Future Development Strategy

Overall evidence report – for consultation

June 2023

aucklandcouncil.govt.nz

Auckland Future Development Strategy 2023-2053. Overall evidence report – for consultation

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June 2023

ISBN 978-1-99-106056-3 (PDF)

Draft strategy for consultation confirmed by the Auckland Council Planning, Environment and Parks Committee, 4 May 2023.

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1.0 Introduction

This is the lead evidence report published with the draft Future Development Strategy (FDS) for public consultation. This report brings together key considerations that have provided the basis for the direction and content of the FDS.

In addition to this report, two additional reports provide further evidence on the following topics:

- growth scenarios
- future urban areas.

A summary of relevant content from these evidence reports is brought through into this overall evidence report, to integrate with other key considerations. However, if more detail is sought on these topics, reference should be made to these separate reports.

While the Resource Management Act does not require that evidence and evaluation reports be prepared and published for a FDS, as they must for a plan change, it is best practice to provide comprehensive information on the evidence basis that underpins any planning document, especially one with as much importance as the FDS. This is also consistent with the expectations of the Local Government Act for councils to be open and transparent in terms of their decision making.

1.1 Scope and purpose

The purpose of the FDS, as required by the National Policy Statement on Urban Development (NPS UD), is to set the high-level vision for accommodating urban growth over the long term and identify strategic priorities to inform other development-related decisions. The FDS will spatially identify where long-term growth should happen.

Local authorities are required to use their FDS to:

- set a high-level approach for achieving well-functioning urban environments
- specify how and where they will provide sufficient development capacity to meet future growth needs over the next 30 years
- set out the development infrastructure and additional infrastructure required and how to integrate planning decisions with infrastructure and funding decisions.

The strategic priorities in the FDS are identified through:

- data and an exploration of spatial scenarios
- local aspirations identified through consultation
- aspirations and expertise of hapū and iwi
- information from the development sector, providers of infrastructure and other key stakeholders.

For Auckland spatial planning, the FDS is a requirement of two pieces of legislation.

Firstly, under Section 79 of the Local Government (Auckland Council) Amendment Act 2009 (LGACA), Auckland Council must prepare a spatial plan, which must include a high-level development strategy

that sets out how the spatial plan's strategic direction and objectives will be achieved. The spatial plan is the Auckland Plan 2050[1].

Secondly, and more specifically, the National Policy Statement – Urban Development 2020 requires a FDS to be prepared, and updated every three years if this is deemed necessary following a review of the FDS. An update is considered necessary due to a range of factors, including legislative changes, an emphasis on climate change considerations and a wider awareness and understanding of the impacts of natural hazards. See appendix 1 for further information about the legislative context.

Auckland Council is the only council that works with this dual requirement, under the LGA and the RMA. The FDS satisfies the requirements for a development strategy (LGACA) and a future development strategy (NPS UD).

The context for planning is changing all the time, perhaps more than ever. Legislative change impacting on planning has been frequent since 2018, and also highly impactful. Reform of the Resource Management Act is well advanced but not finalised. The COVID-19 pandemic and the major flood events in Auckland of 2023 have generated significant implications in terms of social, economic and environmental considerations.

Further significant change and unexpected events are likely, potentially in both the short and long terms. Given this, it is important to set out the assumptions that have underpinned the development of the FDS.

1.2 Assumptions

At a high level, key assumptions include timing, the legislative and policy base, and housing and business capacity information.

1.2.1 Timing and the long-term plan

The FDS is required to inform the Long-term Plan 2024 – 2034.

The review of the FDS was programmed to deliver an adopted strategy to the Long-term Plan approximately a year ahead of the adoption of the Long-term Plan (end of June 2024). This required the FDS to aim for completion by around mid-2023.

This timeline was to enable the strategic direction from the FDS to be used in developing asset management plans.

1.2.2 Legislative and policy base

The FDS is developed under the NPS-UD 2020 as it stands in 2023. The NPS-UD may change again in the future.

The framework provided by the Resource Management Act 1991 as it stands in 2023 has been applied. This includes amendments relating to climate change that came into force in 2022. While the broad outline of resource management reform is known, and the Natural and Built Environment bill is advancing, this reform has not been finalised. Given this, this reform programme and its potential final legislative outputs (which could still change significantly) have not been a core consideration for the FDS.

[1] The outcomes for the Auckland Plan 2050 were refreshed in 2020.

While Plan Change 78 to the Auckland Unitary Plan is proposed and not finalised, and the final decision may differ from the proposed plan change, the broad intent and scope of the plan change in terms of urban intensification has been a central consideration for the FDS. This is especially so given that Plan Change 78 is responding to mandatory legislative requirements. While detail of the plan change may change, the broad thrust of its intent, and impact on urban form, will not change significantly at a regional level (unless there are legislative changes in the future, which cannot be predicted).

Known and confirmed investment by the council and central government inform the FDS. Potential (but not confirmed) major investments by central government have been considered, but only limited weight can be given to these until there is more certainty. These major projects may change in the future.

Current Auckland Council strategies have informed the development of the FDS. These include Te Tāruke-ā-Tāwhiri – Auckland's Climate Plan and the Transport Emissions Reduction Pathway. These plans require particular approaches in the FDS, in terms of urban form. The council's position on climate change may change in the future.

1.2.3 Housing and Business Capacity Assessment

The draft FDS is informed by the latest Housing Capacity Assessment which was completed in 2021, based on the Auckland Unitary Plan Operative in Part (AUPOIP). Land development opportunities and development markets can and do change, sometimes significantly and in a short space of time. The draft FDS is also informed by the strategic evidence documents from the latest Plan Change 78: Intensification process, namely Proposed Plan Change 78 to the Auckland Unitary Plan (Operative in part) Section 32 Overview Evaluation Report (Auckland Council, 2022a) and the Section 32 Evaluation Report (Economy Matters) (Auckland Council, 2022b). Both housing and business capacity information is informed by the PC78 section 32 reports, as well as the capacity modelling output to the section 32 report, which reflect significant increases in plan enabled capacity over the AUPOIP to give effect to MDRS and NPSUD Policy 3. This work, including central government's work on MDRS[2] highlight that these changes are likely to increase plan enabled capacity, and take-up of that potential, relative to the AUPOIP where it applies.

A range of non-planning factors impact significantly on this update, including: the general state of the economy, the cost of finance (for both developers and buyers), the cost of construction, levels of migration and house prices (and their trajectories). These variables cannot be accurately predicted, and have significant impacts on the levels of *feasible* (as opposed to plan-enabled) development capacity. However, the provision of large volumes of development capacity in a wide range of locations is what planning can focus on, and helps to buffer against (but not negate) volatility in these non-planning factors. Currently, around 15% of the residential plan enabled capacity available (excluding the Light Rail Corridor and Business Zones) needs to be *feasible* to meet the projected demand over the next 30 years. See section 4.2 for more information on development capacity requirements.

[2] Central government's cost-benefit analysis for MDRS (undertaken by PWC).

1.3 Context

1.3.1 Legislative and Policy Framework

Since 2020, a range of new legislative and policy considerations have been introduced which provide a significantly different framework for the development of the FDS. These new considerations have been introduced at both the national level, through central government initiatives, and also at the Auckland Region level through Auckland Council plans and strategies. Many of the key elements of this revised framework for the FDS, overlap and interact with each other. They are shown in Figure 1 below.



Figure 1 – New legislative and policy considerations since 2020 which provide a significantly different framework for the FDS

The amendment of the National Policy Statement – Urban Development Capacity 2016 (NPS UDC) to the National Policy Statement on Urban Development 2020 (NPS UD) is a fundamental shift in the legislative context for the FDS. Critically, the amendment has seen a shift from the almost singular

development capacity focus of the NPS UDC to a much broader and more holistic well-functioning urban environment (WFUE) focus in the NPS UD.

While development capacity remains a central consideration of the NPS UD, the introduction of WFUEs is a major shift in emphasis for the FDS. WFUEs introduce a wider range of social and environment factors for the FDS to address, including climate change mitigation and adaptation. In addition to the mandatory aspects of WFUE's outlined in the NPS UD, communities can add to the conceptualisation of WFUE's for their particular city. This is something that the updated FDS for Auckland seeks to do, with consideration given to matters such as the natural environment (and the way in which it helps urban areas function), natural hazards and the interconnected system that is te mauri o te Taiao (Joynt, 2021).

Another major contextual shift is the NPS UD's mandates around urban intensification within the walkable catchments of stops on rapid transit networks, and larger centres. This builds on the existing approach in the Auckland Unitary Plan of intensification in locations with good access to public transport, employment and services, but in combination with the addition of Medium Density Residential Standards which enable 3 dwellings up to 3 stories on almost all residentially zoned sites in the region, significantly increases the overall intensity and spatial coverage of this approach. This, creates both opportunity and challenges for the Quality Compact approach, noting that the approach is one that seeks to balanced appropriate intensification with quality built environment outcomes.

More detail on the various legislative and policy contexts is provided in appendix 1.

1.3.2 Emphasis on climate change and natural hazards

A major shift in the framework for the FDS, relative to the framework that applied previously, is in the area of climate change. In addition to national level initiatives such as the National Emissions Reduction Plan and the National Adaptation Plan, Auckland Council has introduced two major policy initiatives: Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan and the Transport Emissions Reduction Pathway. All these national and regional plans are relevant matters under the NPS UD to inform the FDS, and collectively present a very strong climate change framework.

In addition to these plans, another significant change (since 2022) are the amendments to the RMA around climate change which provide far greater scope for RMA plans to address climate change mitigation and adaptation.

The flood events of early 2023 have underscored the importance of strategic planning. Where development should and should not occur, and how it should occur, to reduce exposure to risk posed by natural hazards. This has led to wider awareness and understanding of the vulnerability of certain areas and communities in Auckland to the effects of climate change and natural hazards more broadly.

1.3.3 Fiscal challenges

The COVID-19 pandemic and high levels of inflation have contributed and exacerbated fiscal challenges. Plan changes to the Auckland Unitary Plan that are unanticipated or brought forward ahead of time can generate significant funding challenges and financial risks for council and disrupt existing and planned infrastructure work programmes.

2.0 Strategic policy approach

2.1 Existing approach

Spatial planning in Auckland has evolved significantly over the past 20 to 30 years. Figure 2 below illustrates major stages in this timeline starting with the development of the Auckland Regional Growth Strategy in 1999 through to the adoption of the Auckland Plan 2050 in 2018. The evolution of Auckland's approach to spatial planning his been influenced by changing legislation, knowledge from monitoring and research into different planning tools, including their application in international contexts.

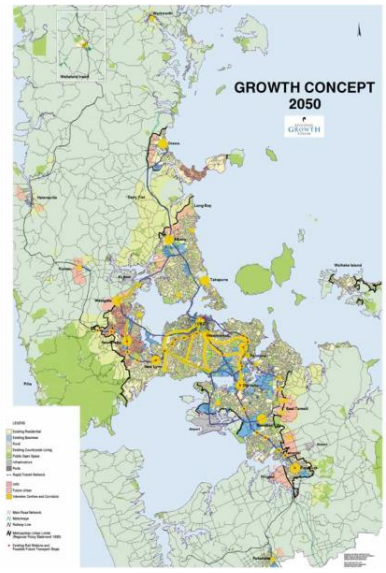
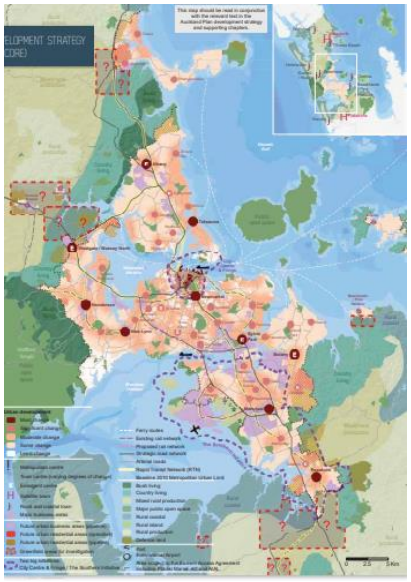
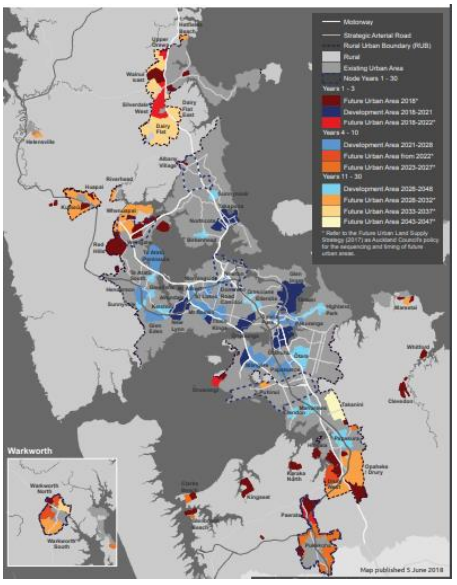
1999	2012	2018
The Auckland Regional Growth Strategy	2012 Auckland Plan Development Strategy	Auckland Plan 2050 Development Strategy
		
• an initiative of the Auckland Regional Growth Forum which brought together all councils in the Auckland Region, prior to amalgamation • 50-year growth strategy for the Auckland region • established the vision of a quality compact urban form • intensification in identified nodes and corridors • limited outward expansion (20 years' expansion identified).	• first spatial plan for all of Auckland under LGACA, part of the 2012 Auckland Plan • first 30-year high level development strategy • confirmed a quality compact approach for Auckland • 70 40 split intensification and urban expansion • high population growth assumption used.	• refresh of the 2012 Development Strategy • developed under LGACA and NPS UDC to fulfill both sets of requirements • 30-year high level spatial plan • quality compact approach retained and refined including: nodes and development areas in existing urban together with managed expansion into future urban areas. • updated with new information and requirements • medium population growth assumption used.

Figure 2 – Evolution of spatial planning in Auckland

The refresh of the Auckland Plan in 2018 (Auckland Plan 2050) took the concepts of the first Auckland Plan 2012 and subsequent work, principally as part of the Auckland Unitary Plan (AUP), and developed these further.

2.2 Proposed draft FDS approach

Through the FDS work the following approach was developed as being the best to meet the challenges and opportunities for long-term spatial planning.

Future Development Strategy Strategic Spatial Framework	
Our vision	**Auckland's built environment will underpin the development of prosperous, inclusive, and vibrant communities. Quality development will help to regenerate the environment and deliver our commitments to greenhouse gas emission reduction as we grow and change.**
Te Tiriti	Honouring Te Tiriti o Waitangi and enabling Te Tiriti outcomes
Hapū and iwi values and aspirations for urban development	Mauri, Rangatiratanga, Mana Motuhake, Mātauranga Māori, Kaitiakitanga, Manaakitanga
Over-arching challenges	1. Spatial planning in an uncertain and changing environment 2. Halting the ongoing degradation of the natural environment 3. Achieving equitable growth and change 4. Investing in infrastructure in a financially constrained environment
Spatial outcomes	• Tāmaki Makaurau is viewed as an interconnected living system • Development achieves high quality living environments • Disparities in our communities and investments are addressed • Development results in resilient built systems, natural environment and communities
Principles for a quality compact approach to growth and change	1. Support greenhouse gas emission reduction 2. Adapt to the impacts of climate change 3. Make efficient and equitable infrastructure investments 4. Protect and restore the natural environment 5. Enable sufficient capacity for growth in the right place at the right time
Inputs to our spatial response	Conceptual growth scenarios Constraints on development Development capacity
Our spatial response	Spatial scales Spatial environments Prioritising areas for development Approach to natural hazard constrained areas
Implementation	Actions to implement this Future Development Strategy

Figure 3 – FDS strategic spatial framework

The draft FDS states that "A well-functioning urban environment for Tāmaki Makaurau as a city and region is one which develops in a quality compact form and follows five principles to guide its growth and development". These principles are:

Principle 1: Support greenhouse gas emission reduction

Principle 2: Adapt to the impacts of climate change

Principle 3: Make efficient and equitable infrastructure investments

Principle 4: Protect and restore the natural environment

Principle 5: Enable sufficient capacity for growth in the right place and at the right time.

The FDS strategic spatial framework (Figure 3) was developed through integration of individual workstreams within the project. The following sections of this report set out the challenges and opportunities, and the approach that were developed as part of these workstreams and then fed into the growth approach. The workstreams covered:

- alternative growth scenarios
- cross cutting themes that have a project wide relevance, these topics include: meeting development capacity requirements, hapū and iwi values and aspirations for urban development, equity, the natural environment and natural hazards and climate resilience, climate change mitigation, and infrastructure
- spatial areas: looking at the existing urban, future urban, rural areas as well as business and employment. This work also includes information on spatial priorities.

3.0 Alternative conceptual growth scenarios

The NPS-UD requires the consideration of the advantages and disadvantages of different spatial scenarios when developing the FDS. The following provides a summary of the work undertaken. For more detailed information see the Growth Scenarios evidence report (Auckland Council, 2023a).

Four growth scenarios were developed as part of this project, representing different spatial options for land use, accommodating a consistent quantum of Auckland's projected growth and change in dwellings and jobs over the next 30 years.

The growth scenarios reviewed the long-term approach to growth and development in Auckland, using updated information and responding to new policy directives, including an environmental and climate change lens. This work formed an important part of the evidential base for and underpins the spatial component of the FDS review[3].

Scenario development and testing highlight the challenges of balancing greater flexibility to meet growth demands with greater certainty of how growth will occur. Differences in the levels of intensification and greenfield growth were investigated, along with variations in the growth location and transport network.

Each scenario was evaluated through a multi-criteria analysis relying on modelling outputs as well as quantitative and qualitative information. The evaluation process enabled testing alternative growth scenarios and identifying key growth principles to inform decision-making on the spatial form for the FDS draft land base.

[3] For a full report on the work undertaken in the Growth Scenarios Project see the Growth Scenarios evidence report, consultation draft.

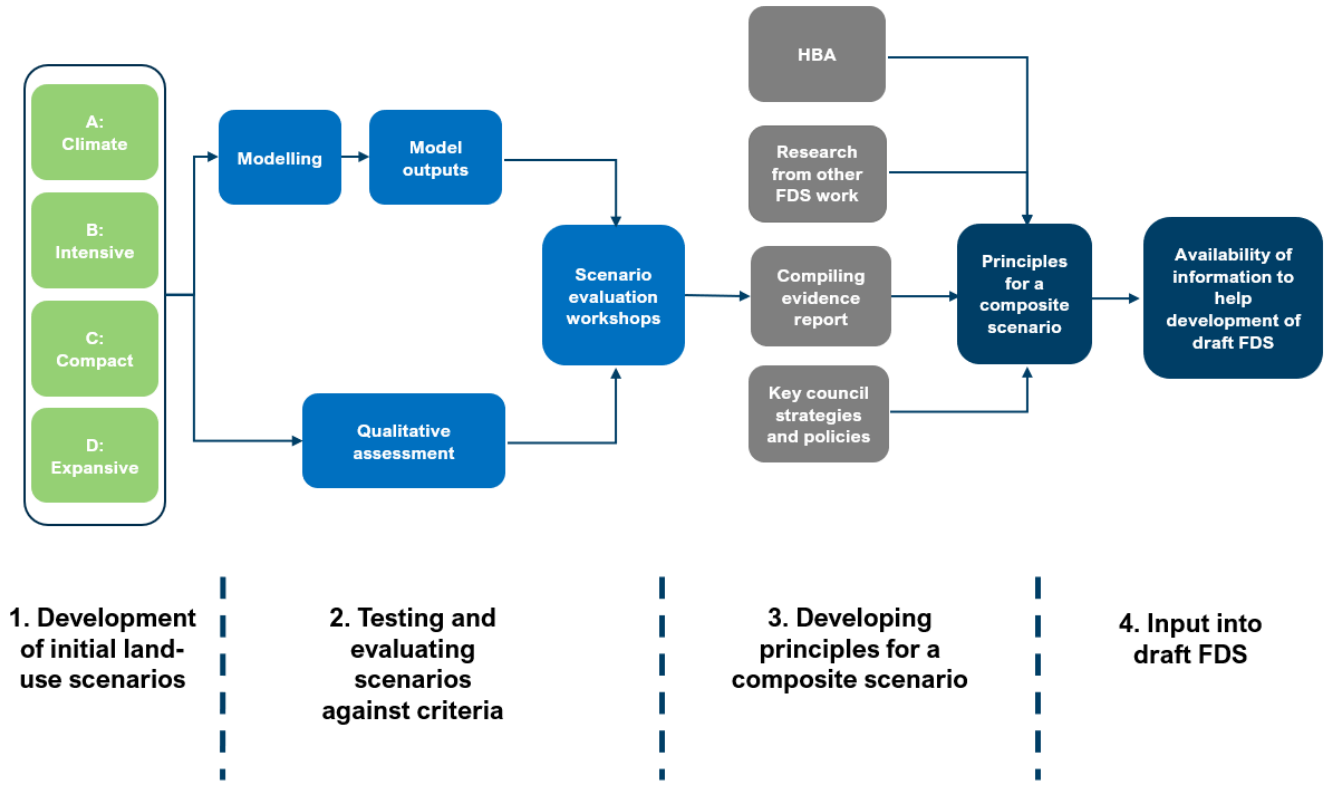


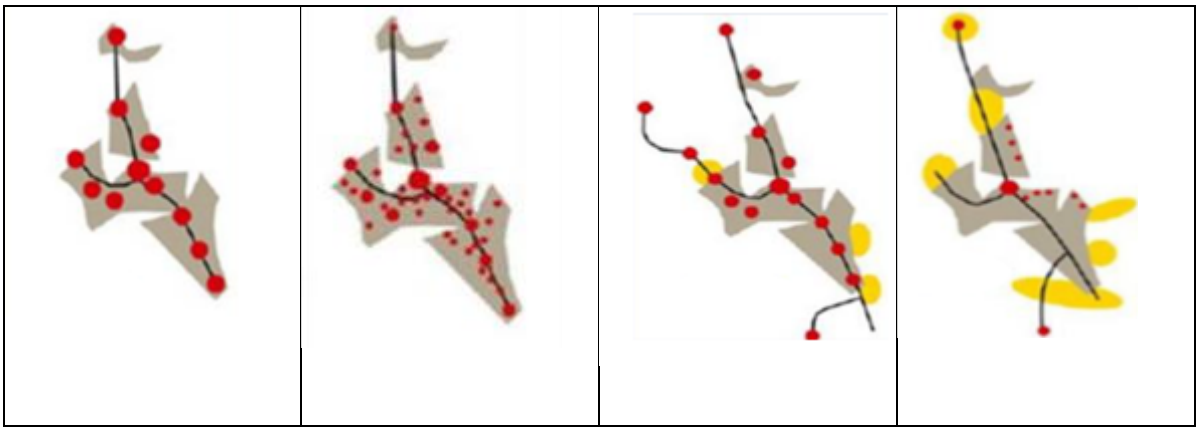
Figure 4 – Growth scenarios evaluation process, source Growth Scenarios evidence report 2023 (Auckland Council, 2023a)

3.1 Growth scenarios

Four alternative growth scenarios were developed, each representing a different urban form. Differences in the levels of intensification and greenfield growth were investigated, together with variations in the location and timing of growth within greenfield and brownfield areas. Table 1 below provides a high-level summary of the scenarios.

Table 1 (below) – Scenario summaries

Scenario A	Scenario B	Scenario C	Scenario D
• more responsive to climate change • intensive growth focused in key centres and around the RTN • no suburban infill and reduced reliance on future urban areas	• more intensive focused approach • all growth within existing urban area in centres and around the RTN and FTN • limited suburban infill	• an update of the current quality compact strategy • significant growth within currently planned urban area in centres and around the RTN • planned future urban area and satellite centre growth	• more expansive approach • growth in areas with development pressure • less residential and employment growth in centres • extensive suburban infill and additional future urban areas



3.2 Evaluation results

The evaluation process involved a multi-criteria analysis to provide a score for each scenario illustrating the extent to which each criterion was achieved on the scale of +3 (positive) and -3 (negative). Table 2 (below) sets out how the scenarios scored against the criteria as a result of the evaluation process.

Table 2 (below) – Evaluation scores

Criteria	Scenario A	Scenario B	Scenario C	Scenario D
The extent of new urban development areas in 100-year floodplains and areas prone to coastal inundation and coastal erosion (Greenfields)	-1	-1	-2	-3
The extent of urban development areas in 100-year floodplains and areas prone to coastal inundation and coastal erosion (Brownfields)	-1	-3	-2	-2
The extent to which scenarios impact carbon emissions.	-1	-2	-2	-3
The extent to which development provides opportunities to improve the health of natural wetlands, lakes, rivers (including their riparian margins), and coastal /marine environments. (GF)	+1	+1	+2	+2
The extent to which development provides opportunities to improve the health of natural wetlands, lakes, rivers (including their riparian margins), and coastal /marine environments. (BF)	-1	-1	-2	-2
The extent to which options reduce the ability to swim safely at in saltwater and freshwater, and to collect shellfish due to beach closure from water pollution.	-1	-1	-2	-3
The extent to which development promotes the restoration of, and connectivity between, existing and potential habitats / areas of indigenous biodiversity.	-1	-1	-1	-2
The degree to which urban development consumes highly productive soils.	-1	-1	-2	-3
Extent to which scenarios retain qualities of historic heritage places and values, e.g.: historic places, viewshafts, volcanic landscapes	-2	-1	-1	0

Criteria	Scenario A	Scenario B	Scenario C	Scenario D
Extent to which scenarios are likely to result in improved levels of access to quality open space	+2	+1	+1	-1
Extent to which population is exposed to harmful air emissions from transport.	+3	+2	+1	+1
Extent to which growth creates greater housing choice to meet projected demand	+1	+1	+1	0
Extent to which scenarios promote mixed-use communities to reduce travelling distances and the safety risks people incur when they travel to access services, facilities, and social networks.	+2	+1	+1	-1
Extent to which scenarios provide improved, inclusive, and equitable access to social infrastructure and public spaces: community facilities, ecological areas, open space (including quality green space), education (critical), health (critical), places of cultural significance. Degree to which essential social infrastructure is accessible by walking and cycling.	+1	+1	-1	-2
Degree to which essential social infrastructure and employment is accessible by multiple modes in areas of high deprivation	-2	-3	-3	-3
Extent of Māori land within growth areas.	+1	+1	+1	+2
Extent to which scenarios impact on Māori cultural landscapes (wahi tapu, sites and places of significance to mana whenua)	-2	-1	-1	-3
Extent to which key areas of economic activity are accessible by different modes - PT, active (cycling, walking)	+3	+3	+2	+1
Extent to which education is accessible by different modes - PT, active (cycling, walking)	+3	+2	+1	+2
Extent to which employment opportunities are aligned with areas of population growth	+3	+2	+2	+1
Extent to which household living costs can be reduced by increased proximity to employment opportunities	+3	+2	+1	+1
Extent to which rural production areas are accessible	-1	-2	-2	-2
Extent to which travel times are reliable	-1	-2	-2	-2
Extent to which opportunities for the agglomeration of similar/dependent industries are provided	+3	+1	+1	-1
Extent to which suitable land is available for Group 1 (land extensive) business	-2	-3	-2	-2
Extent to which scenarios support current committed infrastructure	+1	+2	+3	-2
The extent to which scenario results in measurable public monetary costs or losses over time	+2	+1	-1	-3
Extent to which physical constraints increase the cost of development	-1	-2	-2	-3
Extent to which the market is likely to respond to the proposed land use pattern.	+1	+1	-1	-2

The scores provide a comparison to differentiate between the scenarios, ranking them in terms of performance against the criteria. Where little difference could be identified, they were ranked equal.

Where a scenario scored highest, this does not necessarily demonstrate the scenario resulted in a positive response overall (it is a comparison between scenarios and sometimes a scenario was the "least bad", though not necessarily net positive overall) and instead shows that further options or additional work would be needed to achieve the desired criteria outcome under any land use more fully.

Growth and development will cause some impacts on some measures, even with best practices. In most cases, a negative score indicates the need for a specific policy intervention in addition to, or even instead of, land use or transport interventions alone.

Overall, Scenario A performed best across most criteria. Scenario A was explicitly developed with significant shifts in land use planning and transport assumptions (as articulated by TERP (Auckland Council, 2021a)) to test whether modelled travel behaviour, mode share and especially emissions would change compared with other scenarios. As such, the fact that Scenario A performed well provides some important lessons but does not necessarily provide the solution for spatial planning. Scenario B also performed well and was highest across almost half of the criteria, although generally first equal with Scenario A. These scenarios, being the most intensive, typically performed the best against most criteria but not all.

Scenario C performed the best regarding its alignment to committed infrastructure because it most closely reflects the current growth scenario and, therefore, the current infrastructure planning and funding, which has been developed over several years to integrate with this pattern of growth. Generally, where Scenario C performed the best, it was scored equally with the more intensive scenarios.

Scenario D performed the worst overall, only resulting in the highest score on four criteria. The two criteria where Scenario D performed best overall related to the extent of Māori land within growth areas, whereby treaty settlement land in rural areas may be more likely to be urbanised[4], and retention of historic heritage because less growth would be located in the isthmus, reducing potential impacts on the concentration of heritage listings located there, as well as volcanic viewshafts and special character areas[5].

While the scores provide a useful indicator of the relativities between the scenarios, there was a strong inter-relationship between the scenarios and the criteria they are measured against. Therefore, the findings drawn from the results of the evaluation are thematic.

[4] Assuming that this outcome reflects the aspirations of the relevant iwi

[5] Also noting that no scenario exceeds existing plan imposed viewshaft limited capacity inputs, or requires development within special character areas, and all scenarios are assumed to avoid no-go areas and significant values like heritage listings – this differential reflects the greater pressure, and potential for unintended impact rather than direct or assumed impact.

3.2.1 Key findings

Several key findings are identified. They are not isolated factors but are integrated elements that are needed to deliver a quality compact urban form and well-functioning urban environment.

Most of Auckland's future spatial form already exists and growth has limited influence

Over the last 180 years, Auckland has grown to a city of over 1.65 million people within a relatively established built form. The existing development patterns, the landscape and infrastructure have locked in options and precluded others. The resulting spatial layout will be added to rather than fundamentally altered by growth. This means that additional growth in the short to medium term is small relative to existing well-established patterns and often has little observable influence (at a macro scale) over and above the larger weight of current travel patterns and behaviour. However, over the longer term, even small changes in direction can be compounding.

The evaluation found little differentiation between the scenarios in terms of model outputs (acknowledging modelling limitations) relating to travel behaviour, except for Scenario A which is the most intensive and deliberately made significant shifts in land use patterns and transport assumptions. Key destinations for household trips, such as employment areas and education facilities, are well established, so changing the location of future dwellings (e.g. adding more origins) does not materially affect existing travel patterns other than reinforcing them by adding more trips.

Determining the location of land uses will only take us so far

The evaluation process suggests that while appropriately considering land use and avoiding no-go areas is important; many environmental impacts can be appropriately managed by good or best practices supported by a strong policy framework. However, it is important to note that none are currently in place and this will not be the case for all environmental impacts (i.e. carbon emissions).

Urban development is a significant contributor to environmental outcomes, but with strong policy and implementation frameworks, it can also provide opportunities to resolve issues (such as equity and climate mitigation and resilience) and enable positive outcomes.

Land use and infrastructure integration, particularly transport, is fundamental to spatial planning

Scenarios that focused on growth within the existing urban area and specifically within the walkable catchments of the rapid and frequent transit networks performed better against transport criteria specifically but also environmental, social, economic and cultural criteria.

Compact urban forms perform better in terms of the least monetary cost of infrastructure over time, as they result in more efficient use of existing services and new infrastructure. More expansive urban forms require the greatest amount of new infrastructure with the highest costs.

The importance of locating homes and jobs in close proximity

Generally, the more intensive scenarios, with mixed-use communities around transport nodes, performed better concerning reducing the need to travel (to employment, education, community services and facilities) and reducing carbon emissions.

Improved access, particularly through public transport and safe, active transport modes, across the region also supports those areas currently experiencing social deprivation. It facilitates better access to a broader range of jobs and education (amenities less likely to move and difficult to create retrospectively).

Providing business land opportunities in future urban areas provides opportunities to balance employment and housing, in conjunction with greater mixed use and intensifying business areas in brownfields.

3.2.2 Principles for growth

The findings of the evaluation process provided for the identification of several principals for growth that will inform the spatial land use pattern of the FDS. These are set out below.

Residential development capacity

- Housing types and location choices will be provided through a combination of intensification within walking distance from centres and rapid/frequent transit networks (six storeys plus) and committed future urban areas (live zoned), plus medium density across the urban environment.
- Natural and built heritage protection (including some special character areas) can be achieved while providing for substantial intensification within the central isthmus.
- Rely on additional future urban areas only where required to meet demand for land (and contributing to other outcomes sought).
- Avoid future urban areas that are subject to significant hazards (i.e. Takaanini, Oopaheke).
- Enable some growth within market attractive areas in proximity to the city centre and high amenity areas such as the eastern beaches.

Employment development capacity

- Focus growth within existing urban areas along rapid and frequent transit networks, centres, and future urban areas where required to meet demand for employment.
- Identify sufficient greenfield business land (at least 1,000 ha) to meet demand for Group 1 land extensive industrial activities.
- Provide for new centre / metropolitan centre zones within future urban areas.
- Increase jobs in sub-regions (nodes) and future urban areas, as well as local employment areas to locate jobs near housing to reduce vehicle kilometres travelled and increase active mode share.
- Rely on higher proportion of redevelopment (especially mixed use) in older/central business areas, and vacant/vacant potential in newer business areas that have been recently developed.

Rural

- Avoid all highly productive land outside identified future urban areas but also identify opportunities to slow or avoid growth within these areas (i.e. Pukekohe).
- Limit growth in rural settlements while also providing for growth including jobs for social and economic wellbeing through intensification in first instance.
- Limit residential growth across rural zoned land.

Other principles

- Avoid natural hazard areas including flooding and coastal inundation.
- Consider mitigation and adaptation opportunities within existing areas to better accommodate existing communities rather than accommodating more growth.
- Align growth to committed infrastructure (funded in 2021 Long-term Plan) and minimise the expansion of existing infrastructure networks as much as practicable to reduce costs of new infrastructure.
- Support mixed-use communities to provide most of what people need within 15-20 mins walking, cycling or public transport distance.
- Improve equity of access to and enable a greater distribution of jobs.

- Increased public transport capacity and frequency and improve travel reliability to make public transport a viable and attractive mode alternative.

4.0 Cross cutting themes

This section looks at different topics that apply across all areas of Auckland:

- constraints on development
- meeting development capacity requirements
- hapū and iwi values and aspirations for urban development
- equity
- natural environment
- natural hazards and climate resilience
- climate change mitigation
- infrastructure.

The information in this section, along with the growth scenario information in Section 3, guides the spatial response set out in Section 5: Spatial response.

4.1 Constraints on development

The NPS-UD requires the FDS to spatially identify 'constraints on development', in addition to identifying the locations of development capacity over the long term and the infrastructure required. The approach taken in the FDS to identifying constraints involved grouping them into different types of constraints to development (natural hazards, natural environment, natural heritage, cultural heritage and highly productive land), and then categorising each into three levels (primary/secondary/tertiary) to distinguish between those constraints that are more challenging and less easily avoided or mitigated versus those that pose a lower level of potential constraint and ae more likely to be able to be avoided and/or mitigated. Using the most up to date datasets published on Auckland Council's GeoMaps, the constraints have been spatially identified in Figures 4-8 and 20-24 in the FDS. Appendix 7 of this report provides explanation for how the constraints were categorised into primary, secondary and tertiary levels**.**

Tāmaki Makaurau has a number of natural hazard, environmental and cultural areas that present constraints to future development. Policy safeguards that seek to limit development within or near these constrained areas and/or to avoid or mitigate adverse effects on them already exist, e.g. through National Policy Statements, National Environment Standards and/or Auckland Unitary Plan policies and overlays. These constraints have also been a key consideration in the evaluation of the alternative growth scenarios (outlined above) and have influenced the spatial response explained further ahead in this evidence report.

4.2 Meeting development capacity requirements

The development capacity information reported in this evidence report is sourced from two council-led assessments. Housing capacity reported comes from the 2021 Housing Capacity Assessment (Auckland Council, 2021b) and the strategic evidence documents from the latest Plan Change 78:

Intensification process, namely Proposed Plan Change 78 to the Auckland Unitary Plan (Operative in part) Section 32 Overview Evaluation Report (Auckland Council, 2022a) and the Section 32 Evaluation Report (Economy Matters) (Auckland Council, 2022b). The business capacity reported in section 5.4 is informed by the PC78 section 32 reports.

According to the 2021 Housing Capacity Assessment, total net infill development capacity is 101,649 dwellings and the total net redevelopment capacity is 909,179 across Auckland's urban residential zoned land. If all suitable sites are all redeveloped to the maximum as enabled by the plan, Mixed Housing Urban and Mixed Housing Suburban zones combined could provide 678,851 additional dwellings or 75 per cent of the total net redevelopment capacity.

If development potential is maximised, Franklin and Howick local boards provide 28 per cent (28,310 dwellings) of the total net infill capacity. The combined areas of Henderson-Massey and Howick have the potential to supply 23 per cent (210,556) of the total net redevelopment capacity.

To identify capacity that is commercially feasible, two capacity scenarios are used – the maximum percentage of profit yield and the minimum priced dwelling units.

The housing assessment highlights approximately 840,000 dwellings are commercially feasible for the maximum percentage of profit yield scenario, where the average sales price is $1.66 million and terrace housing comprise most of the feasible typology. Under the minimum priced dwelling scenario, around 1.4 million dwellings are commercially feasible, where the average price is $1.04 million with an average floorspace of 107 square metres. Apartments and terrace housing comprise over 84 per cent of the feasible dwellings tested under the minimum priced dwelling scenario.

In response to meeting the obligations required by the Resource Management (Enabling Housing Supply and Other Matters) Amendment Bill and the NPSUD Policy 3(d), the council's notified PC78 has further increased housing development capacity.

The latest development capacity sourced from the council's s32 evaluation report suggests total housing capacity in the existing urban area is estimated to be 2.39 million dwellings across all residential zoned land, with a further 436,000 dwellings from business zones. The notified plan (currently being assessed by the Independent Hearing Panel), could see the total housing capacity increased by another 1.9 million dwellings, doubling the residential zone development capacity enabled by the operative plan (909,179 as mentioned above).

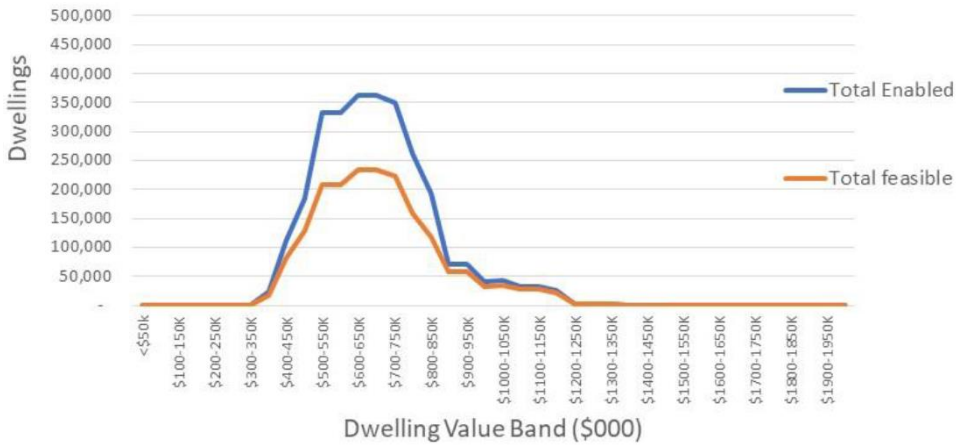


Figure 5 – Plan-enabled and feasible capacity by dwelling value band (Auckland Council, 2022b, p. 91 Figure 5-1)

It is noted that the s32 report does not specify any definitive number for the feasible development capacity enabled by the notified plan. The distribution chart of plan-enabled capacity and feasible capacity by dwelling values (Figure 5 above) indicates a significant amount of the plan enabled capacity (PC78) would be feasible under the market conditions at the time the s32 report was written, and sufficient to meet the projected growth over the next 30 years.

It is also worth noting, much of the PC78 process is paused as of 19 May 2023. It is acknowledged that further PC78 provision updates are expected once the plan change process resumes in 2024 and subsequently altering commercial viability of all plan-enabled development capacity.

No further capacity assessment was available at the time this evidence report was written. Future capacity variations resulting from plan change process(es) and/or market condition changes will be analysed and presented through the Auckland Plan monitoring process.

4.3 Hapū and iwi values and aspirations for urban development

The council has committed to achieving Māori outcomes through Kia Ora Tāmaki Makaurau, influenced by the Māori Plan and Issues of Significance, and Auckland Plan 2050. These documents provide guidance in understanding the priority areas for Tāmaki Makaurau Māori and a number of these priority areas are relevant to the development and implementation of the FDS, for example:

- involving Māori early in the decision-making process
- Māori housing aspirations
- protection of existing natural resources
- allowing for kaitiakitanga
- benefits to Māori, for example, housing, economic opportunities, and improved access
- impacts of climate change, for example, on marae, whānau, and sites of significance
- opportunities to showcase Māori identity.

To inform the draft FDS, the priority areas already identified (above), along with a review of past Māori engagement and feedback, was compiled. This provided a starting point for engaging with Māori, in a way that supports their capacity to genuinely participate in the development of the FDS.

The engagement has helped the council understand Māori values and aspirations for urban development and has helped shape the overall growth approach, as well as the spatial outcomes and principles for growth and change.

A key theme was the importance and integration of mātauranga Māori at all levels of decision-making, recognising mauri as a life-sustaining principle of all living systems (te mauri o te taiao). Mana whenua were consistent in advocating for a holistic view of maunga to moana. This is much broader than a catchment approach – it is a lens that sees Tāmaki Makaurau as an interconnected living system.

The emerging themes were reinforced by Iwi Management Plans and environmental documents, and input into previous council engagements including Te Tāruke-a-Tāwhiri, Auckland's Water Strategy, and Thriving Communities Strategy. This analysis formed the basis of the hapū and iwi values and aspirations in the draft FDS document but requires further engagement with mana whenua. This statement of values and aspirations for urban development is currently with mana whenua for review.

Views were sought from Māori researchers, marae, community organisations, the homeless and rangatahi and what was received was shared with the relevant teams.

Ongoing engagement is underway with iwi and mataawaka and this will continue throughout the consultation period.

4.4 Equity

Equity is promoted heavily in the Auckland Plan 2050, across all six of its outcomes. It is especially important to the outcomes of *Belonging and Participation*, and *Opportunity and Prosperity*.

The concept of equity is complex, and multiple factors contribute to it. There are social, economic, cultural and environmental dimensions to equity.

The focus of the FDS is on urban form and patterns of growth and development, and how these aspects interact with planning for the natural environmental and integration with infrastructure. In this respect, the following spatial considerations are especially relevant to equity.

- The location, availability, type and cost of housing.
- Physical accessibility to employment and services: this relates to the relative locations of housing and employment and services, and how easy or hard it is, to move between the two. The cost of transport is another key aspect, which is influenced by spatial patterns of land use and development. Providing cheaper housing in particular parts of a city does not necessarily assist with the cost of living if the housing is located remote from employment and requires long and costly commuting.
- The quality of the environment. In Auckland, as in many cities, poorer households often live in locations with higher levels of air pollution and noise, and in areas with less tree cover and provision of high amenity reserves.
- Intergenerational equity. There is a temporal aspect to equity as well as a spatial one. Planning decisions made today can have a range of positive or adverse effects on future generations of people, in terms of a range of socio-economic and environmental outcomes.

Each of these aspects are addressed in more detail below.

4.4.1 Opportunities and challenges

Challenges

Access to healthy and affordable housing is considered to be a fundamental element of equitable cities. Article 25 of the United Nations Declaration of Human Rights identifies housing as a fundamental and inalienable human right.

While the UN's definition of adequate housing includes a number of basic physical requirements relating to physical shelter, it also incorporates considerations around the cost of housing and the location of housing relative to employment and social services. Environmental pollution is an important element in terms of the adequacy of housing, as well as the extent to which housing caters to the diverse needs of indigenous people and a diverse range of cultures. All of these aspects can be influenced by urban form, and where housing is located relative to opportunities – employment and services, and community connections – and relative to threats: pollution, poor amenity, and dangerous physical conditions (e.g., busy and unsafe roads).

A sustainable approach to urban development is not one where social and affordable housing is developed in locations remote from employment and services. If low cost housing is developed remote

from these things, then it will harder and more costly for residents to get to places of employment and key services that they need to access.

More broadly, lower cost market housing is also needed in locations close to employment and services. Ideally, this will occur in locations close to good public transport services with high levels of accessibility across the city. A key element of equity is providing for a wider range of individual and household needs. As household sizes continue to decrease over time, a greater diversity of housing, in particular more compact housing forms, will be needed in higher density development typologies, preferably located close to employment and services.

Historically in Auckland, state housing and lower cost housing has often been located near industrial areas or motorways, with higher levels of noise and pollution. Such areas include Penrose, East Tāmaki and Wiri.

Technological advancement and stronger regulation of air pollution has helped reduce some of the impacts on residents in these locations, and this is likely to continue to improve.

In many areas of Auckland with higher concentration of lower socio-economic households, the urban ngahere is under-developed, and access to high quality parks and reserves is less than optimal. Levels of tree canopy and access to good quality parks have been shown to have significant physiological and mental health benefits.

Alongside the spatial dimension of equity, the temporal element is a critical influence. Past and present policy has a significant influence on social and economic outcomes. Further, the planning decisions we make today can have significant impacts on future generations.

Intergenerational considerations are central to the RMA. The ‘reasonably foreseeable needs of future generations’ is a core element of the sustainable management purpose under Section 5 of the legislation.

Considerations around intergenerational equity span a range of considerations. In addition to socio-economic ones, environmental aspects, especially climate change, are paramount. The worst impacts of climate change are yet to arrive, and will have a profound impact on the wellbeing of both current generations in the short and medium term, and future generations in the medium to long term.

Opportunities

The cost of housing, especially for low-income households, is only partly influenced by planning approaches. Planning approaches enabling greater supply of housing can assist in making housing more affordable and provide for a greater diversity of housing types in different locations, but are unable to address the housing needs of households under severe social and economic stress.

For these households, the State (via Kainga Ora) and community housing providers have a key role to play, where the market (enabled by planning approaches) is unable to deliver.

A key focus of the FDS is on partnerships between council and Kāinga Ora in the key priority areas of Māngere, Mt Roskill, and Tāmaki. Importantly, the partnerships in these locations is not solely about the building of much-needed social and affordable housing – it’s also about the regeneration of communities; creating safer and more connected places. It is also no coincidence that these locations either have good access to good public transport and employment (Tāmaki), or are in locations where major public transport infrastructure is being planned (Māngere and Mt Roskill). In addition to building and public realm initiatives, a key element of these projects is the focus on programmes supporting community development.

Ongoing planning and investment by council is required in the urban ngahere in these and other locations where levels of tree and vegetation coverage are low. It is also a key focus of Kāinga Ora's in communities with high concentrations of state housing. Increasing the prevalence of trees in these locations generates a range of co-benefits in terms of equity and other outcomes.

In terms of inter-generational equity, climate change is a major consideration, and forms a key element of the approaches informing the updated FDS.

Beyond these ways in which spatial and urban planning approaches can influence equity outcomes, a range of government and council programmes and partnerships require ongoing commitment, funding and resources.

4.5 Natural environment

4.5.1 Opportunities and challenges

The ecological health of the natural environment, as well as a community's access to it, plays a critical role in the functionality of urban spaces and the quality of life within them. Tāmaki Makaurau has long been heralded for its ecological taonga (treasures), with significant terrestrial, freshwater and marine habitats surrounding and transecting the urban environment. In addition to the intrinsic value of these ecosystems, they provide important habitat for threatened, at-risk and taonga species; help regulate climate stressors; improve resilience and wellbeing; enable customary practices; as well as provide critical recreation spaces for communities. The benefits of healthy, interconnected, and accessible ecosystems in urban environments are well understood across literature and summarised in Figure 6 below.

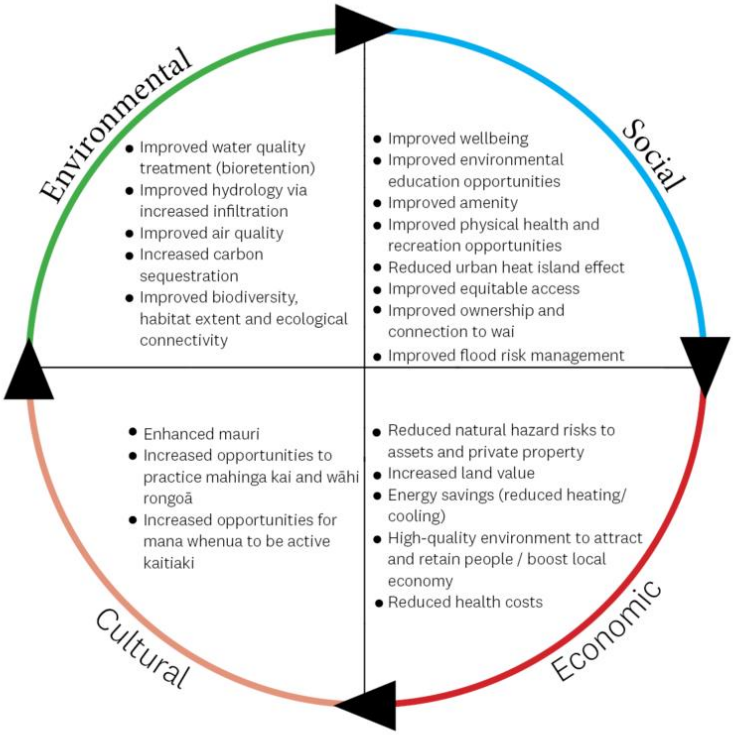


Figure 6 - Environmental, social, economic and cultural benefits of healthy, interconnected, and accessible ecosystems in urban environments

Historic land use decisions and current growth puts pressures on the natural environment. Land disturbance and earthworks from construction exposes soils, which if not managed correctly can erode and discharge into receiving waterbodies during rainfall events. Heavy metals, such as copper, lead or zinc from construction materials, vehicle movements, industry and other solid waste can also be mobilised by stormwater. Changes in land cover, such as increases in impervious surfaces can reduce groundwater recharge and stream flows during dry periods, increase water temperatures, or increase stormwater run-off during rainfall events, contributing to changes in natural hydrology, stream bank erosion or combined sewer overflows. Development may reclaim or modify streams, cause barriers for the passage of fish, compact soils, drain natural wetlands, and displace floodwaters. Development may also result in the removal of vegetation (individual trees and/or larger areas of habitat), reducing

canopy coverage in urban areas, fragmenting areas of indigenous habitats and affecting species reliant on those habitats.

However, future development also presents an opportunity to deliver positive environmental and community resilience outcomes. Integrating natural and built environments and prioritising ecological health through growth and development must therefore be an integral component of a 'well-functioning urban environment' (as required by the National Policy Statement for Urban Development (NPS-UD)). In addition, development investment by both Auckland Council and private developers must consciously prioritise positive outcomes and integration with the natural environment. The key ways this can be achieved are through:

- adoption of holistic water-sensitive design (WSD) principles in all future development (including infrastructure)
- protecting existing mature vegetation and increasing planting of new urban ngahere
- improving or establishing ecological connections between future development locations and existing areas of indigenous biodiversity
- improving access to quality open space with multiple functions.

4.5.2 Approach

Adoption of holistic water sensitive design principles

Holistic water sensitive design (WSD) approaches aim to integrate water management and development, to improve water quality, ecological health, natural hazard resilience, water supply security and amenity values. Water sensitive design principles seek to limit stormwater flow rates and contaminant generation at source, through minimising imperviousness or earthworks and utilising inert materials, as well as maintaining or restoring existing natural hydrological features. The approach utilises structural interventions, such as green infrastructure, to provide / mimic ecosystem services that retain, detain, transpire, or infiltrate stormwater flows and filters contaminants.

Holistic water sensitive design also includes integration with water supply and wastewater outcomes to contribute to whole-of-urban water cycle management (such as water capture or grey water re-use).

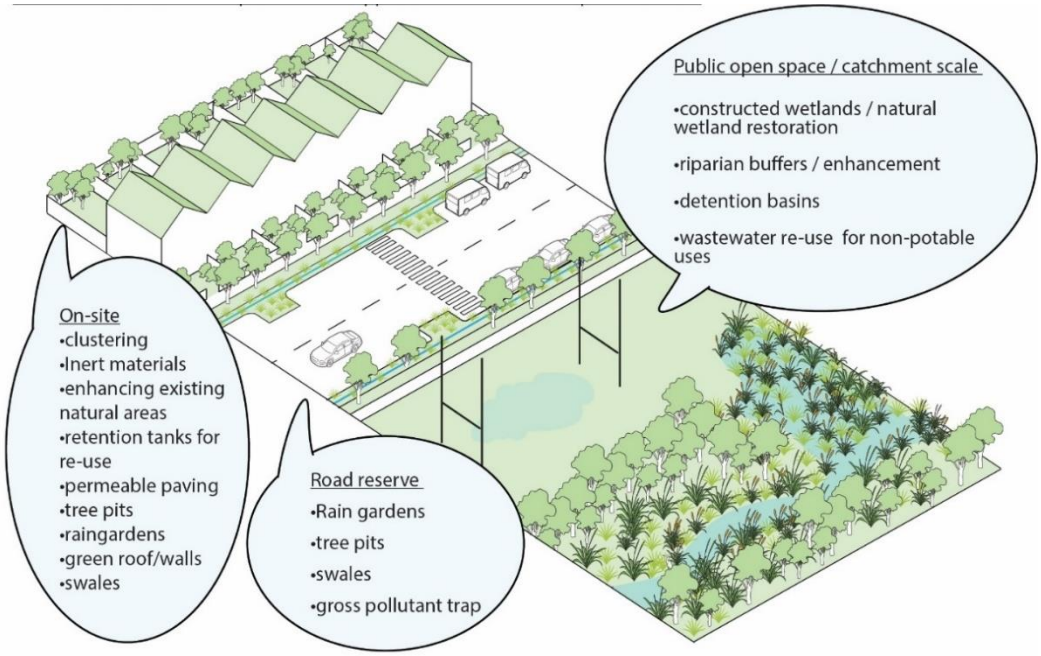


Figure 7: Possible WSD interventions that could be applied within housing developments, roads and public open spaces

A diagrammatic example of possible interventions is demonstrated in Figure 7 above, which work together through a “treatment train” to contribute to improved environmental outcomes.

Ongoing progress has been made to ensure that the Auckland Unitary Plan includes many components of water sensitive design approaches. There are some good examples of water sensitive developments in the region e.g. Talbot Park Community Renewal project in Glen Innes which was a brownfield development incorporating WSD principles, and Long Bay (see Figure 8 below), which is an example of WSD principles applied at the catchment scale, allowing for WSD to be fully integrated with land use planning and zoning during the structure planning stage (including the incorporation of rules into relevant planning documents).



Figure 8: A green streets approach to roading in Long Bay (source: Auckland Design Manual)

However, due to several reasons, water sensitive design principles are often not incorporated into the early site design stages of development (Ira, 2022). Although components of water sensitive design may be evident (such as the installation of raingardens), overall holistic implementation tends to be poorly understood, and/or is often either not included, or designed out of proposals to maximise development yields. Often, integrated catchment solutions are required. This is either expensive for council to develop, or difficult to coordinate among fragmented ad hoc private development.

Ongoing improvement can be made to Auckland’s planning framework to increase the use of water sensitive design principles in development. This includes strengthening objectives, policies and rules in the Auckland Unitary Plan to be more prescriptive and improving integration with other instruments, such as the Network Discharge Consent. Auckland Council has directed a suite of regulatory and non-regulatory interventions are implemented overtime to increase the use of water sensitive design principles in growth and development within strategic shift 6 of the Auckland Water Strategy and implementation plan. Ongoing implementation of these actions will contribute to a well-functioning urban environment.

Auckland Council’s approach to regulating WSD has primarily been focused on integrated stormwater management components, rather than the broader whole-of-urban water cycle management principles. Except for some ad-hoc precincts, regulations relating to potable and/or wastewater aspects are virtually non-existent, notwithstanding recent AUP Plan Change 54, to enable rainwater tank installation as a permitted activity, which is a small step in the right direction.

Significant progress has been made to ensure that the AUP includes many components of integrated stormwater management. However, these only represent some aspects of the holistic WSD approach. While objectives and policies do exist for some components of WSD within the regional policy statement and Auckland-Wide chapters, these are not always successfully translated into strong or

prescriptive rules. Furthermore, where regulations do exist, these are often spatially fragmented, such as the Stormwater Management Area - Flow 1 and 2 control (SMAF), water quality treatment controls being limited to high contaminant-generating carparks and high use roads, or ad-hoc spatially distributed precincts. It is therefore challenging to require widespread holistic WSD components in new development through the existing AUP. This is particularly the case for potable or grey water re-use, clustering development, prioritising green infrastructure when providing mitigation, or mitigating the cumulative hydrological or water quality effects from all impervious surfaces.

The FDS includes an implementation action to expand and tailor the NPS-UD definition of well-functioning urban environment for Auckland within the AUP, and this will need to include the application of appropriate water-sensitive design principles.

Protecting mature trees and increasing urban ngahere

Ngahere (forests) are another significant component of the green infrastructure network and are a taonga that provide a wide range of well-known ecosystem services, as indicated in Figure 9. Tāmaki Makaurau's ngahere are diverse and include all vegetation within or on:

- private outdoor space
- buildings / infrastructure
- the road corridor
- public open spaces such as squares, parks, along riparian margins or within areas of forest
- primary production areas, such as forestry or within farmland.



Figure 9 – Ecosystem services provided by urban ngahere

LiDAR analysis for 2016/18 demonstrates that Auckland's recent urban canopy coverage is 18%. However, the distribution of ngahere across Auckland's urban area is inequitable. Some Local Board areas have as high as 30% canopy coverage while others as low as 8%, with deficits particularly concentrated in the south and typically in lower socio-economic areas (Golubiewski et al, 2021). This inequitable distribution means the critical ecosystem services that ngahere provide (including the cooling effects of green infrastructure to combat heat vulnerability) benefit some Aucklanders more than others. Meanwhile, the ngahere that do remain are under threat.

Changes to the Resource Management Act 1991 in 2012 mean most urban trees are not protected. With the majority of Auckland's urban canopy (41%) in residential zones, these trees are particularly vulnerable to growth and urban development. Despite data only recording a short period of time after the Auckland Unitary Plan became operative, this trend is already apparent. Between 2013 and 2018 the total canopy coverage in Auckland's urban area remained net neutral. However, gains within open space and the road corridor were offset by losses in rural and residential zones.

Private green space per person has been steadily declining in Auckland due to infill development in brownfield areas and a denser built form in both brownfield areas and new greenfield subdivisions (i.e. larger houses on smaller sections). Figure 10 below shows aerial images from 2017 and 2022 comparing the same area in Mt Roskill where more intensive development has occurred recently. The loss of private green space and tree canopy is very evident, and this is a trend being observed in other New Zealand cities as well, such as Hamilton (Parliamentary Commissioner for the Environment, 2023).



Figure 10: Aerial images of recent urban housing regeneration showing loss of green space and tree canopy due to more intensive development. Left photo taken 2017, right photo taken 2022. Auckland Council.

Through the Auckland Urban Ngahere Strategy 2020, Auckland Council has committed to increasing net canopy coverage within the urban area (both indigenous and exotic), particularly in areas with the greatest deficit. This includes an overall coverage target of 30%, with no local board area having less than 15% (Auckland Council, 2019). Despite significant planting initiatives by council and community groups, planting new trees in the public domain is not enough to achieve our targets under the Auckland Urban Ngahere (Forest) Strategy.

Urban development must play a more significant role in protecting mature vegetation and contributing to urban reforestation if these targets are to be met. Although the proposed deep soil area and tree canopy standards within Proposed Plan Change 78 (PC78)[6] of the AUP(OP) will contribute to this (providing the standards become operative), this is just part of the solution.

[6] Proposed Plan Change 78 Intensification seeks to include provisions in the AUP(OP) that incorporate the Medium Density Residential Standards as contained in Schedule 3A of the RMA in relevant residential zones, and to give effect to Policies 3 and 4 of the National Policy Statement – Urban Development 2020 – updated May 2022.

The FDS includes an implementation action to change the AUP to strengthen protection of existing vegetation and encourage or require new planting, which will contribute to increasing urban ngahere and canopy coverage across Auckland.

Improving or establishing ecological connections

In addition to tree loss in urban areas, development of greenfield sites outside of the existing urban area can result in habitat loss or fragmentation, particularly areas of indigenous habitats that are not protected through the Auckland Unitary Plan as Significant Ecological Areas (SEAs). Development should avoid terrestrial SEAs under both the AUP (Policy B7.2) and the proposed NPS-IB. However, some of the non-designated areas of indigenous vegetation which are not similarly protected still provide important habitats for native fauna and can act as ecological corridors between other areas of indigenous habitats and SEAs. It is therefore important that they are retained within new development or if not, then new areas of native vegetation should be created with multiple benefits such as improving ecological linkages between habitats, providing access to natural open space for new residents, and helping to achieve water sensitive design outcomes.

Although Auckland's Urban Ngahere Strategy commitments do not include rural areas (except small portions of some local boards), clause 3.22 of the Proposed National Policy Statement – Indigenous Biodiversity (NPS-IB) establishes minimum indigenous vegetation targets of 10% in both urban and non-urban environments. Where this is already achieved, councils should consider more aspirational targets. This also includes requirements for objectives, policies, and methods within regulatory plans to achieve these targets and restoration at a landscape scale across the region. Auckland Council has not undertaken analysis to understand the distribution of indigenous vegetation across urban and non-urban areas, however increases will be required.

In addition to managing adverse effects, the NPS-IB requires restoration and enhancement, including in areas that provide important connectivity or buffering functions (clause 3.16(1)). Urban growth is a significant determinant to achieving this direction through both avoiding or mitigating adverse effects within and at the fringe of SEAs, but also enabling sufficient space within new developments for reafforestation / the establishment of new ecological connections between habitats. The restoration and enhancement of natural environmental features, including connective corridors between these, should precede the allocation of land for development (Lennon and Scott, 2014). This approach is more effective and resource efficient than retrofitting ecological restoration after development patterns have been determined (Joynt, 2021).

This is easier to achieve through greenfield development, with opportunities to protect existing features and future restoration corridors before determining other infrastructure, zoning, and subdivision patterns. Brownfield areas present additional challenges, with less flexibility to direct development patterns within an established built form. However, contributions can still be made, particularly through the open space network, road-side planting, within and adjacent to new infrastructure, and through on-site mitigation or the design of private outdoor space (particularly in relation to larger brownfield developments).

There are many cities around the world that have implemented more direct and stringent requirements for urban development to contribute to biodiversity outcomes. In Malmö, Sweden, planning controls include a green space factor (GSF) (Malmö stad, 2021). The GSF specifies a minimum numeric value to achieve by providing different scores to surface types in a development and tallying these over a site. For example, the proportion of a site with impervious surfaces is given a score of 0, green roofs 0.6, vegetation on ground 1, surfaces with rainwater retention 0.2 etc. When calculated across a site, the total value must be 0.5 or higher. In Malmö, the GSF was supplemented with 'green points', where from a list of 35 possible interventions, a development is required to implement at least

ten. For example, implementing bird / bat boxes, ensuring grey water is treated and re-used in courtyards, all buildings having green roofs, or no more than 5 trees of the same species are used in landscaping. Such controls provided certainty that a portion of a site improved biodiversity outcomes, and areas of water and capacity for infiltration is encouraged.

Similarly, the 2021 London Plan includes an Urban Greening Factor (Greater London Authority, 2021) (based on the same principles as Malmö's), which must be applied to all major development applications (i.e., 10+ dwellings for residential, or >1,000m^2 floorspace for non-residential) with a target score of 0.4 for developments that are predominantly residential and 0.3 for developments that are predominantly commercial. This London Plan policy (G5 Urban Greening) and an additional policy (G6 Biodiversity and Access to Nature) together require developments to make urban greening a fundamental element of design and to deliver net gains for biodiversity. A separate design guide (Greater London Authority et al., 2021) has been prepared to help implement the Urban Greening and Biodiversity and Access to Nature policies, which introduces simple design considerations for different types of urban greening features that help to make space for nature in built environments.

Also in the UK, under a new Environment Act (2021), from November 2023 all planning permissions granted in England (with a few exemptions) will be subject to a mandatory requirement to deliver at least 10% biodiversity net gain (BNG)[7]. This new mandatory requirement was prompted by a 13% decline in the average abundance of wildlife in the UK since the 1970s, despite legislation and policy to protect biodiversity and wildlife. Although certain sites and species are protected, as in Auckland, there are limited mechanisms to value, maintain, enhance and create wildlife habitats beyond protected sites. As a result, habitats continue to be lost to development. The BNG requirement is additional to existing habitat and species protections and aims to create new habitat as well as enhance existing habitats, and habitats will need to be secured for at least 30 years. BNG will be measured using a government devised 'biodiversity metric', which is an online spreadsheet-based tool that helps to measure the change in biodiversity achieved by different land management interventions on a site.

The FDS includes an implementation action to change the AUP to strengthen protection of existing vegetation and encourage or require new planting and ecological connections, which will contribute to improving or establishing ecological connections across Auckland.

Ensuring access to quality and multi-functional open space

Intensification of the existing urban form, whether through infill housing or redevelopment, often comes at the expense of private outdoor space. While these pressures have been known since the AUP(OP) became operative in 2016, they will be exacerbated following the implementation of the intensification requirements in the NPS-UD and MDRS.

As private outdoor space diminishes, the quality and accessibility of public open space becomes increasingly important. The contributions of high quality accessible green space to liveability, as well as public health / well-being, climate resilience and ecological outcomes is well known. The World Health Organisation (2017) recommends that all dwellings have at least 0.5-1ha of public green space within 300m.

While equitable distribution and accessibility of public open spaces is important, the quality and function of these spaces is equally significant to contributing to well-functioning urban environments. Public spaces that reflect a diverse range of needs improve the social benefit they provide. While the

[7] Biodiversity net gain - see GOV.UK (www.gov.uk)

primary function of public open spaces is often recreation and social utility, their contributions to environmental outcomes, such as water quality, biodiversity or climate mitigation / adaptation is critical. Enabling this multi-functionality within how the council acquires and designs new open spaces or maintains and upgrades existing spaces is of the utmost importance.

The council's current refresh of the Open Space, Sport and Recreation Policy may provide an opportunity to consider this. For example, public open spaces play a significant role in providing catchment scale WSD interventions, such as acting as large detention basins to capture floodwaters during high flow events or providing filtration and treatment of surface water by enabling large areas of constructed wetland.

While it is often claimed that utilising whole, or parts of public open spaces to provide these services diminishes quality from a social utility perspective, this is often a matter of design (Vernon et al, 2009). Leinster et al (2010) attributes this to "WSD squeeze", where structural WSD solutions in open spaces are often designed to minimum standards to not detract from any adjacent recreational values. This in turn establishes misplaced perceptions of the approach and an inverse relationship to the desired outcome, with such solutions less effective, harder to maintain and contributing limited amenity or recreational values themselves. If designed and integrated with recreational functions of a public open space, structural WSD solutions can instead positively contribute to place-making and amenity while maintaining their hydrological or water quality mitigation functions (Vernon et al., 2009; Leinster et al, 2010). Figures 11 and 12 below show examples of how WSD solutions have been integrated with recreation and public open space in Auckland and Copenhagen.

The historical park Enghaveparken in Copenhagen (State of Green, 2021) is located at the bottom of a hill and has been redesigned to create a 22,600m^3 reservoir while retaining the original neoclassicist features of the park. The redesign has made room for 9,000m^3 of rainwater by excavating within the neoclassicist structure of the park. On top of that, a low wall has been built along the perimeter of the park, to hold back further 13,600m^3 of water. The transformation of the park has turned the water challenges into a variety of new experiences for recreation and community interaction.



Figure 11: Te Auaunga /Oakley creek restoration with footpath/cyclepath alongside



Figure 12: Redesign of Enghaveparken in Copenhagen to make space for water.

Similar outcomes can be promoted regarding indigenous biodiversity. Existing public open spaces provide significant capacity for reafforestation, while creating new open spaces enables long-term protection (if land is strategically acquired). When acquiring land for new public open spaces, selecting areas of existing indigenous biodiversity and/or natural heritage values enables these areas to be protected in perpetuity. Strategic and coordinated investment in both the acquisition of land for new public open space and the reafforestation of existing open space can enable ecological corridors or sequences to improve indigenous biodiversity outcomes.

Enabling other uses, such as community gardens / urban farming in parks and publicly owned vacant lots is another method of contributing to climate mitigation (through localised food production) and biodiversity, as well as fostering a sense of community. These can also be utilised to minimise urban waste through local composting drop-off locations, contributing to circular economies.

While the need for quality multi-functional public open spaces is significant, it is recognised that Auckland Council's ability to deliver this is constrained. The availability of land and finances (for both capital expenditure and ongoing operational costs) is limited.

Therefore, the FDS includes an implementation action to investigate ways to encourage multiple uses for open space, greater planting of roadside berms and use of vacant council sites for community gardens/urban farming and local composting.

4.6 Natural hazards and climate resilience

4.6.1 Opportunities and challenges

As our climate changes, the frequency and severity of hazards will worsen. Hazards such as urban heat islands, flooding, coastal inundation and sea-level rise, coastal erosion and instability, or other geohazards will have a significant impact communities, public health, private property, infrastructure, and ecosystems. Some hazards, such as earthquakes, volcanoes or tsunamis are difficult to predict. However, we have better data and a better understanding of other hazards that we can and must plan for within growth and urban development, including flooding, coastal inundation (accounting for sea level rise), coastal erosion and instability, or geohazards (as shown in Figure 20 in Appendix 1 in the Draft Future Development Strategy for Consultation (Auckland Council, 2023e). Where and how we plan for growth and change to adapt to these hazards is increasingly important.

However, Auckland also has to deal with historic decisions which enabled development in potentially vulnerable locations. As Auckland developed, communities were built on wetlands, in valleys, on the edges of watercourses, on top of reclaimed or low-lying coastal areas and on the edge of steep coastal cliffs. These historic development decisions have shaped land use patterns in Auckland today and mean many Aucklanders and their properties are vulnerable to existing and emerging threats. Internal modelling[8] shows us that 21% of buildings in the region (105,159 buildings) are exposed to at least one type of flood hazard, including floodplains[9], overland flow paths[10] or flood prone areas[11].

Our land use decisions can exacerbate the severity of these hazards. Flooding occurs when the natural environment and built infrastructure systems cannot cope with heavy rainfall, causing areas of land to become inundated. The extent, depth and speed of floodwaters is heavily influenced by physical characteristics within a catchment, including how the built form and future development manages stormwater, which can cumulatively cause effects on properties downstream. Development itself can also occur within these vulnerable areas placing more people, property and infrastructure directly in harm's way, such as on unstable land, in floodplains or near the coast where they are vulnerable to inundation or coastal erosion, instability and slips. Where we enable growth can also create a physical barrier for ecosystems that need to adapt and retreat as our climate changes, particularly coastal and intertidal habitats.

The current approach to managing development in hazard areas does not always result in resilient outcomes, and development is occurring in locations potentially exposed to natural hazard risk. Historic zoning decisions can establish private property rights and development expectations that can be difficult for the council to deviate from. Where development does occur, typical mitigation solutions may not always result in a resilient built form.

4.6.2 Approach

There are a variety of approaches to adaptation that can enable communities to be more resilient and anticipate, cope with, mitigate the severity of, or preferably avoid the effects of hazards. These approaches can be anticipatory or reactive, and include preparation, avoidance, accommodation,

[8] Analysis completed in December 2021 – the numbers are likely to have changed slightly since then due to development and council's rolling programme of floodplain updates.
[9] An area of land that is inundated by runoff from a specified rainfall event, accounting for imperviousness and assuming the primary drainage is not blocked. In this instance data is modelled from a 1 in 100-year event.
[10] Low points in the terrain (excluding watercourses) where surface water will flow during a rainfall event.
[11] Depression areas that have no natural outlet and will point during a 1 in 100 year event.

protection and retreating as shown in Figure 13 below. Some of these approaches are being delivered by other policy and work programmes within Auckland Council, such as the development of Te Ara Urutau: Waikino/Too Much Water and Mahi Tahi Tatou: Resilient Auckland, the shoreline adaptation planning work programme or asset management planning. The FDS cannot address all of the adaptation approaches, but provides direction to support these adaptation approaches through how we grow and change, and this is explained further below.

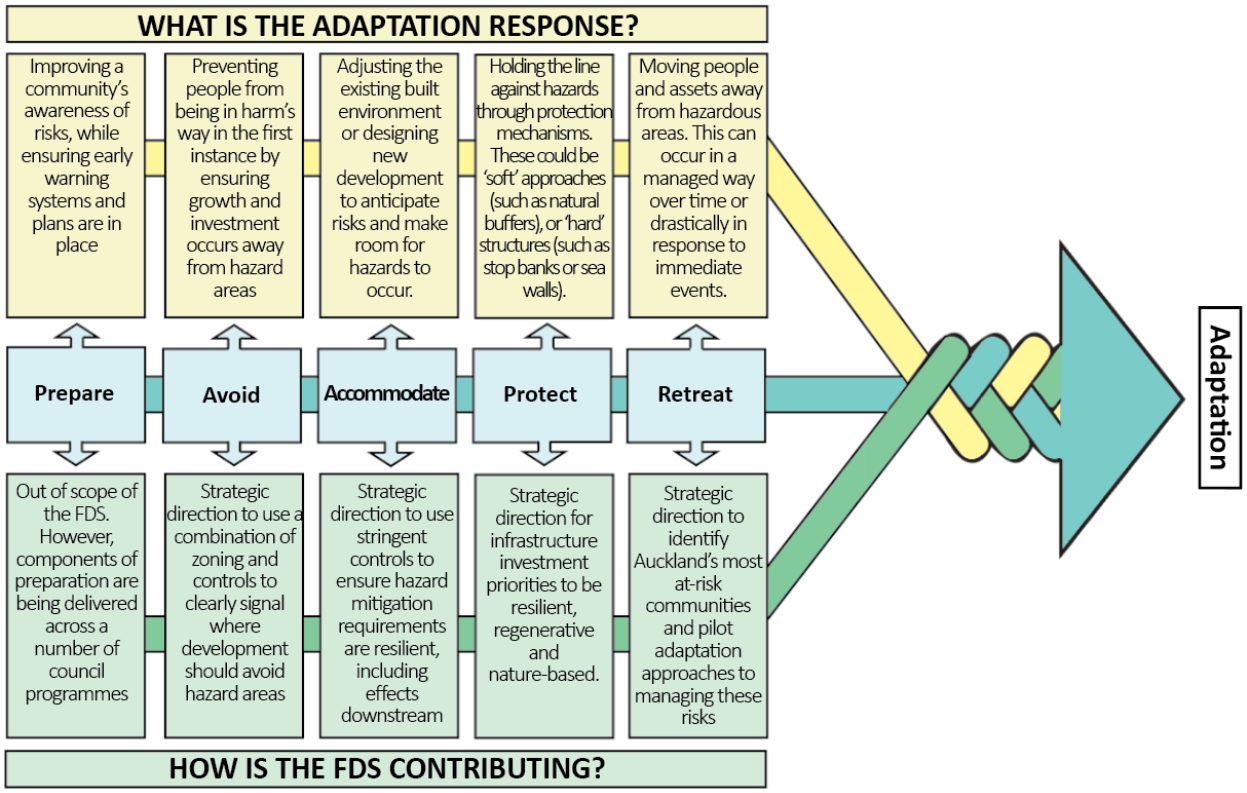


Figure 13: Approaches to climate adaptation and how the FDS is contributing

Avoid further growth in areas exposed to hazards and promote resilient design solutions
The most effective and lowest cost adaptation response is to avoid enabling development and infrastructure investment within hazard areas. The FDS includes an implementation action to strengthen natural hazard risk management plan provisions within the AUP and this is already underway. Council is reviewing the current approach to hazard management, including the roles of both zoning and controls found in other sections of the AUP, and how they can work together to influence resilient development outcomes. Zoning could be used as a tool to signal where we know growth should be avoided, particularly where risks are high, such as to life. Where risks could be managed or we are less certain in our data and a more detailed assessment is required, other controls could provide clear direction where avoidance is required and where mitigation is appropriate, including stringent requirements for the types of mitigation used.

Maintaining and restoring natural systems is a key component of the accommodation approach. The FDS provides strategic direction to improve how development outcomes contribute to this, such as the use of holistic water sensitive design principles, reafforestation or the protection of watercourses and natural wetlands (as explained in the Natural Environment section above).

In future urban areas, the council has a greater ability to require future zoning patterns that avoid hazardous locations. However, this has been difficult to achieve. Some hazard risks can be managed through engineering solutions however these solutions are often very expensive to deliver and there is

a level of residual risk of interventions being unable to provide appropriate mitigation during extreme events. The number, scale and ad hoc nature of private plan changes means that it can be difficult to achieve the required integrated catchment response. The most effective way to avoid future urban development in hazardous areas, is to not identify the area for growth.

The FDS has reassessed each future urban area on several criteria, including exposure to natural hazards. Where natural hazard risks and the anticipated costs to effectively manage these risks are significant, it is recommended that some future urban areas, or parts of future urban areas, are downzoned or subject to further investigation. Refer to the Future Urban Areas section below, and the separate Future Urban Areas Evidence Report for more detailed analysis of this assessment and the areas affected.

Prioritise integrated, nature-based, regenerative and resilient infrastructure
To support long-term growth in Auckland and meet our Treaty and climate obligations a different approach to infrastructure is needed. Viewing infrastructure as a system and recognising connections and interdependencies is important. It allows us to understand how infrastructure can evolve, where its vulnerabilities lie, what can make it resilient and how it impacts the resilience of our communities. Auckland's infrastructure systems need to cope with ongoing stresses and trends, such as climate change and evolving technology. There are different ways that council is able to ensure that future infrastructure is as resilient as possible, and this is discussed further in the Infrastructure section below.

Support communities to move away from high-risk areas if required
When communities, properties and assets have no viable options to accommodate or be protected from hazards, managed retreat may need to be considered. This can be confronting and is often tied to complex social, legal and financial challenges. Beyond our own assets, the council currently does not have the tools to support communities in this transition. However, internal programmes such Mahi Tahi Tatou: Resilient Auckland and central government initiatives such as the National Adaption Plan 2022, Climate Adaptation Bill (being drafted by Central Government at time of writing) and Future of Local Government Review should provide us with new tools to help communities move away from threats.

In preparation of these new tools, the FDS has identified areas in Auckland that are most vulnerable to climate threats, prioritising communities with the lowest adaptive capacity. In these locations, further investigation is needed to support communities to determine feasible adaptation responses over time. The appropriate adaptation response options will depend on a combination of factors and will need to be worked through with mana whenua and the local community in each location. The selection of approaches must be specific to the context of an area and could range from infrastructure investments (including ecological enhancements) to protect communities from threats to transformational responses, such as retreat. Further work is also required to understand the individual hazard risks and extent in these locations to determine appropriate adaptation responses, and to align any initiatives with the council’s short-term flood response to the extreme weather events in 2023.

The criteria used to identify areas to focus efforts on initially are the:

- extent of constrained area impacting residential and business zoning per location
- existing population density (i.e. how many people might be affected)
- the NZ deprivation index score, to ensure the focus is firstly on our most vulnerable communities (as communities with higher deprivation scores may have more difficulties adapting to, and recovering from, the impacts of hazards).

Figures 14, 15 and 16 below show the spatial extent of these criteria and how they were used to identify initial locations for further investigation. The criteria were applied to SA2 units (a Stats NZ geographic unit which aims to reflect communities that interact together socially and economically. In populated areas, SA2s generally contain similar sized populations[12]). The locations with highest percentage of area constrained by hazards, highest population density and/or highest deprivation score are shown in the darker red and orange shades, while beige shows those locations with the lowest combination of constrained areas, population density and levels of deprivation.

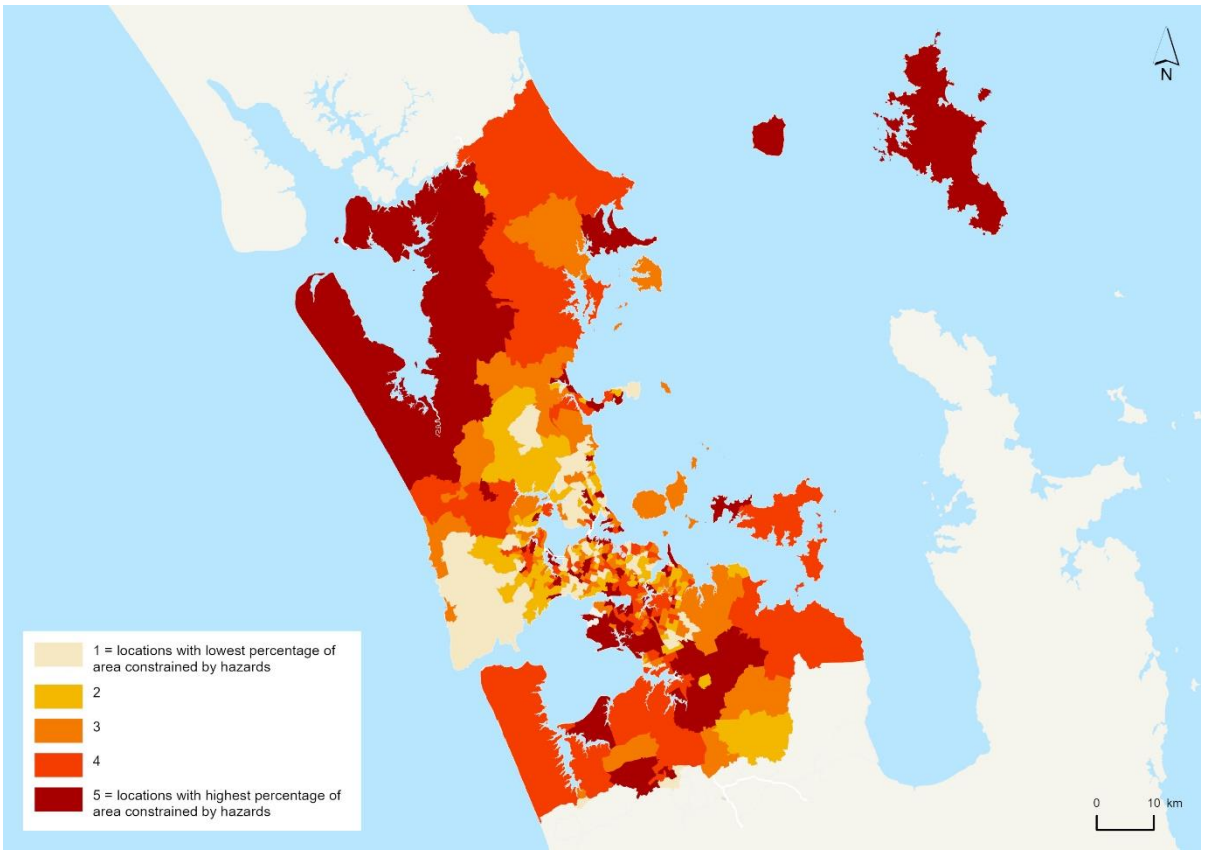


Figure 14 – Locations with highest percentage of area constrained by hazards

[12] Statistical Area 2 2020 (generalised) | Stats NZ Geographic Data Service

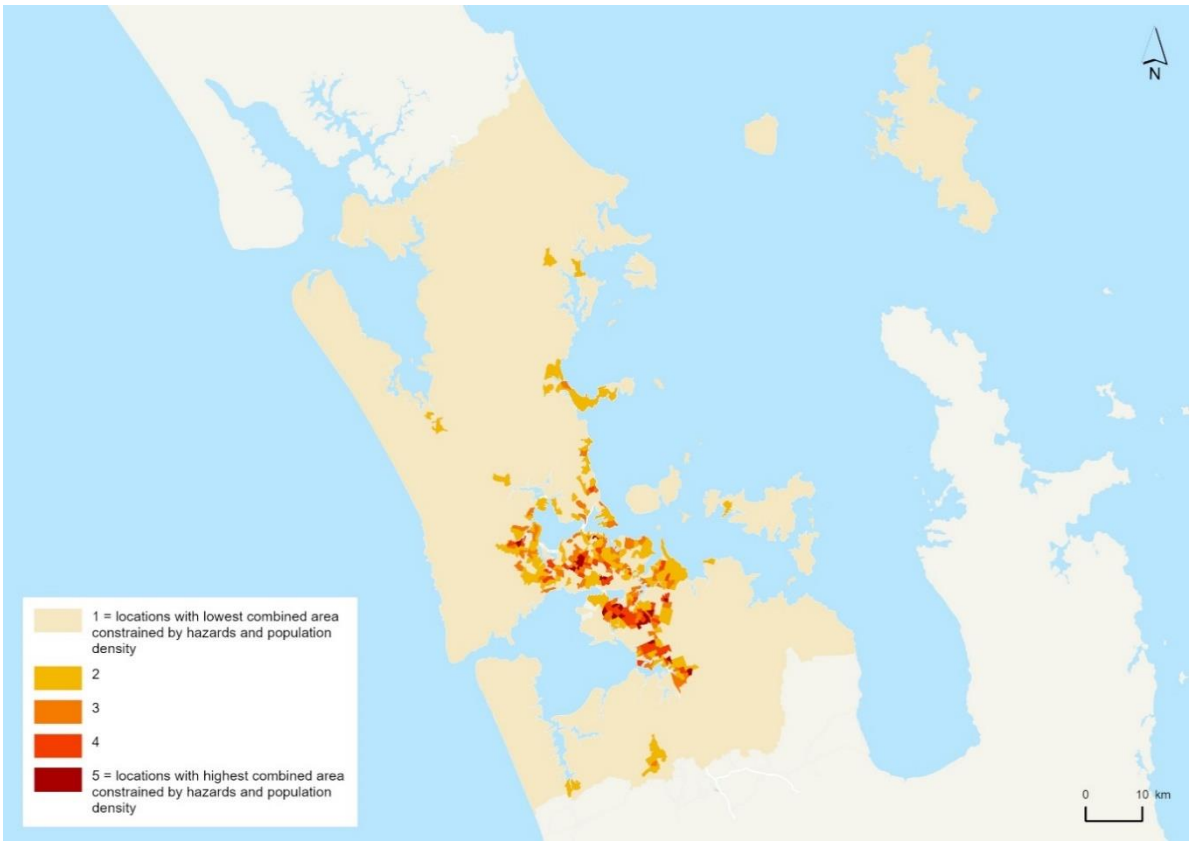


Figure 15: Locations with highest percentage of area constrained by hazards combined with highest population density

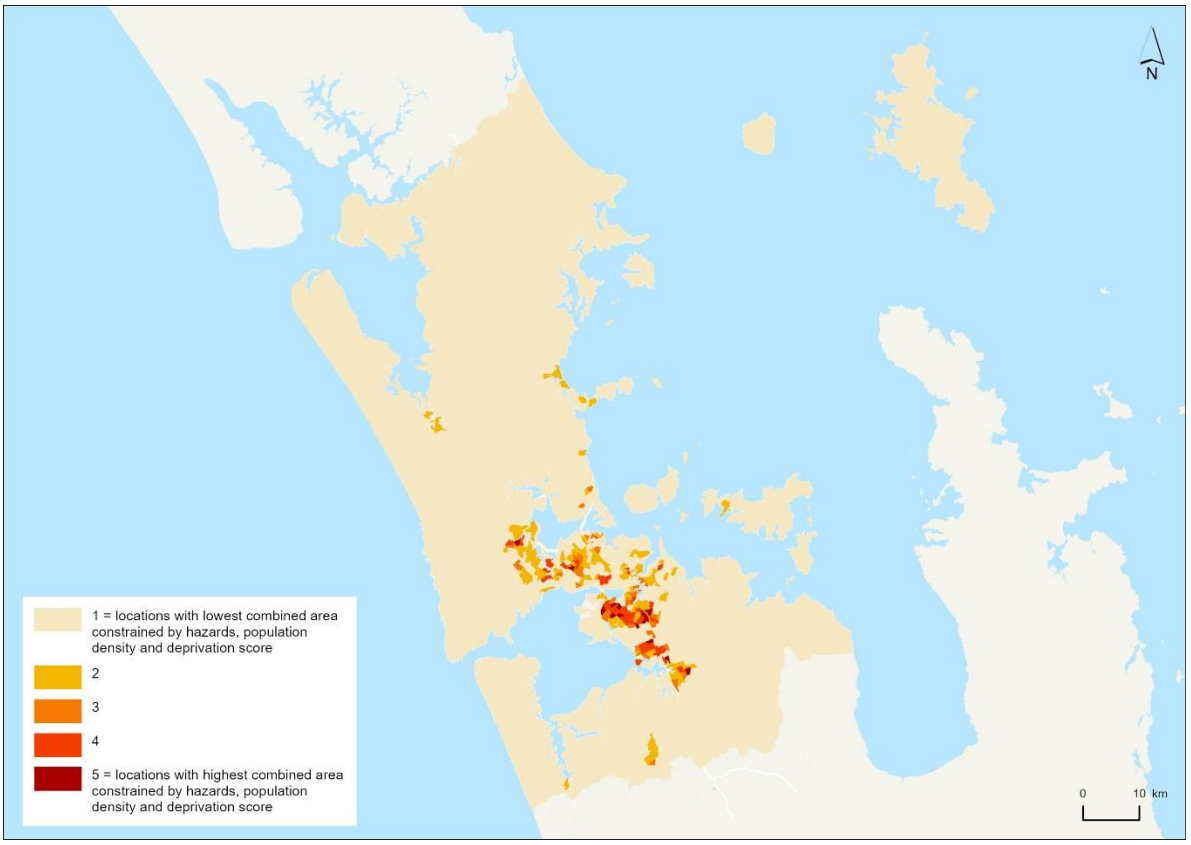


Figure 16: Locations with highest percentage of area constrained by hazards combined with highest population density and highest deprivation score

4.7 Climate change mitigation

4.7.1 Opportunities and Challenges

Challenges

To address climate change mitigation meaningfully, a range of approaches are required over a range of timeframes. Figure 17 below shows the different drivers of urban greenhouse gas emissions, and it also gives a sense of the different time scales involved.

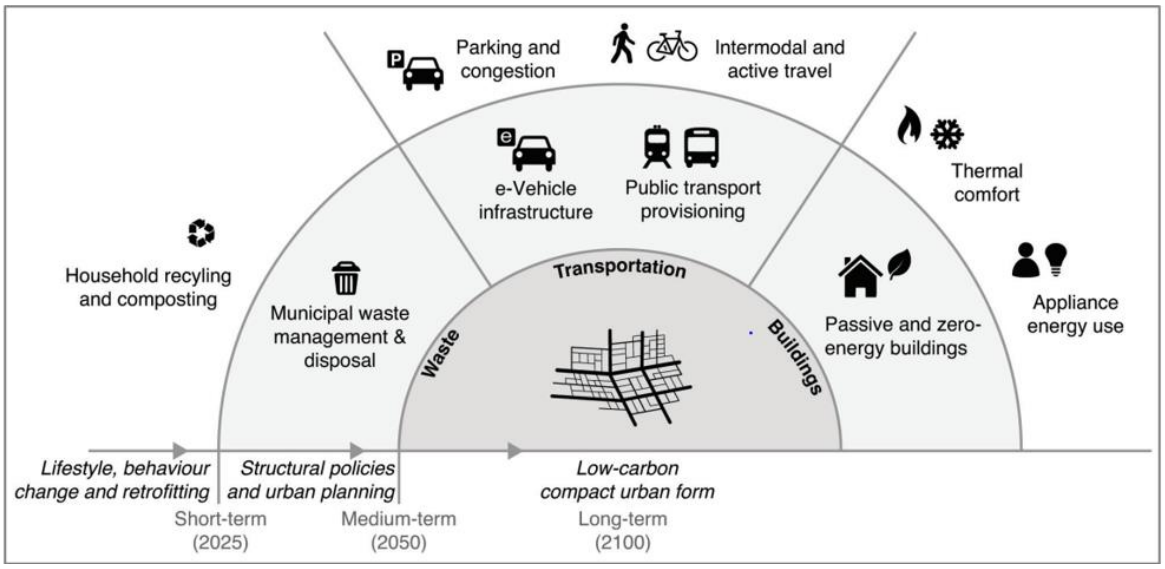


Figure 17 – Drivers of greenhouse gas emissions and opportunities for mitigation (adapted from Lamb et al. (2018))

As can be seen in Figure 17 above, urban planning approaches to climate change work most fully and effectively across the medium to long-term. The reason for this is that cities are the product of long histories, and have well established urban form and land use patterns that are not readily malleable over the short term when the city is viewed as a whole. This does not however mean that urban planning should not proceed with urgency in terms of its approaches to address urban form in relation to climate change mitigation. While significant change in urban form takes time, planning decisions made in the short term can have significant impacts on the future trajectory of urban form, locking in particular development patterns.

Evidence shows that significant local outcomes can be achieved in the shorter term in terms of urban form, and these shorter-term outcomes can help act as catalysts in terms of evolving urban form over the medium to long term. As an example of this, the proliferation of apartments in the Auckland CBD between 1996 and 2005, and more recently since 2017, has shown that significant sub-regional changes in urban form can occur over the short to medium term time horizon. In 1996, the estimated resident population in the Auckland city centre was 4,670 – by 2005, the population had grown to 21,110, and in 2022 to 36,460 (Infometrics, 2022a).

While greater levels of intensification, including in the Auckland city centre, have been occurring in Auckland since the Auckland Unitary Plan was made operative in 2016, by international standards Auckland's density is relatively low. Just as importantly, high density development is often not occurring near major centres or close to stops on rapid transit networks – much of the medium density development that has been proliferating in Auckland since 2016 has been spread quite widely across the urban area, and even much of the redevelopment occurring near centres and train stations is of a

medium density rather than high density. As a result of these and non-urban form factors, Auckland's per capita emissions profile is high by international standards.

An evidence report prepared by Auckland Council in 2022 on the Auckland Plan 2050 (Auckland Council, 2022c) showed the stark differences between Auckland's per capita emissions and those of some international cities. For example, Auckland's emissions per capita (4.78 tCO2e) is roughly double the emissions of Paris (2.45), Copenhagen (2.39) and Oslo (2.06), and three times that of Stockholm (1.53). The contrast becomes even starker when focusing on transport only, where Auckland's per capita emissions (2.74) are roughly three times that of Oslo (0.93) and Copenhagen (0.85), four times that of Stockholm (0.74) and six times that of Paris (0.45). While the comparison is made with European cities with much different urban histories and urban form to Auckland, significant potential exists over time for Auckland's urban form to evolve to come closer to some of the urban form characteristics of these European cities that contribute significantly to lower per capita emissions. This direction is being driven by both national-level direction, such as the NPS UD, and through the Auckland Plan 2050, the AUP, and the FDS.

A large body of research literature exists linking urban form with greenhouse gas emissions from transport, and the challenges that come with low-density, expansive urban form. He Pou a Rangi – Climate Change Commission (2021), state in their 2021 Evidence Report that:

Transport emissions and urban form are closely inter-linked. In particular, low-density residential development – urban sprawl – is associated with higher transport emissions. Cities with a low average population density are more spread out and their economic hubs (employment, education facilities, residences, shopping centres) are located farther from each other. The resulting longer travel distances make walking and cycling less attractive, and the follow-on less concentrated travel demand is difficult to serve with convenient public transport. Hence, transport demand in such cities is likely to be met by privately-owned passenger cars. This results in relatively high per capita vehicle kilometres and emissions.

Opportunities

The corollary to this is that urban form that is characterised by higher densities and greater mix of uses (or greater proximity of residential areas to non-residential uses including employment) typically results in significant lower per capita vehicle kilometres and emissions.

As the Climate Change Commission's Evidence Report goes on to state, there is a significant body of research linking the potential and opportunity to reduce emissions from an urban form that that is more dense and compact. The report cites a New Zealand Productivity Commission report from 2018 that notes that higher density urban centres can reduce vehicle kilometres travelled by between 5% and 12%. While this may not appear large, if steps are not taken to plan for, and realise, a more compact urban form (versus more expansive urban form with significant levels of greenfield rezoning and development), there is every likelihood that vehicle kilometres travelled will increase significantly.

The World Bank (2021) states:

'All else equal, greater density brings origins and destinations closer together, reducing the length of vehicular trips and enabling more trips to be made using nonmotorized transport (walking or bicycling). Greater density around public transportation nodes also makes public transportation more viable, as it brings a larger population within walking distance of stops. By reducing the length and frequency of private trips and increasing the share of public and nonmotorized transportation, density reduces vehicle kilometres travelled (VKT), thus reducing carbon emissions'.

A major work addressing spatial planning, urban form and greenhouse gas emissions is 'Climate Change 2014: Mitigation of Climate Change', from The Intergovernmental Panel on Climate Change (2014). The report states:

Urban form and infrastructure significantly affect direct (operational) and indirect (embodied) GHG emissions.

And that:

A combination of integrated sustainable infrastructure, spatial planning and market-based and regulatory instruments can increase efficiencies and reduce GHG emissions in already built-up cities.

The seminal work on the link between urban density and traffic behaviour (and hence greenhouse gas emissions generated by the transport sector) is Peter Newman and Kenworthy's study "Sustainability and Cities: Overcoming Automobile Dependence' from 1999. In this work, Newman and Kenworthy studied a range of cities around the world, and found a strong correlation between density and VKTs. That is, cities with higher densities have lower VKTs, while cities with lower densities have higher VKTs (and therefore emissions).

Since Newman and Kenworthy's seminal study, a significant body of research has been advanced that further addresses the links between density, land use, transport and emissions. Some of this research has been significantly more nuanced than Newman and Kenworthy's original work. Among some of the leading researchers in this field have been Robert Cervero, Professor Emeritus of City and Regional Planning at the University of California, Berkeley, and Reid Ewing, Distinguished Professor of City and Metropolitan Planning at the University of Utah.

Cervero et al (2017) state that: '*the consensus view is that it's what often accompanies density (e.g. mixed land uses that shorten distances, higher-quality transit services, expensive parking) that influences travel, not building heights or block massing.*' In this respect, density is necessary, but not sufficient. Therefore, density is not determinant in terms of travel, but is a strong influence or proxy for influence on travel. That is, a mix of land uses is more likely in a dense urban area with high population densities.

A 2017 paper from Ewing et al. 'Testing Newman and Kenworthy's Theory of Density and Automobile Dependence' further considered these complex nuances. In this study, Ewing et al outline:

We find that density alone explains only a small fraction of the variation in vehicle miles travelled (VMT), and many confounders account for the differences in automobile dependence. We also find that it is not the localized density of individual neighbourhoods that causes VMT to be lower in compact urbanized areas but rather the relative accessibility of neighbourhoods to the rest of the region.

A key implication of this finding for Auckland is that the most optimal planning approach in terms of planning for intensification to help reduce VKTs is to focus residential intensification near public transport nodes that offer wider regional accessibility. This means that residential intensification should be promoted near train stations, or preferably multi-mode transport hubs, where good train or bus access to several larger employment centres in relatively disperse geographic areas is possible and relatively convenient. The next best option, is to promote higher density, mixed-use development near stations that provide short travel times to these larger stations or hubs.

In Auckland, this generally means locations with train stations that are closer to Central Auckland, allowing more readily for interchange at Britomart. From Britomart, access is available by walking to the large employment and services offering in the Auckland city centre. From Britomart, train services provide access to major employment centres at Newmarket (Southern and Western lines), at Penrose (Southern Line), at Sylvia Park / Mt Wellington (Eastern Line). Also from Central Auckland, access is

available to the major employment centres of Smales Farm, Constellation Drive and Albany on the Northern Busway.

As per Ewing et al.'s research, train station locations remoter from Britomart will typically have lesser accessibility to the wider region, and in particular employment centres.

This raises challenges in terms of the widespread suburban intensification enabled by the *Medium Density Residential Standards* introduced by the government in 2021. Residential intensification will occur in many locations with lower accessibility to multiple locations in Auckland's urban area, and as per Ewing et al.'s findings this is likely to result in higher use of private automobiles (and higher emissions). Of course, *some* of these suburban locations may benefit from good bus services (or future services), but the extent to which that helps facilitate good regional accessibility is likely to be limited.

Given the above, a key consideration for council's urban planning approach, in terms of seeking to reduce VKT's (and therefore emissions) in residential areas, is for initiatives and incentives to promote higher density development to be focused in those locations near train stations where wider regional accessibility (especially to employment centres) is maximised.

The corollary to all of the above is that locations that are remote from employment and services, and especially where good and frequent public transport is poor, will generate high per capita VKTs and therefore emissions. It should also be emphasised that the mere presence of public transport services serving remoter urban locations is in and of itself of limited consequence when considering emissions. As per Ewing et al's research findings, it is the regional accessibility of public transport options that is critical in terms of use of public transport and therefore VKT reductions. It is important to stress that this conceptualisation of accessibility does not simply mean that it is possible to travel from one destination to another – it also incorporates reliability of service, cost and travel time. This mix of factors means that it is extremely difficult (and very expensive) to achieve good levels of regional accessibility from public transport in most greenfield locations in the Auckland region.

4.7.2 Approaches

In summary, the implications of international research for Auckland in terms of reducing emissions from the transport sector through urban form and planning in Auckland are:

- Residential intensification should be focussed in and close to major centres offering a range of employment and services
- Residential intensification should also be focussed close to stations on the rapid transit network where regional accessibility is maximised. Usually these will be more centrally located train stations in Auckland (on the isthmus) or more centrally located stops on the Northern Busway, which can readily provide convenient access to Britomart to allow for the widespread accessibility available from this central transport hub
- Less focussed and scattered intensification, such as that enabled by the MDRS, is not effective in reducing VKTs and therefore transport emissions. However, the MDRS is a central government mandate. As council cannot prevent development under the MDRS, it needs to focus on creating an optimal planning framework for promoting intensification in the best locations. This applies to both non-MDRS intensification (high density in walkable catchments), and MDRS intensification (finding ways to enable and incentivise MDRS-enabled development closer to centres and public transport services that provide good levels of access to train stations)
- Greenfield development, remote from larger employment centres, generates large per capita transport emissions, with heavy reliance on use of private automobile usage. There should be less reliance on greenfield rezoning and development to achieve lower transport emissions.

4.8 Infrastructure

The infrastructure that supports growth is much more than roads and pipes. It is an interconnected system of built assets, natural assets, and services. Built infrastructure systems exist within and to serve other related systems, like communities and the environment.

Thinking about infrastructure as a system and recognising connections and interdependencies is important. It allows us to understand how infrastructure can evolve, where its vulnerabilities lie, and what can make it resilient.

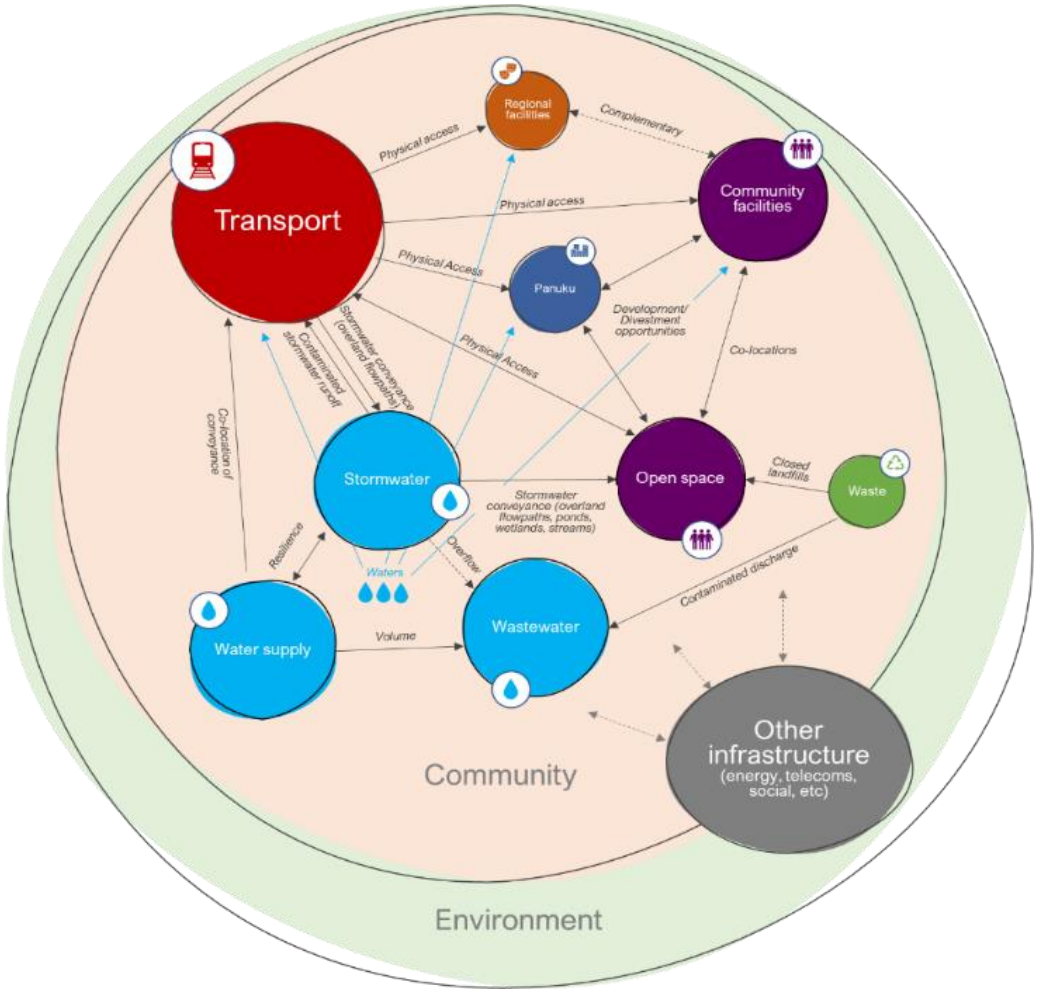


Figure 18 – Infrastructure system view (Auckland Council, 2021c)

Auckland Council has the ability to affect change through its substantial investment in infrastructure. Over the coming 30 years, council plans to invest over $180 billion of both capital (over $40 billion) and operational expenditure in infrastructure (Auckland Council, 2021c). However, there is a significant amount of other public and private infrastructure that is provided by others.

The 2021-2051 Auckland Council Infrastructure Strategy reflects the outcomes of the Auckland Plan 2050 and Te Tāruke-ā-Tāwhiri and describes current responses, and on-going actions for improving how our infrastructure responds to those outcomes.

The declared climate emergency and international and national commitments for societal and infrastructure transformation should direct the kinds of investments we make in infrastructure for the Auckland Region. Significant progress on decarbonising existing infrastructure services and enhancing ecological infrastructures is required before 2030.

It is important that we recognise our approach to infrastructure to date has been one that is not regenerative, nor mauri and mana enhancing. Growth in Auckland over the coming decades will need to be supported by infrastructure that has different characteristics to our existing infrastructure to meet our treaty and climate obligations.

A long-term view of infrastructure investment needs to be taken due to the significant cost of new infrastructure and long design life (often 100 years for bulk infrastructure assets). It is therefore essential that our spatial planning is long-term, directive and prioritises environmental constraints (such as emissions and the natural environment).

4.8.1 Challenges

Investing in infrastructure in a financially constrained environment
Council's ability to provide infrastructure is not unlimited due to funding and financing constraints. As Tāmaki Makaurau's population grows, so does demand for new and upgraded infrastructure. Infrastructure is expensive and council is not able to fund and finance all of the required infrastructure, everywhere. Council faces competing investment priorities and must balance our growth investment with looking after our existing assets and services.

Cost of infrastructure
The cost of infrastructure to support growth is significant and council does not currently receive an appropriate share of the required investment in infrastructure that developers contribute to the need for and will benefit from.

Analysis has shown that when looking at the regional scale across the whole city, and range of infrastructure types, servicing urban intensification with infrastructure has varying costs depending on its location. Typically, brownfield development demonstrates lower costs when compared to greenfield development. Analysis has also shown that the best return on infrastructure investment is closer to the CBD. The same 1000 dwellings within 10km of the CBD for at least 50% less than the cost of infrastructure at 30km from the CBD (Trubka et al., 2009) as shown below.

Greenfield development requires the greatest amount of new infrastructure due to expansion of existing networks to service new areas. Some of the initial land/construction costs can be lower than brownfield development due to not having to work around existing assets, land owners and buildings. However, creating and maintaining additional networks results in a larger asset base with greater ongoing maintenance costs. Transport journeys are also longer as there are less services available which results in a high car ownership rate with poor health-related and emissions outcomes. Development in future urban areas typically results in the highest amount of detached housing typology which has the least efficiency of use for infrastructure (people per pipe/road/community service facility). This means there are less people per km of asset to pay for its maintenance and renewal.

Transport infrastructure in particular has shown to be significantly more expensive to provide in a greenfield versus brownfield development. Analysis shows that public transport infrastructure costs to service greenfield development are more than 6 times the cost of public transport in brownfield development (Trubka et al., 2009). This is due to the limited public transport infrastructure and service availability in greenfield development. Transport routes within brownfield development are more direct and connect between activity areas that are closer to trips origins. This generates less traffic and shorter trips which makes operations and maintenance expenditure more cost-efficient and lowers greenhouse gas related costs.

There are limitations of the data relied on due to the variance in data sources, age of some data sources and limited Auckland-specific literature. It is considered that site context and understanding the capacity of existing infrastructure is also a key consideration when determining relative costs between greenfield development and urban intensification. However, despite area-specific nature of calculating development costs, the evidence suggests that initial capital costs and operating costs of sprawling developments outweigh the costs associated with inner-city redevelopment.

Infrastructure's impact on the environment
Whilst council must deliver infrastructure that enables us to meet Aucklanders needs, it is acknowledged that it's construction and operation generate emissions and effects on the environment. Significantly the council adopted Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan. This acknowledges the importance of creating low carbon, climate resilient places. It also acknowledges the importance of our already established approach to planning and growth and the role of a quality compact urban form. Council aims to ensure that new infrastructure is planned and designed to minimise climate risks and lifecycle emissions.

The impact of historical growth and infrastructure on the environment is recognised. Waste generated by the construction, operation, and decommissioning of infrastructure systems is a significant concern for council. There is a lack of consistent integration of environmental outcomes into investment planning and prioritisation across infrastructure investment as a whole. Council lacks clearly established and enforced environmental limits and infrastructure investments do not sufficiently consider the capacity of the environment to sustain life. Future infrastructure has an important role to play in ensuring that the natural environment is preserved, protected and cared for, both for its intrinsic value and to sustain life for future generations.

4.8.2 Opportunities

A te ao Māori vision for infrastructure
Council recognises that our approach to infrastructure to date has been one that is not regenerative, nor mauri and mana enhancing. Growth in Auckland over the coming decades will need to be supported by infrastructure that has different characteristics to our existing infrastructure to meet our treaty and climate obligations.

The council Infrastructure Strategy 2021 identifies there is no clear vision for infrastructure and proposes to develop, agree, and embed this vision in the 2021-2024 period. The council Infrastructure Strategy proposes the vision is built from a foundation of Mātauranga Māori and the Auckland Plan 2050. This vision is in development and includes defining the characteristics that we want of our infrastructure systems.

Auckland Council strategy already characterises a desired state for infrastructure that it is as follows.:

- mana-enhancing (including existing and planned infrastructure). When decisions are made jointly, or devolved appropriately, mana can start to be restored
- mauri-enhancing (including connecting people with the environment). Mauri-enhancing infrastructure is strongly aligned with green and regenerative infrastructure solutions that achieve carbon zero and regenerative goals
- nature-based, regenerative, resilient
- low or zero emissions
- adaptive
- circular in resource use

- built in a way that means Aucklander's will connect with te taiao, and it's able to be seen and understood by Aucklanders.

Along with the above, infrastructure would also have the following characteristics:

- the definition of infrastructure is broadened to include investment in ecological infrastructure such as urban ngahere forests, blue and green networks to absorb extreme events, and hyper-accessible local transport that prioritises non-private vehicle movements
- structure and reorient infrastructure to local ecosystems to reconnect nature, people and place, and foster vibrant safe and accessible communities. This includes orienting towards and connecting to waterways and seawater, building human scale communities, retrofitting, safe and healthy streets, increasing open and connected space, and including backyards in our networks of green space
- a clear hierarchy of obligations reflecting Te Mana o Te Wai/Taiao. A clear hierarchy of obligations would guide infrastructure decision-making
- the whakapapa of water and the land is respected. Our ecosystems, land and environment are part of the same gift, handed down from our ancestors (tupuna).

Coordinating infrastructure investment

The next 30 years will require significant investment in infrastructure to support Auckland's growth. It is crucial that this investment is coordinated and aligned with growth, to minimise the life-cycle costs of infrastructure, ensure the most efficient use of networks, increase Auckland's productivity, and achieve better outcomes. Coordinated action between local government, central government, private infrastructure providers and the development sector is needed to enable the scale of development required to accommodate Auckland's growth.

In the coming decade large infrastructure projects and programs are predominately being constructed to service growth in the existing urban area. In 2021/2022, the location of dwellings consented across Auckland indicates most growth is taking place within the existing urban area with a majority happening through intensification in brownfield areas. 83% of dwellings were consented in the existing urban area during this period (Auckland Council, 2022d). The infrastructure in these areas has also often come to the end of its useful life, being constructed over 50 or even 100 years ago.

The large transformational projects (primarily transport) are likely to be constructed during the second decade. The transformational projects of the second decade will begin to unlock the outer areas of Auckland with low carbon transport options such as rapid transit to assist Auckland in meeting its emissions reduction goals.

Creating resilient infrastructure networks

Population growth and the impacts of climate change are increasingly putting pressure on our infrastructure networks. Over the coming years, Auckland will continue to face increasing extreme weather conditions that will put our infrastructure such as water supply networks, wastewater treatment plants and roads under strain. Responding to these trends involves building greater adaptability and responsiveness in our networks and planning frameworks.

As Auckland's infrastructure needs grow, Auckland also needs to be able to:

- cope with disruptive events (such as natural disasters and human error)
- respond to on-going stresses (such as climate change)
- meet the evolving needs of Aucklanders.

Understanding the consequences and likelihood of failure, as well as the changing demands on our infrastructure systems, allows us to better manage risks to these networks. Infrastructure assets, just like communities, are vulnerable to the impacts of natural hazards and climate change.

Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan includes a key action to ensure the management of existing infrastructure increases climate resilience and reduces emissions. Council's Natural Hazards Risk Management Action Plan (NHRMAP) includes work to understand the exposure of our critical assets to natural hazards and climate change. Identifying interdependencies and understanding economic impact are key parts of this work.

Council is working to address natural hazard and climate risk in asset management plans, applying natural hazards risk criteria and embedding a Dynamic Adaptive Policy Pathways (DAPP) approach to support decisions being made at the right time. There are different ways that Council is able to ensure that future infrastructure is as resilient as possible. This may include:

- consideration of small scale and nature-based solutions and building community resilience
- transitioning from large infrastructure projects to enabling local decentralised solutions
- decreasing or not locating future growth and infrastructure in hazardous areas
- investing to strengthen infrastructure where it already exists (the existing urban area)
- awareness of wider network relationships such as downstream catchment impacts from upstream development
- investing in infrastructure systems that serve multiple functions. For example, green infrastructure that manages stormwater, can enhance Te Mauri o Te Wai - the life-sustaining capacity of water, create habitat and deliver localised amenity.

4.8.3 Approach

Make efficient and equitable infrastructure investments

Infrastructure ownership is distributed among different agencies with different priorities, which means it can be difficult to get coordinated management and delivery. Council is currently responsible for providing transport, three water services, parks and community facilities, waste, arts, culture and urban regeneration. Ports (both sea and air), state highways, telecommunications, electricity, gas and petroleum suppliers, health and education providers all provide infrastructure for Aucklanders.

Infrastructure projects typically require long lead times which can be negatively impacted by changing spatial priorities. Shifting growth priorities can be the result of increasing importance being place on emissions reduction, responding to natural hazard events, managed retreat from inundation and community desires to live in more accessible locations. Whilst it is important to be responsive to a changing context, it is not efficient to keep changing priorities. We need to consider the implications, costs and Auckland-wide benefits rather than on a project-by-project basis to capture the advantages of the change.

Infrastructure is expensive and takes significant time to plan and implement. Over the next 30 years, the council plans to invest over $180 billion of both capital (over $40 billion) and operational expenditure in infrastructure (Auckland Council, 2021c). This is a substantial investment which has the opportunity to make a large impact and must therefore be well considered.

Infrastructure investment is a complex challenge and requires balancing many competing demands to ensure money is spent in a way that produces the most value for Auckland. Council cannot fund all infrastructure. Funding of bulk infrastructure projects should consider other funding options where the

funding is split between different parties such as developers, central government, users and other beneficiaries. Financing the operational costs of infrastructure operational costs is largely through rates and any increases to rates is a social and political issue.

Failure of Auckland's critical infrastructure networks poses significant risks, as they are essential for Auckland to function. Auckland Engineering Lifelines Group defines critical infrastructure as infrastructure that would cause significant impacts nationally, regionally or locally as shown by Figure 19 below. These networks are prioritised in renewal and maintenance programmes and in emergency contingency planning. Development in close proximity to critical infrastructure networks, such as urbanisation near gas pipelines, needs to be managed carefully to ensure operation of these networks is not compromised and risks to Auckland and Aucklanders are limited or managed.

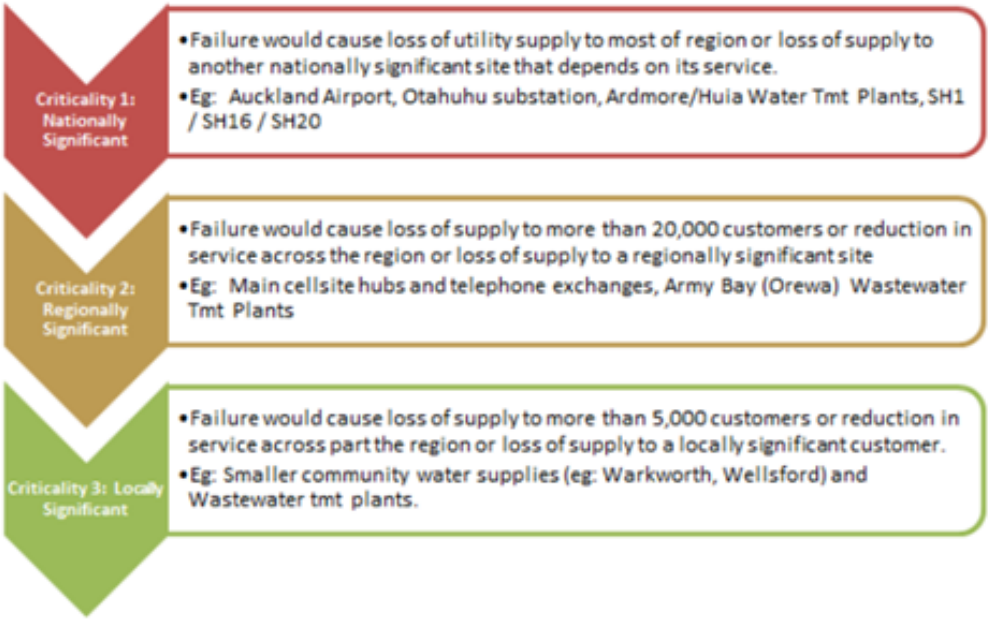


Figure 19 Auckland Engineering Lifelines Project, Stage2, V2.0 Nov 2017

Take a regional view to infrastructure investment and costs

Infrastructure to support growth will always require significant investment, which is difficult within a financially constrained environment. Council prioritises infrastructure investment to manage pressure on rates and to ensure the best outcomes for Auckland. Infrastructure funding is scarce and the demand for investment is great, therefore any new investment needs to be provided in the right locations at the right time.

Clear prioritisation is desired by the private development community however this can be a challenge to provide due to significant levels of uncertainty. Infrastructure providers must primarily respond to council growth priorities but also be responsive to private developers in market attractive locations.

At a regional scale infrastructure servicing urban intensification varies in cost depending on its location. Development in existing urban areas typically costs less when compared with development in future urban areas. Adding additional growth at the fringes of our existing networks is the least cost-effective investment in infrastructure to support growth. The best return on investment is closer to the centre.

The council will prioritise growth and infrastructure investment closer to the city centre and sub-regional nodes within the existing urban area. This will provide the best value for money for Aucklanders, while also addressing disparities in infrastructure and service provision. Council will take a regional and whole of society view of the costs and benefits when making long-term decisions, and

we will take those costs and benefits into consideration when land use planning decisions are made. Transformational infrastructure projects will also influence areas with future development potential.

Make the best use of existing infrastructure

Infrastructure investment is a complex challenge and requires balancing many competing demands to ensure that Council spends its money in a way that will produce the most value for Auckland. Much of the infrastructure that will support Auckland over the longer term already exists. Limited financial resources mean the council must decide how best to invest to maintain infrastructure services while increasing the resilience of our current and future communities.

To be a prudent manager of our financial resource, council has recently introduced an Infrastructure Investment Hierarchy to its asset management practices. Decision-making will be based on the infrastructure investment hierarchy as shown by Figure 20 below.



Figure 20 – Infrastructure Investment Hierarchy (adopted from Rautaki Hanganga o Aotearoa New Zealand Infrastructure Commission (2022) New Zealand Infrastructure Strategy 2022-2052)

The hierarchy requires that infrastructure planning and investment should firstly consider options that don't require the construction of new infrastructure. The lowest cost investment is effective planning, followed by managing demand (for example through charging for transport or water), then making the most use of our existing systems and assets (such as reallocating road space to more efficient uses, or adding additional functionality to public spaces to accommodate more people) and finally, considering carefully new investments and prioritising options which achieve multiple outcomes.

When the council considers whether or how to invest, we will identify all options rather than solely focusing on a built infrastructure-based solution. Where non-built options are possible, they enable infrastructure challenges to be addressed in a cost-effective and low-carbon way. Infrastructure investments using this hierarchy ultimately provides the most efficient use of our resources.

Development in the existing urban area supports the most efficient use of infrastructure for the least monetary cost over time. This allows for use of existing services, infrastructure and infrastructure corridors. When infrastructure in existing urban areas needs to be renewed, growth can be accommodated for a marginal cost.

New infrastructure will still be required through upgrades and expansions of our existing networks, and in limited new locations. These new investments are best directed in locations that result in its

most efficient use. This is considered to be in more intensive development locations, typically characterised as brownfield locations. The council currently has an operating deficit and additional infrastructure increases this pressure.

The investment hierarchy approach has multiple benefits, including funding as the Council has committed to raising the majority of our debt in its name through sustainable finance mechanisms such as green bonds (which requires demonstration of multiple positive outcomes (Auckland Council, 2022e).

Make investment decisions that deliver on multiple outcomes

The council, together with central government, has enormous capacity to effect change through its substantial investment in infrastructure. Infrastructure is a significant lever for delivering outcomes for Auckland. To make the most of our investment we should prioritise infrastructure investment that delivers on multiple outcomes. This requires decision-making based on the infrastructure investment hierarchy.

Auckland Council strategy already characterises a desired state for infrastructure that it is: mana and mauri enhancing, nature-based, regenerative, resilient, low or zero emissions, adaptive and circular in resource use.

Coordinating infrastructure investment across agencies will maximise our collective investment, provide certainty and get the best outcomes. To make the most of our investment we must prioritise infrastructure investment that delivers on multiple outcomes and this must be coordinated across agencies.

Infrastructure is a significant lever for delivering outcomes for Auckland. For instance, focusing infrastructure investment decisions in existing urban areas could influence:

- health outcomes – both direct and indirect through increased neighbourhood walkability and increasing destinations within the neighbourhood
- accessibility - transport routes within existing urban areas are more direct and connect between activity areas that are closer to trip origins
- greenhouse gas emission reductions - less traffic and shorter trips which make operations and maintenance expenditure more cost-efficient and lowers greenhouse gas related costs
- business and employment outcomes - urban intensification generates more jobs and more return to economy in labour and capital than greenfield development
- research shows higher land and construction costs for development in these areas but when balanced against the costs of the other infrastructure, this is minimal
- increased resilience - to support and minimise impacts on communities and enable them to rebound faster when exposed to hazards.

5.0 Spatial response

This section describes the proposed approach in each of Auckland's spatial areas, followed by the approach to spatial prioritisation:

- existing urban areas
- future urban areas
- rural areas
- business areas.
- spatial prioritisation.

While the areas are detailed individually the spatial approaches complement each other.

5.1 Existing urban areas

While growth will happen across all of Auckland over the next 30 years, most growth will be accommodated within the existing urban area. The existing urban area is expected to make an important contribution to achieving a quality compact Auckland. However, a targeted approach to development and intensification is needed to achieve this.

The existing urban area is generally the area of Auckland with live urban zoning at 2016, excluding live zoned future urban areas.

This section outlines:

- the existing urban area context
- development trends
- opportunities and challenges
- a refreshed approach – identifying areas with significant development potential.

5.1.1 Existing urban areas context

The Auckland Plan approach

The approach taken in the 2012 Auckland Plan focused most growth inside the existing urban area. Spatially, this meant providing for 60 to 70 per cent of new dwellings inside the Metropolitan Urban Limit within 'areas of change' (Auckland Council, 2012). The degree of intensification varied with most change expected in the city centre and metropolitan centres, significant change expected in the town centres and lesser degrees of change in other areas.

The Auckland Plan 2050 Development Strategy introduced a more targeted approach to the development and intensification of the existing urban area, through nodes and development areas.

The city centre, Albany, Westgate and Manukau were identified as nodes which were major growth areas that were critical to accommodating development across Auckland over 30 years. They were based around a significant centre and included surrounding employment areas and high-density residential areas.

Development areas were identified as specific locations across Auckland that were expected to undergo a significant amount of housing and business growth. The investment required in these areas to focus on addressing the impacts of increased demand on infrastructure and services as development occurs. They are a refinement of the 'areas of change' that were identified in the 2012 Auckland Plan Development Strategy. Growth was anticipated to take place in the balance of the urban area but not of the scale anticipated in the nodes and development areas.

Auckland Unitary Plan approach

Significant development capacity is enabled within the existing urban area through the Auckland Unitary Plan as well as the National Policy Statement on Urban Development 2020 (NPS UD) and the Medium Density Residential Standards (MDRS) as part of the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021.

However commercial viability means only some of this capacity is actually feasible (taking into account current costs, revenue and yields).

It is important to understand how particular locations within the existing urban area could contribute to large scale housing and employment supply both now and over time. As market conditions change, a greater number of sites could become more feasible.

5.1.2 Existing urban area development trends 2018-2023

The annual Auckland Plan 2050 Development Strategy Monitoring Report monitors building consents and code of compliance certificates issued for residential dwellings and business floor space across Auckland.

Monitoring shows that progress is being made in achieving a quality compact urban form, with most growth being in the existing urban area. Dwellings consented for more intensive housing types (apartments and townhouses etc.) are increasing at a faster rate than consents for standalone houses.

While the 2021/2022 monitoring report indicates that the number of residential dwellings consented has experienced a steady increase for the past five years (a 75 per cent increase compared with 2017/2018), recent data in 2023 shows this trend is slowing down and potentially heading downwards (Auckland Council, 2023b). There has been a decrease in number of dwellings consented since September 2022 (until March 2023). While some fluctuation is normal, ongoing monitoring is required to understand the long-term trend of the housing market.

Dwelling types

For the 2021/2022 year, the majority of growth (89 per cent) within the existing urban area occurred through infill and redevelopment with the balance (11 per cent) in areas not development previously.

More intensive housing (apartments and townhouses etc.) made up 78 per cent of dwellings consented in the existing urban area. This is an increase of 10 per cent compared with the previous reporting year and an increase of 28% compared with 2017/2018. Figure 21 below shows the

preference for higher intensity dwelling types over standalone housing in existing urban areas has increased over time and was driven mainly by an increase in townhouses, flats, units etc.

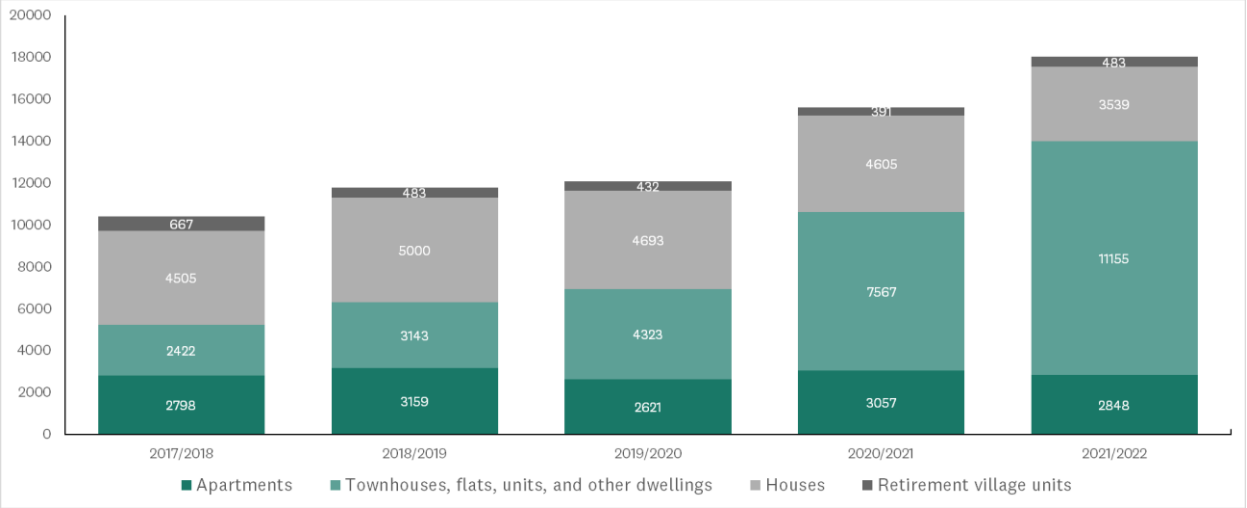


Figure 21 – Consented dwellings by typology from 2017/2018 to 2021/2022 (Auckland Council, 2022d)

Dwelling location

In the past few years, there has been a shift in consenting activity from the city centre to the outer suburbs within the existing urban area, in particular to the west and south (such as Te Atatū South, Henderson, Papatoetoe and Manurewa). On the other hand, standalone houses are clustered around more peripheral suburbs such as Flat Bush and Orewa.

Mapping of development activity in the last reporting year (see Figure 22 below) shows apartment consents with a high number of units (more than 60 units) are mostly located around train stations in areas such as Glen Innes, Greenlane, Avondale. There are also concentrations of apartments and townhouses, flats, units etc. located around areas with good public transport accessibility such as Northcote and Sunnynook. Most of these areas are already established centres that provide a range of local amenities and services that support growth and intensification.

5,552 residential dwellings were consented within 1,500m catchments of a rapid transit station (train or Northern Busway) in 2021/2022. This is 26 per cent of the total dwellings consented. 90 per cent of the consented dwellings within 1,500m catchments of a rapid transit station (train or Northern Busway) were more intensive housing types (apartments, townhouses etc.).

The clustering of consented dwellings along major public transport routes became more apparent in the last two reporting years, before that most of the more intensive housing types were still concentrated in the city centre . This suggests an increased desirability of living closer to areas that provides alternative travel options to private vehicle and provides accessibility to destinations other than the city centre. Refer to Appendix 3 for detail maps showing the changing residential building consent pattern over time.

Changing role of the city centre

In recent years, city centre has shifted its focus from commercial and retail provision for visitors and businesses to more emphasis on mixed-use and residential activities. In the past five years,

many of the larger apartment buildings (50+ units) have been consented in the city centre. There are currently more than 38,000 residents in city centre, which is a significant increase from 26,300 in 2013 (NielsonIQ, 2023). Having a strong residential population contributes to a more vibrant, safe and sustainable city centre.

This also means there is increased demand for high quality amenity, services and public spaces to support everyday living. This presents opportunity to redefine the identity of the city centre and improve liveability through better connectivity, greener and more walkable streets and wider range of social infrastructure.

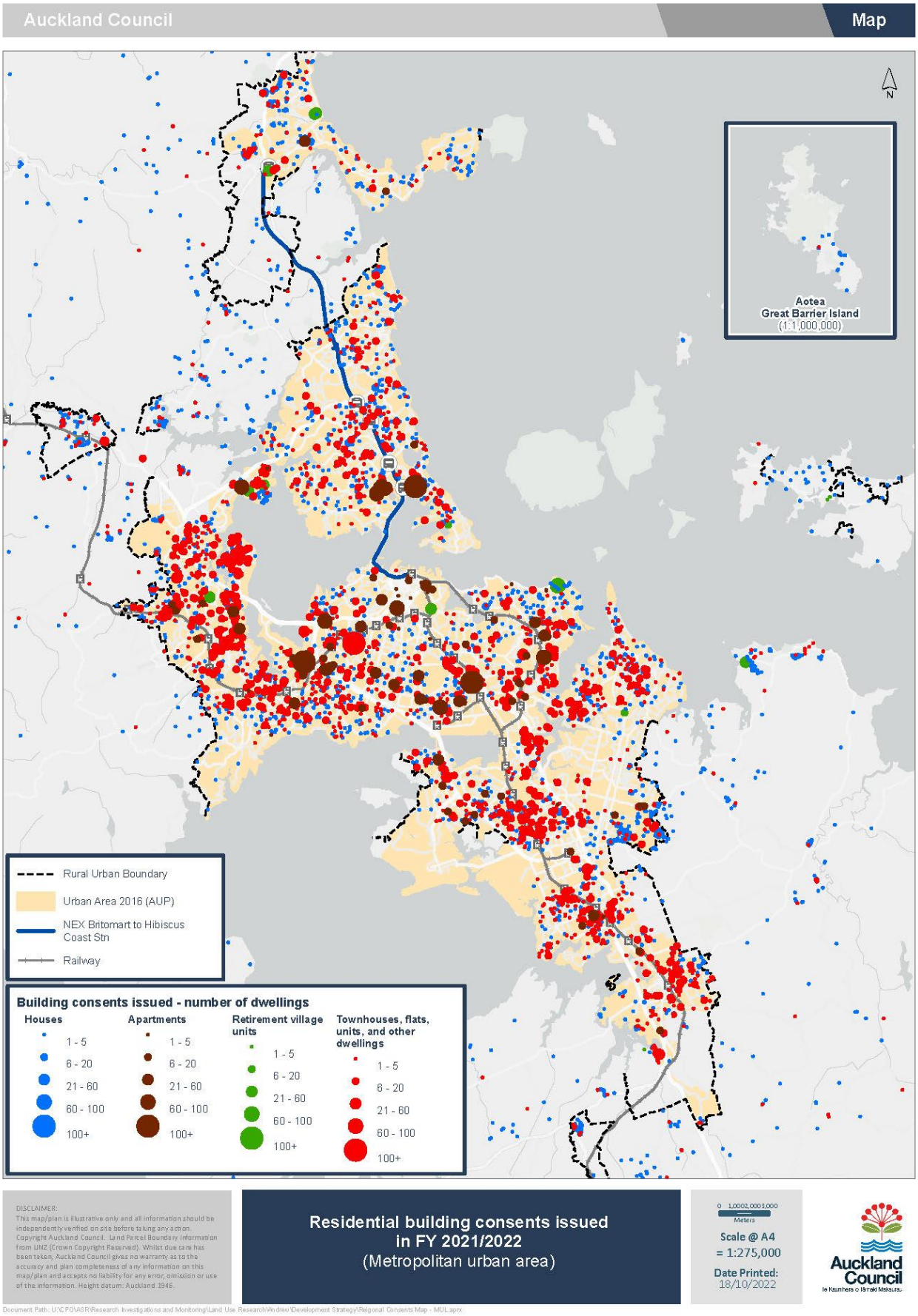


Figure 22 – Residential building consents issued in FY 2021/2022 (Auckland Council, 2022d)

Business floor space

As Auckland grows it must have capacity for business by making the best use of existing business land and identifying new business land in greenfield areas (for further information on Business areas see Section 5.4 below). Changes in the make-up and distribution of Auckland's economy will continue over the medium to long term.

Reporting year (1 July – 30 June)	Business Floor Space (sqm)
2017/2018	692,612
2018/2019	897,679
2019/2020	456,039
2020/2021	595,354
2021/2022	607,656
Grand Total	3,249,340

Figure 23 – Business floor space (sqm) consents, 1 July 2016 – 30 June 2022

As shown in figure 23 above the amount of business space consented has fluctuated significantly over the past five years. In 2021/2022 reporting year 607,656 square metres (sqm) of business floor space was consented. The light industry and heavy industry zones had the greatest amount of floor space consented. The Māngere - Ōtāhuhu local board area had the greatest amount of business floor space consented, followed by Manurewa and Upper Harbour. See section 5.4.3 below for further information on employment growth across Auckland.

5.1.3 Opportunities and challenges

Challenges

Urbanisation due to steadily increasing population in towns and cities has been a common challenge for decades all around the world, including Auckland. New Zealand is one of the most urbanised countries in the world, where 87% of the population lives in towns and cities; 33.4% of New Zealand's population lives in the Auckland region (Auckland Council, 2022c). There are multiple challenges to address when it comes to intensifying an existing low-density urban environment such as Auckland's, and each of the challenge requires detailed understanding to achieve the desired outcome of maintaining most of the growth within the existing urban area.

Urban intensification can occur in a number of ways, including redevelopment of individual or amalgamated sites; development of vacant and/or underutilized land within previously developed sites; and expansion or conversion of existing buildings, such as office buildings to residential.

However, the current planning legislation enables density to be spread across the existing urban area, facilitating more dispersed growth that presents challenges to more focused intensification. A more dispersed development pattern encourages higher vehicle usage as people need to travel further and to more destinations to access services and amenities. In addition, this increases pressure on infrastructure and community facilities provision which require prioritisation to plan for the location and timing of investment more efficiently. The enabled density increase across the existing urban area

would require large scale upgrades Auckland-wide to the most modern standards in a significantly constrained financial environment.

The fragmentation of land in many parts of the region encourages piecemeal development on scattered individual smaller sites. This creates challenge for more efficient use of urban land. It becomes more difficult to achieve more comprehensive and larger development that could provide better urban outcomes such as communal amenity, opportunity for environmental enhancement and more consistent interface with the existing urban environment.

The historic land use pattern in Auckland favours separation of residential and non-residential uses. This contributes to high Vehicle Kilometres Travelled (VKT) as it is more difficult for people to access daily needs and employment via walking, cycling or public transport. Residential intensification without a supporting local centre is likely to create dormitory suburbs with weak community resilience.

Intensive housing has to comply with many more requirements to provide quality living for its residents than low-density housing. The synergies of the parts are greater than the whole when it comes to urban intensification, and focus on quality, not only numbers, is essential to creating liveable and equitable well-functioning urban environments (Joynt, 2021).

Opportunities

Dense urban environments have a number of benefits in comparison to sprawling. Compact cities offer opportunities to reduce private vehicle usage and fuel consumption for travelling as homes, work and leisure facilities are close together. In compact cities urban land can be reused, while rural land beyond the urban land is protected. A good quality of life and strengthened community resilience is sustained with high concentration of people providing social conditions conductive to vibrancy, diversity and increase in production and consumption.

Residential growth within the existing urban area of Auckland means that more people are residing in close proximity and in a compact way. This makes existing services, businesses and public transport more viable, as well as making the best of existing infrastructure provision. However, it also means that any location where growth happens must provide a variety of uses and amenities within walkable distance for its residents (Louw and Bruinsma, 2006; Grant, 2002; Office of the Deputy Prime Minister, 2006). This can be best achieved through strengthening and extending mixed-use areas within neighbourhoods and centres, in particularly along main transit corridors (Miller and Miller, 2003; Carlton, 2007). Well-designed mixed-use urban environments where residential land use is combined with a range of other compatible uses reduce the need to travel for daily-need services and amenities, create new job opportunities locally, facilitate community interactions and belonging and contribute to people's health and well-being and strong identity of the place (Whyte, 2020; Kusumastuti, and Nicholson, 2017).

For locations where the existing centre and rapid transit station are not within walkable distance from each other, or the land parcels are too large to form a walkable street network, future redevelopment should consider the opportunity to improve connectivity through new linkages or strengthen existing network to enhance walkability.

Accommodating growth within established communities carries a lot of challenges as well as opportunities. A 'one size fits all' approach does not take into consideration the often very different attributes, context, needs and community aspirations of the existing neighbourhoods. Understanding of these matters is a basic condition to achieve the optimum final outcomes for each community.

Neighbourhood planning as a tool provides opportunity to identify priorities of a neighbourhood so that limited resources can be used most effectively to achieve the desired outcomes and ensure that multiple developments by different parties with different stakeholders are coordinated. These outcomes are often achieved incrementally and some of them may take decades to reach full completion. Nevertheless, neighbourhood plans are an important tool to strengthen local identity, implement community aspirations and provides opportunity to adopt a more holistic approach to achieving both built and natural environment outcomes.

While some areas within the existing urban area may be exposed to hazard risks - such as geohazards, flooding, coastal erosion and inundation, adaptive planning process for future development presents opportunities to deliver positive environmental and community resilience outcomes. This can be achieved are through the incorporation of holistic water-sensitive design (WSD) principles in future developments (including infrastructure projects); protecting existing mature vegetation and increasing planting of new urban ngahere; improving or establishing ecological connections between future development locations and existing areas of indigenous biodiversity; and improving access to quality open space with multiple functions.

Furthermore, short term urban form outcomes achieved through urban intensification can help act as catalysts for evolving urban form over the medium to long term to transition to a low carbon city. More compact and dense urban areas, in particularly in locations near rapid transit stations with wider regional accessibility (especially to major employment areas) positively contribute to greenhouse gas emission reduction by reducing private vehicle VKT.

For more details on natural hazards and climate change mitigation, refer to section 4.6 and 4.7 of this report.

5.1.4 Approach

The approach in the existing urban area is to enable growth in areas which have significant capacity for housing, access to a high number of jobs, within a centre and on the strategic public transport network. It has also incorporated opportunities for enhancing the environment and heritage as part of wider development projects where possible. The approach recommended allows the council to focus efforts and investment in areas where it would get the maximum benefit. The key points in this approach include:

- intensification in and around centres and nodes that are located on strategic public transport network;
- support self-sufficient and more sustainable neighbourhoods that provides opportunity for greater degree of density and mix of uses;
- enable homes to locate closer to major employment areas;
- avoid further intensification/development in areas with nature hazards and provide opportunity for more holistic/integrated design with the natural environment;
- align areas of growth with the timing of provision and upgrade of required infrastructure for accommodating future growth.

In light of the opportunities and challenges above, a set of factors was developed to identify locations within the existing urban area that are desirable in accommodating significant housing and business growth. The factors used to identify these areas are underpinned by the following principles:

- the area has good accessibility to daily-need services and employment via walking and/or public transport;
- the area presents opportunity for business and/or employment growth;
- the area offers opportunity to reduce impact of Climate Change through VKT reduction;
- the area presents high likelihood of development opportunity being realised due to market attractiveness and feasibility;
- the area has low infrastructure constraints or has committed funding for infrastructure upgrade to accommodate growth;
- growth in the area offers opportunity to address environmental hazards and enhance natural environment by designing with nature;
- growth in the area offers opportunity to protect and enhance cultural and heritage values;
- extent to which growth in the area would impact Māori cultural sites and landscapes.

A long list of locations across Auckland were identified as potential growth areas, these were based on the development areas identified in the Auckland Plan 2050 Development Strategy and the walkable catchment areas proposed through Plan Change 78. A set of factors was then considered to provide more insight into the opportunities and constraints of the areas. As a result, a short list is produced. While the list is not a prediction of where growth is going to happen in the future, it provides an indication of desirable locations with different strength and potential which could be leveraged when investment happens.

The short list areas are then fed into the prioritisation exercise.

See Appendix 4 for the set of factors considered and the detailed list of the short list areas.

5.2 Future urban areas

5.2.1 Background

Information on Future Urban Areas is contained in a separate Future Urban evidence report, consultation draft (Auckland Council, 2023c). The information below provides a brief summary of the background to these areas, and the policy approach taken in draft FDS.

In 2016, around 15,000ha of land was identified for growth in rural areas, referred to as future urban areas. It was estimated that this land could accommodate approximately 137,000 homes and 67,000 jobs. These future urban areas were seen as a valuable resource that needed to be planned and used efficiently to get the best long-term, sustainable outcomes.

The Future Urban Land Supply Strategy 2017 (FULSS) outlined a coordinated approach to timing and sequencing development in these future urban areas over 30 years. This was based on live zoned areas being sequenced first. Infrastructure or environmental constraints were also key considerations for sequencing.

In 2018 the sequencing information for anticipated development readiness of future urban areas was included in the Auckland Plan Development Strategy 2050

Currently 29% of future urban land, identified in the FULSS, has been live zoned[13].

Monitoring indicates that of 21,607 dwellings consented region wide, 2,408 dwellings were in future urban areas, this represents a 0.4 per cent increase from the previous reporting year. This is approximately 11 per cent of all dwellings consented.

Consent information showed that 60 per cent of the dwellings consented in Future urban areas were for stand-alone houses (Auckland Council, 2022d).

5.2.2 Opportunities and challenges

The identification of future urban areas provides Auckland with an opportunity to comprehensively plan these areas to achieve well-functioning urban environments. Comprehensive planning enables these areas to provide housing capacity as well as accommodating business and employment land, community facilities, parks and green spaces.

However, planning for these areas also presents challenges. There have been a significant number of private plan changes and fast track consents that challenge the ability to plan comprehensively and achieve good design through structure planning. Development of greenfield areas is more costly to provide infrastructure for and generates greater VKT because of its relative distance from facilities and employment. The council has legislative requirements to reduce greenhouse gas emissions. Additionally, weather events and new information have highlighted natural hazards in some of the future urban areas and the need to address these comprehensively.

5.2.3 Approach

The approach proposes changing the timing of ‘development readiness’ for some future urban areas, reducing the spatial extent of some and further investigating other areas. At a high level, the basis for this includes:

[13] This includes land zoned straight from a rural zone to an urban zone as part of the AUP decisions.

- some land areas that are prone to significant natural hazard risk, which will increase with ongoing climate change
- poor access to employment and services in some locations, likely to result in high levels of private vehicle usage (at least until frequent public transport infrastructure and services can be provided), with the potential to lead to higher levels of congestion and higher emissions
- significant challenges in funding infrastructure investment to support growth and the need to better align development readiness with the ability to fund infrastructure.
- there is less need for high levels of development capacity in future urban areas, given the large uplift in capacity that will be realised through Plan Change 78.

The draft FDS systematically addresses all future urban areas, and indicates whether the spatial extent is reduced, whether timing for live zoning is changed, or whether further investigation is required.

The FULSS as a standalone document will be removed, and the information currently contained within it is reframed and sits within the draft FDS. This better integrates strategic approaches and confirms status under the RMA.

Timeframes for sequencing in the draft FDS are broader and more indicative. Critically, the strategy for timing of rezoning is based on infrastructure triggers.

As well as bringing this sequencing information into the draft FDS, the draft FDS recommends that this sequencing strategy is embedded into the Regional Policy Statement. This will provide greater decision-making weight to sequencing strategy on plan change applications. It also recommends that structure planning is strengthened.

Figure 24 below illustrates the proposed approach to sequencing of future urban area.

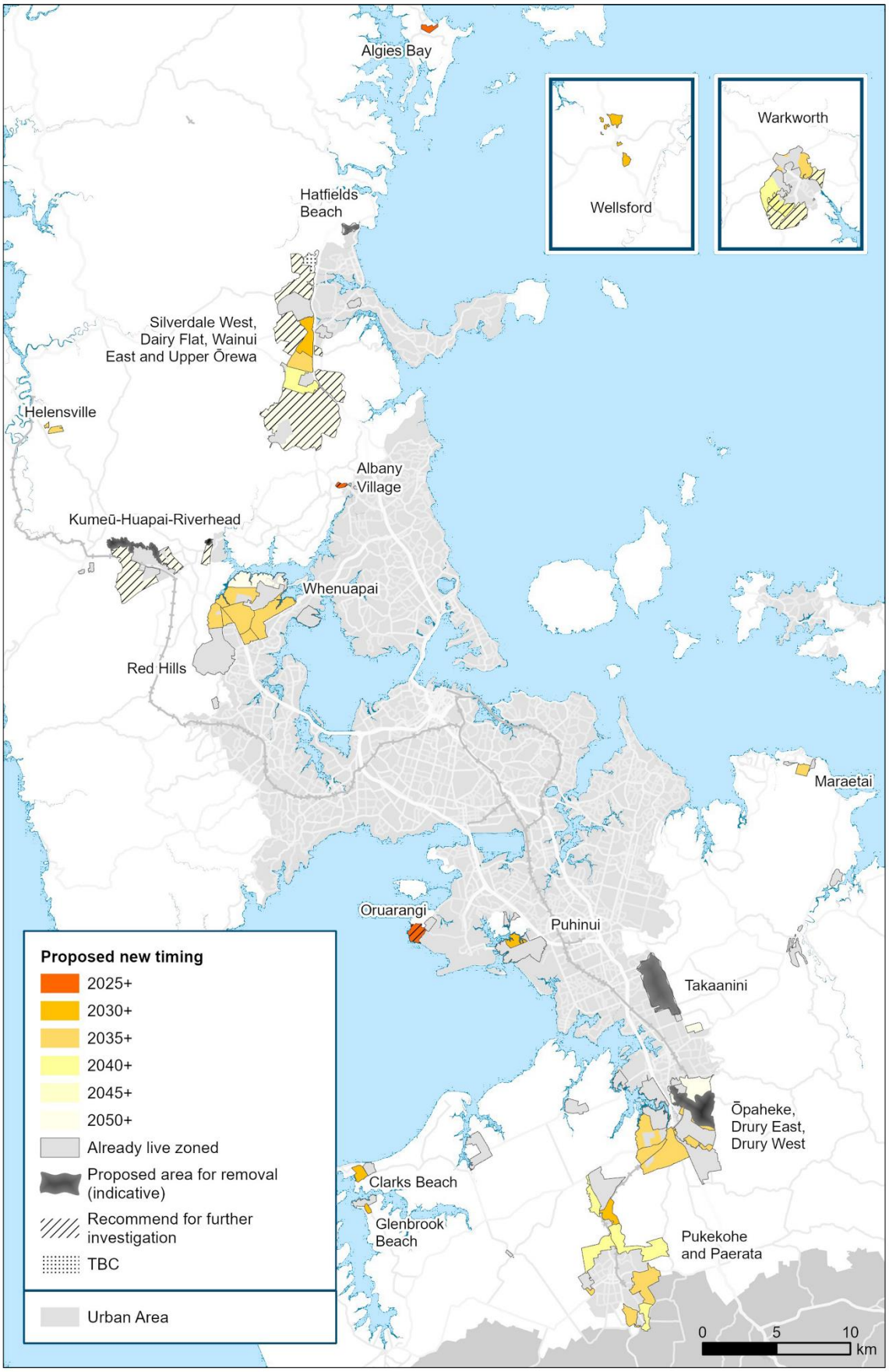


Figure 24: Sequencing of Future Urban Areas

5.3 Rural areas

This section sets out the evidence base to support the proposed approach to managing the growth and development of Auckland's rural areas over the next 30 years, in a way that best contributes to Auckland's social, economic, environmental, and cultural wellbeing.

5.3.1 The Auckland Plan

Both the 2012 Auckland Plan and the 2018 review recognised the value that rural Auckland has for Aucklanders, with its natural and productive lands, and diverse lifestyle opportunities. However, they also acknowledged the pressures rural Auckland faces from population growth, demand for rural living and experiences, diminishing and stressed ecology and natural systems and tensions created between different activities and values. In response, the 2012 Auckland Plan established a rural strategy for Auckland while the 2018 review envisaged only a small amount of additional growth in the wider rural areas outside the Rural Urban Boundary (Auckland Council, 2018a).

This accorded with the quality compact approach to accommodating Auckland's growth, including protecting rural areas against urban sprawl. The largest proportion of growth was focused within the two satellite towns of Pukekohe and Warkworth, with a lesser amount in smaller towns and villages, and less again in countryside living areas and the general rural area, (Auckland Council, 2012). This approach sought to enable growth and development while preserving rural production capability. At a strategic level it also signalled protection for valued landscapes and natural and historic heritage areas, while providing diverse living opportunities.

5.3.2 The Auckland Unitary Plan

The key themes of the AUP rural provisions are around enabling rural production, protecting quality soils, preventing widespread fragmentation, addressing reverse sensitivity effects, limiting rural-residential development, and protecting and enhancing native biodiversity. The AUP includes a Rural Urban Boundary and a Future Urban zone that seek to direct long term urban growth away from other rural areas.

The AUP rural subdivision provisions enable rural-residential development only when an environmental benefit is provided. This benefit can be the protection and ongoing maintenance of indigenous vegetation or wetlands, new planting of indigenous vegetation, or amalgamating small rural sites of elite or prime soil. Following the council's decisions on the AUP in 2016 there were a number of appeals on the rural subdivision provisions. The now operative provisions limit 'in-situ' subdivision in the wider rural area and encourage the transfer of development rights for rural-residential lots to the Countryside Living zone.

The MDRS requirements exclude any areas with a population of under 5,000 at the 2018 census. Therefore, in Auckland, the standards do not apply to any rural settlements except for the following four: the two rural nodes of Warkworth and Pukekohe, and two rural towns: Beachlands and Waiuku.

Since 2018 there have been six requests for private plan changes in the rural area. Of these, only two were approved while three were declined and one is on hold. The two approved were PC70 in Kaukapakapa to rezone 5.6ha from Countryside Living to Rural and Coastal Settlement and PC55 in Patumahoe[14] to rezone 35ha of rural land to a mixture of residential, industrial, and open space zones.

[14] Some aspects of the PC55 are under appeal at the Environment Court.

The three requests that were declined were for a new landfill precinct (PC42), rezoning to Countryside Living in Clevedon (PC45), and an urban expansion of Waiuku (PC73)[15].

Therefore, only one private plan change request (PC55) has resulted in rural production land being rezoned to non-rural zones. The limited urbanisation and fragmentation of the rural zoned area from private plan changes suggests that the current AUP methods are effective. It is also noted that the new NPS-HPL has been instrumental in the declining of some of the requests.

5.3.3 Rural legislative context

Since 2018 a few significant changes in national policy and legislation have impacted Auckland's rural production and growth. These are:

- National Policy Statement for Highly Productive Land 2022 (NPS HPL)
- National Policy Statement and Standards for Freshwater Management 2020 (NPS FM and NES FM)
- National Policy Statement on Indigenous Biodiversity – Exposure Draft (NPS IB)
- RMA reform Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan.

From a rural perspective these legislative changes affect rural environments and productivity:

- NPS-HPL aims to protect valuable soil from subdivision and development. It places new tests on development on highly productive land (Land Use Capability 1-3). These tests seek to restrict urban expansion onto highly productive land and avoid new rural-residential development, but may bring challenges to the greenhouse sector
- the impact of the NPS-FM and NES-F will largely be a factor for the future and will require decisions to be made on the allocation of freshwater to primary production
- the aim of the NPS-IB protect, maintain, and restore indigenous biodiversity but its effects are not yet clear until the final policy is released
- the Resource Management reforms will extend the limit, target and outcomes-based approach to freshwater management
- Auckland's Climate Plan aims to reduce greenhouse gas emissions from rural production systems.

For more details on these legislative changes see appendix 1.

5.3.4 Rural Auckland's contribution to the economy

Auckland's primary industries make a small but important contribution to the Auckland economy.

The percentage contribution to Auckland's economy of primary industries as a broad sector (industries that extract or harvest products from the earth and include agriculture, forestry, fishing, and mining), has remained around 0.3% over the 2018-2022 reporting period. While the share of New Zealand's total GDP from primary industries has fallen slightly (Hodgson Planning Consultants [Hodgson], 2023).

While the contribution in GDP terms is small, primary industries provide for a significant amount of employment in the Auckland region. Further, the contribution of primary industries adds to the

[15] PC73 has been appealed in its entirety to the Environment Court.

diversity and resilience of Auckland's economy. Potential exists to build on and leverage off this existing contribution.

Year	Auckland		New Zealand	
	Level (million $)	Share of total GDP	Level (million $)	Share of total GDP
2018	409.8m	0.30%	20,271.0m	6.3%
2019	402.2m	0.30%	20,958.7m	6.3%
2020	383m	0.30%	20,566.3m	6.0%
2021	384.9m	0.30%	20,761.3m	6.1%
2022	387.2m	0.30%	20,724.4m	5.8%

Table 3 – Contribution to GDP by broad sector: primary industries (Infometrics, 2022b)

While the share of total GDP remains unchanged for the selected industries in Auckland over the 2018-2022 reporting period, a declining GDP contribution ($) is displayed by the industries of Horticulture & Fruit Growing, Forestry & Logging, Sheep, Beef & Grain Farming. Dairy Cattle Farming, Poultry, Deer & Other Livestock Farming remain relatively unchanged with a sharp decline identified in the relative contribution of Mining. Fishing & Aquaculture notably displays an increasing GDP contribution (Hodgson, 2023).

It is also important to recognise that the economic value of certain primary industries may be greater than they appear when looking at GDP data. For example, multiple businesses outside the viticulture sector leverage off primary production of grapes, and wine making in Auckland. This has valuable tourism and regional branding benefits.

See appendix 5 for a more detailed breakdown of GDP contribution by sector.

5.3.5 Changes in the food system

Changes in perception and growing recognition of food was reflected in earlier discussions, documents, and policies, whereas at present food security is discussed more in the context of how to respond to domestic food supply and food security issues, particularly in relation to the Specified Vegetable Growing Areas required in the NPS-HPS. The diversification to horticulture presents an opportunity to reduce emissions while increasing food production, as identified by the Climate Change Commission. Opening up more opportunities for conversion to lower emissions production systems and land uses, including horticulture, is listed as a critical outcome (Hodgson, 2023).

Consumer habits are evolving, including a movement towards less red meat in diets, more plant-based diets and a niche but significant trend towards buying local produce to support local economies and support climate change goals ('low food miles'). Such changes in consumption habits may have an influence in the future on food systems in Auckland - what food production occurs in Auckland, where it is produced and how it is produced.

5.3.6 Auckland Plan 2050 approach

The Auckland Plan 2050 continues a consistent strategic approach to rural growth and development, first set out as part of the 2012 Auckland Plan, with a more refined direction regarding protection of highly productive land. Given changes over the past five years, since the Auckland Plan 2050, including MDRS, the list of rural town and villages needs amendment to reflect changes to their status in terms of permitted density. See Appendix 20 of the Auckland Plan Evidence Report (Auckland Council, 2018b).

Rural production is supported to ensure that it can continue and develop. Land fragmentation and reverse sensitivity must be minimised to safeguard Auckland's land and soil resources particularly elite

and prime soils. The resources and production systems, underpinning working rural land, need to be supported, (e.g. water supply).

The Auckland Unitary Plan provides ample development capacity in rural areas to accommodate growth in a variety of towns and villages, together with provision for countryside living for the next 30 years (Auckland Council, 2018b)

The two rural nodes (satellite towns) of Pukekohe and Warkworth feature in the multi-nodal approach in the refreshed Development Strategy. They provide the greatest number of facilities, service wide rural areas, and contain the greatest amount of development capacity in rural areas. They are anticipated to develop their potential to become self-sufficient regarding jobs.

5.3.7 Opportunities and challenges

Sustainability and resilience

The importance of rural sustainability and resilience are increasingly recognised and supported by the government's Rural Proofing Guide for policy development and service delivery planning. The Guide's definition of rural proofing is:

- building a rural lens into the full cycle of your policy development, implementation, and service delivery.
- supporting strong and vibrant rural communities
- working for social, economic, environmental
- cultural well-being in rural areas (Ministry for Primary Industries, 2018).

There are many challenges rural communities have been facing, and many of these challenges are expected to become stronger and more difficult to overcome in the future. The preparation and implementation of effective rural-specific solutions requires a detailed analysis and understanding of the specificities of rural communities, and 'building a rural lens into the full policy cycle of our policy development, implementation, service delivery, and evaluation of policy effectiveness' (Ministry for Primary Industries, 2018). The most recent OECD rural development framework that aims to increase prosperity and improve the well-being of rural people also recognises this by broadening the scope of analysis from a purely economic one to encompass also the environmental and social dimensions of well-being (OECD, 2020).

Mobility

Rural communities are often located in remote locations, or at least in significant distance from urban areas and from each other. Rural settlements also tend to be small in size and are of low density in urban terms. Because of these attributes, many smaller settlements do not have enough people to support services that are required for everyday needs such as supermarket, medical facilities or sport facilities, and people often have to travel considerable distance to access them. This leads to high private vehicle usage in rural areas as the population numbers are not enough to support public transport, and active modes are not the suitable mode to travel for longer distances daily. Any increase in petrol prices or other constraints to regular use of private vehicle will have a significant negative impact on people living in rural settlements, especially on people on low income or people disadvantaged in other ways. Understanding in detail the network of the rural settlements and how they rely on each other in terms of service provision, and identifying rural-specific solutions will assist these

communities to become resilient, people feel less isolated and be able to respond better and quicker to the negative effects of climate change.

A good recent example for this is the Rural Settlement Study by Canterbury City Council that examined the various services and facilities that currently exist in the built-up area of each settlement to inform their understanding of the sustainability of individual settlements, and the role they play in their part of the Canterbury district (Canterbury City Council, 2020) as shown in figure 25 below. The methodology of this study is similar to that of the 'Living Well Locally - 20 Minute Communities in the Highlands and Islands' report (Wright et al., 2022) commissioned by the Scottish Government to help implement the national policy commitment to 20 Minute Neighbourhoods in the Highlands and Islands. In principle, the concept aims to support efforts to tackle climate change, inequalities and health and wellbeing - all of which align with UN Sustainable Development Goals as well as Scottish Government policy. This work was based on 'The 30-minute rural community / Future Mobility' by WSP (2021) as shown below in figures 26 and 27.

The paper reflects on the key issues and complexities within rural communities and presents back an outcome-focused approach to how we can level-up and facilitate greener, happier, healthier, but also more productive, prosperous, quieter and safer communities.

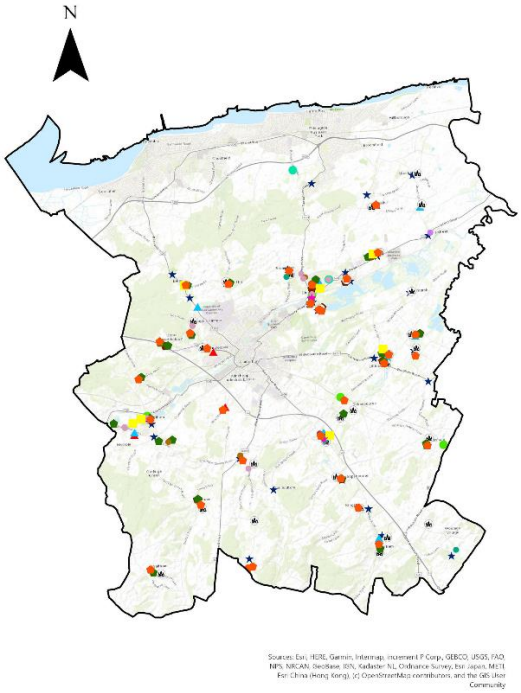


Figure 25 – Map showing the services and facilities in the Canterbury District.

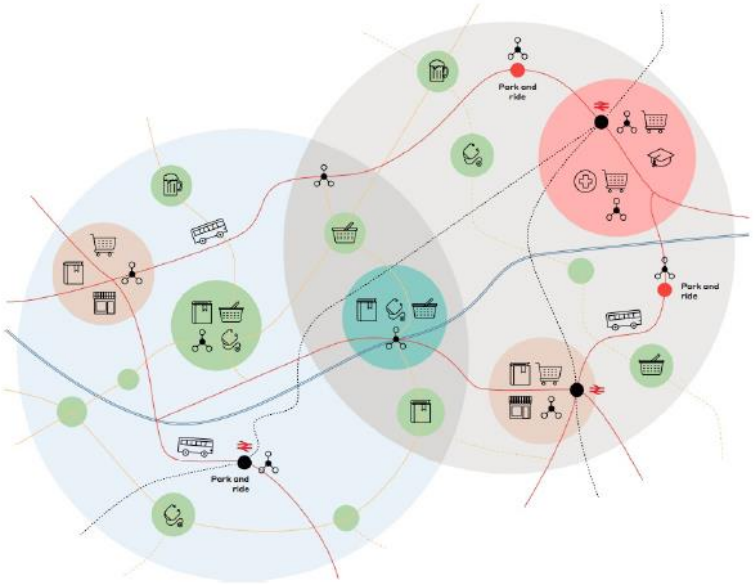


Figure 26 – The 30 Minute Rural Community 2021 (WSP, 2021)

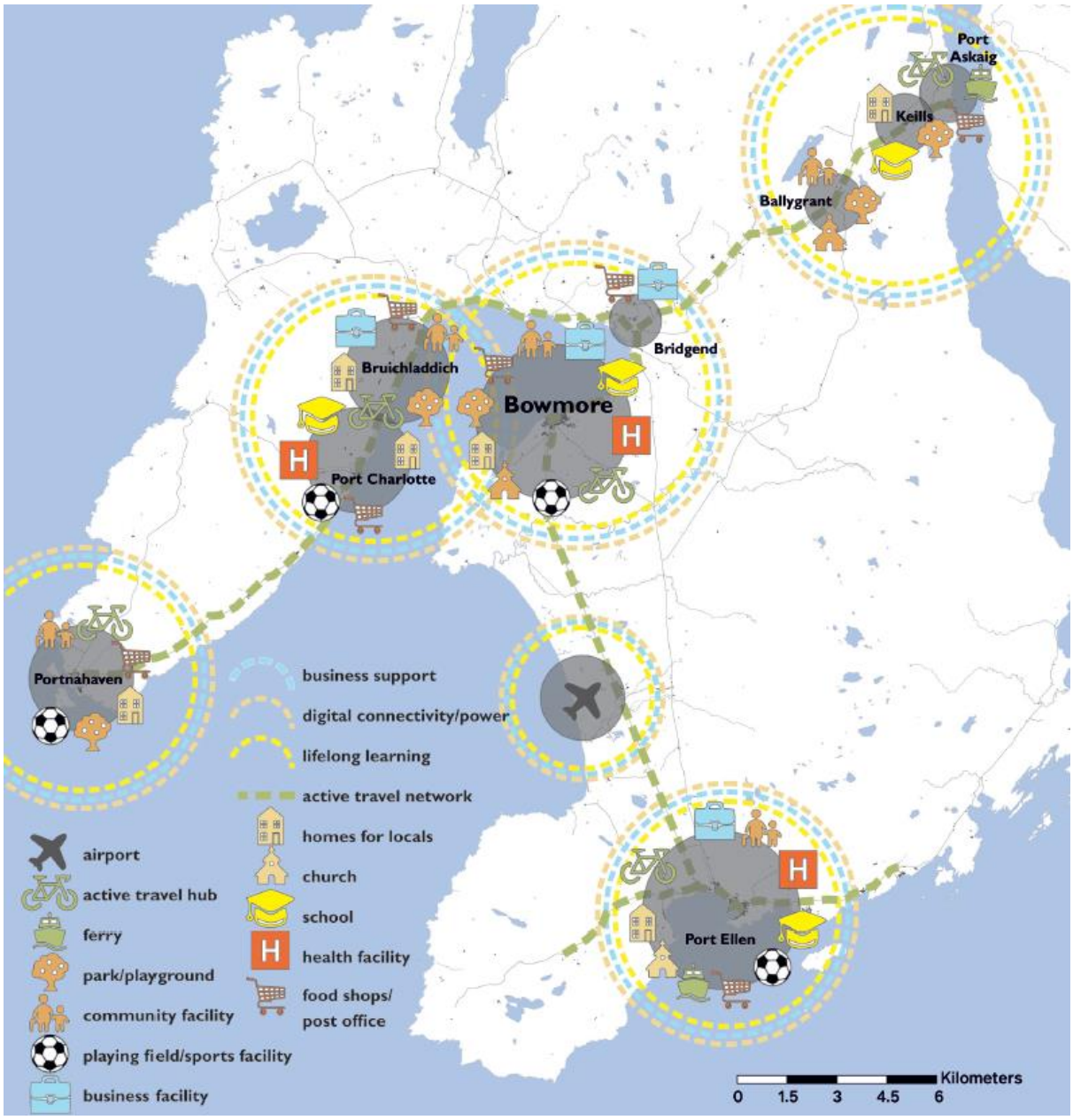


Figure 27 – Service provision analysis of the rural settlements on Islay, the fifth largest Scottish island (Wright et al., 2022).

Infrastructure

In Auckland's rural environment, there are some areas that are serviced by the metropolitan water and wastewater supply network. However many areas are self-reliant for provision of potable water and wastewater. Many rural communities depend on rain tanks and septic tanks as a means of collecting water and disposing of wastewater. This means that those communities are both resilient and vulnerable in different ways. Rural areas are also more vulnerable to being cut off, as many areas are serviced by only a singular access route in and out. Where natural hazards events such as flooding, coastal inundation, king tides and landslides may occur, this can negatively impact isolated communities.

Auckland's rural towns face particularly unique challenges when facing climate threats. In many cases communities may rely on vulnerable infrastructure to service their day-to-day needs, such as a singular access road, wharf or local water and/or wastewater treatment plant. If this infrastructure fails, it can

cause significant disruption that can impact of the long-term resilience and viability of these communities. Further investigation is required to understand communities, and their infrastructure, most at threat and develop locally appropriate adaptation responses.

Many rural communities are not serviced by public transport connections or only have infrequent services. This means that rural communities are likely to be predominantly car-dependent due to a lack of alternative options, and further development will likely increase carbon emissions. Council has limited capacity to provide transport infrastructure projects to support development of rural and coastal settlements. Investment in walking and cycling infrastructure, where possible, may help to provide mode choice to people living in rural areas. Road safety is a big issue on local rural roads and state highways, with many roads considered high-risk. Waka Kotahi and Auckland Transport have some planned investments and speed management projects to support a reduction in serious injuries and deaths.

Rural businesses face challenges with levels of infrastructure available.
Lack of adequate infrastructure may stifle innovation and reduce opportunities. Connectivity is a key element of social and business infrastructure that has impacts across transport and communication networks, connecting producers/suppliers and consumers (Ministry for Primary Industries, 2018).

Natural environment and hazards
Auckland's rural areas are much valued for their natural environment, but as in many places in New Zealand and the world, some rural areas have been subject to significant degradation during the last few decades. To reverse the degradation of the rural natural environment and enhancing it is key to respond to the negative impacts of climate change and to provide for people's health and well-being (City of Antwerp, 2019). Natural hazards and disasters are also major threats to the natural environment, and these negative environmental changes can disproportionately affect rural communities.

The key challenges identified in the rural natural environment are:

- adaptation to natural hazards – coastal retreat
- unplanned growth/subdivisions without integrated catchment management
- vulnerable infrastructure
- poor water quality.

Reducing environmental degradation, enhancing the rural natural environment and increasing resilience in rural locations could be achieved through:

- creating blue / green networks
- rationalising existing land uses to deliver better freshwater outcomes
- addressing/improving existing flooding constraints
- avoiding or improving areas currently affected, or likely to be affected, by environmental constraints including coastal and flood zones
- protecting significant natural environment areas
- ensuring connectivity between urban and rural green spaces at the city fringe.

Business and employment
Employment and business provision is a major challenge in rural areas. People in rural New Zealand often face exacerbated challenges when entering into the labour force, these challenges include a lack of access to skill development pathways, driver licensing and testing facilities and a lack of access to employers (Mayors Taskforce for Jobs, 2023) Facilitating local employment is also key to support rural youth work experience and job security locally and enabling people to remain within their communities, including the young, and prosper (Sepuloni, 2021).

The two rural nodes, Warkworth and Pukekohe have been serving as an employment centre for their residents and their wider rural catchments, and they are expected to play the same important role in the future. Growth of these nodes will also include additional business-zoned areas to accommodate this important function.

5.3.3 Approach

Rural residential growth will continue to predominantly be focused in towns that provide services for the wider rural area, particularly the rural nodes of Warkworth and Pukekohe. Less growth is anticipated in the smaller towns and villages. Rural lifestyle growth will remain focused in those areas zoned as ‘countryside living’, away from the most environmentally sensitive and economically productive areas. Only a small amount of growth will be provided for in the wider rural area, outside of Warkworth and Pukekohe. This growth is likely to relate to existing environmental enhancement provisions in the AUP that allow for additional lots in return for environmental enhancement initiatives. There are also a significant number of existing vacant lots in the rural area that will usually have development rights to construct a house.

Adapting to climate change will be critical to the future resilience of rural areas and communities. A key aspect to rural economy resilience is understanding the factors that influence rural productivity – the driver of the rural economy. Changes to current rural productivity methods are required to achieve resiliency. These changes include adapting to new technologies, improving efficiency and becoming more flexible responding to changing regulations and market needs. Rural areas function as a complex network of rural communities of different sizes all relying on each other. Understanding the nature of this network is one of the key factors to address social resilience.

It will be important to monitor the relationship between the growth and evolution of urban areas relative to rural areas, and how that relationship changes over time. This is especially the case in rural areas that are near rural nodes (Warkworth and Pukekohe), which will evolve in terms of their functions as settlements.

5.4 Business areas

5.4.1 Background

Strategic Drivers
As Auckland grows, the council must provide capacity for new business growth.

When making decisions on providing such capacity, the council needs to make the best use of existing business land, provide for new business in suitable locations, provide good access to employment, and enable housing near employment. The council must also understand emerging trends such as remote working, new way of working and technological change to safeguard options for the future.

Achieving quality city form and design supports liveability, provides location opportunities for business, and is an important part of creating an attractive world-class city. It supports economic growth, as well as local economic development and employment (Auckland Council, 2018a).

Auckland Plan 2050: Opportunity and Prosperity
The Auckland Plan 2050 sets out three directions relating to the Opportunity and Prosperity Outcome, these are:

- create the conditions for a resilient economy through innovation, employment growth and raised productivity
- attract and retain skills, talent and investment
- develop skills and talent for the changing nature of work and lifelong achievement (Auckland Council, 2018a).

Part of the Auckland Plan 2050, the Development Strategy showed the location of existing and expected business land across the region and ensured there was sufficient capacity over the long-term (30-years). This continued the approach adopted in the 2012 Auckland Plan and that was subsequently applied by the Auckland Unitary Plan. Provisions were also made as part of these processes to provide a sufficient supply of future business land.

The key business and employment aspects of the Development Strategy are (Auckland Council, 2018b):

- the consolidation of the quality compact approach to accommodate anticipated business growth of 263,000 jobs across Auckland over the next 30 years
- the introduction of the multi-nodal approach as areas for significant business and employment activity
- stronger alignment of where people work with where they live, supported by the identification of nodes and development areas
- applying the Future Urban Land Supply Strategy that will provide up to 67,000 new jobs (and 137,000 homes) in greenfield areas.

The multi-nodal approach
The Development Strategy introduced the multi-nodal approach. This provided for future business growth, primarily through intensification of the nodes, supported by other existing centres and business areas across the urban area. The city centre was identified as the primary node for employment growth, which was complemented by three significant employment and business growth nodes (Albany, Westgate, Manukau), and two rural satellite towns (Warkworth, Pukekohe).

New business areas on the periphery of Auckland's urban area
The Future Urban Land Supply Strategy (Auckland Council, 2017) set out how and when new urban land was to be released for development over the next 30 years. It outlined the potential for about 1,400 hectares of business land in future urban areas across Auckland. This timing and sequencing information was included in the Development Strategy.

Since 2017, a total of approximately 790 hectares of land has been live-zoned from future urban to business. This includes land within Drury south.

5.4.2 Challenges and opportunities

The impact of COVID-19
The COVID-19 pandemic interrupted Auckland's robust economic performance and growth during 2021.

Large increases in unemployment, and a slow-down in GDP growth, were observed through the two lockdowns (Auckland Council, 2021c). However, Auckland regional GDP showed recovery in 2022, and ended up well above the 2020 level. Total regional employment fell by 0.8% in 2021, but by 2022 also showed recovery to around 2.5% higher than the previous peak in 2020.

Much of the drop in employment in the 2021 year occurred in the city centre, but by 2022 this improved to be only marginally below the 2020 level. Survey data did indicate an overall decrease of 316 businesses between 2020 and 2022 (Guo, 2023). However, it is acknowledged that there may be other reasons including movement of some business activities to other parts of the city, but much of this decrease is likely to be associated with COVID-19 impacts including restrictions on domestic and international travel (Guo, 2023) shifts in work habits, and the loss of population recorded in both 2021 and 2022.

There have been initiatives in response to the changes posed by COVID-19, including the council developing Te Mahere Whanake Ōhanga – Economic Development Action Plan (Auckland Council, 2021c). The plan provides actions to enable greater economic development over 2021-2024. The plan has brought together economic development outcomes from the key plans and strategies and captured the contribution made by the Auckland Council group on economic development, to enable a regenerative and inclusive economy for the people and wellbeing of Tāmaki Makaurau.

Total employment following COVID-19 lockdowns has declined. However, a significant increase of annual employment growth was observed immediately following the lockdown (Auckland Council, 2023d). Similarly, the increase in the unemployment rate in December 2020 was followed by a rapid decrease in the unemployment rate in 2021, as captured in figure 28 below (Auckland Council, 2023d). Therefore, the overall regional growth trend evident over the last two decades does not appear to have been affected significantly by the onset of the pandemic.

Initially COVID-19 restrictions limited travel to places of employment, reducing sales activity in those locations and therefore employment. However, post-lockdown it has been difficult to determine the impact of COVID-19 specifically on key industry/sector trends.

The uptake of remote working was trending upwards in Auckland prior to the COVID-19 onset. The COVID-19 restrictions sped up the uptake of remote working dramatically. Following the lifting of restrictions in Aotearoa, remote working has tended to become part of a hybrid working pattern, where people work remotely for part of the week, rather than all week.

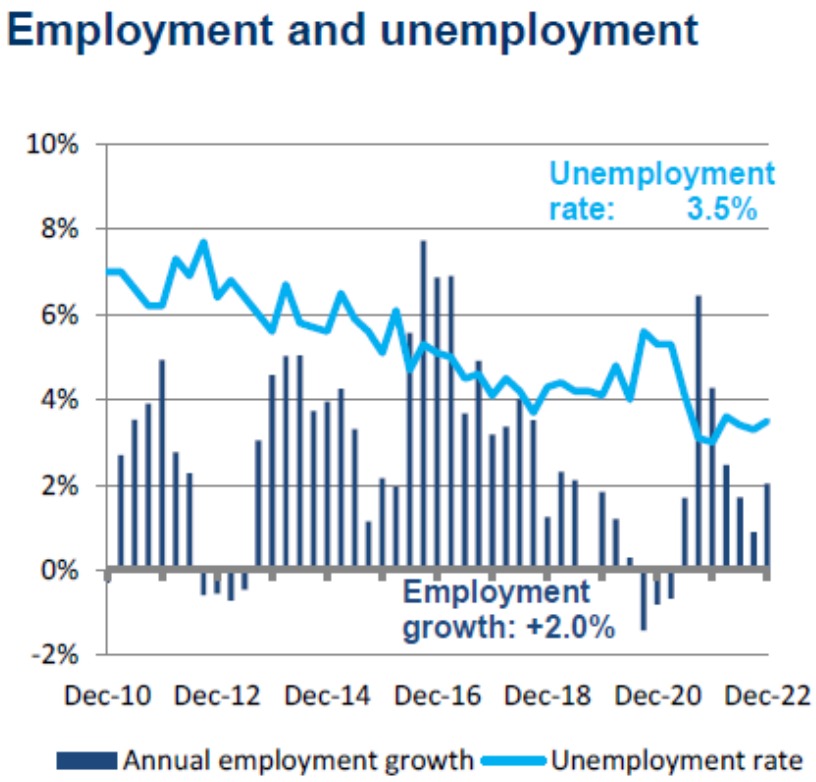


Figure 28 – Employment and Unemployment (Auckland Council, 2023d)

5.4.3 Employment and jobs

Auckland is recognised as an established and well-functioning urban economy, and changes in economic activities over the last two decades have reflected steady upward growth with limited variation above or below the long-term path. Analysis indicates relatively stable employment and business unit growth trends, consistent with the stability in structure of Auckland economy.

This is section (5.4.3) and following section (5.4.4) are informed by preliminary HBA business analysis undertaken by Market Economics as of 02 June 2023. The final version of this assessment will be published in due course.

Key existing employment areas

As of 2023, the city centre continued to play a critical role in housing financial and commercial jobs, with a considerable number of advanced industries. A wide range of activities are also clustered in major centres, industrial areas, and around the Ports of Auckland and Auckland International Airport.

In addition to the city centre, advanced industries also concentrated in established industrial areas in the inner south. Light and heavy industrial uses are moving towards the periphery as existing industrial land is highly constrained for expansion.

Areas with job growth

In the last five years, Auckland experienced an average employment growth of 2.0% per annum. This equates to total growth of 93,000 jobs.

The Waitematā Local Board, covering the city centre (including Newmarket), experienced the most growth, of 23,400 jobs (25%). The Howick Local Board was next, accommodating growth of 12,000 jobs

(13%). The southern areas[16] of Auckland experienced a significant increase of 15,950 jobs (17%) of the total growth (Infometrics, 2023).

A summary of employment growth from 2017-2022, by local board, for Auckland is shown below in Figure 29.

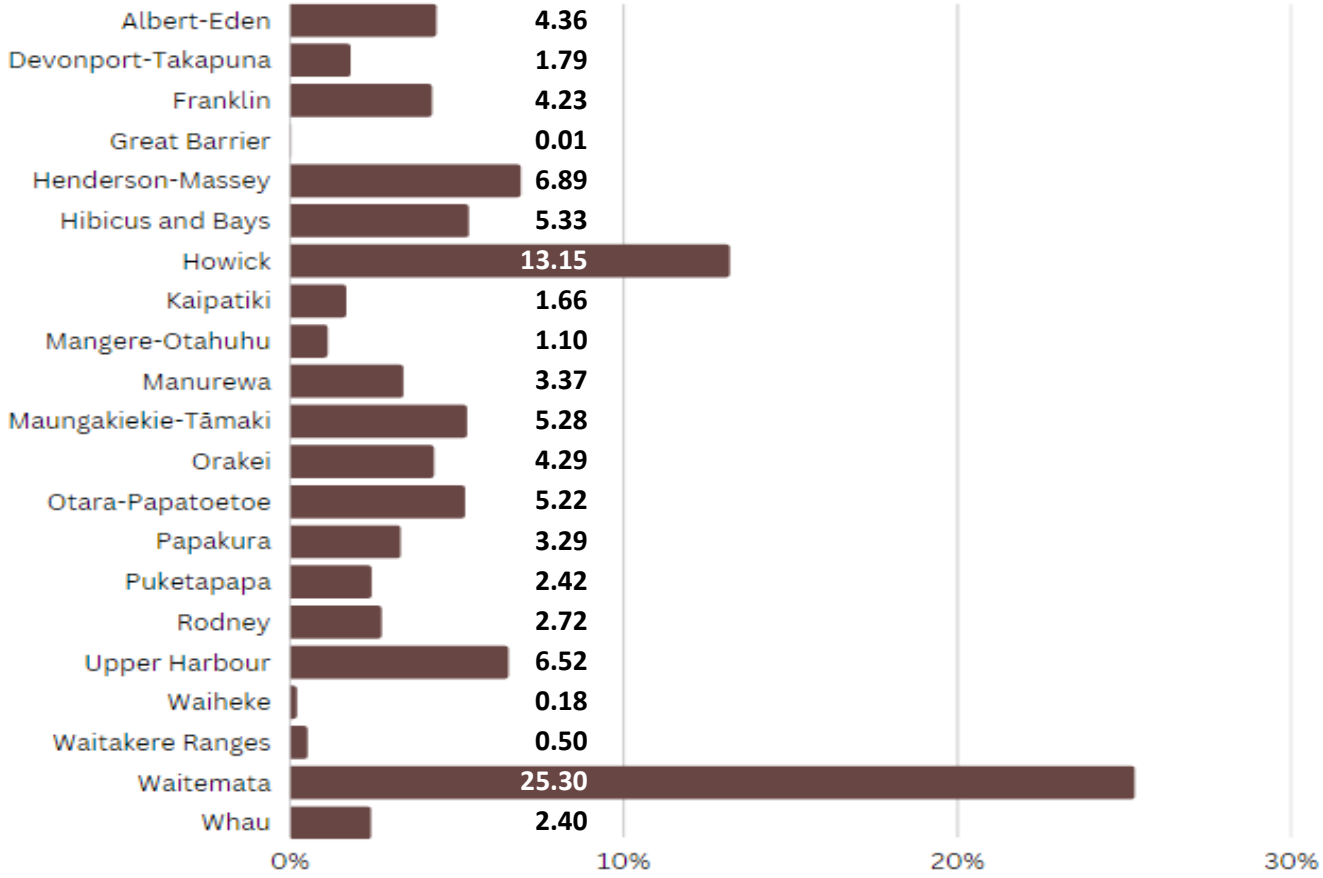


Figure 29 – Employment growth by local board 2017-2022 (Infometrics, 2023)

Sectors with the most job growth

Table 4 below captures the top ten sectors that have experienced the most growth over the past five years, and their increasing/decreasing trend when compared with data from 2012-2017.

[16] Southern Area of Auckland refer to the five following local boards: Māngere-Ōtāhuhu, Ōtara-Papatoetoe, Manurewa, Papakura and Franklin.

Top 10 growth industries	Percentage growth	Number of jobs	2012-2017	2018-2023
1. Electricity, gas, water, & waste	34.4%	5,300	not in top 10	1
2. Construction	30.9%	49,200	1	2
3. Public administration & safety	22.8%	27,100	not in top 10	3
4. Health care & social assistance	18.3%	42,100	6	4
5. Financial & insurance services	16.6%	9,000	not in top 10	5
6. Professional, scientific, & technical	15.4%	27,300	2	6
7. Retail trade	9.5%	20,200	4	7
8. Education & training	9.1%	16,400	7	8
9. Wholesale trade	8.3%	9,300	10	9
10. Rental, hiring, & real estate	7.7%	2,500	not in top 10	10

Table 4 – Change in top 10 growth industries 2012-2023 (Stats NZ, 2023)

The electricity, gas, water, and waste industries grew by 5,300 jobs (34.4% of growth), public administration and safety sectors grew by 27,100 jobs (22.8% of growth), financial & insurance services grew by 9,000 jobs (16.6% of growth). Rental, hiring and real estate industries grew by 2,500 jobs (7.7% of growth). All four industries have experienced rapid growth and are now positioned in the top 10 growth industries. It is worth noting that while the electricity, gas, water and waste industries has the top growth, it is a relatively small sector, compared to rest of the industries on the list.

Health care and social assistance industries grew by 42,100 jobs (18.3% of growth), Wholesale trade grew by 9,300 jobs (8.3% of growth). These two industries have shown greater growth in the last five years than in previously when compared with the growth trend from 2012-2017.

Construction industry grew by 49,200 jobs (30.9% of growth), professional, scientific, and technical services grew by 27,300 jobs (15.4% of growth), retail trade industry grew 20,200 jobs (9.5% of growth), and education and training sectors grew 16,400 jobs (9.1% of growth). These four industries, while having growth in numbers, saw a slower growth trend when comparing with the growth trend from 2012-2017.

Comparably, accommodation and food service industry, administrative and support services, transport, postal and warehouse industries, and manufacturing sectors which were in the top 10 growth industries in 2012-2017, are no longer in top 10 in 2017-2022.

Being the second largest industry after professional, scientific and technical services (Statistics New Zealand, 2023), manufacturing is not experiencing rapid growth as seen in 2012-2017. Slower growth could be due to the impact of disruptive technologies and increasing automation, and the growing share

of advanced industries, which tend to employ fewer manufacturing staff. These changes could have the potential to significantly affect quantity, type and location of business land needed.

The slowing and changes in the manufacturing sector may free up industrial land for other purposes. However, the increase in the wholesale trade industries could take up this industrial land, which results in more of a displacement of employment than an overall reduction.

Auckland is moving towards a more service-based economy (i.e., more demand for jobs such as public administration, financial and insurance services, rental hiring and real estate industries). In the short term this will influence business land demand. The medium and long-term impacts within business areas require more investigation.

The well-established and integrated nature of Auckland's economy means that in the future its growth is likely to be incremental, in terms of both sector development, and spatial patterns. The high growth future, which is informed by the HBA process, has identified a trend that is more in line with that seen over the last two decades, where growth is based on Auckland continuing to attract a disproportionately high share of New Zealand's population, business and GDP growth.

5.4.4 Business and employment land capacity

This section provides an overview of the land and capacity available to support existing and forecast new business and employment in Auckland.

As at March 2022[17], the total zoned-business areas in Auckland totalled 9202 hectares of land, with the centre zones providing 1463 hectares, and the remaining business and industrial zones accounting for 7739 hectares (Auckland Council, 2022d).

Of the zoned business areas, a total of 1370 hectares of land is considered vacant land, of which 202 hectares is within the centre zones, and 1169 hectares in the business and industrial zones.

Table 5 (below) – summarises information on business zone groupings, their land area, vacant land and vacant potential land area.

Appendix 6 also provides a more detailed breakdown of vacant and vacant potential business and industrial zoned land by Auckland suburbs[18].

[17] The capacity modelling process took place in March 2022 in response to the council led Plan Change 78: Intensification process. This process utilised the Capacity for Growth Study model, the same tool used for the Housing and Business Development Capacity Assessment. Auckland Unitary Plan (AUP) base zone data was sourced from the council's geospatial database. Business land capacity analysed and reported in this document was derived from the operative plan zones (AUP Operative in part). The cut-off for data was the end of March 2022. The latest notified Plan Change 78: Intensification assessment for business floorspace yield was not yet available at the time this document was drafted, therefore, not included in this report.

Business zone group	Land area (ha)	Vacant land (ha)	Vacant potential land area (ha)
Business	**1418.5**	**154.5**	**307.2**
Business – Business Park Zone	58.9	13.1	15.6
Business – General Business Zone	358.9	47.4	99.6
Business – Mixed Use Zone	1000.6	94	202.1
Centre	**1,462.9**	**201.5**	**277.6**
Business – City Centre Zone	257.8	26.1	64.4
Business – Local Centre Zone	244.1	50.0	53.8
Business – Metropolitan Centre Zone	379.9	55.7	87.0
Business – Neighbourhood Centre Zone	134.9	16.8	17.3
Business – Town Centre Zone	446.1	53.0	55.0
Industrial	**6,320.6**	**1,014.4**	**1,728.9**
Business – Heavy Industry Zone	1,846.4	429.6	460.0
Business – Light Industry Zone	4,474.2	584.8	1,268.9
Grand Total	**9,202.0**	**1,370.4**	**2,313.7**

Table 5 - Business zone groupings, land area, vacant land and vacant potential land area.

The amount of plan-enabled capacity determines the adequacy of the business zoned areas to accommodate new and existing business activities. It considers the defined centres and business areas and shows correlation between capacities and zonings. Table 6 shows that substantial capacity is available, totalling more than 466 million m^2 floor space. Some 172 million m^2 of that capacity is at ground floor and first floor level which has considerable potential to accommodate business activities. It illustrates that Auckland has considerable plan-enabled capacity in business zones which can accommodate employment growth.

Total floor area			
Business zone group	**Ground floor (m2)**	**First floor (m2)**	**Second floor and above (m2)**
Business	**13,648,629**	**13,569,034**	**29,353,885**
Business – Business Park Zone	586,032	582,442	1,741,729
Business – General Business Zone	3,459,806	3,444,933	6,614,895
Business – Mixed Use Zone	9,602,791	9,541,658	20,997,260
Centre	**13,860,494**	**13,741,932**	**90,493,510**
Business – City Centre Zone	2,360,209	2,343,425	24,825,795
Business – Local Centre Zone	2,301,229	2,274,623	3,855,151
Business – Metropolitan Centre Zone	3,711,544	3,702,612	47,305,789
Business – Neighbourhood Centre Zone	1,192,061	1,138,436	983,675
Business – Town Centre Zone	4,295,449	4,282,835	13,523,100
Industrial	**58,765,340**	**58,763,522**	**173,725,492**
Business – Heavy Industry Zone	17,599,207	17,599,207	52,767,651
Business – Light Industry Zone	41,166,133	41,164,315	120,957,840
Grand Total	**86,274,463**	**86,074,488**	**293,572,886**

Table 6 – Total floor area by business zone group

Land extensive business sites

In greenfield areas[19], group 1 (land extensive industrial) business sites have seen an increase from 1601 hectares to 1800 hectares, in the period 2007-2017. The increase was mostly in the South and North, while the availability of this land decreased in the North-West.

Table 7 below shows the group 1 business land initially identified in greenfield areas (2007 onwards), alongside the planned area in 2020.

Location	Identified from 2007 onwards	Planned area 2020
North		**403.4ha**
Silverdale	226ha	350ha
Warkworth	-	57ha
North-West		**302ha**
Whenuapai	382ha	302ha
Kumeū	54ha	0ha
South		**1,095ha**
Drury South	338ha	285ha
Drury West & Drury-Ōpaheke	-	236ha
Pukekohe-Paerata	94ha	229ha
Glenbrook	112ha	0ha
Takaanini*	25ha	40ha
Ardmore Airport	17ha	0ha
Hingaia Stage 2	50ha	0ha
Waiuku	65ha	75ha
Auckland Airport/Kirkbride	203ha	203ha
Favona	35.5ha	27ha

Key
Not initially identified
Increase
No Change
Decrease
Site no longer planned

*this business area is live-zoned and is not part of the Takaanini Future Urban area

Table 7 – Business land in greenfield areas, adapted from Auckland Council 2020 business land information

Light industrial

Location-wise, work undertaken for the latest HBA indicates that light industrial activities are moving from the central areas to Auckland's outer areas, and there has been consolidation around large areas of Light industrial zoning. There is the potential for displacement of some light industrial activity by higher yield uses including housing and mixed-use developments.

5.4.5 Employment access

Easy access to employment is a significant feature for the future. Having new developments at locations that allows easy access to employment opportunities is crucial for a well-functioning urban environment. This includes both central city, inter-local centres or main employment hubs (Joynt,

[19] Land extensive greenfield business areas can be large, previously undeveloped sites in the existing urban area or sites in future urban areas.

2021). Access to employment opportunities is a critical determinant of household financial security and consequent tenure stability.

Creating the opportunity for a modal shift away from private transport to reach employment locations will enable energy reduction that is greater than that expended in creating a workplace that meets sustainable energy standards.

5.5 Spatial Prioritisation

Spatial prioritisation is a method that the council has used since the adoption of the 2012 Auckland Plan. It signals spatial locations where significant growth is anticipated and which require support to enable this growth to be accommodated in a way that is affordable. Spatial prioritisation was one way to ensure the council's limited resources were focused into areas that enabled multiple benefits, for example more jobs, more houses, greater transport options, connected communities, improved recreation, and a quality environment. Spatial prioritisation links spatial planning with the long-term plan process. This is primarily through provision of infrastructure and is predicated on the premise that the council cannot provide for growth everywhere at once, it must make decisions as to where to spend its budget to the greatest effect.

While there continues to be emphasis on supporting the delivery of housing, spatial priorities have also been used to address social, economic and environmental outcomes.

The identification of spatial priorities also provides an opportunity to work with partners, such as central government to coordinate progress on major initiatives such as urban revitalisation projects.

The spatial prioritisation terminology and approach has taken different forms over the last decade as the council has sought to refine its approach to areas it prioritises.

In the 2012 Auckland Plan the city centre and the southern initiative were prioritised along with seven other areas. These represented a variety of locations from those in the existing urban areas where there were major transformational projects, to areas under development on the periphery of the urban area, to the rural satellites of Warkworth and Pukekohe. These and subsequent areas prioritised have shown the need to focus on infrastructure planning and delivery in addressing housing supply, within the framework of a quality compact Auckland. See appendix 2 for information on the evolution of spatial priorities from 2012- 2021.

Evaluation of spatial priorities and their timing have focused on factors such as: market attractiveness and the availability of feasible development capacity, alignment with signalled infrastructure projects and whether large scale development projects have commenced.

5.5.1 Challenges

Achieving urban form outcomes is a long-term process

Cities are constantly evolving and changing. There are many large-scale urban projects that take decades to complete. This relates to both projects in the existing urban area and in future urban areas. Appendix 2 illustrates that the same areas, or specific parts of them, have featured throughout the priorities for the last decade. In the case of the Tāmaki Regeneration area it began in the early 2000's and is programmed for a further 20 years to achieve social, economic, placemaking and housing outcomes. Similarly, the large developments on Auckland's periphery take time to provide infrastructure and coordinate development. An example of this is the north-west growth areas (Hobsonville, Westgate, Whenuapai and Red Hills). Planning for development in these areas was initiated by Waitakere City Council prior to amalgamation.

On-going change is also seen in Auckland's large urban centres – the nodes of the city centre, Albany, Westgate and Manukau. These areas have regional and sub-regional roles and within them redevelopment is apparent as uses change and opportunities present themselves. For instance, the city centre with the redevelopment of the Wynyard Quarter and more recently the shift to develop the areas

surrounding the City Rail Link stations Maungawhau and Karanga-a-Hape. The challenge is to provide on-going support for these areas.

In providing for just a few large scale, long-term priorities comes the challenge of how to provide for the other areas of the region – these will accommodate a significant proportion of Auckland's growth and yet it may be smaller in scale and slower. However, strengthening these local centres and creating walkable neighbourhoods these could help to address issues such as reducing VKT.

Uncertainty is an Auckland-wide issue[20] and challenges spatial prioritisation decisions. As discussed above, growth is enabled over much of Auckland's urban area and limited budget for growth makes it hard to meet demands for infrastructure. The other aspect of uncertainty that impacts on spatial prioritisation is the uncertainty of the large infrastructure projects that are being planned currently. While these projects present opportunities for shaping the form of growth and the urban outcomes for communities they are still at the planning stage with little certainty for confirming routes, budgets and timeframes.

5.5.2 Opportunities

Collaboration with partners provides a way to increase certainty, and understanding of joint outcomes sought and how and when these are best programmed. There are also opportunities in providing clear signals to infrastructure providers ahead of long-term planning processes so that there is alignment between strategic priorities and asset management. Long-term projects such as the regeneration projects in Tāmaki, Mt Roskill and Māngere are disruptive for communities. There are also opportunities that could be realised from providing consistent support for projects so that their long-term programmes have some certainty and outcomes can be delivered. Infrastructure programmes are also lengthy and changing priorities creates inefficiencies in how work is programmed.

While the projects differ between greenfields development and brownfields is an opportunity to consider prioritisation of areas as one combined list. This acknowledges that most growth (83% in the 2021/2022 monitoring year) is within the existing urban area and that this is where council needs to support growth.

5.5.3 Approach

Types of spatial priorities

To address the various levels of spatial priorities identified the draft FDS proposes three types of spatial priorities, these are:

Nodes: The city centre, Albany, Westgate and Manukau play an important role in providing greater sub-regional sustainability. Their scale and importance mean that significant projects and investment are needed for one or more of the nodes on an on-going basis. As significant projects are completed in one node, another node becomes the priority in the next funding period.

Local areas and communities: These priorities provide for projects that strengthen communities across the region through smaller scale interventions. These projects are often focused on town centre regeneration (for instance, projects led by Eke Panuku[21]), environmental outcomes (for instance,

[20] See Future Development Strategy consultation draft (Auckland Council, 2023e), section 2.3.1 Spatial planning in an uncertain and changing environment.

[21] Eke Panuku Development Auckland is the council-controlled organisation that delivers urban regeneration in Tāmaki Makaurau (Auckland).

naturalising waterways) or improving accessibility (for instance, an improvements to active mode infrastructure). These interventions may be of shorter duration or broken into stages. These priorities do not appear in mapping at the strategic scale.

Joint priorities between council and central government: These priorities focus on the Auckland Housing Programme. This programme includes the development of significant areas where bulk infrastructure is needed to enable regeneration, housing, jobs and recreation areas. They are longer term priorities with project timeframes spanning across two to three decades.

See Figure 30 for a map showing the spatial priority areas.

Considering both urban and future urban priorities together

In 2018 the Development Strategy brought together on one map the Development Areas in urban areas (sequenced over 30 years) with the sequencing for future urban areas. In 2018 the Long-term Plan took this one step further with a map showing a regional picture of priorities. The draft FDS continues this approach showing city wide priorities. Only a small number of short-medium term priorities are shown. This is in recognition that we cannot afford to go everywhere at once and that prioritising funding for a small number of areas is better than trying to spread funding over more areas. Longer term priorities are illustrative only (shown as red dots) and taken from the short list of priorities in the existing urban area (see section 5.1 and appendix 4). They illustrate places that are potential priorities, particularly as a result of the major projects work.

Timeframes for priorities

There is more certainty for projects that are happening over the short to medium term (1-10 years) than the longer term (11-30 years). In the short to medium term there is usually funding and commitment to programming or staging of projects or programmes. Consequently, these can be shown with more certainty. However, over the longer term with projects often at planning stage this is particularly the case with major projects that are being planned currently. These projects represent opportunities to enable greater accessibility, housing and employment in specific areas. However, the specifics of the routes and timings are still under debate. Therefore, these can be shown with less certainty. The draft FDS shows some of these longer potential priorities only. They will be confirmed as council and central government agencies work together to understand not just individual projects but how the projects can be considered as a joint programme.

Factors to assess prioritisation

The draft FDS has used factors including, scale of area/projects, presence of certainty and commitment of funding for infrastructure projects or need to progress infrastructure projects, as well as market interest to recommend priorities in the draft FDS. The prominence of capacity as a factor has changed since 2018. The ability to realise significant housing in the short-medium term is a consideration, but given changes in legislation capacity is enabled over much of urban Auckland. Accessibility or plans to enable greater accessibility to the RTN are also relevant to the outcomes that might be achieved.

Short to medium term priorities (years 1-10)

The approach to spatial priorities recognises that there is greater certainty in the short to medium-term (1-10 years) about some locations and the subsequent investment required. The funding, or partial funding, of these investments has generally been secured, which provides greater certainty about their likely progress.

Prioritising these locations is an opportunity to consolidate progress. This enables projects to move from the initial planning phases, to delivering the supporting infrastructure and services needed,

through to the eventual sale of homes and/or serviced sites. This approach reinforces the efficiency of committing to and delivering set priorities rather than changing priorities on an on-going basis.

These locations include:

The city centre, with the focus on completing work for the areas surrounding the Maungawhau and Karanga-a-Hape Stations.

Westgate, this node includes both live zoned land and a portion of future urban land. The focus is to advance funding and delivery of transport infrastructure for the wider North-west future urban area. This will make forecast employment opportunities in the Whenuapai future urban area more accessible.

Joint priorities
The Auckland Housing Programme priorities of Mt Roskill, Māngere and Tāmaki. In the case of Mt Roskill and Māngere, prioritisation of these locations provides a pipeline for revitalising these locations in line with their longer-term link to the Auckland Light Rail project.

Drury- Ōpaheke area is too large to enable development as a single stage. The area centres on land that is live zoned, forming a contiguous area. This enables more efficient implementation of bulk infrastructure that is needed to service areas currently being developed. It also aligns with a walkable catchment that surrounds the Drury rail station. This prioritisation also provides for the local improvements needed to develop the existing Drury town centre. There is momentum for employment (including industrial and town centre) development in the area as well as housing. Commitment, by both central government and council has been made for some of the required infrastructure (e.g. rail stations).

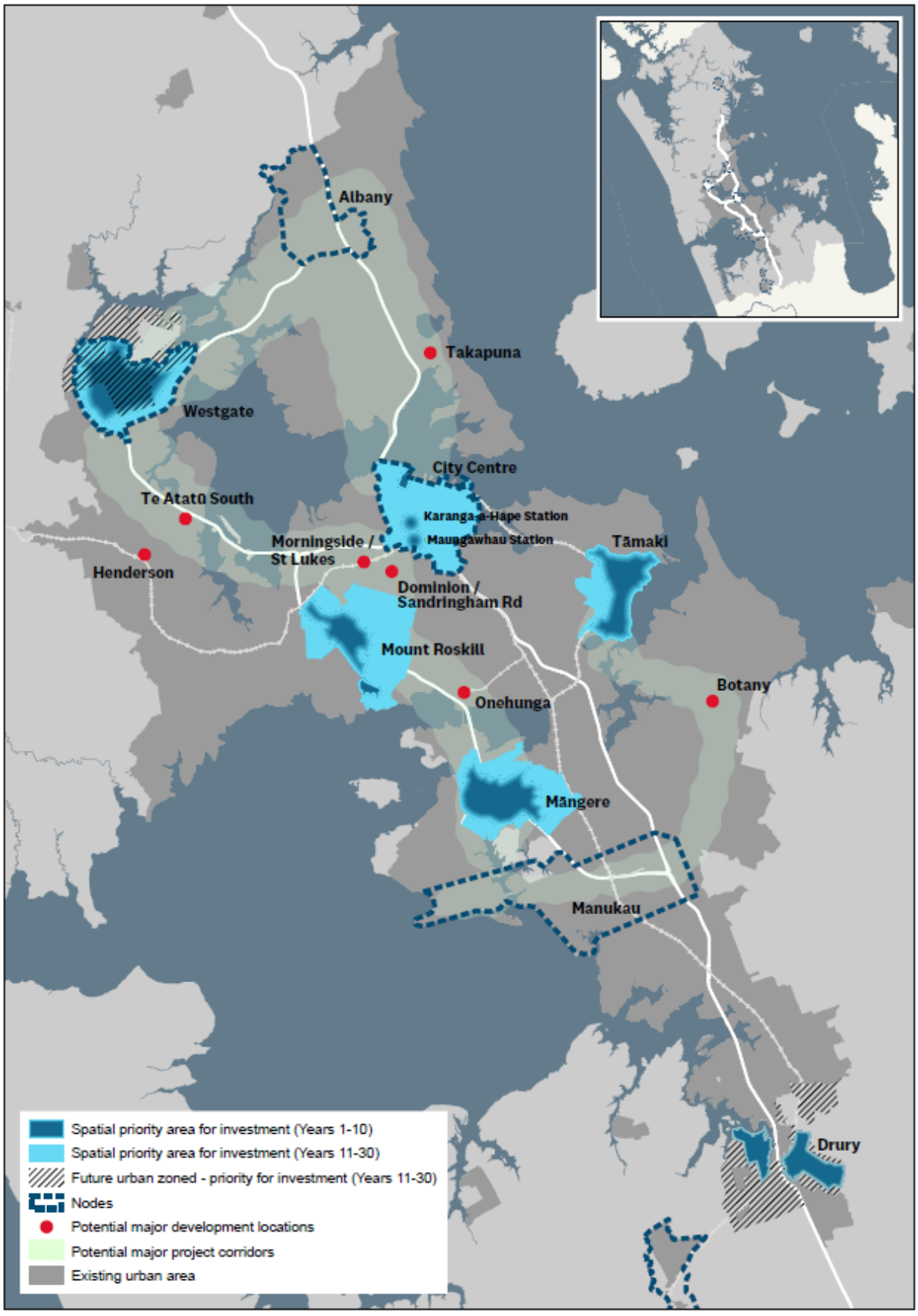


Figure 30 – Spatial priority areas

6.0 National Policy Statement on Urban Development requirements

This section of the evidence report provides confirmation that the requirements of the NPS-UD have been met in the FDS, as applicable at this stage of the project (the draft FDS for consultation). These requirements include not only the purpose and content requirements prescribed by Section 3.13 of the NPS-UD, but also the requirements in terms of inputs into the development of the NPS-UD and process.

The table 8 below sets out and comments on the NPD-UD requirements.

Table 8 (below) – NPS-UD Requirements for Future Development Strategies

3.12 Preparation of FDS	
NPS-UD clause	**Comment**
(1) Every tier 1 and tier 2 local authority must prepare, and make publicly available an FDS for the tier 1 or 2 urban environment: (a) every 6 years; and (b) in time to inform, or at the same time as, preparation of the next long-term plan of each relevant local authority.	This FDS is being prepared for the Auckland region and has been prepared in time to inform the Auckland Council's LTP 2024. It will be updated by 2029.
(2) The FDS must apply, at a minimum, to the relevant tier 1 and 2 urban environments of the local authority, but may apply to any wider area.	The FDS applies to the Auckland region.
(3) If more than one tier 1 or tier 2 local authority has jurisdiction over a tier 1 or tier 2 urban environment, those local authorities are jointly responsible for preparing an FDS as required by this subpart.	Not applicable.
(4) If a local authority that is not a tier 1 or 2 local authority chooses to prepare an FDS, either alone or with any other local authority, this subpart applies as if it were a tier 1 or 2 local authority, except that any reference to an HBA may be read as a reference to any other document that contains broadly equivalent information.	Not applicable.

(5) An FDS may be prepared and published as a stand-alone document or be treated as part of any other document (such as a spatial plan).	The 2023 FDS will be published as a standalone document.
3.13 Purpose and content of FDS	
(1) The purpose of an FDS is: (a) to promote long-term strategic planning by setting out how a local authority intends to: (i) achieve well-functioning urban environments in its existing and future urban areas; and (ii) provide at least sufficient development capacity, as required by clauses 3.2 and 3.3, over the next 30 years to meet expected demand	The FDS satisfies these broad aspects of the purpose.
(b) assist the integration of planning decisions under the Act (RMA 1991) with infrastructure planning and funding decisions.	As above
(2) Every FDS must spatially identify: (a) the broad locations in which development capacity will be provided over the long term, in both existing and future urban areas, to meet the requirements of clauses 3.2 and 3.3; and	The FDS shows (ie. 'spatially identifies') the broad locations over the long term (30 years). It shows future urban locations, and it shows the key priority areas within the existing urban area. The most detail is provided for the short-medium term. It also provides information about the spatial approaches for the longer term urban intensification that will occur within the existing urban area, dependent on major projects.

(b) the development infrastructure and additional infrastructure required to support or service that development capacity, along with the general location of the corridors and other sites required to provide it; and	Draft FDS Appendix 6: Future Urban Infrastructure triggers addresses future urban locations in a general manner and how they will be serviced by infrastructure. This high-level information is sufficient for a FDS given its broad and long-term strategic focus. Broad consideration and reference has also been given to the additional infrastructure required to service development capacity in the existing urban area, noting that less investment is required in existing urban areas relative to future urban locations. The council will prioritise growth and infrastructure investment closer to the city centre and sub-regional nodes. It is noted that major infrastructure projects are well advanced to service development in existing urban areas, including the City Rail Link and the Central Interceptor.
(c) any constraints on development.	Constraints on development have been identified in section 3.2 Constraints on development.
(3) Every FDS must include a clear statement of hapū and iwi values and aspirations for urban development.	The FDS includes a statement in Section 2.2 Hapū and iwi values and aspirations for urban development. The statement has been drawn from the 19 mana whenua organisations representing hapū and iwi interests in Tāmaki Makaurau through specific engagement on the FDS as well as earlier feedback on other strategies and plans. Engagement with Hapu and iwi is continuing.
3.14 What FDSs are informed by	
(a) the most recent applicable HBA	The 2021 HBA has informed the FDS, noting that further analysis undertaken in 2022 for Plan Change 78 has augmented the findings of the 2021 HBA. Work is currently underway on an updated HBA.
(b) a consideration of the advantages and disadvantages of different spatial scenarios for achieving the purpose of the FDS	Section 2.1 Potential ways forward (conceptual growths scenarios). See also Consultation draft Growth scenarios evidence report.

(c) the relevant long-term plan and its infrastructure strategy, and any other relevant strategies and plans	The FDS has been informed by: LTP 2021-2031 Auckland's 30-year Infrastructure Strategy (from LTP 2021-2031) Auckland Plan 2050 Te-Tāruke-ā-Tāwhiri: Auckland's Climate Plan Transport Emissions Reduction Plan Auckland's Water Strategy The Auckland Unitary Plan – including the Regional Policy Statement, and Plan Change 78 to the AUP ATAP
(e) feedback received through the consultation and engagement required by clause 3.15, i.e.: from the following: (a) other local authorities with whom there are significant connections relating to infrastructure or community (b) relevant central government agencies (c) relevant hapū and iwi (d) providers of additional infrastructure (e) relevant providers of nationally significant infrastructure (f) the development sector (to identify significant future development opportunities and infrastructure requirements).	See section 7.2 of this evidence report (Engagement to prepare the draft FDS) Public consultation follows the special consultative procedure (s83 of the LGA2002).
(f) every other National Policy Statement under the Act, including the New Zealand Coastal Policy Statement	NPS's are referred to in the FDS, and have implicitly informed the FDS in terms of the outcomes they promote
(g) any other relevant national policy required by, or issued under, legislation.	National Emissions Reduction Plan Government Policy Statements on Land Transport and Housing and Urban Development

7.0 Consultation and engagement

This section sets out how the council has met the NPS UD consultation and engagement requirements (section 3.15) for the FDS.

7.1 Consultation on the draft FDS

The NPS UD requires the council to use the special consultative procedure for consultation on the draft FDS. This procedure requires a consultation period of not less than one month. The consultation period is scheduled for four weeks, from 6 June to 4 July 2023.

A range of cost-effective consultation approaches will be adopted. These include:

- a landing page on the AKHaveYourSay website, containing information and a submission form with prompting questions
- targeted engagement with key stakeholders, including community partners who will help us attain higher response rates from hard-to-reach demographic groups, such as Pasifika and youth.
- some targeted drop-in sessions in locations where significant change is proposed in the draft FDS
- advertisements in banners on the New Zealand Herald and Stuff websites
- advertisements in local community newspapers
- a social media and radio advertisement campaign.

7.2 Engagement to prepare the draft FDS

The NPS UD requires the council engage with the following in order to prepare the draft FDS. The council has satisfied this requirement in preparing the draft FDS.

- other local authorities with whom there are significant connections relating to infrastructure or community
    - regular liaison with adjoining local authorities, including specific discussion on the FDS
- relevant central government agencies
    - workshops and discussions with relevant central government agencies, including Ministry for the Environment, Ministry of Education, Ministry for Housing and Urban Development, Kāinga Ora (strategic perspectives plus role as a major developer of housing in the development sector), and Waka Kotahi (strategic perspectives plus their role as a major infrastructure provider)
- relevant hapū and iwi
    - Review of previous feedback from the 19 mana whenua organisations representing hapū and iwi interests in Tāmaki Makaurau. Direct engagement with some mana whenua organisations.
- providers of additional infrastructure
    - engagement with relevant Auckland Council departments, Council Controlled Organisations (Watercare and Auckland Transport), and relevant central government agencies (as above)

- relevant providers of nationally significant infrastructure
    - engagement with infrastructure entities including Waka Kotahi and KiwiRail
- the development sector (to identify significant future development opportunities and infrastructure requirements)
    - survey sent to property developers on the council's database to understand developer trends and future intentions
    - engagement with The Property Council, which on both an Auckland Region and New Zealand-wide basis is considered to be the lead advocacy group for the property sector (including property development).

8.0 Implementation

Section 3.18 of the NPS UD requires council to prepare and implement an implementation plan for the FDS. The NPS UD provides no guidance on what particular aspects of a FDS the implementation plan needs to focus on. However, it is assumed that an implementation plan should relate to delivering on the strategic expression of a WFUE in the FDS, as well as signalling any actions that may be required in terms of addressing any deficiencies with regard to development capacity.

The implementation plan does not form part of the FDS. However, it is appropriate to flag a number of potential initiatives that might be included in the implementation plan, and this is what the FDS does.

In terms of its reference to implementation, the FDS groups potential implementation initiatives into three broad categories; changes to the AUP, investment prioritisation, and advocacy, research and non-statutory approaches.

The FDS is an RMA strategy, and by virtue of this there is an intrinsic link to the AUP. The AUP, as a policy / regulatory plan can give effect to the strategies outlined in the FDS. Indeed, the NPS UD outlines that the FDS is a strategy that plan changes to the AUP must have regard to.

Potential changes to the AUP include, but are not limited to:

- changes to the regional policy statement related to WFUEs, climate change, and other strategic considerations
- changes to planning methods such as activity rules and development standards. Potentially, such changes could include use of financial contributions under the RMA to promote positive outcomes and avoid, remedy or mitigate adverse effects on the environment. Financial contributions have the potential to help deliver on the well-functioning urban environment goals of the NPS UD and FDS. However, the potential benefits and costs of any changes need to be robustly analysed.

Investment prioritisation changes cover evolving approaches to prioritising infrastructure investment that support compact urban development over expansive greenfield growth. They also include thinking about ways in which development and maintenance of infrastructure and community assets and facilities can be more resilient to climate change, adverse weather events and natural hazards.

The category of advocacy, research and non-statutory approaches is broad. Some potential initiatives will require further research and analysis to test their potential viability. Non-statutory approaches include a range of direct initiatives that council may undertake in terms of investment or community programmes. Advocacy could include advocating to central government for certain investment or approaches that can assist council in achieving WFUEs in Auckland. Advocacy could also include working with a range of private sector and not-for-profit organisations in seeking to promote mutual objectives.

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Appendices

1. Legislative, statutory and policy context
2. Spatial priorities 2012-2021
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Appendix 1: Legislative, statutory and policy context

Since 2020, a range of new legislative and statutory considerations have placed significant new emphasis on both compact urban form / intensification, climate change mitigation and adaptation, and considerations around the natural environment. When considered collectively, in addition to the council's own policies and strategies, there is a strong central government framework supporting the quality compact approach of the FDS.

RMA and RM reform

The Resource Management Act 1991 (RMA) and its various instruments, including national policy statements, is a central consideration informing the development of the FDS, itself an RMA instrument (via the National Policy Statement on Urban Development).

The purpose and principles of the RMA are set out in Part II of the statute. The purpose of the act is to '*promote the sustainable management of natural and physical resources* (S. 5(1)).' Section 5(2) of the RMA goes on to define 'sustainable management':

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

a. sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
b. safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
c. avoiding, remedying, or mitigating any adverse effects of activities on the environment.

The Government plans to repeal the Resource Management Act and enact three new pieces of legislation.

1. Spatial Planning Act (SPA) which requires the development of long-term regional spatial strategies to help coordinate and integrate decisions made under relevant legislation.
2. Natural and Built Environments Act (NBA), the main replacement for the RMA, to protect and restore the environment, while better enabling development
3. Climate Adaptation Act (CAA) to address complex issues associated with managed retreat, and funding and financing climate adaptation.

The Spatial Planning Act seeks to achieve a strategic and coordinated approach to long-term regional planning. Regional spatial strategies would identify areas that:

- are suitable for development
- may require protection, improvement, and restoration
- require infrastructure
- are particularly vulnerable to the effects of climate change and natural hazards.

The Natural and Built Environments Act is the primary piece of legislation intended to replace the RMA. Like the RMA, the NBA will be an integrated statute for land use and environmental protection. Integral to the purpose of the NBA is Te Oranga o Te Taiao, a concept drawn from te ao Māori. The NBA will support this by requiring any use of the environment to comply with environmental limits and targets.

National Policy Statements
National policy statements set the national direction for matters of national significance relevant to sustainable management. They are issued under the RMA by central government. Below are those most relevant to the FDS.

National Policy Statement – Urban Development
The National Policy Statement – Urban Development (NPS UD) was introduced in 2020, replacing the National Policy Statement – Urban Development Capacity 2016 (NPS UDC). The change in the title of the national policy statement alludes to the fundamental change in content that occurred. While the NPS UDC was primarily concerned with councils providing for sufficient development capacity through their planning approaches (district plans and infrastructure planning), the NPS UD takes a much broader approach to urban development issues (while still including development capacity as a central consideration).

The NPS-UD is not highly prescriptive in terms of the content of a future development strategy. However, there are certain mandatory requirements, which can be built on.

Section 3.13 of the NPS-UD prescribes the following requirements in terms of its purpose and contents:

(1) The purpose of an FDS is:

(a) to promote long-term strategic planning by setting out how a local authority intends to:

(i) achieve well-functioning urban environments in its existing and future urban areas; and

(ii) provide at least sufficient development capacity, as required by clauses 3.2 and 3.3, over the next 30 years to meet expected demand; and

(b) assist the integration of planning decisions under the Act with infrastructure planning and funding decisions.

(2) Every FDS must spatially identify:

(a) the broad locations in which development capacity will be provided over the long term, in both existing and future urban areas, to meet the requirements of clauses 3.2 and 3.3; and

(b) the development infrastructure and additional infrastructure required to support or service that development capacity, along with the general location of the corridors and other sites required to provide it; and

(c) any constraints on development.

(3) Every FDS must include a clear statement of hapū and iwi values and aspirations for urban development.

The NPS UD introduced a focus on 'well-functioning urban environments' (WFUE), which was not in the NPS UDC. The concept of WFUE's views urban issues in a more holistic manner, and moved the 'compass-point' of the national policy statement from a heavily economically-focussed policy statement, to one that incorporates a range of non-economic factors, including Māori values and climate change. One key element of the purpose of FDS's under the NPS UD is for council to set out how it will achieve WFUE's in both existing and future urban areas, in addition to providing sufficient capacity.

WFUE's have mandatory elements under the NPS UD. Councils are not limited to these mandatory elements, and can add to them.

Policy 1 of the NPS UD sets out that, as a minimum, WFUE's have the following characteristics:

have or enable a variety of homes that:

(i) meet the needs, in terms of type, price, and location, of different households; and

(ii) enable Māori to express their cultural traditions and norms; and

(b) have or enable a variety of sites that are suitable for different business sectors in terms of location and site size; and

(c) have good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport; and

(d) support, and limit as much as possible adverse impacts on, the competitive operation of land and development markets; and

(e) support reductions in greenhouse gas emissions; and are resilient to the likely current and future effects of climate change.

The FDS addresses all of these mandatory WFUE requirements, either directly or indirectly. It also adds to these aspects of WFUE's, by incorporating sustainable approaches to the natural environment and hazards as part of planning for urban development.

Another key requirement of FDS's under the NPS UD is that they provide sufficient development capacity over a 30-year horizon. The recent Housing Capacity Assessment was completed in 2021. Updates to residential and business development capacity have been undertaken as part of the Plan Change 78 process. The findings of these analyses have informed the FDS.

The NPS UD requires engagement with Māori in the development of the FDS, and the FDS must reflect the values and aspirations of Māori and in particular tangata whenua. This is a critical layer to the NPS UD that potentially moderates the other key considerations in the FDS such as WFUEs and development capacity.

Another major change introduced by the NPS UD is its mandatory requirements for zoning for residential intensification in the walkable catchments of certain features – stops on rapid transit networks, and centres. The requirement is for statutory plans such as the AUP to be changed so that buildings of at least six storeys in height are enabled in the walkable catchments, unless lesser development rights are provided due to the presence of a 'qualifying matter'. These are matters, such as environmental features, heritage or natural hazards, that would justify avoiding providing for such levels of intensification.

Plan Change 78 to the AUP gives effect to this requirement, as well as the requirements of Medium Density Residential Standards (MDRS), introduced to the RMA in 2021. The MDRS requires that all residential zones in Auckland's urban area provide for three, three-storey dwellings as a permitted activity. As per the intensification mandate in the NPS UD, areas where qualifying matters apply have lesser development rights in terms of the MDRS.

The updated FDS refers to these key intensification requirements at a strategic level. The NPS UD requirements generally strengthen and reinforce the quality compact approach, however the MDRS requirements present somewhat of a challenge given the fact that intensified development rights are conferred across wide parts of the urban area, including in areas with poor accessibility to major employment areas.

Overall, the NPS UD provides a significantly different strategic emphasis to its predecessor, the NPS UDC. A major change is its much more holistic focus on a range of elements making up well-functioning urban environments, rather than the singular focus of the NPS UDC on development capacity. This has the following significant implications which have been critical to the updated FDS:

- While development capacity remains important and a central consideration of the NPS UD, it is clear that it is not development capacity 'at all costs'
- Related to the above, the NPS UD requires that adverse impacts on competitive land markets are limited 'as much as possible'. This implies that planning for other aspects of WFUE's will generate some adverse impacts on competitive land markets
- To this extent, Auckland has a competitive land development market, which will become more competitive through Plan Change 78
- The Auckland Unitary Plan enables a huge quantum of development capacity. Given this, new greenfield future urban areas are not necessary, and in fact there is room to reduce some existing future urban areas to achieve other elements of WFUEs
- While planning responsiveness is a key consideration in the NPS UD, it is not a central one in terms of the FDS. The FDS is a strategic planning document, which follows the NPS UD's expectations of integrating planning decisions under the RMA with infrastructure planning and funding decisions. This clearly contemplates a sequencing approach in terms of planning future urban areas to align with infrastructure provision. This is reinforced by the National Policy Statement – Freshwater Management (see below). Planning responsiveness is set out in Subpart 2 of the NPS-UD as a specific consideration for plan change applications, but not for the FDS itself which is a strategic document.

National Policy Statement – Freshwater Management

The National Policy Statement – Freshwater Management (NPS-FM) came into force in 2020. While its focus is narrower than the NPS-UD, focusing on freshwater management and recognising that protecting the health of freshwater protects the health and well-being of the wider environment, relevantly it looks at freshwater management in a holistic manner that focuses on a systems approach and an integrated management approach: ki uta ki tai.

Critically, the integrated management approach of the NPS-FM requires councils to encourage the co-ordination and sequencing of urban growth. This aligns with the NPS-UD's requirement for FDS's to co-ordinate and sequence urban growth.

National Policy Statement – Indigenous Biodiversity

An exposure draft of the National Policy Statement – Indigenous Biodiversity (NPS-IB) was released in June 2022, but has still not been gazetted, so is not yet in force. The Draft NPS-IB objective is to protect, maintain, and restore indigenous biodiversity in a way that recognises tangata whenua as kaitiaki, and people and communities as stewards, of indigenous biodiversity; and provides for the social, economic, and cultural wellbeing of people and communities now and in the future.

Of relevance to the FDS, the Draft NPS-IB includes policies to protect Significant Natural Areas (SNAs) by avoiding and managing adverse effects from new subdivision, use and development, to maintain indigenous biodiversity outside SNAs and to increase indigenous vegetation cover by at least 10%in both urban and non-urban environments. Local authorities must promote the increase of indigenous vegetation cover in their regions and districts through objectives, policies, and methods in their policy statements and plans.

National Policy Statement – Highly Productive Land

The National Policy Statement for Highly Productive Land (NPS-HPL) came into effect in October 2022. The NPS-HPL is relevant to the FDS because it recognises the two main pressures facing highly productive land on the edge of towns and cities:

- expansion of urban areas, and the accompanying loss of productive land; and
- change of land-use on the fringes of urban areas, in particular the increase in lifestyle blocks.

The overall purpose of the NPS-HPL is therefore to improve the way highly productive land is managed under the RMA, to:

- recognise the full range of values and benefits associated with its use for primary production;
- maintain its availability for primary production for future generations; and
- protect it from inappropriate subdivision, use, and development.

In the NPS-HPL consultation documents, it is noted that the Government considers that the requirement to identify highly productive land will support councils in identifying "no-go" areas through their future development strategies while allowing for new urban areas on highly productive land in appropriate circumstances.

Government Policy Statements

At a national level, government policy statements prepared under other legislation are also relevant to the development of the FDS (NPS-UD, Clause 3.14(1)(g)). These are summarised below.

Government Policy Statement on Housing and Urban Development

The Government Policy Statement on Housing and Urban Development (GPS-HUD) is a requirement of the Kāinga Ora – Homes and Communities Act 2019. As national policy required by legislation, it must also inform the FDS.

The GPS-HUD takes a strong approach to climate change. In relation to emissions reduction targets it states:

Changing the way we plan and build homes, towns and cities is critical to meeting our emissions reduction targets and to helping us build resilience and adapt to the impacts of a changing climate. Under the Climate Change Response (Zero Carbon) Amendment Act 2019, Aotearoa New Zealand has committed to reach net zero carbon emissions by 2050. We have also committed to meeting a series of five-year emissions budgets which act as steppingstones to the net zero target. This will require significant changes to the way we plan, invest in and develop homes, infrastructure and places, to reduce transport emissions and the emissions that result from building and operating homes.

One of four Outcomes in the GPS-HUD is 'Thriving and Resilient Communities':

Everyone is living in communities that meet their needs. The places where people live are accessible and connected to employment, education, social and cultural opportunities. They grow and change well within environmental limits, support our culture and heritage, are resilient to natural hazards, and help us reduce emissions and adapt to the impacts of a changing climate.

In addition to climate change, the GPS-HUD therefore also advocates an approach to urban form consistent with the quality compact approach in the FDS, with its focus on accessibility and connections, and working within environmental limits.

Government Policy Statement on Land Transport 2021/2022

The Government Policy Statement on Land Transport (GPS-LT) is a requirement of the Land Transport Management Act 2003 (LTMA 2003), which sets out the scope and requirements for the GPS-LT.

The GPS-LT influences decisions on how money from the National Land Transport Fund will be invested across activity classes, such as state highways and public transport. It also guides local government and Waka Kotahi on the type of activities that should be included in Regional Land Transport Plans (RLTPs) and the National Land Transport Programme (NLTP). As a result, the GPS-LT has both direct and indirect influence on urban form in Auckland, and therefore on emissions.

Climate change is a key strategic priority of the GPS-LT. This strategic priority is stated as:

Climate Change priority: Transforming to a low carbon transport system that supports emissions reductions aligned with national commitments, while improving safety and inclusive access

A key aspect of the drive towards a low carbon transport system is to adapt a compact city model where most growth and development occurs within the existing urban area, with a focus on areas near good public transport, and near employment and services. Such approaches are central to the 'Quality Compact' focus of the FDS.

Importantly, urban form is a key aspect to deliver on these outcomes under the GPS-LT:

Shape land use, urban form and street design in a way that reduces car dependency, and makes walking, wheeling, cycling and micro-mobility safe and attractive travel choices to reduce greenhouse gas emissions.

Such approaches are central to the quality compact approach of the FDS. Conversely, the FDS seeks to discourage growth and development that is heavily car dependent.

National Emissions Reduction Plan

The National Emissions Reduction Plan (NERP) is both directly and indirectly relevant to the development of the FDS.

It is directly relevant, in so far as Section 3.14 (1) requires that the FDS is informed by '*any other relevant national policy required by, or issued under, legislation.'* The NERP is relevant and is a national policy required by the Climate Change Response Act 2002.

It is indirectly relevant in that Section 61(2((d) of the RMA requires that any regional policy statement that is prepared or changed must have regard to the NERP, and there is a key strategic-level relationship between a regional policy statement and a FDS.

The NERP places significant weight on urban planning as a method to achieve lower emissions in urban areas. In particular the NERP focusses on:

- the transport emission reduction potential of high-density development near rapid transit stations and networks
- the emission reduction potential of higher density, apartment building forms as compared to stand alone, low density housing.

The NERP also highlights the importance of sustainable approaches to the planning, delivery and operation of infrastructure networks in terms of both emissions reduction and adaptation.

Auckland Council planning context

Auckland Council's strategies, plans and policies have guided the direction of the FDS. The following are the most relevant for the FDS.

Auckland Plan 2050

The Auckland Plan 2050 was developed in 2018 and sets out the long-term spatial plan for Tāmaki Makaurau. It aims to ensure Auckland grows in a way that will meet the opportunities and challenges of the future. It is required by the Local Government (Auckland Council) Act 2009 and is required to contribute to Auckland's social, economic, environmental and cultural well-being.

The plan outlines Auckland's key challenges:

- population growth and its implications
- sharing prosperity with all Aucklanders
- reducing environmental degradation.

Six outcomes were identified as important areas in which significant progress needs to be made. They are:

- belonging and participation
- Māori Identity and well-being
- homes and places
- transport and access
- environmental and cultural heritage
- opportunity and prosperity.

The Development Strategy shows how Auckland will physically grow and change over the next 30 years. It takes account of the outcomes we want to achieve, as well as population growth projections and planning rules in the Auckland Unitary Plan.

It provides:

- a pathway for Auckland's future physical development
- a framework to prioritise and coordinate the required supporting infrastructure.

The Auckland Plan 2050 evidence reports provides further information to accompany the plan. These were first published alongside the plan in 2018. In 2022, updated evidence reports were published to cover changes since the plan's adoption.

Auckland Unitary Plan context – Plan Changes since 2016

In developing the updated FDS, it has been important to take stock of how the AUP has been changed since it became operative in part in 2016. By doing so, it allows the council to consider spatial patterns of rezoning and associated trends and drivers. It also provides the ability to gauge how successful council's existing strategic planning frameworks have been.

Ninety-one plan changes to the AUP have been advanced since 2016. The scale and scope of the plan changes vary significantly. Of most relevance to the FDS are those plan changes of a mid to large scale in greenfield locations and especially those in the Future Urban Areas, and plan changes in existing urban locations that have proposed a major shift in land use, and development form and scale.

In terms of Future Urban areas, 17 plan change applications have been lodged since 2016. One was withdrawn, leaving 16 applications, some of which have been approved and some of which are still being processed.

Of the 16 plan change applications, 8 have been in locations that are out of sequence in terms of the 'development readiness' anticipated by the Future Urban Land Supply Strategy. None of the plan changes have been refused.

While the reasons vary for each of the plan change approvals, this pattern of decision-making is suggestive of the overarching strategic framework, and more particularly the policy framework in the Regional Policy Statement of the AUP, not being strong enough. The updated FDS seeks to redress this, in terms of its strategic framework and the proposed implementation actions

Covid-19 Fast Track Legislation
The legislation was enacted in 2020 as a response to the pandemic, with the intention of supporting the economy and employment in the wake of the economic impact of the pandemic.

More than 30 applications have been made within the Auckland Region to the Environment Protection Authority. Some of those applications relate to greenfield locations, and some to existing urban land.

Of most relevance to the FDS are those applications that have been made in the Future Urban Area. The only application that has been lodged in the Future Urban Area was the 'Botanic Riverhead', a retirement village complex on the Coatesville-Riverhead Highway. The application was approved by commissioners in March 2023. As a one-off decision, the impact on urban form is limited, however it potentially sets precedence for similar decisions to be made, and significant cumulative effects to arise in terms of urban form.

Te Tāruke-ā-Tāwhiri – Auckland's Climate Plan
Auckland Council declared a Climate Emergency in 2019, highlighting the urgency required to transition Tāmaki Makaurau towards a net zero emissions future. In 2020, Auckland Council adopted Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan, which sets clear targets to halve emissions by 2030 and reach net zero emissions by 2050. The plan focuses on ensuring the region is resilient to the impacts of climate change and the priority and action areas reflect the need to embed issues like equity, te ao Māori, and a strong rangatahi voice when addressing climate change.

The Transport Emissions Reduction Pathway
Auckland Council adopted the Transport Emissions Reduction Pathway (TERP) in 2022. The TERP talks of the importance of aligning urban form and transport planning and sets an ambitious pathway to achieve the transport sector target of 64% emissions reduction by 2030 set out in Te Tāruke-ā-Tāwhiri.

Climate Change – contextual change since the last FDS

This section sets out the major legislative (national level) and policy and strategic (council level) changes relating to climate change since 2018. These provide an important framework for the update to the FDS.

National-level legislative requirements – climate change

RMA

A climate change focus in planning and resource management is considered to be critical to enabling people to provide for their social, economic and cultural well-being and for their health and safety, as well as achieving the environmental elements of the RMA's purpose. The impacts of climate change are

well documented; these impacts have significant potential to impact significantly on these well-beings, and also on people's health and safety (through, for example, the exacerbation of natural hazards)

Section 7 of the RMA sets out that 'the effects of climate change' are a matter that council shall have particular regard to in its planning functions.

Amendments to the RMA enacted in late 2022 also now require council to have regard to the National Emissions Reduction Plan and The National Adaptation Plan when making or changing regional policy statements, regional plans, or district plans. These plans have clear linkages back to the FDS. They inform the FDS, and the FDS informs them.

More specifically for the FDS, the NPS UD under the RMA has specific climate change considerations. It is important to emphasise that national policy statements give meaning to the broad RMA purpose set out in Section 5 of the Act. As Section 45(1) of the RMA states:

The purpose of national policy statements is to state objectives and policies for matters of national significance that are relevant to achieving the purpose of this Act.

This legislative linkage is critical in understanding the basis for planning for climate change under the RMA.

Objective 8 of the NPS UD states:

Objective 8: New Zealand's urban environments:

1. *support reductions in greenhouse gas emissions; and*
2. *are resilient to the current and future effects of climate change.*

This objective is given effect to in the NPS UD via two policies.

Firstly, Policy 1 requires that planning decisions contribute to well-functioning urban environments, which among a number of things are urban environments that support reductions in greenhouse gas emissions (Policy 1e) and are resilient to the likely current and future effects of climate change (Policy 1f).

Secondly, Policy 6 requires council to have particular regard to a range of matters when making planning decisions, which include the likely current and future effects of climate change.

Most critically and relevantly, Section 3.13 of the NPS UD sets out that one of the purposes of a FDS is to outline how well-functioning urban environments will be achieved. As outlined above, climate change considerations are a key mandatory aspect of well-functioning urban environments.

National Emissions Reduction Plan

The National Emissions Reduction Plan (NERP) is both directly and indirectly relevant to the development of the FDS.

It is directly relevant, in so far as Section 3.14 (1) requires that the FDS is informed by '*any other relevant national policy required by, or issued under, legislation.'* The NERP is relevant and is a national policy required by the Climate Change Response Act 2002.

It is indirectly relevant in that Section 61(2((d) of the RMA requires that any regional policy statement that is prepared or changed must have regard to the NERP, and there is a key strategic-level relationship between a regional policy statement and a FDS.

The NERP places significant weight on urban planning as a method to achieve lower emissions in urban areas. In particular the NERP focusses on:

- The transport emission reduction potential of high-density development near rapid transit stations and networks
- The emission reduction potential of higher density, apartment building forms as compared to stand alone, low density housing

The NERP also highlights the importance of sustainable approaches to the planning, delivery and operation of infrastructure networks in terms of both emissions reduction and adaptation.

Government Policy Statement on Housing and Urban Development
The Government Policy Statement on Housing and Urban Development (GPS-HUD) is a requirement of the Kāinga Ora – Homes and Communities Act 2019. As national policy required by legislation, it must also inform the FDS.

As stated above, the GPS-HUD takes a strong approach to climate change.

Government Policy Statement on Land Transport 2021/2022
The Government Policy Statement on Land Transport (GPS-LT) is a requirement of the Land Transport Management Act 2003 (LTMA 2003), which sets out the scope and requirements for the GPS.

The GPS-LT influences decisions on how money from the National Land Transport Fund will be invested across activity classes, such as state highways and public transport. It also guides local government and Waka Kotahi on the type of activities that should be included in Regional Land Transport Plans (RLTPs) and the National Land Transport Programme (NLTP). As a result, the GPS-LT has both direct and indirect influence on urban form in Auckland, and therefore on emissions.

As stated above, climate change is a key strategic priority of the GPS-LT.

Auckland Council level strategies and plans – climate change
Two council plans are of particular relevance in informing climate change considerations under the FDS.

Te Tāruke-ā-Tāwhiri – Auckland's Climate Plan, and the Transport Emissions Reduction Pathway. Both plans are prepared under the Local Government Act, and the broad framework provided in it to plan for the wellbeing of present and future generations. These plans complement and strengthen the climate change considerations under the RMA and its various instruments. These plans are relevant and important considerations in the development of the FDS under Section 3.14(1)(c) of the NPS UD.

Te Tāruke-ā-Tāwhiri – Auckland's Climate Plan
Te Tāruke-ā-Tāwhiri identifies eight priority action areas for the transition to a low emission, regenerative and climate-resilient future. The built environment outcome sets the goal of "A low carbon, resilient built environment that promotes healthy, low impact lifestyles" and talks of the success of climate goals being strongly tied to how and where Auckland grows.

Action areas which have relevance to the FDS include:

- Action area B1: Ensuring our approach to planning and growth aligns with low carbon, resilient outcomes
    - Actions at the strategic level include maintain and upholding the quality compact urban form outlined in the 2018 Development Strategy and including up to date climate change assessment criteria when modelling growth and creating growth scenarios.

- Action Area F2: Protect our productive soils and move towards regenerative practices to increase food security and carbon sequestration:
    - This action area talks of the importance of protecting Auckland's highly productive land for growing food and supports the implementation of the NPS Highly Productive Land.

The Transport Emissions Reduction Pathway
The TERP includes a target of 5% reduction in average trip length by 2030. To realise this in 2030, amenities need to be more available and closer to where people live, something that will happen over time with better distribution of services and facilities as the existing urban area intensifies. A greater reduction in trip length in the pathway was explored but later discounted due to the time taken for land use changes to be realised at the regional level. Auckland's existing expansive urban form will continue to influence trip length over time, with average trip length across the Auckland region predicted to increase over the next decade due to the level of development enabled at Auckland's urban periphery. To prevent average trip length growing, peripheral development needs to be stopped and cut back, however there are barriers to doing this.

The FDS proposes to pull back on some future urban areas in peripheral locations, or indicates some future urban areas as being subject to further investigation and review as a result of climate change and other factors.

Rural – contextual changes since the last FDS

This section sets out the major legislative (national level) and policy and strategic (council level) changes relating to rural environments, production and growth since 2018. These provide an important framework for the update to the FDS.

National-level legislative requirements - rural

National Policy Statement for Highly Productive Land 2022 (NPS-HPL)
The policy requires councils to map and zone highly productive land, and manage the subdivision, use and development of this non-renewable resource. This provides stronger protection for valuable soil from subdivision and development.

The NPS-HPL will have significant impact on rural productivity in the future. There are likely to be benefits in achieving the objective, most notably to the commercial vegetable growing activity in and around Pukekohe. The NPS-HPL may bring challenges to other primary production activity such as for the greenhouse sector. This is represented in Auckland with large under glass activity and intensive primary production where these are not by definition soil-based production systems, supporting activities or small-scale.

National Policy Statement & Standards for Freshwater Management 2020
The NES-F contains standards which regulate certain activities that pose risks to the health of freshwater and freshwater ecosystems, and are designed to (among other things):

- set minimum requirements for feedlots and other stockholding areas
- improve poor practice intensive winter grazing of forage crops
- restrict further agricultural intensification until the end of 2024
- limit the discharge of synthetic nitrogen fertiliser to land, and require reporting of fertiliser use.

The impact of the NPS-FM and NES-F on rural productivity will largely be a factor for the future. For example, the implementation of the NPS-FM will require decisions to be made on the allocation of

freshwater to primary production and the limits within which those activities must operate. Limit setting decisions and the more stringent standards in the NES-F will likely affect factors such as where and how rural production activity occurs, influencing land use, animal and crop types and the regional response to water supply/storage.

National Policy Statement on Indigenous Biodiversity – Exposure Draft
The NPS-IB will apply to all land types and sets out the ecological criteria councils will have to use to identify Significant National Areas (SNAs). Auckland Council has already identified SNAs as Significant Ecological Areas (SEA) layer in the AUP.

The NPS-IB provides for existing activities to continue and provides for some specific new activities. New activities must fall within clearly defined parameters to ensure indigenous biodiversity can be protected. Existing activities occurring inside or near SNAs will be allowed to continue if there is not an increase in scale or intensity, and it will not lead to degradation of an SNA.

The exact nature of the NPS-IB effects on rural production systems in Auckland is not clear yet, and will be determined by the final form of the policy.

RMA Reform
Rural production in Auckland is already becoming exposed to a limit, target and outcomes-based resource management approach to freshwater management and the National Built Environments Act (NBA) will extend this. Aligning with the regional spatial strategy, an NBA plan for Auckland will dictate the vision, objectives for resource allocation and land use for the region and methods to enable and support rural production in Auckland.

Auckland Council strategies and plans - rural

Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan (Climate Plan)
The Auckland Climate Plan sets out a road map to a zero-emissions, resilient and healthier region that is better connected to the environment and able to thrive in the face of ongoing change and disruption. The Climate Plan makes the determination that agriculture emissions generate about 6.4% of Auckland’s total emissions, while agricultural energy use, such as for heating greenhouses, generates 2.8% of Auckland’s total emissions. Rural production systems also rely on transport activity on and off farm.

Auckland’s Climate Plan sets a path to zero-emissions and a goal of a low carbon, resilient, local food system that provides all Aucklanders with access to fresh and healthy food. This is a catalyst for change and adaptation in rural production in Auckland. Changes in Auckland’s rural production systems will also be driven by the requirement to price and reduce agricultural emissions.

To implement the Climate Plan a number of actions are specified. Particularly relevant for rural areas are:

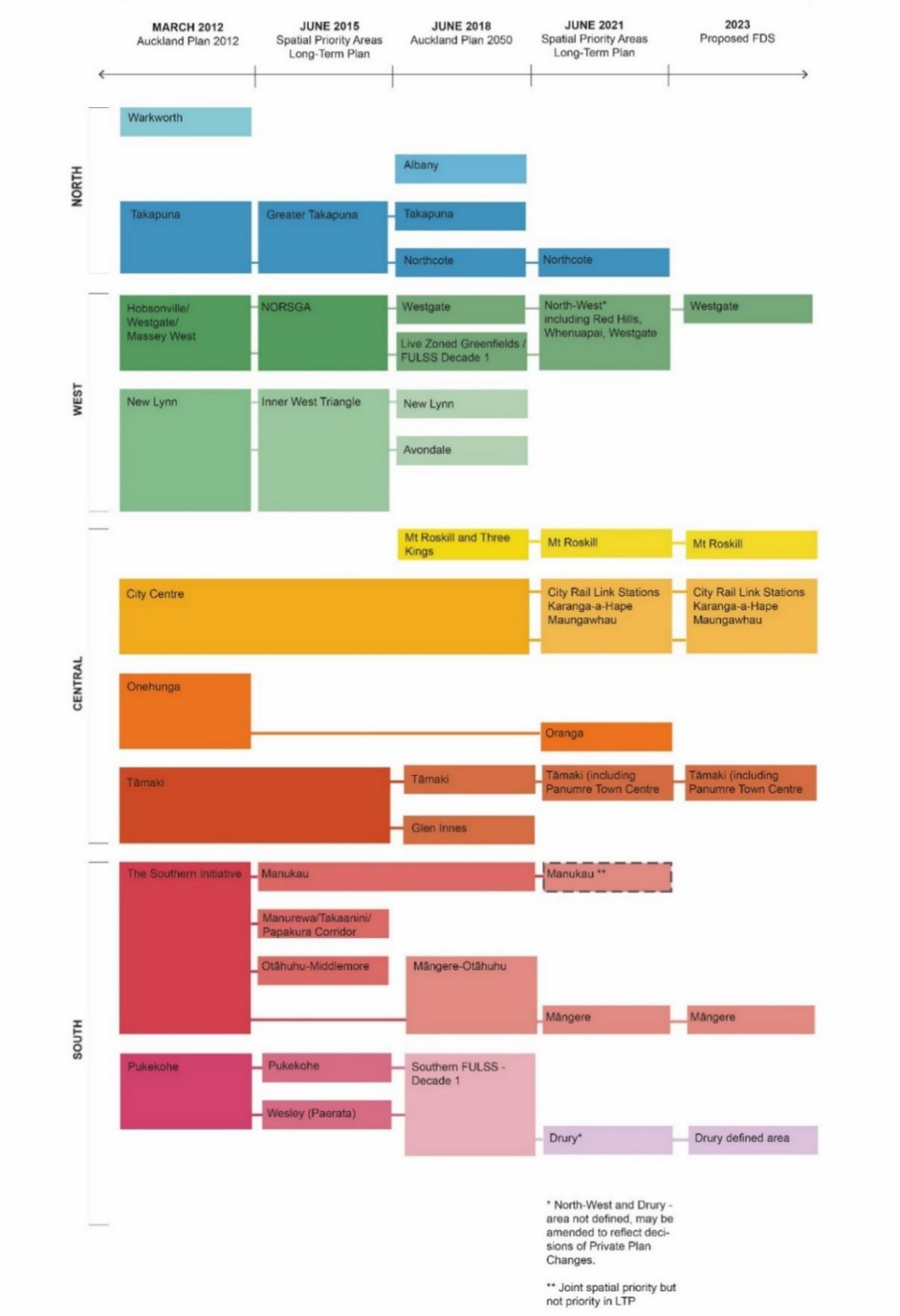
- grow and protect our rural and urban ngahere/forest to maximise carbon capture and build resilience
- maximise carbon capture potential of terrestrial and marine ecosystems
- ensure land use practices deliver healthy, resilient soils, waterways, and ecosystems.

Adaptation options will have particular outcomes for rural Auckland, noting for example when avoidance, protection or accommodating options are not possible, managed retreat may be needed for both land and buildings, and this may affect coastal farming in parts of Auckland. Changes in

Auckland's rural production systems will also be driven by the requirement to price and reduce agricultural emissions.

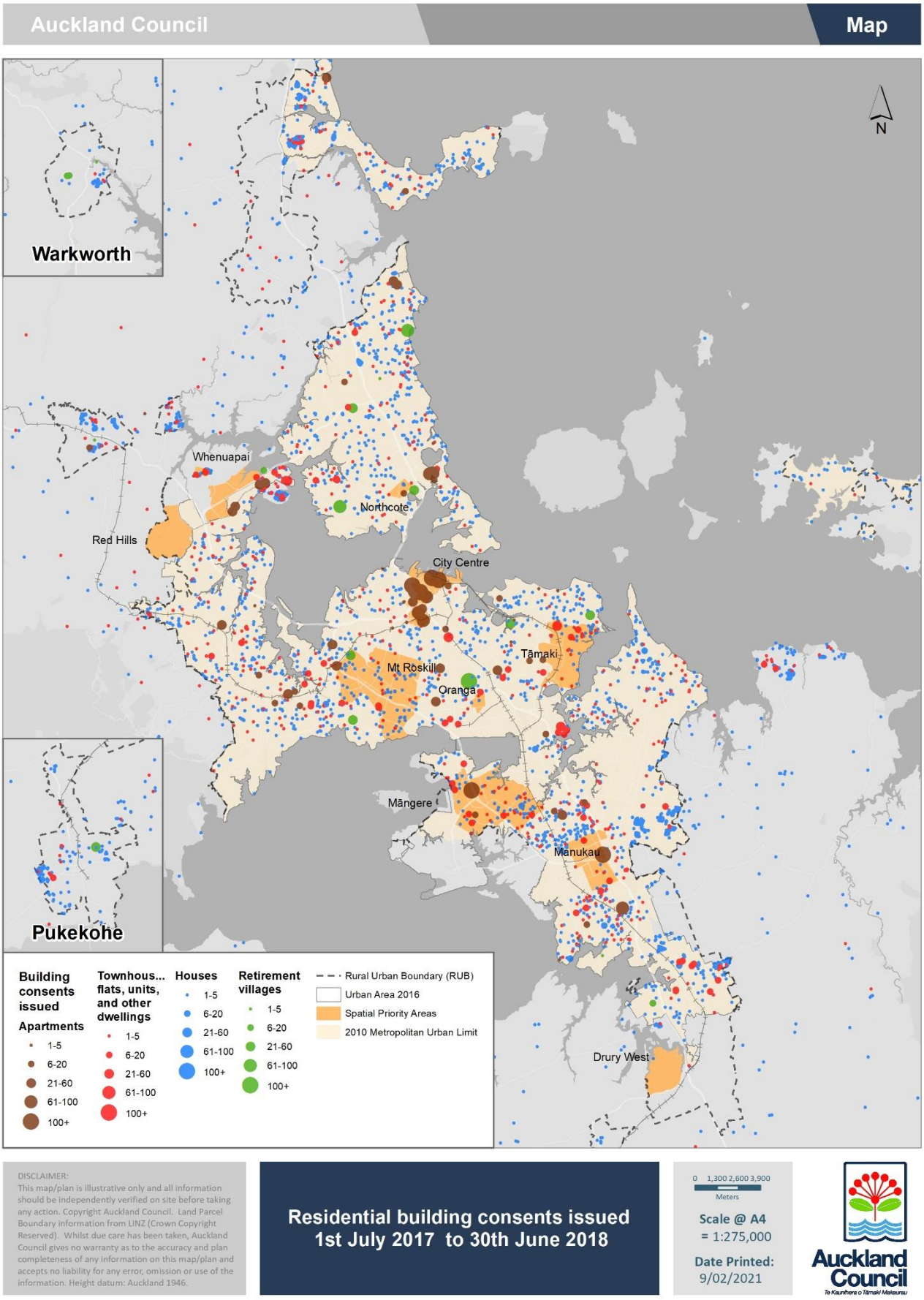
Appendix 2: Spatial priorities 2012-2021

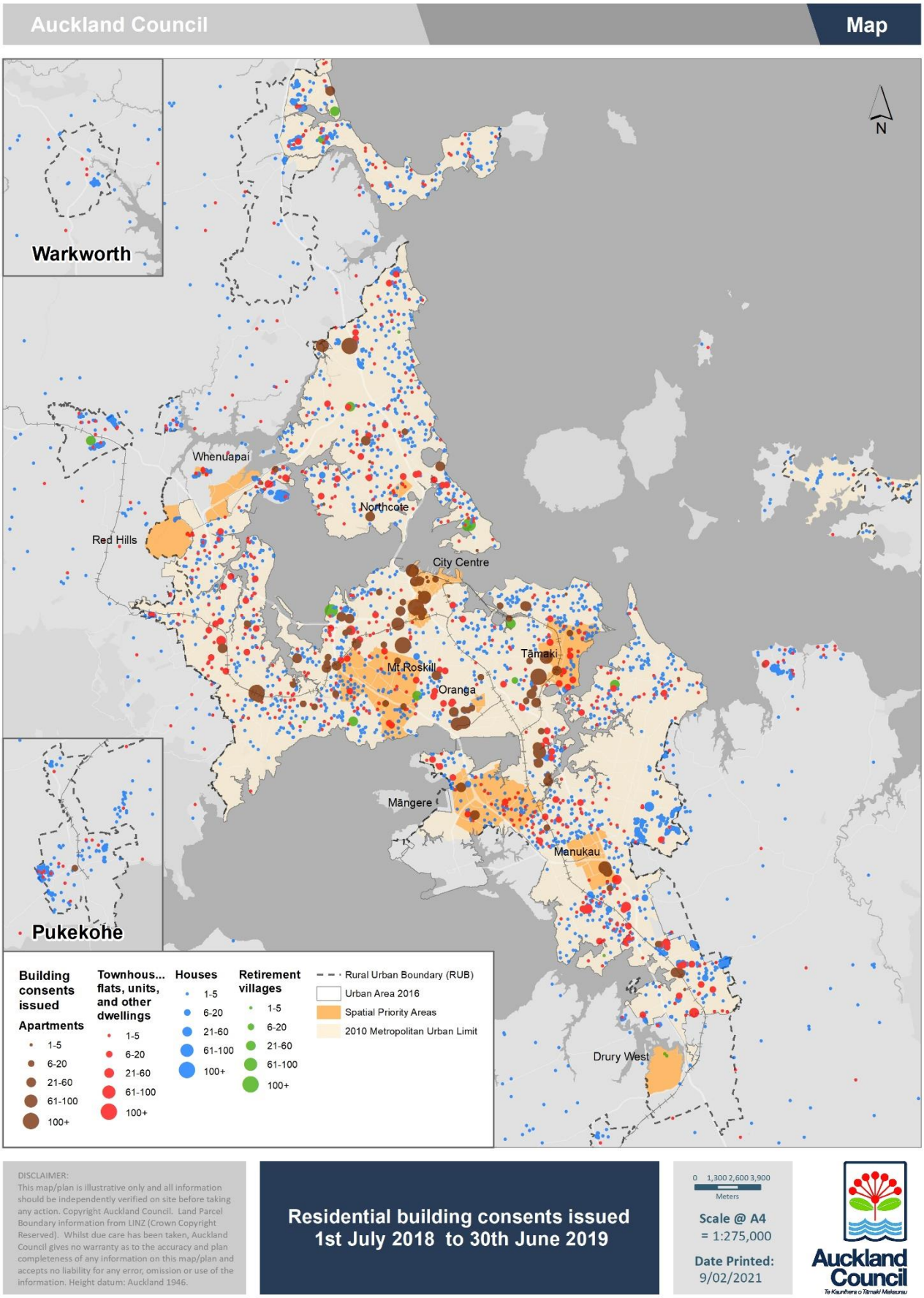
Spatial priorities have been used by Auckland Council in different forms since the development of the first Auckland Plan in 2012. The following table shows how the spatial areas have changed over time. The table shows that distribution of priorities across Auckland. In a number of cases areas have been consistently appearing in each iteration of planning, both for the short to medium term (10-year) LTP level and at the longer term (30-year) timeframe in the Auckland Plan and Development Strategy.

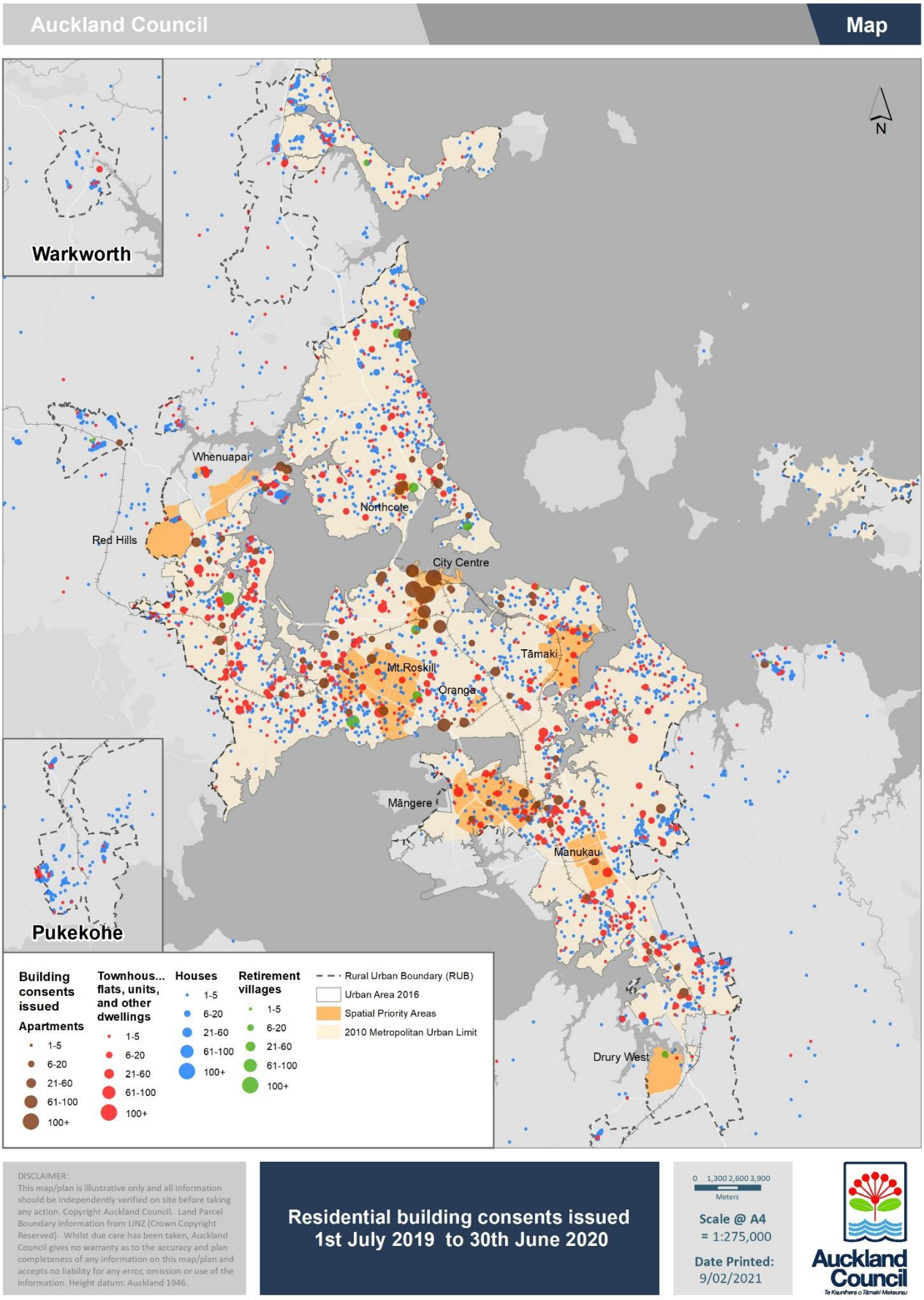


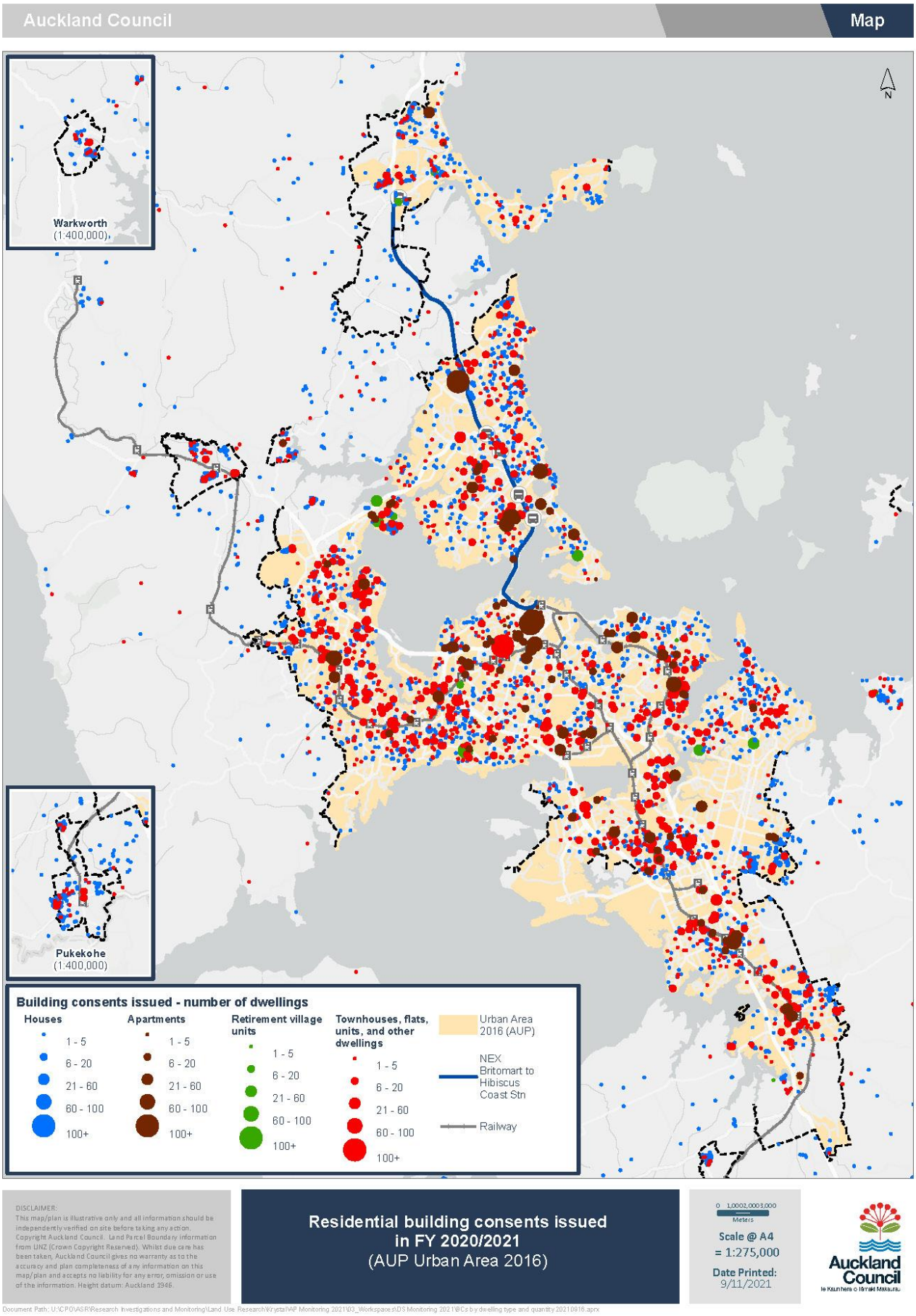
Appendix 3: Existing urban - monitoring maps for residential building consents 2017-2021

The following maps show the spatial distribution of residential consents issued between 2017 - 2021. They also show the distribution of different housing typologies (source: Auckland Plan 2050 development strategy monitoring reports).


Auckland Council
Map
N
Warkworth
Whenuapai
Red Hills
Northcote
City Centre
Mt Roskill
Oranga
Tāmaki
Māngere
Manukau
Drury West
Pukekohe
Building consents issued
Apartments
1-5
6-20
21-60
61-100
100+
Townhous... flats, units, and other dwellings
1-5
6-20
21-60
61-100
100+
Houses
1-5
6-20
21-60
61-100
100+
Retirement villages
1-5
6-20
21-60
61-100
100+
Rural Urban Boundary (RUB)
Urban Area 2016
Spatial Priority Areas
2010 Metropolitan Urban Limit
DISCLAIMER:
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Residential building consents issued
1st July 2017 to 30th June 2018
0 1,300 2,600 3,900
Meters
Scale @ A4
= 1:275,000
Date Printed:
9/02/2021
Auckland Council
Te Kaunihera o Tāmaki Makaurau


Auckland Council
Map
N
Warkworth
Whenuapai
Northcote
Red Hills
City Centre
Tāmaki
Mt Roskill
Oranga
Māngere
Manukau
Drury West
Pukekohe
Building consents issued
Apartments
1-5
6-20
21-60
61-100
100+
Townhous... flats, units, and other dwellings
1-5
6-20
21-60
61-100
100+
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Retirement villages
1-5
6-20
21-60
61-100
100+
Rural Urban Boundary (RUB)
Urban Area 2016
Spatial Priority Areas
2010 Metropolitan Urban Limit
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Residential building consents issued
1st July 2018 to 30th June 2019
0 1,300 2,600 3,900
Meters
Scale @ A4
= 1:275,000
Date Printed:
9/02/2021
Auckland Council
Te Kaunihera o Tāmaki Makaurau


Auckland Council
Map
N
Warkworth
Whenuapai
Northcote
Red Hills
City Centre
Tāmaki
Mt Roskill
Oranga
Māngere
Manukau
Drury West
Pukekohe
Building consents issued
Apartments
1-5
6-20
21-60
61-100
100+
Townhous... flats, units, and other dwellings
1-5
6-20
21-60
61-100
100+
Houses
1-5
6-20
21-60
61-100
100+
Retirement villages
1-5
6-20
21-60
61-100
100+
Rural Urban Boundary (RUB)
Urban Area 2016
Spatial Priority Areas
2010 Metropolitan Urban Limit
DISCLAIMER:
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Residential building consents issued
1st July 2019 to 30th June 2020
0 1,300 2,600 3,900
Meters
Scale @ A4
= 1:275,000
Date Printed:
9/02/2021
Auckland Council
Te Kaunihera o Tāmaki Makaurau


Auckland Council
Map
Warkworth
(1:400,000)
Pukekohe
(1:400,000)
N
Building consents issued - number of dwellings
Houses
1 - 5
6 - 20
21 - 60
60 - 100
100+
Apartments
1 - 5
6 - 20
21 - 60
60 - 100
100+
Retirement village units
1 - 5
6 - 20
21 - 60
60 - 100
100+
Townhouses, flats, units, and other dwellings
1 - 5
6 - 20
21 - 60
60 - 100
100+
Urban Area 2016 (AUP)
NEX Britomart to Hibiscus Coast Stn
Railway
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Residential building consents issued in FY 2020/2021
(AUP Urban Area 2016)
0 1,000 2,000 3,000
Meters
Scale @ A4
= 1:275,000
Date Printed:
9/11/2021
Auckland Council
Document Path: U:\CP\OA\SR\Research Investigations and Monitoring\Land Use Research\Krystal\AP Monitoring 2021\03_Workspace s\DS Monitoring 2021\BCs by dwelling type and quantity 20210916.aprx

Appendix 4: Existing urban short list areas

The approach in the existing urban area included identification of a long list of areas that presented a range of potential opportunities in accommodating significant housing and business growth. The initial long list considered areas previously identified through the Auckland Plan Development Strategy, the LTP spatial priorities and RTN locations / walkable catchments identified through the NPS UD plan change project work. A set of factors was developed as a tool to provide insight into the opportunities and constraints of each area. Table 9 below, lists the factors used to assist identification a short list of areas across existing urban Auckland.

Topic	Factors used to identify short list	Commentary
Transport	Walkability to RTN stations/ employment areas	NPSUD walkable catchments
	Accessibility to daily-need services and amenities	Whether the area has an existing centre (metropolitan centre or town centre)
Business and employment	Access to number of jobs	Number of jobs accessible within 45min AM peak public transport commute by 2046
	Opportunity for new employment growth	Number of jobs enabled, within and adjacent to the area
Climate change	Opportunity to reduce vehicle kilometres travelled (VKT)	Information from Growth scenario project
Environment	Opportunity to enhance green/blue linkages and access to open space	Consideration of open space and environmental layers (e.g. SEA's) and the opportunities these present to link green/blue areas
	The extent of area in 100-year floodplains and area prone to coastal inundation and coastal erosion	Proportion of areas within floodplains; Proportion of area and number of dwellings within coastal inundation zones; Proportion of area and number of dwellings within erosion risk zones
Culture and heritage	The extent to which the area retains qualities of historic heritage places and values (e.g., historic places, viewshafts, volcanic landscapes)	Proportion of growth and number of dwellings in areas with scheduled natural and built character or affected by built or natural heritage controls
Development opportunity	Market feasibility	Large land holdings (2,000m^2+) in single ownership

	Likelihood of development opportunities being realised	Age of the building stock
		Kāinga Ora, Eke Panuku or other significant development project committed / in progress
		Building consent types and numbers issued in the last five years
Mana whenua	Extent to which development would impact Māori cultural sites and landscapes	Scale of growth allocated to areas within and proximity to identified cultural landscapes and sites of significance
Infrastructure	Infrastructure readiness	Committed funding or any known infrastructure constraints
Urban form	Synthesis of opportunities	Using above criteria
		Location and connections to wider urban network (centres, corridors, economic areas)
		Relationship to urban activities including social infrastructure

Table 9 – Factors used to identify a short list of areas

Below is a summary that describes why each area was selected.

Some areas in the list initially considered were the same geographic area have been grouped together while others are geographically separated from any other suggested areas. The map below (Figure 31) shows the location of the short list areas across Auckland.

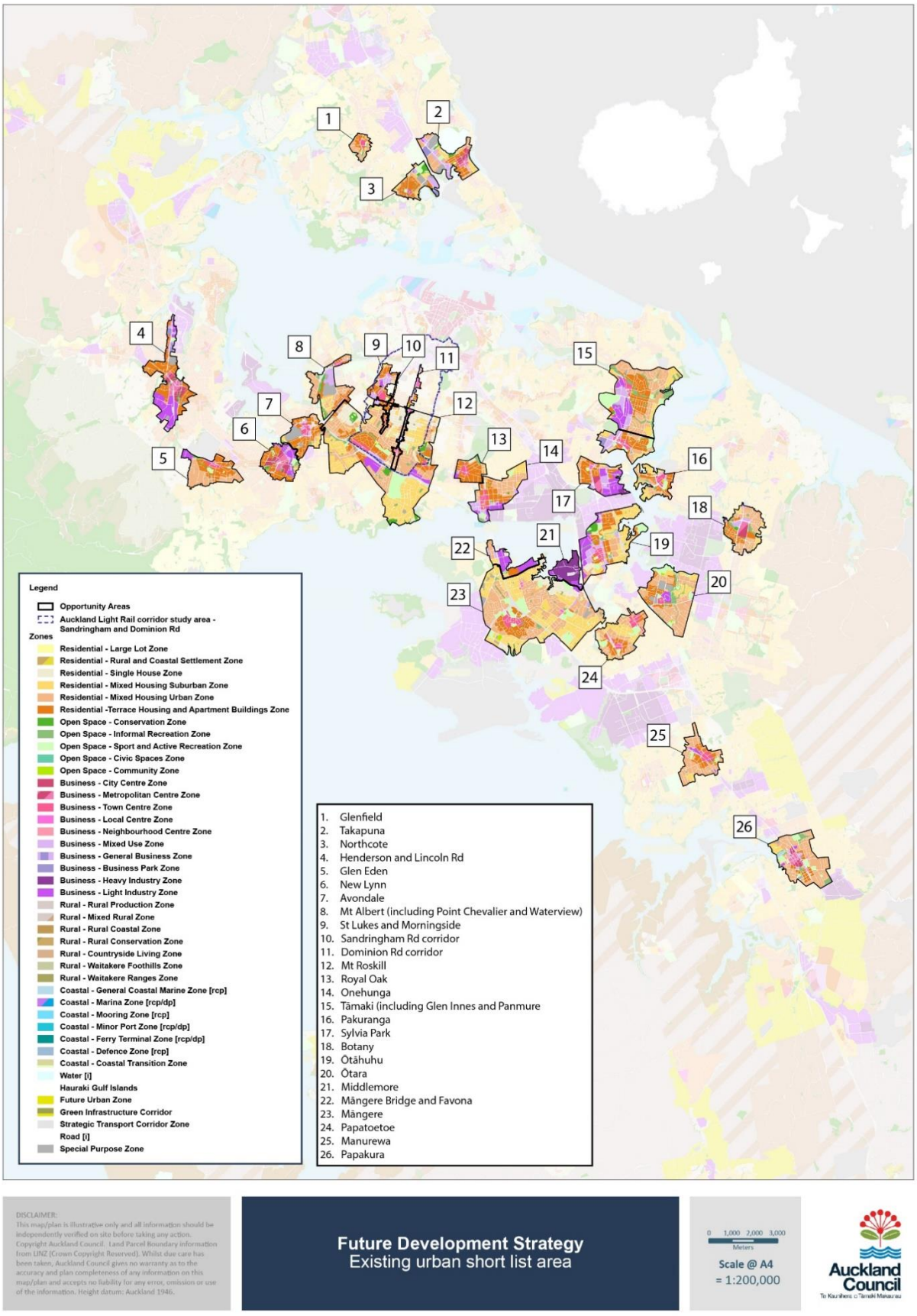


Figure 31 – Map showing the existing urban short list areas

Short list areas - summaries of each area:

Glenfield

Residential development has been active in Glenfield. The existing town centre provides a range of services and business types, including a shopping mall, a library and a community centre. Its proximity to Wairau Valley provides convenient access to employment.

While currently there is no rapid transit going through the area, there are frequent bus services to both the city centre and Albany. Glenfield Road is a major north-south arterial that serves as an alternative route to SH1. The area also serves as a local anchor point that provides services for nearby residential neighbourhoods such as Beach Haven, Birkdale and Bayview.

There is opportunity to improve connectivity from Glenfield to the nearby RTN stations (Sunnynook and Smales Farm). The potential impact of second Harbour Crossing also provides opportunity for Glenfield to serve a much wider catchment between Takapuna and Albany.

Takapuna

Takapuna has a coastal setting and is a walkable centre with an established traditional main street and high pedestrian amenity. The area has been market attractive for residential living and a number of apartment and townhouse developments are either underway or completed in and around the centre.

Takapuna has a diverse mix of businesses (hospitality, retail and smaller office firms) as well as a wide range of social infrastructure such as a library, recreation centre, community centre and North Shore hospital.

Eke Panuku has identified the area as a priority for public realm upgrades. The potential impact of the second harbour crossing also provides high development opportunity for the area.

Northcote

This was identified as a joint spatial priority, as part of the Auckland Housing Programme, for the council and central government in 2021. Piloted by Kāinga Ora, its redevelopment programme in the area is providing approximately 1700 homes and is almost completed.

Eke Panuku is also active in the town centre space with plans to improve public realm and community centre upgrade. This project involves collaboration with Kāinga Ora, mana whenua, the Kaipātiki Local Board and the wider Auckland Council. This is an important part of the overall project providing opportunities for shops, a community hub and open space, plus additional housing.

Environmental and open space improvements have already been achieved as part of the overall project (e.g. Te Ara Awataha).

Currently, the Waitematā Harbour Crossing project is in a planning phase. The timing and route for this project is yet confirmed.

However, the proximity of Northcote to the main transportation routes for the North Shore and the city centre mean that it may bring more opportunity to Northcote (e.g. accessibility, market attractiveness). The benefit of these projects will take some time to be realised.

Henderson and Lincoln Rd

Henderson is home to almost 8,000 jobs making it a modest employment hub in the region but significant for west Auckland. Despite its overall slight decline in job number in recent years, manufacturing jobs have become more concentrated in Henderson. Public sector employment has also

become more concentrated in the area. Henderson draws labour from across the west and north-west of the Auckland region (Tātaki Auckland Unlimited, 2022).

Eke Panuku is facilitating the development of several sites in Henderson and is planning public space upgrades and further improvements to walking and cycling links.

The area has experienced increasing residential growth in recent years. When the City Rail Link is complete, travel times to the city centre are expected to improve to approximately 30 minutes, making the area more accessible to jobs both in the west and the city centre. Being a modest employment hub with a mixture of retail and commercial businesses, the area also has potential to provide local job opportunities.

Lincoln Road is the backbone of west Auckland's economy which provides essential connectivity to employment locations such as the Waitakere Hospital and Henderson. Old housing stock on the western side of the road provides redevelopment opportunity. Most of the business uses on the eastern side of the road are recently established.

The existing urban form of this transit corridor is a product of the vehicle dominance era. This imposes significant challenges and barriers to catalyse a modal shift to more sustainable transport options. The accessibility to the North-west motorway and the presence of business land, heavy traffic at one end of the corridor contrast with the area closer to Henderson having community services and facilities (e.g. the Waitakere Hospital and the Trusts Arena).

Glen Eden

The town centre provides a retail function for the area, as well as serving as gateway which connects Glen Eden to other areas via rapid commuter train services. The Westlight apartments located at the northern edge of the town centre, are an example of a philanthropic development next to the town centre and the Rail station, providing 165 apartments within two towers. It provides a model for inclusion of community housing within the development.

There is also opportunity to create a mixed-use corridor along the RTN route extending from New Lynn, revitalisation of the town centre will strengthen the vibrancy of the existing town centre environment.

The existing housing stock was developed in the 1950s when Glen Eden became a satellite suburb of Auckland. Traditionally, housing intensification activities were largely infill developments (constructing additional units at the rear site). Since the AUP was adopted, housing redevelopments are becoming popular.

Glen Eden has limited amount of business zoned land. It is unlikely to provide enough employment opportunities to meet the need of its existing and future residents. Therefore, it is expected that commuting to work from Glen Eden to other employment centres will continue. Resolving connectivity issues with sustainable and reliable transport infrastructure should be prioritised for Glen Eden.

New Lynn

New Lynn is the main metropolitan centre for a number of smaller centres around it, including; Avondale, Glen Eden, Titirangi and Blockhouse Bay. Any investment in New Lynn will have spin-off effects on these smaller centres.

The area has been experiencing high growth, in particularly more intensive housing types. The area provides a range of services and amenities as well as local employment opportunities which makes the area ideal for intensification.

However, the area is partially within flood plains and flood prone areas. Development should be avoided in hazard areas and stormwater sensitive design should be incorporated. Previous development provides examples of water sensitive design features.

Avondale

Avondale has a range of features that provides advantages for urban intensification. The existing town centre provides a variety of shops and a community centre. The Avondale racecourse has become a valuable amenity for the community as well as an important public space for social gathering (Sunday market).

The rail station was relocated (2008) to a site within walking distance of the town centre and with improved accessibility to the wider Avondale area. However, there is opportunity to improve walkability around the station which is currently poor due to lack of pedestrian crossing along Crayford Street. Station pedestrian crossing could act as a catalyst for further development to east of the station. There are also several bus services along Great North Rd and New North Road.

Avondale has been experiencing high growth in the past few years with many new apartments and housing development happening in the area. In addition, Kāinga Ora has carried out several housing redevelopment projects along with Eke Panuku involved in several town centre regeneration and public realm upgrade projects.

The Avondale area is close to the Rosebank Road/ Patiki Road Business area, providing local employment.

Mt Albert - including Point Chevalier and Waterview

Mt Albert and Pt Chevalier are both within walking distance of the Unitec site which will intensify the tertiary education campus by developing a new urban village of 2,500-4,000 dwellings over the next 10-15 years. This will have a flow-on effect to the whole of the wider Pt Chevalier and Mt Albert areas. The project is an initiative of the central government and iwi.

The development will be particularly important for Mt Albert with its linkage to the RTN (Mt Albert Station). There is also a strong cycleway connection through this area from the north-west to the city.

Mt Albert has been experiencing growth in recent years in form of apartments and townhouses. Its proximity to the city centre, location along major transport corridor and RTN station within the town centre makes it an ideal place for intensification. Volcanic viewshafts do form constraints for some parts of the town centre.

Pt Chevalier: The existing town centre has potential for further development. Development in the area, has included a couple of apartments close to the town centre. This area is very accessible and connected to the north and south. Old building stock suitable for redevelopment and intensification.

Waterview has undergone significant change in the past 10-20 years with the development of the Waterview Tunnel. It is a coastal edge community but is still separate from other neighbourhoods in the area.

St Lukes and Morningside

The Morningside - St Lukes area consists of a diverse range of urban environments within a relatively small area. The Morningside area is centred on a traditional centre with convenient public transport access to city centre via bus along New North Road and the RTN from the Morningside Rail station. St Lukes is focused on a mall which is a significant attractor (car-dominant). While public transport does connect with this area, the environment is still predominately car orientated. This presents a challenge

in terms of changing the emphasis to more sustainable transport modes and improving the integration with surrounding network of centres and neighbourhoods. Linking the two centres is a well-established business area which forms a more mixed-use neighbourhood providing a range of services and amenities. It is an important employment area for the isthmus. There is opportunity to support future intensification and growth (both employment and residential) improve the sustainability particularly through transport mode.

This area is within the study area for the Auckland Light Rail (ALR) project (Auckland Light Rail [ALR], 2023).

Sandringham and Dominion Road corridor

Both Dominion Road and Sandringham Road are part of the wider ALR project study area (ALR, 2023). The project has yet to announce the confirmed the route and timing.

While both corridors share similar physical structure, they have quite different land uses along the corridor. Dominion Road accommodates a lot more mixed use activities and a range of businesses (including food and beverage) that offers a more vibrant and pedestrian friendly urban streetscape whereas Sandringham Road is predominantly residential with only short strips of mixed use activities which lacks continuity for facilitating pedestrian movement.

The map width of the corridor being studied (approximately 3km), reflecting the need for a large catchment area from light rail.

Mt Roskill

This area was identified as a joint spatial priority area in 2021. The wider Roskill area (an area stretching from Balmoral Road in the north to Waikowhai in the south, and from Three Kings to Mt Albert east to west) forms part of Kāinga Ora's Auckland Housing Programme and also forms part of the joint work programme between Auckland Council and central government.

Kāinga Ora has significant land holdings in this area and is leading a large-scale redevelopment of the Roskill area and aim to replace 2500 state houses with up to 10,000 new homes in the area. This project will continue beyond the short-medium term The first stage of Kāinga Ora's development programme in Roskill consists of Roskill South and Ōwairaka, both of which have been identified as the focus for the JWP spatial priority area (see map 1). A range of infrastructure investment is required for the area to enable housing development.

Auckland Council has developed an integrated area plan for Roskill to support better land use and transport outcomes.

While the area is currently part of the frequent transport network (FTN), it is within the study area for the ALR project (ALR, 2023). This would offer greater accessibility to the city centre and to the employment areas to the south (Onehunga, Māngere and the Airport)

Royal Oak

Royal Oak is served by several frequent bus services that connect the area to multiple parts of the region. It is located close to Onehunga and Penrose (major employment places). It offers a range to local amenity/natural features, with One Tree Hill within walking distance. Some growth opportunities have already been realised. This includes single storey "sausage flat" developments from the 1960's onwards which have locked up opportunities close to the town centre. More recently several apartment developments have been completed in the area.

There are some Kāinga Ora landholdings in the area which offer redevelopment opportunity.

Onehunga

Onehunga presents a range of good urban qualities, including a highly desirable area with a grid-layout (good walkability), old housing stock (developable) with an established large centre. There are many new developments in the area (both public housing and market housing). Eke Panuku is actively involved in the town centre revitalisation project.

Onehunga is also a large employment centre linking in with the key employment area that stretches from Onehunga east through Penrose and Te Papapa.

It is well connected to other parts of the city. It has a rail connection through a spur from the southern line that terminates at the Onehunga Station. However, this is not included as an RTN station as services cannot meet the frequency requirements. Improved connections could come through the ALR Project (ALR, 2023). The Onehunga area is a junction for movement between the isthmus and across the Māngere Bridge to the south.

Tāmaki Regeneration Area - including Panmure and Glen Innes and Tāmaki

The area has been identified as a joint priority area for council and central government. Through the Tāmaki Regeneration Company (owned jointly by central government and Auckland Council) a comprehensive masterplan has been developed centred on existing neighbourhoods of the areas; Kāinga Ora has significant ownership in the area. The aim is to deliver better housing, infrastructure, transport, education and jobs. The programme collaborates with mana whenua, community groups, schools and businesses (Tāmaki Regeneration, 2023).

Ongoing housing and infrastructure projects that require continued investment to complete.

Eke Panuku is leading the Panmure Town centre revitalisation project (Eke Panuku, 2023). This leverages off development opportunities provided by large areas of underused public-owned land in the town centre.

The Eastern Busway Project also provides significant opportunities for the Tāmaki area, particularly Panmure. In 2014 an interchange centred on the Panmure Rail Station created improved public transport in the area to allows easy passenger transfer between trains, the busway and local buses. The Eastern Busway project continues with work currently focused on the link from Botany to Pakuranga. The project will improve cycling, walking and provide urban design improvements. The removal of the Panmure roundabout also marked a significant shift in improving the town centre and connections.

The eastern part of this Tāmaki area contains business land which has further employment opportunities.

Pakuranga

The Pakuranga Town Centre Masterplan[22] released by the Howick Local Board identifies the area being part of the ‘urban south’ and is expected to experience significant change over the next three decades, unlocked by the Auckland Manukau Eastern Transport Initiative (AMETI).

The area is on the Eastern Busway Corridor (part of AMETI). The existing transport network is unable to adequately cope with the increased demand during peak hours to access employment opportunities on the western side of the Tāmaki Estuary (e.g. Mt Wellington – Penrose). The busway will provide an

[22] https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/place-based-plans/Documents/pakuranga-town-centre-masterplan-july-2015.pdf

improved connection to Auckland's wider rapid transit network with increased reachability and efficiency to many employment centres and hubs. Currently, work is underway on the Pakuranga to Botany stage. Cycle lanes will provide opportunities for greater shifts to sustainable transport modes (Auckland Transport, 2023).

The operative AUP provides a significant amount of development potential in this area. The notified PC78 provisions further enables development potential by expanding the Terrace House and Apartment Building Zone to the wider area surrounding Pakuranga town centre. Recent consenting trends and development outcomes have highlighted these opportunities are being taken up, replacing traditional single homes with terrace houses and low-rise apartment blocks.

While not being considered as a major employment anchor point of the area, the local board and the community has envisaged the town centre be a focal centre to live and visit. Part of the town centre is being revitalised and construction activities have started alongside the busway project.

This area is and will continue to be an important residential area and an ideal location for people who work in the East Tāmaki – Highbrook and Mt Wellington – Penrose industrial areas to reside in.

Sylvia Park

Sylvia Park has a prime location being adjacent to the southern rail line, State Highway 1 and arterial connections to the east and west. It has proximity to both residential areas with capacity for redevelopment and business areas offering employment (e.g. the city centre, Panmure, Penrose and Ōtāhuhu).

The site was formerly a Business zoned area and is being developed by Kiwi Property. The first stage – the Mall opened in 2006 and was integrated with the Sylvia Park Rail Station.

More recent and future stages are moving towards a mix of uses, adding employment and residential opportunities. Stage 1 of a large-scale private development (Kiwi Property) has commenced that will bring significant number of new residents into the area.

Botany

Botany is a relatively new centre, opening in 2001. Its catchment includes the East Tāmaki area. This includes medium to high density residential areas. Botany is a metropolitan centre and provides opportunities to develop a more mixed-use environment. Further residential redevelopment opportunities in its catchment are limited in the short term. The Airport to Botany rapid transit will also bring development opportunities along the corridor and particularly potential for additional employment.

Ōtāhuhu

Ōtāhuhu is focused on its town centre that caters for the diverse community it serves. An upgrade of the centre has been completed (Auckland Council, 2022f). The Ōtāhuhu rail Station is located within 1.2km walking distance from the town centre. The rail station connects bus and train services, and features improved facilities for pedestrians and cyclists. This includes a shared walking and cycling path between the town centre and the station improves connectivity and encourages active transport.

The Ōtāhuhu area has a large employment base with strong connections to key employment areas through Mt Wellington, Penrose (through SH1 and the RTN) as well as east - west connections to the East Tāmaki employment area.

Ōtāhuhu is located at the narrowest part of the Auckland isthmus, with only 1.2km between the Waitematā and Manukau Harbours. It is a traditional portage of geographical and cultural significance.

This is one of Auckland's original fencible settlements along the Great South Road. Its residential areas represent housing typologies from colonial through to recent infill development. Recent development trends have highlighted many of the existing housing stock has been replaced with new and higher quality housing options. This trend is expected to continue incrementally and makes the area a suitable location for a comprehensive redevelopment.

Ōtara

The Ōtara community was developed in the 1960's at a time when Auckland's urban area was expanding with the establishment of the motorway system (SH1). Its urban form reflects this legacy of expansive development. The area includes large Ministry of Housing and Urban Development and Kāinga Ora land holdings and represents an ageing housing stock that is ready for development/renewal, although this is not scheduled in the short term. Ōtara has the second largest Pasifika population in the South Pacific[23]. It is adjacent to the key employment areas in East Tāmaki and Ōtāhuhu.

The Ōtara town centre provides a hub for the community and its market brings customers from a wider catchment. The Manukau Institute of Technology also has a large campus linked with the town centre.

Its eastern boundary is defined by the Ōtara Creek, which is connected to the Tāmaki Estuary. This provides a coastal edge to the community but the industrial past of the area means that it is not clearly integrated with the town centre.

Māngere, Māngere Bridge, Favona and Middlemore

Māngere is on the proposed ALR corridor (ALR, 2023). It is a joint spatial priority area between council and central government. Work has begun on comprehensive redevelopment and infrastructure investment.

Māngere Bridge and Favona are also within the proposed ALR (ALR, 2023). With its coastal location Mangere Bridge has undergone significant redevelopment since the 1990's and has market attractiveness for further residential development.

In contrast, Favona is a large employment area with some residential areas. There has been significant investment made to the restoration of the coastline and the new Norana coastal walkway.

Middlemore, on the eastern edge of the Māngere area, is focused around the Middlemore Hospital and the RTN station. This is one of Auckland's major healthcare sites and there is potential for health facilities as well as for a more comprehensive Transit Orientated Development led by Kāinga Ora and Iwi. This area is close to major schools and facilities as well as market led redevelopment on the site of the Royal Auckland and Grange Golf Club.

Papatoetoe

This suggested area contains two centres, Old Papatoetoe focused on the Papatoetoe Rail Station and town centre, with proximity to SH 20, as well as Hunters Corner which serves the community focused on Great South Road. Both have good access through either the RTN or the FTN bus services to the key employment area, to the south, centred on Manukau and Wiri, as well as to Ōtāhuhu in the north.

Eke Panuku is leading a revitalisation for the Old Papatoetoe Town Centre (Eke Panuku, 2022),

[23] The highest Pasifika population is in Māngere.

Manurewa

Manurewa is located close to Manukau and an ideal Transit Oriented Development locale with a station within the town centre. The Great South Road location also provides frequent bus services. This is an area with a number of distinctive neighbourhoods including those developed around the Auckland Botanic Gardens.

An Integrated Area Plan for Manurewa, Takanini and Papakura was completed in 2017. It identifies key regeneration opportunities in Manurewa that can be activated in conjunction with public and private agencies. It builds on work already delivered that includes revitalisation of the Manurewa town centre and specific upgrades leading to the station, town centre and way finding.

Manurewa is also close to key employment areas particularly in Manukau and Wiri.

The Southern Initiative is working in the area to deliver a long-term programme of coordinated social and economic investment.

The Manukau Super clinic is located to the north of Manurewa, and redevelopment of this facility has started.

Papakura

Papakura has good connections by rail and road both north and south.

The Papakura Town Centre provides a range of retail and commercial services as well as facilities such the library. Eke Panuku has identified Papakura as a priority area for town centre regeneration in the longer term.

There are diverse neighbourhoods served by the Papakura centre. This is another site that new developments on the periphery. The area has good connectivity via rail (Papakura Station), and the Great South Road. However, it is somewhat removed from SH 1.

It has access to the local employment areas of Takaanini, or further through the RTN network. Newer mixed use and large format developments in the vicinity of Papakura compete with the town centre.

Papakura also has an association with nearby rural communities, and it is the nearest centre to the Ardmore Airport.

Appendix 5: Rural productivity

GDP by industry (2018-2022)

- **horticulture and fruit** have fallen in value from $96.5 million in 2018 to $83 million in 2022 but retained its 0.10% share to the total GDP both in Auckland and in New Zealand.
- **forestry and logging** showed a slight decrease both in Auckland and in whole New Zealand. In 2018 the sector contributed with $81.8 million to Auckland's GDP, while in 2022 this contribution was $74.2 million.
- **sheep, beef and grain farming** showed a slight decrease in contribution to Auckland's GDP from $53 million in 2018 to $46.2 million in 2022. The sector's nation-wide share to the total GDP was 1.1% - 1.0%
- **dairy cattle farming** increased slightly in Auckland from $52.2 million in 2018 to $53 million in 2020. The total GDP share for New Zealand shows slight fluctuation during the reporting period (2019 and 2021 shows above 2% of total GDP share, while 2018, 2020, 2022 shows 1.9% of total share).
- **mining** dropped $12 million in contribution to Auckland's GDP between 2018-2022. Nationally mining showed a consistently decreasing trend from 1.2% to 0.8% of total shared GDP.
- **fishing and aquaculture** increased from $25,5 million in 2018 to $34 million in 2022 in contribution to Auckland's GDP. At the national level, the contribution of the fishing and aquaculture sector increased from 0.1% to 0.2% to the total national GDP.
- **poultry, deer and other livestock farming** remained the same between 2018 and 2022 in terms of their contribution to Auckland's GDP. The sector's total GDP share for New Zealand also remained the same with some fluctuation (0.2% share of total GDP in 2019, and 0.1% share to total GDP in 2018 and 2020-2022).
- **viticulture and grape growing** contributed $8.6 million to Auckland's GDP and provided 386 jobs in 2016.

Rural production

Dairy

- The dairy industry is New Zealand's biggest export earner and a key driver of economic activity.
- **Dairy cow and herd** numbers showed an average decrease between 2018 and 2022. This correlates to a reported decrease in total hectares in dairy production over this period, as well as reduction in cow numbers. Increased regulation and compliance, labour constraints and tighter credit conditions were also contributing factors to the decrease.
- **Land in dairy production** decreased between 2018-2021. This is consistent with percentage change in overall New Zealand.
- **Milk solid production** decreased until 2020, and then increased in 2021, but the total production output remained consistent. This is consistent with percentage change in overall New Zealand.
- The comparatively low number of dairy farms in the Auckland Region and higher land values relative to other parts of the country suggest that significant increase in number of dairy farms appears unlikely.

Forestry

- **Area, volume and age of Auckland's forests** have been at a plateau within New Zealand.
- **Forest clearance** increased from 2018-2019 and then decreased in 2020.

- **Area of forest in Auckland** shows major age class from 16-30, the most dominant being 21-25 years of age.
- **Forested areas** increased in New Zealand between 2020-2021, but not in Auckland.
- **Forest age** class distribution for Auckland indicates that the forested areas planted within the last five years are significantly less than the areas harvested. This explains the increasing average age over this period.
- Future of forestry is likely to be influenced by several drivers and regulations, including emissions trading scheme.
- New large forestry ventures in Auckland seem unlikely.
- Large, forested areas likely to continue to be under pressure for land use change, due to Auckland's growth and land parcel structure.

Horticulture

- **Total Auckland crop areas** are identified at 30 June 2020 as per Figure 32 below.

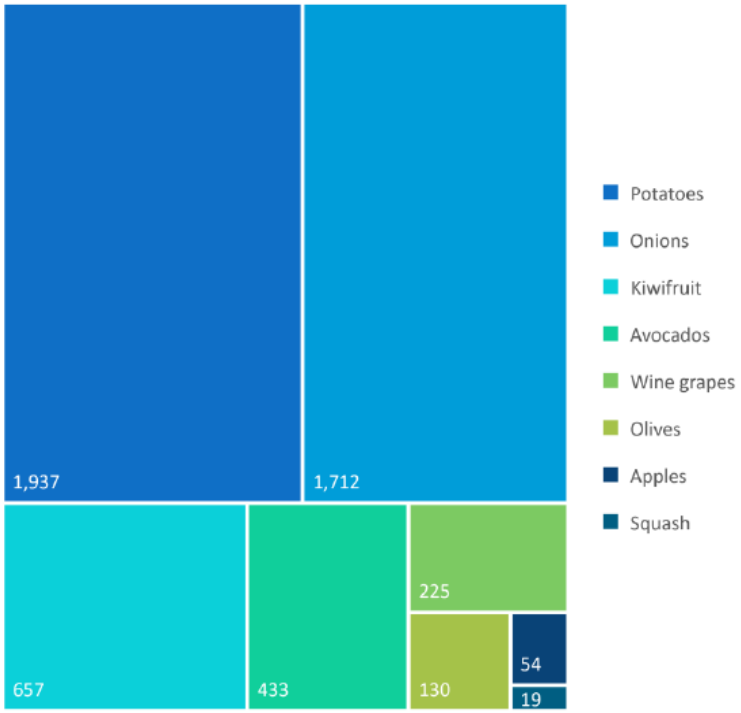


Figure 32 – Total Auckland crop areas identified at 30 June 2020
Source: StatsNZ Horticulture by Regional Council

- **Percentage change in Auckland** has been an increase for potatoes in 2019-2020 and a decrease for other crops. The most significant decrease was for squash (80% decrease).

Fruit

- **Kiwifruit and berries** export increased for both Auckland and New Zealand, with a slight decrease in 2021 and 2022.
- **Apples, pears and other fruit** export plateaued in Auckland, and fluctuated for New Zealand, capturing increase in 2021 and decrease to below 2018 in 2022.
- The trend may potentially reflect Franklin's Future water demand strategy, where the volume of kiwifruit is expected to quadruple over 30 years.

Commercial vegetable production

- **Vegetable, roots and tubers** export has decreased in Auckland, which is inconsistent with the increasing trend in New Zealand. The national export increased in 2020 and 2021 and decreased to below 2018 in 2022.
- The trend may be due to limited availability of suitable land with all inputs needed. Growth may be constrained to the current footprint.

Livestock number and export

- **Livestock number in beef cattle** fluctuated, which is consistent to the national data for New Zealand between 2018 – 2021.
- **Livestock number in sheep** has limited data to capture change in the Auckland Region. New Zealand data has indicated a general trend of decreasing stock numbers between 2018 – 2021.
- **Export by GDP54 industry**: Sheep, Beef Cattle and Grain Farming showed fluctuation both in Auckland and New Zealand.
- **Export by Good by Type: Beef** has been an increasing trend both in Auckland and New Zealand.
- **Export by Good by Type: Sheep and Goat meat** showed an increasing trend for Auckland. New Zealand fluctuated, increasing in 2018-2019 and decreasing in 2019–2022.

Viticulture

- Decrease in area of total wine grapes observed from 300 to 225 hectares.
- Despite reported decrease in land, wine industry is expected to continue along a long-term growth trajectory, but at a slower rate: growth of planted areas is expected to be slow through 2024. Scarcity of land suitable for conversion to viticulture is limiting further expansion opportunities for Auckland.

Equine

- Horse numbers remain similar from 2018-2021 at around 40,000 animals.

Aquaculture

- **Contribution to regional GDP** increased **7.8%** annually.
- **Export by GDP54 industry:** fishing and aquaculture generally increasing in both Auckland and New Zealand. New Zealand has slight fluctuation, decreasing from 2019-2020, but then increasing after 2020.
- Increasing level of exports of fishing and aquaculture found to be correlated to growth in Auckland.

Minerals

- There were no recorded new permits over the period 2018-2022.
- Since 2014, no new quarries established within Auckland's boundaries, and there were only three expansions of regional significance.
- It has been an on-going trend that Auckland's need for quarried material had to be sourced from other regions, due to limitation to local supply. In the light of the above data, it is assumed that this trend will continue.

Appendix 6: Detailed breakdown of vacant and vacant potential business land

Table 10 – Vacant business land by suburbs (hectares)

Vacant land by AUPOIP business zones		UP_BASEZONE									
Local board group	Suburb name	Business - Business Park Zone	Business - City Centre Zone	Business - General Business Zone	Business - Heavy Industry Zone	Business - Light Industry Zone	Business - Local Centre Zone	Business - Metropolitan Centre Zone	Business - Mixed Use Zone	Business - Neighbourhood Centre Zone	Business - Town Centre Zone	Grand Total
Rural North	Coatesville	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2
	Dairy Flat	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
	Helensville	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.4	5.0
	Huapai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.5
	Kaukapakapa	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.6
	Kumeu	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.3	0.2	2.5	6.2
	Matakana	0.0	0.0	0.0	0.0	1.3	0.3	0.0	0.0	0.0	0.0	1.6
	Omaha	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2
	Parakai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.8
	Riverhead	0.0	0.0	0.0	0.0	6.2	0.0	0.0	0.2	0.0	0.0	6.4
	Snells Beach	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	5.0
	Waimauku	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2
	Wainui	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	3.0	0.0	6.2
	Warkworth	0.0	0.0	8.5	0.0	29.2	0.2	0.0	0.5	0.0	0.6	38.9
	Wellsford	0.0	0.0	0.0	0.0	15.6	0.0	0.0	0.0	0.0	1.9	17.5
Rural South	Awhitu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2
	Beachlands	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.1	0.0	2.0
	Clarks Beach	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.6
	Clevedon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	1.4
	Drury	0.0	0.0	0.0	3.7	53.2	0.0	0.0	0.0	0.0	0.0	56.8
	Glenbrook	0.0	0.0	0.0	336.7	0.0	0.0	0.0	0.0	0.4	0.0	337.1
	Karaka	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.4
	Kawakawa Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
	Kingseat	0.0	0.0	0.0	0.0	1.2	2.6	0.0	0.0	0.0	0.0	3.8
	Paerata	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	1.2
	Patumahoe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
	Pukekohe	0.0	0.0	0.4	0.0	12.9	0.0	0.0	1.8	0.0	1.6	16.7
	Ramarama	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	1.7
	Waiuku	0.0	0.0	0.0	0.0	18.8	1.6	0.0	1.7	0.0	0.0	22.1
Urban Central	Auckland Central	0.0	15.3	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	15.5
	Eden Terrace	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.7	1.9
	Ellerslie	1.1	0.0	0.0	0.0	0.7	0.0	0.0	1.8	0.0	0.1	3.7
	Epsom	0.0	0.0	0.0	0.0	0.0	0.2	1.1	2.6	0.0	0.0	3.8
	Freemans Bay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4
	Glen Innes	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.0	0.0	0.0	4.7
	Grafton	0.0	0.9	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	2.8
	Greenlane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.3
	Grey Lynn	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.9	0.0	0.1	1.1
	Hillsborough	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Judges Bay	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5

	Kingsland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3
	Mechanics Bay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
	Mission Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2
	Morningside	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.6
	Mount Albert	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.4
	Mount Eden	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.9	0.0	0.0	1.7
	Mount Roskill	0.0	0.0	0.0	0.0	4.4	1.2	0.0	0.0	0.2	0.0	5.8
	Mount Wellington	0.8	0.0	3.8	1.1	9.1	0.0	0.0	1.7	0.0	0.6	17.1
	Newmarket	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.4	0.0	0.0	2.7
	Onehunga	0.0	0.0	0.0	3.7	1.9	0.0	0.0	1.1	0.0	1.7	8.4
	Orakei	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Panmure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.3	2.5
	Parnell	0.0	0.7	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.1	3.0
	Penrose	0.0	0.0	0.0	20.7	1.7	0.0	0.0	0.1	0.0	0.0	22.5
	Point Chevalier	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.9	2.6
	Point England	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
	Ponsonby	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3
	Remuera	0.0	0.0	0.1	0.0	0.0	0.0	0.0	3.5	0.1	0.3	4.0
	Royal Oak	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	1.0	1.7
	Saint Johns	0.0	0.0	0.0	0.0	6.2	0.1	0.0	2.5	0.0	0.0	8.8
	Saint Marys Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2
	Sandringham	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.5
	St Heliers	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.2
	Stonefields	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4
	Three Kings	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.3
	Viaduct Basin	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
	Waitemata Harbour	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9
	Wesley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.6
	Western Springs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Westhaven	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Urban North	**Albany**	8.4	0.0	0.0	0.0	0.5	1.3	23.0	0.0	0.0	0.0	33.3
	Beach Haven	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
	Belmont	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Birkdale	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.9
	Birkenhead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
	Browns Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.8	1.7
	Chatswood	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	3.8
	Devonport	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
	Greenhithe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Gulf Harbour	0.0	0.0	0.0	0.0	0.0	1.8	0.0	4.6	0.0	0.0	6.4
	Hauraki	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2
	Hillcrest	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
	Hobsonville	0.0	0.0	0.0	0.0	29.1	0.0	0.0	4.5	0.6	0.0	34.1
	Long Bay	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	1.1
	Mairangi Bay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2
	Milford	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.3	0.6
	Murrays Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
	Northcote	2.5	0.0	0.0	0.0	0.2	0.0	0.0	0.7	0.0	0.6	4.0

	Northcross	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
	Orewa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
	Pinehill	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.5
	Rosedale	0.0	0.0	5.7	0.0	29.6	0.0	0.0	0.0	0.0	0.0	35.3
	Rothesay Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Silverdale	0.0	0.0	22.6	1.1	31.7	0.0	0.0	1.6	2.7	2.3	62.0
	Stanley Point	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.9	0.0	0.0	1.9
	Stanmore Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.1	3.5
	Stillwater	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	1.9
	Takapuna	0.0	0.0	0.0	0.0	0.0	0.0	1.5	4.3	0.0	0.0	5.7
	Unsworth Heights	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Wainui	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.6	0.0	2.8
	Wairau Valley	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	1.6
	Waitemata Harbour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
	West Harbour	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	2.6
	Whenuapai	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	1.7
	Windsor Park	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Urban South	**Bucklands Beach**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Conifer Grove	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3
	Drury	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	1.8
	East Tamaki	0.0	0.0	0.0	6.8	30.2	0.0	0.0	9.8	0.0	0.0	46.8
	Favona	0.0	0.0	0.0	0.6	4.0	0.0	0.0	0.0	0.0	0.0	4.6
	Flat Bush	0.0	0.0	0.0	0.0	0.8	0.6	0.0	0.2	3.2	14.0	18.8
	Golflands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
	Half Moon Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Howick	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.6	0.0	0.5	1.2
	Huntington Park	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
	Karaka	0.0	0.0	0.0	0.0	0.0	6.5	0.0	8.4	0.5	0.0	15.4
	Mangere	0.0	0.0	0.0	0.0	97.7	0.0	0.0	0.3	0.0	0.3	98.3
	Mangere Bridge	0.0	0.0	0.0	0.0	2.3	0.2	0.0	0.3	0.0	0.0	2.7
	Mangere East	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
	Manukau	0.0	0.0	0.0	0.0	1.6	0.0	6.3	0.9	0.0	0.0	8.9
	Manukau Harbour	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
	Manurewa	0.0	0.0	0.0	0.0	3.4	0.1	0.0	0.0	0.0	0.6	4.0
	Manurewa East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
	Mellons Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
	Opaheke	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
	Otahuhu	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.3	0.0	1.1	3.6
	Otara	0.0	0.0	0.0	0.0	4.9	0.0	0.0	0.0	0.3	1.8	7.0
	Pakuranga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.8
	Pakuranga Heights	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.4
	Papakura	0.0	0.0	0.0	3.0	4.9	0.0	1.6	0.1	0.1	0.0	9.7
	Papatoetoe	0.0	0.0	0.0	0.0	3.9	0.0	0.0	0.0	0.0	2.9	6.8
	Red Hill	0.0	0.0	0.0	2.1	3.2	0.0	0.0	0.0	0.0	0.0	5.4
	Somerville	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.4
	Takanini	0.0	0.0	0.0	1.3	16.5	5.4	0.0	0.0	0.0	1.4	24.5
	Wiri	0.0	0.0	0.0	44.9	68.8	0.0	0.0	8.1	0.0	0.0	121.8
Urban West	**Avondale**	0.0	0.0	0.0	2.2	4.2	0.0	0.0	0.5	0.0	2.7	9.7

	Glen Eden	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.4	0.1	0.6	3.8
	Glendene	0.0	0.0	0.0	1.2	0.0	0.1	0.0	0.0	0.0	0.0	1.3
	Green Bay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
	Henderson	0.0	0.0	0.0	0.4	18.9	0.0	4.7	2.1	0.0	0.0	26.2
	Kelston	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.4
	Massey	0.0	0.0	0.0	0.0	0.0	8.4	0.0	0.1	0.0	0.0	8.5
	Mount Albert	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	New Lynn	0.0	0.0	0.0	0.0	1.9	0.0	7.0	0.0	0.1	0.0	9.0
	Ranui	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.5
	Swanson	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0
	Te Atatu Peninsula	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
	Te Atatu South	0.0	0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.7
	Titirangi	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3
	Waitakere	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
	Westgate	0.0	0.0	6.2	0.0	23.2	0.6	8.2	8.7	0.0	0.0	46.8
	Whenuapai	0.0	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	3.7
Grand Total		**13.1**	**26.1**	**47.4**	**429.6**	**584.8**	**50.0**	**55.7**	**94.0**	**16.8**	**53.0**	**1370.4**

Table 11 – Vacant potential business land by suburbs (hectares)

Vacant potential land by AUPOIP business zones Local board group	Suburb name	UP_BASEZONE Business - Business Park Zone	Business - City Centre Zone	Business - General Business Zone	Business - Heavy Industry Zone	Business - Light Industry Zone	Business - Local Centre Zone	Business - Metropolitan Centre Zone	Business - Mixed Use Zone	Business - Neighbourhood Centre Zone	Business - Town Centre Zone	Grand Total
Rural North	Coatesville	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	1.2
	Dairy Flat	0.0	0.0	0.0	0.0	9.7	0.0	0.0	0.0	0.0	0.0	9.7
	Helensville	0.0	0.0	0.0	0.0	16.9	0.0	0.0	0.0	0.0	1.9	18.8
	Huapai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.6	1.8
	Kaukapakapa	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3
	Kumeu	0.0	0.0	0.0	0.0	36.4	0.0	0.0	3.4	0.0	2.9	42.7
	Leigh	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.7
	Matakana	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	1.7
	Muriwai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5
	Parakai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4
	Riverhead	0.0	0.0	0.0	0.0	5.4	0.0	0.0	0.2	0.1	0.0	5.8
	Snells Beach	0.0	0.0	0.0	0.0	0.3	1.5	0.0	0.0	0.0	0.0	1.7
	Te Hana	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	1.8
	Waimauku	0.0	0.0	0.0	0.0	0.9	1.0	0.0	0.0	0.0	0.0	1.9
	Wainui	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	4.2
	Warkworth	0.0	0.0	1.2	0.0	62.7	1.3	0.0	1.1	0.0	1.4	67.8
	Wellsford	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	1.3	6.9
Rural South	Bombay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	0.0	7.7
	Clevedon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	1.9
	Drury	0.0	0.0	0.0	0.0	1.3	0.0	0.0	7.9	0.0	0.0	9.2
	Karaka	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.8
	Kingseat	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	4.3
	Maraetai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
	Paerata	0.0	0.0	0.0	0.0	0.0	14.5	0.0	0.0	0.0	0.0	14.5
	Patumahoe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3
	Pukekohe	0.0	0.0	13.7	0.0	0.0	0.0	0.0	1.7	0.0	0.4	15.8
	Waiuku	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.1	0.0	0.0	2.1
	Whakatiwai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5
	Whitford	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.8
Urban Central	Auckland Central	0.0	61.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.7
	Eden Terrace	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	Ellerslie	0.3	0.0	0.0	0.0	7.3	0.0	0.0	4.1	0.0	0.0	11.7
	Epsom	0.0	0.0	0.0	0.0	0.0	0.5	0.2	2.9	0.0	0.0	3.6
	Freemans Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Glen Innes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.3	3.7
	Glendowie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Grafton	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.9
	Greenlane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.8	1.3
	Grey Lynn	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.7	0.0	0.0	1.7

	Hillsborough	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
	Judges Bay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	Kingsland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
	Lynfield	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
	Mechanics Bay	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
	Mission Bay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1
	Mount Albert	4.9	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.1	0.4	8.0
	Mount Eden	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.7	0.1	0.0	1.2
	Mount Roskill	0.0	0.0	0.0	0.0	9.9	0.0	0.0	0.6	0.0	0.0	10.6
	Mount Wellington	0.6	0.0	3.2	21.7	44.3	0.3	12.8	5.7	0.0	0.3	89.0
	Newmarket	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
	Onehunga	0.0	0.0	0.0	33.7	5.3	0.0	0.0	0.1	0.0	2.3	41.5
	Orakei	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0
	Panmure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	1.0	4.7
	Parnell	0.0	0.9	0.0	0.0	0.0	0.0	0.0	2.4	0.1	0.7	4.0
	Penrose	0.0	0.0	0.0	104.4	7.5	0.0	0.0	0.1	0.0	0.0	112.0
	Point Chevalier	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.4	0.0	0.5	14.9
	Point England	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	3.2
	Remuera	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.1	0.0	2.7
	Royal Oak	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.3	3.3
	Saint Johns	0.0	0.0	0.0	0.0	4.6	0.0	0.0	10.2	0.0	0.0	14.8
	Saint Marys Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	3.3
	Sandringham	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.3	0.5
	Stonefields	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.3
	Three Kings	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.1	0.0	0.4	1.3
	Waterview	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.9
	Wesley	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.5	0.0	1.5	2.3
Urban North	**Albany**	0.4	0.0	0.0	0.0	1.9	0.6	17.2	55.6	0.0	0.0	75.6
	Beach Haven	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
	Belmont	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
	Birkdale	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.5
	Birkenhead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.4
	Browns Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
	Chatswood	0.0	0.0	0.0	0.0	6.1	0.2	0.0	0.0	0.0	0.0	6.2
	Devonport	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
	Forrest Hill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
	Glenfield	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2
	Greenhithe	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.3
	Gulf Harbour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.8
	Hillcrest	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
	Hobsonville	0.0	0.0	0.0	0.0	19.0	3.2	0.0	4.6	0.0	0.0	26.8
	Manly	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2
	Milford	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.1	0.0	0.5	1.4
	Northcote	0.0	0.0	0.4	0.0	0.5	0.0	0.0	3.8	0.0	0.0	4.8
	Northcross	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
	Orewa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.5	1.0
	Pinehill	0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	3.1

	Red Beach	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
	Rosedale	0.0	0.0	3.4	0.0	90.1	0.0	0.0	0.0	0.0	0.0	93.5
	Silverdale	0.0	0.0	38.6	7.4	25.6	0.0	0.0	0.9	0.0	9.8	82.3
	Stanley Point	0.0	0.0	0.0	0.0	7.0	0.0	0.0	4.7	0.0	0.0	11.6
	Stanmore Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	3.2
	Stillwater	0.0	0.0	14.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.8
	Takapuna	9.2	0.0	0.0	0.0	0.0	0.0	1.1	1.1	0.0	0.0	11.4
	Torbay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
	Unsworth Heights	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4
	Wainui	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	3.4
	Wairau Valley	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.2	0.0	0.0	4.3
	Waiwera	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.9
	Whenuapai	0.0	0.0	0.0	0.0	0.8	0.5	0.0	0.0	0.0	0.0	1.4
	Windsor Park	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2
Urban South	**Bucklands Beach**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
	Burswood	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	2.9
	Clendon Park	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	1.8
	Drury	0.0	0.0	0.0	0.0	6.7	0.0	0.0	0.2	0.0	0.0	6.9
	East Tamaki	0.0	0.0	0.0	18.5	76.6	0.0	10.5	0.0	0.0	0.0	105.6
	Favona	0.0	0.0	0.0	25.4	10.9	0.1	0.0	0.0	0.1	0.0	36.5
	Flat Bush	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.4
	Golflands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
	Half Moon Bay	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.2	0.0	1.3	2.5
	Highland Park	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
	Howick	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
	Huntington Park	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	3.2
	Karaka	0.0	0.0	0.0	0.0	15.6	0.0	0.0	0.3	0.0	0.0	15.9
	Mangere	0.0	0.0	0.0	0.0	151.5	0.0	0.0	0.0	0.0	10.4	161.8
	Mangere Bridge	0.0	0.0	0.0	0.0	5.3	0.0	0.0	2.1	0.0	0.0	7.4
	Mangere East	0.0	0.0	0.0	0.0	0.0	0.3	0.0	1.4	0.0	0.0	1.6
	Manukau	0.0	0.0	10.3	6.5	14.1	0.0	21.8	11.8	0.0	0.0	64.6
	Manurewa	0.0	0.0	1.2	0.0	9.6	0.0	0.0	0.6	0.0	2.5	13.9
	Manurewa East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
	Mellons Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
	Mount Wellington	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.8
	Northpark	0.0	0.0	0.0	0.0	0.0	0.0	4.4	2.7	0.0	0.0	7.1
	Otahuhu	0.0	0.0	0.0	0.0	4.6	0.0	0.0	7.0	0.0	0.5	12.1
	Otara	0.0	0.0	0.0	0.0	71.5	0.0	0.0	0.0	0.0	0.1	71.6
	Pakuranga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.5	1.3
	Pakuranga Heights	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.2	0.0	0.9
	Papakura	0.0	0.0	0.0	35.2	3.1	0.0	1.7	0.3	0.0	0.0	40.3
	Papatoetoe	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	2.2	12.2
	Red Hill	0.0	0.0	0.0	5.9	2.7	0.0	0.0	0.0	0.0	0.0	8.7

	Rosehill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3
	Somerville	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	1.2
	Takanini	0.0	0.0	0.0	8.9	46.9	0.0	0.0	0.0	0.0	4.1	59.9
	Wiri	0.0	0.0	0.0	159.8	304.5	0.0	0.0	0.2	0.0	0.0	464.5
Urban West	**Avondale**	0.0	0.0	0.0	14.7	14.1	0.0	0.0	2.5	0.0	0.6	31.9
	Blockhouse Bay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2
	Glen Eden	0.0	0.0	0.0	0.0	6.2	0.0	0.0	0.5	0.0	0.5	7.2
	Glendene	0.0	0.0	0.0	6.9	3.3	0.0	0.0	0.0	0.0	0.0	10.2
	Henderson	0.0	0.0	2.2	11.0	61.0	0.0	9.6	7.1	0.4	0.0	91.2
	Kelston	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.5
	Massey	0.0	0.0	0.0	0.0	0.4	3.7	0.0	1.4	0.0	0.0	5.5
	Mount Albert	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
	New Lynn	0.0	0.0	0.2	0.0	2.0	0.0	1.2	0.0	0.0	0.0	3.4
	Ranui	0.0	0.0	0.0	0.0	10.4	0.2	0.0	0.0	0.0	0.0	10.5
	Sunnyvale	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
	Swanson	0.0	0.0	0.0	0.0	6.9	0.1	0.0	0.0	0.0	0.0	7.0
	Te Atatu Peninsula	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.1	2.3
	Te Atatu South	0.0	0.0	0.0	0.0	5.2	0.2	0.0	0.0	0.0	0.0	5.4
	Titirangi	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	2.5
	Waitakere	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	3.1
	Westgate	0.0	0.0	0.0	0.0	23.0	0.0	6.6	2.0	0.0	0.0	31.6
	Whenuapai	0.0	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	7.1
Grand Total		**15.6**	**64.4**	**89.6**	**460.0**	**1268.9**	**53.8**	**87.0**	**202.1**	**17.3**	**55.0**	**2313.7**

Appendix 7: Constraints categorisation into primary, secondary and tertiary levels

The potential constraints have been categorised into three levels of constraint (primary/secondary/tertiary), taking into account some or all of the following factors:

- the strength of their environmental or cultural sensitivity/vulnerability to development
- the level of risk to life or property associated with them (e.g. natural hazards)
- the strength of policy safeguards precluding development that apply to them, e.g. through National Policy Statements, National Environment Standards and/or Auckland Unitary Plan policies and overlays
- the ability to avoid or reduce negative impacts of development on the constrained area through design and engineering solutions.

Table 12 – Potential constraints to future development categorised into primary, secondary and tertiary levels of constraint.

Topic	Level of constraint	Description and data layer name	Justification for inclusion
Cultural and natural heritage			
Natural heritage	Primary	Outstanding natural features and outstanding natural landscape	AUP D10 Outstanding natural features and outstanding natural landscapes are protected from inappropriate subdivision, use and development. Development is typically non-complying and if enabled must be small scale.
		Outstanding natural character and high natural character	AUP D11 the natural characteristics and qualities of areas with outstanding natural character, or high natural character values are preserved and protected from inappropriate subdivision, use and development. Some development enabled, particularly in areas of high natural character, but should be avoided where practicable.
	Secondary	Waitakere Ranges Heritage area	Nationally, regionally and locally significant heritage areas to be protected, restored and enhanced. Some minor capacity for growth when of an appropriate scale / intensity and is subservient to the natural and rural landscape.
		Notable trees	Identifies notable trees and notable groups of trees for protection. These have been specifically identified to ensure that the benefits they provide are retained for future generations. Removal of notable trees should be avoided.
	Tertiary	Volcanic viewshafts and height	Protects the views of Auckland's volcanic cones. Growth is enabled but height / density are limited.

Topic	Level of constraint	Description and data layer name	Justification for inclusion
		sensitive areas overlay	
		Ridgeline protection	Prominent ridgelines that contribute to scenic character and amenity. Development can occur, but in the appropriate space, size and scale.
Cultural heritage	Primary	Special character area Residential and Business (aligned with changes to qualifying matters)	Urban areas recognised as having collective and cohesive values, importance, relevance and interest to the communities within the locality and wider region. Total / substantial demolition is enabled. However, replacement is typically of the same density and retains contributions to the special character values.
		Historic heritage overlay	Individual features, multiple features and/or properties of historic heritage value. These are categorised into A, A* and B. Category A represents matters of outstanding significance well beyond their immediate environs. Category A* represent an interim category until comprehensive re-evaluation is undertaken. Category B represent places with considerable significance to a locality or greater geographic area. These have all been considered a primary constraint due to the requirement or strong preference for retention (D17 of the AUP).
		Heritage NZ Covenants	Heritage covenants are voluntary agreements under the Heritage New Zealand Pouhere Taonga Act 2014, which are agreed to by a property owner for the purpose of protecting and conserving a historic place, historic area, wahi tapu, or wahi tapu area. A property does not have to be entered on the List with Heritage New Zealand in order to be covenanted, but it must meet the definition of a historic place specified in the Heritage New Zealand Act 2014. A heritage covenant is usually permanently registered against the land title and places conditions on the management and use of the place or wahi tapu. These restrictions will operate to protect the historic place for the future and are legally binding on all subsequent owners. A heritage covenant is therefore a very important mechanism for long term heritage protection. Covenants

Topic	Level of constraint	Description and data layer name	Justification for inclusion
			can be unregistered in certain circumstances and can be for a defined number of years.[24]
	Secondary	N/A	N/A
	Tertiary	N/A	N/A
Mana whenua / Māori values	Primary	Sites of significance for mana whenua (Schedule 12 of the AUP)	AUP Policy B6.3.2 (6) Requires resource management decisions to have particular regard to potential impacts on all of the following: (e) sites and areas with significant spiritual or cultural heritage value to Mana Whenua B6.5.2. Policies: (1) Protect Mana Whenua cultural and historic heritage sites and areas which are of significance to Mana Whenua (4) Protect the places and areas listed in Schedule 12 Sites and Places of Significance to Mana Whenua Schedule from adverse effects of subdivision, use and development
	Secondary	N/A	N/A
	Tertiary	Cultural Heritage Index	AUP overlay
Natural environment			
Freshwater and coastal water ecosystems	Primary	Natural inland wetlands – ecosystem current extent (Singers et al., 2017) and wetland management areas	The NPS-FM directs that there is to be no further loss of natural inland wetlands. Drainage is regulated under the NES-F, with reclamation enabled only in discrete circumstances. Natural wetland data is not comprehensive, but some data is captured in the ecosystem current extent layer and wetland management areas overlay.
		Lakes (Natural Lakes Management Areas overlay and Urban Lakes Management Areas overlay)	The reclamation of lakes, except for specified activities anticipated to occur on the lakes bed or margins, is a non-complying activity (E3 AUP) and should be avoided where practicable.
	Secondary	Streams / Rivers (Natural stream management areas	The loss of rivers is to be avoided to the extent practicable under the NPS-FM. The NES-F enables reclamation of rivers as a

[24] https://www.heritage.org.nz/protecting-heritage/heritage-covenants

Topic	Level of constraint	Description and data layer name	Justification for inclusion
		overlay; permanent and intermittent watercourses)	discretionary activity provided certain criteria are met.
	Tertiary	Stormwater management area – Flow 1 and 2 (SMAF 1 and 2)	SMAF 1 and 2 identifies rivers / streams and their catchments particularly susceptible to the effects of development or with relatively high values. Development can occur but must include hydrological mitigation.
Terrestrial ecosystems	Primary	Significant Ecological Areas (Terrestrial) (SEA-T)	SEA-T represent areas of significant indigenous vegetation or significant habitats of indigenous fauna located on land or in freshwater environments. Development should avoid SEA-Ts under both the AUP (Policies B7.2) and draft National Policy Statement for Indigenous Biodiversity (NPS-IB).
		QEII covenants	QEII covenants are covenants imposed under the Queen Elizabeth National Trust and typically prohibit any future development.
	Secondary	Mapped Singers and Rogers (Singers et al., 2017) Indigenous terrestrial ecosystems outside of SEAs	Auckland Council has mapped a significant portion of indigenous terrestrial ecosystems. Not all of these are scheduled as SEA-T, although many are. Despite this, these areas are important indigenous ecosystems and should be protected from inappropriate use and development. Some may become scheduled under the SEA review process required by the NPS-IB.
	Tertiary	N/A	N/A
Natural hazards			
Coastal erosion	Primary	Areas Susceptible to Coastal Instability and Erosion (ASCIE) 2130 RCP 8.5 H+	AUP E36 ensures that subdivision, use and development on rural land for rural uses and in existing urban areas subject to coastal hazards avoids or mitigates adverse effects resulting from coastal storm inundation, coastal erosion and sea level rise of 1m through location, design and management. The Auckland Council Technical Report 2020/021[25] models sea level rise based on four scenarios representing potential trajectories of greenhouse gas emissions ('Resource Concentration Pathways' or 'RCPs') over time:

[25] Predicting Auckland's Exposure to Coastal Instability and Erosion. Technical Report 2020/021. Auckland Council (December 2020) viewed online: Coastal Erosion Non Tech Summary Report PK1_TH (knowledgeauckland.org.nz)

Topic	Level of constraint	Description and data layer name	Justification for inclusion
			• low to eventual net-zero emissions (RCP 2.6 M) • intermediate-low emissions scenario (RCP 4.5 M) • high emissions scenario (RCP 8.5 M) • higher extreme scenario, with essentially no controls on emission by 2100 (RCP 8.5 H+) Global emissions are currently following the RCP 8.5 scenario, and will result in almost 1.2m sea level rise by 2130. The RCP 8.5 H+ scenario would result in 1.5 m sea level rise by 2130. The Technical Report 2020/021 predicts coastal erosion over three timeframes: • ~30 years (to 2050) • ~50 years (to 2080) • 100+ years (to 2130) The areas susceptible to coastal instability and erosion under four scenarios and timeframes are shown in Auckland Council's GeoMaps, and the predicted new coastline due to coastal erosion and sea level rise at 2130 under the higher extreme emissions scenario is the one being proposed for use in the AUP August 2022 plan change. As coastal erosion results in permanent physical loss of land (and structures on it) within the susceptible area it is considered to be a primary level of constraint for future development.
	Secondary	N/A	The largest predicted coastal erosion area over the longest timeframe is already covered by the primary constraint above, and no other less susceptible area has been identified.
	Tertiary	N/A	As above.
Coastal inundation	Primary	1% annual exceedance probability (AEP) plus 1m sea level rise (SLR) 1% AEP plus 2m SLR	AUP E36 ensures that subdivision, use and development on rural land for rural uses and in existing urban areas subject to coastal hazards avoids or mitigates adverse effects resulting from coastal storm inundation, coastal erosion and sea level rise of 1m through location, design and management. Also requires habitable areas of new buildings and substantial additions, alterations, modifications or extensions to existing buildings located in coastal storm

Topic	Level of constraint	Description and data layer name	Justification for inclusion
			inundation areas to be above the 1 % AEP coastal storm inundation event including an additional sea level rise of 1m. AUP E36 avoids subdivision, use and development in greenfield areas which would result in an increased risk of adverse effects from coastal hazards, taking account of a longer term rise in sea level (which the 'plus 2m SLR' represents). Although urban areas do not currently recognise a 2m SLR in a regulatory sense, this has still been considered a primary constraint for the purpose of the FDS constraint mapping.
	Secondary	N/A	The most precautionary prediction of sea level rise is already covered by the primary constraint above, and no other less susceptible area has been identified at the regional scale.
	Tertiary	N/A	
Flooding	Primary	1% AEP flood plains	AUP E36 ensures all development in the 1% AEP floodplain does not increase adverse effects from flood hazards or increased flood depths and velocities, to other properties upstream or downstream of the site. Flood plain extents have been mapped for the region and show the area expected to be inundated in a 1% AEP event, but do not show the level of hazard/risk associated.
	Secondary	Flood prone areas	Flood Prone Areas are depression areas that have no natural outlet. The extent on GIS data layers for the whole of Auckland Region shows the area water will pond in a 1% AEP event, assuming the outlet to the depression is blocked. Flood prone areas are not considered to be a primary constraint to development as engineering solutions can be used to avoid damage/loss to buildings.
	Tertiary	Flood sensitive areas	Flood sensitive areas have been identified for some catchments (e.g. on the North Shore) adjacent to the 1% AEP floodplain, within 0.5m of the predicted 1% AEP flood level.
Land instability	Primary	N/A	Land instability is not considered to be a major constraint to development as engineering solutions can be used to avoid damage/loss to buildings.
	Secondary	N/A	
	Tertiary	Landslide susceptibility 1997:	AUP E36 requires risk assessment prior to subdivision, use and development of land subject to instability.

Topic	Level of constraint	Description and data layer name	Justification for inclusion
		• High category	Classified as tertiary due to the uncertainty of the dataset and the ability to typically develop effective engineering solutions to land instability issues.
Liquefaction	Primary	N/A	Liquefaction is not considered to be a major constraint to development as engineering solutions can be used to avoid damage/loss to buildings.
	Secondary	N/A	
	Tertiary	Liquefaction Vulnerability Areas (2021): • Level A – Liquefaction Damage is Possible	Liquefaction is the process which causes soil to behave more like a liquid than a solid during an earthquake. To liquefy, the soil must be loose, sandy or silty (clay and gravel tend not to liquefy) and wet (below the water table). Liquefaction usually only happens in susceptible soils in moderate to strong ground shaking. Development in areas with soils susceptible to liquefaction may require additional engineering[26] to reduce the risk of damage to buildings and human safety, such as the addition of fill material across the construction site to increase the "crust thickness" and/or piled foundations to support building structures. Although there are no regulatory controls on this, the potential for adverse effects from liquefaction should be considered as a potential development constraint. Auckland Council has identified Liquefaction Vulnerability Areas (published in Geomaps 2021) based on the MfE/MBIE 2017 guidance[27] which provides a performance-based framework for categorising the liquefaction vulnerability of land to inform planning and consenting processes. Liquefaction assessments are undertaken at a wide range of scales and detail, ranging from a high-level assessment of an entire region down to site-specific analysis for a specific building. This framework uses consistent terminology to

[26] Geotechnical Desk Study North and North-West Auckland Rural Urban Boundary Project. Prepared for Auckland Council by Tonkin & Taylor (August 2013) viewed online: Geotechnical Desk Study North and North-West Auckland Rural Urban Boundary Project (aucklandcouncil.govt.nz)

[27] Planning and engineering guidance for potentially liquefaction-prone land Resource Management Act and Building Act aspects. Ministry for the Environment and Ministry of Business, Innovation and Employment (September 2017)

Topic	Level of constraint	Description and data layer name	Justification for inclusion
			describe the level of detail in a liquefaction assessment. The key feature defining each level of detail is the degree of residual uncertainty in the assessment. The guidance notes that the recommended level of detail in the liquefaction assessment increases as the likelihood, severity and exposure to ground damage increases. The recommended level of detail also increases as the intended purpose becomes more site-specific (e.g. a higher level of detail for subdivision consent than for a regional plan). Auckland Council has carried out a Level A – Basic Desktop Assessment based on existing information (e.g. geological and topographic maps) and local knowledge, as well as a Level B – Calibrated Desktop Assessment, which includes high-level 'calibration' of geological/geomorphic maps. Qualitative (or possibly quantitative) assessment of a small number of subsurface investigations provides a better understanding of liquefaction susceptibility and triggering for the mapped deposits and underlying ground profile. Because of the limited amount of subsurface ground information, significant uncertainty remains regarding the level of liquefaction-related risk, how it varies across each mapped area, and the delineation of boundaries between different areas. Therefore, the results of the Level A Assessment have been used for this purpose. The categories used in Auckland Council's GeoMaps are: • Liquefaction Category is Undetermined • Liquefaction Damage is Unlikely • Liquefaction Damage is Possible • Very Low Liquefaction Vulnerability • Low Liquefaction Vulnerability
Geohazards			
Geology: Peat soils	Primary	N/A	N/A
	Secondary	N/A	N/A
	Tertiary	Peat soils	Developing on peat soils is particularly challenging. Peat soils typically need to be drained, backfilled or engineered for development to occur. This can increase costs and result in increased carbon release.

Topic	Level of constraint	Description and data layer name	Justification for inclusion
Contaminated land	Primary	N/A	N/A
	Secondary	N/A	N/A
	Tertiary	Closed landfills	Closed landfills are historic landfills sites, and may present hazards in terms of land instability, explosive gas and contamination. They are typically located in public open spaces and parks. They are therefore unlikely to be developed. However, private closed landfills do exist and remediation is likely required before development can occur.
Rural			
Highly productive soils	Primary	LUC class 1, 2 and 3 land	The Land Use Capability (LUC) classification system is the main database used in New Zealand to describe the productive capability of land. The LUC assigns land to a class between 1 and 8; class 1 being the most productive and versatile, and class 8 having severe limitations to productive use. Highly productive land is defined in the National Policy Statement on Highly Productive Land (NPS-HPL) as all land classified as LUC 1, 2 or 3. The NPS-HPL recognises that highly productive land is being lost incrementally and cumulatively to urban expansion or fragmented into rural lifestyle blocks, making this land unavailable for food production. The NPS-HPL therefore seeks to provide a clear signal to councils that highly productive land should be considered as a matter of national significance in RMA planning and consenting decisions. The NPS-HPL seeks to provide direction for councils to: • recognise and provide for the full range of values and benefits associated with the use of highly productive land for primary production; • maintain the availability of highly productive land for primary production for future generations; and • protect highly productive land from inappropriate subdivision, use and development.

Topic	Level of constraint	Description and data layer name	Justification for inclusion
			The NPS-HPL states that "at the macro level, providing for urban development on non-highly productive land is far less costly to the overall economy and the environment than allowing for urban development on highly productive land." The NPS-HPL requires local authorities to proactively consider and manage the highly productive land resource within their region or district to ensure that this can be used for primary production now and into the future. In practice, this means that development that leads to the irreversible loss of highly productive land should be avoided where other feasible options exist. However, this does not impose a 'no net loss' requirement, as the government recognises that absolute protection of this land for primary production is not always appropriate. The intent of Policy 3 in the NPS-HPL is to provide clear direction that new urban development should generally avoid highly productive land when other feasible options exist. It will require transparent planning and decision-making based on a clear assessment of costs, benefits and trade-offs. Councils will be required to demonstrate they have thoroughly considered alternative locations and options (i.e. intensification).
	Secondary	N/A	Land classified as LUC 4-6 has moderate limitations for either arable, forestry, cropping or pasture, while land classified as LUC 7 and 8 have severe limitations so there is less need to consider these areas as a constraint to future development as they are not being specifically protected in national policy in terms of their productive capability.
	Tertiary	N/A	As above.

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