. This has provided a range of indicative costs for servicing the GAFIs. For Warkworth Alternative 4, the indicative infrastructure costs are in the range of $350-500 million. It should be noted that these costs are based on preliminary 'per kilometre' rates and are highly indicative given the uncertainty of factors like final land use patterns, levels of service, design specific engineering, and route geotechnical conditions. Furthermore, these costs generally relate only to the provision of arterial roads and major public transport infrastructure in the greenfield areas. Therefore, they do not include local roads built by developers, projects already included in the Auckland Plan in the greenfield areas (e.g. Puhoi-Warkworth, Penlink, electrification to Pukekohe etc.) or possible required projects outside the greenfield areas which are over and above what is included in the Auckland Plan (e.g. further rail track provision to enable express running of services from the south).. Further analysis is underway to gain a better understanding of likely future transport costs in the greenfield areas. These costs will need to be financed by a variety of means and sources, including both local and central government.

3.3.5 Recommended RUB for the North

The Auckland Plan, Development Strategy, identified the North as an area with potential capacity for 16,000 additional dwellings together with land for employment. Warkworth is identified as one of two Satellite towns with the other being Pukekohe in the south. The Growth Options and Indicative RUB put forward as part of the Addendum to the Draft Unitary Plan provided land to meet this capacity while addressing issues that had been identified including, maintaining the character of Warkworth, the effects on the Upper Harbour, Weiti, Okura and Mahurangi receiving environments, flooding issues, land instability – in particular west of Silverdale, countryside living, transport links, the need for eemployment land and defining a defendable RUB boundary.

Feedback, representing a range of views was received focussing on the scale and form of the proposed urban growth in the North. While a number of submitters were generally supportive of the options and indicative RUB and made suggestions for particular locations which they believed would be appropriate for urban development others were opposed to an urban scale of development and wanted the retention of rural activities and character.

Submissions and additional technical work provided a basis to assess a number of alternatives including the status quo.

The points made by submitters about the importance of rural activities, and maintaining rural character and lifestyle choices such as countryside living, as well as the character of rural towns is acknowledged. In deciding on a preferred alternative and recommended RUB, these were taken into consideration. However, the location of the North GAFI areas, in close proximity and easily accessible to the Auckland urban area, means that there are advantages to maximising growth in this area. These relate to the provision of infrastructure, access to employment and transport as well as providing a more sustainable residential and business catchment for the existing town of Warkworth.

While the preferred alternative RUB provides a capacity well above the range proposed by the Auckland Plan, amendments to the location of the RUB were made based on factors such as the location of future planned transport infrastructure links, the retention of character and amenity particularly in Warkworth and Okura/Weiti, recognition of the importance of the North Shore Airfield, as well as the opportunity to create a new settlement in Dairy Flat that is of a sufficient scale that can provide employment, quality public open space, community and recreational facilities and well designed centres.

In considering the feedback, the analysis of the alternatives and technical information, reinforced the view that land can be valued for a number of competing reasons (eg land valued for rural productivity and amenity may be also have attributes that make it attractive for residential uses). Similarly, there are constraints and risks in the North which makes development difficult (including flooding, geotechnical conditions, slope, environmental sensitivities and ecological values). These factors mean that it is important to use any land urbanised in the most effective and efficient way, that supports the concept of the quality compact city. Planning for densities of an urban scale within the RUB will be an essential part of this philosophy. If such densities are achieved it will mean greater efficiencies will be achieved in terms of the amount of rural land that will be required to be incorporated within the RUB. That is, the greater the densities within the RUB the less rural land will be required for urban development. Conversely, lower densities will require more land for urban development and therefore will promote urban sprawl. Notwithstanding this, there is a balance to be achieved between density and development that respects human scale and the environment.

The recommended RUB alternative for the north (Alternatives 4) therefore provides for a pattern of future development that would enable greenfield development to occur while supporting the concept of a compact urban Auckland that as fundamental to the Auckland Plan's Development Strategy.

As mentioned above, the capacity proposed from the Auckland Plan for the North was 16,000 dwellings (4,000 dwellings or 20,000 people in Warkworth and 12,000 dwellings in Silverdale Greenfield Areas for Investigation). The recommended proposal for the North (Alternative 4) would bring approximately 2,868 hectares into the RUB with an estimated capacity of between 24,493 and 29,219 over 30 years. For Warkworth, this equates to 4,854 dwellings at a low density scenario (8.2 gross dwellings per hectare) and 6,085 dwellings at a high density scenario (10.3 gross dwellings per hectare). For Silverdale, this means 19,639 dwellings at a low density scenario (8.6 gross dwellings per hectare) and 23,134 dwellings at a high density scenario (10.2 gross dwellings per hectare).

The Silverdale-Dairy Flat area in particular, is a significant area for Auckland because of its close proximity to the Auckland urban area including Albany as well as the smaller communities of Orewa, Silverdale and Whangaparaoa and the ability to provide development which fits the quality, compact model – centres approach.

From the Auckland Plan there was a focus on providing for growth which is contiguous to the existing metropolitan urban area of Auckland. Development that is contiguous to the metropolitan area is advantageous particularly for infrastructure provision. It is considered that if Auckland is to provide a certain amount of Greenfield growth opportunity, the Silverdale - Dairy Flat location is possibly one of the most logical places to grow in Auckland due to its proximity to the existing urban area, transport, the coast/amenity, employment, as well as its relative ease of development given its topography is generally flat to undulating. There are however, a number of issues that will need to be worked through such as discharges into the Upper Waitemata Harbour, land instability and how to convert large areas of already fragmented land which is has been developed as Countryside Living.

The recommended RUB option for Silverdale provides for some growth in the Wainui East area (only as far as the Orewa River) and significant growth in Dairy Flat contiguous with the business area of Silverdale West which includes the North Shore Airfield however only as far west as Postman Rd. For a variety of reasons it was not considered appropriate to include all the land west of Postman Road up to Dairy Flat Highway. Some of these reasons include: the presence of the Redvale Landfill and the reverse sensitivity issues from it due to prevailing SW winds; the location of the Airfield and its Noise Notification Areas extending out over this area; a desire to retain some Countryside Living areas in Silverdale; maintaining a visual break from urban land use along Dairy Flat Highway; and retaining the existing rural service centre at Kahikatea Flat Rd.

Although there was some support for development to the east of State Highway 1, it is considered that development in this area is not appropriate given the significant environmental, cultural and land stability issues associated with that area. It was also considered that growth to the north of the Orewa River was not appropriate given the steep terrain and cultural significance of that area.

Development into the wider Dairy Flat area was however considered the best option to allow for significant growth in the north without having to go into more sensitive areas such as Okura/Weiti. As mentioned above, the Dairy Flat area is of such a scale that it is possible to create a new town based on good design principles including access to centres and facilities, parks and public transport. The area would leverage off good access to SH17, SH1 and the proposed Penlink. The preferred alternative includes contiguous development

with the Silverdale West triangle of possible future Group 1 business land and the North Shore Airfield.

The recommended RUB option for Warkworth provides for the majority of growth to the south of Warkworth and some growth to the north and north west. The growth to the south leverages off development that has already occurred in that area around Mckinney Road however it avoid the environmentally sensitive and steep terrain of Hepburn Creek. This alternative respects the desire to see a buffer between the proposed motorway and urban development and therefore uses the watercourse as the RUB boundary. This alterative also respects the sensitive landscapes (ONL) and ecological areas to the south by avoiding these areas. There was some feedback received which sough the provision of additional business land particularly to the north and west of Warkworth. The recommended RUB identifies additional land around the existing business area of Hudson Road which could be developed as Group 1 land extensive business. In order to provide some balance to the growth of Warkworth as well as to respond to some feedback which saw development to the north as desirable, the recommended RUB identifies additional land in the north using Goatley, Clayden and Matakana Roads as the boundary which effectively follow natural landscape boundaries as well as the roads. Although there was some support for development to extend east of Matakana Road, it is not considered appropriate for a number of reasons including: the location of a defendable boundary; the potential cost of servicing the area; the potential for the urban areas of Warkworth, Snells Beach and Sandspit to merge as well as the potential adverse effects of large scale development on the already degraded Mahurangi River.

The recommended RUB is predicated on defendable boundaries with natural boundaries and sometime in conjunction with roads forming the majority of the RUB line itself. The importance of visual containment and protection of valued landscapes and ecological areas is acknowledged however these are able to be addressed in greater detail at Structure Planning stage.

There must also be a weighting of the costs that development in these areas will bring including effects on the rural economy and rural lifestyle that much of the land within the recommended RUB has to offer.

Environmental effects could also be significant particularly in terms of our waterways, coastal margins, marine receiving environments, and ecological systems. For example, the Mahurangi River is noted as a sensitive environment that has already been compromised by urban and rural activities, the Weiti/Okura catchment is noted for its sensitive receiving environment and the Upper Waitemata in which Dairy Flat drains into is widely understood to be close to tipping point in terms of environmental degradation. There are also a number of ONLs and SNAs featuring in these locations that will need to be carefully avoided and where possible enhanced. It will be important to ensure that best practice in association with a whole of catchment approach to planning and implementation will be essential if Auckland is to enable urbanisation while safeguarding environmental baselines.

3.4 Edge Work

3.4.1 Introduction

The Edge refers to Stage 2 of defining the RUB as outlined in section 1.1. The Addendum to the Draft Unitary Plan provided the opportunity for landowners located outside the RUB and at the edge of metropolitan Auckland to put forward areas for inclusion in the RUB through the feedback process. Criteria to assess the requests were provided in Appendix A to the Draft Unitary Plan Addendum.

In addition to responding to feedback requests, Stage 2 provides an opportunity to consider whether the entire RUB (excluding Stage 3) is robust and defensible. Identifying land suitable for providing additional capacity for growth is not within the scope of Stage 2.

To determine whether requests qualify as being within the Edge the following criterion was developed as part of the edge work:

> Land must be contiguous with the metropolitan urban edge or located in close proximity to the RUB. Close proximity to the RUB means land that is:
> - located within an urbanised stormwater catchment, and
> - served or accessible to public transport, or
> - serviced or capable of being readily serviced with reticulated water and wastewater, or
> - part of an approved structure plan for urban development.

The scale of requests was then considered to determine whether the subject areas were of a scale that could be assessed without the need for further technical assessments. This process is illustrated in Figure 1.

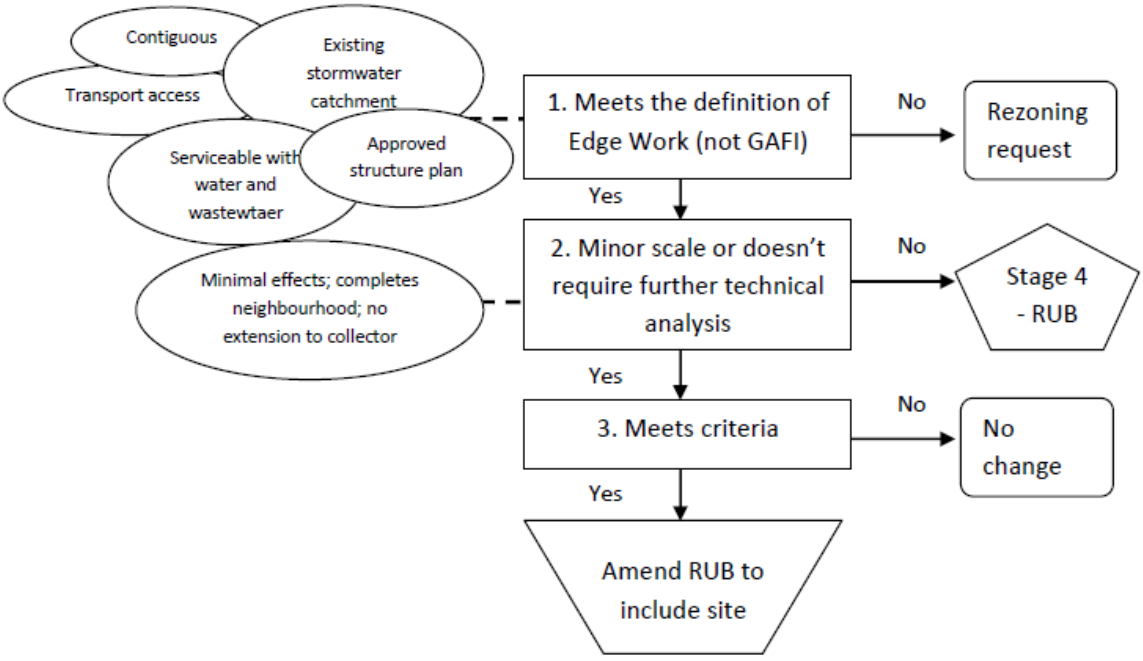


Figure 1 Edge Work Process

Principles

A number of planning principles for identifying the RUB are outlined in section 2.1 above. These are different to the criteria to determine whether land is in the Edge. They are principles applied to identify or determine a defensible RUB.. In addition to those already discussed, the following principles are specific to the Edge:

i. Waitakere Ranges Heritage Area provides a defensible boundary

The Waitakere Ranges Heritage Area is identified and protected through the Waitakere Ranges Heritage Area Act 2008. The legislation was enacted to recognise, protect and enhance heritage features of the Waitakere Ranges and their foothills and coasts. The objectives of the Waitakere Ranges Heritage Act identify that the Waitakere Ranges Heritage Area has little capacity to absorb further subdivision, and seeks that any subdivision or development does not lead to urban sprawl to retain a rural character. To change the boundary of the Waitakere Ranges Heritage Area to exclude land requires a change to the legislation. The Waitakere Ranges Heritage Area is therefore identified as a defensible boundary and the RUB should not extend into it.

ii. A defensible boundary requires that sites not be considered in isolation

Generally requests sought the inclusion of specific sites within the RUB without consideration of neighbouring sites or the wider catchment. Where there is a concentration of requests and an opportunity is identified for land to be included in the RUB, it is important that sites are not considered in isolation but that a comprehensive approach is taken to determine a defensible boundary. Therefore additional sites may be considered as part of the broader assessment of requests to confirm a defensible RUB.

iii. Sufficient information is required to determine a defensible RUB

It is critical that sufficient information is available to provide certainty around the location of RUB and the land to be included within it. Whilst assessment criteria is provided to consider requests, there is no requirement for landowners to undertake an assessment or provide supporting technical reports. Therefore assessment is reliant on existing information available to the Council. In some locations, requests or multiple requests sought the inclusion of large areas of land where there has either been no previous investigation or existing information identifies constraints or issues. Where available information suggests that large areas could be included in the RUB subject to issues being resolved, then these should be deferred to enable further investigation to be undertaken post notification of the Unitary Plan.

3.4.2 Summary of Feedback Requests

86 requests within the Edge were received through feedback to the draft Unitary Plan seeking either inclusion of additional land within the RUB, or an urban zone that would require land to be included in the RUB. These related either to specific sites or broad areas. Requests were concentrated in 12 geographic locations along the Edge, illustrated in Figure 2.

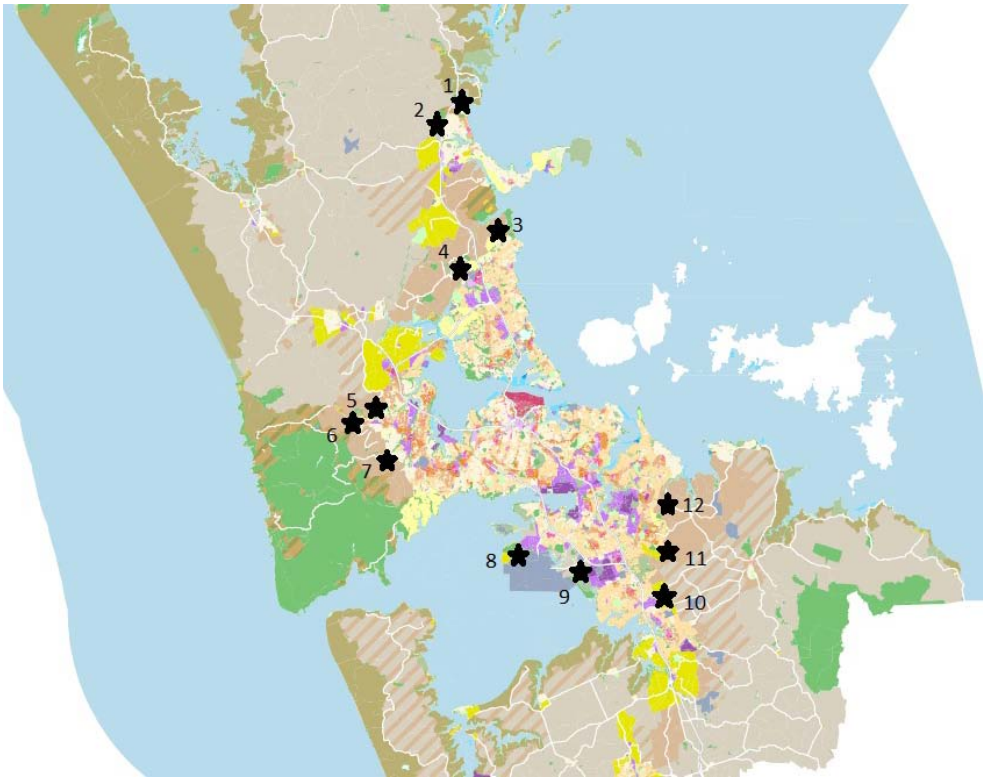


Figure 2 Location of Requests

The scale of individual site requests ranges from as small as 4,000m² to as large as 130ha. In some locations the concentration of requests identifies a significant area of land to be assessed, e.g. approximately 1,000 ha in Takanini.

Applying the Edge principles to the requests identified a number of requests as complex, because the concentration of requests identified large areas for consideration requiring a comprehensive approach thatincluded land that was not the subject of a request. This recognised that any requests of significant scale would be difficult to consider unless sufficient technical information was available to resolve identified issues and/or constraints. It also recognised that further consideration was warranted in some locations because they provided opportunities for extending the RUB subject to technical assessments to confirm with certainty a robust and defensible boundary. Therefore the locations of requests were categorised into simple and complex (Table 1).

Simple	**Complex**
1. Hatifelds Beach 2. Orewa 5. Massey / Birdwood 6. Swanson 7. Henderson Valley 8. Ihumatao - Mangere 11. Flat Bush 12. Howick	3. Okura / Long Bay 4. Albany 9. Puhinui - Mangere 10. Takanini

Table 1 Classification of requests

The key difference between simple and complex locations is that complex locations identify large areas of land where insufficient information is available to confirm with certainty whether land should be included in the RUB or where a defensible RUB can be identified.

Therefore simple requests could were assessed against the Addendum criteria, but complex were deferred until further investigation can be undertaken.

Further details of the requests, including the determination of simple and complex locations is provided in the Assessment of the requests is provided in the Technical Report – Assessment of Edge Requests (Edge Report).[42]

3.4.3 Consultation

The general approach undertaken for consultation on the Edge was to identify opportunities to engage in existing consultative programmes under the Unitary Plan and RUB investigation (Stage 3). Consultation was undertaken with Local Boards, Mana Whenua and Auckland Council Staff. A summary of the feedback received through consultation on the Edge is provided in the Edge Report. The consultation process is outlined as follows:

Local Boards

The following Local Boards were identified as either having requests located within their local board area, or adjacent to their local board area:

- Upper Harbour
- Hibiscus Bays
- Henderson Massey
- Waitakere Ranges
- Mangere Otahuhu
- Otara Papatoetoe
- Howick
- Manurewa
- Papakura
- Franklin
- Rodney

12 July 2013 mapping workshop with APC and Local Boards – the Edge process was outlined and the requests were mapped to seek initial feedback on the sites identified.

2 August 2013 mapping workshop with APC and Local Boards – an update was provided on the assessment of the requests seeking feedback on the recommendations to include sites at Massey and Flat Bush and to defer consideration of complex locations until post notification of the Proposed Unitary Plan.

Internal

Discussions with Council officers were a key input to the Edge process, and this occurred through meetings, telephone conversations, and internal workshops. A series of internal workshops also provided opportunities for staff to review the mapped requests and/or locations for consideration to identify specific issues or constraints.

- Mapping workshops (4-5 July 2013) with the staff from Area Planning, Unitary Plan, Stormwater, Transformation Projects, Spatial Strategy – sought feedback on mapped requests,
- A series of workshops to discuss possible Special Housing Areas in response to the proposed Housing Accord between the Council and Central Government occurred in July 2013. The focus of these workshops was on implementation of housing and the infrastructure constraints to development should the Accord be ratified. Staff from

[42] Technical Report – Assessment of Edge Requests, Hill Young Cooper (August 2013)

Auckland Transport, Watercare Services Ltd, Stormwater, Property, Resource Consents, and Regional and Local Planning were invited to the workshops. A number of areas along the Edge were considered as part of this worksteam.

- A workshop was held (8 July 2013) with staff from Environmental Policy and Strategy (including Ecology, Freshwater, Heritage, Landscape) – sought feedback on mapped requests.

Mana whenua

Schedule 1, clause 3(d) specifically requires consultation on the preparation of a proposed plan with the tangata whenua of the area who may be affected through iwi authorities (mana whenua). Engagement with mana whenua for the Edge work was undertaken in conjunction with Stage 3 – greenfield areas for investigation because they both define the RUB.

The locations of requests fell within the respective mana whenua rohe areas of 16 iwi/hapu. An email was sent to all mana whenua providing information on the Edge process and including maps of the requests, and provided opportunity for a meeting to discuss the locations, issues and concerns.

- Ngati Manuhiri,
- Te Kawerau a Maki
- Te Runanga o Ngati Whatua
- Ngati Whatua o Kaipara
- Ngati Whatua Orakei
- Te Ahiwaru
- Te Akitai
- Ngati Tamaoho
- Ngati Te Ata
- Ngai Tai
- Waikato Tainui
- Ngati Paoa
- Ngati Maru
- Te Patukirikiri
- Ngati Whanaunga
- Ngati Tamatera

Meetings were held with either the chairs or representatives from most of the iwi to discuss the Edge and seek feedback or further information on the locations. Minutes were taken at each of these meetings and confirmed with the iwi.

3.4.4 Assessment of Requests

A full assessment of requests is provided in the Edge Report, which outlines the requests, the information available to consider requests, the issues and constraints within each location, consultation findings, and assessment of the simple requests against the Addendum criteria, explanation of complex requests, and recommendations for inclusion in the RUB. Sites at Massey and Flat Bush met the assessment criteria and the Edge Report recommends that these areas be included in the RUB.

At the Auckland Plan Committee workshop on 9 August 2013 direction was sought both on the recommendations to extend the RUB in Massey and Flat Bush, and to defer consideration of complex locations until after notification of the Unitary Plan. Deferral of the complex locations enables sufficient investigations to be undertaken to resolve the identified issues and constraints, to determine whether land should be included in the RUB and identify a defensible boundary. Where the investigation confirms that land should be

included in the RUB, this can be implemented either via variation to the proposed Unitary Plan (if directed by the Commissioner) or plan change to the Operative Unitary Plan.

Overall the Committee supported the approach to the Edge, including deferring consideration of the RUB at Albany, Okura and Puhinui till after notification of the Proposed Unitary Plan. The Committee queried whether in fact there is sufficient information available to identify a defensible boundary for Takanini because of the previous work of Papakura District Council on the Takanini Structure Plan and the recent rural plan change (Plan Change 13). It was acknowledged that there is significant public expectation that Takanini be included within the RUB at the time of notification, and that any issues could be resolved by identifying land as Future Urban zone and thus requiring a structure plan/plan change process release land for development.

Alignment with the Waitakere Ranges Heritage Area

The Edge Work process and planning principles confirmed that the Waitakere Ranges Heritage Area provides a defensible boundary. Alignment of the RUB and the Waitakere Ranges Heritage Area in Swanson, Henderson Valley and Oratia is identified to result in a number of minor changes that are not considered substantial. Therefore any changes to the RUB in response to this alignment are not discussed in the section 32 report. Further explanation is available in the Technical Report – Assessment of Edge Requests.

3.4.5 Option Analysis

Confirming a robust and defensible RUB involves a number of options, all of which apply through Stage 2 depending on the information available. The following table analyses the options to determine whether they will achieve the objectives for the RUB and meet the requirements of section 32 of the RMA.

	Status Quo – Applying operative MUL as RUB	**Deferring complex requests**	**Assessment of simple requests**
Appropriateness	Where the MUL/RUB is either clearly defined by natural landscape features, or a recent change confirms the appropriateness of the boundary	Enables sufficient investigation to determine suitability of land for urban development and to identify a defensible RUB	Provides for requests to be considered against the Addendum criteria enabling minor changes to the RUB
Effectiveness	Relies on existing information and defined landscape features to identify a defensible RUB	Enables investigation to identify a defensible RUB where large areas are in question	Determines a defensible RUB through consideration of minor requests
Efficiency	Does not require further assessment	Investigations can begin now or later at Stage 4.(timing of work yet to be confirmed by council) Any necessary changes could be implemented either in response to submissions to the Proposed UP through	Most efficient to implement simple requests now prior to notification of the Unitary Plan

	Status Quo – Applying operative MUL as RUB	Deferring complex requests	Assessment of simple requests
		a variation at the request of the Commissioners, or as a plan change once the plan is made operative	
Costs	Costs to Council of defending the boundary where land owners do not accept it	Costs to Council of identifying additional large areas for urbanisation, affecting the priorities for sequencing and funding of the Forward Land and Infrastructure Programme Costs to landowners associated with further delays and lack of certainty	Some costs to council and infrastructure providers to service small areas included Development opportunity costs to land owners where sites not included
Benefits	Focuses consideration of the RUB on areas identified for future growth (Stage 3) or where the boundary is not defensible	Provides certainty and confirms a defensible RUB boundary for the next 30 years Enables wider consideration of areas to provide greater certainty and efficiency of land supply	Provides certainty and confirms a defensible RUB boundary for the next 30 years Enables requests to be considered on their merits
Risks	Land owners may provide additional information to refute Council's agreed position	Avoids risks of identifying land that is not suitable for urban development and /or that may result in significant adverse effects on the environment	Avoids potential risks as a Future Urban zoning will require structure planning and this will address contstraints and opportunities with greenfield areas.

The next part of the assessment relates specifically to the requests that meet the Addendum criteria for inclusion in the RUB and considers the options within each of these for a defensible boundary. Each area is assessed in turn, with a discussion on the key features and issues of the area and then an analysis of the options.

Massey

Requests located in Massey that meet the assessment criteria are located at 155-177 Birdwood Road, 6-8 Yelash Road, and 1, 8 and 11Crows Road (Figure 2). These sites are currently located to the west of the MUL, contiguous with the urban edge. The area

comprises a total of 26 hectares of rural land, currently zoned Birdwood Special Area in the Auckland Operative District Plan (Waitakere Section).

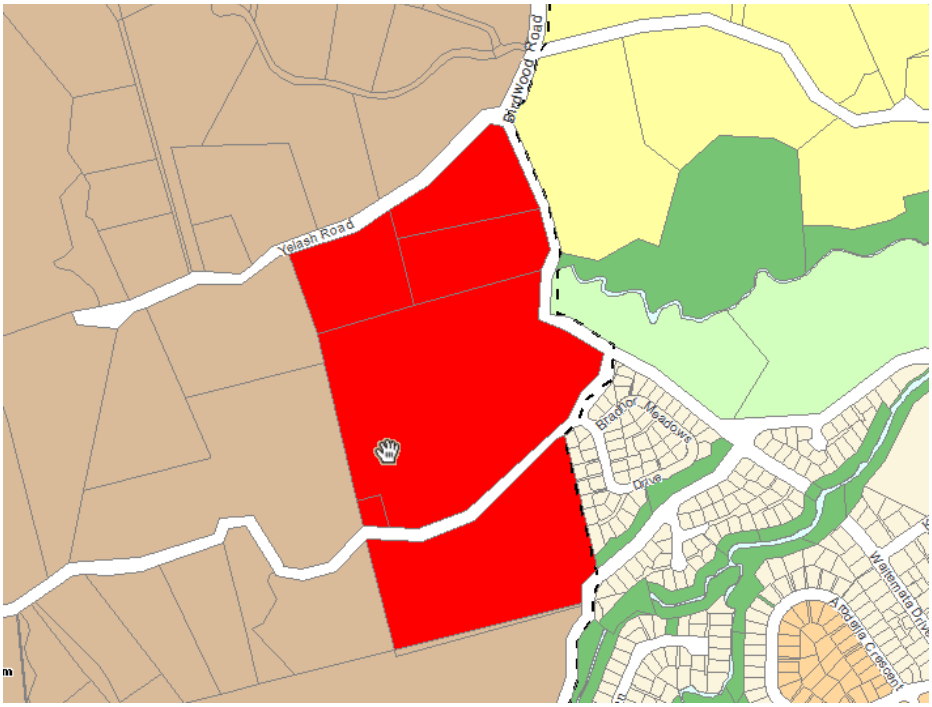


Figure 3 Location of requests in Massey

The following assessment identifies the issues within the broader area of the requests.

History	Within this catchment there has been a series of structure planning exercises as part of the development of the Waitakere District Plan: • The Swanson Structure Plan to the west recognises the area as forming the foothills to the Waitakere Ranges and identified the rural residential subdivision capacity of the each site in the Foothills Environment. • The Birdwood Structure Plan along Birdwood Road to the north identified the rural residential subdivision capacity sites. • The Birdwood Urban Concept Plan to the east along Don Buck Road identified areas for urban development and applied urban zonings.
Physical Geography	The area is located to the west of Birdwood Road, north of Swanson and forms part of the western flank of the RUB, approximately 5 km south-west of Westgate Metropolitan Centre. North of the area is Redhills, part of the North Western Greenfield Area for Investigation discussed in section 3.2 above. The Swanson Stream is located along the southern boundary of the area.
Environmental issues	The topography of the area is gently undulating adjacent to the urban area and then starts to rise more steeply into a

	series of stream gullies and bush covered slopes. The draft Unitary Plan identifies a number of Stream Management Areas in addition to large areas of Significant Ecological Areas Land has been identified as having a moderate-significant landscape sensitivity classification and the MUL was identified as not being defensible based on landscape.[43]
Economy	This area is not highly productive rural land due to the topography and largely Class IV soils but contributes to the rural landscape character of the area. Currently land is largely developed as rural residential lifestyle blocks.
Transport	The area is not well serviced by public transport, located over 1km from the Ranui Train Station and 1km from the bus service on Glen Road. The area is accessed by local roads; Sunnyvale Road and Crows Road are both sealed whilst Yelash Road is metal.
Water	Water supply is available in the area with trunk water services existing along Yelash Road southwards to Swanson. No services are available along Sunnyvale Road.
Wastewater	Trunk wastewater gravity sewer exists downstream of the area but not within the area.
Stormwater	No stormwater infrastructure serves this area and it is not included within the Birdwood Catchment Management Plan. There is no Network Discharge Consent for this area
Cultural issues	Consultation did not identify any cultural issues and review of Councils cultural heritage records do not identify any sites of significance

The following table analyses the options for identifying a defensible RUB in response to the those requests that meet the assessment criteria:

[43] Landscape Review of Metropolitan Urban Limits 2001, Redhills to Laingholm for Waitakere City Council, LA4

Massey	**Option 1**	**Option 2**	**Option 3**	**Option 4**
Effects	**Align the RUB along Sunnyvale Road**	**Align the RUB with Birdwood Urban Concept Plan**	**Align the RUB to the boundaries of 8 Yelash Road and 1-11 Crows Road**	**Status Quo – maintain current alignment**
Description	*Reflects the catchment boundary and includes all land west of Birdwood Road, north of Swanson Stream and south of Redhills Road, up to Sunnyvale Road and apply Future Urban zone*	*Identifies a more defensible boundary along the ridgeline south of Massey Highschool and excludes rural land from the RUB*	*Identifies the property boundaries as the RUB, based on topography to include specific sites that meet Addendum criteria and apply Future Urban zone*	*Includes Birdwood Structure Plan within the RUB*
Environmental	• Potential adverse effects on the landscape, land stability, Significant Ecological Areas, and Stream Management Areas	• Avoids adverse effects of urban development by retaining development to the more gentler slopes • Avoids potential adverse effects of development on Significant Ecological Areas and Stream Management Areas.		
Social	• Any impacts on existing social infrastructure are likely to be minor as the area could not accommodate significant development	• Reflects existing development potential therefore does not increase pressure on existing social infrastructure	• Any impacts on existing social infrastructure are likely to be minor because additional area is only 26 ha and structure planning would be required to address any effects	• Reflects existing development potential therefore does not increase pressure on existing social infrastructure
Economic	• Development capacity of land is constrained by topography and land stability • Infrastructure costs associated with roading upgrades and extension of services	• Provides certainty regarding development potential of land by excluding rural land from the RUB	• Provides for additional supply of residential capacity the form and extent is yet to be determined through structure planning • Infrastructure costs would be minor due to scale of are to be included and availability of trunk services	• Does not require additional infrastructure servicing
Cultural	• No cultural effects identified in the area			
Costs	• Majority of area is within either the Birdwood Structure Plan or the Swanson Structure Plan – urban development would exceed the development capacity already identified in this area	• Perceived effects on landowners of identifying land as Rural rather than Urban	• Costs to the landowner of preparing a plan change to implement live zoning on the land	• Current MUL is not a defensible boundary because it is not aligned with a defined natural landscape feature
Efficiency	• Would not be efficient use of land given effects on the environment and the capacity of development that could be achieved due to topography	• Excludes the Birdwood Structure Plan from the RUB because it is rural residential and not urban	• Reflects that the planning context has changed and land is suitable for urban development over the next 30 years	• Does not recognise ability for land outside the MUL to be developed as urban
Benefits	• Provides a defensible boundary along the catchment boundary along Sunnyvale Road	• Provides a defensible boundary along the ridgeline south of Massey Highschool	• Provides additional some capacity for housing • Provides a defensible boundary based on topography	• Maintains current situation for landowners so no perceived loss of development rights

Flat Bush

Requests located in Flat Bush that meet the assessment criteria are at 98 Chateau Rise and 19 Fairhill Place (Figure 3). Both sites are contiguous with the urban edge; Chateau Rise is currently located to the north of the MUL and 19 Fairhill Place is to the east. Adjacent sites are also included to confirm a defensible boundary (outlined in red). The combined area to be included comprises 17.5 hectares currently zoned Flat Bush Countryside Transition in the Auckland Operative District Plan (Manukau Section).

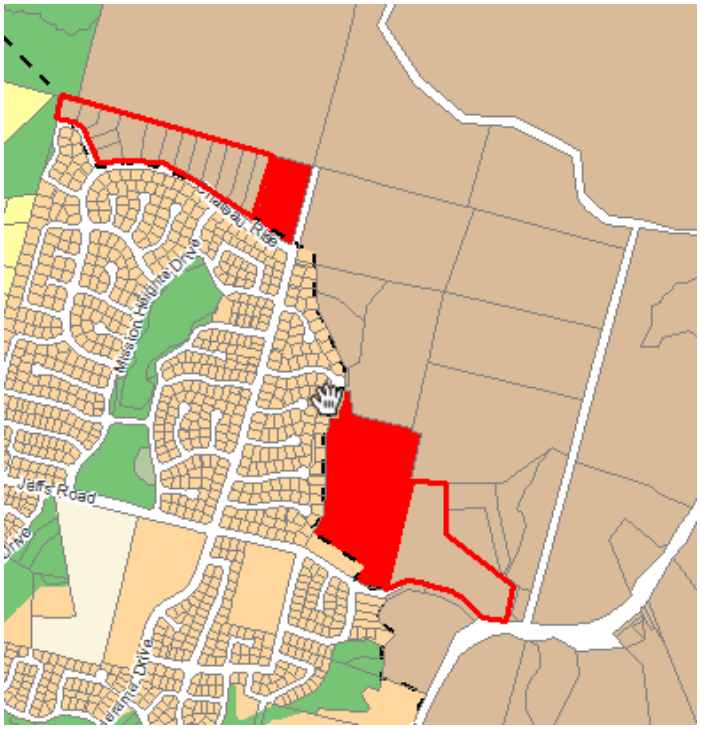


Figure 4 Location of Flat Bush requests

The following assessment identifies the issues within the broader area of the requests.

History	This area forms part of the Flat Bush Structure Plan prepared as part of the development of the Manukau District Plan. Beyond the MUL the area was identified as a countryside transition zone between urban and rural along the slopes and enabling subdivision to a minimum of 5,000m². Change 1 to the Auckland Regional Policy Statement identified the MUL based on topography and landscape, setting urban development down from the ridgelines and avoiding steep land.
Physical Geography	The area is located on the eastern flank of the RUB south of the Redoubt Road ridgeline, approximately 6km north-east of Manukau Metropolitan Centre.
Environmental issues	Redoubt Road is identified as a sensitive ridgeline in the Manukau section of the operative plan which seeks to avoid development encroaching above the ridgeline. The northern slopes above Chateau Rise, adjacent to the Point View Reserve and along the Mangemangeroa Creek, are bush covered and identified as a Significant Ecological

	Area.
Economy	Land comprises of Class III soils but is not currently utilised for productive purposes. Area has developed as small rural residential lots. No specific economic effects were identified in this area.
Transport	The area is not well serviced by public transport. Significant improvements in the transport network are planned in response to the implementation of the Flat Bush Structure Plan, including improved connections to Redoubt and Mill Roads to the south and AMETI to the east.
Water and Wastewater	The area is not currently serviced by water and wastewater infrastructure but was intended to be serviced by Manukau City Council. The land is identified as not being suitable for land disposal of wastewater in the long term due to the clay content of soils.
Stormwater	This area forms the top of the catchment and includes the headwaters of the streams. Catchment management planning has been determined on the basis of large lot / rural residential land use. Further intensification could have downstream effects on stormwater management and flooding. Only part of the area is covered by the Network Discharge Consent.
Cultural issues	Consultation with mana whenua identified the importance of the Point View Drive Ridgeline as part of the cultural landscape, used for way finding. Point View Reserve is identified as an old Pa site. No other specific sites of cultural significance were identified either through consultation or review of council records.

The following table analyses the options for identifying a defensible RUB in response to the requests that meet the assessment criteria.

Flat Bush	Option 1	Option 2	Option 3
Effects	**Align RUB with Redoubt Road**	**Align RUB with SEA and catchment boundary to include discrete areas as Large Lot Residential**	**Status Quo – maintain current alignment**
Description	*Includes all between the urban edge and Redoubt Road ridgeline and applies the Large Lot residential zone*	*Includes two discrete areas at Chateau Rise and Jeffs Road and applies a Large Lot residential zone*	*Retains the alignment and identifies land outside the RUB as Countryside Living*
Environmental	• Pressure from incremental urban development along sensitive ridgeline and on Significant Ecological Areas	• Avoids potential adverse effects by limiting development potential and avoiding development of land identified as SEA	• Avoids potential adverse effects on the environment by maintaining a rural character
Social	• No additional effects on social infrastructure are identified because services are planned to accommodate future population growth in this area consistent with Large Lot residential land use and limited population growth		
Cultural	• Pressure from incremental development along the urban edge of the RUB along the ridgeline	• Avoids potential effects of urbanisation along the ridgeline	
Economic	• Costs associated with any required infrastructure upgrades to service urban sites		
Costs	• Creates uncertainty and pressure for further intensification	• The areas are discrete and largely serviced so any costs would be minor and relate to subdivision of the larger sites	• Perceived costs to landowners of not including land in RUB
Efficiency	• Current subdivision pattern is consistent with draft UP Large Lot zone within the RUB	• Identifies minor changes where a live zoning can be applied and servicing is currently in place or can be extended	• Existing use rights are retained through the identification of a Precinct to reflect current subdivision provisions of the Manukau section of the Auckland District Plan
Benefits	• Provides a defensible RUB along the catchment boundary	• Provides some limited additional capacity for residential development • Provides a defensible boundary using catchment and property boundaries ensuring the SEA to the north is retaining outside the RUB	• Provides a defensible boundary based on the Flat Bush Structure Plan

Takanini

Of the 24 requests seeking extension of the RUB to include land at Takanini, approximately half identified specific sites for inclusion and half sought implementation of the Takanini Structure Plan in some form. Requests that met the assessment criteria are bounded by Ranfurly Road to the north, Porchester Road to the west, and Mill Road to the East (Figure 4). Land is currently located to the east of the MUL contiguous with the urban edge. The combined area to be included comprises approximately 500 hectares currently zoned Future Urban or Rural Plains in the Auckland Operative District Plan (Manukau Section).

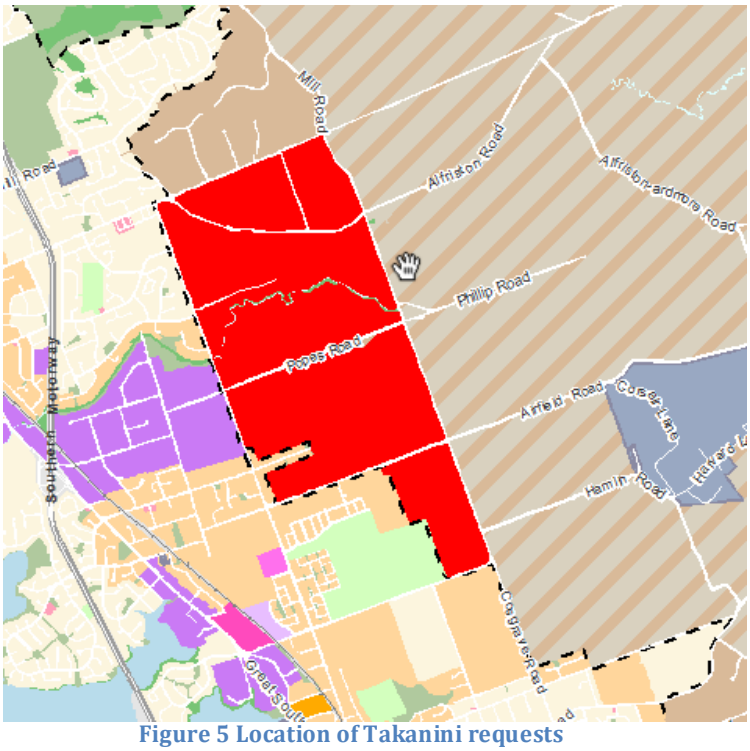


Figure 5 Location of Takanini requests

The following assessment identifies the issues within the broader area of the requests.

History	Papakura District Council approved the Takanini Structure Plan in 2000 in response to the Auckland Regional Growth Strategy (1999). It aims to provide for an additional 20,000 people and at least 3,000 jobs through the staged release of land. The Structure Plan is a high level strategy document providing a conceptual framework for future development, requiring each stage to be structure planned and implemented through plan changes both to the Papakura District Plan (identifying land use) and Auckland Regional Policy Statement (to extend the MUL). Stages 1, 2, 3 and 6 have largely been implemented, and the last remaining stages (4, 5, 7, 8 and 9) were planned for post 2020. In November 2007 Plan Change 13 – The Rural Plan Change was notified, which reviewed zoning in Rural Papakura including the Takanini Structure Plan area. Those areas identified in the Structure Plan where minimum site sizes of 5,000m² were proposed were not considered urban. As such only some parts of the Structure Plan were identified as Future Urban to avoid further fragmentation of land.

	A number of requests identified that the land use zoning around Alfriston has changed from residential to rural to future urban and back to rural over the past 30 years. This has resulted in a lack of certainty for landowners.
Physical Geography	The broad area is located to the east of Porchester Road and south of Ranfurly Road approximately 2 km north of Papakura Metropolitan Centre. The physical geography of the land is broadly flat because the area used to be a swamp. The Papakura Stream is the most defining natural feature in the area. Topography starts to change to the north of Papakura Stream rising gently towards Ranfurly Road. Land steepens as it moves north of Ranfurly Road towards the ridgeline. In the south the topography increases around Old Wairoa Road and Hamlin Road.
Environmental	This area is significantly affected by flooding (1 per cent AEP covers most of the area). However, due to the topography the flood plain is generally shallow. Most of the area south of the Papakura Stream is peat soils, with potential geotechnical constraints. The Redoubt road ridgeline, identified as a sensitive ridge in the Unitary Plan, extends down into the area north of Ranfurly Road.
Economy	The size of the area provides sufficient scale to provide for employment and economic development opportunities, including new centres and business areas. Soils are largely Class II or III, which are recognised as being highly class soils. However, land is in fragmented land ownership impacting on the rural productive value. To the west of the area is the Ardmore Airport, a significant strategic asset that contributes to the wider economy. Parts of the wider area are affected by the noise contours for the airport.
Transport	The area is not well serviced by public transport, the area is over 1km to the Takanini Train Station and over 1km to the nearest bus service on Great South Road. There are existing transport constraints within the roading network because of limited east – west access links across the Rail corridor both to Great South Road and the Southern Motorway. The capacity of the Takanini Interchange is also significantly constrained. An upgrade to the Mill Road corridor providing an additional north – south link from Manukau through to Drury is proposed by Auckland Transport but not programmed. The , alignment is yet to be determined.

Water	Bulk water supply is available to this area is provided by Veolia Water. Veolia has previously indicated that additional capacity cannot be provided to the later stages of the Structure Plan area until the existing capacity has been fully taken up. Currently development is lagging behind the provision of water supply.
Wastewater	Veolia service the northern end of the area, and Watercare services the southern area. There is no trunk wastewater services currently available in the north therefore development in this area would require the upgrade of trunk services. Trunk wastewater services are available in the south to Walters Road.
Stormwater	Stormwater infrastructure is identified as a significant constraint in this area due to topography and flooding. Significant infrastructure is required to address stormwater issues in this area (i.e. Artillary Tunnel). This will need to be addressed at the time of structure planning. There is no Integrated Catchment Management Plan or Network Discharge Consent for this area.
Cultural	Mana whenua engagement identified the Papakura Stream as significant in terms of water quality and discharges to the Manukau Harbour. Te Akitai have identified that their connection to the area is significant because Takanini is the name of their tupuna. However, this area was not inhabitated because it was a swamp. Consultation with mana whenua supported the deferment of this area to enable further investigation of cultural issues. Although previous cultural heritage assessments have been undertaken in response to recent plan changes, this was not in the context of identifying the broader area within the RUB. A cultural assessment should therefore be undertaken by mana whenua as part of comprehensive structure planning of the entire area to identify and address cultural issues. A number of historic buildings are identified in the Councils Cultural Heritage Inventory along Mill Road near the intersection with Alfriston Road.

The following table analyses the options for identifying a defensible RUB in response to the requests that meet the assessment criteria:

Takanini	Option 1	Option 2	Option 3	Option 4
Effects	**Align the RUB with the Takanini Structure Plan boundary**	**Align the RUB with Future Urban zone identified in Plan Change 13**	**Align the RUB with the Mill Road Corridor in the west and Ranfurly Road in the north**	**Status Quo – maintain the existing MUL alignment**
Description of option	*Includes all land identified within the Takanini Structure Plan and applies the Future Urban zone*	*Includes the Takanini Structure Plan (sites less than 5,000m²) currently zoned as Future Urban in the Auckland District Plan (Papakura Section) and applies a Future Urban zone*	*Includes all land west of the Mill Road Corridor and south of Ranfurly Road and applies a Future Urban zone*	*The current MUL follows Porchester Road, and includes stages 1, 2 and 3 of the Takanini Structure Plan*
Environmental	• Potential adverse effects on the flood plan, Papakura Stream, and the Manukau Harbour from urban development • Would avoid impacts on any significant ecological areas identified		• Area subject to significant flooding and peat soils • Potential adverse effects on Papakura Stream from urban and from discharges to the Manukau Harbour • Using Ranfurly Road as the boundary avoids development encroaching on the Redoubt Road sensitive ridgeline and maintains the existing countryside living character of this area	• Maintains the flood plain in natural state and avoids geotechnical issues • Avoids adverse effects on Papakura Stream and Manukau Harbour
Social	• Scale of development would have potential effects on the existing social infrastructure and would require consideration of additional facilities and services. This has been largely anticipated by service providers but will need to be addressed comprehensively for the entire area as part of any future structure plan.			• Planning for social infrastructure may have anticipated future growth, new facilities may not be viable without additional population
Cultural	• Potential adverse effects on the cultural landscape will need to be addressed through a cultural heritage assessment undertaken by mana whenua at the time of structure planning			• No cultural effects
Economic	• Significant infrastructure costs • Development on peat soils more costly • Potential reverse sensitivity issues as part of Stage 4 is affected by Ardmore Airport noise contours limits land uses to non-residential • Enables land owners to realise development opportunities	• Significant infrastructure costs • Development on peat soils more costly • Avoids reverse sensitivity issues by maintaining a rural buffer to Ardmore Airport • Enables land owners to realise development opportunities	• Significant infrastructure costs • Development on peat soils more costly • Avoids reverse sensitivity issues by maintaining a rural buffer to Ardmore Airport • Enables land owners to realise development opportunities	• Avoids reverse sensitivity issues by maintaining a rural buffer to Ardmore Airport • Land ownership is fragmented making it difficult to use land productively • Retains high class soils
Costs	• Structure planning undertaken at the time of development was at a high level strategic level and detailed planning is required by the UP to develop new communities. A Future Urban zones will facilitate the necessary strucuture planning going forward. • Comprehensive and integrated structure planning required for the entire area required to determine development opportunities and infrastructure requirements	• Alfriston village excluded because the density identified in the Takanini Structure Plan (5,000m2 +) was not considered urban. • Excludes Stage 4 along Old Wairoa Road because it does not identify defensible boundary • Comprehensive and integrated structure planning required for the entire area required to determine development opportunities and infrastructure requirements	• Parts of Alfriston (east of Mill Road) excluded as well as Stage 4 along Old Wairoa Road • Comprehensive and integrated structure planning required for the entire area required to determine development opportunities and infrastructure requirements	• Existing investment in infrastructure may not be fully recouped (i.e. Artillery Tunnel) • Potential for further fragmentation of land ownership • Lost opportunity for integrated planning of Mill Road Corridor with future land use • Ongoing pressure for urban development outside the RUB
Efficiency	• Avoids further land ownership fragmentation • Development of Takanini Structure was within a different context and required justification at each stage the MUL was shifted. Therefore boundary is not defensible.	• Avoids further land ownership fragmentation • North-east of Papakura Stream the edge of the Future Urban zone does identify a defensible boundary	• Avoids further land ownership fragmentation • Final alignment uncertain impacting on the future use of land because areas that are Future Urban could become Rural and vice versa upon confirmation of the alignment	• Development of Takanini Structure was within a different context and required justification at each stage the MUL was shifted. Therefore boundary is not defensible.
Benefits	• Reflects landowners expectation for future development	• Identified land potentially suitable for future development (excluding parts of Takanini Structure Plan)	• Defensible RUB will be created when the corridor is upgraded to an arterial.	• Avoids development of land on land affected by flooding, peat soils and high class soils

3.4.5 Amendments to the RUB

Massey

The recommendation is for **Option 2** to retract the RUB to align with the Birdwood Urban Concept Plan south of Massey Highschool, **and Option 3** to extend the RUB to include specific sites at Crows Road and Yelash Road and apply the Future Urban zone. This approach provides certainty regarding what is urban and rural, providing a defensible boundary, based on natural landscape features and property boundaries.
Flat Bush

The recommendation is for **Option 3** to extend the RUB to include specific sites at Chateau Rise and Fairhil Place apply the Large Lot (residential) zone. This will protect the sensitive ridgeline along Redoubt Road, avoid effects on Significant Ecological Areas, and provide a defensible boundary based on catchment and property boundaries. Any adverse downstream effects would be negligible beause the future land use of Large Lot residential is consistent with the Operative rural residential subdivision provisions.

Takanini

The recommendation is for **Option 3** to extend the RUB to Mill Road and apply a Future Urban zone. Although the alignment of this road is yet to be investigated and determined, it will become the most defensible boundary (arterial road) in the area given the lack of defined landscape features. This provides an appropriate buffer and separation from Ardmore Airport and largely implements the Takanini Structure Plan approved by Papakura District Council in 2000.

Identifying the area as Future Urban will enable comprehensive structure planning to occur across the entire area, integrated with the design and alignment of the Mill Road Corridor upgrade. Therefore the RUB could be altered as part of a combined Notice of Requirement and Plan Change process as part of the structure planning process. The RUB will follow the current Mill Road alignment until such time as a designation is confirmed, and then it will follow the new alignment. An Integrated Transport Assessment for the entire area is also required as part of the Structure Plan to address the wider transport network.

4 Overall Conclusions

4.1 Efficiency and Effectiveness

Overall, the proposed location of the RUB (and associated greenfield areas) is considered to be an efficient implementation of both the Auckland Plan and Unitary Plan growth related objectives. The proposed locations for the RUB provide for significant urban development to support the quality compact urban form promoted by both Plans, while also minimising the impacts of urban sprawl.

The development capacity delivered by the RUB will, when implemented, provide a number of long term economic opportunities for Aucklanders, while seeking improve the spatial outcomes associated with urban growth. The proposals seek to achieve an efficient balance between the needs of rural areas and the demands of Auckland's urban growth, thereby ensuring that adequate residential and business land can be delivered to the market, while also seeking to limit potential impacts on land based export and food production activities (e.g. horticultural activities) and providing for the continued functioning of rural production systems outside the RUB.

The identification of the RUB's location also allows for the commencement of further development capacity planning and ordered and cost effective delivery of comprehensively planned long term service infrastructure, through a number of planning programmes (such as the Forward Land and Infrastructure Programme). Identification of the RUB's location provides a policy anchor to develop these programmes and begin the phasing and investment analysis for the delivery of new greenfield development capacity.

Lastly, the identification of the RUB's location sets up further work that will assist the Council in achieving the integrated management of natural and physical resources (s30(1)(a) of the RMA and managing environmental effects that are of regional importance (s31(1)(b) of the RMA.

4.2 Part 2 Assessment

This report has clearly articulated the wide range of resource management issues that affect the delivery of new greenfield areas and the final location of the RUB. These issues fall across the entire gambit of Part 2 of the Act.

The RUB project has remained cognisant of the requirements of section 5 of the Act. The RUB's location has been identified following a full consideration of its effects on the social, cultural, and economic wellbeing of the community. In addition, its effects on physical and natural resources have been assessed and researched during the course of the project. These investigations have determined that the land within the proposed RUB is suitable and appropriate to be earmarked for urban development in that the life-giving capacity of air, water, soil, and ecosystems can be ensured, while mitigation of the effects of such development will also be available where adverse effects are unavoidable.

Furthermore, the use of the RUB and its location is strongly oriented to planned and probable future public transport links, concentrations of employment and future centres will allow for Auckland to developing a quality compact form, thereby providing opportunities and sustainability benefits for current and future Aucklanders. The RUB's locations have been determined to also make best use of development capable land, which is a finite resource within the Auckland region, while also seeking to protect the majority of the region's significant food producing areas and important ecosystems.

With specific regard to section 6 of the Act, the identified RUB (and associated greenfield areas) has recognised and provided for the protection of coastal and freshwater environments through (where possible) limiting the extent of development in sensitive catchments, providing for adequate setbacks from streams and the coast in testing potential development scenarios within the RUB, and focusing on providing high intervention stormwater management and treatment (at the structure/area plan stage) where it is not possible to avoid sensitive environments. The RUB has also sought to avoid impacting on outstanding natural landscapes and features as well as areas of significant indigenous vegetation and habitats. The investigation of effects, potential mitigations and configuration of the proposed RUB all sought to recognise and provide for the relationship of Maori with their ancestral lands, water, sites, waahi tapu, and other taonga and the protection of protected customary rights.

Commenting on section 7, the location of the RUB (and associated greenfield areas) are considered to be an efficient use of physical and natural resources. The RUB project has identified the finite nature of suitable development land in Auckland and the wide range of trade-offs involved in developing that land. It will be necessary to ensure that this land is developed and released in a manner which maximises development yields, makes the most of the infrastructure provided to support it and supports a quality compact urban form for Auckland.

With further regard to section 7, the RUB project has also taken specific regard to the effects of climate change, by allowing for areas prone to flooding and erosion to be avoided as part of development while still providing for assumed land supply targets. The RUB project has also addressed amenity protection, ecosystem values, and kaitiakitanga through a broad range of research and engagement undertaken to determine the RUB's location.

Furthermore, the RUB project is considered, under section 8 of the Act, to have taken account of the principles of the Treaty of Waitangi. The RUB's location has been identified following extensive engagement with Mana Whenua and an analysis of the wide range of issues identified through that engagement process. The RUB project is intrinsically linked to the sustainable management and the Mana Whenua values associated with the wider environment.

4.3 Local Government (Auckland Council) Amendment Act 2009

As raised in section 1.4, the RUB project is directly related to the requirements of this Act. Specifically, this Act required the preparation of a spatial plan for Auckland, which was required to address Auckland's future growth. The resulting Auckland Plan introduced the RUB as a replacement growth management tool for the MUL.

The current paper has described in significant detail where the RUB will be located and how it will support the wider growth management aspirations of the region.

4.4 Hauraki Gulf Islands Marine Park Act 2000

The RUB is considered to be consistent with the purpose of the Hauraki Gulf Marine Park Act 2000. The purpose this Act includes the *"management of the natural, historic, and physical resources of the Hauraki Gulf, its islands, and catchments".* This purpose is further elaborated by sections 7 and 8 of the Act, which directly relate to the management of the Hauraki Gulf.

With regard to these sections and the purpose of the Act, the RUB project has taken into account the land-based impacts of urbanisation on the Hauraki Gulf, such as the impacts of urban stormwater runoff and sediment deposition on estuarine environments. It should also be noted that these impacts will be further addressed during the structure planning process, as the resulting urban form associated with the RUB is determined and finalised. The management issues identified with this Act will also form part of the structure planning process.

4.5 Overall Conclusions

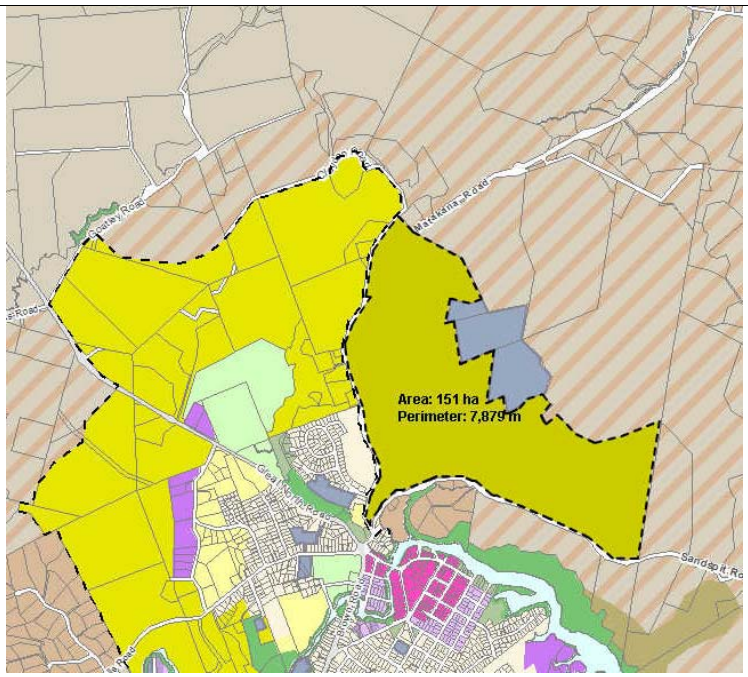
Based on an overall assessment of the proposals against the requirements of s.32, it is considered that the location of the RUB, as identified in this paper, comprehensively meets the statutory tests of the Act and is an efficient mechanism to manage the urban growth of Auckland. The RUB forms part of the overall growth management strategy for the Auckland region and will allow for the balancing of Auckland's growth demands while also ensuring that the environmental effects of this additional growth can be managed in a way that achieves the purpose of the Act.

5 Changes to Proposed RUB from Auckland Plan Committee

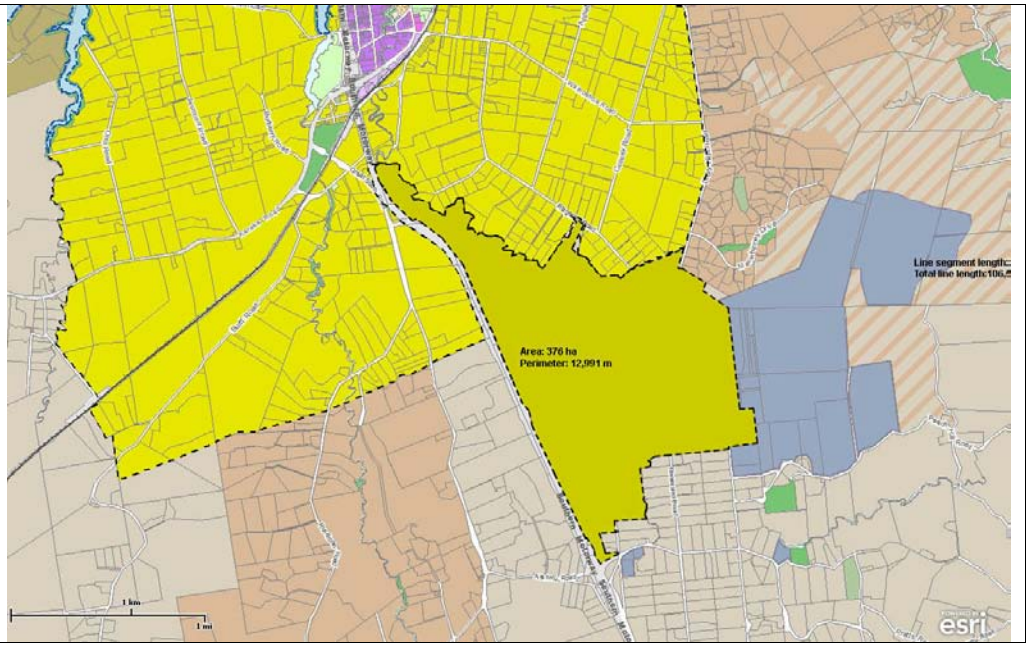
The following ammendments to the proposed RUB were moved by elected Councillors and were voted on and carried at the Auckland Plan Committee Meeting on 5 September 2013.

5.1 Areas added to the proposed RUB:

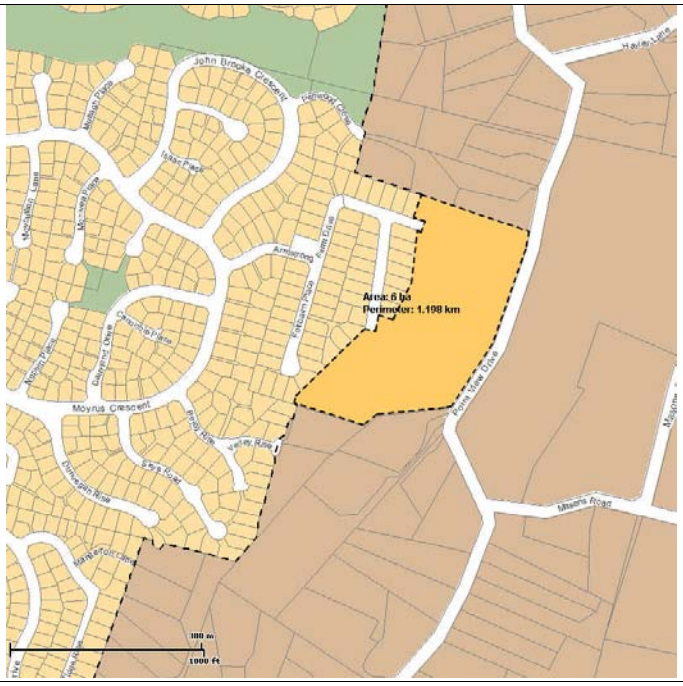
Warkworth

• Land at Warkworth east of Matakana Road covering the countryside living area north of Sandspit Road, properties between 2 and 40 Clayden Road and west of 325 Sandspit Road and excluding the Rodney Lime Co Ltd site totalling 151 ha of future urban zone land earmarked for residential development.	

Drury South

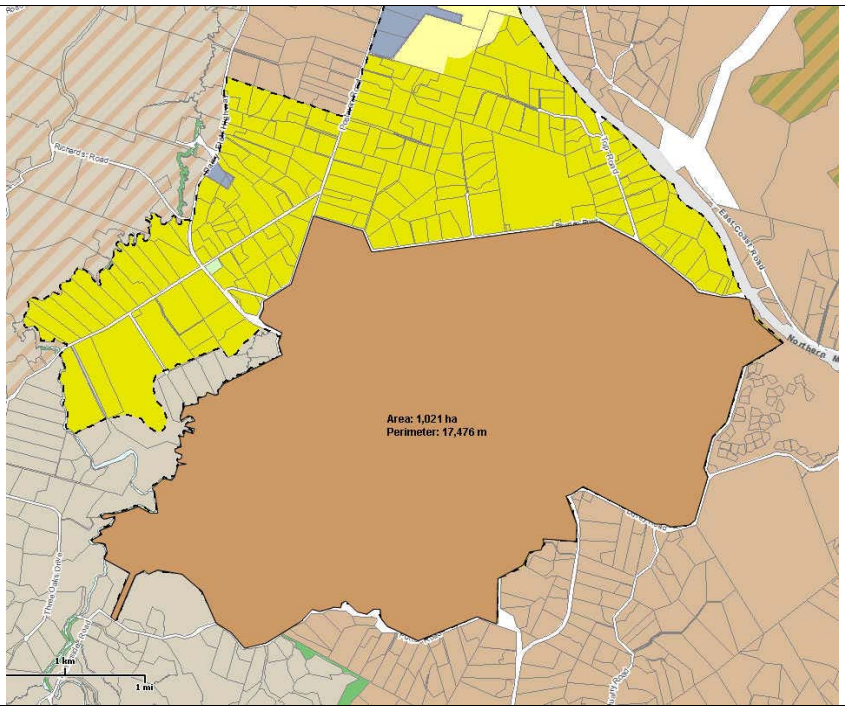
• Land at Drury South north of Ararimu Road and east of SH1 covering the Private Plan change area, adding around 378ha of future urban zoned land earmarked for industrial / business development.	

East Tamaki

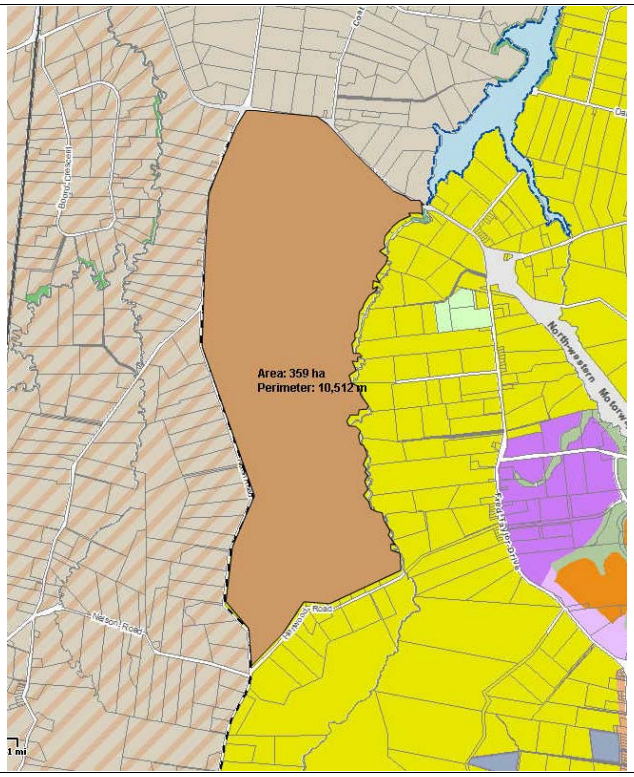
• 178 Point View Drive adding 6.6 ha of mixed housing suburban land.	

5.2 Areas taken out of the proposed RUB:

Silverdale Dairy Flat

• Land at Dairy Flat south of Bawden and Dairy Stream Roads and east of Lower Jess Road (including the Green Road open space zone) taking out around 1034 ha of future urban zone in favour of countryside living and open space at Green Road reserve.	

Westgate

• Land at Westgate between Brighams Creek, SH16, Taupaki Road, Nixon Road and Henwood Road taking out around 376 ha of future urban zone in favour of Mixed Rural zoning taking out around 376 ha of land in favour of mixed rural and rural production zones.	

6 Appendices

Appendix No.	Title	Author	Date
	NORTH AND NORTH - WEST:		
3.2.1	Geotechnical Desk Study, North & West Auckland Rural Urban Boundary Project, August 2013, Draft	Tonkin & Taylor	Aug-13
3.2.2	Auckland Council North and North West Rural Urban Boundary options: Cultural Heritage Overview, Report to Auckland Council	Campbell M, Hans J, McAlister A	Aug-13
3.2.3	North and North West Auckland Rural Production, June 2013	Primary Focus (Lambert, A. Powell, D)	Jun-13
3.2.4	Landscape Assessment, July 2013	ENPAD (McKenzie, B)	Jul-13
3.2.5	North and West RUB marine receiving environments: review of existing information	RIMU	Jul-13
3.2.6	Hibiscus & Rodney Local Board Draft Area Plan, 2012	Hibiscus & Bays Local Board	Nov-12
3.2.7	Silverdale West Structure Plan, Rodney District Plan	O'Connor Planning Consultants Ltd	Oct-10
	SOUTH:		
3.2.8	Paerata South Contamination Study, 2010	Fraser Thomas Ltd (Bellingham, T)	Aug-10
3.2.9	Southeastern Manukau Harbour/Pahurehure Inlet Contaminant Study Predictions of Sediment, Zinc and Copper Accumulation under Future Development Scenarios 2, 3 and 4	Green, M (NIWA)	Oct-10
3.2.10	Karaka Rural Urban Boundary Waitemata Aquifer Recharge Assessment, 2012	Pattle Delamore Partners Ltd	Dec-12
3.2.11	Franklin District Growth Strategy Section 2	Franklin District Council	Aug-07
3.2.12	Geotechnical Investigation for Southern Rural Urban Boundary, 2013	Tonkin & Taylor	Jun-13
3.2.13	Southeastern Manukau Harbour/Pahurehure Inlet Contaminant	Green, M (NIWA)	Oct-10

	Study Predictions of Sediment, Zinc and Copper Accumulation under Future Development Scenario 1		
3.2.14	Auckland South Rural Production Study, 2013	Primary Focus (Lambert, A. Powell, D)	Apr-13
3.2.15	Rural Urban Boundary South Cultural Heritage Overview Report, Report to Auckland Council	Heritage Consultancy Service (McKewan, A)	Aug-13
3.2.16	Urban Planning that Sustains Waterbodies (UPSW): Southern RUB Case Study, Report to Auckland Council, 2013	Moores, J., Harper, S., Batstone, C. and Cameron, M	May-13
3.2.17	Sea-level rise synthesis for Auckland, Report to Auckland Council, 2011	NIWA (Bell, R. G.)	Aug-11
3.2.18	Landscape Assessment, July 2013	ENPAD (McKenzie, B)	Jul-13
3.2.19	Cultural Heritage Assessment Feedback Letter	Ngati Tamaoho Trust	Jul-13
3.2.20	Future Growth Options and a RUB South Response prepared for Auckland Council	Ngati Paoa and Ngati Whanaunga	Aug-13
3.2.21	RUB Investigations Southern & Cultural Heritage Assessment Feedback Letter	Te Akitai Waiohua Iwi Authority	Aug-13
3.2.22	Wastewater Servicing Options - Southern Area Growth	MWH	Aug-13
	EDGE:		
3.2.23	Technical Report - Assessment of Edge Requests for inclusion within the Rural Urban Boundary	Hill Young Cooper	Aug-13