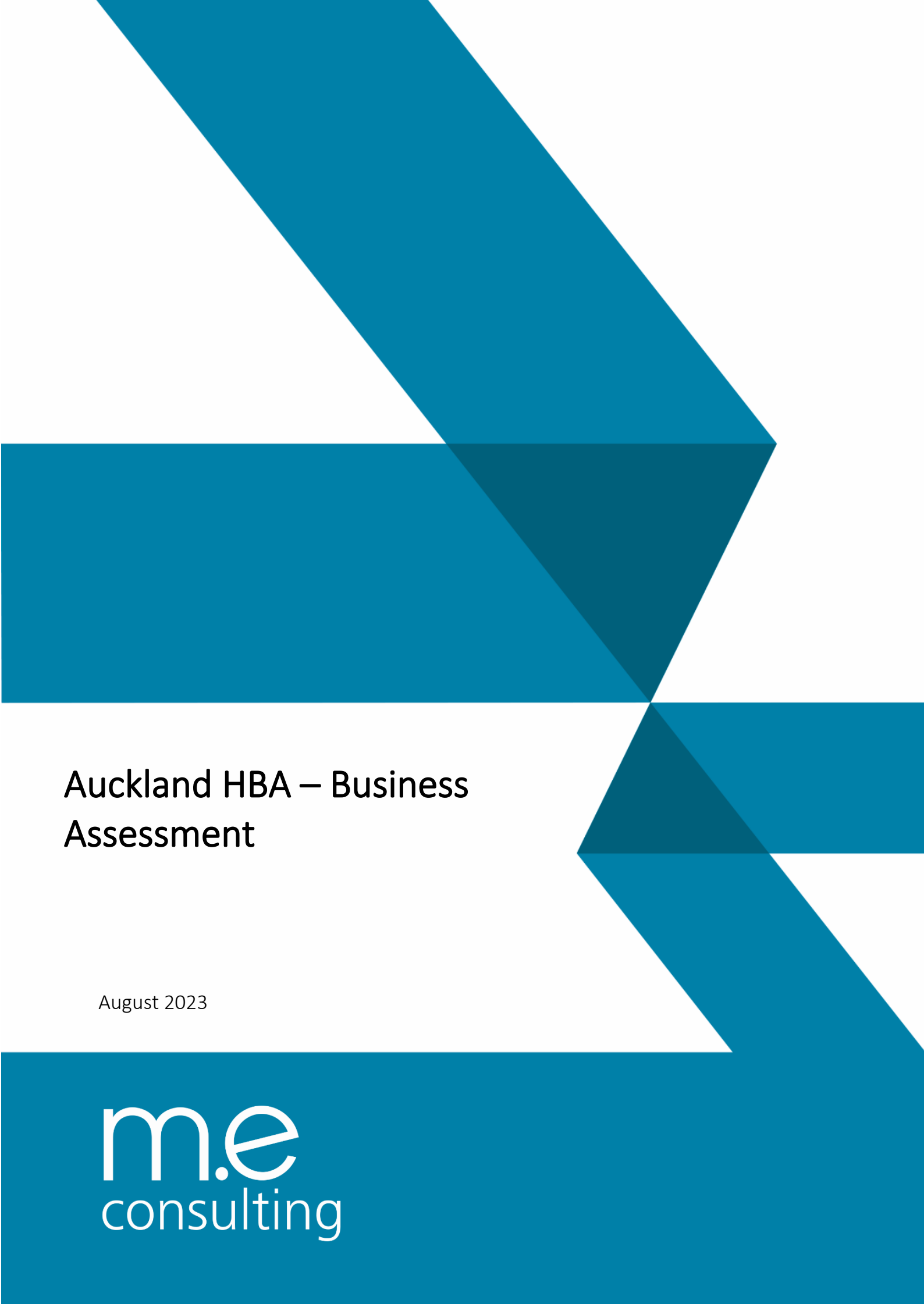


Housing and business development capacity assessment for the Auckland region. National Policy Statement on Urban Development 2020. October 2023

List of appendices

- Appendix 1 Business sufficiency assessment
- Appendix 2 Property developer survey
- Appendix 3 Supply inputs, assumptions, and methodology
- Appendix 4 Workflow for the model for dwelling demand
- Appendix 5 Demand for dwellings based on ACMar23 low and high projection
- Appendix 6 Infrastructure to support development capacity

The background features a complex geometric design composed of overlapping teal and dark teal shapes. A large, light teal arrow-like shape points downwards from the top left. A horizontal teal bar crosses the middle of the page. Another teal shape points upwards from the bottom right. The overall effect is a modern, layered composition.

Auckland HBA – Business Assessment

August 2023

m.e
consulting



Prepared for

Auckland Council

Document reference:

Date of this version: 14/8/23; final review 29/9/23.

Report author(s): Douglas Fairgray

Director approval: Douglas Fairgray

www.me.co.nz

Disclaimer: Although every effort has been made to ensure accuracy and reliability of the information contained in this report, neither Market Economics Limited nor any of its employees shall be held liable for the information, opinions and forecasts expressed in this report.

Contents

EXECUTIVE SUMMARY	1
1 INTRODUCTION	4
1.1 OBJECTIVE	4
1.2 APPROACH	5
1.3 HBA REQUIREMENTS	6
2 METHODOLOGY	8
2.1 OVERVIEW.....	8
2.2 MODEL APPROACH	8
2.3 AUCKLAND ECONOMY ASSESSMENT	9
2.4 SPATIAL ECONOMY.....	15
2.5 CAPACITY FOR GROWTH.....	25
2.6 PROJECTING FUTURE GROWTH.....	29
3 AUCKLAND'S EMPLOYMENT GROWTH.....	46
3.1 THE AUCKLAND ECONOMY AT 2022	46
3.2 CHANGES ACROSS THE AUCKLAND SPATIAL ECONOMY 2001-2022	52
4 BUSINESS DEMAND OUTLOOK TO 2052.....	58
4.1 POPULATION GROWTH AND CHANGE.....	58
4.2 EMPLOYMENT GROWTH FUTURES.....	64
4.3 GROWTH OUTLOOK BY SECTOR	69
4.4 GROWTH OUTLOOK BY LOCATION: LOCAL BOARD AREA.....	70
4.5 EMPLOYMENT OUTCOMES FOR THE SPATIAL ECONOMY.....	72
4.6 MAJOR CENTRES	79
4.7 IMPLICATIONS	85
4.8 NPSUD REQUIREMENTS.....	86
5 CAPACITY FOR GROWTH.....	87

5.1	CONTEXT.....	87
5.2	APPROACH TO ASSESSING POTENTIAL CAPACITY.....	88
5.3	BUSINESS ZONED AREA.....	92
5.4	CURRENT EXISTING FLOORSPACE.....	97
5.5	VACANT AND VACANT POTENTIAL BUSINESS-ZONED LAND.....	98
5.6	NEW BUILDING CONSENT PATTERNS.....	100
5.7	CURRENT FLOORSPACE UTILISATION.....	106
5.8	SUITABILITY.....	106
5.9	PLAN-ENABLED CAPACITY.....	109
5.10	OVERALL SUFFICIENCY ASSESSMENT.....	115
5.11	CENTRES AND BUSINESS AREAS' SUFFICIENCY - MEDIUM FUTURE.....	119
5.12	CENTRES AND BUSINESS AREAS SUFFICIENCY – HIGH FUTURE.....	126
5.13	SUFFICIENCY FOR INDIVIDUAL CENTRES AND BUSINESS AREAS.....	132
5.14	OVERALL ASSESSMENT.....	136
6	CONCLUSIONS AND KEY FINDINGS.....	137
6.1	SUMMARY.....	137
6.2	KEY FINDINGS.....	137
6.3	ISSUES.....	138
7	ATTACHMENT - LIGHT INDUSTRY ZONE.....	139
7.1	TOTAL EMPLOYMENT IN LIGHT INDUSTRY ZONE.....	139
7.2	LIGHT INDUSTRY TRENDS BY LOCATION.....	140
	APPENDICES.....	143
	HBA REQUIREMENTS.....	143
	BUSINESS GROWTH DIAGNOSTICS.....	145

Tables

TABLE 2-1: AUCKLAND ECONOMY – SECTORS AND ‘MEGA-SECTORS’ 2022.....	12
TABLE 2-2: AUCKLAND ECONOMY - MAJOR NODES AND TOTAL STRUCTURE 2022.....	19
TABLE 3-1 : AUCKLAND REGION ECONOMY STRUCTURE 2022	46
TABLE 3-2: AUCKLAND EMPLOYMENT CHANGE BY SECTOR 2001-2022	47
TABLE 3-3 : AUCKLAND WITHIN THE NEW ZEALAND ECONOMY 2022	48
TABLE 3-4 : AUCKLAND BUSINESS UNIT GROWTH 2002-2022	54
TABLE 3-5 : AUCKLAND EMPLOYMENT GROWTH 2002-2022	55
TABLE 4-1: AUCKLAND POPULATION TRENDS 2018-2022.....	59
TABLE 4-2 : AUCKLAND REGION POPULATION PROJECTIONS 2018-2053 (SNZ)	62
TABLE 4-3 : AUCKLAND REGION HOUSEHOLD PROJECTIONS 2018-2053 (SNZ AND ME)	63
TABLE 4-4: AUCKLAND REGION EMPLOYMENT PROJECTIONS 2018-2053 (SNZ AND ME).....	65
TABLE 4-5: PROJECTED MEC EMPLOYMENT GROWTH AUCKLAND 2022-2052	66
TABLE 4-6: PROJECTED EMPLOYEE COUNT (EC) GROWTH AUCKLAND 2022-2052	67
TABLE 4-7: PROJECTED BUSINESS UNIT GROWTH AUCKLAND 2022-2052.....	68
TABLE 4-8: AUCKLAND EMPLOYMENT OUTLOOK BY SECTOR – MEDIUM GROWTH TO 2052.....	69
TABLE 4-9: AUCKLAND EMPLOYMENT OUTLOOK BY SECTOR – HIGH GROWTH TO 2052.....	69
TABLE 4-10: AUCKLAND EMPLOYMENT OUTLOOK BY SECTOR – LOW TO 2052.....	70
TABLE 4-11: AUCKLAND EMPLOYMENT OUTLOOK BY LBA – MEDIUM FUTURE 2010-2052.....	71
TABLE 4-12: AUCKLAND EMPLOYMENT OUTLOOK BY LBA – HIGH FUTURE 2010-2052.....	71
TABLE 4-13 : AUCKLAND EMPLOYMENT OUTLOOK BY LBA – LOW FUTURE 2010-2052.....	72
TABLE 4-14: AUCKLAND EMPLOYMENT OUTLOOK IN THE SPATIAL ECONOMY – MEDIUM FUTURE 2022-2052	74
TABLE 4-15 : AUCKLAND EMPLOYMENT OUTLOOK IN SPATIAL ECONOMY – HIGH FUTURE 2022-2052	76
TABLE 4-16: AUCKLAND EMPLOYMENT OUTLOOK IN SPATIAL ECONOMY – LOW FUTURE 2022-2052.....	77
TABLE 4-17: AUCKLAND EMPLOYMENT OUTLOOK IN SPATIAL ECONOMY – VERY HIGH FUTURE 2022-2052	78

TABLE 4-18: AUCKLAND EMPLOYMENT OUTLOOK IN SPATIAL ECONOMY – VERY LOW FUTURE 2022-2052	78
TABLE 4-19: AUCKLAND EMPLOYMENT OUTLOOK IN MAJOR CENTRES – MEDIUM FUTURE 2022-2052.....	79
TABLE 4-20: AUCKLAND EMPLOYMENT OUTLOOK IN MAJOR CENTRES – HIGH FUTURE 2022-2052.....	80
TABLE 4-21: AUCKLAND EMPLOYMENT OUTLOOK IN MAJOR CENTRES – LOW FUTURE 2022-2052	81
TABLE 4-22: AUCKLAND EMPLOYMENT OUTLOOK IN MAJOR CENTRES – VERY HIGH FUTURE 2022-2052	82
TABLE 4-23: AUCKLAND EMPLOYMENT OUTLOOK IN MAJOR CENTRES – VERY LOW FUTURE 2022-2052.....	83
TABLE 5-1: AUPOIP ZONED AREAS BY CENTRE AND BUSINESS AREA.....	94
TABLE 5-2 : BUSINESS ACTIVITY BY SECTOR ACROSS THE AUCKLAND SPATIAL ECONOMY (MECs) 2022	95
TABLE 5-3: ZONED AREAS BY LOCAL BOARD AREA (2022)	96
TABLE 5-4: SECTOR INCIDENCE BY BUSINESS ZONED AREA 2022	97
TABLE 5-5: ESTIMATED EXISTING FLOORSPACE 2022 (000M ²)	98
TABLE 5-6: ESTIMATED VACANT CAPACITY (HA) 2022.....	99
TABLE 5-7: ESTIMATED VACANT POTENTIAL CAPACITY (HA) 2022	99
TABLE 5-8: FLOORSPACE CONSENTED 2002-2021 – OFFICE AND ADMIN	101
TABLE 5-9: VALUE OF FLOORSPACE CONSENTED 2002-2021 – OFFICE AND ADMIN (\$000).....	102
TABLE 5-10: FLOORSPACE CONSENTED 2002-2021 – OTHER SHOPS AND RETAIL (M ²).....	102
TABLE 5-11: VALUE OF FLOORSPACE CONSENTED 2002-2021 – OTHER SHOPS AND RETAIL (\$000)	103
TABLE 5-12: FLOORSPACE CONSENTED 2002-2021 – STORAGE BUILDINGS (M ²).....	103
TABLE 5-13: VALUE OF FLOORSPACE CONSENTED 2002-2021 – STORAGE BUILDINGS (\$000).....	104
TABLE 5-14: FLOORSPACE CONSENTED 2002-2021 – FACTORY AND INDUSTRIAL (M ²)	105
TABLE 5-15: VALUE OF FLOORSPACE CONSENTED 2002-2021 – FACTORY AND INDUSTRIAL (\$000)	105
TABLE 5-16: ESTIMATED FLOORSPACE UTILISATION 2022 (MEAN M ² PER MEC)	106
TABLE 5-17 : INCIDENCE OF SECTORS IN CENTRES AND BUSINESS LOCATIONS 2022 (MANUFACTURING-TRANSPORT)	108
TABLE 5-18 : INCIDENCE OF SECTORS IN CENTRES AND BUSINESS LOCATIONS 2022 (INFORMATION-OTHER).....	109
TABLE 5-19 : ESTIMATED PLAN-ENABLED FLOORSPACE CAPACITY BY AREA TYPE 2022 (GFA 000M ²)	111

TABLE 5-20 : ESTIMATED PLAN-ENABLED GROUND & FIRST-FLOOR CAPACITY (GFA 000M ²)	111
TABLE 5-21: ESTIMATED PLAN-ENABLED FLOORSPACE CAPACITY BY LOCAL BOARD AREA 2022 (GFA 000M ²)...	112
TABLE 5-22 : ESTIMATED PLAN-ENABLED EMPLOYMENT CAPACITY (000 MEC) (HIGH FLOORSPACE PER MEC)..	113
TABLE 5-23 : ESTIMATED PLAN-ENABLED EMPLOYMENT CAPACITY 000 MEC - GROUND AND 1ST FLOOR	114
TABLE 5-24: ESTIMATED PLAN-ENABLED EMPLOYMENT CAPACITY BY LBA 000 MEC – GROUND AND 1ST FLOOR	114
TABLE 5-25: SUFFICIENCY ASSESSMENT 2022-2025 – MEDIUM FUTURE.....	121
TABLE 5-26: SUFFICIENCY ASSESSMENT 2022-2032 – MEDIUM FUTURE.....	122
TABLE 5-27: SUFFICIENCY ASSESSMENT 2022-2052 – MEDIUM FUTURE.....	124
TABLE 5-28: SUFFICIENCY ASSESSMENT 2022-2025 – HIGH FUTURE.....	127
TABLE 5-29: SUFFICIENCY ASSESSMENT 2022-2032 – HIGH FUTURE.....	128
TABLE 5-30: SUFFICIENCY ASSESSMENT 2022-2052 – HIGH FUTURE.....	130
TABLE 5-31 : SUFFICIENCY ASSESSMENT – KEY CENTRES AND BUSINESS AREAS 2022-2052 – MEDIUM FUTURE	134
TABLE 5-32 : SUFFICIENCY ASSESSMENT – KEY CENTRES & BUSINESS AREAS 2022-52 – HIGH GROWTH FUTURE	135
TABLE 7-1: EMPLOYMENT GROWTH BY ZONE 2002-2022	139
TABLE 7-2: EMPLOYMENT CHANGE IN LI ZONE 2002 TO 2022 BY LBA.....	140
TABLE 7-3: EMPLOYMENT BY SECTOR IN LIGHT INDUSTRY ZONE 2022 (TOP 40 SECTORS).....	142

Figures

FIGURE 2-1 : SPATIAL CORRELATION AMONG AUCKLAND SECTORS 2022 – EMPLOYMENT.....	13
FIGURE 2-2 : SPATIAL CORRELATION AMONG SECTORS 2022 – GEOGRAPHIC UNITS	14
FIGURE 2-3 : AUCKLAND ECONOMY - CENTRES AND BUSINESS AREAS 2022	20
FIGURE 2-4 : AUCKLAND CENTRES AND BUSINESS AREAS ‘FOOTPRINT’ 2022	21
FIGURE 2-5 : AUCKLAND CENTRES AND BUSINESS AREAS ‘FOOTPRINT’ - ISTHMUS AND FRINGES 2022	22
FIGURE 2-6 : AUCKLAND SUB-REGIONAL AREAS (FROM PC78 S32 REPORT).....	23
FIGURE 2-7 : AUCKLAND ECONOMY GROWTH MODEL STRUCTURE.....	30

FIGURE 2-8 : SPATIAL CONCENTRATION BY 'MEGA-SECTOR' 2022	34
FIGURE 2-9 : MODELLED GROWTH FACTORS	44
FIGURE 3-1 : GDP TRENDS AUCKLAND 2002-2022	49
FIGURE 3-2 : GDP TRENDS AUCKLAND 2012-2022	49
FIGURE 3-3 : GDP NEW ZEALAND AND AUCKLAND 2000-2021	50
FIGURE 3-4 : GDP PER CAPITA (REAL) NEW ZEALAND AND AUCKLAND 2000-2021	50
FIGURE 3-5 : EMPLOYMENT AUCKLAND 2002-2022	51
FIGURE 3-6 : EMPLOYMENT AUCKLAND 2012-2022	52
FIGURE 3-7 : RELATIVE EMPLOYMENT SHIFT MAIN CENTRES 2001-2022	56
FIGURE 3-8 : RELATIVE EMPLOYMENT SHIFT MAIN CENTRES 2010-2022	57
FIGURE 4-1 : AUCKLAND POPULATION – DIFFERENCE FROM PROJECTED 2018-2022	59
FIGURE 4-2 : POPULATION TRENDS AUCKLAND 2001-2052 - SNZ MARCH 2021 & DECEMBER 2022 SERIES	60
FIGURE 4-3 : AUCKLAND POPULATION PROJECTIONS 2018 - 2053	62
FIGURE 4-4 : AUCKLAND REGION HOUSEHOLD PROJECTIONS 2018-2053	64
FIGURE 4-5 : PROJECTED EMPLOYMENT GROWTH AUCKLAND 2001-2053	65
FIGURE 4-6 : PATTERNS OF GROWTH – MEDIUM FUTURE 2022-2052	75
FIGURE 4-7 : MAJOR CENTRES & BUSINESS AREAS – MEDIUM FUTURE 2022-2052	84
FIGURE 4-8 : MAJOR CENTRES & BUSINESS AREAS – HIGH FUTURE 2022-2052	84
FIGURE 4-9 : MAJOR CENTRES & BUSINESS AREAS – LOW FUTURE 2022-2052	84
FIGURE 4-10 : MAJOR CENTRES & BUSINESS AREAS – VERY HIGH FUTURE 2022-2052	85
FIGURE 4-11 : MAJOR CENTRES & BUSINESS AREAS – VERY LOW FUTURE 2022-2052	85
FIGURE 5-1 : NON-RESIDENTIAL FLOORSPACE CONSENTS 1995-2021	101
FIGURE 5-2 : INDICATED REDEVELOPMENT % REQUIRED FOR SUFFICIENCY – MEDIUM FUTURE	125
FIGURE 5-3 : INDICATED REDEVELOPMENT REQUIRED FOR SUFFICIENCY – HIGH FUTURE	131
FIGURE A-1 : TOP 50 CENTRES AND BUSINESS AREAS WITH HIGHEST % GROWTH OUTCOMES (MEDIUM)	145
FIGURE A-2 : TOP 50 CENTRES AND BUSINESS AREAS WITH HIGHEST N GROWTH OUTCOMES (MEDIUM)	146

FIGURE A-3 : TOP 50 CENTRES AND BUSINESS AREAS WITH HIGHEST % GROWTH OUTCOMES (HIGH)	147
FIGURE A-4 : TOP 50 CENTRES AND BUSINESS AREAS WITH HIGHEST N GROWTH OUTCOMES (HIGH)	148
FIGURE A-5 : TOP 50 CENTRES AND BUSINESS AREAS WITH HIGHEST % GROWTH OUTCOMES (LOW)	149
FIGURE A-6 : TOP 50 CENTRES AND BUSINESS AREAS WITH HIGHEST N GROWTH OUTCOMES (LOW)	150

Executive Summary

Objective

This is a Business Capacity Assessment for Auckland, to meet the HBA requirements in the NPSUD (2020).

It examines the future outlook for the Auckland economy into the long term, and assesses the sufficiency of capacity for future growth. This research has been undertaken to meet the requirements in the NPSUD (2020) to prepare an HBA report for the Business sector.

NPSUD 2020

The NPSUD requires detailed assessment of demand and potential supply of land and floorspace to accommodate business activity. It has particular focus on establishing that there is sufficient capacity for growth, as shown in Clause 3.30

3.30 Assessment of sufficient development capacity for business land

- 1) *Every HBA must clearly identify, for the short term, medium term, and long term, whether there is sufficient development capacity to meet demand for business land in the region and each constituent district of the tier 1 or tier 2 urban environment.*
- 2) *The requirements of subclause (1) must be based on a comparison of:*
 - a. *the demand for business land referred to in clause 3.28 plus the appropriate competitiveness margin; and*
 - b. *the development capacity identified under clause 3.29.*
- 3) *If there is any insufficiency, the HBA must identify where and when this will occur and analyse the extent to which RMA planning documents, a lack of development infrastructure, or both, cause or contribute to the insufficiency.*

Future Demand

The study has examined the current structure of Auckland's economy in terms of employment and numbers of business units, and the geography of that activity across the network of more than 770 centres and business areas. It has considered in detail the likely growth in the Auckland economy, and the consequences for future employment and business units. The study has examined projected demand in relation to the potential supply of business land and plan-enabled capacity for business activity into the long-term.

It takes account of the likely and potential patterns of growth, considering the past trends observed since 2001, and with regard to the key drivers of the spatial growth patterns. This is based on substantial analysis of Auckland's economy and the drivers of growth and growth patterns within the region, especially over the last two decades.

The research has considered the potential for different growth and land use outcomes in Auckland, recognising the prospect of major changes to the residential environment through the HSAA and NPSUD which may significantly alter Auckland's future housing and population growth patterns, with consequences for the patterns of business activity.

A range of future outcomes are examined, from Very High and High growth to Low and Very Low growth, as well as a Medium growth future.

Potential Supply and Capacity

The research has examined in detail the potential supply of business land and plan-enabled floorspace to accommodate the expected growth, including the likelihood and potential for further development at the region level and at the local level.

Auckland Economy Growth Model

An important aspect of the work has been the application of a systematic approach to model and examine different outcomes at a refined geographic level, using the Auckland Economy Growth Model. This tool allows examination of a range of different growth futures, and growth patterns across the Auckland economy. It provides estimates of future growth in employment and business activity for all types of centre and business areas across Auckland. This enables specific analysis of important centres and business areas, and their roles in the current and future economy.

The Model also draws together extensive information on Auckland's capacity for growth, including zoned areas, vacant land, current floorspace and built development, and the plan-enabled potential capacity under the AUPOIP.

This provides a strong capability to examine Auckland's **sufficiency of capacity** for growth, at the local level and at the higher level within the region. That capability is a core aspect of meeting the requirements of the NPSUD to establish the sufficiency of capacity, including for important locations within the region.

Key Findings

The key findings include:

- Auckland can expect substantial growth in its economy into the short, medium and long terms. It is unlikely that Auckland's role in the national economy would be significantly diminished going forward, even in a post-Covid environment. Scenarios of low and very low growth have been tested, and suggest that a substantial slowing of Auckland's momentum would arise only if the whole New Zealand's economy slowed significantly.
- Auckland's future growth path can be expected to reflect the established geography and functioning of the centres and business areas across the city. The provision for much of Auckland's population growth to be accommodated by intensification of housing capacity around the established centres will reinforce that established geography. This also means that most of the increase in economic activity will need to be accommodated in the established network of centres and business areas, with the efficient functioning of these locations supported by appropriate transport and other infrastructure.
- Auckland has substantial capacity to accommodate the projected increases in business activity and associated employment. The plan-enabled capacity for built floorspace is substantial, with considerable potential to intensify business zoned land. The substantial capacity, and the expected focus of growth mainly on the established spatial economy, suggest that Auckland in 2052 is likely to be Auckland 2022++, rather than a city with substantially different urban form and growth outcomes.

Sufficiency of Capacity

The assessment shows that the Auckland economy overall has sufficient capacity for growth. This applies not just at the regional level, but also for the large majority of centres and business areas throughout Auckland, which will be well able to accommodate future business growth.

This meets a key requirement of the HBA. Auckland has substantial capacity for business activity across a very large number of locations, including locations where there is ongoing growth.

This is not just total growth. At the high level, and the local level, Auckland's plan-enabled capacity largely meets the requirements of sufficiency and suitability for all of the sectors in the Auckland economy. Importantly, most of the capacity for growth is well-located in terms of the established and working structure of the economy. That provides for potential in the important hubs of activity, especially the CBD and major centres, and the large industrial employment hubs. It also provides for capacity in areas which are expected to see considerable household and population growth going forward.

Caveats

This does not mean that all locations have sufficient capacity, or that there will not be pressures in terms of feasible development occurring which can cater for employment demand. Nor does it suggest that everything will simply roll into place in the future – the current evolution of a strong centres-based economy with major business areas is a result of considerable effort to have Plan provisions which seek to be well oriented to the needs of the business sectors. It does suggest that the current planning environment provides an appropriate foundation. It is apparent that some locations will not individually meet the sufficiency requirement, including for a number of minor centres and business areas.

At the high level, though, the conclusion is that Auckland does have sufficient capacity to provide for growth into the long term, in locations which are suitable for the needs of individual sectors and for the economy as a whole. The ongoing performance of the Auckland economy, including the steady path of property redevelopment and addition of business floorspace, indicates that the underlying economic processes are well established to take up the potential capacity as demand arises.

Challenges

That does not mean accommodating the region's employment and business activity will not just arise smoothly and easily. Like any large city, Auckland faces a number of challenges.

Intensification of land use typically generates substantial increases in land and property values, which will affect the competition for land between the housing and business sectors, and within the business sector. Globally, there is evidence that lower intensity of land use by activities in light industry and general business areas sees them less able to compete for land with sectors which can generate higher returns, including housing. That may see such business activities displaced into locations further from central areas, with employment potential accordingly more dispersed.

Another issue is that major economies face demand for a relatively small number of large footprint activities, both large single industries and groupings of similar activities on smaller sites. This shows the importance of scale in providing for business growth, to offer large enough footprints, and large enough areas to offer some insulation from competing uses. These matters emphasise the importance of good planning for Light Industrial land, to ensure adequate capacity, especially in the areas of Future Urban zone.

A related issue is the potential for Auckland's housing growth to become relatively more dispersed rather than be focused around centres and business locations, as sought in the AUPOIP and the NPSUD. This may arise from the MDRS provisions which will make it easier to develop at small scale throughout residential zones, rather than medium and high rise housing developed through medium- and larger-scale developments.

Final

That said, at the high level, this research shows that the Auckland economy overall, and the large majority of centres and business areas within it, offers sufficient opportunity and capacity for growth. This indicates that Auckland's provision for growth meets the core requirements of the NPSUD.

1 Introduction

1.1 Objective

The project objective is to undertake a Business Assessment for Auckland, to meet the HBA requirements in the NPSUD (2020), as set out in the Appendix.

The purpose of an HBA is to provide information on the demand and supply of business land in the urban environment, and on the impact of planning and infrastructure decisions of Auckland Council on that demand and supply. The HBA is to inform Council's RMA planning documents, Future Development Strategy (FDS), and long-term plans, with a particular focus on establishing that development capacity is sufficient to meet expected demand for business land in the short term, medium term, and long term¹.

To meet these requirements, this study examines the likely growth in the Auckland economy with regard to Auckland's population outlook, in terms of demands from employment and business units by sector, and the potential supply of business land and capacity given current planning settings, in the short, medium and into the long-term future (2052).

Specific objectives identified in the study Brief are:

- i. Assessment of likely growth in the Auckland economy, based on employment and numbers of business units in each major sector of the economy. This is to understand the consequent demand for business land and development capacity over the NPSUD short (3 years), medium (10 years) and long term futures (30 years).
- ii. Assessment of the expected patterns of growth and change, in terms of how additional business activity is likely to be distributed across Auckland's spatial economy, and its key elements – the CBD and centres, business zones, key nodes and the wider economy, including home-based employment.
- iii. Assessment and understanding of the potential supply of business land to accommodate the expected growth. This is to take into account zoned areas and intended zonings, vacant and vacant potential land, as well as the wider potential to intensify land use, especially where land is able to accommodate additional economic activity through new or rebuilt development or use intensity, including by increasing coverage, height, and bulk of built improvements.
- iv. Take account of potential different economic growth and land use outcomes. This includes a recognition that the major changes to the enabled residential development environment through the HSAA and NPSUD have the potential to significantly alter Auckland's future housing and population growth patterns, which would have consequent effects on the patterns of business activity, especially those oriented to serving the household sector.

These objectives are designed to meet the requirements of the NPSUD (2020), including (in summary) to examine in the short, medium and long term, the demand from each business sector for additional business land in the region, expressed in hectares or floor areas, including for commercial, retail, or industrial uses,

¹ [National policy statement on urban development | Ministry for the Environment.](#)

and applying a range of projections of demand, identifying which of the projections is the most likely, and setting out the assumptions and the reason for selecting the most likely.

The NPSUD also requires consideration of the nature and potential effects of uncertainty, and identification of development capacity (in terms of hectares or floor areas) to meet expected demand for business land for each business sector, allowing for an appropriate competitiveness margin, and identifying the development capacity that is: plan-enabled, plan-enabled and infrastructure-ready; and plan-enabled, infrastructure-ready, and suitable for each business sector, in terms of location and site size.

This is to show whether there is sufficient development capacity to meet demand for business land in the region based on a comparison of demand for business land (including competitiveness margin) and development capacity identified. Any insufficiency is to be identified as to where and when this will occur and consider the extent to which RMA planning documents, a lack of development infrastructure, or both, cause or contribute to the insufficiency.

1.2 Approach

The research follows an established approach, to take account of the nature and structure of the Auckland economy, its role within the New Zealand economy, and the spatial organisation of business activity across Auckland.

While Auckland has dominated New Zealand's economic growth in total over recent decades, and the regional economy reflects its role within the national structure, its major entrepot functions, and its place as the largest urban economy and populated area. The economy shows a relatively limited role of land-based rural activities with Auckland's primary sector, with primary production accounting for a much smaller share of the Auckland regional economy than seen elsewhere in New Zealand. As a consequence, Auckland's large economy is not simply a large *pro rata* share of the national economy.

The framework for assessment is top-down, using Auckland's established urban geography. The city's strong post-settler development over the last 140+ years has seen incremental outward growth from the initially settled City Centre and port, as well as the coalescence of early established inner areas (e.g. Parnell, Onehunga, Henderson) and eventually more outlying towns such as Papakura and Orewa to become part of the broader urban mass. This outward expansion has been complemented by ongoing intensification and redevelopment of the previously urbanised areas, as the growing economy has made feasible the intensification of land use and regeneration of developed land. Such growth is consistent with the economic drivers of cities as central places, and the continuing trade-offs between the attractions of locations near the centre, and its higher value of space due to this proximity and demand, and the need for space where it is affordable to live or do business, and its resulting higher travel costs.

The pattern and urban form of Auckland is strongly established, with the City Centre (or CBD) being the geographic centre and functional focus of the economy, and both of these factors are unlikely to change significantly into the long term. The spatial structure of the economy is reinforced by land zoning, with the AUP's suite of business zones supporting the different roles and types of centre in the hierarchy (from City Centre to Neighbourhood Centre zones), and different types of business area, from generalised Light Industry and Heavy Industry zones through to more specific Business Park and General Business zones, and the Mixed Use zone which accommodates both business and residential activity.

While there is nothing unusual about the growth pattern itself, the underlying drivers and resulting urban form given the physical geography and the nature of the economy, it is nonetheless important to

understand those core economic drivers because they will continue to have critical influence on Auckland’s future growth, and consequent land demands.

1.3 HBA Requirements

The NPSUD identifies broad requirements for the Business HBA, in terms of the estimated demand and supply of business land, and sufficiency of capacity. Demand estimates are required for each business sector for additional business land in the region and each part of the region, expressed in hectares or floor areas. This includes differentiation between land zoned for commercial, retail, or industrial uses. The assessment is also required to consider a range of future outcomes, and the likelihood of different outcomes (3.28).

In assessing business land development capacity (3.29), the HBA requirement is to assess expected demand for land, with an appropriate competitiveness margin, for each sector. It also requires differentiation of land that is 1. plan-enabled, 2. plan-enabled and infrastructure-ready, and 3. plan-enabled, infrastructure-ready, and suitable for each business sector. Suitability must be assessed at least by location and site size.

The HBA must identify (3.30) whether there is sufficient development capacity to meet demand for business land in the region, based on a comparison of the assessed demand for business land and the development capacity. If there is an insufficiency, the HBA is required to identify where and when this will occur. It is also required to “... analyse the extent to which RMA planning documents, a lack of development infrastructure, or both, cause or contribute to the insufficiency.”

Auckland is a large urban economy, with business activity well established in several hundred locations of different types and sizes, and varying suitability for different activities. Business activity encompasses many sectors, and multiple industries (the ANZSIC definitions identify more than 480 industries) each with their own characteristics and requirements. As economies develop and grow over time, the land in business use – and in other uses - tends to get utilised more intensively, especially through the addition of built capacity as floorspace for business use.

This means that much of the additional capacity for business activity arises from further intensification of existing business land, rather than from only additional business land *per se*. Auckland has 9,044ha of land which is zoned and plan-enabled for business activity, which includes an estimated 3,664 ha which is either fully vacant (1,426 ha) or is relatively underdeveloped (termed ‘vacant potential’, 2,238 ha is identified as partly developed but with space for further development). There are 10 Unitary Plan business zones which provide for the varying roles of centres, business areas, and special nodes of activity such as hospitals, whose activities are driven by demand arising from households and other businesses across the region and locally, as well as for exports overseas and domestically (other regions). These 10 Business zones enable a range of business activities which may be broadly defined as commercial, retail or industrial, so there is not a one-to-one match of zones with the broader categories of the NPSUD. This is addressed in Section 5.3

At the higher level, a core objective of the NPSUD is for a “*well-functioning urban environment*” (Objective 1), an outcome which will be directly affected by not just the quantum of capacity for business activity, but more especially by the distribution of that capacity for different activities across the urban economy. A major aspect of the well-functioning urban environment is the relative efficiency of interactions within the economy, including business to business, and household travel to work and education, and to access goods and services. The NPSUD has a strong focus on the sufficiency of capacity for economic activity, by both businesses and households. The capacity to accommodate growth in locations sought by businesses and

households is a key part of enabling growth in the economy, which directly and indirectly affects the well-functioning urban environment (WFUE). That said, sufficient capacity is a “*necessary but not sufficient condition*” for a well-functioning urban environment, and wider matters relate especially to the roles of centres and business areas, their contribution to efficient functioning of the urban economy, and the importance of an urban spatial structure where economic activity can locate and interact in a relatively efficient manner.

Also in parallel, the proposed response to the amended RMA² is expected to have substantial ongoing influence on the distribution of housing capacity, and therefore on the distribution of household based demand for business goods and services, as well as the distribution of the workforce (and therefore journey to work patterns).

Where and when development capacity is provided for within the Auckland region – including through the live-zoning for business of land in the future urban zone – is a core consideration. Accordingly, it is important to consider the demand and sufficiency of business land at a more refined level than just the regional total.

Those considerations have guided the approach of this HBA, to consider business demand and supply at a refined geographic level, which builds on the spatial structure of the established Auckland economy – the centres, business areas and special nodes where demand is already expressed, and where zoned capacity is already provided for, in the centres, business areas and special nodes. This spatial structure also reflects where much of the additional demand for business capacity will manifest as the Auckland economy grows through both intensification of existing urban land, and provision for future urban land.

This means that the HBA reporting can address the summary information specified in the HBA provisions, while also offering detail within Auckland.

The HBA for a Tier 1 urban environment is required to set out a range of projections of demand for business land by business sector, identify which projections is the most likely in the short, medium and long term; and set out the key assumptions underpinning the different projections and their rationale. If assumptions involve a high level of uncertainty, the HBA must point out the nature and potential effects of that uncertainty.

Finally, under clause 3.30, the HBA must identify whether there is sufficient development capacity to meet demand for business land in the region by comparing estimated demand with development capacity. If there is any insufficiency, the HBA (3.30(c)) must identify where and when this is likely to occur and analyse the extent to which RMA planning documents, a lack of development infrastructure, or both, cause or contribute to the insufficiency.

² Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021

2 Methodology

This section sets out the methodology applied to assess demand and potential capacity. The demand estimates include the economic and geographical basis for assessment, the information sources drawn on, the methods used to analyse the Auckland economy, the methods applied to project forward overall and sector-specific business demand, and the likely distribution of that demand across Auckland. It describes the core modelling structure the *ME Auckland Economy Growth Model* which has been used to draw together the relevant information, to examine the current situation and understand possible future outcomes. The methodology to assess capacity is set out in Section 5.

2.1 Overview

The methodology for assessing and distributing projected growth is relatively straightforward.

Regional projections have been developed for the Auckland economy as a whole, providing estimates of business units ('Business Units'³) and employment ('MECs'⁴) for each sector and industry in the economy. These are projected forward annually from the 2022 base year, and cover 2025 (short term), 2032 (medium term) and 2052 (long term).

Different projection options have been tested, to examine potentially different outcomes according to econometric modelling (I-O based) for 109 industries, as well as sector-level trend projections at one digit ANZSIC (19 sectors), 'mega sectors (6 combinations from 19 sectors), together with employment *per capita* trends.

The regional employment projections are structured around the recent and observed current Auckland spatial economy. They take account of the established and potential roles of each centre and business area (element), and the dynamic relationships both among those locations, and with consumers (within the centre and business area catchments).

The projections also take into account different scales of growth in terms of Low, Medium and High growth futures, and different patterns of growth. These allow for variations in how growth would be distributed across different centres and business areas, as the key elements of the spatial economy structure, and also across different areas of Auckland, to provide for possible shifts in trends within the region. The detailed geographic base is able to facilitate direct comparison with other studies, including the FDS.

2.2 Model Approach

The HBA Business assessment has a wide range of requirements, including to examine and understand the current situation, and to also assess likely future outcomes.

³ Business Units or Geographic Units (Business Unit's) are defined by Statistic NZ as "A separate operating unit engaged in New Zealand in one, or predominately one, kind of economic activity from a single physical location or base"

⁴ Modified Employment Count. This is a customised measure of employment which combines the Stats NZ Employee Count (EC) data with the Stats NZ Non-employee Working Proprietors, both at 6D-ANZSIC Level. These indicators together account for total employment in terms of the persons engaged in activity either as an employee or as a working proprietor (who is not also an employee).

There is never certainty about what those future outcomes may be. It is important to be able to explore different future outcomes in a systematic manner, to understand the likely effects of varying circumstances, including to explore the implications of different assumptions about that future.

Accordingly, ME have applied a model of the Auckland economy termed the *Auckland Economy Growth Model 2023*⁵. This Model draws together the critical information on the Auckland economy and community currently, in a structure which enables examination and analysis by location and over time. The information is described in relevant sections following.

One point to emphasise is that the Model is structured to reflect as closely as possible the Auckland spatial economy. Its core spatial components in the Model are the centres and business areas and nodes around which the Auckland economy itself is structured. The CBD, Metropolitan centres, Town centres and so on are the nodes of activity in the economy, and it is logical to examine patterns of activity – past, current and future – in relation to these nodes. The business areas include special nodes such as major hospitals. Other information about the nodes of activity including zoned business land, built improvements and property values is directly relevant and supports this structure. For example, the Albany centre has substantial areas of Metropolitan centre zoning and Business Park zoning, and it is appropriate to understand the wider centre rather than consider just two zoned areas within that node.

Another important point is that the Model is structured to examine a wide variety of future outcomes in a straightforward and consistent manner. This means that different growth projections and assumptions are able to be examined readily – for example, to understand likely outcomes under higher or lower employment projections, and/or different population futures, and/or different patterns of population growth within Auckland.

Further, the Model structure allows examination of the specific as well as the general. This means that any specific centre or business area or node, or wider area such as a Local Board Area, can be readily examined by itself and in its wider context, for a range of indicators. The structure also offers diagnostics to place each centre, business area and so on in context.

2.3 Auckland Economy Assessment

The base points are:

- a. statistical information and analysis of the size and structure of the Auckland economy as at 2022, in terms of business units and employment, primarily its sectoral and spatial structure across centres, business areas and special nodes in the region;
- b. information and analysis of patterns of growth and change (scale and location) in Auckland across the last two decades (2002-22), drawing from detailed statistics of business activity by location annually through the 2001 to 2022 period;
- c. projected business activity by sector into the short (2025), medium (2032) and long term (2052) futures at the region level;

⁵ The Auckland Economy Growth Model has been developed by Market Economics Ltd as a proprietary modelling tool. It builds on the ME Auckland Spatial Economy Model which defined the spatial structure.

- d. projected business activity across the spatial economy, in terms of business units and employment by sector and by location across centres, business areas, nodes, and the remaining (urban, rural) areas of the economy, for those time periods.

This *Auckland Economy Growth Model* structure which is applied for the analysis of past, current and projected activity, by location and over time is an advance over earlier capabilities, especially through its detailed spatial structure, the inclusion of specific elements of capacity by location, capability to add new centres in any greenfield location, options to allow for area-wide as well as localised variations in growth trends, and diagnostic elements to examine specific centres and business areas, as well as groupings of locations. It is referred to as the Model for this reporting.

The spatial structure in this Model identifies each centre and business area in Auckland, covering 547 centres (the CBD, 10 Metropolitan centres, 44 Town centres, 74 Local centres and 419 Neighbourhood centres) and also 228 business areas and nodes. The business areas include 109 areas of Mixed Use zoning, 4 of Business Park, 10 of General Business, 87 areas of Light industry and 9 areas of Heavy industry zoning. The Model structure also identifies key nodes including the Port, AIAL and other airports, hospitals and recreation nodes. This structure means that 775 specific locations are examined, along with other non-centre areas which are identified for urban land, urban fringe and rural land, at the Local board Area level, covering the balance of the region. Together these elements provide a total Auckland picture, across the period 2001 to 2022.

Information on business activity in each sector of the economy across this spatial structure is complemented by information on each element according to zoned area, property numbers and size, vacant land and vacant potential land for each location. This supports estimation of key parameters including built intensity (floorspace and improvement value per ha) and employment density, for comparison and analytical purposes.

The analysis of business activity is complemented by analysis of Auckland's population and household trends, recognising that population growth has driven and will drive much of the increase in demand which Auckland businesses have expanded to meet, as well as providing the workforce for the business activity.

2.3.1 Economy Sectors

The assessment of business activity is based on the 19 main sectors (1-D ANZSIC level Industry), applying the standard Stats NZ ANZSIC definitions and information. While the core information covers these 19 1D ANZSICs, greater resolution is also applied as required to sub-sectors, to show industries to 3-digit or 4-digit ANZSIC according to the 109-industry structure. That allows consideration of the degree to which centres and business areas may have seen specialisation across sub-sectors, and also of the co-locational relationships among sectors. Substantial differences in employment structure of centres and business areas are evident at 1-digit level, so that further differentiation has been applied as needed to understand such patterns.

The core metrics are Business Unit numbers (Stats NZ Geographic Units) and employment. The employment in each industry is the MEC or Modified Employment Count. This covers both employees, as identified by the Stats NZ Employee Count, and Non-employee Working Proprietors, also identified by Stats NZ, at 6D ANZSIC level. The MEC measure is preferred because it covers all employment recorded by Stats NZ, while the standard EC or Employee Count covers only employees. Around 11% of total employment in Auckland comprises Non-employee Working Proprietors, although this share varies by industry.

2.3.2 Mega-Sectors

The analysis and modelling can usefully be aggregated to six ‘mega’ sectors or groupings of the 19 1D industries. The purpose of the groupings is primarily to support a more robust and simpler modelling structure, by using aggregated co-location patterns of industries to more clearly identify the underlying patterns. This is important when seeking to robustly project forward business growth across more than 775 specific locations in the Auckland economy, across 30+ years. Projecting forward six mega-sectors which have strong common location patterns is potentially more straightforward than projecting forward 19 individual industries with specific variations from the wider pattern.

The groupings are derived from analysis of the spatial patterns of each industry and evidence of co-location, in combination with the strength of functional inter-relationships among sectors. *A priori*, the groupings could be expected to identify the Primary sector (primary activities and extraction), Production (manufacturing, construction and utilities), Trade and Hospitality (wholesale, retail and hospitality), Services (Information, finance and professional), Household Services (administration and government, support and safety, and services to the household sector, and other activities) and Health and Education (primarily hospitals, schools and tertiary education). These groupings were utilised in the Wellington Economy and Population Projections project (2022) undertaken for Greater Wellington⁶.

It was important to confirm or modify these groupings through structured analysis of the spatial patterns of each industry, and the extent to which they co-locate and share patterns of activity. The 2002, 2012 and 2022 patterns by industry across 9,422 locations (SA1 areas) were analysed to provide an objective view of the spatial structuring of each industry in the Auckland economy. Understanding the individual structures for each industry is useful also for forecasting and projections, to recognise not just the changes over time, but also the underlying structural patterns and influences (which are often less easy to discern). The 1D sectors and mega-sectors are summarised in Table 2-1, showing the overall significance in the economy in terms of employment (MECs) and business units. Apart from the Primary grouping which is minor in the Auckland economy, each of the other mega-sectors is a substantial part of the regional economy.

⁶ Market Economics Ltd (2022). Wellington Economy and Population Projections 2021-2051.

Table 2-1: Auckland Economy – Sectors and ‘Mega-Sectors’ 2022

ANZSIC 1D	Mega-sector'													
	Primary	Manufactg Utilities Constructn Transport	Trade & Hospitality	Finance & Profess ional	Household Services	Health & Education	Total	Primary	Manufactg Utilities Constructn Transport	Trade & Hospitality	Finance & Profess ional	Household Services	Health & Education	Total
	Employment (MECs)													
Agriculture, Forestry & Fishing	7,500						7,500	0.8%						0.8%
Mining	400						400	0.0%						0.0%
Manufacturing		84,100					84,100		9.0%					9.0%
Electricity, Gas, Water & Waste Services		6,200					6,200		0.7%					0.7%
Construction		93,900					93,900		10.0%					10.0%
Wholesale Trade			64,600				64,600			6.9%				6.9%
Retail Trade			86,900				86,900			9.3%				9.3%
Accommodation & Food Services			57,900				57,900			6.2%				6.2%
Transport, Postal & Warehousing		42,000					42,000		4.5%					4.5%
Information Media & Telecoms				21,700			21,700				2.3%			2.3%
Financial & Insurance Services				35,000			35,000				3.7%			3.7%
Rental, Hiring & Real Estate Services				21,800			21,800				2.3%			2.3%
Professional Scientific Technical Services				111,000			111,000				11.9%			11.9%
Administrative & Support Services					58,500		58,500					6.2%		6.2%
Public Administration & Safety					38,600		38,600					4.1%		4.1%
Education & Training						66,700	66,700						7.1%	7.1%
Health Care & Social Assistance						91,700	91,700						9.8%	9.8%
Arts & Recreation Services					15,900		15,900					1.7%		1.7%
Other Services					32,300		32,300					3.4%		3.4%
TOTAL	7,900	226,200	209,400	189,500	145,300	158,400	936,700	0.8%	24.1%	22.4%	20.2%	15.5%	16.9%	100.0%
	Geographic Units													
Agriculture, Forestry & Fishing	4,210						4,210	1.9%						1.9%
Mining	100						100	0.0%						0.0%
Manufacturing		9,390					9,390		4.3%					4.3%
Electricity, Gas, Water & Waste Services		490					490		0.2%					0.2%
Construction		29,990					29,990		13.8%					13.8%
Wholesale Trade			10,400				10,400			4.8%				4.8%
Retail Trade			15,470				15,470			7.1%				7.1%
Accommodation & Food Services			8,380				8,380			3.9%				3.9%
Transport, Postal & Warehousing		6,830					6,830		3.1%					3.1%
Information Media & Telecoms				4,050			4,050				1.9%			1.9%
Financial & Insurance Services				16,950			16,950				7.8%			7.8%
Rental, Hiring & Real Estate Services				42,100			42,100				19.4%			19.4%
Professional Scientific Technical Services				30,810			30,810				14.2%			14.2%
Administrative & Support Services					8,900		8,900					4.1%		4.1%
Public Administration & Safety					1,000		1,000					0.5%		0.5%
Education & Training						4,230	4,230						1.9%	1.9%
Health Care & Social Assistance						10,040	10,040						4.6%	4.6%
Arts & Recreation Services					4,140		4,140					1.9%		1.9%
Other Services					9,980		9,980					4.6%		4.6%
TOTAL	4,310	46,700	34,250	93,910	24,020	14,270	217,500	2.0%	21.5%	15.7%	43.2%	11.0%	6.6%	100.0%

Source: Auckland Economy Growth Model 2023

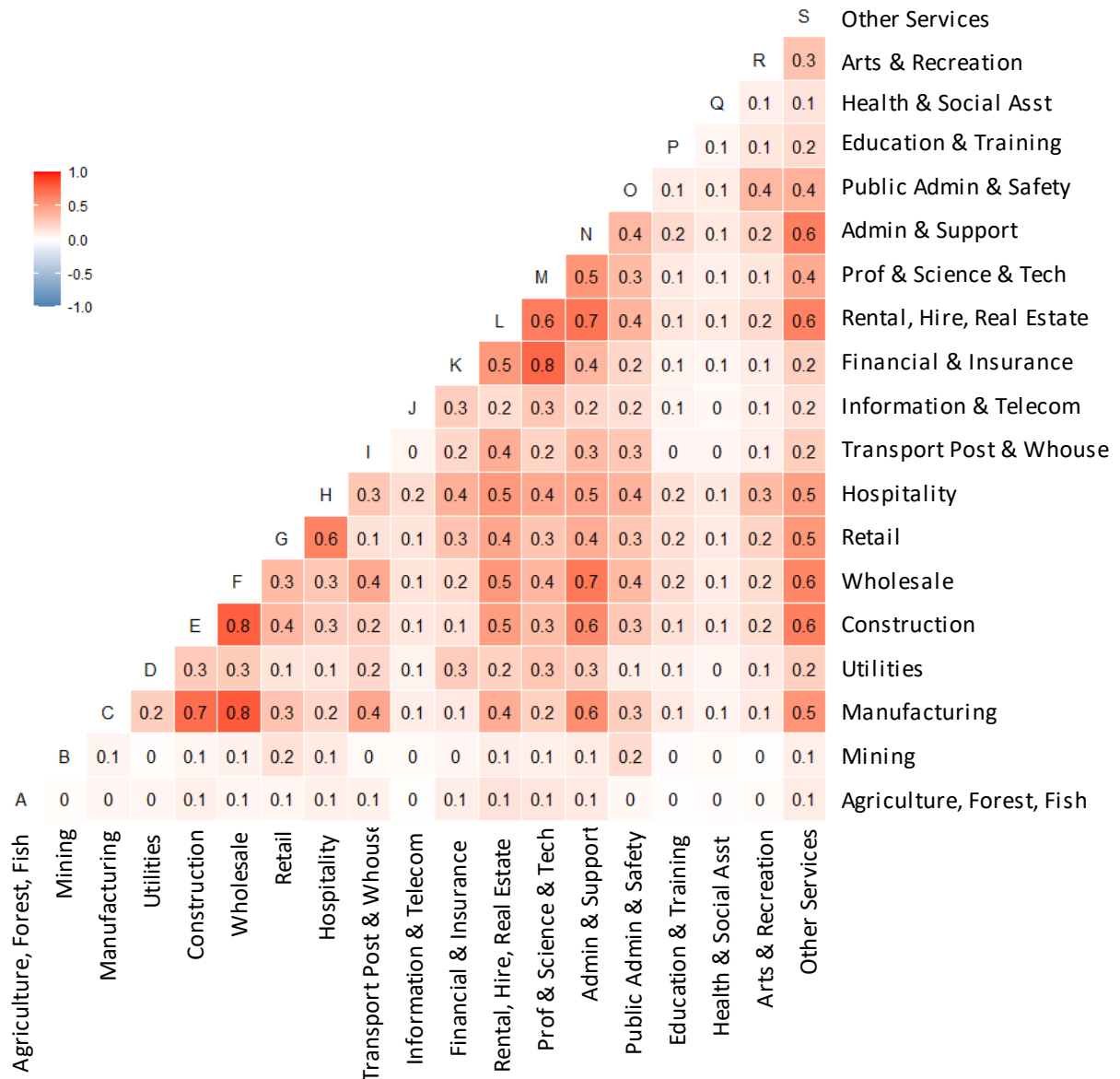
The spatial patterns and inter-relationships have been examined applying spatial autocorrelation. This method describes the degree to which spatial patterns for different industries are similar to each other. Location is a critical influence on the nature of economic activity, and on the prospects for growth – simply, geography matters. Spatial autocorrelation provides quantification of the influence of geography, and it may be applied to understand the extent to which industries co-locate - and therefore of the validity of the industry groupings for the mega-sectors.

The assessment applied here is ‘global’ – covering the whole of the regional economy – although ‘local’ analysis is also available to examine each spatial unit (SA1) and its neighbours (defined in some way). Global spatial autocorrelation assesses whether there is any overall geographic trend, and to what degree. Local spatial autocorrelation, in turn, specifically identifies locations where high and low clusters exist in space.

The analysis applied here is spatial correlation to understand the extent to which each 1D industry is co-located with each other industry. This is simply done through correlation coefficients for each pair of industries, as a straightforward and transparent approach. The analysis was undertaken for three points in time (2002, 2012, 2022) with the large population size (9,422 SA1 data points) offering relative reliability.

Figure 2-1 shows the spatial correlation matrix for the 19 industries, based on employment (MECs). The results unsurprisingly show moderate correlation (coefficients of 0.3 to 0.5) among most of the sectors, which reflects that in an urban economy most sectors are present in many locations, and that there is not strong sorting or specialisation into locations. However, there are also stronger relationships (indicated by the darker shaded squares) evident within the overall pattern. The patterns are broadly similar for the spatial correlation based on employment (Figure 2-2).

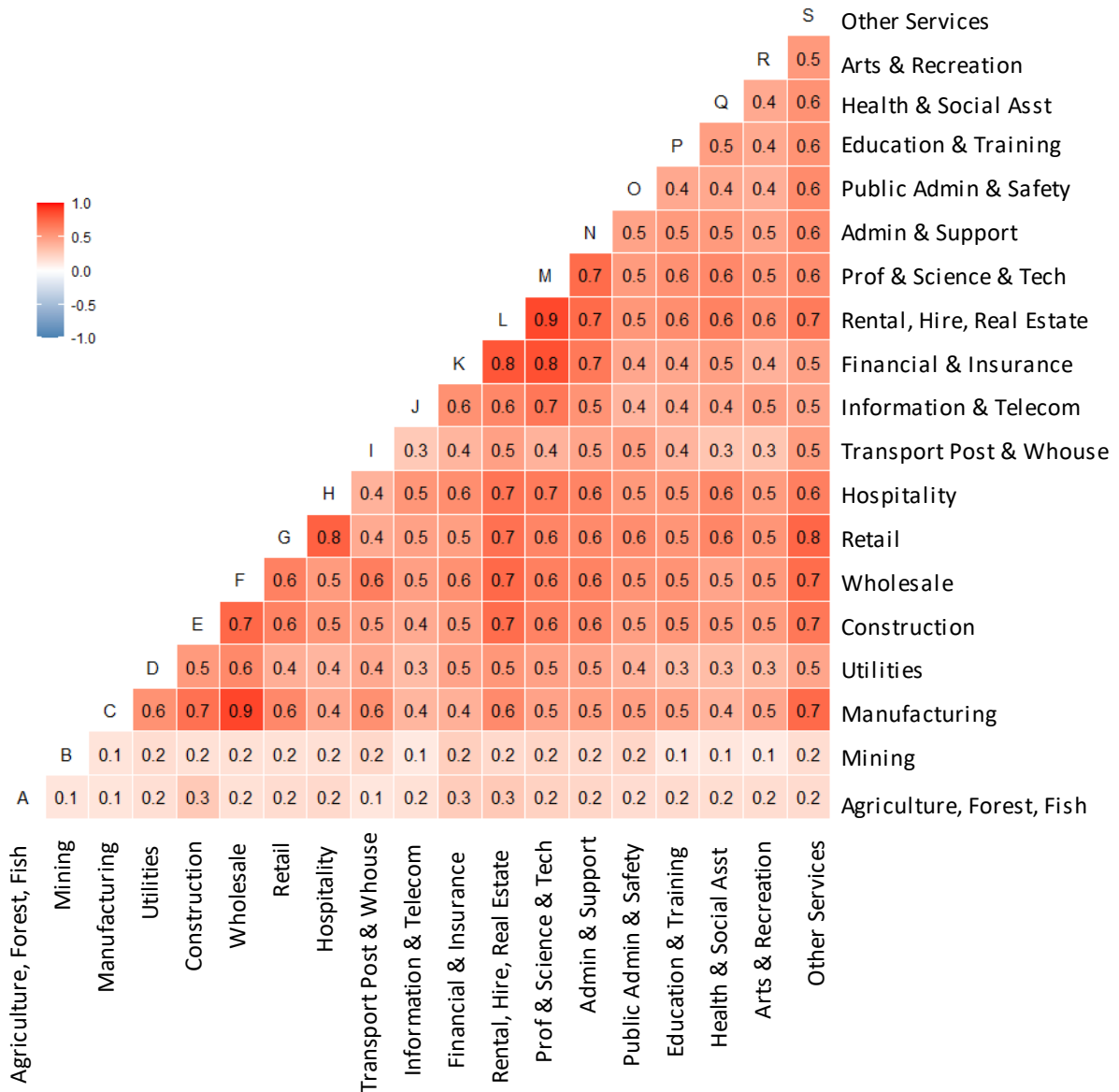
Figure 2-1 : Spatial Correlation Among Auckland Sectors 2022 – Employment



The groupings have been examined to identify which are the strongest relationships, and specifically whether the correlations within each grouping are stronger than those with other groupings. If they are, then that tends to validate the groupings as both showing clear relationships industry and industry, and also to show that the groupings are robust.

This analysis identified that the linkages within each grouping (mega-sector) are significantly stronger than those among the groupings. This is the case both for the geographic unit analysis, and for the employment-based analysis.

Figure 2-2 : Spatial Correlation Among Sectors 2022 – Geographic Units



On that basis, and recognising also the known economic relationships among the industries, we conclude that the mega-sectors offer an appropriate structure for the spatial assessment, and for the projections modelling.

2.3.3 Trends and Projections

The industry dataset covers all locations over the 2001-2022 period. The examination of trends since 2002 takes account of the sector breakdown, and each element of the Auckland spatial economy (centres, business areas, and major sector-special hubs).

The final projections of business activity are for the 19 main sectors (1-D ANZSIC level), for Business Units and MEC employment, as well as EC employment. The approach recognises that the numbers and size of Business Units influence employment as activity units, and many location choices are determined at the Business Unit level. While the main analysis is for the industries at 1D ANZSIC level, the regional level projections are based on the 109-industry model structure, with Business Units and Employment then aggregated to the 1D ANZSIC level, and the mega-sector level as required.

For the spatial modelling, the projections are based on the 6 mega-sectors in the first instance.

The projection approach recognises that employment is influenced by the numbers and size of Business Units as activity units, and that many expansion and location choices are determined at the Business Unit level.

2.3.4 Land and Property Information

The MEC and Business Unit information is complemented by information on land areas and built floorspace (sqm) where available. The land area in business zones (10 basic business zones) is identified for each centre and business area, drawing from the spatial definitions applied in the *ME Spatial Economy Model (2023)*. This draws where possible on the Auckland Council's *Rating Database (2022)* which has a range of information at the property level including land and built improvement values, land uses and estimated floorspace for business and residential, and other information including zoning. That is complemented by detail on building consents (number, size and value) by typology, and location.

Council's estimated plan-enabled floorspace capacity at the property-level for business zoned properties is drawn on, and this has been aggregated to the individual centres and business areas. Since the estimates relate to business zoned land, and all business zones are linked to centres and business areas as well as relevant other zones applying to airports and sea-ports, hospitals and health nodes, and major recreation/leisure nodes, all of the estimated potential floorspace is assigned to the established structure.

In the same way, Council's estimates of business-zoned land which is vacant or with vacant potential are all assigned to the centres and business areas structure.

2.4 Spatial Economy

The second arm of the analysis and growth modelling is an assessment of the likely patterns of economy growth within the region. As indicated, the *Auckland Economy Growth Model (2023)* provides this platform for examining the established economy and different land use outcomes, drawing on the spatial structure relevant to how the Auckland economy functions.

For this project, the *Auckland Economy Growth Model* has been developed using that spatial structure, with additional capabilities especially around growth modelling⁷.

Importantly, this Model is more than a simple representation of the patterns of activity for various sectors of the Auckland economy. It has been developed as a suitable spatial platform to both examine the established economy and its past trends, and to apply and examine Auckland's economic future (business and population) at regional and local level. In particular, it allows for the regional level growth projections

⁷ As noted, where reference is made to the "Model", it is the Auckland Economy Growth Model 2023, unless otherwise specified.

to be distributed across the established Auckland spatial economy (and projected new spatial economy allowing for specific growth areas).

This is primarily across the ‘formal’ spatial economy made up of the centres and business areas and other nodes of activity. It also recognises that employment growth will occur outside the centres and business areas of this formal spatial economy, because a significant number of businesses are based in un-zoned locations, especially in the residences of business owners and sole traders. Such non-centre business activity has always been an important component of the economy, and the pattern of working from home has been given major stimulus by the Cov-19 pandemic.

The Model structure offers the basis to estimate the core matters relevant to the Business HBA, in terms of the levels of future economic activity by each sector, and within each location (centres, business areas, precincts) into the medium and long term, and the requirements to accommodate that activity. It is important that this structure is consistent with the nature of the economy, where business growth has been characterised by a relatively stable spatial structure of incremental growth in most locations, rather than substantial change or variation from the trend.

The spatial modelling is critical to meet the core requirements of sufficient geographic detail to show variations in economic activity, as well as population, and to understand past and current trends in terms of both what is occurring and where.

2.4.1 Auckland’s Urban Geography

Auckland’s physical geography has a major influence on social, cultural and economic activity and land use outcomes, and this will continue into the future. Within that geography, the Model approach applies a consistent spatial structure, which reflects the well-established roles of centres and business areas within the Spatial Economy, as these established (and potential) centres of activity are the foundation for growth within the region. This also shows the roles of different sectors within the regional and LBA economies, and across the centres and business areas. Each sector has its own specific location preferences, which will influence the future growth patterns for business activities and employment. Accordingly, the assessment includes the growth patterns by sector, as they contribute to overall employment growth, and travel demands.

Part of this is understanding the spatial relationships among sectors of the economy. As the economy grows, sectors do not simply increase *pro rata* in the region or each LBA, and growth varies by location as well as sectors. An important aspect of the work is to understand how sectors co-locate, and how growth in one sector may impact on growth and location choices in other sectors. That also relates to the changing roles of centres and business areas within a multi-centre economy, since hubs outside the central city often change at a faster rate than the central city as the total economy increases in size, and the markets in the middle and outer suburbs grow.

The spatial framework applied for this assessment is “top-down”, using Auckland’s established urban geography. Strong development over the last 100+ years has seen incremental outward growth from the CBD and port, as well as the coalescence of outlying towns such as Papakura and Orewa to become part of the broader urban mass. The outward expansion has been complemented by intensification of the already urbanised areas, as the larger city has made feasible the intensification of land use and regeneration of developed land. Such growth is consistent with the economic drivers of cities as central places, and the

continuing trade-offs between the attractions of locations near the centre and the need for space where it is affordable to live or do business.

The pattern and urban form of Auckland is strongly established, with the CBD being the geographic and functional focus of the economy, and this is unlikely to change significantly into the long term. While there is nothing remarkable about the growth pattern and the urban form given the physical geography and the nature of the economy, it is nonetheless important to understand those core economic drivers because they will have critical influence on future growth, and consequent land demands.

2.4.2 Spatial Economy Framework

Drawing from this geography and the identified inter-relationships within the economy – business to business and business to and from household - the Auckland spatial economy is defined in terms of key **elements** – as centres and business areas, together with major special nodes (hospitals, transport and recreation nodes) - which reflect the operation of the economy.

A standard approach is applied using data at SA1 (n=9,434) and SA2 level (n=556), to maintain consistency with Stats NZ definitions and data sources. Each element of the spatial economy is defined according to SA1 areas, to provide a fine level of differentiation, though without a requirement to disaggregate to property level. This structure concords with demography and business activity data.

Datasets at SA1 level and at each higher level in the economy include the principal drivers of social activity (population and households, and their key characteristics) and economic activity as business units or Business Units and employment, by sector of the economy - using variously 19 main sectors, 106 meso-sectors) and the 484 sectors defined at 6D ANZSIC level.

The focus on business activity for the HBA has meant that the SA1-level geography relating to business units and employment is directly relevant. Where the SA1 boundaries do not match property boundaries or zoning boundaries, the SA1 boundaries have been used to define centres and business areas. This has been done to ensure that all business zoned land is included in the relevant centre or business area, so that no business-zoned land is left outside the centres and business network. It is on the basis that Business Unit and Employment data recorded at the SA1 level is most likely to be in an area zoned for business activity.

This is not applied *pro rata* to all industries, however, as many business units especially in the construction sector are registered to the home address of the owner. Their location relates to areas of residential zoning rather than business zoning. To account for this, the centres and business areas are defined according to the best-fit or most likely SA1 areas taking account of the presence of Business Units and Employment and business-zoned land, as well as other data from aerial images, property statistics and consent statistics, and in some instances field inspection.

This approach has been applied and developed over time on the basis that it provides the best evidential fit of the relationships between the centres and business areas and business activity. This draws from 21 information sets of business activity (the Stats NZ Business Frame for each year) to allow checking through time) while also understanding its limitations.

An important aspect is that it allows for business activity which takes place outside the “formal” centres and business areas structure. There are around 123,000 Business Units (57% of the Auckland region total including the primary sector in rural areas) and around 215,000 MECs (23% of the regional total) which are

outside the network of centres and business areas. The most disaggregated level applied in the Model includes 774 centres, business areas and major special nodes within the economy.

The Model holds datasets at SA1 level⁸ and at each higher level in the economy, in order to track economic activity as business units (Business Units) and employment, for the 6 mega-sectors, the 19 main ANZSIC sectors, and the 109 industries. The fully detailed economy data is for 484 sectors defined at 6D ANZSIC level. The supporting data includes the principal drivers of social activity (population and households, and their key characteristics). Other datasets are also organised at this geographic structure, as these include information that is material to social and economic activity (dwellings and built structures, land, property, building consents, and travel interactions).

Within Auckland, there is some focus on the larger centres and business areas. Just as it is Important to have comprehensive coverage in terms of all the centres and business areas right across the hierarchy, it is also important to consider specifically the main nodes which individually and collectively account for the largest shares of activity and growth. These nodes are expected to be the main focus of future growth in economic activity and employment, consistent with trends to date. The largest 35 nodes (centres and business areas) over the 2002 to 2022 period grew substantially faster than the economy as a whole, and accounted for more than half of total growth. The overall picture is summarised in Table 2-2, which identifies each major node, and shows the overall picture. To provide context, the table shows current employment levels, and the 2002 situation.

It is important for completeness that all parts of the Auckland economy are included, especially for the growth projection modelling. All of the SA1 locations which are not part of the region's business activity areas have been identified according to their predominant zoning (by area) and grouped to LBA totals. This means that locations are coded to their main urban activity (residential, schools, other urban zonings) and further grouped into a general "Urban" category for each LBA. Similarly, locations are coded to "Rural" and "Fringe" for each LBA, which takes account of significant components of Future Urban Zoned areas. The analysis also has the capability to produce information at the individual LBA level.

The structure means that all 9,434 SA1 locations are coded according to their business activity areas, or to Urban, Rural and FUZ categories for each LBA. Each SA1 area is coded to only one component of the spatial economy. Although many of the SA1 areas do have more than one zoning, for modelling purposes the dominant activity in each is the most relevant.

⁸ The Spatial Economy modelling requires some reconciliation of different geographies. This is because the zone data follows cadastral boundaries, whereas the data on economic activity (business units and employment is available only at SA1 level. The SA1 boundaries often do not concord precisely with the cadastral boundaries.

The SA1 data also has some limitations because the geography is decided by Stats NZ on the basis of the distribution of population and households. One consequence is that economic activity data is organised spatially according to the distribution of population, and because areas of business and industrial activity commonly have nil or very small resident populations, the Stats NZ boundaries encompass large areas within single SA1 areas. For example, the Albany Metropolitan Centre is fully contained within a single SA1 area, and a very substantial scale of economic activity (1,500 business units, more than 9,800 MECs) is not able to be spatially differentiated – for example, to distinguish the Albany Mall, the Albany large format centre and the Mercari Centre.

Table 2-2: Auckland Economy - Major Nodes and Total Structure 2022

Zone	Code	Location	Employment (MEC)		
			2002	2022	2022 %
CC	CC1	City Centre	81,000	127,000	13.6%
MC	MC6	Newmarket	12,400	19,600	2.1%
MC	MC4	Manukau	10,400	15,500	1.7%
MC	MC2	Botany	3,800	9,100	1.0%
MC	MC9	Takapuna	7,800	8,200	0.9%
MC	MC1	Albany	1,800	8,400	0.9%
MC	MC5	New Lynn	6,100	6,000	0.6%
MC	MC3	Henderson	5,500	5,600	0.6%
MC	MC8	Sylvia Park	1,300	4,900	0.5%
MC	MC10	Westgate / Massey North	1,400	3,700	0.4%
MC	MC7	Papakura	3,300	3,200	0.3%
CBD and Metropolitan Centres			134,800	211,200	22.5%
HI	HI7	Penrose	22,400	30,300	3.2%
HI	HI3	Highbrook	15,800	21,100	2.3%
HI	HI9	Wiri	6,900	14,500	1.5%
LI	LI85	Wiri	1,700	2,200	0.2%
LI	LI2	North Harbour	10,200	13,900	1.5%
LI	LI27	Highbrook	1,200	11,800	1.3%
LI	LI77	Wairau Valley	11,600	11,600	1.2%
LI	LI45	Mt Wellington	6,500	11,500	1.2%
LI	LI34	Mangere	4,700	9,000	1.0%
LI	LI62	Rosebank	6,700	8,400	0.9%
LI	LI32	Lincoln	6,100	7,600	0.8%
LI	LI35	Airport North	200	6,600	0.7%
MU	MU12	Devonport Naval Base	200	3,000	0.3%
MU	MU78	Parnell	3,500	8,400	0.9%
MU	MU18	Freemans Bay College Hill	3,200	6,000	0.6%
MU	MU52	Mt Eden Normanby Rd	2,700	5,300	0.6%
GB	GB1	Mairangi Bay Constellation Dr	2,600	11,800	1.3%
BP	BP2	Ellerslie Great South Rd	6,200	10,200	1.1%
AAZ	AAZ2	Auckland International Airport	9,300	9,300	1.0%
Port	Port	Auckland Port	2,100	5,800	0.6%
HFZ	HFZ1	Auckland Hospital	5,200	9,900	1.1%
HFZ	HFZ8	Middlemore Hospital	3,600	7,700	0.8%
HFZ	HFZ16	North Shore Hospital	3,100	6,500	0.7%
HFZ	HFZ5	Manukau Super Clinic	2,300	4,300	0.5%
Major Employment Locations			272,800	447,900	47.8%
TC	n=44	Town Centres	69,600	79,400	8.5%
LC	n=73	Local Centres	31,100	40,000	4.3%
NC	n=417	Neighbourhood Centres	20,100	28,400	3.0%
Total Centres			255,600	359,000	38.3%
HI	n=4	Other Heavy Industry	5,700	73,500	7.8%
LI	n=70	Other Light Industry	40,500	136,700	14.6%
MU	n=97	Other Mixed Use	35,500	65,900	7.0%
BP	n=3	Other Business Parks	3,200	19,000	2.0%
GB	n=9	Other General Business	2,800	15,900	1.7%
AAZ	n=4	Other Airports	400	10,100	1.1%
HFZ	n=10	Other Health Nodes	2,500	32,800	3.5%
MRFZ	n=7	Other Recreation Nodes	1,100	1,300	0.1%
Total Other Business Areas			342,200	488,700	52.2%
Total			615,000	936,600	100.0%

Source: Auckland Economy Growth Model 2023

Figure 2-3 shows the distribution of centres and business areas across Auckland for 2022. The map is necessarily detailed, as a large number of centres and business areas are spread across the central isthmus,

and across northern, western, eastern and southern Auckland. This highlights the CBD, Metropolitan and Town centres within the network, and also demonstrates the complexity of the pattern, showing the spatial structure is quite densely packed.

Figure 2-3 : Auckland Economy - Centres and Business areas 2022

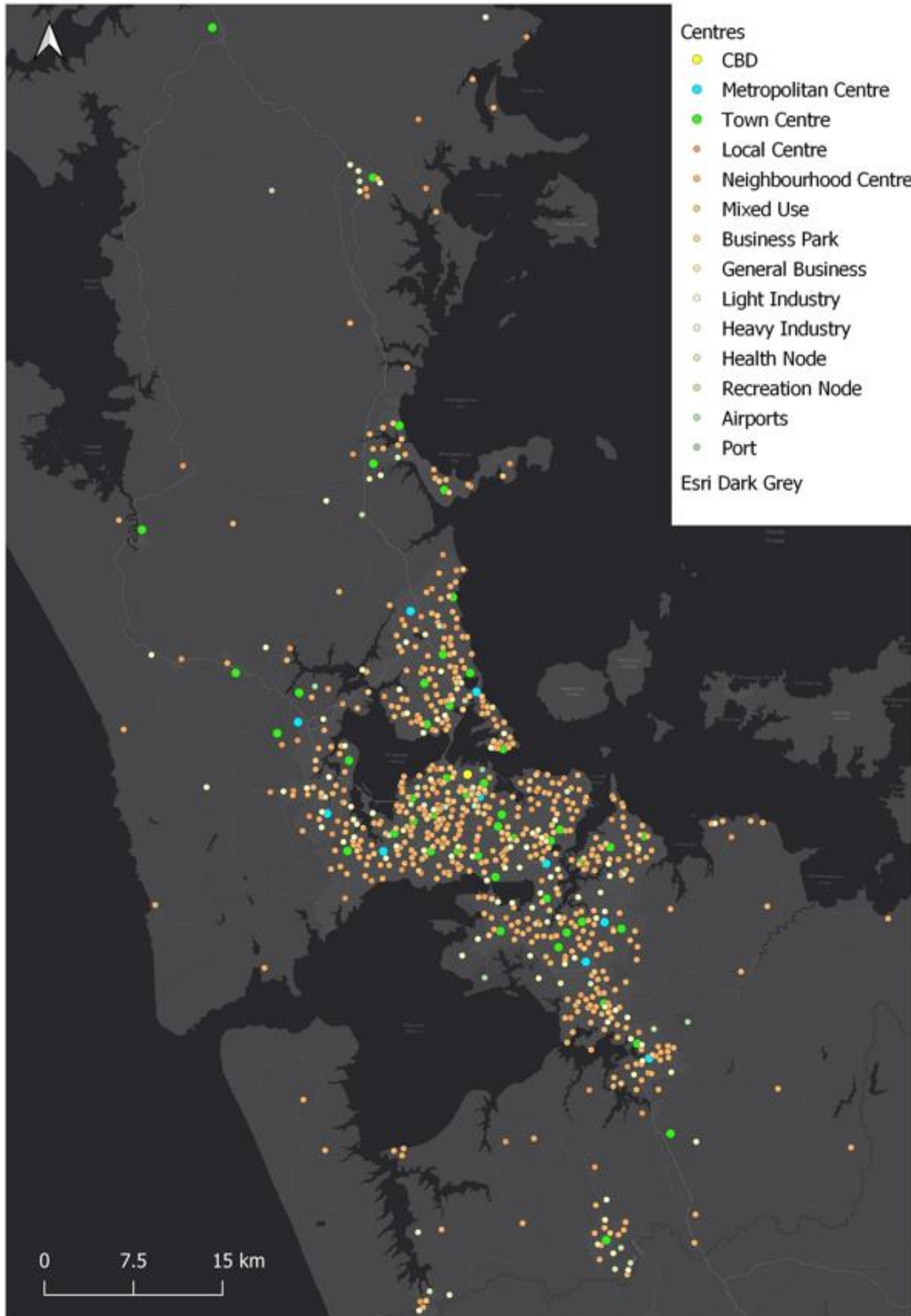


Figure 2-4 shows the extent and spatial detail of the centres network, showing the footprint of the network.

Figure 2-5 shows the same pattern but only for the central isthmus and adjacent areas on its fringes. The maps show the extent of the SA1 geographies which define the nodes centres in most instances. While the depiction of zoned areas and SA1s does make for a somewhat cluttered map, the patterns are important to demonstrate the overlaps and juxtaposition of business and residential zoned areas, especially in the older areas of the city.

Figure 2-4 : Auckland Centres and Business Areas 'Footprint' 2022

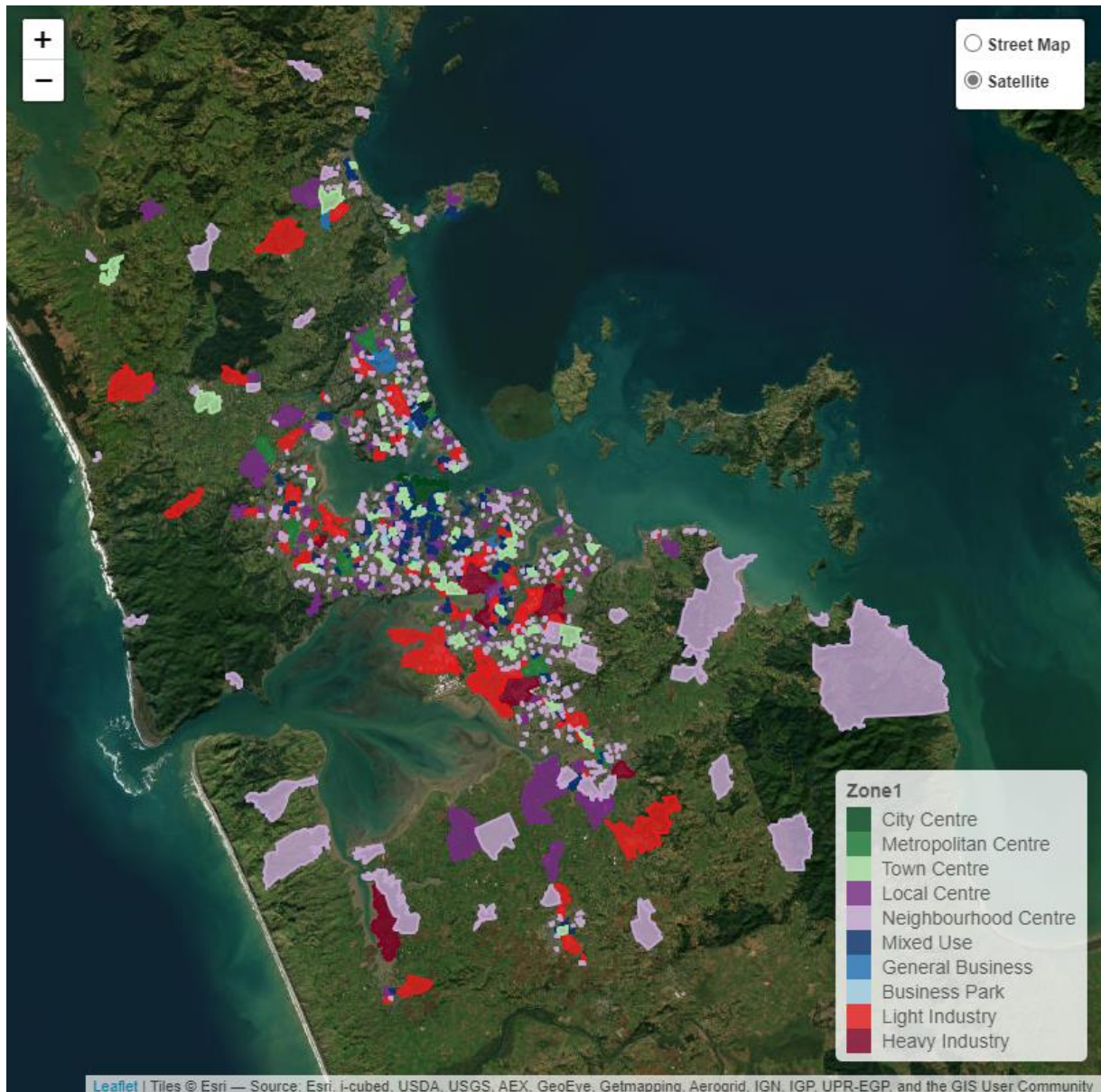
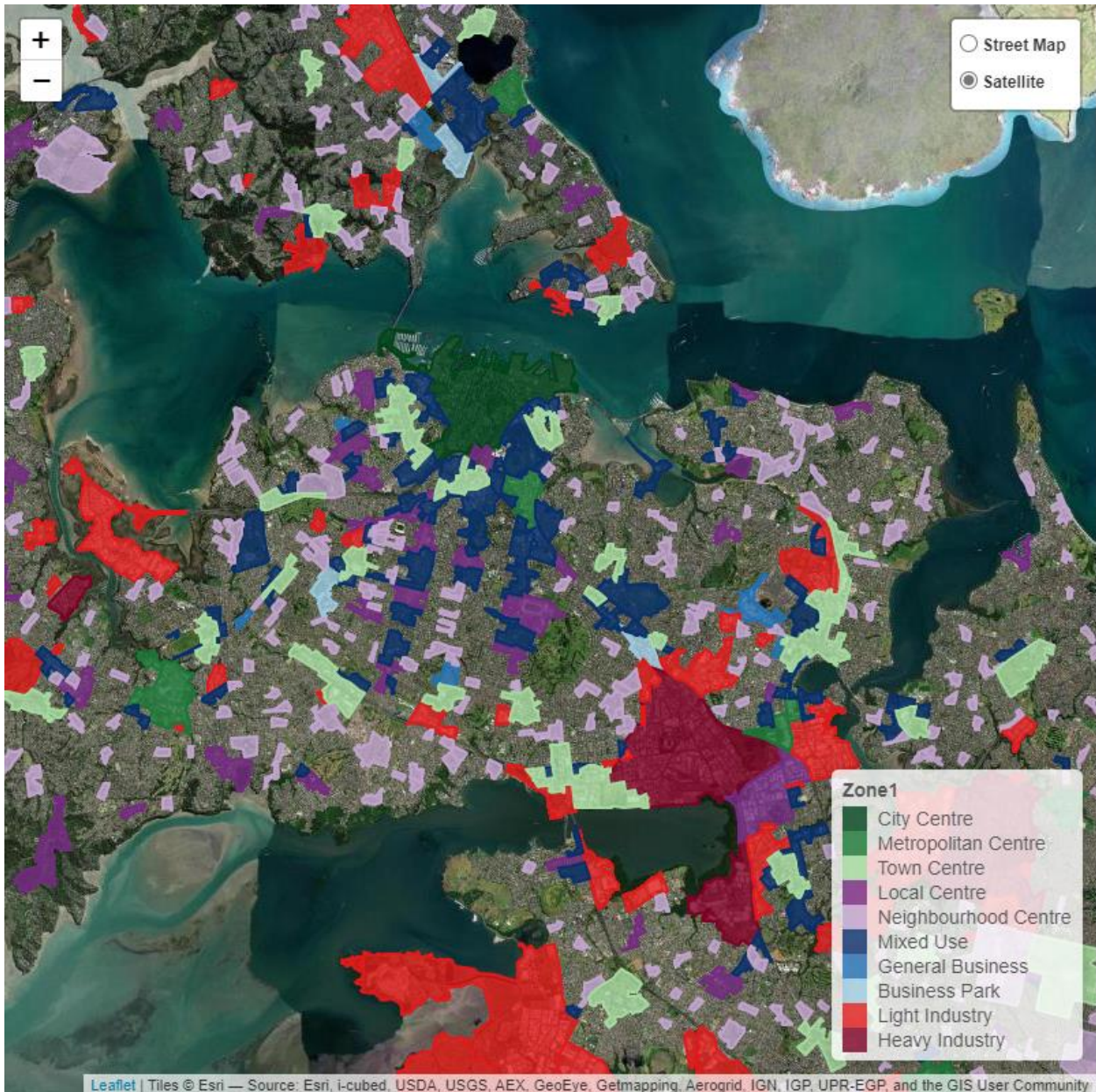


Figure 2-5 : Auckland Centres and Business Areas 'Footprint' - Isthmus and Fringes 2022



2.4.3 Nested and Other Geographies

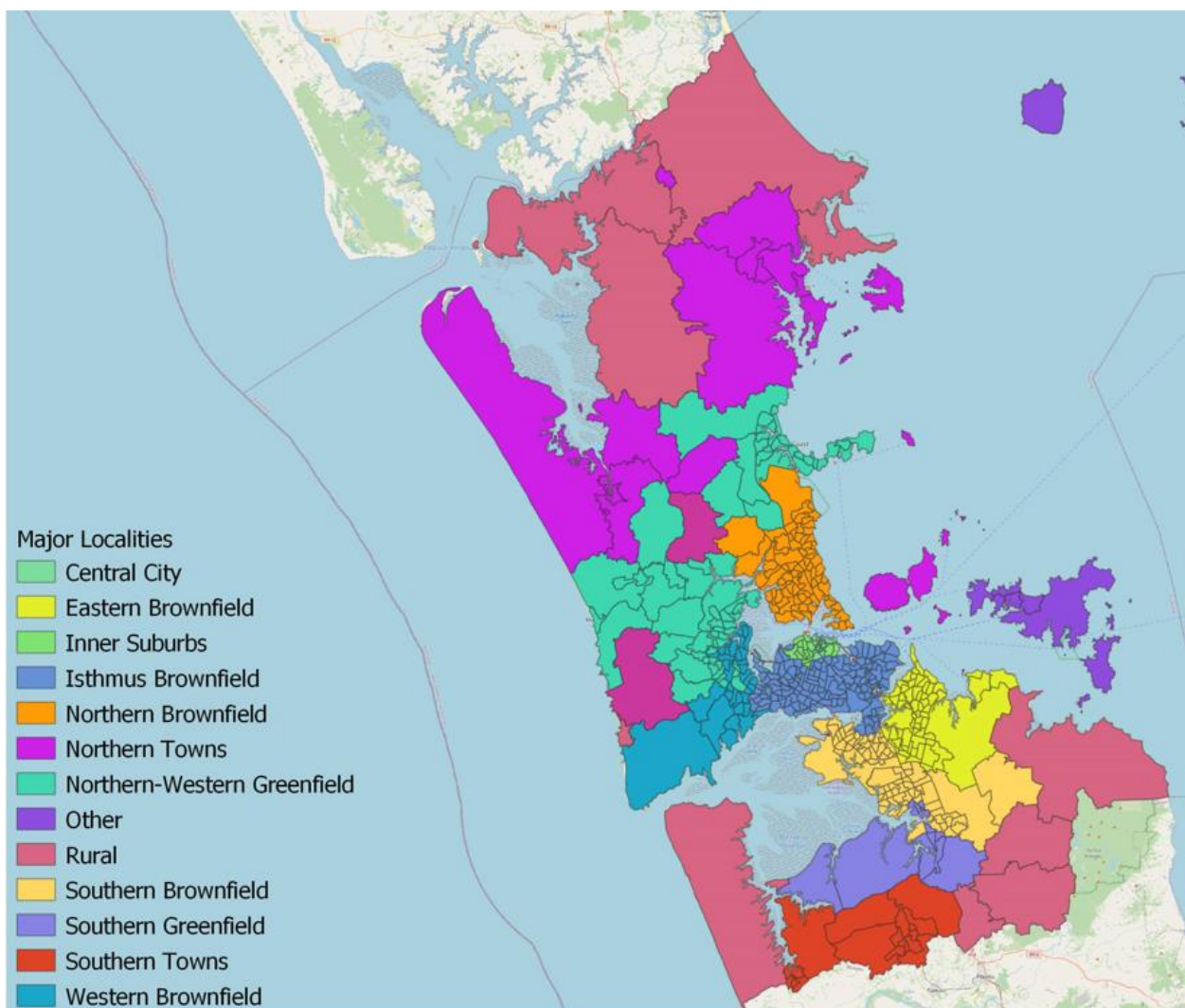
The spatial modelling applies a nested approach to allow examination of the economy at different levels of resolution. At the higher level, there is a breakdown according to the 21 Local Board Areas (LBA). The next level is the Auckland Council Macro Strategic Model (MSM) zones, which are currently used in Auckland's transport and land use planning models⁹. The analysis here also allows for projections at the SA2 level areas within Auckland. The SA2 areas broadly correspond with suburbs and localities within the region,

⁹ [Auckland Forecasting Centre](#)

though in many instances these are defined according to Census of Population needs and do not reflect the functioning structure of the economy and the key centres and business areas themselves.

This allows the spatially-specific growth projections to be developed for all of these locations and location categories, to provide complete Auckland-wide projections, notwithstanding that the Urban, Fringe and Rural groupings for each LBA include multiple SA1 areas. One aspect is combination of the SA2 areas to provide a summary framework which is consistent with how the economy functions. This is a relatively simple but important structure, to differentiate the central city and inner suburban areas from the outlying suburbs which have been developed later as the city has grown. It is important in relation to Auckland's future growth, including to differentiate locations where future development will be predominantly brownfield from those where greenfield expansion will be important. This is shown in Figure 2-6.

Figure 2-6 : Auckland Sub-regional areas (from PC78 s32 Report)



These other geographies are relevant to specific purposes. For all, it is important that the Model structure is able to provide links and reconciliation to those other geographies, including to the MSM zone structure.

2.4.4 MSM Zones

One key output from the *Auckland Economy Growth Model* is projections of employment and business units by mega-sector by the MSM zones. It is important for the Model to show the MSM zones relating to each centre and business area, and the MSM geography is included in the Model to show outcomes for each of the 596 MSM zones. Note that some larger centres and business areas encompass more than one MSM zone - for example, Auckland CBD is one centre (the CC zone) for the core analysis and modelling here, although it includes 12 MSM zones.

The smaller centres and business areas in most instances relate to only one MSM zone. However, most of those centres do not cover the whole of the MSM zone in which they are located, such that the MSM zone totals are aggregated from the relevant SA1 level datasets. This means some MSM zones include SA1 areas relating to centres or business areas, and other SA1 areas relating to residential zonings.

2.4.5 Centre and Business Area Analysis

The Model is structured to project future growth across centres and business areas throughout Auckland. An important capability in the Model is examination of any selected node, to examine performance and place it in context. Standard tables show the current business activity at the 19 Industry level as well as mega-sectors, and recorded change over the recent long or medium term past. The tables show projected future employment in the short, medium and long term, in itself and in relation to Auckland's total projected growth.

This analysis also identifies the structure of the centre in more detail at the 109-industry level, by identifying the 25 industries which show the strongest relative concentration in that centre. This offers a clear indication of the centre's specialisation into particular sectors of activity.

As well as demand growth and change, the Model provides detail on any centre's potential to accommodate additional economic activity, as required by the NPSUD. This takes into account the centres current zoning, and the areas of vacant and vacant potential land. It also considers the centre's current density (MEC per ha) in relation to the average and upper quintile densities of that centre type, as a broad indication of potential (or not) to accommodate more employment.

Finally, the centre analysis draws on detailed property-level information from Council's rating database. This data includes current floorspace and site coverage, potential or plan-enabled floorspace by level or storey, and the current land value, improvement value and total capital value by each property. These are important indicators of potential for further development on the existing zoned areas. This information is applied at the aggregate level in the capacity assessments in Section 6.

In practical terms, the Model has capability to:

- a. Select any centre, business area or node
- b. Identify the current key parameters of business activity, including employment and number of business units in each sector and industry, and the changes over recent years (the defaults are 2002, 2012 and 2022 to cover two decades);

- c. Examine the role in the economy, according to the sector structure, and evidence of which sectors are highly represented in that centre, using the 109 industry tables to identify the top 40 industries by degree of concentration;
- d. Examine the property base, in terms of land areas by zone, numbers of buildings, value of land, value of improvements, built values as \$ per m², and built intensity in terms of built space per zoned ha;
- e. Analyse the current patterns of development, in terms of consented floorspace (m²) by type of building, annually over the last two decades, the value of new buildings consented, and the relative value of new buildings (value per m² of consented area);
- f. Examine the potential for further growth, taking account of zoned and vacant land as well as current development intensity and new development, in relation to the projected employment growth in each sector in that location.

These capabilities are drawn on in the assessment of capacity and sufficiency to meet the NPSUD requirements. They also provide a solid basis for assessment of any specific centre in the context of plan changes or consent applications, including in relation to proposed PC78. One benefit is to have a consistent and reasonably comprehensive framework within which all locations may be examined and compared.

2.4.6 Additional Centres

The Model also provides for additional centres or business areas to be established at points in the future.

In consultation with Council staff, initial runs include allowance for three proposed centres that are planned or likely to be developed in the medium term – Drury, Whenuapai, Red Hills in West Auckland – together with expansion of the existing Westgate centre (zoned as a Metropolitan centre). The Drury, Red Hills and Whenuapai centres were allocated to SA1 locations for future projections.

The Model estimates the shares of future employment growth which will be attracted to centres and business areas. The main determinant of future growth is the base year employment at the start of each time period, which consistently showed high correlation with observed growth in the regression analysis. Accordingly, the starting point for the new centres is estimated employment in each sector in their base year. From that base year, the Model allows for future growth in the same manner as all other centres, driven primarily by their base year employment, together with household growth and relative accessibility.

The base year employment reflects the mix of employment in existing centres and business areas, with new centres assumed to be Town centres or Light Industry areas in the first instance.

Initially, new centres were assumed to be established by 2025, so that incremental growth could be allowed for in projection periods after 2025. The Model allows scope to select a location for a centre/business area, select a type, and select a base year size (in employment terms).

2.5 Capacity for Growth

A key matter for the HBA is to examine whether and how projected demand will be able to be met. This requires consideration of existing and potentially available plan-enabled and zoned capacity, by location across the economy. Much of the development capacity and consequent employment capacity lies in the existing zoned areas, where further built development can be expected to sustain increases in business

activity, in terms of employment and built floorspace and property value. We note there is no absolute guide to this. In any centre, there is potential for intensification, to support additional activity.

Additional capacity may also arise from re-zoning to business uses of land which is already urbanised, or live-zoned for other urban uses, and from live-zoning to business use land which is currently zoned as future urban. This assessment focuses on land areas which are already live-zoned for business or other urban uses, though it does include with allowance for new business land (and thereby business floorspace) capacity in the future urban zoned areas.

There is no absolute guide to the unconstrained potential for additional built development and associated employment and business activity levels in each centre or business area. The total plan-enabled capacity (Section 5 below) identifies the extent of development opportunity within current plan rules and infrastructure constraints.

Accordingly, one core purpose of this assessment is to identify where the extent of the development opportunity may represent a ceiling to growth, which would arise if that opportunity is likely to be less than the anticipated demand for capacity.

Equally, where the development opportunity is greater than the anticipated demand, including allowance for a competitiveness margin, then it may be concluded that there is sufficient capacity enabled for economic activity (business and housing) to establish and operate in locations which meet their needs and preferences. Such assessment needs to be undertaken at a reasonably detailed geographic level, not just in terms of the total regional picture, hence the focus on the capacity of the network of centres and business areas.

It is also important to recognise that different components of capacity are catalysed by different economic processes, which have different levels of cost and effort to implement them.

2.5.1 Existing Floorspace

Each main aspect has been examined. First, the established centres and business areas have been analysed to show their situation and performance as at 2022. This is in terms of zoned land area, and built development (floorspace m², the value of improvements, and site coverage), in relation to employment and numbers of business units. Existing floorspace is broadly differentiated by current use in the Council's rating database, to show floorspace in business use and residential use. This sets the existing structure and base settings, including potential for further development.

2.5.2 Total Plan Enabled Capacity

In terms of further potential capacity, it is important to consider with the plan-enabled maximum. This offers a logical end-point from existing floorspace.

Council has developed estimates of the plan-enabled capacity on business zoned sites in all centres and business areas, taking account of plan provisions relating to setbacks, heights, HIRB and so on. This assessment is very useful to establish the potential upper end of capacity. However, it is important to recognise that such potential capacity is in many instances some way into the future, with the possible development in total implicitly linked to an economy several times larger than Auckland is now. That would be many years beyond the 30-year long term horizon of the NPSUD. It also shows the extent of plan-enabled development now, which means that any one site could be developed to the scale enabled.

An Auckland-wide assessment over the next 30+ years, however, should not be based on this maximum plan-enabled capacity. Other indicators are drawn on here.

2.5.3 Vacant Land

One direct indicator is the area of business-zoned land which is currently vacant. This is identified from Council's 2022 rating (property) dataset, at the property level, and that information has been aggregated to specific centres and business areas. The underlying assumption is that vacant business-zoned land on the identified 2,300 sites (approximately) is suitable and potentially available for use.

Greenfields land is another source of future vacant business land, and this is addressed in terms of potential additional centres and business areas (as above 2.4.6).

2.5.4 Under-developed Land

Another direct indicator is the area of business-zoned land which is identified as having vacant-potential, in that the site is not fully developed, and has potential to add more built space without needing to replace or displace existing built development. This potential is also identified from Council's 2022 rating dataset, at the property level. Again, the underlying assumption is that vacant-potential business-zoned land on the identified 1,750 sites (approximately) is suitable and potentially available for use.

It is important to note that these estimates are based on analysis using LINZ and other data of sites' built coverage, as distinct from on-the ground field survey.

2.5.5 Use and Development Intensity

A third important indicator is the existing range of development intensities – in terms of employment per ha and built development (m² and value) per ha – which is used as a guide to what is sustainable in the Auckland market. Current development intensity varies across the types of centre in the centres hierarchy, and among the business areas. It also varies by location, with intensities above the average to be expected in locations closer to the city centre, and those lower than the average in locations closer to the edge of the city. This reflects the generally higher land values closer to the city centre, with associated incentive to utilise more valuable land more intensively, their greater age and therefore potential for two or more rounds of built development to have occurred over time, and the younger age of zoned areas in the outer locations to be not yet developed to their potential, among a range of other influences including vehicle parking space.

Understanding this (though without seeking to formally model it), the range of current development intensities is nevertheless a useful guide to what the Auckland market shows it is able to sustain based on (in most instances) at least 25 years of development history. Identifying locations where current intensity is less than the median or less than the upper 25th percentile is one useful guide to their potential for further intensification.

2.5.6 Improvement Ratios

A fourth indicator is the value of built development (improvement value IV) in relation to total land Value (LV). Generally, a lower IV/LV ratio is an indicator of potential for further intensification. While this general

relationship is well understood, it is important to draw on it carefully when seeking to estimate future potential for intensification. This is because that process often involves replacement of the existing built structures, where the feasibility of doing so depends on generating higher returns (especially rental) from the land usually by enabling higher employment there, and/or by enabling a business activity which may generate higher business revenues.

The flexibility in the business zonings which enable a range of business activities means there is also considerable variation in the potential business revenues, and therefore in the likely feasibility of re-development. This variability means it is not practicable to estimate the feasibility of re-development for business use at anything other than a broad geographic scale. Although development feasibility may be estimated for housing development at a site level, an equivalent assessment for business sites is much more complex because of the variability in development costs and business revenues and potential returns, including competitive effects within and between locations, rental tenancy periods and so on. A broader scale approach is appropriate, one which recognises that re-development commonly occurs with developers' expectations of demand from the market in general.

Each of these indicators has been identified at least at the centre and business area level, and some have been considered at the site level. This detail allows analysis at the local level as well as across the Auckland region in total.

Each aspect is important to provide understanding of the current and likely future circumstances. The assessment structure recognises the need to allow for future capacity to be enabled through the combination of development intensification and additional zoning.

These matters have been drawn on to assess the potential capacity in the short, medium and long term, with allowance made as follows:

- a. some or all of the existing vacant capacity may be taken up, expressed as a % share of that capacity; and
- b. some or all of the existing vacant potential capacity may be taken up, expressed as a % share of that capacity; and
- c. there may be change in the employment intensity of existing built space (that is, reduction in the mean m² of floorspace per MEC) where existing floorspace may accommodate more persons in the workforce
- d. there may be change in the built intensity on existing zoned land, in terms of mean floor area ratio (FAR) and consequent employment capacity.

This assessment allows for variations across different types of centre – for example, providing for higher development intensity in the Metropolitan and Town centre zones - as well as variations within Auckland including higher levels of employment and built intensity on the central isthmus, where population density and proximity to the city centre generally act to encourage and sustain higher intensity than in northern, western, eastern and southern areas of the urban economy.

2.5.7 Development Infrastructure Constraints/Infrastructure Readiness Assessment

A core requirement of the HBA procedures is to identify potential constraints to development which may arise from infrastructure and infrastructure readiness. This is because plan-enabled capacity may only be realised if there is sufficient infrastructure to support it.

For this HBA research, high level information has been provided by WaterCare Services (WSL) and Auckland Transport (AT) in relation to development capacity by various locations.

At this point in time, the high level data is not sufficiently precise to identify anything more than a potential constraint. That is because for most sites, a potential constraint may not apply to all further development, but may apply when the cumulative development exceeds a capacity threshold. For example, waters infrastructure may have existing remaining capacity which is adequate to service growth up to a certain level of development in the catchment it serves, but does not have capacity beyond that. This means that the potential constraint is not an actual or material constraint unless demand exceeds that threshold.

Just as it is important to identify where constraints are material, it is equally important to not indicate that constraints exist now when they may not become material for some time.

This means the currently available information may be best considered as indicating areas where development infrastructure demand ‘hotspots’ are likely to exist, under BAU growth assumptions and planned investment programmes.

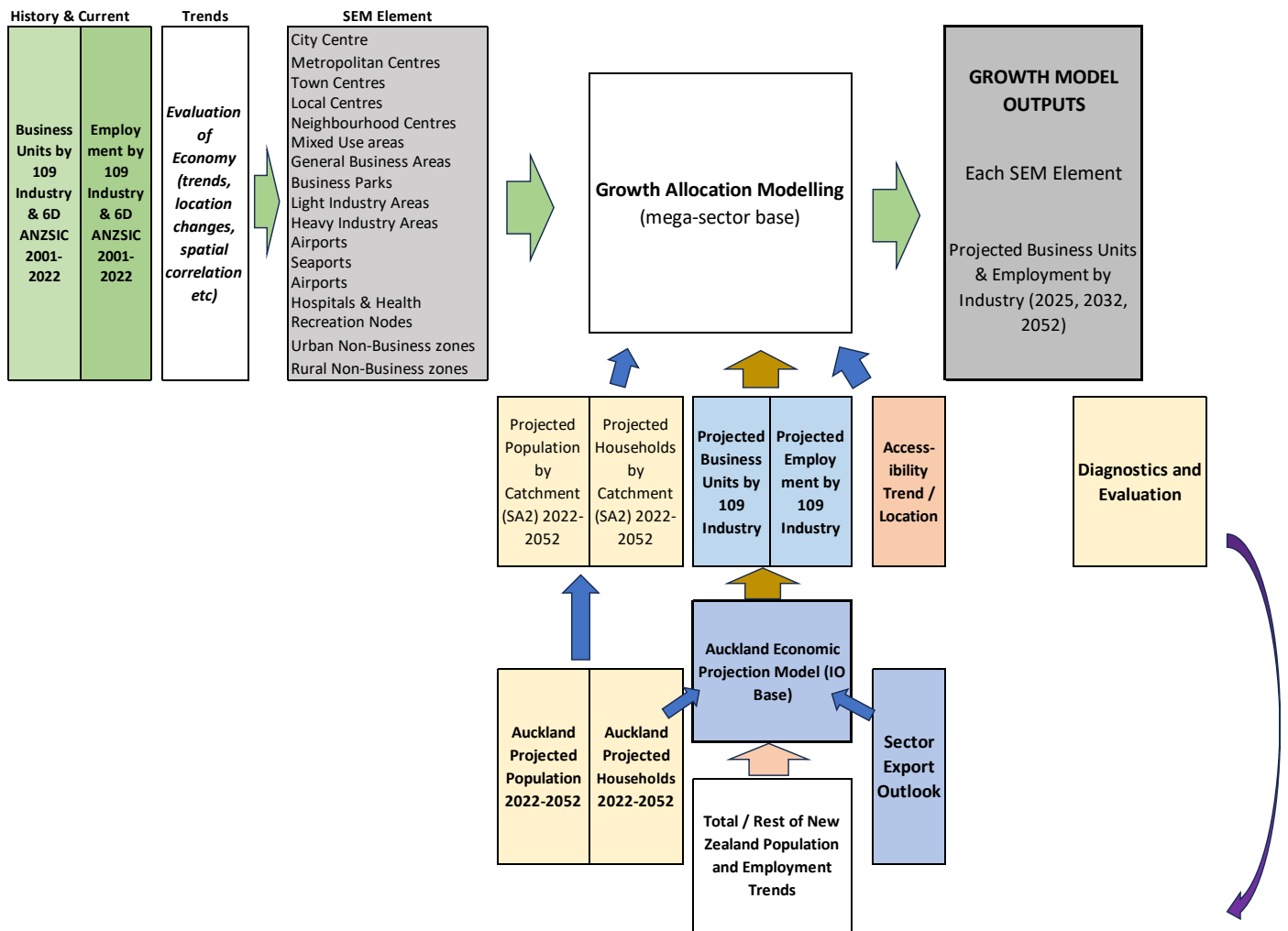
At the time of writing, the detailed information needed to assess the impact on plan enabled capacity of development infrastructure constraints – or more accurately the capacity to accommodate additional units of demand at the water catchment or transport modelling boundary, is not yet available.

2.6 Projecting Future Growth

The Model provides the platform to examine different land use outcomes, as it is influenced by economic growth and population growth, existing and future transport capacity, and by zoning and other ‘interventions’ in the economy. The growth modelling has particular focus on the centres and business areas, and special nodes, which are the focus of much of the region’s economic activity, as well as wider perspective in regard to each local board economy within Auckland, given the LBAs’ substantial populations and workforces.

The overall modelling structure is summarised in Figure 2-7. It tracks the procedures which build on the detailed core Spatial Economy Model, draw on the national and regional economic and population outlooks (by scenario) including export sectors, how this information informs the growth allocation mechanism at the regional and local (catchment) level projection, and the resulting growth projections across the elements of the Auckland spatial economy. It also shows the provisions for diagnostics and feedbacks. The flowchart is necessarily simplified.

Figure 2-7 : Auckland Economy Growth Model Structure



2.6.1 Regional Employment Projections

Two main projection approaches have been applied. The core analysis is based on an Input- Output or I-O model of the Auckland economy, with regional resident population and projected exports by sector at the national level as the key drivers of future growth¹⁰. This takes account of Auckland's role within the North Island and national economies, and the effects of sector growth (including exports) and demand growth generated by population growth.

A second approach has been applied as a cross-check, with projections based on the trends observed in the 2000-2022 period, and with underlying growth patterns projected forward to 2027, 2032 and 2052¹¹.

¹⁰ The option of computable general equilibrium or CGE-based modelling using the Merit or similar model is not available at this stage.

¹¹ Three-year mean levels are applied for the base and end years, to reduce the influence of single-year fluctuations.

The assessment includes the observed trends in employment levels *per capita* of population, for each sector¹², in relation to national trends.

Both approaches build on the underlying inter-relationship between Auckland's population size and the growth in the economy, recognising that a substantial share of economic activity is population based. They recognise that Auckland is an established and well-functioning urban economy, and the changes in economic activity (business units, employment and GDP) over the last two decades have reflected steady upward growth, with limited variation above or below the long-term path. While there was a small decrease in employment between 2020 and 2021 when the Covid-19 pandemic was impacting Auckland, the 2022 employment figures show quite a strong recovery, with employment levels now back close to the longer-term trend, and well above the 2021 level.

The analysis of the long-term patterns (2000 to 2022) indicates that the relative stability in employment and business unit growth trends is consistent with stability in the structure of the Auckland economy, and its role(s) within the New Zealand economy. These matters are discussed further below.

The initial focus is on employment projections, at the sector level. The modelling is based on the 19 ANZSIC 1-digit sectors, then with greater resolution applied as required to sub-sectors (109 sectors). It takes account of the degree to which centres and business areas currently show specialisation across sub-sectors.

The final projections structure is at 1-D ANZSIC level, for each element of the spatial economy (centre, business area) with the Business Units and MEC employment as the main metrics.

In addition, the 19 sectors identified at 1D level are also aggregated to the 6 mega sectors, for the projections of employment and business growth across the spatial economy.

2.6.2 From Employment to Land and Floorspace Demand

The employment projections have been applied to develop estimates of demand for floorspace (m²) based on existing floorspace data for each centre and business area. These take account of the current levels of built development, and information from a range of sources on employment density (m² per MEC) across different sectors.

We note that there is no comprehensive source of information on this, and that employment intensity varies considerably among locations, and between individual businesses within sectors, as well as over time and across different types of activity— for example office activities typically see a range (depending on location and type of business) of between 15-30 m² per MEC, whereas small format retail and hospitality is in the 12-25m² per MEC range, while factories are in the 40-80m² range, and warehousing is currently in the 60-150m² range per employee.

The situation is somewhat complicated by the fact that floorspace demand estimates are required at the location level, for estimating future demand in each centre and business area. There is considerable variability both with sectors and between sectors, as well as among different locations.

Rather than seeking to apply any standard or representative intensity to specific locations, the assessment assumes that the current development intensity (m² per ha) and floorspace intensity (m² per MEC) in each

¹² One important observation from the trend analysis is that national and regional level data have shown increases in the levels of employment/numbers of jobs *per capita* of resident population. This has occurred at national level, and at Auckland regional level.

location is the most accurate representation of market performance and preferences. Accordingly, for estimating future demand for floorspace and land area according to employment growth, the current (2022) parameters are assumed to apply into the future, with adjustment only as to region-wide estimates of changes in employment intensity over time. Each centre or business area is assumed to change in line with any region-level shifts assumed.

This approach avoids the need to re-base demand estimates according to a standard or notional intensity. The estimates of floorspace demand for each centre and business area take into account the region-level shifts, together with the location-specific estimates of employment change.

2.6.3 Population and Household Demand Projections

The detailed population and household projections are based on the most recent Sub-Regional population series developed by Stats NZ. These were released in March 2021. Overall Population growth assumptions are sourced from sub-national (Auckland region) population and household series from March 2021, the recently released December 2022 population series, and the specific March 2023 population series commissioned by Auckland Council from Stats NZ.

The household estimates for the December 2022 and March 2023 population series are based on household formation rates for each age group in the population, referenced to the March 2021 Stats NZ series. These regional level projections developed by ME are detailed by household type and age band (of reference person) and are further disaggregated by household income band.

To allow for population and household growth within Auckland, projections of household numbers at the SA2 level have been applied. These draw in the first instance on the Stats NZ SA2-level projections of population which were developed with the March 2021 Stats NZ projection series. For the current analysis, the Stats NZ projections have been factored to match the most recent total Auckland household projections. This has been applied pro rata across the SA2 distribution, on the (initial) basis that the slower than projected growth in Auckland would apply uniformly across the region. Although this limited *pro-rating* approach is not ideal, at this time there is no suitable information from Stats NZ on which to apply location-specific adjustments to the base case.

The Stats NZ adjusted projections have been applied here as the base case future.

The Model has been developed to draw on alternative growth projections at the SA2 level, to show the potential effects of different growth patterns within the region. This capability is useful to draw on going forwards because the local catchment (SA2-level) household projections directly influence the modelled employment and business unit projections, as the SA2 level data is related to the catchments of each centre or business area.

2.6.4 Determining Industries' Spatial Preferences

The spatial components in the Model require sound information as well as detail and flexibility. Looking forward 10 or 30 years into the future is necessarily demanding, since much can change over time. That said, the fundamentals of the Auckland urban economy and what drives it are reasonably clearly understood, and the urban economy is well established.

The established economy and spatial structure is the appropriate platform for projecting the future outcomes, as this reflects the entirety of influences on the economy, its growth, and the expressed location and operational preferences of the business sector, and the household sector. This means that continuation of incremental change is the most reasonable starting point.

It is useful to both take account of those established drivers and to include scope for the known influences to change – for example to recognise how individual shifts or combinations of changes in population growth, employment growth and planning conditions can be expected to affect the land use outcomes, and demand for business and housing capacity. Such changes would include specific initiatives, such as the proposed Auckland Light Rail (ALR), and the Alternative Waitemata Harbour Crossing (AWHC).

Other unknown impacts include the overall spatial and policy response to hazards, shifts in preferences or costs in response to climate change, and the still evolving post-pandemic changes to workplace use and preferences, including for knowledge-based industries that generally take place in offices in centres¹³. The model does not specifically account or forecast how these matters may affect growth outcomes, but its settings can be adjusted to reflect advice or opinion on what they might or should be. Such adjustment may be applied to reflect broader trends, such as any long term effects from the shift toward working from home during the Covid-19 Pandemic, which may affect the floorspace demands per MEC on business property.

Recognising this, the spatial patterns in each sector have been examined to identify and understand the observed changes over the last decade (medium term past) and two decades (long term past). This is to better understand the role of each element and location within the economy, and the locational preferences of sectors. It also helps reflect the spatial structure of each sector, in terms of the number of discrete locations, the distribution of business units and employment across those locations, and the relative spatial concentration across the economy.

The background analyses recognise that Auckland's existing spatial structure reflects the economic roles of centres, business areas and special nodes, and how they have developed over time in response to market conditions and the competitive environment.

One analysis is basic Shift and Share, which has been used to show how employment patterns have changed over the last 20 years (2002 to 2022). That compares actual with expected growth patterns and trends across the economy. The method is relatively simple, to identify the change for any location in a way which identifies the changes which can be attributed to the underlying trends in each sector, and also identifies the effects which are specific to each location – by sector, and overall. This is shown in Section 3.2.

Another basic analysis includes the relative spatial concentration of sectors, to show both how important each sector is for each location and element of the spatial economy, and how important each location is for each sector. That analysis uses Location Quotient (and supporting Spatial Correlation approaches) to estimate the relative spatial concentration for each sector. It helps to identify the key sectors which are

¹³ This could generally be assumed as a decrease in FS demand per MEC, as firms pivot to lower average occupancy and downsize space – they may have the same (or more) employees, but have the same or less amount of space, perhaps used more flexibly, due to expecting (say) maximum of 80% of employees to be 'in the office' on a given day. It may also be the case that the quality of the space (including its location) is increased. That said, workplace attendance tends to be higher in the middle of the week, and total business requirements end to be set by their maximum workforce in attendance, rather than the average.

currently driving development, and the locations of growth and change. It also shows the **spatial relationships among sectors, particularly their co-location patterns within the existing economy.**

Overall, as expected in a mature economy, the spatial patterns show clear overlaps among the mega-sectors, reflecting the importance of the centres network in accommodating and enabling all types of business activity. The series of maps in Figure 2-8 depict location quotient analysis of business patterns across Auckland in 2022. The red and blue shading shows the locations where business activity (employment) in each mega-sector is relatively concentrated, while the lighter shading shows relatively low incidence. The maps are intended to indicate the overall patterns of activity across a large economy, as distinct from examining specific locations.

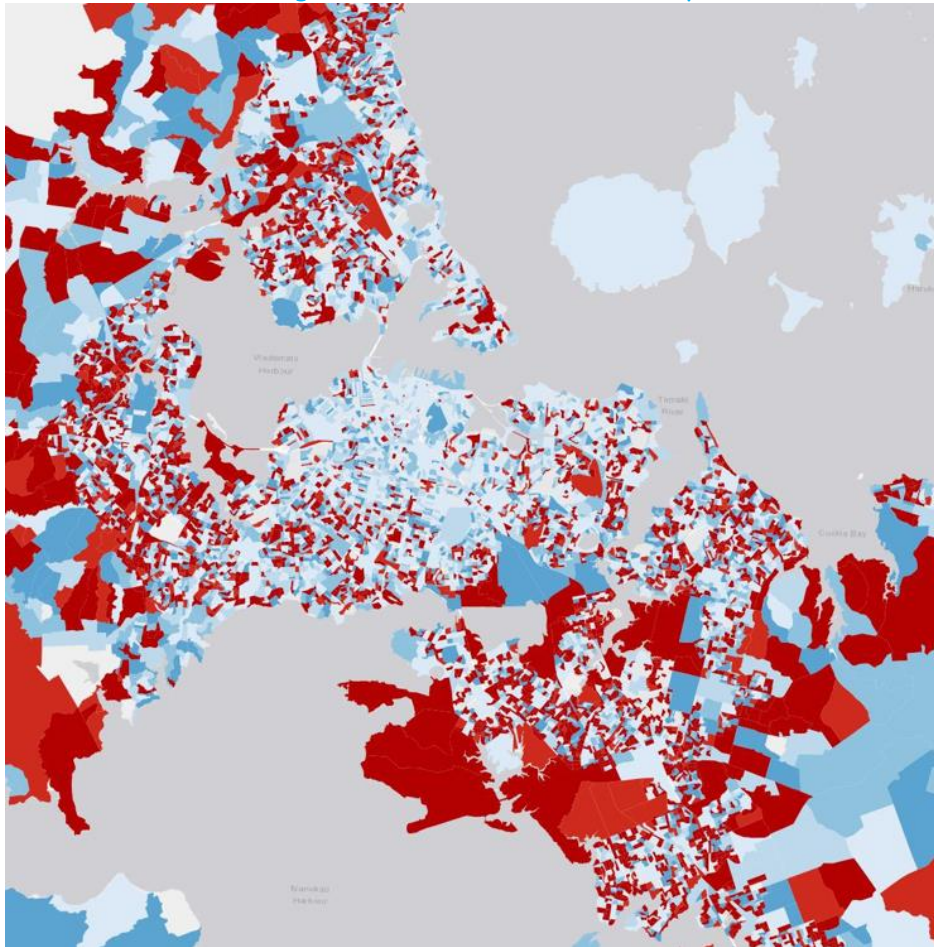
Figure 2-8 : Spatial Concentration by 'mega-sector' 2022

1 - Primary Sector:



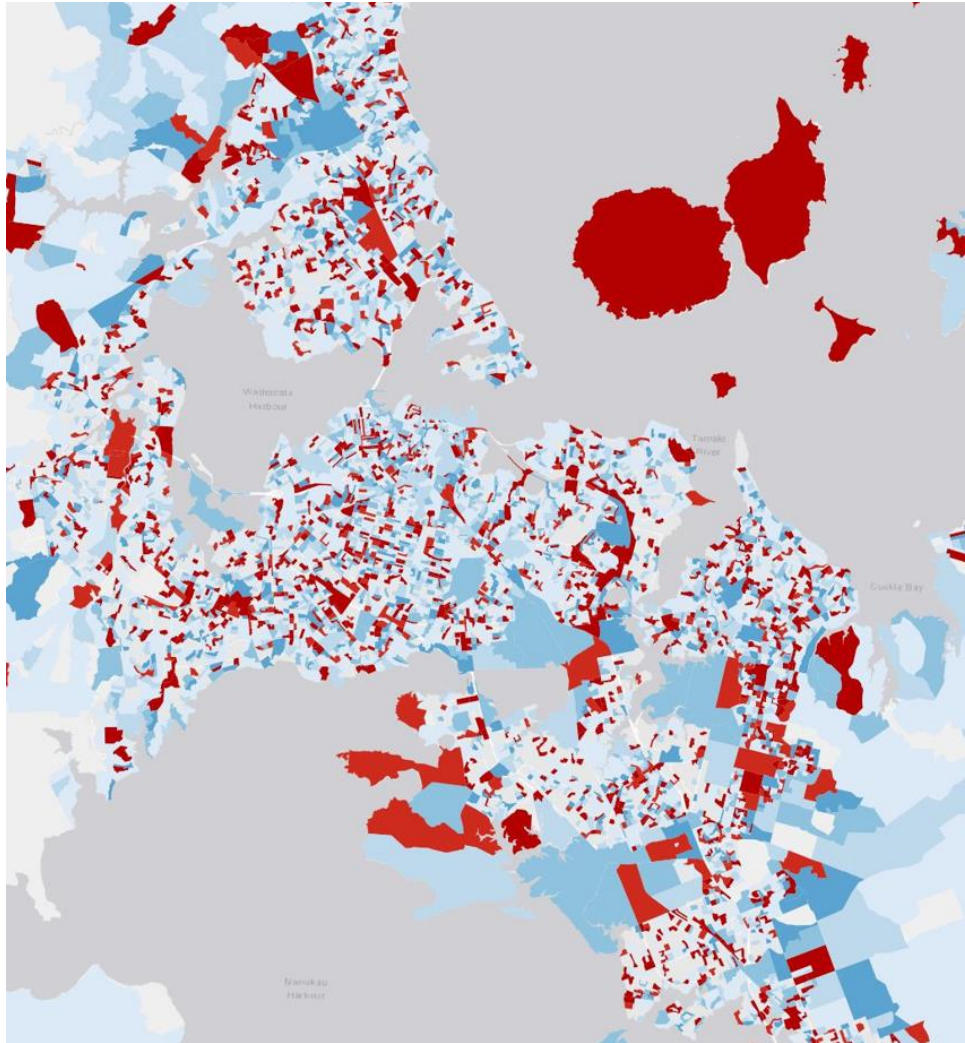
The Primary mega sector shows as expected high incidence (red shading) outside the main urban area, although with some incidence of primary sector support activities in a number of centres and business areas shown in the blue shading (Figure 2-8 -1). Most locations show very light or white shading, indicating low incidence. The ANZSIC structure also means that some activities such as head office or support businesses relating to primary land-based activity are grouped in that sector.

2 - Manufacturing Utilities Construction and Transport



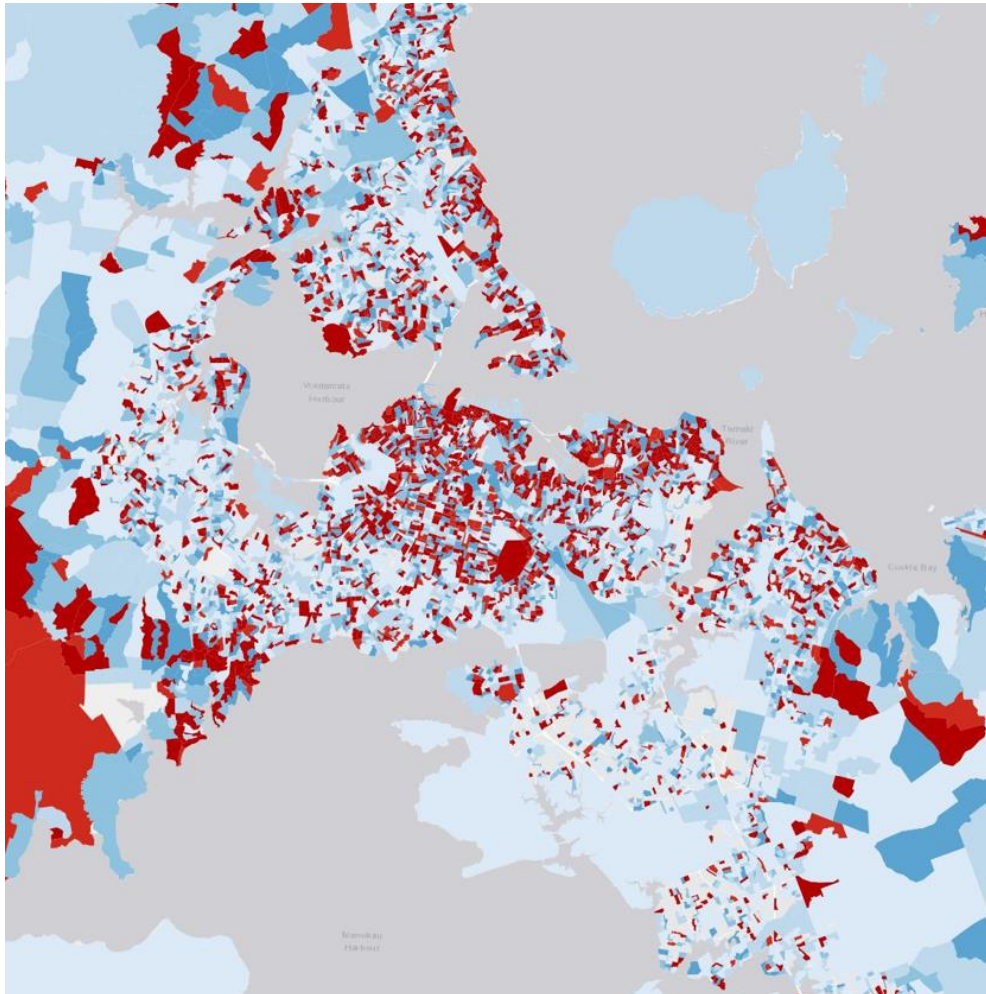
The Manufacturing, Utilities, Construction and Transport mega sector groups together activities of generally similar nature, but also has a range of locational drivers. The map of spatial concentration (Figure 2-8 -2) shows wide distribution, including relative concentration in industrial zoned areas. It also shows relatively more concentration on the outer parts of the city including the rural urban fringe. There is low incidence in the central parts of Auckland, where the CBD and inner suburbs have greater incidence of office-related activities.

3 - Trade and Hospitality



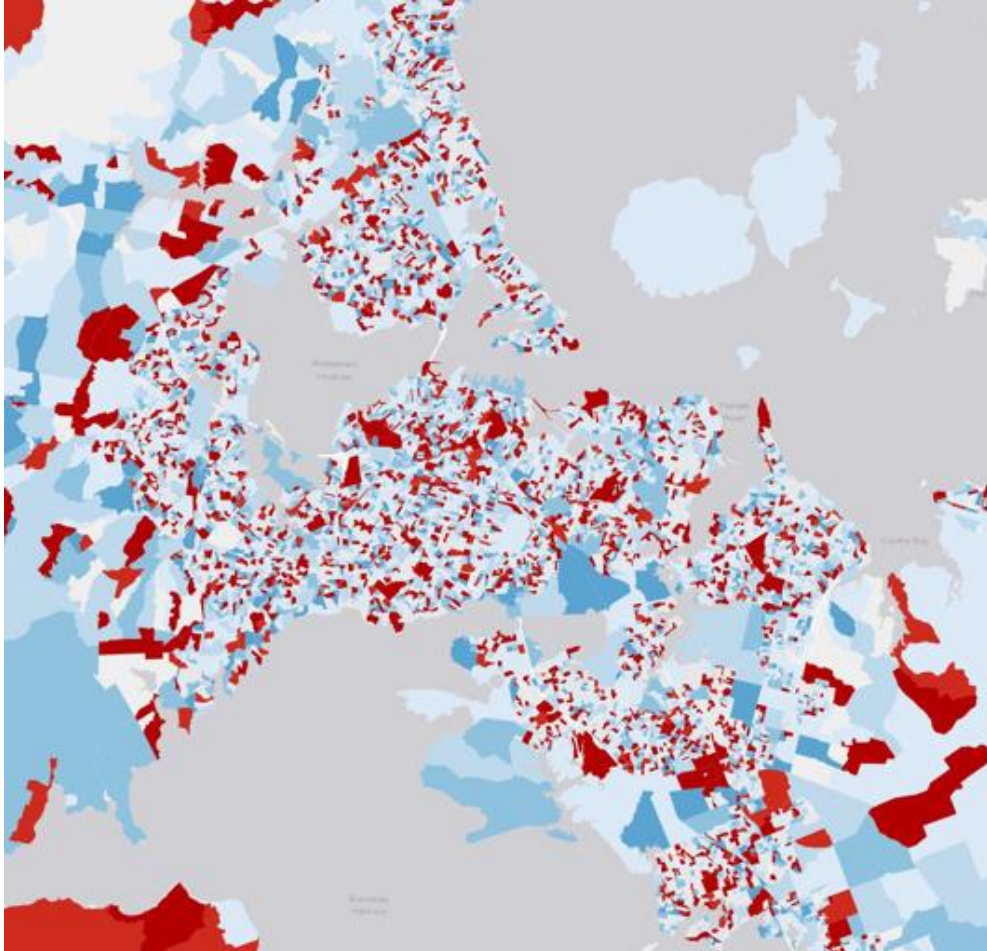
The Trade and Hospitality mega sector groups shows a pattern of concentration which is very similar to the distribution of centres, together with the incidence of larger scale wholesaling in warehousing across the Light Industry zone in locations like Lincoln Rd and Wairau Valley (Figure 2-8 -3). As with the other mega-sectors, the spatial concentration is very much as expected.

4 - Finance and Professional



The Finance and Professional mega sector shows a pattern of concentration which reflects especially the major commercial centres, where office-based activities tend to dominate along with retail and services) (Figure 2-8 -4). The mega-sector shows higher incidence across the central isthmus, in the southern North Shore, and eastern suburbs. Also apparent is the concentration in suburban areas as well as the centres, especially in the suburbs characterised by higher income levels. This reflects the relatively higher incidence and opportunity of working from home or home offices among persons in the financial, insurance and professional services activities.

5 - Household Services



The Household Services mega sector shows some relative concentration around the network of centres, but also broader distribution in line with the distribution of population (Figure 2-8 -5). This reflects the nature of the activities with the public sector generally focused on centres, while administrative and support services and arts and recreation are often smaller scale and oriented to serving local catchments.

6 - Education and Healthcare



The Education and Health mega sector also shows its expected relative concentration around the whole network of centres, especially for non-hospital health services, and the distribution of the population for schools (Figure 2-8 -6). As with the other mega sectors, the pattern is for quite broad distribution across the economy, and with some representation in centres at all levels of the hierarchy reflecting the supply of generally small scale health services and childcare/pre-school services.

2.6.5 Structural Shifts within the Spatial Economy

At the same time, the overarching trends in the Auckland economy were examined, with focus on structural shifts at each level. This was to identify whether each type of centre and business area has shown faster or slower growth than the regional average. This is to identify how the place of each level in the economy may have changed through time, to indicate possible structural shifts.

The analysis identified that across the decade to 2022, business activity in the Auckland CBD increased at around 20% above the regional average, while the Metropolitan centres increased at close to the regional average, while Town centres increased at only one-third the regional trend. Centres lower in the hierarchy likewise grew more slowly than the trend (Local centres at 40%, Neighbourhood centres at 70%), as there was a region-wide shift away from centres with smaller roles and smaller localised catchments. Those same trends are evident for the last two decades (2002-2022), and are consistent with earlier research of patterns in the 1980s and 1990s which showed increasing concentration of activities in larger centres.

Among the business areas, growth in Mixed Use areas was ahead of the regional pattern, as was that in General Business areas, while in Light and Heavy Industry areas it was slightly behind the trend.

These underlying trends are able to be taken into account in the Model to develop the growth projections. The counter-factual is that all centres and business areas follow the regional trend.

2.6.6 Economy Model

The above information and analysis contribute to one core purpose of this research, which is to develop projections of not just the overall industry structure, but also the future patterns of economic growth within Auckland. The future outlook is required at the regional as well as the local level, and by sector of the economy.

Projections within Auckland are logically based on the established structure of the economy, the centres, business areas and nodes which are the focus of economic activity, and these are expected to be the main places to which future growth is attracted. This means in effect that growth projections take account of that established structure and potential new nodes of activity across the landscape. A spatial modelling structure is the appropriate tool for this analysis, in order to show the interactions and outcomes by location - in effect to show the future city across Auckland's centres, business areas and special nodes. A number of modelling options are available for this, with two broad approaches.

One approach is to develop a model of the urban economy itself, to then be applied to estimate future changes. There are commonly two parts to this approach. The first is a model which accounts for – 'explains' - the current structure of the spatial economy. That typically seeks to account for employment or activity levels (as key indicators of economic activity) in centres and business areas, in terms of widely recognised influences including market size, catchment demand, workforce availability, distances to/from competing nodes, travel accessibility, transport infrastructure, the spatial structure of sectors, and so on. The aim is to have good levels of explanation – commonly through regression analysis – of established structure and function. This is by reference to the factors which are known to influence business location and development choices. The second part is to model or explain the observed changes in that structure over time, especially to offer a robust basis for projecting forward future growth.

An advantage of this approach is that there is commonly solid information available to support a model which demonstrates good levels of explanation especially using regression analysis. However, an important disadvantage is the complexity of most cities, which means there is the practical difficulty of being able to develop a model which can represent the economy's performance across multiple locations, and do so over time. Although the situation and performance of major nodes may be modelled with reasonable accuracy, cities are characterised by a variety of conditions, with individual nodes commonly having their own mix of economic activities and catchment characteristics influencing their performance. A particular challenge for projecting future outcomes is to establish a suitably accurate base year situation. Even a model with high levels of explanation will commonly have nodes for which the modelled base year is materially different from the actual situation.

The second approach is to base the model on the (current) actual situation for the urban economy, and confine the modelling to the estimation of future growth from that actual base. This approach has a number of advantages, not least that the current actual situation is the most accurate 'model' of the combined

effects of all of the influences on the urban economy and its network of nodes, and the net effect of all past land use regulations, economic conditions, preferences and trade-offs in the Auckland economy to date. That includes many which still have effect. This means that projecting off the current base has both a robust platform, and a projection structure which has been influenced by those same factors across the long and medium term past. That is important in a large and well-established urban economy like Auckland, where the centres and business areas show relative stability over time, much of the observed growth and change is incremental, household and population growth is widely distributed across the economy, and investment in transport infrastructure is often oriented to the CBD and main centres, which effectively reinforces the *status quo*.

This second approach has been adopted here. The *Auckland Economy Growth Model* uses the actual 2022 situation as the platform, so that it captures the current circumstances for every centre and business area across the economy. The current patterns and trends over time have been drawn on to as far as possible validate the existing situation as representing the real-world workings of the economy. These recent trends have been analysed to establish the key drivers of growth in employment and business units over the last 10 and 20 years, using regression modelling to show those underlying relationships. The Model includes allowance to add new centres and business areas to the future projection outcomes, with these able to be modelled according to the observed parameters of existing nodes of similar size and type.

2.6.7 Drivers of Change

The related requirement is to identify the key drivers of growth and change in the economy, in order to inform the Model, as the basis for the future projections. This is through statistical analysis to understand and where possible quantify the drivers of past patterns of growth, for which the main method has been regression analysis.

A standard regression approach using Excel has been applied. The analysis seeks to explain the observed growth and shifts in employment and business units over the long term past (2001 to 2022) and medium term past (2012 to 2022), as the dependent variables. For the modelling, a range of independent (explanatory) variables was tested, with the aim of accounting for (statistically) the past growth patterns, as a basis for projecting forward future growth, to be applied to the regional employment and business growth projections. A series of regression models have been tested, to identify variables that offer both the necessary strong conceptual basis, and also statistically robust relationships with past growth patterns.

The focus has been on the shares of growth attracted to each element of the spatial economy, over selected time periods. This has been applied to each mega-sector, and to all sectors combined, with the Share of Growth as the **Dependent Variable** in the regression.

The Independent or potential explanatory variables tested have been:

- i. The **share of total regional activity** (% of MECs, % of Business Units) in each element, in the base year. A variant of this is the total activity (MECs, Business Units) in each centre and business area.

It was expected that this variable would have high explanatory power. This is because the base year activity in any location would reflect the suite of drivers which affect location and size choices for business activity, generally capturing the mix of market conditions throughout the preceding years. Moreover, since the Auckland economy is well established and relatively stable, it is to be expected that the conditions which influenced business choices in the base year would still be strong in the

end year, including trends and changes in those influences. As a consequence, the base year activity was expected to be a strong indicator of the observed growth, and end year outcomes in business activity.

One other consequence of this is that the other main influences on growth and change in the urban setting – including changes in accessibility, growth in household demand, and growth in business activity in adjacent locations – which are commonly examined in urban spatial studies, and applied in modelling to project future change, may show as having limited additional explanatory power which is over and above the influences of the base year business activity, and the economy-wide sector growth. This is because much of their influence has already had effect on patterns of business activity, and so have been ‘captured’ in the base year business activity. This means that a regression analysis to help explain activity patterns would be likely to capture at best, a marginal additional effect over the study period.

- ii. The **relative accessibility of each centre and business location**. Two indicators for this have been applied, one which reflects the relative accessibility for business activity for each mega-sector. The other utilises the Generalised Cost indicator from the MSM model.

The accessibility indicator for business activity is calculated separately for each mega sector. It is based on the travel distance from each element to all other elements in the spatial economy. This is weighted according to the I-O relationships which reflect the interactions by that sector to each other sector, for each location. This means the accessibility estimate takes into account the distance to each other element, and the relative probability of interaction with that location according to the mix of activities there. This approach differs from the common approach which based on generalised costs of access rather than travel distance, allowing for distance decay factors.

The accessibility index for household travel is based on the relative generalised costs (GC) per trip from each location (MSM zone) to all other locations.

In both instances, accessibility is relative accessibility, as this allows for locations to be differentiated without requiring an actual accessibility value. We note the GC measure is appropriate for household travel, especially JTW and accessibility of the workforce for businesses, as well as the customer base. However, the GC metric is not available for much business travel, and does not capture well the relative costs of business-to-business interactions.

To take both aspects into account, the modelling variously used both as separate variables, as well as a composite combining the business and household accessibility indicators.

- iii. **Growth and change in the household market**. This takes account of numbers of resident households in the catchments of each SEM element, over the 2001 to 2022 period. The model takes account of the role of each centre and accordingly the likely extent of its main catchment area, with relevant household numbers and growth estimated according to travel distance. For example, household growth relevant to the CBD is the whole Auckland market, whereas for town centres only growth within 5km of the centre is included. The model takes account of growth over selected periods, to concord with the base and end years in the employment analysis.

- iv. **Growth and change in the business activity in adjacent centres and business areas.** This takes account of shifts in employment and business units with potential to influence the change in each the specific location.

A number of variations were tested to examine the extent to which they could account for the past shifts in business activity over a range of study periods, as a basis to be applied to future projections. The availability of annual data meant that any pair of years between 2001 and 2022 could be used as the base and end years for analysis. The testing showed that the results showed limited sensitivity to the selection of base and end years, which was not unexpected given that Auckland's growth patterns are characterised by incremental change, while the expected drivers of change including accessibility and household numbers in catchments themselves tend to change relatively slowly, and do so incrementally.

It is also important to recognise that there are quite similar spatial patterns among the causal influences / independent variables in the models, which was expected to limit the range of outcomes in the projected growth patterns.

The periods for analysis were 2001 to 2022, and 2010 to 2022. Testing of other time periods produced similar results, such that the time period selected did not have a significant effect on model suitability. The logical end period for the modelling was 2022, to take account of the most recent business activity data, though recognising that the Covid-19 pandemic had some effect on the long term trends.

2.6.8 Models Applied

Projection models were developed for each mega-sector and for all sectors combined. The final projection models reflect the base year share of business activity as the key driver of growth, with this variable accounting for 60-80% of the observed increase in employment over study periods. The regression analysis identified secondary contributions according to household growth, all-sector activity in the base year, and changes in centre or business area relative accessibility. Even though these variables showed out as being statistically strong from the regression analysis, they are known to be important influences on both the market potential of catchments, and the attractiveness / competitiveness of locations, and as a consequence on growth potential.

The projection models took the findings into account as follows:

- i. The overall requirement is to estimate / allocate the projected regional growth in business activity across the 'formal' spatial economy (centres, business areas, special nodes) in the first instance, together with the other urban and rural areas of the economy. For modelling purposes, all of the projected growth had to be allocated, as there is little benefit from leaving substantial unallocated residuals of Business Units and Employment.
- ii. The analysis consistently showed the base year situation as the key determinant (statistically, and conceptually) of the growth over the projection period. On this basis, the models allocate 60-80% of the projected growth in each mega-sector according to the shares of business activity in the base year (for the projections, 2022).

This is shown in Figure 2-9, for the Base Case Medium Growth future. We note that:

- a. The models allocate 2.5-40% of projected growth according to the base year total business activity.
- b. Between 5% and 20% of projected growth is allocated on the basis of projected household growth in the catchment areas of centres and business areas.

- c. Between 3% and 20% of growth is allocated according to accessibility.

Figure 2-9 : Modelled Growth Factors

Mega-sector	
Primary	$0.8*A + 0.05*B + 0.1*C + 0.05*D$
Manufacturing Utilities Construction	$0.4*A + 0.4*B + 0.1*C + 0.1*D$
Trade & Hospitality	$0.5*A + 0.2*B + 0.2*C + 0.1*D$
Finance & Professional	$0.9*A + 0.02*B + 0.05*C + 0.03*D$
Household Services	$0.75*A + 0.07*B + 0.15*C + 0.03*D$
Health & Education	$0.58*A + 0.07*B + 0.15*C + 0.2*D$

where

A = Base Year Sector Activity

B = Base Year Total Activity

C = Household Growth

D = Accessibility

Allowance was also made for the over-arching trends relating to centres and business areas of each type to reflect the structural shifts evident since 2002.

This approach offers advantages and disadvantages. Advantages are that it is based on the underlying statistical relationships observed for Auckland, and the conceptual relationships known in urban economies. It also allows for location-specific drivers identified through the regression analysis and models, and the region-wide patterns to capture structural shifts observed. The base case situation as shown represents a general 'best-fit' situation, within the limitations imposed by the complexity of the urban economy.

The projections of employment by sector, and future dwelling numbers are based on this established structure, and assessment of the underlying relationships which have generated growth and change to date. The employment projections are structured around the Auckland spatial economy, to take account of the established and potential roles of each centre and business area (element), and the dynamic relationships among them, and with consumers (in catchments).

The approach is hierarchical, on the basis that the regional outlook must reflect Auckland's place within the total New Zealand community (population and households) and the total New Zealand economy (Business Units, employment and GDP). In turn, the regional level projections are allocated across the spatial economy, according to the established role of each element (centre or business area), and the contribution to recent growth (2002-22 for long term, 2012-22 for short term).

The disadvantages arise from the simple structure, the reliance on coefficients identified for specific time periods (even though cross-checked for consistency across multiple time periods), and the need to apply estimates of the relationships with some of the variables other than the dominant drivers (shares of activity in the base year).

Recognising the strengths and limitations, the approach is purposely transparent and the influence of model structure and assumptions on the projected business activity outcomes and growth is easily shown. This makes sensitivity testing straightforward, as are diagnostics to test the influence of each model approach and assumptions. Importantly, the Model has the ability to modify any of the modelled growth factors, or combinations of these, and test and understand the outputs. It is straightforward to identify how changes to growth factors influence projected outcomes.

Those core outputs from the *Auckland Economy Growth Model* are the projected business activity levels (employment and business units) for each centre and business area and other elements of the spatial economy.

A central part of that process is input also from Council staff, in order to examine the range of outcomes before the 'Base Case' scenarios are finalised.

2.6.9 Projected Futures and Sensitivity Testing

The Base Case applies growth factors (as described in (Figure 2-9), for the Medium growth scenario in the first instance, together with allowance for the structural shifts observed over the last decade to continue.

Initial outputs show that the main variations in outcomes are driven by the selection of low, medium or high growth futures (that is total economic activity) for population and employment, with less sensitivity to shifts in local catchment populations, and shifts in accessibility.

A considerable amount of sensitivity testing was undertaken, to understand how the projected outcomes in each growth future may vary according to varying influences of base year activity, household growth and accessibility, and structural shifts. In general, the sensitivity tests showed limited differences in the growth outcomes spatially, with variations by 2052 generally within +/- 5% for major centres and business areas.

This is not unexpected, given the structure of the Model to reflect the best fit over time with the base year geography of business activity, with Auckland spatial economy well established, and characterised by incremental growth in the existing centres and business areas, while the potential for further expansion is also predominantly around incremental growth.

3 Auckland's Employment Growth

This section examines the immediate past performance of the Auckland spatial economy. This is a key to understanding both the nature of economic growth, and the spatial manifestation of future growth. The analysis draws from employment and business unit information throughout the 2001 to 2022 period, and examines in detail the current (2022) situation. This is complemented by information on population and households, with detail for the centres and business areas themselves, and the catchment areas of each SEM element (at SA2 level).

3.1 The Auckland Economy at 2022

The Auckland economy is substantial. As at 2022, total employment was some 936,600 persons, who were engaged in 217,460 business units (Table 3-1). The Region's GDP was estimated at \$127Bn, around 37.8% of New Zealand's total GDP¹⁴.

The economy is oriented toward the tertiary and quaternary sectors, with correspondingly lower shares of activity in primary activity, and manufacturing.

Table 3-1 : Auckland Region Economy Structure 2022

Sector	Business Units	Employment MECs	GDP (\$m)	GDP %
Agriculture, Forest, Fish	4,210	7,500	\$ 589	0.5%
Mining	100	400	\$ 191	0.2%
Manufacturing	9,390	84,100	\$ 13,581	10.7%
Utilities	490	6,200	\$ 1,472	1.2%
Construction	29,990	93,900	\$ 9,641	7.6%
Wholesale	10,400	64,600	\$ 9,640	7.6%
Retail	15,470	86,900	\$ 6,668	5.2%
Hospitality	8,380	57,900	\$ 2,421	1.9%
Transport Post & Whouse	6,830	42,000	\$ 4,731	3.7%
Information & Telecom	4,050	21,700	\$ 9,012	7.1%
Financial & Insurance	16,950	35,000	\$ 12,421	9.8%
Rental, Hire, Real Estate	42,100	21,800	\$ 11,056	8.7%
Prof & Science & Tech	30,810	111,000	\$ 14,461	11.4%
Admin & Support	8,900	58,500	\$ 2,506	2.0%
Public Admin & Safety	1,000	38,600	\$ 3,955	3.1%
Education & Training	4,230	66,700	\$ 6,085	4.8%
Health & Social Asst	10,040	91,700	\$ 8,027	6.3%
Arts & Recreation (est)	4,140	15,900	\$ 3,557	2.8%
Other Services (est)	9,980	32,300	\$ 7,226	5.7%
Total	217,460	936,700	\$ 127,240	100.0%

Source: Auckland Economy Growth Model 2023 StatisticsNZ 2023

¹⁴ [Regional gross domestic product: Year ended March 2021 | Stats NZ](#)

3.1.1 Auckland Economy Performance 2001-22

Auckland's employment has grown substantially over the last two decades, with a 54% increase overall (Table 3-2). The strongest growth has been in construction (reflecting the escalation in housing consents since 2016 and especially since 2019), professional and scientific services, health and social services, education, and hospitality. The manufacturing sector showed overall decline.

Table 3-2: Auckland Employment Change by Sector 2001-2022

Sector	Auckland Employment Change 2001 - 2022							2001-22	2001-22
	2001	2011	2021	2022	2001-11	2011-22	2001-22	%	Share %
Primary	11280	8760	8100	7470	-2520	-1290	-3810	-34%	na
Mining	330	300	450	410	-30	110	80	24%	0%
Manufacturing	87220	76990	81980	84090	-10230	7100	-3130	-4%	na
Utilities	3090	3850	6050	6160	760	2310	3070	99%	1%
Construction	39760	48690	88240	93900	8930	45210	54140	136%	16%
Wholesale Trade	52580	56030	61900	64600	3450	8570	12020	23%	4%
Retail Trade	59010	65240	81470	86870	6230	21630	27860	47%	8%
Hospitality	31790	42880	58960	57890	11090	15010	26100	82%	8%
Transport & Storage	33090	36010	40390	42010	2920	6000	8920	27%	3%
Information & Telecoms	21200	21030	21380	21740	-170	710	540	3%	0%
Finance & Insurance	19700	26360	33330	34970	6660	8610	15270	78%	5%
Property	14730	15750	21070	21830	1020	6080	7100	48%	2%
Professional & Scientific	59920	80230	104100	110990	20310	30760	51070	85%	16%
Admin & Support	37660	43310	58410	58460	5650	15150	20800	55%	6%
Public Admin & Safety	20730	29170	37720	38640	8440	9470	17910	86%	5%
Education & Training	40060	57900	67780	66740	17840	8840	26680	67%	8%
Health & Social	45120	65050	87590	91690	19930	26640	46570	103%	14%
Arts & Recreation	9060	13640	16450	15860	4580	2220	6800	75%	2%
Other Services	20870	25320	31760	32290	4450	6970	11420	55%	3%
Total	607,200	716,510	907,130	936,610	109310	220100	329410	54%	100%

Auckland Economy Growth Model 2023

3.1.2 Auckland's Role within New Zealand

The economic and employment outlook for Auckland is based on the economy's role within the national economy, the outlook for each sector nationally and regionally, and the regional population outlook. The rationale is straightforward. The regional economy is well developed and stable, with an established place and role within the national economy. Substantial change in this established structure – for Auckland as well as other regions - is not anticipated, which suggests that Auckland' growth will be predominantly incremental gains in each sector, adding to the established economy structure.

The region's growth prospects derive from both its function as a hub in the Australasian economy, and New Zealand's national growth prospects. The established relationships and trends are likely to persist, with limited shifts in the structure of the economy or the rates of growth in main sectors. Moreover, the relationships between employment and the scale and nature of the resident population are well established, and much of the region's economic activity is based on the domestic economy rather than export trade. These factors mean the regional economy and population projections offer a robust basis for

projecting forward the region's economic activity as employment and Business Units¹⁵. Auckland's current role in the national economy is summarised in Table 3-3.

Table 3-3 : Auckland within the New Zealand Economy 2022

Sector	Business Units	Employment MECs	GDP (\$m)
Agriculture, Forest, Fish	7%	5%	2%
Mining	10%	7%	2%
Manufacturing	34%	34%	40%
Utilities	25%	30%	16%
Construction	37%	35%	38%
Wholesale	47%	51%	55%
Retail	40%	36%	39%
Hospitality	33%	34%	38%
Transport Post & Whouse	37%	41%	36%
Information & Telecom	45%	54%	47%
Financial & Insurance	43%	52%	62%
Rental, Hire, Real Estate	38%	40%	40%
Prof & Science & Tech	44%	45%	47%
Admin & Support	40%	43%	41%
Public Admin & Safety	23%	27%	25%
Education & Training	31%	33%	38%
Health & Social Asst	36%	33%	34%
Arts & Recreation (est)	32%	33%	58%
Other Services (est)	34%	34%	58%
Total	35%	35%	38%

Source: Auckland Economy Growth Model 2023

Overall, Auckland accounts for an estimated 38% of national GDP, and 35% of employment. Auckland has relatively high shares of the national economy in a number of sectors, including wholesaling, transport and warehousing, information and media, finance and insurance, professional and scientific services, and administration and support services. In other sectors, especially household services, the regional share is close to its share of the total population (33% in 2022).

3.1.3 GDP Performance

Auckland's economy has performed strongly over the last two decades. Figure 3-1 shows the shift over the 20 years, with the bars showing the change in GDP, and the red segments showing the Auckland-specific contribution. Auckland has shown stronger growth than can be accounted for by just the sector trend (% change at national level) and Auckland's relative population gain. In net terms, Auckland's relative GDP gain has been +3.5%, or around \$3.7Bn over the period. Relatively strong gains are shown in finance and insurance, information and media, hospitality, construction and health care and social services.

¹⁵ Taking into account to the structural trends in terms of employment levels per capita.

Figure 3-1 : GDP Trends Auckland 2002-2022

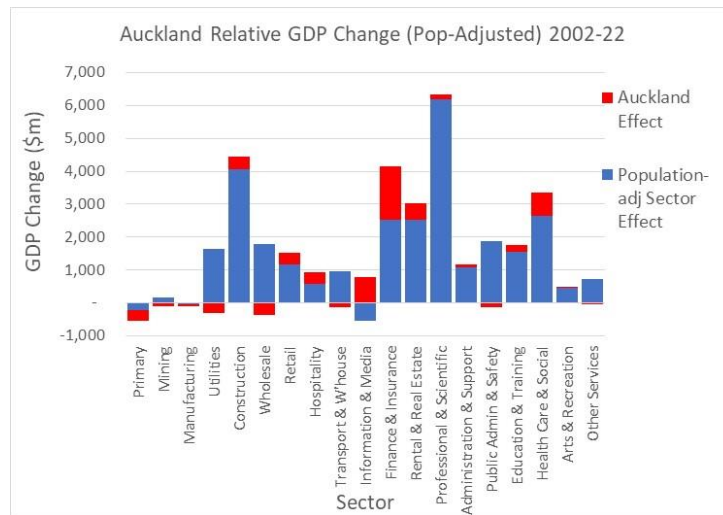
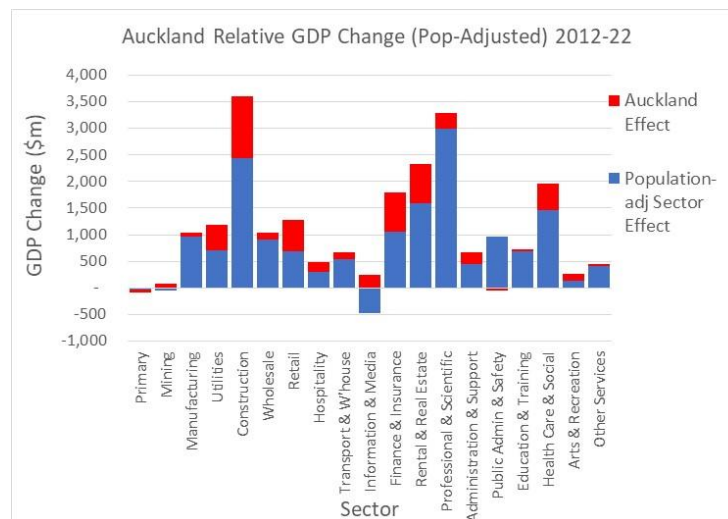


Figure 3-2 shows the shift over the last 10 years. Again, Auckland has shown stronger growth than can be accounted for by just these sectoral trends and Auckland’s relative population gain. In net terms, Auckland’s relative GDP gain has been +5.4%, or around \$5.7Bn over the period. Relatively strong gains are shown in construction and utilities as well as retail, and property and real estate.

Figure 3-2 : GDP Trends Auckland 2012-2022



The Region’s relatively strong growth over the last decade is also evident in the GDP statistics for the 2001-2021 period (the Stats NZ Regional GDP for 2022 is not yet released). These figures exclude the role in the economy of owner-occupied dwellings. In the 2001-11 period, Auckland grew only marginally faster than the national economy (+2.8%pa real compared with +2.7%pa). However, the last decade has seen Auckland increase faster than New Zealand as a whole (3.2%pa real compared with 2.5%pa).

Figure 3-3 shows the national and regional growth in GDP since 2000, with the effects of the Covid-19 pandemic apparent in the 2021 figures.

Figure 3-3 : GDP New Zealand and Auckland 2000-2021

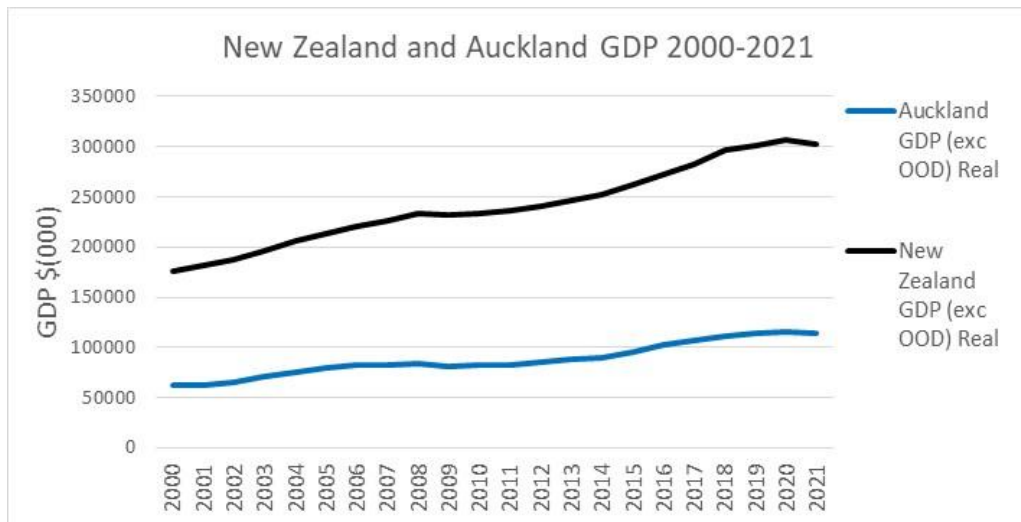
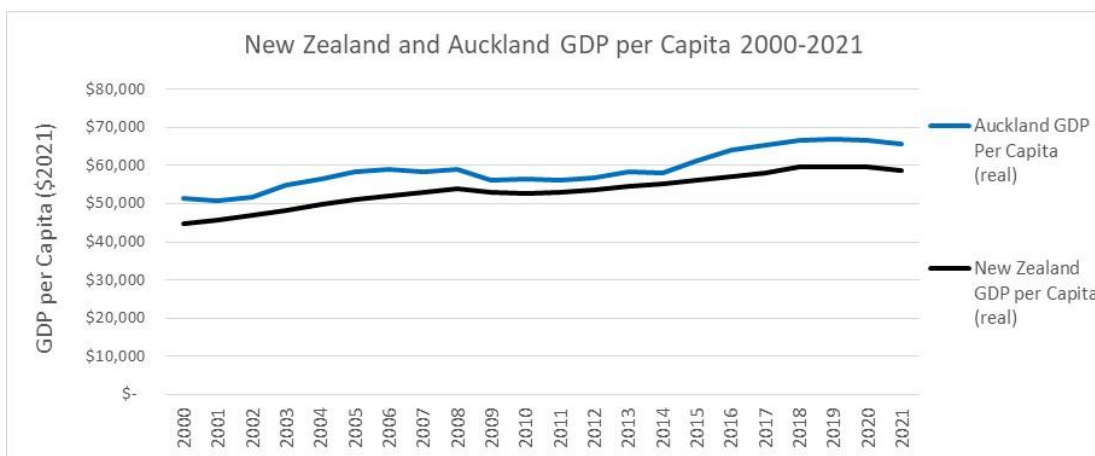


Figure 3-4 shows the trend in GDP per capita, with the Auckland differential shrinking in the period after the GFC when there was very little construction activity in the region, but returning in the post 2016 period. This reflects *inter-alia* the Unitary Plan becoming operative, and the substantial increase in construction and development activity since then.

Figure 3-4 : GDP per Capita (real) New Zealand and Auckland 2000-2021



By 2021, Auckland GDP per capita was around 11% above the national average. Over the 10-year period to 2021, Auckland GDP per capita increased at a substantially faster rate than the national average (1.6%pa compared with 1.1%pa), with an even greater differential compared with the rest of New Zealand.

Over the two decades to 2021, Auckland accounted for some 42% of New Zealand's total increase in GDP. In the 2001-11 period, the share was lower at 37%, and in the 2011-21 period Auckland's share has been at 46%. That said, in the 2018-21 period, when the pandemic has had effect, Auckland's share of national growth was still at 31%.

3.1.4 Employment Trends

The strong GDP performance has also shown out in Auckland’s employment trends.

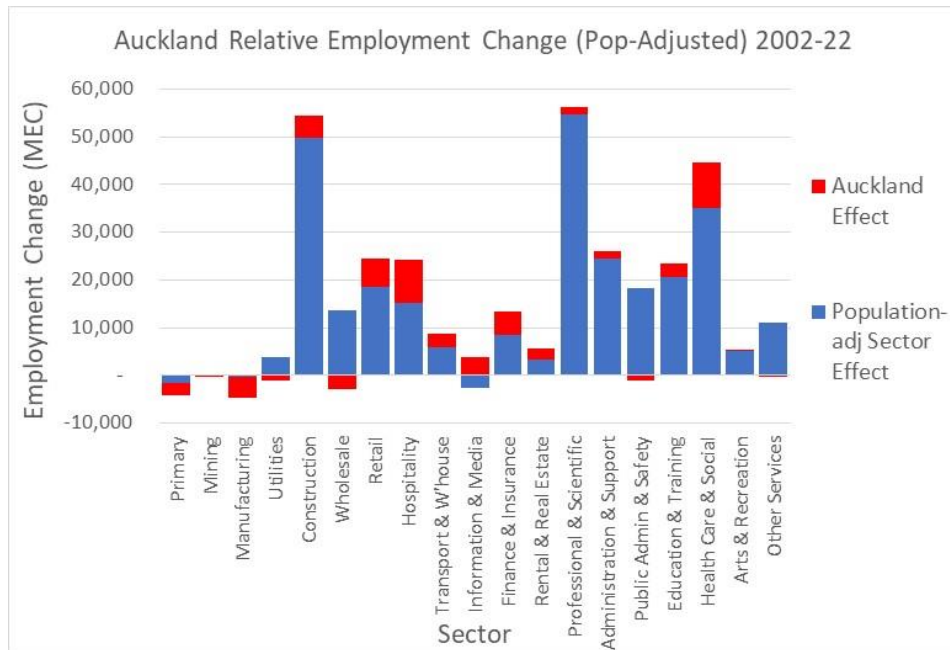
The latest Stats NZ Business Frame data shows Auckland’s total employment was 936,600 persons (non-employee working proprietors and employees), the highest level recorded. The increase of 29,500 MECs over 2021 more than offset the decrease recorded in 2021 when employment fell by 7,000 from the 2020 level (907,100 compared with 914,000).

This may indicate a return to the pre-Pandemic trend. Although a single year’s data after a downturn has to be treated cautiously, we note that the growth recorded in 2018-19 and 2019-20 was around 14,000 each year. The 2022 figure is +22,600 above the previous year, but the effects of Covid-19 have included substantial changes in both work habits and employment structures, emphasising the need to consider trends carefully.

That said, the decrease in employment in the 2020-21 period was a reduction of -0.8%, which suggests most of the Auckland economy remained intact even if changed. That suggests the Region’s recent past remains the strongest guide to its short and long term future prospects.

Figure 3-5 shows Auckland’s employment trends over the 2002-2022 period. This graph uses the same simple shift-and-share structure as the previous figures for regional GDP changes by sector.

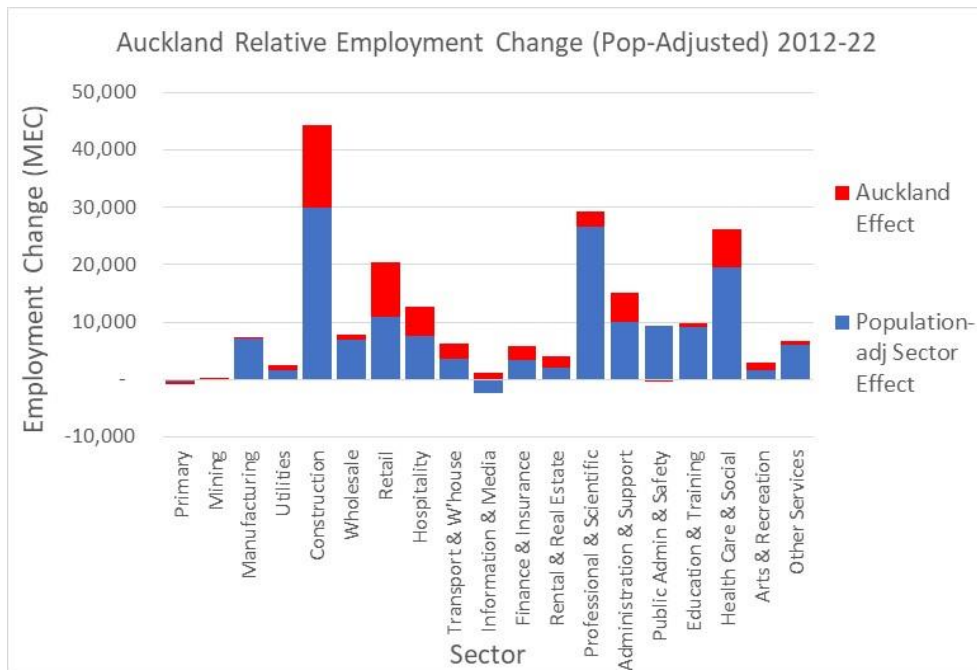
Figure 3-5 : Employment Auckland 2002-2022



In net terms, Auckland’s relative employment gain has been +4.2%, or around 37,550 MECs over the period. The relatively strong GDP gains in finance and insurance, information and media, hospitality, construction and health care and social services are evident in the employment growth.

Figure 3-6 shows the shift over the last decade from 2012. The relative shift toward Auckland was again strong, in the order of +6.3%, and in the order of 55,700 MECs.

Figure 3-6 : Employment Auckland 2012-2022



3.1.5 Employment per Capita

The national and regional level employment data shows increases in the levels of employment/numbers of jobs *per capita* of the resident population. This has occurred at national level, and at Auckland regional level. This trend is likely to reflect a number of factors, including improvements in employment and business records (even though the core source is IRD records which count employees, and link employees and working proprietors to specific business activities), some increased propensity for people to have more than one job, and the increased propensity for people to continue working beyond the 65 years 'retirement' age.

This is important as a cross-check for the regional employment projections. While the trends show employment increasing faster than population, it is difficult to estimate for how long such increases are likely to continue, and what the 'final' employment levels *per capita* might be. This problem is compounded because the observed trends have occurred in parallel with known underlying demographic growth and change, which may have accounted for much of the observed shift. Equally, the demography may have accounted for limited change, while "economic" drivers accounting for most of it. Distinguishing the two effects (and others) is difficult because the trends are steadily upward, so that there is little information on which to identify and explain – or model - a downturn from this upward trend.

3.2 Changes across the Auckland Spatial Economy 2001-2022

The region-wide shift has not been distributed evenly across the economy (Table 3-4 and Table 3-5). The growth in business units has been relatively higher outside the centres network, with the overall growth of 80% greater than achieved in the CBD (56%), metropolitan centres (70%), town centres (31%) and local and neighbourhood centres. At the same time, the increase in business areas overall has also been below the

regional trend, with much of the increase in other areas, especially residential areas from those working in home-based businesses (including proprietors listed for tax return purposes according to their home address, but not necessarily having workspace there, for example builders).

The growth in employment has been mixed, with the CBD nearly keeping pace with the overall shift (51% vs 54%) and the metropolitan centres (59%) ahead of the trend. The smaller centres - town centres (13%) and local (35%) and neighbourhood centres (43%) not keeping pace. The main business areas – Mixed Use, Light Industry, Heavy industry – showed growth close to the regional average.

Across Auckland CBD and larger centres, the pattern has been mixed. Table 3-4 Figure 3-7 shows that over the 2001-2022 period, there was a relative decrease in employment in the CBD, and the older metropolitan centres. The newer metropolitan centres of Albany and Botany showed relative gain, as would be expected from major new centres in faster growing catchments.

However, over the decade to 2022, the CBD showed relatively stronger employment growth as evident in Figure 3-8. Otherwise, across the centres network there are mixed outcomes, though with evidence of the longer term shift from smaller to larger centres, and toward home-based businesses.

Table 3-4 : Auckland Business Unit Growth 2002-2022

Spatial Economy Element	Nodes	GEO_2002										GEO_2022										Change GEO_2002-22 %
		Primary	Manuf Utilities & Construction	Trade & Hospitality	Finance & Professional	Household Services	Health and Education	Total	Primary	Manuf Utilities & Construction	Trade & Hospitality	Finance & Professional	Household Services	Health and Education	Total	Change GEO_2002-22						
City Centre	1	73	750	1,906	5,181	1,302	385	9,597	171	1,179	2,517	8,770	1,364	622	14,622	5,025	52%					
Albany	1	1	10	55	24	19	4	113	3	98	258	263	81	41	745	632	559%					
Botany	1	3	49	115	39	20	13	239	6	154	270	184	78	50	743	504	211%					
Henderson	1	4	124	234	135	103	49	649	3	101	184	133	96	49	566	-	-13%					
Manukau	1	9	106	312	305	143	47	922	14	183	365	528	163	91	1,343	421	46%					
New Lynn	1	-	188	307	183	162	37	877	1	168	268	211	174	71	894	17	2%					
Newmarket	1	4	134	505	729	185	103	1,660	21	278	761	1,535	215	137	2,946	1,286	77%					
Papakura	1	8	97	160	156	99	45	565	16	124	141	187	92	41	601	36	6%					
Sylvia Park	1	-	16	22	15	7	-	60	-	14	162	23	22	7	228	168	279%					
Takapuna	1	-	48	241	417	121	69	896	12	126	257	757	146	94	1,391	495	55%					
Westgate / Massey North	1	3	11	44	22	19	8	107	1	43	160	105	41	20	369	262	245%					
Metropolitan Centres	10	32	783	1,995	2,025	878	375	6,088	76	1,288	2,828	3,926	1,108	601	9,827	3,739	61%					
Town Centres	44	152	1,592	3,468	3,494	1,666	889	11,261	143	2,157	3,678	5,592	1,925	1,155	14,650	3,389	30%					
Local Centres	73	157	710	1,305	1,321	674	462	4,629	101	1,257	1,582	2,813	869	700	7,322	2,693	58%					
Neighbourhood Centres	418	314	1,576	1,567	1,769	887	502	6,615	228	2,414	2,073	4,620	1,383	879	11,597	4,982	75%					
Centres	545	728	5,411	10,241	13,790	5,407	2,613	38,190	718	8,295	12,678	25,721	6,648	3,957	58,018	19,828	52%					
Mixed Use	101	65	1,258	1,553	2,961	1,013	696	7,546	77	1,724	2,012	5,574	1,449	1,062	11,898	4,352	58%					
General Business	7	1	173	174	182	73	10	613	5	296	364	593	157	81	1,495	882	144%					
Business Parks	4	2	26	32	96	23	27	206	4	46	73	236	51	41	451	245	119%					
Light Industry	79	222	3,027	2,568	2,120	1,183	258	9,378	124	3,745	3,355	4,158	1,543	555	13,479	4,101	44%					
Heavy Industry	7	58	1,598	1,194	996	409	46	4,301	43	1,644	1,542	1,651	569	138	5,586	1,285	30%					
Business and Industry	198	348	6,082	5,521	6,355	2,701	1,037	22,044	252	7,455	7,345	12,211	3,768	1,877	32,909	10,865	49%					
Port	1	35	25	36	69	21	4	190	14	59	59	253	48	9	441	251	132%					
Airports	5	33	96	89	47	32	10	307	21	141	99	103	43	24	429	122	40%					
Health	14	9	75	61	83	54	130	412	9	74	47	159	52	136	477	65	16%					
Recreation Hubs	7	14	27	9	18	31	4	103	9	44	11	55	35	15	172	69	67%					
Main SEM Elements	770	1,167	11,716	15,957	20,362	8,246	3,798	61,246	1,023	16,073	20,238	38,503	10,593	6,017	92,446	31,200	51%					
Other Locations	4,835	17,774	7,309	20,377	7,293	3,861	61,449	3,168	30,477	13,978	55,076	13,375	8,238	124,311	62,862	102%						
Auckland Total	6,002	29,490	23,266	40,739	15,539	7,659	122,695	4,191	46,550	34,215	93,578	23,968	14,255	216,757	94,062	77%						

Source: Auckland Economy Growth Model 2023

Table 3-5 : Auckland Employment Growth 2002-2022

Spatial Economy Element	MEC_2002							MEC_2022							Total	Change GEO_2002-22	Change GEO_2002-22 %
	Primary	Manufacturing Utilities Construct Transport	Trade & Hospitality	Finance & Professional	Household Services	Health and Education	Total	Primary	Manufacturing Utilities Construct Transport	Trade & Hospitality	Finance & Professional	Household Services	Health and Education	Total			
City Centre	65	6,091	14,480	35,253	17,431	7,644	80,964	386	8,537	17,783	65,714	23,918	10,683	127,022	46,058	57%	
Albany	-	51	1,338	306	90	48	1,833	1	510	4,035	2,445	621	775	8,386	6,553	358%	
Botany	18	707	1,877	975	119	69	3,765	30	2,166	3,487	1,359	1,638	414	9,093	5,328	142%	
Henderson	4	762	2,199	908	1,277	387	5,537	1	409	1,642	689	1,986	830	5,557	20	0%	
Manukau	7	1,472	3,973	1,863	2,607	428	10,350	59	1,089	5,526	1,937	5,314	1,546	15,471	5,121	49%	
New Lynn	-	2,124	2,334	574	746	328	6,106	1	833	3,046	548	857	701	5,986	120	-2%	
Newmarket	2	1,235	3,721	4,024	2,332	1,066	12,380	49	2,391	6,691	5,788	3,147	1,502	19,569	7,189	58%	
Papakura	6	439	1,223	504	886	247	3,305	20	521	1,043	377	949	243	3,154	152	-5%	
Sylvia Park	-	791	385	85	14	-	1,275	-	1,043	2,913	814	118	55	4,942	3,667	288%	
Takapuna	-	264	1,841	3,799	1,468	464	7,836	2	694	2,073	3,273	1,486	688	8,217	381	5%	
Westgate / Massey North	101	55	950	81	121	57	1,365	-	385	2,472	389	292	156	3,695	2,330	171%	
Metropolitan Centres	138	7,900	19,840	13,120	9,660	3,090	53,750	160	10,040	32,930	17,620	16,410	6,910	84,070	30,320	56%	
Town Centres	237	11,196	27,321	13,280	11,009	6,588	69,631	155	10,459	30,088	14,504	14,128	10,040	79,374	9,743	14%	
Local Centres	247	3,307	8,597	3,524	3,959	5,477	25,111	136	4,336	11,175	4,140	5,458	8,258	33,502	8,391	33%	
Neighbourhood Centres	604	4,800	5,420	1,921	2,433	4,947	20,125	322	7,353	7,254	3,465	3,518	6,471	28,383	8,258	41%	
Centres	1,291	33,290	75,660	67,100	44,490	27,750	249,580	1,160	40,720	99,230	105,440	63,430	42,360	352,350	102,770	41%	
Mixed Use	203	6,730	10,673	10,992	7,139	9,381	45,118	54	10,321	11,956	16,582	12,801	14,209	65,922	20,804	46%	
General Business	1	1,958	2,043	297	507	103	4,909	13	2,396	4,327	1,647	1,700	895	10,978	6,069	124%	
Business Parks	-	365	270	2,023	884	1,274	4,816	5	371	3,258	4,469	1,236	2,118	11,457	6,641	138%	
Light Industry	715	45,944	25,593	8,323	11,959	3,207	95,741	390	65,661	38,733	14,960	17,918	9,785	147,448	51,706	54%	
Heavy Industry	111	29,534	11,620	4,307	4,962	287	50,821	54	34,995	16,964	6,727	11,940	2,827	73,507	22,686	45%	
Business and Industry	1,030	84,530	50,200	25,940	25,450	14,250	201,410	520	113,740	75,240	44,380	45,600	29,830	309,310	107,910	54%	
Port	164	556	518	302	517	79	2,136	38	1,309	511	1,409	694	1,840	5,801	3,665	172%	
Airports	79	6,469	1,762	535	741	136	9,722	53	6,702	1,299	463	1,417	142	10,075	353	4%	
Health	24	1,109	893	52	964	13,619	16,661	68	2,006	852	209	1,117	28,538	32,790	16,129	97%	
Recreation Hubs	128	86	241	21	165	421	1,062	11	124	117	21	422	589	1,284	222	21%	
Main SEM Elements	2,716	126,040	129,270	93,950	72,330	56,260	480,570	1,850	164,600	177,250	151,920	112,680	103,300	711,610	231,050	48%	
Other Locations	8,784	35,360	16,630	21,350	17,770	34,240	134,130	5,750	61,200	32,150	37,580	32,520	55,000	224,190	90,050	67%	
Auckland Total	11,500	161,400	145,900	115,300	90,100	90,500	614,700	7,600	225,800	209,400	189,500	145,200	158,300	935,800	321,100	52%	

Source: Auckland Economy Growth Model 2023

Figure 3-7 : Relative Employment Shift Main Centres 2001-2022

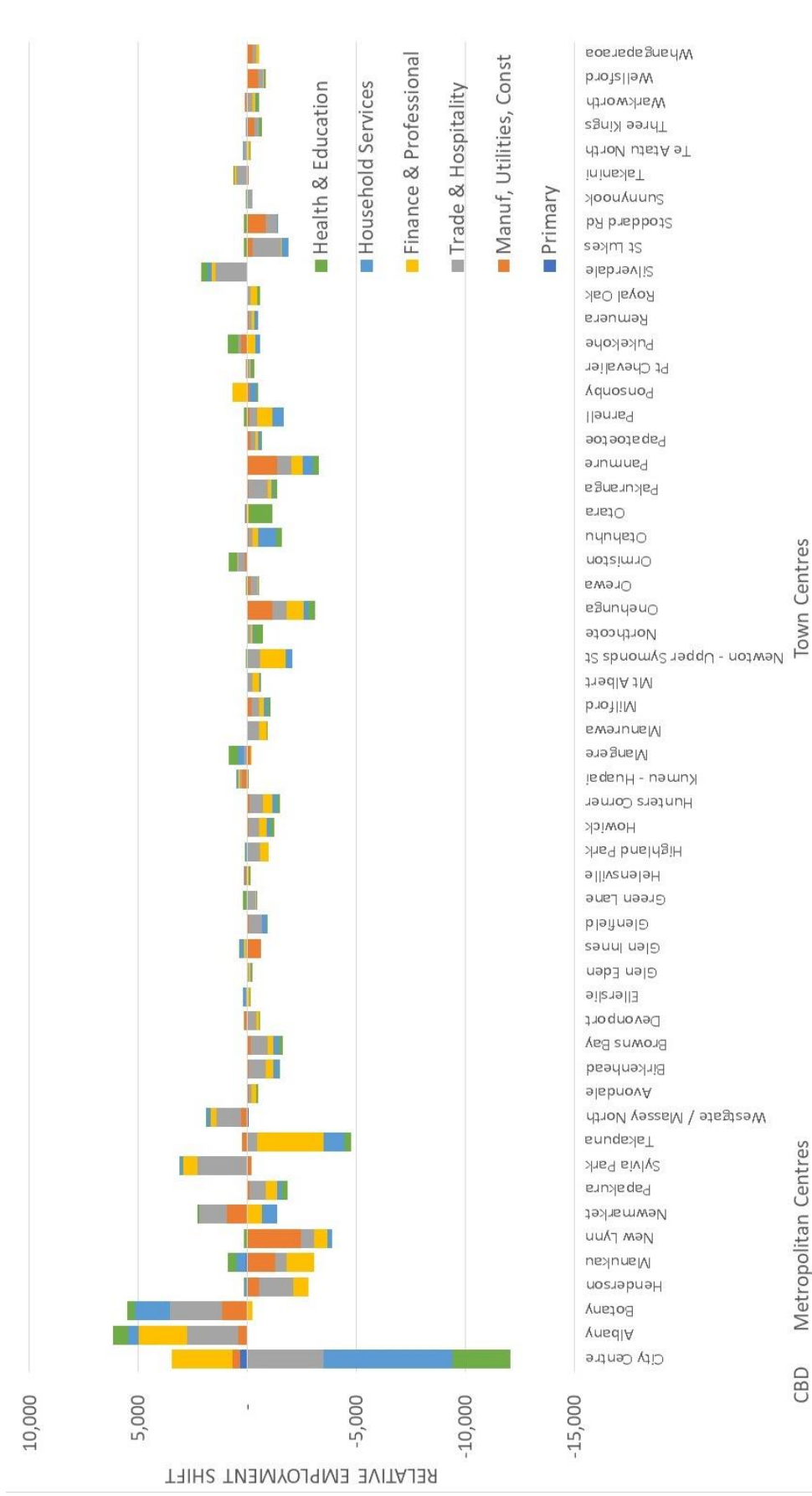
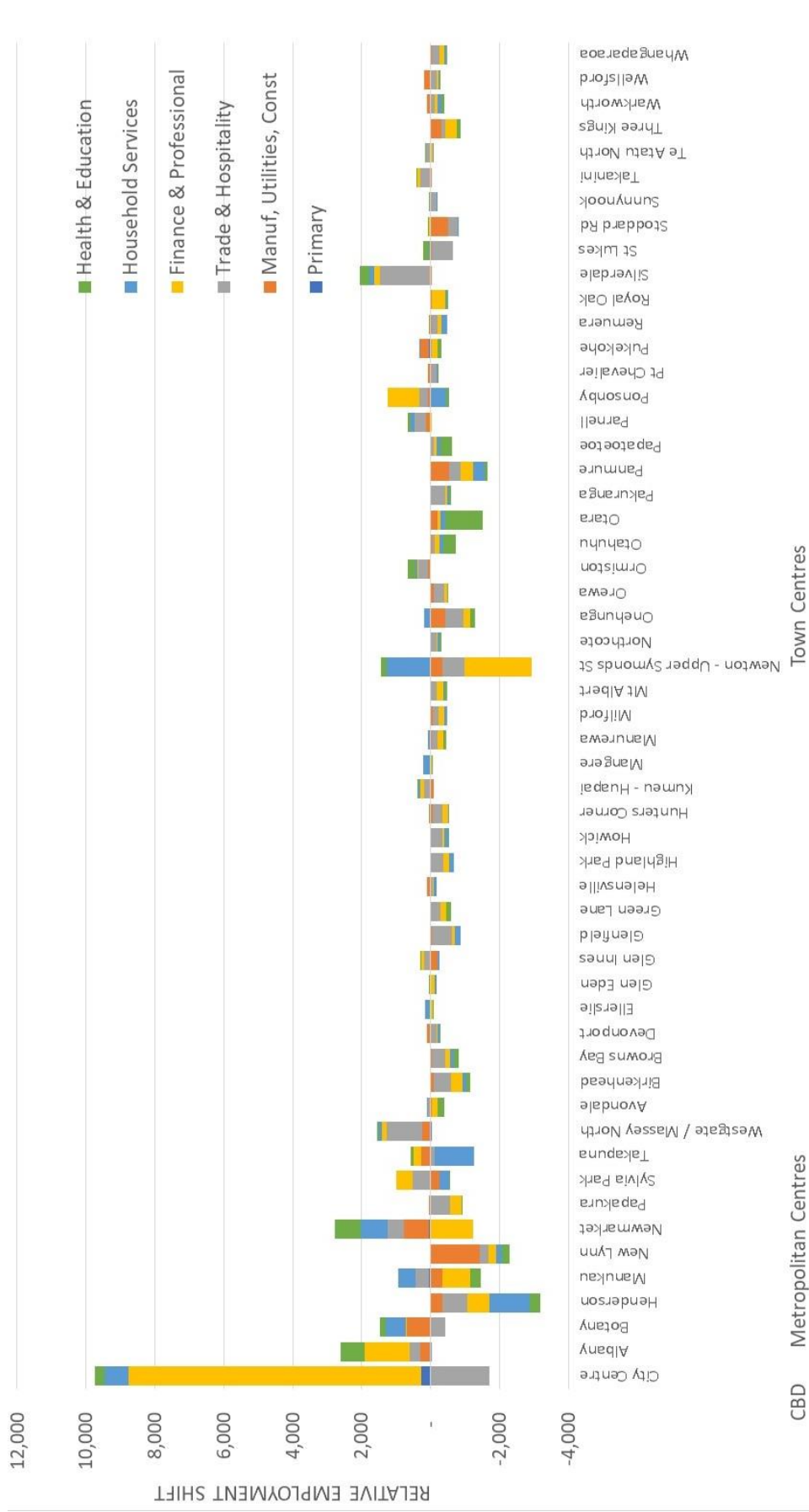


Figure 3-8 : Relative Employment Shift Main Centres 2010-2022



4 Business Demand Outlook to 2052

This section examines the future outlook for the Auckland spatial economy. It builds on the analysis of Auckland's performance (above) and considers the underlying population and household growth into the future. It considers projected future employment levels and business units, showing economic activity. It also considers related outcomes in terms of population and households. These projections are based on the current levels of employment and population/households, together with expected future changes in each.

The second part of the analysis deals with the projected business activity (employment and business units) across the Auckland spatial economy.

4.1 Population Growth and Change

Auckland's population growth outlook initially reflected the March 2021 SNZ projection series, which showed substantial growth into the long term. These were superseded by the SNZ December 2022 series, which showed substantial reductions in projected growth levels, to take account of the effects of the Covid-19 pandemic.

Subsequently, AC has commissioned SNZ to produce a revised population outlook for Auckland (March 2023 series) which takes account of the most recent recovery in international migration which has been a core driver of Auckland's growth over the long term. These latter projections form the core projection set as outlined above.

4.1.1 Population and Households 2022

As at 2022, Auckland's resident population was estimated at 1,695,200 persons, making up an estimated 569,950 households¹⁶.

Auckland's long term population growth trend which had been evident over the 1920-2020 period halted in the 2021 year, as the effects of the Covid-19 pandemic saw a substantial reduction in external migration to New Zealand.

Auckland's population growth has long been fuelled by net international migration gains and natural increase, with a long term loss through domestic migration to other parts of New Zealand. In 2021 and 2022, the domestic migration net loss increased¹⁷. At the same time, net international migration reversed from the average gain of +28,000 in 2019 and 2020, to a net average loss of -6,750 in 2021 and 2022. Natural increase was down marginally.

This meant that the previously projected strong population growth for that period did not occur (Table 4-1). By 2022, Auckland's population of 1,695,200 persons was well below the projected medium growth outcome (by -58,000 persons), with net growth very substantially lower (-59%, medium projection). In the

¹⁶ The main source of population and growth projections is Stats NZ, which regularly prepares projections of regional and TLA population, according to age and sex cohorts, as well as projected household numbers by main type. These projections cover high growth, medium growth and low growth futures, for the region, and each LBA area.

¹⁷ [NZ.Stat \(stats.govt.nz\)](https://www.stats.govt.nz)

period to 2020, actual growth had been above the medium projection, and close to the Stats NZ high projection. The extent of the short-term difference is shown in Figure 4-1.

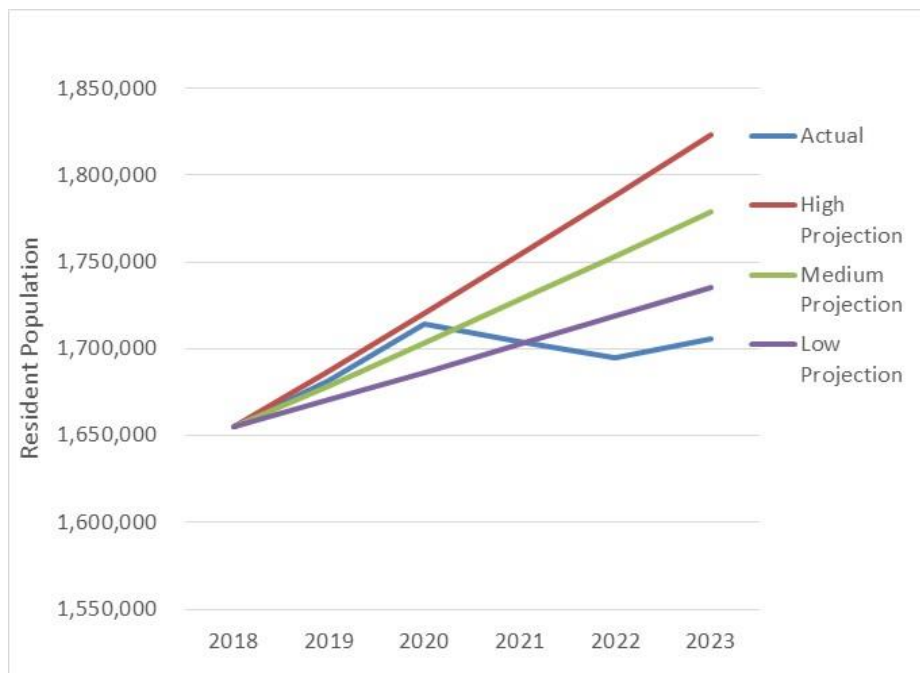
Table 4-1: Auckland Population Trends 2018-2022

	2018	2019	2020	2021	2022
Actual	1,654,800	1,681,300	1,714,200	1,704,100	1,695,200
High Projection	1,654,800	1,687,200	1,720,200	1,753,800	1,788,100
Medium Projec	1,654,800	1,678,900	1,703,300	1,728,100	1,753,200
Low Projection	1,654,800	1,670,600	1,686,500	1,702,600	1,718,900
Growth					
Actual		26,500	59,400	49,300	40,400
High Projection		32,400	65,400	99,000	133,300
Medium Projection		24,100	48,500	73,300	98,400
Low Projection		15,800	31,700	47,800	64,100
Difference of Total					
High Projection		- 5,900	- 6,000	- 49,700	- 92,900
Medium Projection		2,400	10,900	- 24,000	- 58,000
Low Projection		10,700	27,700	1,500	- 23,700
Difference of Total Population %					
High Projection		-0.3%	-0.3%	-2.8%	-5.2%
Medium Projection		0.1%	0.6%	-1.4%	-3.3%
Low Projection		0.6%	1.6%	0.1%	-1.4%
Difference of Growth %					
High Projection		-18.2%	-9.2%	-50.2%	-69.7%
Medium Projection		10.0%	22.5%	-32.7%	-58.9%
Low Projection		67.7%	87.4%	3.1%	-37.0%

Source StatisticsNZ 2023

[NZ.Stat \(stats.govt.nz\)](https://stats.govt.nz/)

Figure 4-1 : Auckland Population – Difference from Projected 2018-2022



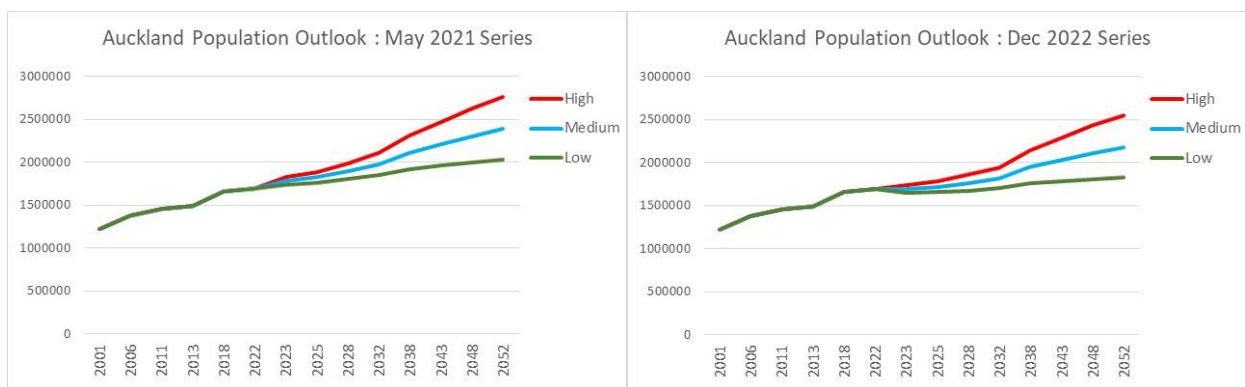
4.1.2 December 2022 Projections

The revised growth projections in December 2022 showed a substantial reduction in expected growth, with Auckland's medium-term outlook to 2023 down-sized by some -86,000 persons in all of the projections (high, medium, and low). Whereas the March 2021 series had shown an expected population of 1,778,700 by 2023, the December 2022 projection showed 1,692,400, with the amount of growth projected some -70% lower than the earlier estimates.

The earlier projections allowed for continuation of the long-term growth trend. The March 2021 series saw Auckland reaching 2 million by early 2033 (medium future). The December 2022 series saw that milestone occurring a decade later, in early 2043. While a substantial part of the difference was seen as a once-off hit, the reduced growth rate was expected to continue to have effects, with lesser natural increase, and reduced migration.

Figure 4-2 shows graphically the previous March 2021 series and the latest December 2022 series. The earlier projections allowed for continuation of the long-term growth trend. The December 2022 series includes the reduction observed to 2022, and an expectation that this will take some time to recover.

Figure 4-2 : Population Trends Auckland 2001-2052 - SNZ March 2021 & December 2022 Series



In terms of the projected household increase for Auckland, the lower growth outlook from December 2022 would see net household growth at -34% (high), -45% (medium) and -70% (low) below the previously expected outcomes. By 2052, the lower -78,000 households would represent a net increase at -21% less (high), -30% less (medium) and -54% less (low). Each projection would see substantially less demand for housing and housing land into the long term. Over the short term, it suggests annual housing demand would be around -10,000 dwellings fewer to 2025, around 5,000 dwellings fewer to 2032 (medium term) and around -2,500 dwellings fewer to 2052 (long term).

4.1.3 March 2023 Population Update

In March 2023, Auckland Council commissioned SNZ to prepare an updated projection set for Auckland, to take into account observed and further expected recovery in Auckland's in-migration gains, alongside adjustments to net natural increase levels responding to the revised demography (*March 2023 Set*). This is a refinement of the December 2022 release (which is required to be consistent with the earlier released March 2022 national projections) using Auckland Council supplied net migration assumptions.

This work has been undertaken as a custom projection, requested by and for the Auckland Region only, and there is no associated adjustment to the December 2022 series for other Regions and TLAs. However,

by implication a higher observed and assumed future international migration rate would flow though to higher gains to the Rest of New Zealand as well, allowing for the 40-60% of international migrants who don't settle in Auckland in any given average year.

SNZ have, at the time of writing not released projections of detailed demographic or household numbers for the *December 2022 Series*, or the *AC March 2023 Series*.

ME have estimated household numbers by typology and age from the population projections for the *December 2022 Series* and the *March 2023 Set* and they are outlined in the s32 for PC78.

4.1.4 Population Projection Series

The three most recent projection series offer nine different outcomes with each series having a High, Medium and Low projection. Assessment of the series to take account of the range of outcomes and the similarities between different projections suggests that Auckland's potential growth futures may be appropriately covered by five of those nine series.

The selected population projections are:

- a. **Very High** – The High projection from the *March 2021 Series* showing a population increase of 955,000 persons (+52%) from 2023 to 2053. Note that the projections all have the same 2018 estimate, but the 2023 projections vary among the series.
- b. **High** – The High projection from the *March 2023 Set* with a population increase of 855,000 persons (+50%) from 2023 to 2053.
- c. **Medium** – The Medium projection from the *March 2023 Set* with a population increase of 521,000 persons (+30%) from 2023 to 2053.
- d. **Low** - The Low projection from the *March 2023 Set* with a population increase of 196,000 persons (+12%) from 2023 to 2053.
- e. **Very Low** – The Low projection from the *December 2022 Series* with a population increase of 169,000 persons (+10%) from 2023 to 2053.

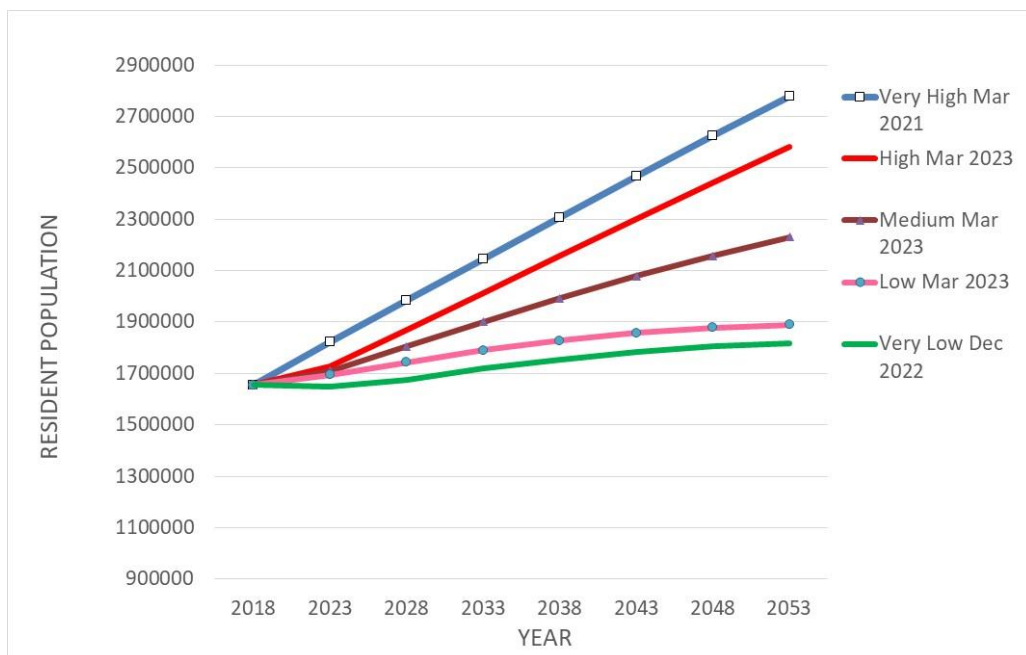
Table 4-2 shows total population outcomes for 9 projections series, with the 5 selected series shaded.

Table 4-2 : Auckland Region Population Projections 2018-2053 (SNZ)

	Very High Mar 2021	Medium Mar 2021	Low Mar 2021	High Dec 2022	Medium Dec 2022	Very Low Dec 2022	High Mar 2023	Medium Mar 2023	Low Mar 2023
2018	1,654,800	1,654,800	1,654,800	1,654,800	1,654,800	1,654,800	1,654,900	1,654,900	1,654,900
2023	1,823,100	1,778,700	1,735,300	1,736,300	1,692,400	1,648,500	1,725,800	1,710,100	1,694,200
2028	1,984,100	1,891,800	1,801,400	1,856,600	1,765,500	1,674,800	1,868,300	1,806,100	1,743,900
2033	2,146,100	2,001,800	1,861,600	2,001,100	1,859,400	1,718,700	2,013,400	1,901,300	1,789,700
2038	2,306,900	2,107,000	1,914,100	2,144,900	1,948,700	1,755,300	2,157,700	1,992,000	1,827,600
2043	2,466,400	2,207,800	1,958,300	2,288,200	2,034,100	1,784,800	2,301,500	2,078,200	1,857,800
2048	2,624,300	2,302,900	1,993,400	2,430,000	2,114,000	1,805,700	2,443,600	2,158,300	1,878,900
2053	2,778,300	2,390,100	2,019,000	2,567,700	2,186,100	1,817,700	2,581,100	2,230,800	1,890,300
2023-33	323,000	223,000	126,000	265,000	167,000	70,000	288,000	191,000	96,000
2023-33 %	18%	13%	7%	15%	10%	4%	17%	11%	6%
2023-53	955,000	611,000	284,000	831,000	494,000	169,000	855,000	521,000	196,000
2023-53 %	52%	34%	16%	48%	29%	10%	50%	30%	12%
2023-33 pa	32,000	22,000	13,000	27,000	17,000	7,000	29,000	19,000	10,000
2023-53 pa	32,000	20,000	9,000	28,000	16,000	6,000	29,000	17,000	7,000

Figure 4-3 graphs the total population outcomes for the five projections series used. There is limited difference between the March 2023 Set and the December 2022 Series for the High projection. The differences are greater for the Medium and the Low projections.

Figure 4-3 : Auckland Population Projections 2018 - 2053



4.1.5 Household Projections

The population projections have been converted to household projections, taking account of the 2018 demographic structure of Auckland households (age-sex-ethnicity) of each type. The household estimates have been derived from the population demography, and calibrated to the previous Stats NZ population to household structures from the March 2021 and previous population and household projection series. The core output is households by typology, age and income band, for each future time period.

The consequent household projections are:

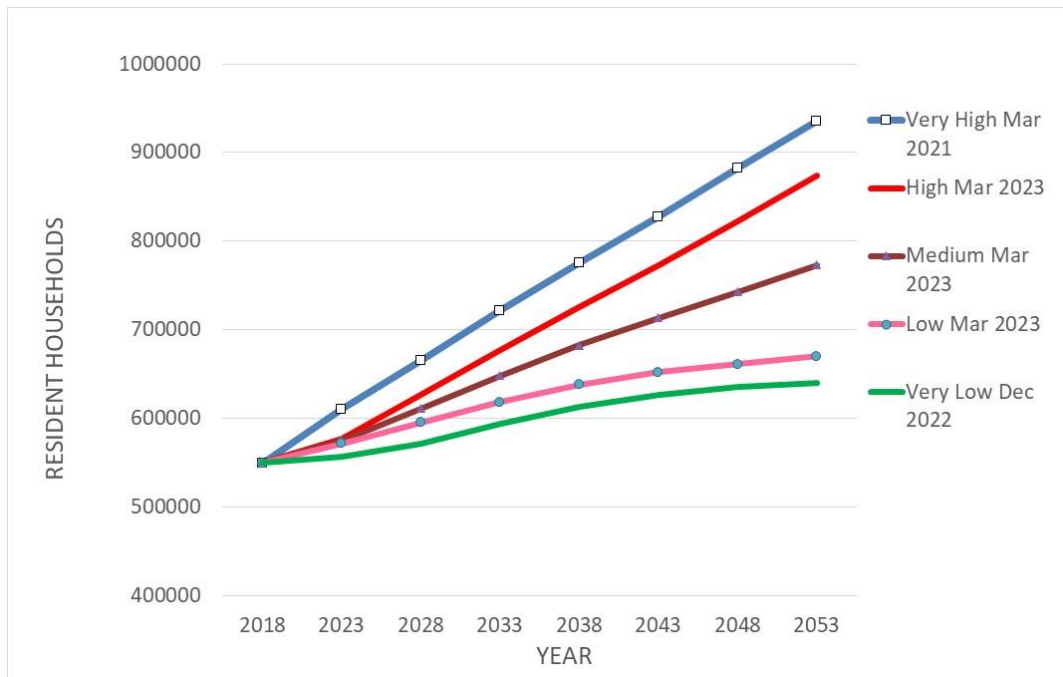
- a. **Very High** – The High projection from the *March 2021 Series* showing an increase of 325,000 households (+53%) from 2023 to 2053.
- b. **High** - the High projection from the *March 2023 Set* with a household increase of 297,000 (+51%) from 2023 to 2053.
- c. **Medium** – The Medium projection from the *March 2023 Set* with a household increase of 198,000 (+34%) from 2023 to 2053.
- d. **Low** – The Low projection from the *March 2023 Set* with a household increase of 98,000 (+17%) from 2023 to 2053.
- e. **Very Low** – The Low projection from the *December 2022 Series* with a household increase of 83,000 (+15%) from 2023 to 2053.

Table 4-3 shows total household outcomes for all nine projections series, with the five selected series shaded. Note that the long-term decrease in mean household size as the population ages means that the household numbers increase at a faster % rate than population. Figure 4-4 graphs the total household outcomes for the five selected series.

Table 4-3 : Auckland Region Household Projections 2018-2053 (SNZ and ME)

	Very High Mar 2021	Medium Mar 2021	Low Mar 2021	High Dec 2022	Medium Dec 2022	Very Low Dec 2022	High Mar 2023	Medium Mar 2023	Low Mar 2023
2018	549,900	549,900	549,900	549,900	549,900	549,900	549,900	549,900	549,900
2023	610,400	598,200	586,000	581,300	569,200	556,700	577,800	575,100	572,100
2028	665,600	640,400	615,200	622,800	597,600	572,000	626,700	611,400	595,600
2033	721,700	682,800	643,600	672,900	634,200	594,200	677,100	648,500	618,700
2038	775,800	722,300	668,400	721,300	668,000	612,900	725,600	682,900	638,200
2043	827,700	758,000	687,600	767,900	698,400	626,700	772,400	713,500	652,300
2048	883,100	795,500	707,300	817,500	727,600	635,600	822,200	742,900	661,400
2053	934,900	825,600	716,400	863,800	752,400	639,800	874,500	773,200	670,100
2023-33	111,000	85,000	58,000	92,000	65,000	38,000	99,000	73,000	47,000
2023-33 %	18%	14%	10%	16%	11%	7%	17%	13%	8%
2023-53	325,000	227,000	130,000	283,000	183,000	83,000	297,000	198,000	98,000
2023-53 %	53%	38%	22%	49%	32%	15%	51%	34%	17%
2023-33 pa	11,100	8,500	5,800	9,200	6,500	3,800	9,900	7,300	4,700
2023-53 pa	10,800	7,600	4,300	9,400	6,100	2,800	9,900	6,600	3,300

Figure 4-4 : Auckland Region Household Projections 2018-2053



4.2 Employment Growth Futures

The projections of economic activity cover employment (MEC or Modified Employment Count), the Employee Count (employees excluding non-employee working proprietors), and Business Units (geographic units or business entities).

The projections are based on economic modelling of the Auckland economy, applying an I-O model which projects economic activity in terms of output, value added and employment by sector into the short, medium and long term.

The IO model takes account of the key drivers of growth in terms of the regional population, and expected growth in exports by sector. Note that the IO structure projects forward the current structure of the economy in response to changes in population and export volumes. It does not allow for shifts within the structure of the economy including prices in response to changes in demand (in the way that a CGE model would). The key outputs are regional level projections by sector, for the 19 Major ANZSIC sectors, and the 109 Industries (also ANZSIC based). The projections include the 6 'Mega-sectors' which are aggregations of the 19 ANZSIC sectors.

4.2.1 Employment Growth to 2052

The projected employment for the region is shown in Table 4-4. Projected growth by 2052 (30 years) would be 437,000 MECs in the High future (+47%), 257,000 MECs in the Medium future (+27%) and 103,000 MECs in the Low future (+11%). The Very High future would see an increase of 541,000 MECs (+58%) while the Very Low future would see an increase of only 83,000 MECs (+9%). The trends are graphed in Figure 4-5.

These projections offer a very wide range of future outcomes, and substantial scope to assess the implications of widely varying futures.

The annual increases over the period would range from 2,700 in the Very Low future to 14,600 in the High future 18,000 in the Very High future. By a way of comparison, over the 2001 to 2022 period, Auckland’s employment grew by some 15,700 per year, while in the 2012 to 2022 period, average annual growth was some 20,100 MECs. The projections by mega sector and sector are shown in Table 4-5. The projections for the Employee Count (EC) and business units are shown in Table 4-6 and Table 4-7.

Table 4-4: Auckland Region Employment Projections 2018-2053 (SNZ and ME)

Year	Low	Medium	High	Very High	Very Low
2018	885,000	885,000	885,000	885,000	885,000
2022	937,000	937,000	937,000	937,000	937,000
2023	958,000	963,000	967,000	1,001,000	946,000
2025	968,000	980,000	992,000	1,030,000	952,000
2028	982,000	1,006,000	1,030,000	1,074,000	960,000
2032	1,000,000	1,034,000	1,074,000	1,135,000	978,000
2038	1,021,000	1,081,000	1,165,000	1,246,000	998,000
2043	1,038,000	1,122,000	1,243,000	1,333,000	1,012,000
2048	1,040,000	1,166,000	1,320,000	1,419,000	1,015,000
2052	1,040,000	1,194,000	1,374,000	1,478,000	1,020,000
2053	1,041,000	1,205,000	1,395,000	1,502,000	1,022,000
2022-25	31,000	43,000	55,000	93,000	15,000
2022-25 %	3%	5%	6%	10%	2%
2022-32	63,000	97,000	137,000	198,000	41,000
2022-32 %	7%	10%	15%	21%	4%
2022-52	103,000	257,000	437,000	541,000	83,000
2022-52 %	11%	27%	47%	58%	9%

Source: Auckland Economy Growth Model 2023

Figure 4-5 : Projected Employment Growth Auckland 2001-2053

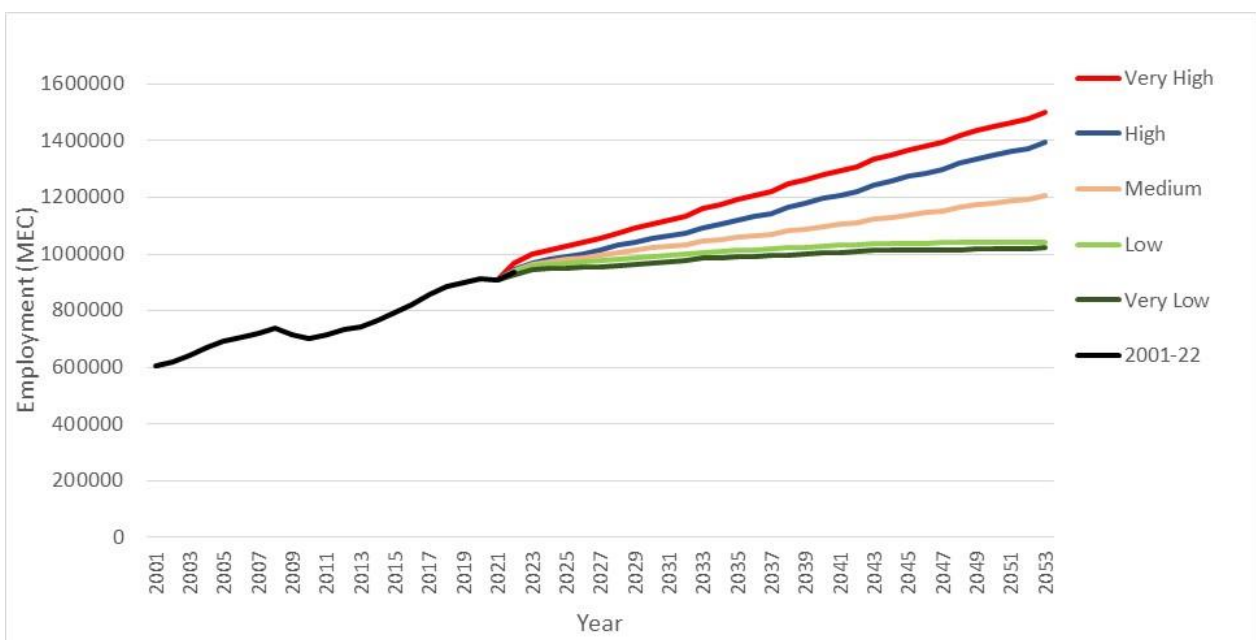


Table 4-5: Projected MEC Employment Growth Auckland 2022-2052

Mega-sectors	2022	High 2025		High 2032		High 2052		Medium 2025		Medium 2032		Medium 2052		Low 2025		Low 2032		Low 2052		Very High 2025		Very High 2032		Very High 2052		Very Low 2025		Very Low 2032		Very Low 2052	
		High 2025	High 2032	High 2052	Medium 2025	Medium 2032	Medium 2052	Low 2025	Low 2032	Low 2052	Very High 2025	Very High 2032	Very High 2052	Very Low 2025	Very Low 2032	Very Low 2052	Very Low 2025	Very Low 2032	Very Low 2052												
Primary Sector	7880	7800	7700	7500	7800	7700	7400	7800	7700	7400	7800	7700	7300	7800	7700	7500	7800	7700	7300	7800	7700	7500	7800	7700	7300	7800	7700	7300	7800	7700	7300
Manuf, Transport & Const	226160	237200	257100	332500	236800	247500	288600	233200	242000	246700	233200	242000	246700	233200	242000	246700	233200	242000	246700	233200	242000	246700	233200	242000	246700	233200	242000	246700	233200	242000	246700
Trade and Hospitality	209360	222100	242700	314200	218400	230400	272700	217300	224500	232100	217300	224500	232100	217300	224500	232100	217300	224500	232100	217300	224500	232100	217300	224500	232100	217300	224500	232100	217300	224500	232100
Finance & Professional Services	189530	199200	217500	267700	196600	208000	235700	194100	198800	209800	194100	198800	209800	194100	198800	209800	194100	198800	209800	194100	198800	209800	194100	198800	209800	194100	198800	209800	194100	198800	209800
Admin & Household Serv	145250	156600	169700	217900	154100	161400	189300	152200	157100	162700	152200	157100	162700	152200	157100	162700	152200	157100	162700	152200	157100	162700	152200	157100	162700	152200	157100	162700	152200	157100	162700
Education and Health	158430	168400	179400	233800	165500	179000	200000	162500	169200	181300	162500	169200	181300	162500	169200	181300	162500	169200	181300	162500	169200	181300	162500	169200	181300	162500	169200	181300	162500	169200	181300
TOTAL	936600	991000	1074000	1374000	979000	1034000	1194000	967000	999000	1040000	967000	999000	1040000	967000	999000	1040000	967000	999000	1040000	967000	999000	1040000	967000	999000	1040000	967000	999000	1040000	967000	999000	1040000
<i>Sector</i>																															
Agriculture, Forestry & Fishing	7470	7300	7200	6800	7300	7200	6800	7300	7200	6800	7300	7200	6800	7300	7200	6800	7300	7200	6800	7300	7200	6800	7300	7200	6800	7300	7200	6800	7300	7200	6800
Mining	410	500	500	700	500	500	600	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Manufacturing	84090	90200	99800	128300	88500	95000	111700	86900	90200	95600	86900	90200	95600	86900	90200	95600	86900	90200	95600	86900	90200	95600	86900	90200	95600	86900	90200	95600	86900	90200	95600
Electricity, Gas, Water & Waste Serv	6160	6400	6300	8100	6400	6900	6900	6200	6400	6900	6200	6400	6900	6200	6400	6900	6200	6400	6900	6200	6400	6900	6200	6400	6900	6200	6400	6900	6200	6400	6900
Construction	93900	94900	100900	133800	96900	97800	114700	95500	99600	95900	95500	99600	95900	95500	99600	95900	95500	99600	95900	95500	99600	95900	95500	99600	95900	95500	99600	95900	95500	99600	95900
Wholesale Trade	64600	66900	73100	92400	66000	69700	81300	65100	66600	70400	65100	66600	70400	65100	66600	70400	65100	66600	70400	65100	66600	70400	65100	66600	70400	65100	66600	70400	65100	66600	70400
Retail Trade	86870	88700	95800	125600	87300	90700	108200	88300	91800	91300	88300	91800	91300	88300	91800	91300	88300	91800	91300	88300	91800	91300	88300	91800	91300	88300	91800	91300	88300	91800	91300
Accommodation & Food Services	57890	66500	73800	96200	65100	70000	83100	63800	66200	70600	63800	66200	70600	63800	66200	70600	63800	66200	70600	63800	66200	70600	63800	66200	70600	63800	66200	70600	63800	66200	70600
Transport, Postal & Warehousing	42010	45700	49900	62500	45000	47900	55200	44400	45900	48200	44400	45900	48200	44400	45900	48200	44400	45900	48200	44400	45900	48200	44400	45900	48200	44400	45900	48200	44400	45900	48200
Information Media & Telecoms	21740	25200	27700	34900	24800	26400	30700	24400	25300	26600	24400	25300	26600	24400	25300	26600	24400	25300	26600	24400	25300	26600	24400	25300	26600	24400	25300	26600	24400	25300	26600
Financial & Insurance Services	34970	36200	39400	41900	35800	38000	37400	35500	36500	38400	35500	36500	38400	35500	36500	38400	35500	36500	38400	35500	36500	38400	35500	36500	38400	35500	36500	38400	35500	36500	38400
Rental, Hiring & Real Estate Serv	21830	23200	25500	32300	22800	24400	28400	22500	23300	24500	22500	23300	24500	22500	23300	24500	22500	23300	24500	22500	23300	24500	22500	23300	24500	22500	23300	24500	22500	23300	24500
Professional, Scientific & Technical Services	110990	114600	124900	158700	113100	119200	139200	111600	113500	120200	111600	113500	120200	111600	113500	120200	111600	113500	120200	111600	113500	120200	111600	113500	120200	111600	113500	120200	111600	113500	120200
Administrative & Support Services	58460	65200	71800	91000	64200	68400	80000	63100	65200	69100	63100	65200	69100	63100	65200	69100	63100	65200	69100	63100	65200	69100	63100	65200	69100	63100	65200	69100	63100	65200	69100
Public Administration & Safety	38640	40400	42000	54200	39900	39800	46400	39400	41000	40100	39400	41000	40100	39400	41000	40100	39400	41000	40100	39400	41000	40100	39400	41000	40100	39400	41000	40100	39400	41000	40100
Education & Training	66740	72300	80800	106400	70800	76300	91400	69200	71900	76900	69200	71900	76900	69200	71900	76900	69200	71900	76900	69200	71900	76900	69200	71900	76900	69200	71900	76900	69200	71900	76900
Health Care & Social Assistance	91690	96000	98700	127400	94700	102700	108600	93300	97400	104400	93300	97400	104400	93300	97400	104400	93300	97400	104400	93300	97400	104400	93300	97400	104400	93300	97400	104400	93300	97400	104400
Arts & Recreation Services	15860	17700	19600	25400	17400	18700	22000	17000	17700	18800	17000	17700	18800	17000	17700	18800	17000	17700	18800	17000	17700	18800	17000	17700	18800	17000	17700	18800	17000	17700	18800
Other Services	32290	33300	36200	47200	32700	34500	40900	32800	33000	34700	32800	33000	34700	32800	33000	34700	32800	33000	34700	32800	33000	34700	32800	33000	34700	32800	33000	34700	32800	33000	34700
TOTAL excl OOD	936600	991000	1074000	1374000	979000	1034000	1194000	967000	999000	1040000	967000	999000	1040000	967000	999000	1040000	967000	999000	1040000	967000	999000	1040000	967000	999000	1040000	967000	999000	1040000	967000	999000	1040000

Source: Auckland Economy Growth Model 2023

Table 4-6: Projected Employee Count (EC) Growth Auckland 2022-2052

Mega-sectors	2022	High 2025	High 2032	High 2052	Medium 2025	Medium 2032	Medium 2052	Low 2025	Low 2032	Low 2052	Very High 2025	Very High 2032	Very High 2052	Very Low 2025	Very Low 2032	Very Low 2052
		High 2025	High 2032	High 2052	Medium 2025	Medium 2032	Medium 2052	Low 2025	Low 2032	Low 2052	Very High 2025	Very High 2032	Very High 2052	Very Low 2025	Very Low 2032	Very Low 2052
Primary Sector	5880	5800	5800	5700	5800	5800	5600	5800	5800	5500	5900	5900	5700	5800	5800	5500
Manuf, Transport & Const	195330	207000	228700	275300	203800	218700	239200	200500	208000	221200	215600	230700	296200	196300	201300	214500
Trade and Hospitality	197760	208900	228000	294900	207600	218000	256000	204500	211100	218000	217800	242900	317500	201600	207400	211800
Finance & Professional Services	156730	163800	177000	215700	161900	169400	190100	162000	163500	170900	169300	183500	232500	159800	163700	164900
Admin & Household Serv	128080	138600	149900	192300	136500	142600	167000	134800	138900	143600	143500	158300	206800	131800	135800	142500
Education and Health	150310	160000	170600	222300	157200	170100	190200	154400	160700	172200	162500	178400	239100	151200	156000	167500
TOTAL	834100	884000	960000	1206000	873000	925000	1048000	862000	888000	931000	915000	1000000	1298000	847000	870000	907000
Agriculture, Forestry & Fishing	5490	5300	5300	5000	5300	5300	5000	5300	5300	5000	5300	5300	5000	5300	5300	5000
Mining	390	500	500	700	500	500	600	500	500	500	500	600	700	500	500	500
Manufacturing	79950	85200	94200	121100	83700	89700	105500	82100	85200	90400	90300	100400	130400	80100	81600	86900
Electricity, Gas, Water & Waste Serv	6020	6300	6200	7800	6200	6800	6700	6100	6200	6800	6300	6500	8400	6000	6200	6600
Construction	71610	74900	83900	90800	73900	79800	77800	72900	75700	81200	75900	76300	97700	72100	74200	79800
Wholesale Trade	61470	63500	69200	87600	62700	66100	77100	61800	62900	66700	66700	73600	94400	61800	63300	64100
Retail Trade	81270	82900	89200	117000	83800	86100	100900	82700	86000	85000	84900	95200	125900	81800	84300	84000
Accommodation & Food Services	55020	62500	69400	90400	61300	65900	78100	59900	62300	66400	66300	74000	97200	58100	59800	63800
Transport, Postal & Warehousing	37750	40600	44500	55500	40000	42600	49100	39400	40700	42700	43000	47200	59500	38100	39000	41200
Information Media & Telecoms	16820	20400	22300	27900	20100	21400	24600	19800	20500	21500	21500	23800	30300	19200	19700	20700
Financial & Insurance Services	32900	34000	37000	38600	33700	35700	34300	33400	34400	36100	34500	34500	41400	33100	33800	35400
Rental, Hiring & Real Estate Serv	14840	15100	16200	20500	15000	15500	18000	15100	15000	15600	15600	17200	22100	14900	15200	15100
Professional, Scientific & Technical Services	92170	94300	101500	128800	93100	96800	113000	93600	93500	97600	97600	108200	138700	92700	95200	93800
Administrative & Support Services	49660	56300	62100	78600	55500	59200	69000	54500	56400	59800	59700	66100	84600	52700	54100	57200
Public Administration & Safety	38180	39900	41500	53300	39400	39100	45700	38800	40400	39500	39400	42800	57400	38400	39600	42600
Education & Training	64560	70200	78400	103300	68600	74100	88700	67100	69700	74600	74300	83500	111000	64900	67000	71700
Health Care & Social Assistance	85750	89800	92200	119000	88600	95900	101400	87300	90800	97600	88200	94800	128000	86300	89100	95800
Arts & Recreation Services	13330	14700	16400	21200	14500	15500	18400	14100	14700	15600	15600	17400	22800	13600	14100	14900
Other Services	26910	27700	30200	39000	27300	28600	33800	27400	27400	28600	28700	32000	42000	27100	27900	27400
TOTAL excl OOD	834100	884000	960000	1206000	873000	925000	1048000	862000	888000	931000	914000	999000	1298000	847000	870000	907000

Source: Auckland Economy Growth Model 2023

Table 4-7: Projected Business Unit Growth Auckland 2022-2052

Mega-sectors	2022	High			Medium			Low			Very High			Very Low		
		2025	2032	2052	2025	2032	2052	2025	2032	2052	2025	2032	2052	2025	2032	2052
Primary Sector	4310	4200	4100	4100	4300	4200	4000	4300	4300	4100	4300	4200	4300	4300	4300	4100
Manuf, Transport & Const	46700	48900	53600	59700	48300	51800	51600	47500	49400	52800	49600	50400	64500	47700	50800	52000
Trade and Hospitality	34250	35100	38000	49100	35000	36300	42500	34800	35700	36000	36400	40300	52900	34900	36500	40800
Finance & Professional Services	93910	97700	106200	134500	97100	102100	117600	95600	99000	102000	102700	112500	142800	95200	100500	112900
Admin & Household Serv	24020	24800	25800	32800	24500	25800	28400	24500	25300	26100	24800	26900	35200	24400	25500	27200
Education and Health	14270	15000	15600	19100	14800	16000	16300	14500	15200	16200	14700	15500	20600	14500	15700	15700
TOTAL	217500	226000	243000	299000	224000	236000	260000	221000	229000	237000	233000	250000	320000	221000	233000	253000
Agriculture, Forestry & Fishing	4210	4100	4000	3900	4200	4100	3900	4200	4200	4000	4200	4200	4000	4200	4200	4000
Mining	100	100	100	200	100	100	100	100	100	100	100	100	200	100	100	100
Manufacturing	9390	9800	9900	12400	9700	10400	10900	9600	9800	10500	9600	10300	13400	9600	10200	10500
Electricity, Gas, Water & Waste Serv	490	500	500	600	500	500	500	500	500	500	500	500	600	500	600	600
Construction	29990	31400	35300	36900	31000	33500	31500	30500	31800	34000	31800	31200	39700	30600	32900	32600
Wholesale Trade	10400	10700	11500	14700	10500	11100	13000	10600	10700	11100	11200	12300	15800	10600	10800	12500
Retail Trade	15470	15600	16700	21900	16000	16100	18800	15800	16500	15800	16200	17700	23500	15700	17000	18000
Accommodation & Food Services	8380	8700	9600	12500	8600	9100	11000	8400	8500	9200	9200	10200	13500	8600	8800	10500
Transport, Postal & Warehousing	6830	7200	7900	9900	7200	7500	8600	7000	7200	7600	7600	8400	10600	6900	7200	8300
Information Media & Telecoms	4050	4100	4700	5100	4200	4400	4300	4100	4200	4600	4300	4200	5200	4100	4300	4100
Financial & Insurance Services	16950	17600	19300	24000	17400	18400	21300	17200	17800	18600	18800	20500	25600	17000	17700	20400
Rental, Hiring & Real Estate Serv	42100	44700	49500	63800	43900	47100	55400	43000	44600	47500	47600	52900	67100	42700	45100	53400
Professional, Scientific & Technical Services	30810	31100	32800	41600	31700	31900	36500	31300	32400	31300	32000	34800	44900	31400	33300	35100
Administrative & Support Services	8900	9000	9600	12300	9000	9300	10900	9100	9300	9300	9300	10300	13200	9100	9000	10500
Public Administration & Safety	1000	1000	1000	1300	1000	1000	1200	1000	1000	1000	1000	1100	1500	1000	1000	1200
Education & Training	4230	4500	5000	5600	4300	4600	4700	4300	4400	4800	4500	4700	6000	4300	4500	4500
Health Care & Social Assistance	10040	10500	10700	13600	10300	11100	11700	10300	10500	11300	10200	10800	14800	10200	10900	11200
Arts & Recreation Services	4140	4400	4500	5600	4200	4400	4700	4200	4300	4700	4200	4600	6000	4200	4300	4500
Other Services	9980	10400	10700	13500	10300	11000	11800	10200	10400	11200	10200	11000	14500	10200	10900	11300
TOTAL excl OOD	217500	225000	243000	299000	224000	236000	261000	221000	228000	237000	233000	250000	320000	221000	233000	253000

Source: Auckland Economy Growth Model 2023

4.3 Growth Outlook by Sector

The projections by sector of the economy for the medium future are shown in Table 4-8. This indicates generally similar growth rates across all sectors, with limited variations above or below the overall +27% growth to 2052.

Table 4-8: Auckland Employment Outlook by Sector – Medium Growth to 2052

Sector	2002	2016	2022	2025	2032	2052	2022-25	2022-32	2022-52	Growth %	Share %
Primary	11,570	8,900	7,470	7,300	7,200	6,800	- 170	- 270	- 670	-9%	-0.3%
Mining	340	330	410	500	500	600	90	90	190	46%	0.1%
Manufacturing	87,380	80,500	84,090	88,500	95,000	111,700	4,410	10,910	27,610	33%	10.7%
Utilities	3,240	4,490	6,160	6,400	6,900	6,900	240	740	740	12%	0.3%
Construction	39,690	64,340	93,900	96,900	97,800	114,700	3,000	3,900	20,800	22%	8.1%
Wholesale Trade	53,550	59,180	64,600	66,000	69,700	81,300	1,400	5,100	16,700	26%	6.5%
Retail Trade	60,140	75,910	86,870	87,300	90,700	108,200	430	3,830	21,330	25%	8.3%
Hospitality	33,190	54,960	57,890	65,100	70,000	83,100	7,210	12,110	25,210	44%	9.8%
Transport & Storage	32,440	39,910	42,010	45,000	47,900	55,200	2,990	5,890	13,190	31%	5.1%
Information & Telecoms	20,800	22,170	21,740	24,800	26,400	30,700	3,060	4,660	8,960	41%	3.5%
Finance & Insurance	20,160	29,990	34,970	35,800	38,000	37,400	830	3,030	2,430	7%	0.9%
Property	14,580	18,450	21,830	22,800	24,400	28,400	970	2,570	6,570	30%	2.6%
Professional & Scientific	60,140	95,290	110,990	113,100	119,200	139,200	2,110	8,210	28,210	25%	11.0%
Admin & Support	36,400	53,970	58,460	64,200	68,400	80,000	5,740	9,940	21,540	37%	8.4%
Public Admin & Safety	21,880	32,780	38,640	39,900	39,800	46,400	1,260	1,160	7,760	20%	3.0%
Education & Training	44,270	62,560	66,740	70,800	76,300	91,400	4,060	9,560	24,660	37%	9.6%
Health & Social	46,620	75,200	91,690	94,700	102,700	108,600	3,010	11,010	16,910	18%	6.6%
Arts & Recreation	10,550	15,640	15,860	17,400	18,700	22,000	1,540	2,840	6,140	39%	2.4%
Other Services	21,590	28,110	32,290	32,700	34,500	40,900	410	2,210	8,610	27%	3.4%
Total	618,500	822,700	936,600	979,000	1,034,000	1,194,000	43,000	97,000	257,000	27%	100.0%

Source: Auckland Economy Growth Model 2023

A similar outlook, albeit at a faster rate, is evident for the high future (Table 4-9).

Table 4-9: Auckland Employment Outlook by Sector – High Growth to 2052

Sector	2002	2016	2022	2025	2032	2052	2022-25	2022-32	2022-52	Growth %	Share %
Primary	11,570	8,900	7,470	7,300	7,200	6,800	- 170	- 270	- 670	-9%	-0.2%
Mining	340	330	410	500	500	700	90	90	290	71%	0.1%
Manufacturing	87,380	80,500	84,090	90,200	99,800	128,300	6,110	15,710	44,210	53%	10.1%
Utilities	3,240	4,490	6,160	6,400	6,300	8,100	240	140	1,940	31%	0.4%
Construction	39,690	64,340	93,900	94,900	100,900	133,800	1,000	7,000	39,900	42%	9.1%
Wholesale Trade	53,550	59,180	64,600	66,900	73,100	92,400	2,300	8,500	27,800	43%	6.4%
Retail Trade	60,140	75,910	86,870	88,700	95,800	125,600	1,830	8,930	38,730	45%	8.9%
Hospitality	33,190	54,960	57,890	66,500	73,800	96,200	8,610	15,910	38,310	66%	8.8%
Transport & Storage	32,440	39,910	42,010	45,700	49,900	62,500	3,690	7,890	20,490	49%	4.7%
Information & Telecoms	20,800	22,170	21,740	25,200	27,700	34,900	3,460	5,960	13,160	61%	3.0%
Finance & Insurance	20,160	29,990	34,970	36,200	39,400	41,900	1,230	4,430	6,930	20%	1.6%
Property	14,580	18,450	21,830	23,200	25,500	32,300	1,370	3,670	10,470	48%	2.4%
Professional & Scientific	60,140	95,290	110,990	114,600	124,900	158,700	3,610	13,910	47,710	43%	10.9%
Admin & Support	36,400	53,970	58,460	65,200	71,800	91,000	6,740	13,340	32,540	56%	7.4%
Public Admin & Safety	21,880	32,780	38,640	40,400	42,000	54,200	1,760	3,360	15,560	40%	3.6%
Education & Training	44,270	62,560	66,740	72,300	80,800	106,400	5,560	14,060	39,660	59%	9.1%
Health & Social	46,620	75,200	91,690	96,000	98,700	127,400	4,310	7,010	35,710	39%	8.2%
Arts & Recreation	10,550	15,640	15,860	17,700	19,600	25,400	1,840	3,740	9,540	60%	2.2%
Other Services	21,590	28,110	32,290	33,300	36,200	47,200	1,010	3,910	14,910	46%	3.4%
Total	618,500	822,700	936,600	991,000	1,074,000	1,374,000	55,000	137,000	437,000	47%	100.0%

Source: Auckland Economy Growth Model 2023

A similar relatively even outlook, at a slower rate, is evident for the low future (Table 4-10).

Table 4-10: Auckland Employment Outlook by Sector – Low to 2052

Sector	2002	2016	2022	2025	2032	2052	2022-25	2022-32	2022-52	Growth %	Share %
Primary	11,570	8,900	7,470	7,300	7,200	6,800	- 170	- 270	- 670	-9%	-0.7%
Mining	340	330	410	500	500	500	90	90	90	22%	0.1%
Manufacturing	87,380	80,500	84,090	86,900	90,200	95,600	2,810	6,110	11,510	14%	11.2%
Utilities	3,240	4,490	6,160	6,200	6,400	6,900	40	240	740	12%	0.7%
Construction	39,690	64,340	93,900	95,500	99,600	95,900	1,600	5,700	2,000	2%	1.9%
Wholesale Trade	53,550	59,180	64,600	65,100	66,600	70,400	500	2,000	5,800	9%	5.6%
Retail Trade	60,140	75,910	86,870	88,300	91,800	91,300	1,430	4,930	4,430	5%	4.3%
Hospitality	33,190	54,960	57,890	63,800	66,200	70,600	5,910	8,310	12,710	22%	12.3%
Transport & Storage	32,440	39,910	42,010	44,400	45,900	48,200	2,390	3,890	6,190	15%	6.0%
Information & Telecoms	20,800	22,170	21,740	24,400	25,300	26,600	2,660	3,560	4,860	22%	4.7%
Finance & Insurance	20,160	29,990	34,970	35,500	36,500	38,400	530	1,530	3,430	10%	3.3%
Property	14,580	18,450	21,830	22,500	23,300	24,500	670	1,470	2,670	12%	2.6%
Professional & Scientific	60,140	95,290	110,990	111,600	113,500	120,200	610	2,510	9,210	8%	8.9%
Admin & Support	36,400	53,970	58,460	63,100	65,200	69,100	4,640	6,740	10,640	18%	10.3%
Public Admin & Safety	21,880	32,780	38,640	39,400	41,000	40,100	760	2,360	1,460	4%	1.4%
Education & Training	44,270	62,560	66,740	69,200	71,900	76,900	2,460	5,160	10,160	15%	9.9%
Health & Social	46,620	75,200	91,690	93,300	97,400	104,400	1,610	5,710	12,710	14%	12.3%
Arts & Recreation	10,550	15,640	15,860	17,000	17,700	18,800	1,140	1,840	2,940	19%	2.9%
Other Services	21,590	28,110	32,290	32,800	33,000	34,700	510	710	2,410	7%	2.3%
Total	618,500	822,700	936,600	967,000	999,000	1,040,000	30,000	63,000	103,000	11%	100.0%

Source: Auckland Economy Growth Model 2023

4.4 Growth Outlook by Location: Local Board Area

The projections by Local Board Area for the medium growth future are shown in Table 4-11.

Although the growth rates are relatively even across all sectors, there are differences indicated among the LBA areas. The generally less developed LBA areas generally show the strongest growth in percentage terms, as they come off a lower base and contain the bulk of potential greenfields land.

However, the LBA areas which contain the larger centres and business areas generally see growth above the average. The Waitemata LBA, containing the CBD, attracts the largest share (30%), and would increase faster than the regional average.

The patterns are similar in the high and low growth futures, which is consistent with future growth continuing to occur incrementally and based first on the established business structure, albeit varying in the quantum of growth.

Table 4-11: Auckland Employment Outlook by LBA – Medium Future 2010-2052

LBA	2001	2016	2022	2025	2032	2052	2022-25	2022-32	2022-52	Growth %	Share %
Rodney LBA	15600	20400	25800	27300	29800	33400	1500	4000	7600	29%	3.0%
Hibiscus and Bays LBA	17000	24300	38800	40300	42000	47300	1500	3200	8500	22%	3.3%
Kaipatiki LBA	27500	30800	30200	31300	32400	36000	1100	2200	5800	19%	2.3%
Upper Harbour LBA	21900	47400	49000	51200	53500	60800	2200	4500	11800	24%	4.6%
Devonport-Takapuna LBA	27800	33600	38500	40300	42400	49300	1800	3900	10800	28%	4.2%
Henderson-Massey LBA	27300	35300	42600	44600	50700	59700	2000	8100	17100	40%	6.7%
Waitakere Ranges LBA	6800	9200	10300	10800	11200	12600	500	900	2300	22%	0.9%
Whau LBA	26000	30700	28700	30100	31500	35800	1400	2800	7100	25%	2.8%
Waitemata LBA	142900	191500	218400	230200	244200	295800	11800	25800	77400	35%	30.1%
Puketapapa LBA	9400	10600	13200	13800	14500	16500	600	1300	3300	25%	1.3%
Orakei LBA	19700	24500	63800	66400	69100	77900	2600	5300	14100	22%	5.5%
Albert-Eden LBA	39200	47100	64000	67100	70700	82700	3100	6700	18700	29%	7.3%
Maungakiekie-Tamaki LBA	71700	94200	74700	78200	81800	92500	3500	7100	17800	24%	6.9%
Howick LBA	35100	59000	64800	67600	70500	79600	2800	5700	14800	23%	5.8%
Mangere-Otahuhu LBA	31400	45000	34200	35600	37000	41200	1400	2800	7000	20%	2.7%
Otara-Papatoetoe LBA	33400	46000	61400	64200	67200	75800	2800	5800	14400	23%	5.6%
Manurewa LBA	16900	24900	26000	27300	28600	32400	1300	2600	6400	25%	2.5%
Papakura LBA	13900	18000	20200	21200	22200	25100	1000	2000	4900	24%	1.9%
Franklin LBA	21100	26500	26300	27800	30300	34000	1500	4000	7700	29%	3.0%
Waiheke and Great Barrier	2400	3900	4300	4600	4800	5400	300	500	1100	26%	0.4%
Total	607200	822700	936600	980000	1034000	1194000	43000	98000	257000	27%	100.0%

Source: Auckland Economy Growth Model 2023

Note: Totals may not sum due to rounding

It is important to recognise that these projections draw from one projection set for population growth within Auckland. If different patterns of population growth are applied, then this will influence the trends in employment growth, including across the LBAs.

Table 4-12: Auckland Employment Outlook by LBA – High Future 2010-2052

LBA	2001	2016	2022	2025	2032	2052	2022-25	2022-32	2022-52	Growth %	Share %
Rodney LBA	15600	20400	25800	27500	30600	36900	1700	4800	11100	43%	2.5%
Hibiscus and Bays LBA	17000	24300	38800	40800	43400	53500	2000	4600	14700	38%	3.4%
Kaipatiki LBA	27500	30800	30200	31500	33400	40300	1300	3200	10100	33%	2.3%
Upper Harbour LBA	21900	47400	49000	51800	55600	69500	2800	6600	20500	42%	4.7%
Devonport-Takapuna LBA	27800	33600	38500	40800	43800	56700	2300	5300	18200	47%	4.2%
Henderson-Massey LBA	27300	35300	42600	45200	52500	67900	2600	9900	25300	59%	5.8%
Waitakere Ranges LBA	6800	9200	10300	10900	11600	14200	600	1300	3900	38%	0.9%
Whau LBA	26000	30700	28700	30400	32700	41100	1700	4000	12400	43%	2.8%
Waitemata LBA	142900	191500	218400	233800	255700	352300	15400	37300	133900	61%	30.6%
Puketapapa LBA	9400	10600	13200	13900	15000	18900	700	1800	5700	43%	1.3%
Orakei LBA	19700	24500	63800	67100	71500	88100	3300	7700	24300	38%	5.6%
Albert-Eden LBA	39200	47100	64000	68000	73500	96300	4000	9500	32300	50%	7.4%
Maungakiekie-Tamaki LBA	71700	94200	74700	79000	85200	106100	4300	10500	31400	42%	7.2%
Howick LBA	35100	59000	64800	68400	73100	90500	3600	8300	25700	40%	5.9%
Mangere-Otahuhu LBA	31400	45000	34200	35900	38300	46400	1700	4100	12200	36%	2.8%
Otara-Papatoetoe LBA	33400	46000	61400	64900	69400	85800	3500	8000	24400	40%	5.6%
Manurewa LBA	16900	24900	26000	27600	29700	37000	1600	3700	11000	42%	2.5%
Papakura LBA	13900	18000	20200	21400	23100	28600	1200	2900	8400	42%	1.9%
Franklin LBA	21100	26500	26300	28000	31200	37500	1700	4900	11200	43%	2.6%
Waiheke and Great Barrier	2400	3900	4300	4600	5000	6100	300	700	1800	42%	0.4%
Total	607200	822700	936600	992000	1074000	1374000	55000	138000	437000	47%	100.0%

Source: Auckland Economy Growth Model 2023

Note: Totals may not sum due to rounding

Table 4-13 : Auckland Employment Outlook by LBA – Low Future 2010-2052

LBA	2001	2016	2022	2025	2032	2052	2022-25	2022-32	2022-52	Growth %	Share %
Rodney LBA	15600	20400	25800	27000	29000	30500	1200	3200	4700	18%	4.6%
Hibiscus and Bays LBA	17000	24300	38800	39900	40800	42000	1100	2000	3200	8%	3.1%
Kaipatiki LBA	27500	30800	30200	30900	31500	32400	700	1300	2200	7%	2.1%
Upper Harbour LBA	21900	47400	49000	50600	51900	53600	1600	2900	4600	9%	4.5%
Devonport-Takapuna LBA	27800	33600	38500	39800	40800	42500	1300	2300	4000	10%	3.9%
Henderson-Massey LBA	27300	35300	42600	44100	49200	52800	1500	6600	10200	24%	9.9%
Waitakere Ranges LBA	6800	9200	10300	10700	10900	11200	400	600	900	9%	0.9%
Whau LBA	26000	30700	28700	29700	30500	31500	1000	1800	2800	10%	2.7%
Waitemata LBA	142900	191500	218400	226800	233500	245800	8400	15100	27400	13%	26.6%
Puketapapa LBA	9400	10600	13200	13600	14000	14500	400	800	1300	10%	1.3%
Orakei LBA	19700	24500	63800	65700	67200	69200	1900	3400	5400	8%	5.2%
Albert-Eden LBA	39200	47100	64000	66200	68100	70900	2200	4100	6900	11%	6.7%
Maungakiekie-Tamaki LBA	71700	94200	74700	77300	79400	81900	2600	4700	7200	10%	7.0%
Howick LBA	35100	59000	64800	66900	68400	70600	2100	3600	5800	9%	5.6%
Mangere-Otahuhu LBA	31400	45000	34200	35200	36000	37000	1000	1800	2800	8%	2.7%
Otara-Papatoetoe LBA	33400	46000	61400	63400	65100	67100	2000	3700	5700	9%	5.5%
Manurewa LBA	16900	24900	26000	27000	27700	28600	1000	1700	2600	10%	2.5%
Papakura LBA	13900	18000	20200	21000	21500	22200	800	1300	2000	10%	1.9%
Franklin LBA	21100	26500	26300	27500	29500	31000	1200	3200	4700	18%	4.6%
Waiheke and Great Barrier	2400	3900	4300	4500	4600	4800	200	300	500	12%	0.5%
Total	607200	822700	936600	968000	1000000	1040000	31000	63000	103000	11%	100.0%

Source: Auckland Economy Growth Model 2023

Note: Totals may not sum due to rounding

4.5 Employment Outcomes for the Spatial Economy

The following tables set out the projected growth across the Auckland spatial economy, by type of centre and business area. Apart from the CBD, the centre and business area types are aggregated, because of the large number of locations.

4.5.1 The 'Most Likely' Scenario - Medium Growth

The outcome for the Medium future is set out in Table 4-14. The projection shows substantial growth across the spatial economy. The growth patterns, as expected, largely act to reinforce and support the established roles of centres and business areas, with weight given to the patterns observed across the last two decades.

This is not simply a *pro rata* approach, because the established patterns of activity reflect the key drivers in the economy, including the location preferences of the different sectors, and the relative attractiveness of each location for further growth and development. Notably:

- There is substantial growth indicated for City Centre throughout the medium and long terms. While the total increase is in the order of 28% over the long term, the City Centre is expected to grow faster than this, in the order of +41%.
- There would be relatively strong growth in the Metropolitan centres, though with less growth in centres lower in the hierarchy. The City Centre and the Metropolitan centres in this future would account for around 31% of total growth in the long term, more than three times that across the other centres in total.
- There would be relatively strong growth in the Mixed Use areas, though with lesser growth in the Light Industry and Heavy Industry zoned areas.

- d. The special nodes relating to health and recreation would also show relatively strong growth.
- e. Overall, the centres and business areas would together see growth somewhat ahead of the other areas across Auckland.
- f. That said, all of the centre types and business areas show reasonably significant growth.

These growth patterns are generally consistent with – and are in part driven by – the underlying residential growth across Auckland. At the same time, the medium- and long-term patterns in terms of persons working from home for some or all their working weeks is also very relevant. This remains an area of obvious uncertainty.

It is relevant to consider the potential for different growth outcomes at the city-wide level, including where there are general trends toward or away from specific elements within the spatial economy – such as Metropolitan Centres or the outlying suburban areas given the likely effect of the MDRS provisions to promote a more dispersed pattern of residential development.

It is also important to consider the implications of a substantially stronger central city. To a considerable degree that would run counter to the wider trend for CBDs in western economies to have slower than the average growth for the city as a whole, because household and business activity becomes more widely spread across those cities as they increase in size.

While Auckland CBD did have relatively strong growth in business activity compared with the city as a whole in the 2010-2022 period, one obvious question is the degree to which this may be sustainable in the long term. The Auckland outcome will be influenced especially by the potential for intensification of housing capacity around centres – which are somewhat more numerous in the inner areas of the city – as distinct from outward suburban growth. That in turn depends on the potential for improvements in travel and transport efficiency across the city to sustain such intensification and centres growth.

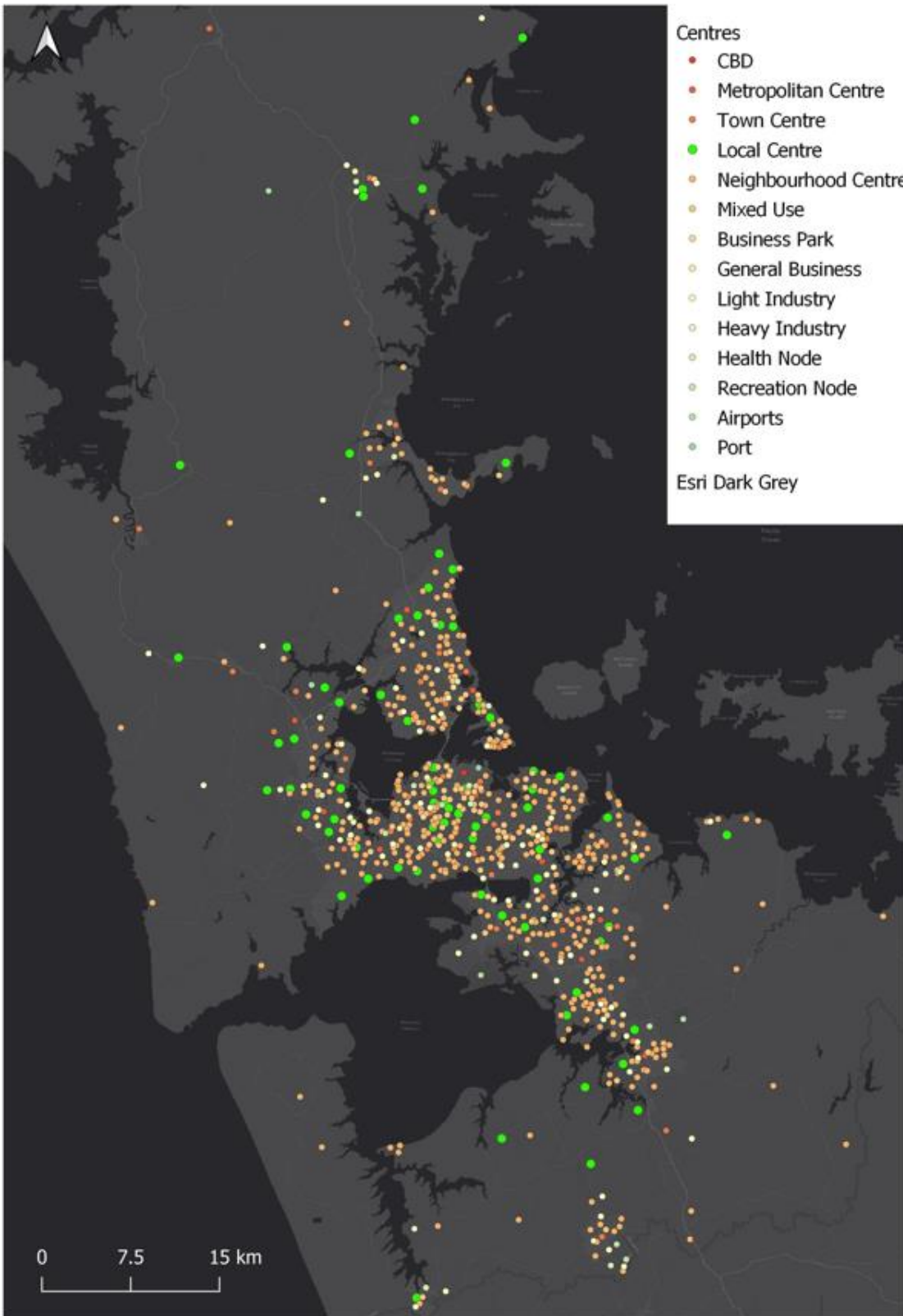
Table 4-14: Auckland Employment Outlook in the Spatial Economy – Medium Future 2022-2052

EMPLOYMENT IN AUCKLAND SPATIAL ECONOMY 2022-52 Medium Growth (Spatial Trend :Last Decade)													
Spatial Economy	Count	2022	2025	2032	2052	2022-25	2022-25 %	2022-32	2022-32 %	2022-52	2022-52 %	Increase %	Relative Shift to 2052
City Centre	1	127,000	134,900	144,300	173,900	7,900	18%	17,300	17%	46,900	18%	37%	1.34
Metropolitan Centres	10	84,100	88,600	95,900	113,700	4,500	10%	11,800	12%	29,600	11%	35%	1.27
Town Centres	47	79,400	81,200	87,500	96,200	1,800	4%	8,100	8%	16,800	7%	21%	0.77
Local Centres	73	40,000	40,900	41,700	44,800	900	2%	1,700	2%	4,800	2%	12%	0.43
Neighbourhood Centres	418	28,400	29,200	30,200	33,600	800	2%	1,800	2%	5,200	2%	18%	0.66
Total Centres	549	358,900	374,800	399,600	462,200	15,900	36%	40,700	41%	103,300	40%	29%	1.04
Mixed Use	102	65,900	70,500	76,100	94,000	4,600	11%	10,200	10%	28,100	11%	43%	1.54
Business Parks	4	19,000	19,900	21,000	24,500	900	2%	2,000	2%	5,500	2%	29%	1.05
General Business	10	15,900	16,900	18,000	21,600	1,000	2%	2,100	2%	5,700	2%	36%	1.30
Light Industry	79	136,700	142,400	148,100	165,900	5,700	13%	11,400	12%	29,200	11%	21%	0.77
Heavy Industry	7	73,500	76,600	79,500	88,900	3,100	7%	6,000	6%	15,400	6%	21%	0.76
Airports	5	10,100	11,400	12,900	17,400	1,300	3%	2,800	3%	7,300	3%	72%	2.61
Port	1	5,800	6,000	6,300	7,200	200	0%	500	1%	1,400	1%	24%	0.87
Health Nodes	14	32,800	34,700	37,500	46,300	1,900	4%	4,700	5%	13,500	5%	41%	1.49
Recreation Nodes	7	1,300	1,400	1,500	1,900	100	0%	200	0%	600	0%	46%	1.67
Total Business Areas	229	361,000	379,800	400,900	467,700	18,800	43%	39,900	40%	106,700	41%	30%	1.07
Centres & Business Areas	778	719,900	754,600	800,500	929,900	34,700	79%	80,600	81%	210,000	81%	29%	1.06
Urban Residential	779	187,100	194,800	203,100	229,900	7,700	18%	16,000	16%	42,800	17%	23%	0.83
Fringe	276	2,000	2,100	2,200	2,400	100	0%	200	0%	400	0%	20%	0.72
Rural	1,217	26,400	27,700	28,500	31,600	1,300	3%	2,100	2%	5,200	2%	20%	0.71
Other Locations	2,272	215,500	224,600	233,800	263,900	9,100	21%	18,300	19%	48,400	19%	22%	0.81
Total		935,400	979,000	1,034,000	1,194,000	43,800	100%	98,900	100%	258,400	100%	27%	1.00

Source: Auckland Economy Growth Model 2023

Note: Totals may not sum due to rounding

Figure 4-6 : Patterns of Growth – Medium Future 2022-2052



4.5.2 High Growth

The employment outlook in terms of the Auckland Spatial Economy for the High Future is set out in Table 4-15. It again shows substantial growth across the spatial economy, with an overall increase of around 47% across the economy.

The patterns are consistent with those of the medium growth future, albeit with higher quanta of growth, including:

- Substantial growth for City Centre throughout the medium and long terms, in the order of +71% or about 1.5 times the overall increase. We note the same caveats as to the sustainability of this increasing share of business activity and employment.
- Again, there would be relatively strong growth in the Metropolitan centres, together with slower than average growth in Town, local and Neighbourhood centres lower in the hierarchy.
- The City Centre and the Metropolitan centres in this future would again account for around one third of total growth in the long term, more than three times that across the other centres in total.
- There would be relatively strong growth in the Mixed Use areas, lesser growth in the Light Industry and Heavy Industry zoned areas, though with still substantial increases in activity in these zonings.
- The special nodes relating to health and recreation would also show relatively strong growth.

The growth patterns as expected largely act to reinforce the established roles of centres and business areas. To a considerable degree, this reflects the underlying position that the growth patterns in the recent medium-term past are the strongest indicator of the future prospects.

Table 4-15 : Auckland Employment Outlook in Spatial Economy – High Future 2022-2052

EMPLOYMENT IN AUCKLAND SPATIAL ECONOMY 2022-52 High Growth (Spatial Trend :Last Decade)													
Spatial Economy	Count	2022	2025	2032	2052	2022-25	2022-25 %	2022-32	2022-32 %	2022-52	2022-52 %	Increase %	Relative Shift to 2052
City Centre	1	127,000	137,200	152,400	208,100	10,200	18%	25,400	18%	81,100	19%	64%	1.36
Metropolitan Centres	10	84,100	89,900	100,300	133,200	5,800	10%	16,200	12%	49,100	11%	58%	1.25
Town Centres	47	79,400	81,800	89,200	103,700	2,400	4%	9,800	7%	24,300	6%	31%	0.65
Local Centres	73	40,000	41,100	42,500	48,300	1,100	2%	2,500	2%	8,300	2%	21%	0.44
Neighbourhood Centres	418	28,400	29,500	31,200	37,600	1,100	2%	2,800	2%	9,200	2%	32%	0.69
Total Centres	549	358,900	379,500	415,600	530,900	20,600	37%	56,700	41%	172,000	39%	48%	1.02
Mixed Use	101	65,900	71,900	80,400	114,100	6,000	11%	14,500	10%	48,200	11%	73%	1.56
Business Parks	4	19,000	20,200	21,900	28,600	1,200	2%	2,900	2%	9,600	2%	51%	1.08
General Business	10	15,900	17,200	19,000	25,900	1,300	2%	3,100	2%	10,000	2%	63%	1.34
Light Industry	79	136,700	143,700	153,500	187,600	7,000	13%	16,800	12%	50,900	12%	37%	0.79
Heavy Industry	7	73,500	77,300	82,400	100,400	3,800	7%	8,900	6%	26,900	6%	37%	0.78
Airports	5	10,100	11,700	14,200	23,000	1,600	3%	4,100	3%	12,900	3%	128%	2.72
Port	1	5,800	6,100	6,500	8,100	300	1%	700	1%	2,300	1%	40%	0.85
Health Nodes	14	32,800	35,300	38,300	54,800	2,500	4%	5,500	4%	22,000	5%	67%	1.43
Recreation Nodes	7	1,300	1,400	1,600	2,300	100	0%	300	0%	1,000	0%	77%	1.64
Total Business Areas	228	361,000	384,800	417,800	544,800	23,800	43%	56,800	41%	183,800	42%	51%	1.09
Centres & Business Areas	777	719,900	764,300	833,400	1,075,700	44,400	79%	113,500	82%	355,800	81%	49%	1.05
Urban Residential	779	187,100	196,900	209,400	259,900	9,800	18%	22,300	16%	72,800	17%	39%	0.83
Fringe	276	2,000	2,100	2,200	2,600	100	0%	200	0%	600	0%	30%	0.64
Rural	1,217	26,400	28,000	29,400	35,400	1,600	3%	3,000	2%	9,000	2%	34%	0.73
Other Locations	2,272	215,500	227,000	241,000	297,900	11,500	21%	25,500	18%	82,400	19%	38%	0.82
Total		935,400	991,000	1,074,000	1,374,000	55,900	100%	139,000	100%	438,200	100%	47%	1.00

Source: Auckland Economy Growth Model 2023

Note: Totals may not sum due to rounding

4.5.3 Low Growth

The employment outlook for the Low future is set out in Table 4-16. As with the high and medium futures, the pattern is dominated by incremental growth patterns, reinforcing the established roles of centres and business areas.

Table 4-16: Auckland Employment Outlook in Spatial Economy – Low Future 2022-2052

EMPLOYMENT IN AUCKLAND SPATIAL ECONOMY 2022-52 Low Growth (Spatial Trend :Last Decade)													
Spatial Economy	Count	2022	2025	2032	2052	2022-25	2022-25 %	2022-32	2022-32 %	2022-52	2022-52 %	Increase %	Relative Shift to 2052
City Centre	1	127,000	132,600	137,300	144,500	5,600	18%	10,300	16%	17,500	17%	14%	1.23
Metropolitan Centres	10	84,100	87,400	92,500	97,600	3,300	10%	8,400	13%	13,500	13%	16%	1.44
Town Centres	47	79,400	80,800	86,100	89,800	1,400	4%	6,700	10%	10,400	10%	13%	1.17
Local Centres	73	40,000	40,600	41,100	41,700	600	2%	1,100	2%	1,700	2%	4%	0.38
Neighbourhood Centres	418	28,400	28,900	29,300	29,800	500	2%	900	1%	1,400	1%	5%	0.44
Total Centres	549	358,900	370,300	386,300	403,400	11,400	36%	27,400	43%	44,500	43%	12%	1.11
Mixed Use	101	65,900	69,300	72,300	76,600	3,400	11%	6,400	10%	10,700	10%	16%	1.45
Business Parks	4	19,000	19,700	20,200	21,000	700	2%	1,200	2%	2,000	2%	11%	0.94
General Business	10	15,900	16,600	17,300	18,100	700	2%	1,400	2%	2,200	2%	14%	1.24
Light Industry	79	136,700	140,900	144,200	148,300	4,200	13%	7,500	12%	11,600	11%	8%	0.76
Heavy Industry	7	73,500	75,800	77,500	79,800	2,300	7%	4,000	6%	6,300	6%	9%	0.77
Airports	5	10,100	11,000	12,000	13,100	900	3%	1,900	3%	3,000	3%	30%	2.66
Port	1	5,800	6,000	6,100	6,300	200	1%	300	0%	500	0%	9%	0.77
Health Nodes	14	32,800	34,000	35,500	37,500	1,200	4%	2,700	4%	4,700	5%	14%	1.28
Recreation Nodes	7	1,300	1,400	1,400	1,500	100	0%	100	0%	200	0%	15%	1.38
Total Business Areas	228	361,000	374,700	386,500	402,200	13,700	43%	25,500	40%	41,200	40%	11%	1.02
Centres & Business Areas	777	719,900	745,000	772,800	805,600	25,100	79%	52,900	82%	85,700	82%	12%	1.06
Urban Residential	779	187,100	192,600	196,900	203,300	5,500	17%	9,800	15%	16,200	16%	9%	0.77
Fringe	276	2,000	2,100	2,100	2,200	100	0%	100	0%	200	0%	10%	0.89
Rural	1,217	26,400	27,400	27,800	28,500	1,000	3%	1,400	2%	2,100	2%	8%	0.71
Other Locations	2,272	215,500	222,100	226,800	234,000	6,600	21%	11,300	18%	18,500	18%	9%	0.77
Total		935,400	967,000	1,000,000	1,040,000	31,700	100%	64,200	100%	104,200	100%	11%	1.00

Source: Auckland Economy Growth Model 2023

Note: Totals may not sum due to rounding

4.5.4 Very High and Very Low Growth

For completeness, the outcomes for the Very High and Very Low futures are shown in Table 4-17 and Table 4-18. These again show the outcomes in a future reflecting the history of incremental growth patterns around the established centres and business areas.

Table 4-17: Auckland Employment Outlook in Spatial Economy – Very High Future 2022-2052

EMPLOYMENT IN AUCKLAND SPATIAL ECONOMY 2022-52 Very High Growth (Spatial Trend :Last Decade)													
Spatial Economy	Count	2022	2025	2032	2052	2022-25	2022-25 %	2022-32	2022-32 %	2022-52	2022-52 %	Increase %	Relative Shift to 2052
City Centre	1	127,000	144,600	163,100	227,400	17,600	19%	36,100	18%	100,400	19%	79%	1.36
Metropolitan Centres	10	84,100	93,900	106,600	144,300	9,800	10%	22,500	11%	60,200	11%	72%	1.23
Town Centres	47	79,400	83,300	91,700	107,700	3,900	4%	12,300	6%	28,300	5%	36%	0.61
Local Centres	73	40,000	41,900	43,700	50,200	1,900	2%	3,700	2%	10,200	2%	26%	0.44
Neighbourhood Centres	418	28,400	30,400	32,600	40,000	2,000	2%	4,200	2%	11,600	2%	41%	0.70
Total Centres	549	358,900	394,100	437,700	569,600	35,200	37%	78,800	40%	210,700	39%	59%	1.01
Mixed Use	101	65,900	75,800	86,800	125,900	9,900	11%	20,900	10%	60,000	11%	91%	1.57
Business Parks	4	19,000	21,000	23,200	30,800	2,000	2%	4,200	2%	11,800	2%	62%	1.07
General Business	10	15,900	18,000	20,400	28,400	2,100	2%	4,500	2%	12,500	2%	79%	1.36
Light Industry	79	136,700	148,800	161,500	200,600	12,100	13%	24,800	12%	63,900	12%	47%	0.81
Heavy Industry	7	73,500	80,000	86,700	107,400	6,500	7%	13,200	7%	33,900	6%	46%	0.80
Airports	5	10,100	12,900	16,100	26,700	2,800	3%	6,000	3%	16,600	3%	164%	2.83
Port	1	5,800	6,300	6,800	8,600	500	1%	1,000	1%	2,800	1%	48%	0.83
Health Nodes	14	32,800	36,500	40,800	59,700	3,700	4%	8,000	4%	26,900	5%	82%	1.41
Recreation Nodes	7	1,300	1,500	1,700	2,500	200	0%	400	0%	1,200	0%	92%	1.59
Total Business Areas	228	361,000	400,800	444,000	590,600	39,800	42%	83,000	42%	229,600	42%	64%	1.10
Centres & Business Areas	777	719,900	794,900	881,700	1,160,200	75,000	80%	161,800	81%	440,300	81%	61%	1.05
Urban Residential	779	187,100	203,300	219,600	277,200	16,200	17%	32,500	16%	90,100	17%	48%	0.83
Fringe	276	2,000	2,200	2,300	2,800	200	0%	300	0%	800	0%	40%	0.69
Rural	1,217	26,400	29,000	31,000	37,900	2,600	3%	4,600	2%	11,500	2%	44%	0.75
Other Locations	2,272	215,500	234,500	252,900	317,900	19,000	20%	37,400	19%	102,400	19%	48%	0.82
Total		935,400	1,029,000	1,135,000	1,478,000	94,000	100%	199,200	100%	542,700	100%	58%	1.00

Source: Auckland Economy Growth Model 2023

Note: Totals may not sum due to rounding

Table 4-18: Auckland Employment Outlook in Spatial Economy – Very Low Future 2022-2052

EMPLOYMENT IN AUCKLAND SPATIAL ECONOMY 2022-52 Very Low Growth (Spatial Trend :Last Decade)													
Spatial Economy	Count	2022	2025	2032	2052	2022-25	2022-25 %	2022-32	2022-32 %	2022-52	2022-52 %	Increase %	Relative Shift to 2052
City Centre	1	127,000	129,900	133,900	140,400	2,900	19%	6,900	16%	13,400	16%	11%	1.17
Metropolitan Centres	10	84,100	85,800	90,300	95,800	1,700	11%	6,200	15%	11,700	14%	14%	1.54
Town Centres	47	79,400	80,100	85,200	89,100	700	5%	5,800	14%	9,700	11%	12%	1.35
Local Centres	73	40,000	40,300	40,600	41,400	300	2%	600	1%	1,400	2%	4%	0.39
Neighbourhood Centres	418	28,400	28,500	28,800	29,500	100	1%	400	1%	1,100	1%	4%	0.43
Total Centres	549	358,900	364,600	378,800	396,200	5,700	38%	19,900	47%	37,300	44%	10%	1.15
Mixed Use	101	65,900	67,500	70,000	74,300	1,600	11%	4,100	10%	8,400	10%	13%	1.41
Business Parks	4	19,000	19,300	19,800	20,600	300	2%	800	2%	1,600	2%	8%	0.93
General Business	10	15,900	16,300	16,800	17,700	400	3%	900	2%	1,800	2%	11%	1.25
Light Industry	79	136,700	138,700	141,200	146,000	2,000	13%	4,500	11%	9,300	11%	7%	0.75
Heavy Industry	7	73,500	74,600	75,900	78,400	1,100	7%	2,400	6%	4,900	6%	7%	0.74
Airports	5	10,100	10,500	11,200	12,400	400	3%	1,100	3%	2,300	3%	23%	2.52
Port	1	5,800	5,900	6,000	6,200	100	1%	200	0%	400	0%	7%	0.76
Health Nodes	14	32,800	33,200	34,300	36,800	400	3%	1,500	4%	4,000	5%	12%	1.35
Recreation Nodes	7	1,300	1,300	1,400	1,500	-	0%	100	0%	200	0%	15%	1.70
Total Business Areas	228	361,000	367,300	376,600	393,900	6,300	42%	15,600	37%	32,900	39%	9%	1.01
Centres & Business Areas	777	719,900	731,900	755,400	790,100	12,000	79%	35,500	84%	70,200	83%	10%	1.08
Urban Residential	779	187,100	189,600	193,000	199,900	2,500	17%	5,900	14%	12,800	15%	7%	0.76
Fringe	276	2,000	2,100	2,100	2,100	100	1%	100	0%	100	0%	5%	0.55
Rural	1,217	26,400	26,900	27,200	28,000	500	3%	800	2%	1,600	2%	6%	0.67
Other Locations	2,272	215,500	218,600	222,300	230,000	3,100	21%	6,800	16%	14,500	17%	7%	0.74
Total		935,400	951,000	978,000	1,020,000	15,100	100%	42,300	100%	84,700	100%	9%	1.00

Source: Auckland Economy Growth Model 2023

Note: Totals may not sum due to rounding

4.6 Major Centres

Auckland's larger centres have accounted for more than half of the region's growth. The growth outlook across major centres is shown in Table 4-19 for the Medium future, and subsequent tables for the Very High to Very Low futures. These show the outcomes in a future which reflects the current situation, and continuation of the established development pattern of incremental growth around the established centres and business areas. Then the patterns across the 35 largest centres and business areas are shown for each future in Figure 4-7 to Figure 4-11.

Table 4-19: Auckland Employment Outlook in Major Centres – Medium Future 2022-2052

EMPLOYMENT IN AUCKLAND MAJOR CENTRES & BUSINESS AREAS 2022-52 Medium Growth (Spatial Trend : Last Decade)											
Location	2022	2025	2032	2052	2022-25	2022-25 %	2022-32	2022-32 %	2022-52	2022-52 %	2022-52 Share %
City Centre	127,000	134,900	144,300	173,900	7,900	6%	17,300	14%	46,900	37%	1.34
Newmarket	19,600	20,600	21,800	25,700	1,000	5%	2,200	11%	6,100	31%	1.13
Manukau	15,500	16,300	17,100	20,100	800	5%	1,600	10%	4,600	30%	1.08
Botany	9,100	9,600	10,000	11,600	500	5%	900	10%	2,500	27%	1.00
Takapuna	8,200	8,700	9,200	10,800	500	6%	1,000	12%	2,600	32%	1.15
Albany	8,400	8,800	9,300	10,800	400	5%	900	11%	2,400	29%	1.04
New Lynn	6,000	6,300	6,700	8,000	300	5%	700	12%	2,000	33%	1.21
Henderson	5,600	5,900	6,200	7,400	300	5%	600	11%	1,800	32%	1.17
Sylvia Park	4,900	5,200	5,600	6,700	300	6%	700	14%	1,800	37%	1.34
Westgate / Massey North	3,700	3,900	6,500	8,600	200	5%	2,800	76%	4,900	132%	4.82
Papakura	3,200	3,300	3,500	4,100	100	3%	300	9%	900	28%	1.02
CBD and Metropolitan Centres	211,200	223,500	240,200	287,700	12,300	6%	29,000	14%	76,500	36%	1.32
Penrose	30,300	31,600	32,900	36,900	1,300	4%	2,600	9%	6,600	22%	0.79
Highbrook	21,100	21,900	22,700	25,100	800	4%	1,600	8%	4,000	19%	0.69
Wiri	14,500	15,100	15,700	17,500	600	4%	1,200	8%	3,000	21%	0.75
Wiri	2,200	2,300	2,400	2,600	100	5%	200	9%	400	18%	0.66
North Harbour	13,900	14,400	14,900	16,500	500	4%	1,000	7%	2,600	19%	0.68
Highbrook	11,800	12,200	12,600	13,700	400	3%	800	7%	1,900	16%	0.59
Wairau Valley	11,600	12,000	12,400	13,800	400	3%	800	7%	2,200	19%	0.69
Mt Wellington	11,500	12,000	12,400	13,900	500	4%	900	8%	2,400	21%	0.76
Mangere	9,000	9,400	9,700	10,600	400	4%	700	8%	1,600	18%	0.65
Rosebank	8,400	8,700	9,000	9,900	300	4%	600	7%	1,500	18%	0.65
Lincoln	7,600	7,900	8,200	9,100	300	4%	600	8%	1,500	20%	0.72
Airport North	6,600	6,800	7,000	7,600	200	3%	400	6%	1,000	15%	0.55
Devonport Naval Base	3,000	3,200	3,300	4,000	200	7%	300	10%	1,000	33%	1.21
Parnell	8,400	8,800	9,400	10,900	400	5%	1,000	12%	2,500	30%	1.08
Freemans Bay College Hill	6,000	6,300	6,600	7,800	300	5%	600	10%	1,800	30%	1.09
Mt Eden Normanby Rd	5,300	5,600	6,000	7,100	300	6%	700	13%	1,800	34%	1.24
Mairangi Bay Constellation Dr	11,800	12,400	13,000	15,100	600	5%	1,200	10%	3,300	28%	1.02
Ellerslie Great Sth Rd	10,200	10,700	11,200	13,100	500	5%	1,000	10%	2,900	28%	1.03
Auckland International Airport	9,300	10,400	11,700	15,300	1,100	12%	2,400	26%	6,000	65%	2.35
Auckland Port	5,800	6,000	6,300	7,200	200	3%	500	9%	1,400	24%	0.88
Auckland Hospital	9,900	10,500	11,300	14,100	600	6%	1,400	14%	4,200	42%	1.54
Middlemore Hospital	7,700	8,100	8,700	10,800	400	5%	1,000	13%	3,100	40%	1.46
North Shore Hospital	6,500	6,800	7,400	9,100	300	5%	900	14%	2,600	40%	1.46
Manukau Super Clinic	4,300	4,500	4,800	5,600	200	5%	500	12%	1,300	30%	1.10
Major Employment Locations	447,900	471,100	499,800	585,000	23,200	5%	51,900	12%	137,100	31%	1.11
Town Centres	79,400	81,200	87,500	96,200	1,800	2%	8,100	10%	16,800	21%	0.77
Local Centres	40,000	40,900	41,700	44,800	900	2%	1,700	4%	4,800	12%	0.44
Neighbourhood Centres	28,400	29,200	30,200	33,600	800	3%	1,800	6%	5,200	18%	0.67
Total Centres	359,000	374,800	399,600	462,300	15,800	4%	40,600	11%	103,300	29%	1.05
Heavy Industry	73,500	76,600	79,500	88,900	3,100	4%	6,000	8%	15,400	21%	0.76
Light Industry	136,700	142,400	148,100	165,900	5,700	4%	11,400	8%	29,200	21%	0.78
Mixed Use	65,900	70,500	76,100	94,000	4,600	7%	10,200	15%	28,100	43%	1.55
Business Parks	19,000	19,900	21,000	24,500	900	5%	2,000	11%	5,500	29%	1.05
General Business	15,900	16,900	18,000	21,600	1,000	6%	2,100	13%	5,700	36%	1.30
Airports	10,100	11,400	12,900	17,400	1,300	13%	2,800	28%	7,300	72%	2.63
Health Nodes	32,800	34,700	37,500	46,300	1,900	6%	4,700	14%	13,500	41%	1.50
Recreation Nodes	1,300	1,400	1,500	1,900	100	8%	200	15%	600	46%	1.68
Total Other Business Areas	488,700	507,900	534,200	609,000	19,200	4%	45,500	9%	120,300	25%	0.90
Total	936,600	979,000	1,034,000	1,194,000	42,400	5%	97,400	10%	257,400	27%	1.00

id Economy Growth Model 2023

Table 4-20: Auckland Employment Outlook in Major Centres – High Future 2022-2052

EMPLOYMENT IN AUCKLAND MAJOR CENTRES & BUSINESS AREAS 2022-52 High Growth (Spatial Trend :Last Decade)											
Location	2022	2025	2032	2052	2022-25	2022-25 %	2022-32	2022-32 %	2022-52	2022-52 %	2022-52 Share %
City Centre	127,000	137,300	152,500	208,300	10,300	8%	25,500	20%	81,300	64%	1.37
Newmarket	19,600	20,900	22,800	30,200	1,300	7%	3,200	16%	10,600	54%	1.16
Manukau	15,500	16,500	17,800	23,600	1,000	6%	2,300	15%	8,100	52%	1.12
Botany	9,100	9,800	10,400	13,500	700	8%	1,300	14%	4,400	48%	1.04
Takapuna	8,200	8,900	9,700	12,700	700	9%	1,500	18%	4,500	55%	1.18
Albany	8,400	8,900	9,700	12,500	500	6%	1,300	15%	4,100	49%	1.05
New Lynn	6,000	6,400	7,100	9,500	400	7%	1,100	18%	3,500	58%	1.25
Henderson	5,600	5,900	6,400	8,600	300	5%	800	14%	3,000	54%	1.15
Sylvia Park	4,900	5,300	5,900	8,000	400	8%	1,000	20%	3,100	63%	1.35
Westgate / Massey North	3,700	3,900	6,700	9,600	200	5%	3,000	81%	5,900	159%	3.41
Papakura	3,200	3,400	3,700	4,800	200	6%	500	16%	1,600	50%	1.07
CBD and Metropolitan Centres	211,200	227,200	252,700	341,300	16,000	8%	41,500	20%	130,100	62%	1.32
Penrose	30,300	31,900	34,100	41,900	1,600	5%	3,800	13%	11,600	38%	0.82
Highbrook	21,100	22,100	23,500	28,100	1,000	5%	2,400	11%	7,000	33%	0.71
Wiri	14,500	15,200	16,300	19,700	700	5%	1,800	12%	5,200	36%	0.77
Wiri	2,200	2,300	2,500	2,900	100	5%	300	14%	700	32%	0.68
North Harbour	13,900	14,600	15,500	19,200	700	5%	1,600	12%	5,300	38%	0.82
Highbrook	11,800	12,300	13,000	15,200	500	4%	1,200	10%	3,400	29%	0.62
Wairau Valley	11,600	12,100	12,800	15,400	500	4%	1,200	10%	3,800	33%	0.70
Mt Wellington	11,500	12,200	13,000	16,600	700	6%	1,500	13%	5,100	44%	0.95
Mangere	9,000	9,400	10,000	11,800	400	4%	1,000	11%	2,800	31%	0.67
Rosebank	8,400	8,700	9,300	11,100	300	4%	900	11%	2,700	32%	0.69
Lincoln	7,600	8,000	8,400	10,100	400	5%	800	11%	2,500	33%	0.70
Airport North	6,600	6,800	7,200	8,400	200	3%	600	9%	1,800	27%	0.58
Devonport Naval Base	3,000	3,200	3,500	4,800	200	7%	500	17%	1,800	60%	1.28
Parnell	8,400	9,000	9,900	12,700	600	7%	1,500	18%	4,300	51%	1.10
Freemans Bay College Hill	6,000	6,300	6,800	9,100	300	5%	800	13%	3,100	52%	1.11
Mt Eden Normanby Rd	5,300	5,700	6,300	8,300	400	8%	1,000	19%	3,000	57%	1.21
Mairangi Bay Constellation Dr	11,800	12,500	13,400	16,600	700	6%	1,600	14%	4,800	41%	0.87
Ellerslie Great Sth Rd	10,200	10,800	11,400	13,800	600	6%	1,200	12%	3,600	35%	0.76
Auckland International Airport	9,300	10,700	12,800	20,000	1,400	15%	3,500	38%	10,700	115%	2.46
Auckland Port	5,800	6,100	6,500	8,100	300	5%	700	12%	2,300	40%	0.85
Auckland Hospital	9,900	10,700	11,500	16,600	800	8%	1,600	16%	6,700	68%	1.45
Middlemore Hospital	7,700	8,200	8,800	12,700	500	6%	1,100	14%	5,000	65%	1.39
North Shore Hospital	6,500	7,000	7,500	10,600	500	8%	1,000	15%	4,100	63%	1.35
Manukau Super Clinic	4,300	4,600	5,000	6,600	300	7%	700	16%	2,300	53%	1.15
Major Employment Locations	447,900	477,600	521,700	681,600	29,700	7%	73,800	16%	233,700	52%	1.12
Town Centres	79,400	83,100	90,800	108,300	3,700	5%	11,400	14%	28,900	36%	0.78
Local Centres	33,500	34,400	35,600	40,700	900	3%	2,100	6%	7,200	21%	0.46
Neighbourhood Centres	28,600	29,400	30,900	37,200	800	3%	2,300	8%	8,600	30%	0.64
Total Centres	352,700	374,100	410,000	527,500	21,400	6%	57,300	16%	174,800	50%	1.06
Heavy Industry	73,500	77,100	82,700	100,900	3,600	5%	9,200	13%	27,400	37%	0.80
Light Industry	147,400	154,300	164,800	200,800	6,900	5%	17,400	12%	53,400	36%	0.78
Mixed Use	74,000	80,200	89,900	126,700	6,200	8%	15,900	21%	52,700	71%	1.52
Business Parks	11,500	12,200	13,400	17,900	700	6%	1,900	17%	6,400	56%	1.19
General Business	11,600	12,500	13,900	19,100	900	8%	2,300	20%	7,500	65%	1.38
Airports	10,100	11,600	13,900	22,400	1,500	15%	3,800	38%	12,300	122%	2.61
Health Nodes	32,800	35,200	38,400	54,900	2,400	7%	5,600	17%	22,100	67%	1.44
Recreation Nodes	1,300	1,400	1,600	2,300	100	8%	300	23%	1,000	77%	1.65
Total Other Business Areas	488,700	513,400	552,300	692,400	24,700	5%	63,600	13%	203,700	42%	0.89
Total	936,600	991,000	1,074,000	1,374,000	54,400	6%	137,400	15%	437,400	47%	1.00

Source: Auckland Economy Growth Model 2023

Table 4-21: Auckland Employment Outlook in Major Centres – Low Future 2022-2052

EMPLOYMENT IN AUCKLAND MAJOR CENTRES & BUSINESS AREAS 2022-52 Low Growth (Spatial Trend :Last Decade)											
Location	2022	2025	2032	2052	2022-25	2022-25 %	2022-32	2022-32 %	2022-52	2022-52 %	2022-52 Share %
City Centre	127,000	132,600	137,100	144,000	5,600	4%	10,100	8%	17,000	13%	1.21
Newmarket	19,600	20,300	20,900	21,800	700	4%	1,300	7%	2,200	11%	1.02
Manukau	15,500	16,100	16,500	17,300	600	4%	1,000	6%	1,800	12%	1.05
Botany	9,100	9,500	9,600	10,000	400	4%	500	5%	900	10%	0.90
Takapuna	8,200	8,600	8,800	9,100	400	5%	600	7%	900	11%	0.99
Albany	8,400	8,700	8,900	9,200	300	4%	500	6%	800	10%	0.86
New Lynn	6,000	6,200	6,500	6,800	200	3%	500	8%	800	13%	1.21
Henderson	5,600	5,800	6,000	6,400	200	4%	400	7%	800	14%	1.29
Sylvia Park	4,900	5,200	5,400	5,600	300	6%	500	10%	700	14%	1.29
Westgate / Massey North	3,700	3,800	6,300	7,800	100	3%	2,600	70%	4,100	111%	10.04
Papakura	3,200	3,300	3,400	3,500	100	3%	200	6%	300	9%	0.85
CBD and Metropolitan Centres	211,200	220,100	229,400	241,500	8,900	4%	18,200	9%	30,300	14%	1.30
Penrose	30,300	31,200	32,000	32,900	900	3%	1,700	6%	2,600	9%	0.78
Highbrook	21,100	21,700	22,100	22,600	600	3%	1,000	5%	1,500	7%	0.64
Wiri	14,500	15,000	15,400	15,700	500	3%	900	6%	1,200	8%	0.75
Wiri	2,200	2,300	2,300	2,400	100	5%	100	5%	200	9%	0.82
North Harbour	13,900	14,200	14,400	14,300	300	2%	500	4%	400	3%	0.26
Highbrook	11,800	12,100	12,400	12,600	300	3%	600	5%	800	7%	0.61
Wairau Valley	11,600	11,900	12,100	12,400	300	3%	500	4%	800	7%	0.62
Mt Wellington	11,500	11,800	11,900	11,700	300	3%	400	3%	200	2%	0.16
Mangere	9,000	9,300	9,500	9,600	300	3%	500	6%	600	7%	0.60
Rosebank	8,400	8,600	8,800	8,900	200	2%	400	5%	500	6%	0.54
Lincoln	7,600	7,800	8,000	8,200	200	3%	400	5%	600	8%	0.72
Airport North	6,600	6,700	6,900	6,900	100	2%	300	5%	300	5%	0.41
Devonport Naval Base	3,000	3,100	3,200	3,400	100	3%	200	7%	400	13%	1.21
Parnell	8,400	8,700	9,000	9,300	300	4%	600	7%	900	11%	0.97
Freemans Bay College Hill	6,000	6,200	6,300	6,700	200	3%	300	5%	700	12%	1.06
Mt Eden Normanby Rd	5,300	5,500	5,700	5,900	200	4%	400	8%	600	11%	1.03
Mairangi Bay Constellation Dr	11,800	12,300	12,700	13,800	500	4%	900	8%	2,000	17%	1.54
Ellerslie Great Sth Rd	10,200	10,700	11,100	12,500	500	5%	900	9%	2,300	23%	2.04
Auckland International Airport	9,300	10,100	10,900	11,800	800	9%	1,600	17%	2,500	27%	2.43
Auckland Port	5,800	6,000	6,100	6,300	200	3%	300	5%	500	9%	0.78
Auckland Hospital	9,900	10,300	10,600	11,300	400	4%	700	7%	1,400	14%	1.28
Middlemore Hospital	7,700	7,900	8,200	8,700	200	3%	500	6%	1,000	13%	1.18
North Shore Hospital	6,500	6,700	7,000	7,300	200	3%	500	8%	800	12%	1.11
Manukau Super Clinic	4,300	4,500	4,600	4,900	200	5%	300	7%	600	14%	1.26
Major Employment Locations	447,900	464,700	480,600	501,600	16,800	4%	32,700	7%	53,700	12%	1.09
Town Centres	79,400	82,100	87,700	94,600	2,700	3%	8,300	10%	15,200	19%	1.73
Local Centres	33,500	34,000	34,400	34,900	500	1%	900	3%	1,400	4%	0.38
Neighbourhood Centres	28,600	28,800	29,200	29,700	200	1%	600	2%	1,100	4%	0.35
Total Centres	352,700	365,000	380,700	400,700	12,300	3%	28,000	8%	48,000	14%	1.23
Heavy Industry	73,500	75,600	77,700	80,000	2,100	3%	4,200	6%	6,500	9%	0.80
Light Industry	147,400	151,300	155,000	159,000	3,900	3%	7,600	5%	11,600	8%	0.71
Mixed Use	74,000	77,400	81,000	85,800	3,400	5%	7,000	9%	11,800	16%	1.44
Business Parks	11,500	11,900	12,300	12,800	400	3%	800	7%	1,300	11%	1.02
General Business	11,600	12,100	12,500	13,000	500	4%	900	8%	1,400	12%	1.09
Airports	10,100	11,000	11,800	12,800	900	9%	1,700	17%	2,700	27%	2.42
Health Nodes	32,800	33,900	35,500	37,500	1,100	3%	2,700	8%	4,700	14%	1.30
Recreation Nodes	1,300	1,300	1,400	1,500	-	0%	100	8%	200	15%	1.39
Total Other Business Areas	488,700	502,300	518,400	538,400	13,600	3%	29,700	6%	49,700	10%	0.92
Total	936,600	967,000	999,000	1,040,000	30,400	3%	62,400	7%	103,400	11%	1.00

Source: Auckland Economy Growth Model 2023

Table 4-22: Auckland Employment Outlook in Major Centres – Very High Future 2022-2052

EMPLOYMENT IN AUCKLAND MAJOR CENTRES & BUSINESS AREAS 2022-52 Very High Growth (Spatial Trend :Last Decade)											
Location	2022	2025	2032	2052	2022-25	2022-25 %	2022-32	2022-32 %	2022-52	2022-52 %	2022-52 Share %
City Centre	127,000	144,700	163,300	227,700	17,700	14%	36,300	29%	100,700	79%	1.37
Newmarket	19,600	21,800	24,300	32,800	2,200	11%	4,700	24%	13,200	67%	1.17
Manukau	15,500	17,200	18,900	25,600	1,700	11%	3,400	22%	10,100	65%	1.13
Botany	9,100	10,200	11,100	14,600	1,100	12%	2,000	22%	5,500	60%	1.05
Takapuna	8,200	9,300	10,300	13,800	1,100	13%	2,100	26%	5,600	68%	1.18
Albany	8,400	9,300	10,300	13,500	900	11%	1,900	23%	5,100	61%	1.05
New Lynn	6,000	6,700	7,600	10,400	700	12%	1,600	27%	4,400	73%	1.27
Henderson	5,600	6,200	6,800	9,300	600	11%	1,200	21%	3,700	66%	1.14
Sylvia Park	4,900	5,600	6,400	8,800	700	14%	1,500	31%	3,900	80%	1.38
Westgate / Massey North	3,700	4,100	7,000	10,100	400	11%	3,300	89%	6,400	173%	2.99
Papakura	3,200	3,500	3,900	5,300	300	9%	700	22%	2,100	66%	1.14
CBD and Metropolitan Centres	211,200	238,600	269,900	371,900	27,400	13%	58,700	28%	160,700	76%	1.32
Penrose	30,300	33,000	35,900	44,800	2,700	9%	5,600	18%	14,500	48%	0.83
Highbrook	21,100	22,800	24,600	30,000	1,700	8%	3,500	17%	8,900	42%	0.73
Wiri	14,500	15,800	17,100	21,000	1,300	9%	2,600	18%	6,500	45%	0.78
Wiri	2,200	2,400	2,600	3,100	200	9%	400	18%	900	41%	0.71
North Harbour	13,900	15,200	16,500	20,800	1,300	9%	2,600	19%	6,900	50%	0.86
Highbrook	11,800	12,700	13,600	16,100	900	8%	1,800	15%	4,300	36%	0.63
Wairau Valley	11,600	12,500	13,400	16,400	900	8%	1,800	16%	4,800	41%	0.72
Mt Wellington	11,500	12,800	14,000	18,100	1,300	11%	2,500	22%	6,600	57%	0.99
Mangere	9,000	9,700	10,500	12,500	700	8%	1,500	17%	3,500	39%	0.67
Rosebank	8,400	9,000	9,800	11,800	600	7%	1,400	17%	3,400	40%	0.70
Lincoln	7,600	8,200	8,800	10,600	600	8%	1,200	16%	3,000	39%	0.68
Airport North	6,600	7,000	7,600	8,900	400	6%	1,000	15%	2,300	35%	0.60
Devonport Naval Base	3,000	3,400	3,700	5,200	400	13%	700	23%	2,200	73%	1.27
Parnell	8,400	9,400	10,500	13,700	1,000	12%	2,100	25%	5,300	63%	1.09
Freemans Bay College Hill	6,000	6,600	7,200	9,800	600	10%	1,200	20%	3,800	63%	1.10
Mt Eden Normanby Rd	5,300	6,000	6,700	9,100	700	13%	1,400	26%	3,800	72%	1.24
Mairangi Bay Constellation Dr	11,800	12,900	13,900	17,500	1,100	9%	2,100	18%	5,700	48%	0.84
Ellerslie Great Sth Rd	10,200	10,900	11,600	14,200	700	7%	1,400	14%	4,000	39%	0.68
Auckland International Airport	9,300	11,600	14,400	23,000	2,300	25%	5,100	55%	13,700	147%	2.55
Auckland Port	5,800	6,300	6,800	8,700	500	9%	1,000	17%	2,900	50%	0.86
Auckland Hospital	9,900	11,000	12,200	18,000	1,100	11%	2,300	23%	8,100	82%	1.42
Middlemore Hospital	7,700	8,400	9,300	13,800	700	9%	1,600	21%	6,100	79%	1.37
North Shore Hospital	6,500	7,100	8,000	11,500	600	9%	1,500	23%	5,000	77%	1.33
Manukau Super Clinic	4,300	4,800	5,300	7,200	500	12%	1,000	23%	2,900	67%	1.17
Major Employment Locations	447,900	498,100	553,900	737,700	50,200	11%	106,000	24%	289,800	65%	1.12
Town Centres	79,400	84,600	93,300	112,300	5,200	7%	13,900	18%	32,900	41%	0.72
Local Centres	33,500	35,000	36,700	42,400	1,500	4%	3,200	10%	8,900	27%	0.46
Neighbourhood Centres	28,600	30,300	32,400	39,600	1,700	6%	3,800	13%	11,000	38%	0.67
Total Centres	352,700	388,500	432,300	566,200	35,800	10%	79,600	23%	213,500	61%	1.05
Heavy Industry	73,500	79,900	86,900	107,900	6,400	9%	13,400	18%	34,400	47%	0.81
Light Industry	147,400	159,700	173,300	214,600	12,300	8%	25,900	18%	67,200	46%	0.79
Mixed Use	74,000	84,600	96,900	139,500	10,600	14%	22,900	31%	65,500	89%	1.53
Business Parks	11,500	12,800	14,300	19,400	1,300	11%	2,800	24%	7,900	69%	1.19
General Business	11,600	13,200	15,000	21,000	1,600	14%	3,400	29%	9,400	81%	1.40
Airports	10,100	12,800	15,900	26,100	2,700	27%	5,800	57%	16,000	158%	2.74
Health Nodes	32,800	36,300	40,800	59,800	3,500	11%	8,000	24%	27,000	82%	1.42
Recreation Nodes	1,300	1,500	1,700	2,500	200	15%	400	31%	1,200	92%	1.60
Total Other Business Areas	488,700	531,900	581,100	740,300	43,200	9%	92,400	19%	251,600	51%	0.89
Total	936,600	1,030,000	1,135,000	1,478,000	93,400	10%	198,400	21%	541,400	58%	1.00

Source: Auckland Economy Growth Model 2023

Table 4-23: Auckland Employment Outlook in Major Centres – Very Low Future 2022-2052

EMPLOYMENT IN AUCKLAND MAJOR CENTRES & BUSINESS AREAS 2022-52 Very Low Growth (Spatial Trend :Last Decade)											
Location	2022	2025	2032	2052	2022-25	2022-25 %	2022-32	2022-32 %	2022-52	2022-52 %	2022-52 Share %
City Centre	127,000	129,800	133,600	139,700	2,800	2%	6,600	5%	12,700	10%	1.12
Newmarket	19,600	19,900	20,400	21,400	300	2%	800	4%	1,800	9%	1.03
Manukau	15,500	15,700	16,100	16,900	200	1%	600	4%	1,400	9%	1.01
Botany	9,100	9,300	9,400	9,800	200	2%	300	3%	700	8%	0.86
Takapuna	8,200	8,500	8,600	8,900	300	4%	400	5%	700	9%	0.96
Albany	8,400	8,500	8,700	9,100	100	1%	300	4%	700	8%	0.94
New Lynn	6,000	6,100	6,300	6,600	100	2%	300	5%	600	10%	1.12
Henderson	5,600	5,700	5,900	6,300	100	2%	300	5%	700	13%	1.40
Sylvia Park	4,900	5,000	5,200	5,500	100	2%	300	6%	600	12%	1.38
Westgate / Massey North	3,700	3,800	6,200	7,700	100	3%	2,500	68%	4,000	108%	12.14
Papakura	3,200	3,200	3,300	3,400	-	0%	100	3%	200	6%	0.70
CBD and Metropolitan Centres	211,200	215,500	223,700	235,300	4,300	2%	12,500	6%	24,100	11%	1.28
Penrose	30,300	30,700	31,300	32,300	400	1%	1,000	3%	2,000	7%	0.74
Highbrook	21,100	21,300	21,700	22,300	200	1%	600	3%	1,200	6%	0.64
Wiri	14,500	14,700	15,000	15,500	200	1%	500	3%	1,000	7%	0.77
Wiri	2,200	2,200	2,300	2,400	-	0%	100	5%	200	9%	1.02
North Harbour	13,900	13,900	14,000	14,100	-	0%	100	1%	200	1%	0.16
Highbrook	11,800	11,900	12,100	12,400	100	1%	300	3%	600	5%	0.57
Wairau Valley	11,600	11,700	11,800	12,200	100	1%	200	2%	600	5%	0.58
Mt Wellington	11,500	11,600	11,500	11,500	100	1%	-	0%	-	0%	0.00
Mangere	9,000	9,100	9,300	9,500	100	1%	300	3%	500	6%	0.62
Rosebank	8,400	8,500	8,600	8,800	100	1%	200	2%	400	5%	0.53
Lincoln	7,600	7,800	7,900	8,200	200	3%	300	4%	600	8%	0.89
Airport North	6,600	6,600	6,700	6,800	-	0%	100	2%	200	3%	0.34
Devonport Naval Base	3,000	3,100	3,200	3,200	100	3%	200	7%	200	7%	0.75
Parnell	8,400	8,500	8,800	9,000	100	1%	400	5%	600	7%	0.80
Freemans Bay College Hill	6,000	6,000	6,100	6,500	-	0%	100	2%	500	8%	0.94
Mt Eden Normanby Rd	5,300	5,400	5,600	5,800	100	2%	300	6%	500	9%	1.06
Mairangi Bay Constellation Dr	11,800	12,200	12,500	13,700	400	3%	700	6%	1,900	16%	1.81
Ellerslie Great Sth Rd	10,200	10,600	11,000	12,400	400	4%	800	8%	2,200	22%	2.42
Auckland International Airport	9,300	9,700	10,300	11,200	400	4%	1,000	11%	1,900	20%	2.29
Auckland Port	5,800	5,900	6,000	6,200	100	2%	200	3%	400	7%	0.77
Auckland Hospital	9,900	10,000	10,300	11,100	100	1%	400	4%	1,200	12%	1.36
Middlemore Hospital	7,700	7,700	7,900	8,600	-	0%	200	3%	900	12%	1.31
North Shore Hospital	6,500	6,500	6,800	7,200	-	0%	300	5%	700	11%	1.21
Manukau Super Clinic	4,300	4,400	4,500	4,700	100	2%	200	5%	400	9%	1.04
Major Employment Locations	447,900	455,500	468,900	490,900	7,600	2%	21,000	5%	43,000	10%	1.08
Town Centres	79,400	81,400	86,800	93,800	2,000	3%	7,400	9%	14,400	18%	2.04
Local Centres	33,500	33,700	34,000	34,600	200	1%	500	1%	1,100	3%	0.37
Neighbourhood Centres	28,600	28,500	28,800	29,400	-	0%	200	1%	800	3%	0.31
Total Centres	352,700	359,100	373,300	393,100	6,400	2%	20,600	6%	40,400	11%	1.29
Heavy Industry	73,500	74,400	76,000	78,600	900	1%	2,500	3%	5,100	7%	0.78
Light Industry	147,400	149,000	151,900	156,600	1,600	1%	4,500	3%	9,200	6%	0.70
Mixed Use	74,000	75,500	78,500	83,200	1,500	2%	4,500	6%	9,200	12%	1.40
Business Parks	11,500	11,600	12,000	12,600	100	1%	500	4%	1,100	10%	1.07
General Business	11,600	11,800	12,100	12,700	200	2%	500	4%	1,100	9%	1.06
Airports	10,100	10,500	11,100	12,100	400	4%	1,000	10%	2,000	20%	2.22
Health Nodes	32,800	33,100	34,300	36,900	300	1%	1,500	5%	4,100	13%	1.40
Recreation Nodes	1,300	1,300	1,400	1,500	-	0%	100	8%	200	15%	1.73
Total Other Business Areas	488,700	494,500	508,100	529,100	5,800	1%	19,400	4%	40,400	8%	0.93
Total	936,600	950,000	977,000	1,020,000	13,400	1%	40,400	4%	83,400	9%	1.00

Source: Auckland Economy Growth Model 2023

Figure 4-7 : Major Centres & Business Areas – Medium Future 2022-2052

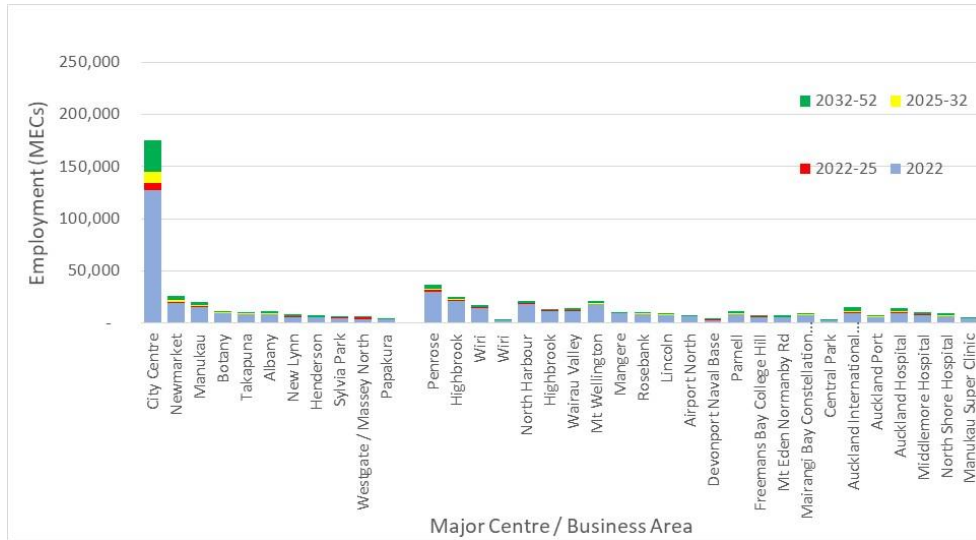


Figure 4-8 : Major Centres & Business Areas – High Future 2022-2052

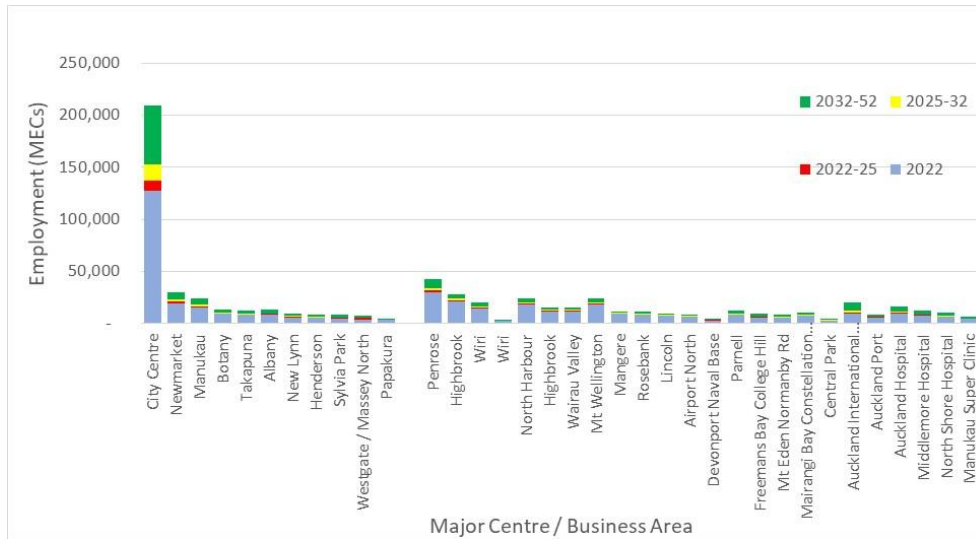


Figure 4-9 : Major Centres & Business Areas – Low Future 2022-2052

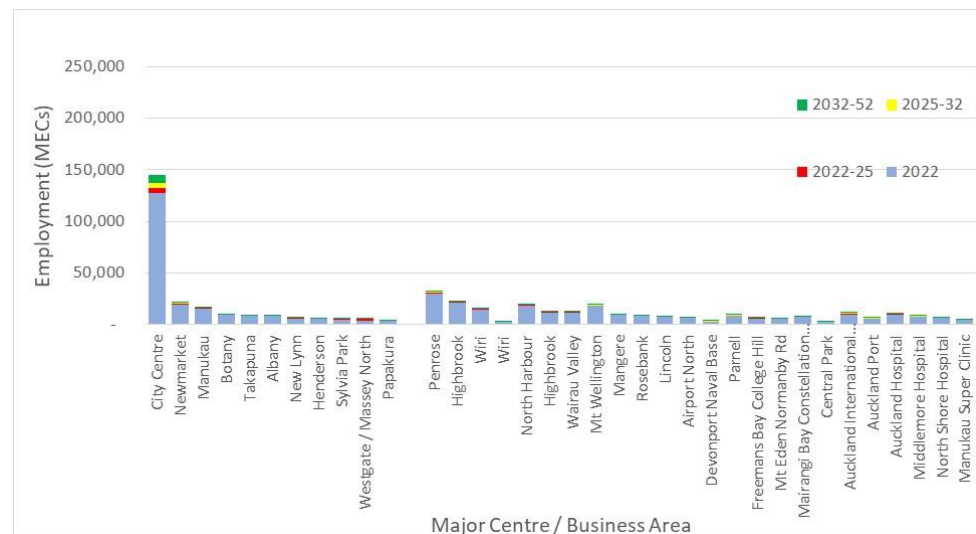


Figure 4-10 : Major Centres & Business Areas – Very High Future 2022-2052

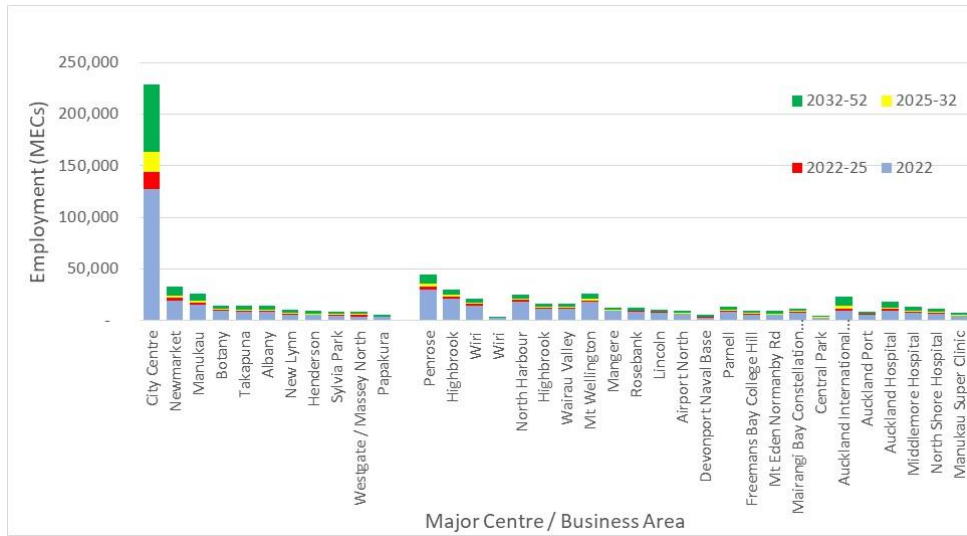
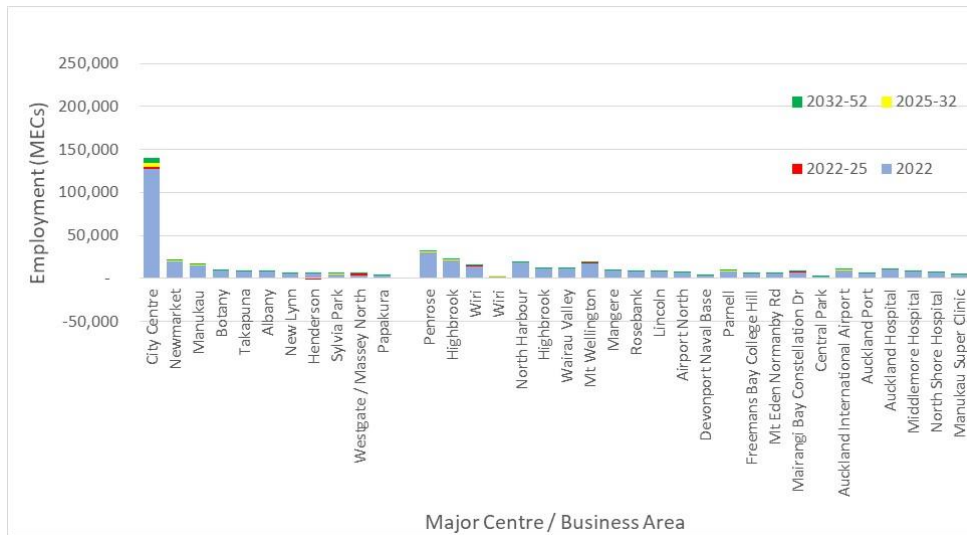


Figure 4-11 : Major Centres & Business Areas – Very Low Future 2022-2052



4.7 Implications

The growth futures indicate predominantly incremental growth for the Region, in terms of both sector development, and spatial patterns.

This is to be expected, given the well-established and integrated nature of the Auckland economy, where each sector can be expected to experience growth driven by the underlying regional growth. The lesser developed LBA areas, and the central Waitemata LBA with its key CBD role, can expect higher than average gains.

The major issue is the extent of the growth anticipated. The low growth future indicates a substantial decline in the role of the Auckland economy and community within the New Zealand economy, and is considered a very unlikely outcome, absent major negative external or environmental effects.

The Medium growth future would see growth below the past trends, over both the very long term – since about 1920 – and the recent long term – since 2001. The projected slowing is driven primarily by allowance for a slowdown in international migration to the Auckland community and economy, predicated especially on the effects of Covid-19.

The High growth future is more in line with trends in the last two decades. Importantly, that growth reflects not simply a trend-based BAU outcome since 2001 and especially since 2011, but was rather based on Auckland continuing to attract a disproportionately high share of New Zealand’s population, business and GDP growth.

4.8 NPSUD Requirements

The preceding analyses meet one key part of the requirements of the NPSUD 3.28 in particular, to assess the demand for each type of business land into the short, medium and long term.

The assessment shows potential outcomes under conditions of high, medium and low growth, based on the most recent Stats NZ future scenarios.

The scale of change under alternative futures is shown and examined above for business activity levels right across the economy, for all sectors and all locations.

4.8.1 Likelihood of Future Outcomes

We note first that the medium growth and ‘business as usual’ future is considered to be the most likely into the long term. This is because of general consistency with the growth patterns – sector and location – of the last 20 years, and the expectation that the national and regional economies, in the absence of any observable indications to the contrary, are unlikely to see significant structural change.

4.8.2 Differences in Future Outcomes

That said, several future outcomes has been examined in detail. The comparisons suggest that the general patterns of growth are likely to vary in only a limited away among different futures. This is because the spatial structure is mostly established in terms of where centres and business areas are located, and these hubs account for the major shares of activity in all sectors. The establishment of additional centres in greenfield areas will extend the network. However, the new centres and business areas will be additional to the established network, with limited scope to generate negative effects on the performance of the established structure.

This suggests that the greatest variations in Auckland’s growth outcomes over time might arise from different scale and timing of growth, rather than its geography.

Accordingly, the most likely future of medium growth and incremental expansion of the established urban economy represents the strongest foundation. Importantly, the future outcomes for Auckland in terms of the capacity requirements are not highly sensitive to the different growth futures.

5 Capacity for Growth

This section examines the estimated enabled capacity for employment and business activity growth in Auckland, and the overall suitability of locations and capacity to meet sector needs. This is the basis for the overall sufficiency assessment for the NPSUD. For each centre and business area, the assessment takes account of the amount of business zoned land, the area of vacant and vacant potential land, current levels of land utilisation as built space per ha and built improvements on the land. The current employment intensity levels observed across the economy are the key guide for understanding potential capacity in locations where employment intensity may be lower intensity than the Auckland pattern. The total plan-enabled development capacity is also examined to indicate the likely ceiling capacity, under existing Plan provisions. The suitability of locations is assessed for each type of economic activity across locations across the region, recognising that sector needs vary and not all locations are suitable for every sector.

The analysis takes into account at a general level the capacity of infrastructure to support business growth, especially waters infrastructure and transportation infrastructure.

These matters are drawn together in the final NPSUD assessment to consider the sufficiency of capacity in relation to projected demand, according to projected employment levels in the region.

5.1 Context

Assessing enabled capacity for growth requires consideration of several matters.

The basic indicators are the amount (ha) of business zoned land in locations across the economy, and the zoning provisions which apply to this land to enable certain activities, and not enable others, and provide the envelope for built development on that land.

Auckland has 10 Business zones, which in combination enable the full range of anticipated business activities across the region. Although many activities are permitted in every Business zone, not all of the Business zones enable all activities, and a number of activities - especially heavy industry and those commonly associated with adverse effects – are enabled in only one or two zones.

Just as not all activities are suited to every business location, not all locations are suited to every activity. This highlights the importance of providing for sufficient zoned capacity in locations which are suited to business activities, including provision of future urban zoned areas in locations and at a scale which can service future needs.

Capacity for business activity is more than just the extent of zoned land area. It includes the extent and quality of built floorspace and supporting yards and storage areas to accommodate business activity. It is also important to understand the wider needs of business activity, including demands for waters and transport infrastructure.

Land use and property development are dynamic, not static. As an economy grows and ages, business land tends to be utilised more intensively over time, particularly through the addition of built floorspace, most commonly by extending or replacing existing buildings with larger or better suited ones. This means the current level of development intensity in a centre or business area (reflecting past and often current best

uses) may be less than what the market could sustain, making it important to also look at potential increases in development intensity, and/or more efficient (re)use of existing development.

When built development does occur, it tends to be to the highest level or intensity which is sustainable at that point in time or the foreseeable future. However, market conditions change over time, and a 30-year old building is likely to be to a lesser level of intensity than a new building. In the same way, a Local centre is likely to have a lesser development intensity (measured as floorspace per zoned ha) than a Town centre, which is in turn likely to be currently developed less intensively than is the norm for a Metropolitan centre, reflecting the level of demand and their relative place in the spatial economy (or centres hierarchy).

In parallel with all of this, business activity is not uniform. Some demands office space, some shop space, some factory space, some warehousing space. Moreover, the pattern of activity commonly shifts over time, with some types of activity which generate strong returns able to displace lower-yielding activities which may seek premises with lower rentals, often in different locations.

Finally, it is important to understand that construction of built floorspace is primarily private sector development, subject to market trends and owner intentions and capabilities. This means the addition of new development is not tightly predictable in any location, although over time there are clear trends in new development and intensification. Accordingly, the plan-enabled capacity may be drawn on as an indicator of future development potential over time, usually in response to or expectation of demand for space, though with no guarantee of when intensification may occur. That said, it is reasonable to expect, in the absence of other constraints, that plan enabled and infrastructure ready, business suitable capacity is likely to be developed broadly in line with demand growth.

In combination, these matters mean that an assessment of sufficiency of capacity, looking forward in time, is necessarily based on what can occur, in part as a result of zoned enablement, but also needing to make allowance for future intensification of business land which is already developed, just not fully or even partly to its limits of currently plan-enabled capacity. That approach places considerable focus on the underlying assumptions about how much intensification can reasonably occur.

5.2 Approach to assessing potential capacity

These matters have been taken into account when assessing the sufficiency of Auckland's capacity. There is no simple formula for assessing the sufficiency of capacity, since a number of assumptions are required. Nevertheless, there is good information on which to base an assessment of likely future outcomes, in relation to the short, medium and long term horizons of the NPSUD.

The approach here is to apply a systematic assessment of potential capacity. It focuses on floorspace to meet projected employment growth in each centre or business area, and includes allowance both for the addition of more floorspace, and for existing floorspace to be utilised more intensively (in effect, less floorspace per MEC).

The assessment examines potential for additional floorspace to be developed in each location, with vacant and zoned land considered the most likely to be developed first as *ceteris paribus* generally the easiest and lowest cost option, alongside utilising existing floorspace more productively. The next focus is on the less easy and generally more costly options, especially site redevelopment.

The assessment is based on the centres and business areas rather than zoned areas. This is because centres and business areas reflect the spatial organisation of business activity in terms of both geography and

zoning. A number of business locations have more than one Business zoning, and the functions of centres and business areas mainly arise from their business activities across all zoned areas, rather than zone-specific activity only.

The modelling takes a stepped approach to assessing potential floorspace capacity, working through from the 'easiest' and cheapest to the more difficult and expensive options. This reflects the likely business decision making structure at the individual level, as well as the likely response at the aggregate level – some businesses will expand within their existing footprint, some will re-locate to other existing premises, some will build new premises on vacant sites, and some will occupy space in newly redeveloped properties.

The focus here is on the overall potential capacity, to compare with total projected demand for floorspace. The modelling does not look to estimate the uptake of each component of potential capacity, rather it examines that overall potential in relation to overall demand. That said, it is important to work through each component of potential capacity, to understand the extent of development which would be required to provide sufficient capacity. For example, If projected demand may be fully accommodated by increased floorspace intensity, then that still leaves potential from new development of vacant or vacant potential land, and from re-development of existing developed land.

5.2.1 Projected Demand for Floorspace

Demand for floorspace is based on the projected change in employment for each centre and business area, drawing from the outputs of the Model. This is for the short, medium and long terms, and for the low, medium and high growth futures. Demand for floorspace is based in the first instance on current floorspace per MEC, according to the data on floorspace from the Council Rating Database (2022).

5.2.2 Competitiveness Margin

The future demand is based on projected employment levels, which are shown both without the competitiveness margin and also with the margin. The reason is that the base point for analysis is current 2022 employment situation which does not include any competitiveness margin. The short term 20% margin is applied to the additional demand to 2025, and 2032, and the 15% margin is applied to additional demand to 2052.

5.2.3 Current Situation

The base situation for each centre and business area is considered in terms of:

- a. The total area (ha) of Business zoned land, and the subset areas of wholly vacant and vacant potential business zoned land.
- b. Current floorspace (m²).
- c. Current employment (MECs) and business units.
- d. Floorspace per zoned ha as the key indicator of development intensity.
- e. Floorspace per MEC as the indicator of current utilisation of floorspace.
- f. Total development potential as estimated from floorspace capacity enabled by the Plan provisions.

- g. The net additional development potential, estimated from total plan-enabled capacity (as floorspace) from the Auckland Council Capacity for Growth Model, less existing floorspace.

5.2.4 Step 1: Improved Floorspace Utilisation

The first step for the future situation is allowance for more intensive utilisation of existing floorspace, where it might accommodate additional employment. It is quite common for businesses to utilise their floorspace more intensively, often by adding to their workforce without acquiring more space. There is no specific formula for this. However, important indicators here are current market performance in terms of mean floorspace per MEC and the upper quintile floorspace per MEC in other centres or business areas of that type. These reflect existing market conditions. There is also some data available from sources such as CBRE which track intensity of use through regular market monitoring, including vacancy rates within existing developments.

The Model allows for future change in the intensity of use in percentage terms in the short, medium and long terms. These changes are applied as projected trends for each type of centre or business area, as percentage changes from the current intensity observed for each location, rather than assumed norms for each type. This allows for straightforward examination of the significance of such assumed changes in the assessment of sufficiency¹⁸.

5.2.5 Step 2: New development on Vacant and Vacant Potential Land

The second step is to allow for utilisation of existing wholly vacant land and portions of sites with vacant potential, through development of additional floorspace on that land. This is also assumed in the first instance to occur progressively, and allowance is made for not all of that land area to be developed. A ceiling of no more than 50% of the total remaining vacant and vacant potential land capacity has been applied initially¹⁹.

The rate of uptake will be influenced mainly by local market conditions, which may vary significantly from the regional trend. The base case assumptions for the medium future are that 40% of the capacity is potentially able to be taken up in the long term, with 13% in the medium term, and 4% in the short term. This ranges to 2052 between a low of 30% for the Very Low future where there is likely to be less growth pressure, and 50% for the Very High future, where there is likely to be higher growth pressure.

We note there are no statistics on the actual rates in Auckland, while current patterns of development see both vacant and vacant potential land developed, and existing sites re-developed. These are estimates only, which take account of the quantum of vacant and vacant potential land, in relation to annual consented floorspace. The estimates also recognise that the quality of vacant land varies among centres, with some being readily developable while other sites are more difficult and costly to develop. Without specific

¹⁸ The base case assessment allows for a long term increase in intensity of use of 15% over 30 years, at an annual rate of 0.32%pa. This would see an increase of 0.9% in the short term, and 3.2% in the medium term. To place this in context, the current mean of 62m² per MEC in centres would decrease to 56m² per MEC by 2052, while in other business zones the current 47m² per MEC would decrease to 43m² per MEC. We note this varies among locations.

¹⁹ Over time the amount of vacant and underdeveloped land will naturally reduce, but even in the City Centre, there are land parcels that remain undeveloped and under developed.

information for the centres and business areas, a broad estimate is a conservative option. The focus is on the amount which would be potentially able to be taken up, rather than specific estimates for locations.

The modelling shows that at the rates assumed, future development would be spread between vacant land uptake and re-development (see Section **Error! Reference source not found.**). This suggests the estimates are not unreasonable. Importantly, if the estimates of vacant land uptake are too high, then sufficiency would be over-stated, so that a relatively conservative approach is appropriate.

The base case assumption is that development intensity of new construction (built floorspace per ha) is the average current intensity in each centre and business area. Obviously, there are significant variations in development intensity among centres and between different types of centre and business area. For this assessment also a conservative approach has been adopted, taking the current situation as an appropriate indicator of the likely future situation. It is recognised that as the economy grows and land values rise, there is considerable incentive to develop land more intensively. For the assessment, it is assumed each location the regional average rate of intensification applies, with the employment capacity indicating the potential change.

5.2.6 Step 3: Redevelopment of previously developed Business Land

The third step beyond allowance for uptake of vacant land and more intensive utilisation of floorspace is redevelopment of existing sites. There are an estimated 80,100 sites on business zoned land in Auckland, and it is beyond the scope of this research to consider those specifically and individually. That said, it is recognised that almost all will have potential for further development, at some point in the future, albeit most in the long or very long term. Current total floorspace is estimated at 28.9 million m² in Business Zoned areas (excluding special purpose and other zoned areas which do have their own business floorspace). Compared with this, total plan enabled floorspace capacity is in the order of 400 million m², or potential for more than 10 times the current level of development on those same zoned sites. In comparison, even under the Very High projection, total employment is expected to increase by some 59%, or just over half as much as present.

This very broad gap between current and potential presents a practical difficulty because most locations have substantial plan enabled opportunity to add floorspace capacity. There is little practical value in stating that this gap is large enough to provide for plenty of capacity, with no need to be concerned about sufficiency in most locations. The approach adopted here is to instead identify the potential enabled capacity, compare it with existing development, and then estimate how much and what share of the potential additional floorspace would need to be taken up in order to accommodate projected demand in the medium and long term. This places a focus on the potential and likelihood of such development – that is, the reasonableness of the underlying assumptions.

The estimates are based on the projected demand for floorspace from employment growth, and the demand which would not be accommodated by the estimated increase in intensity of use of floorspace or by the development of remaining vacant and vacant potential land. The unsatisfied demand for floorspace shows what would need to be built – as m² of floorspace – in order to accommodate projected demand.

5.2.7 New Building Consent Patterns

The underlying expectation is that development of floorspace for offices, shops, warehouses and factories, as well as other business premises, will continue to be feasible in the Auckland market. The substantial

volume of non-residential building work put in place in Auckland throughout the last decades is strong evidence that such development is generally feasible throughout the economy, even if that may not apply in all situations. In other words, the expectation of ongoing development of floorspace reflects the current evidence base to the extent possible.

5.2.8 Infrastructure Capacity

The capacity of infrastructure to accommodate growth is assessed only at the high level, using generalised information from WSL relating to water and wastewater, and from AT relating to transport infrastructure. Data is available for residential sites to indicate the incidence of potential constraints to more intensive use, in the short, medium and long terms.

However, there is no detailed information yet available about potential constraints in business zoned areas. For this assessment, the high level information which is available has been assumed to apply to all business zoned sites. This is necessarily an approximation until detailed information becomes available in the future.

5.2.9 Suitability

The NPSUD requires assessment of the suitability of the capacity for growth as well as the amount of capacity. Suitability relates primarily to the ability of a location to meet the needs of a specific industry or sector of the economy. This assumes the required amount of capacity is available or potentially available. For this assessment, the suitability of centres and business areas to accommodate different sectors of activity has been examined in detail, drawing on the patterns of activity for each sector, together with the capacity of centres and business areas to accommodate growth (see Section 5.8).

5.2.10 Sufficiency

In the final analysis, the NPSUD requires assessment of the sufficiency of business land to accommodate business activity in suitable locations. This has been done by applying the estimates of floorspace capacity and their ability to accommodate projected employment growth. Where the projected employment is likely to require redevelopment of some sites, the analysis has considered the share of potential plan-enabled capacity which would be required to be taken up. This is done for each centre and business area into the long term, with focus on those for which the level of additional floorspace development is likely to be greatest, when compared with the underlying potential.

Following on from the steps identified above, each aspect of the capacity assessment is considered below.

5.3 Business Zoned Area

Table 5-1 shows the business zoned areas across the centres and business areas. The CBD is predominantly the CC1 zone, which accounts for 254ha of the total 258ha in the city centre. However, the Metropolitan Centres have substantial areas in zones other than the 380ha of Business – Metropolitan Centre zone, with 426ha of Light Industry, Mixed Use, General Business and Business Park zones. This reflects their comprehensive roles in the economy, and the need for some separation of business activities within those hubs.

The 44 Town Centres have some 442ha of Business – Town Centre zoned area, with a further 530 ha in Light Industry, Mixed Use and General Business zones, which are intended to accommodate

complementary and supporting activities usually around the centres' retail and household services cores. In similar vein, the 73 Local Centres include the bulk of the Business – Local Centre zone, but have complementary zoning from Light Industry and Mixed Use in particular. The 400+ Neighbourhood Centres have support through some Mixed Use and Light Industry zoned areas, though these are relatively smaller given the more minor and much more localised roles of Neighbourhood Centres in providing for household goods and services.

The table also shows the incidence of business areas with Mixed Use and Light industry zoning in particular which function largely outside the network of commercial centres, even though these are often in combination with other business zonings.

Table 5-2 shows the current distribution of business activity by sector across the centres and business areas. One feature is that there is considerable diversity of activity across the structure, reflecting how the different locations and centre types all suit a variety of activities. This is to be expected, since many locations and centre types are appropriate for a range of sectors.

The table also shows the importance of places other than centres and business areas as locations for business activity. Not surprisingly, over three quarters of primary production is in other locations, predominantly rural areas as farms and small holdings. In contrast, only 10% of manufacturing and 12% of utilities employment is not in zoned centres or business areas. The construction sector has a substantial share (46%) in out of centre locations, reflecting the large number of businesses in this sector which are listed as the home address of the principal. Much of construction activity occurs on site as construction work proceeds on dwellings or business floorspace.

Similarly, the education sector is predominantly in school locations, many of which are zoned as residential.

The key point is that the current distribution of employment inside and outside the centres and business areas can be seen to accurately represent a generally appropriate spatial distribution of activity. It also indicates that such a pattern can be expected to continue in the future, with somewhere close to a quarter of employment being in locations which are not centres or business areas, and which are not on Business zoned land.

Table 5-3 shows the distribution of zoned areas across the Local Board Areas, illustrating among other things the limited amount of Light Industry zoned land in the Auckland isthmus. With the centre zones providing for 1,475 ha, the business and industrial zones account for some 7,645 ha, of which the Light Industry area accounts for nearly 58%. This is addressed further below.

Table 5-1: AUPOIP Zoned Areas by Centre and Business Area

Spatial Economy Element	City Centre Zone	Metropolitan Centre Zone	Town Centre Zone	Local Centre Zone	Neighbourhood Centre Zone	Mixed Use Zone	General Business Zone	Business Park Zone	Heavy Industry Zone	Light Industry Zone	Total Business
City Centre	254	-	0	-	-	4	-	-	-	-	258
Metropolitan Centres	-	380	-	2	2	79	52	18	-	282	816
Town Centres	-	-	442	-	3	182	32	-	45	269	972
Local Centres	-	-	15	239	4	119	1	-	30	132	540
Neighbourhood Centres	-	-	0	-	126	13	6	-	-	84	229
Total Centres	254	380	457	241	135	396	91	18	75	767	2,815
Mixed Use	-	0	-	-	-	466	0	0	-	10	476
Business Parks	-	-	-	-	-	0	194	-	-	147	341
General Business	-	-	-	-	-	34	-	32	-	-	67
Light Industry	-	0	3	-	0	89	72	-	204	2,986	3,354
Heavy Industry	-	-	-	-	-	2	2	7	1,523	457	1,991
Total Business Areas	-	0	3	-	0	591	267	40	1,727	3,601	6,229
Centres & Business Areas	254	380	461	241	135	987	358	58	1,802	4,368	9,044
City Centre	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%
Metropolitan Centres	0%	100%	0%	1%	1%	8%	15%	31%	0%	6%	9%
Town Centres	0%	0%	96%	0%	2%	18%	9%	0%	2%	6%	11%
Local Centres	0%	0%	3%	99%	3%	12%	0%	0%	2%	3%	6%
Neighbourhood Centres	0%	0%	0%	0%	93%	1%	2%	0%	0%	2%	3%
Total Centres	100%	100%	99%	100%	100%	40%	25%	31%	4%	18%	31%
Mixed Use	0%	0%	0%	0%	0%	47%	0%	0%	0%	0%	5%
Business Parks	0%	0%	0%	0%	0%	0%	54%	0%	0%	3%	4%
General Business	0%	0%	0%	0%	0%	3%	0%	56%	0%	0%	1%
Light Industry	0%	0%	1%	0%	0%	9%	20%	0%	11%	68%	37%
Heavy Industry	0%	0%	0%	0%	0%	0%	0%	13%	84%	10%	22%
Total Business Areas	0%	0%	1%	0%	0%	60%	75%	69%	96%	82%	69%
Centres & Business Areas	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
City Centre	98%	0%	0%	0%	0%	1%	0%	0%	0%	0%	100%
Metropolitan Centres	0%	47%	0%	0%	0%	10%	6%	2%	0%	35%	100%
Town Centres	0%	0%	45%	0%	0%	19%	3%	0%	5%	28%	100%
Local Centres	0%	0%	3%	44%	1%	22%	0%	0%	6%	24%	100%
Neighbourhood Centres	0%	0%	0%	0%	55%	6%	3%	0%	0%	37%	100%
Total Centres	9%	13%	16%	9%	5%	14%	3%	1%	3%	27%	100%
Mixed Use	0%	0%	0%	0%	0%	98%	0%	0%	0%	2%	100%
Business Parks	0%	0%	0%	0%	0%	0%	57%	0%	0%	43%	100%
General Business	0%	0%	0%	0%	0%	51%	0%	49%	0%	0%	100%
Light Industry	0%	0%	0%	0%	0%	3%	2%	0%	6%	89%	100%
Heavy Industry	0%	0%	0%	0%	0%	0%	0%	0%	76%	23%	100%
Total Business Areas	0%	0%	0%	0%	0%	9%	4%	1%	28%	58%	100%
Centres & Business Areas	3%	4%	5%	3%	1%	11%	4%	1%	20%	48%	100%

Source: Auckland Economy Growth Model 2023

Table 5-2 : Business Activity by Sector across the Auckland Spatial Economy (MECs) 2022

Spatial Economy	Agriculture, Forest, Fish	Mining	Manufacturing	Utilities	Construction	Wholesale	Retail	Hospitality	Transport Post & Whse	Information & Telecom	Financial & Insurance	Rental, Hire, Real Estate	Prof & Science Tech	Admin & Support	Public Admin & Safety	Education & Training	Health & Social Asst	Arts and Rec	Other Services	Total
City Centre	362	14	1503	507	2668	3146	4835	9684	3802	7204	17933	3536	36816	9473	9106	7850	2797	3029	2210	126475
Metropolitan Centres	113	50	4624	1109	3200	4356	21507	6851	1047	1183	5957	1696	1271	5977	6153	2401	4484	1271	2937	83638
Town Centres	157	1	3495	380	4998	3870	16952	9077	1532	2197	1875	2411	7968	4518	3563	3429	6581	1504	4489	79002
Local Centres	155	0	2843	33	3463	3061	5422	5104	1104	710	324	1017	2480	1868	1678	2899	5501	683	1449	39850
Neighbourhood Centres	323	3	2774	34	3634	967	3113	3138	857	378	201	2212	671	845	438	4431	2025	684	1550	28277
Total Centres	1111	69	15239	2063	17964	15400	51828	33910	8342	11672	26291	9330	58199	22681	20939	21009	21389	7171	12635	357241
Mixed Use	53	3	3412	859	4867	3083	5294	3497	1129	2357	1208	1752	11253	3624	5271	6652	7584	1440	2456	65795
Business Parks	17	0	381	27	466	1961	2292	1207	194	1664	1481	425	1726	1726	1186	1425	1228	82	375	18873
General Business	13	0	1285	152	2204	3513	2566	721	344	152	363	262	2078	1506	477	675	1011	521	385	18226
Light Industry	279	101	33281	1093	14943	21884	9385	2413	11354	1575	1056	1808	8916	8114	3593	3862	4959	988	3915	133518
Heavy Industry	47	6	19854	929	8420	11916	4182	757	5571	469	1343	1327	3567	6071	3149	836	1980	322	2349	73095
Airports	51	0	1006	74	77	118	424	749	5505	54	35	290	83	187	1134	94	46	66	24	10017
Port	37	0	31	53	77	76	61	372	1140	12	986	111	296	200	290	24	1810	155	47	5777
Health Nodes	67	0	733	100	875	469	109	268	284	8	3	46	154	818	111	776	27664	95	90	32671
Recreation Nodes	11	0	7	35	45	4	17	95	37	3	2	3	13	15	0	579	7	360	44	1278
Total Business Areas	576	111	59990	3321	31973	43024	24328	10079	25558	6295	6477	6022	29096	22260	15209	14924	46290	4030	9685	359250
Centres & Business Areas	1687	180	75229	5384	49937	58425	76156	43988	33900	17966	32768	15353	87295	44941	36149	35933	67679	11201	22320	716491
Urban Residential	999	67	6366	490	37377	4471	9043	11887	6740	3346	1880	5548	20991	11259	1738	29120	22418	3778	8792	186309
Fringe	339	0	50	42	609	87	64	107	160	7	15	74	186	75	8	94	39	5	72	2034
Rural	4306	50	1500	200	5402	978	1240	1655	926	337	193	731	2133	1838	606	1364	1081	790	959	26288
Other Locations	5644	117	7916	732	43388	5536	10348	13649	7826	3690	2089	6353	23310	13172	2352	30577	23538	4572	9823	214631
TOTAL	7331	297	83144	6116	93325	63561	86503	57638	41725	21656	34856	21705	110605	58113	38501	66510	91217	15773	32143	931122
City Centre	5%	5%	2%	8%	3%	5%	6%	17%	9%	33%	51%	16%	33%	16%	24%	12%	3%	19%	7%	14%
Metropolitan Centres	2%	17%	6%	18%	3%	7%	25%	12%	3%	5%	17%	8%	8%	10%	8%	4%	5%	10%	9%	9%
Town Centres	2%	0%	4%	6%	5%	6%	20%	16%	4%	10%	5%	11%	7%	8%	9%	5%	7%	10%	14%	8%
Local Centres	2%	0%	3%	1%	4%	5%	6%	9%	3%	3%	1%	5%	2%	3%	4%	4%	6%	4%	5%	4%
Neighbourhood Centres	4%	1%	3%	1%	4%	2%	4%	5%	2%	2%	1%	3%	2%	1%	1%	7%	2%	4%	5%	3%
Total Centres	15%	23%	18%	34%	19%	24%	60%	59%	20%	54%	75%	43%	53%	39%	54%	32%	23%	45%	39%	38%
Mixed Use	1%	1%	4%	14%	5%	5%	6%	6%	3%	11%	3%	8%	10%	6%	14%	10%	8%	9%	8%	7%
Business Parks	0%	0%	0%	0%	0%	3%	3%	2%	0%	8%	4%	2%	2%	3%	3%	2%	2%	1%	1%	2%
General Business	0%	0%	2%	2%	2%	5%	3%	1%	1%	1%	1%	1%	2%	3%	1%	1%	1%	3%	1%	2%
Light Industry	4%	34%	40%	18%	16%	34%	11%	4%	27%	7%	8%	8%	8%	8%	9%	6%	5%	6%	12%	14%
Heavy Industry	1%	2%	24%	15%	9%	19%	5%	1%	13%	2%	4%	6%	3%	10%	8%	1%	2%	2%	7%	8%
Airports	1%	0%	1%	1%	0%	0%	0%	1%	13%	0%	0%	1%	0%	0%	3%	0%	0%	0%	0%	1%
Port	1%	0%	0%	1%	1%	0%	0%	1%	3%	0%	3%	1%	0%	0%	1%	0%	2%	2%	0%	1%
Health Nodes	1%	0%	1%	2%	1%	1%	0%	0%	1%	0%	0%	0%	0%	1%	0%	1%	30%	1%	0%	4%
Recreation Nodes	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	2%	0%	0%
Total Business Areas	8%	37%	72%	54%	34%	67%	28%	17%	61%	29%	19%	28%	26%	38%	40%	22%	51%	26%	30%	39%
Centres & Business Areas	23%	61%	90%	88%	54%	91%	88%	76%	81%	83%	94%	71%	79%	77%	94%	54%	74%	71%	69%	77%
Urban Residential	14%	5%	8%	8%	40%	7%	10%	21%	16%	15%	5%	26%	19%	19%	5%	44%	25%	24%	27%	20%
Fringe	5%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Rural	59%	17%	2%	3%	6%	2%	1%	3%	2%	2%	2%	3%	2%	3%	2%	2%	1%	5%	3%	3%
Other Locations	77%	39%	10%	12%	46%	9%	12%	24%	19%	17%	6%	29%	21%	23%	6%	46%	26%	29%	31%	23%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Auckland Economy Growth Model 2023

Table 5-3: Zoned Areas by Local Board Area (2022)

Local Board Area	Business - City Centre Zone	Business - Metropolitan Centre Zone	Business - Town Centre Zone	Business - Local Centre Zone	Business - Neighbourhood Centre Zone	Business - Mixed Use Zone	Business - General Business Zone	Business - Business Park Zone	Business - Heavy Industry Zone	Business - Light Industry Zone	Total Business
Rodney LBA	-	-	44	31	13	22	7	-	-	266	383
Hibiscus and Bays LBA	-	-	50	9	10	58	85	-	29	93	333
Upper Harbour LBA	-	68	-	24	8	72	96	18	-	343	631
Kaipatiki LBA	-	-	22	4	5	24	13	7	-	178	253
Devonport-Takapuna LBA	-	21	13	2	4	56	-	11	-	8	115
Henderson-Massey LBA	-	79	4	27	6	35	25	-	26	330	533
Waitakere Ranges LBA	-	-	10	6	2	4	-	-	-	27	49
Whau LBA	-	44	23	6	2	25	14	-	88	159	361
Waitemata LBA	254	36	26	8	2	149	1	-	-	0	476
Puketapapa LBA	-	-	7	6	5	14	5	-	-	23	59
Orakei LBA	-	-	6	10	5	58	5	-	-	46	129
Albert-Eden LBA	-	-	25	24	7	149	1	7	-	8	221
Maungakiekie-Tamaki LBA	-	21	53	4	5	115	32	15	460	437	1,142
Howick LBA	-	23	47	11	10	34	1	-	194	374	695
Mangere-Otahuhu LBA	-	-	39	7	2	63	-	-	98	622	832
Otara-Papatoetoe LBA	-	62	34	3	8	38	36	-	13	704	898
Manurewa LBA	-	-	13	7	4	12	2	-	407	177	622
Papakura LBA	-	24	15	9	6	24	3	-	132	195	408
Franklin LBA	-	-	30	45	32	45	34	-	385	411	981
Total	254	380	461	244	136	996	358	58	1,831	4,402	9,120
Central	254	36	26	8	2	149	1	-	-	0	476
Isthmus	-	65	114	50	23	360	57	22	548	673	1,912
Mid-North	-	169	39	58	24	187	134	36	26	859	1,532
Mid-South	-	86	133	28	24	148	39	-	712	1,877	3,046
Outer	-	24	148	100	63	152	128	-	545	993	2,153
Central	100%	9%	6%	3%	1%	15%	0%	0%	0%	0%	5%
Isthmus	0%	17%	25%	20%	17%	36%	16%	38%	30%	15%	21%
Mid-North	0%	45%	8%	24%	17%	19%	38%	62%	1%	20%	17%
Mid-South	0%	23%	29%	11%	18%	15%	11%	0%	39%	43%	33%
Outer	0%	6%	32%	41%	46%	15%	36%	0%	30%	23%	24%

Source: Auckland Economy Growth Model 2023

The relative incidence of sectors at the 1D ANZSIC level is shown in Table 5-4, with the centre zones showing relatively stronger concentration of retail and hospitality, as well as services activities, while the industrial and general business zones show greater concentration of manufacturing, construction and transport activities. The CBD shows high concentration of financial and information services, as well as professional services. That said, the economy is also characterised by a reasonably broad spread of activities across a range of zones, and a significant share of business activity is based outside the Business zones including at places of residence. This is consistent with Auckland Council's underlying centres-based urban form strategy for household-serving activities in particular, with other business activities to be relatively focused in business and industry zones, generally seeking the benefits of co-location.

Table 5-4: Sector Incidence by Business Zoned Area 2022

Sector	City Centre Zone	Metropolitan Centre Zone	Town Centre Zone	Local Centre Zone	Neighbourhood Centre Zone	Mixed Use Zone	General Business Zone	Business Park Zone	Heavy Industry Zone	Light Industry Zone
Primary	1.2	0.3	0.9	2.0	5.7	0.5	1.1	0.2	0.3	0.9
Mining	0.4	2.2	0.6	0.0	0.5	0.2	0.9	0.0	1.6	1.8
Manufacturing	0.1	0.4	0.3	0.3	0.4	0.4	0.9	0.2	2.4	2.1
Utilities	0.9	2.9	0.0	0.0	0.0	2.2	1.3	0.1	0.7	0.4
Construction	0.3	0.4	0.7	0.9	1.4	0.9	0.9	0.5	2.1	1.4
Wholesale Trade	0.2	0.5	0.5	0.5	1.1	0.7	1.4	0.6	1.9	1.8
Retail Trade	0.3	2.0	1.9	1.4	0.8	1.0	2.0	1.1	0.7	1.0
Hospitality	1.2	1.4	2.2	2.7	1.9	1.0	0.9	0.8	0.2	0.4
Transport, Postal, Warehsg	0.9	0.2	0.3	0.3	0.6	0.3	0.4	0.2	1.9	1.8
Information Media Telecoms	2.1	0.7	0.9	0.9	0.6	1.2	0.4	4.6	0.2	0.4
Finance and Insurance	3.1	1.8	0.6	0.3	0.2	0.5	0.4	2.6	0.4	0.2
Rental, Hiring, Real Estate	1.2	0.9	1.5	1.4	1.2	1.1	0.8	0.7	0.8	0.7
Professional, Scientific, Technical	2.2	0.9	0.7	0.6	0.6	1.1	0.6	1.2	0.4	0.5
Administration & Support	1.1	1.0	0.7	1.0	0.5	1.0	0.9	0.9	1.2	1.0
Public Admin & Safety	1.4	1.4	0.8	0.8	0.3	1.3	0.9	0.8	0.8	0.7
Education and Training	1.1	0.6	1.0	1.6	3.2	1.5	0.6	1.4	0.3	0.6
Health Care & Social Assist	0.5	0.8	1.4	1.7	1.4	2.2	0.8	1.3	0.5	0.6
Arts & Recreation	1.5	1.0	1.3	1.2	1.7	1.2	1.9	0.6	0.3	0.5
Other Services	0.5	1.1	1.7	1.4	1.7	1.2	1.0	0.4	0.9	0.9

Source: Auckland Economy Growth Model 2023

5.4 Current Existing Floorspace

Current floorspace is estimated at 29.08 million m² in the (Table 5-5). This includes an estimated 12.0 million m² in centres, and 17.06 million m² in business areas²⁰. The estimated space is derived from property-level data in Council's Rating Database 2022, aggregated to totals for each SA1 area, and to centres. The estimates do not include capacity in special purpose and similar zones, such as hospitals, the airport and the port.

²⁰ The total also includes allowance of 210,000m² (+0.7%) for centres and business areas for which there is no floorspace data available, but the employment statistics show business activity as at 2022.

Table 5-5: Estimated Existing Floorspace 2022 (000m²)

Spatial Economy Element	City Centre Zone	Metropolitan Centre Zone	Town Centre Zone	Local Centre Zone	Neighbourhood Centre Zone	Mixed Use Zone	General Business Zone	Business Park Zone	Heavy Industry Zone	Light Industry Zone	Total Business
City Centre	3,051	-	4	-	-	19	-	-	-	-	3,075
Metropolitan Centres	-	2,023	-	1	9	255	166	58	-	1,003	3,516
Town Centres	-	-	2,303	-	1	812	98	-	134	554	3,902
Local Centres	-	-	-	594	-	99	-	-	-	115	808
Neighbourhood Centres	-	-	-	-	369	34	16	-	-	297	716
Total Centres	3,051	2,023	2,307	595	379	1,219	280	58	134	1,969	12,017
Mixed Use	-	-	-	-	-	1,730	-	-	-	33	1,763
Business Parks	-	-	-	-	-	9	-	190	-	-	199
General Business	-	-	-	-	-	-	563	-	-	60	623
Light Industry	-	-	-	-	-	271	210	-	738	7,825	9,044
Heavy Industry	-	-	-	-	-	6	5	34	3,478	1,911	5,434
Total Business Areas	-	-	-	-	-	2,016	778	224	4,216	9,829	17,063
Centres & Business Areas	3,051	2,023	2,307	595	379	3,235	1,058	282	4,350	11,798	29,080

Source: Auckland Economy Growth Model 2023 Auckland Council 2023

5.5 Vacant and Vacant Potential Business-Zoned Land

The estimated vacant land capacity by Business zone is summarised in Table 5-6, showing vacant capacity by the defined centres and business areas in the network. The vacant potential capacity is shown in Table 5-7.

Vacant capacity is primarily entire lots which are vacant or not built on. The main criterion is whether the land has built structures, since most urban land has some form of development or improvement.

The vacant potential land is land which is part of a larger site, where there is a significant area of land on which built development can potentially occur without encroaching on the already built development. This potential is identified from building footprint data, land area and information from the rating database.

Note that Vacant and Vacant Potential is a data driven desktop assessment and its quality is dependent on the timing and accuracy of the source data such as building footprints (a data and labour intensive product derived from high resolution aerials and LiDAR) and rating data. Net capacity calculations are also subject to these errors, as the understanding of the existing built floorspace is sourced from the exact same data sets.

Table 5-6 shows a total area of 1,426 ha of Vacant Business-zoned land, including 399 ha in centres, of which 281 ha is in Metropolitan centre and Town centre zones. There is a further 1,027 ha of vacant land in the Business areas, including 479 ha in the Light industry Zone.

The Vacant Potential applies to a further 2,238 ha (Table 5-7), which indicates approximately 3,664 ha of Business zoned land where additional built development could occur without removing any existing developed floorspace. This represents around 40% of the total 9,202 ha of business zoned land. The figures in the tables imply that the 3,664ha of Vacant and Vacant Potential business zoned land could if developed accommodate considerably more business activity. To put this in context, if that 3,664 ha were developed that would imply an increase in business activity on already zoned land in the order of 67% – that is, the 3,664ha equates to 67% of the 5,538 ha of Business zoned land which is not identified as vacant or with vacant potential.

Table 5-6: Estimated Vacant Capacity (ha) 2022

Spatial Economy Element	City Centre Zone	Metropolitan Centre Zone	Town Centre Zone	Local Centre Zone	Neighbourhood Centre Zone	Mixed Use Zone	General Business Zone	Business Park Zone	Heavy Industry Zone	Light Industry Zone	Total Business	Vacant as % Zoned
City Centre	15	-	0	-	-	1	-	-	-	-	15	8%
Metropolitan Centres	-	55	-	0	-	26	6	8	-	42	138	17%
Town Centres	-	-	55	-	10	10	2	-	1	65	143	15%
Local Centres	-	-	-	56	3	23	-	-	-	8	90	21%
Neighbourhood Centres	-	-	-	-	10	0	0	-	-	2	13	6%
Total Centres	15	55	55	56	23	59	8	8	1	118	399	15%
Mixed Use	-	-	-	-	-	40	-	-	-	1	40	8%
Business Parks	-	-	-	-	-	1	-	4	-	-	5	10%
General Business	-	-	-	-	-	-	28	-	-	0	28	14%
Light Industry	-	-	5	-	-	22	12	-	15	430	484	13%
Heavy Industry	-	-	-	-	-	0	-	1	421	48	470	24%
Total Business Areas	-	-	5	-	-	63	40	5	436	479	1,027	16%
Centres & Business Areas	15	55	60	56	23	122	48	13	438	596	1,426	16%

Source: Auckland Economy Growth Model 2023 Auckland Council 2023

Table 5-7: Estimated Vacant Potential Capacity (ha) 2022

Spatial Economy Element	City Centre Zone	Metropolitan Centre Zone	Town Centre Zone	Local Centre Zone	Neighbourhood Centre Zone	Mixed Use Zone	General Business Zone	Business Park Zone	Heavy Industry Zone	Light Industry Zone	Total Business	Vacant Potential as % Zoned	Vacant + Vacant Potential as % Zoned
City Centre	12	-	-	-	-	0	-	-	-	-	12	6%	14%
Metropolitan Centres	-	99	-	-	-	19	11	0	-	66	196	24%	41%
Town Centres	-	-	55	-	5	23	7	-	22	94	199	20%	35%
Local Centres	-	-	-	54	0	62	-	-	-	10	126	30%	51%
Neighbourhood Centres	-	-	-	-	17	4	0	-	-	22	43	19%	24%
Total Centres	12	99	55	54	22	108	18	0	22	192	576	22%	37%
Mixed Use	-	-	-	-	-	65	-	-	-	3	68	14%	22%
Business Parks	-	-	-	-	-	4	-	15	-	-	18	38%	47%
General Business	-	-	-	-	-	0	53	-	-	1	55	26%	40%
Light Industry	-	-	-	-	-	24	16	-	66	974	1,080	30%	44%
Heavy Industry	-	-	-	-	-	-	1	1	375	64	441	22%	46%
Total Business Areas	-	-	-	-	-	92	71	15	441	1,042	1,661	26%	42%
Centres & Business Areas	12	99	55	54	22	201	88	16	463	1,234	2,238	25%	41%

Source: Auckland Economy Growth Model 2023 Auckland Council 2023

The uptake of vacant and vacant potential land is difficult to model with any accuracy, as that will depend on the circumstances in each location. However, uptake can be expected to broadly reflect the level of demand growth in centres and business areas. This will include consideration by businesses of the potential for more intensive use of existing floorspace which is likely to accommodate a material share of initial employment growth, since growth occurs through expansion of existing business expanding as well as formation of new ones.

5.6 New Building Consent Patterns

Although the likely rate of take up is not accurately predictable, the non-dwelling building consents information offers a broad guide to rates of additional floorspace provision in the economy. In Auckland over the whole decade to 2021 on average some 502,000m² of non-residential floorspace was consented annually, while the annual rate over the second half of that decade was 601,000 m² pa.

It is noted that the consent data does not differentiate between replacement of existing floorspace, and development of new additional floorspace. The region currently has estimated 28.9 million m² of business floorspace. Across Auckland in the past two decades, some 9.2 million m² of floorspace (non-dwelling) has been consented. If all of that had been net additional, that would imply floorspace growth of around 48% over the 2001-21 period. Over that same time frame, total employment increased by 53%.

The available data does not support more than a broad matching between building consent floorspace data and employment growth. While it is not possible to estimate the share of consented capacity which is net additional, it is useful to consider the new building consent patterns over time, as we would expect at least a broad positive relationship between new consented floorspace and employment growth.

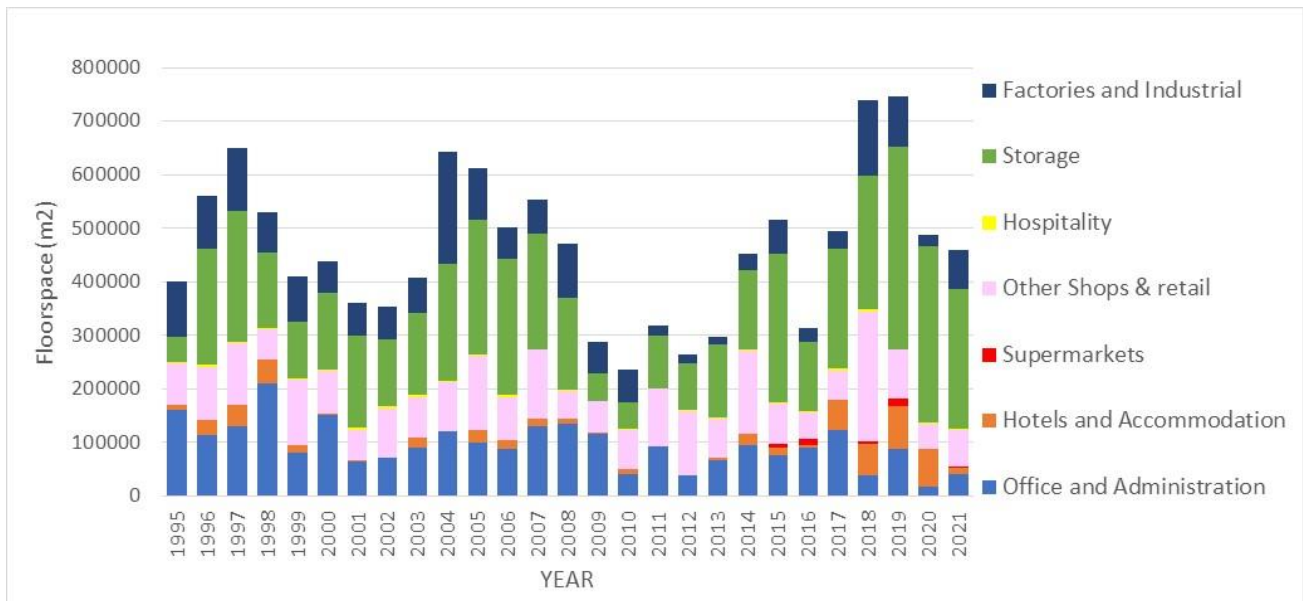
Within these limitations, an overall medium term take up of some 3% pa of the vacant and vacant potential land would correspond with the addition of around 650,000 m² of floorspace annually. That would be a similar order of magnitude at the regional level as the recently observed consent patterns for provision of business floorspace.

However, for the sufficiency assessment a lower rate has been assumed, in order to adopt a conservative approach (Section 5.10).

The patterns of new floorspace over the 26 years to 2021 are summarised in Figure 5-1. Categories of floorspace consented utilise Stats NZ standard building use categorisation with does not concord directly with the employment forecasts which use Industry ANZSIC Codes (The building category is a generic descriptor, which reflects that the building could accommodate a very wide range of employment functions (ANZSIC Codes) over their useful lives), although a high level concordance can be made.

In the past 4 years, storage capacity has dominated the supply of business space, assuming all consented space is developed. The relatively strong increases seen in 2018 and 2019 have not continued, with downturns in 2020 and 2021 as the effects of Covid19 have acted to dent confidence and increase uncertainty.

Figure 5-1 : Non-Residential Floorspace Consents 1995-2021



The statistics show the consenting of just under 1 million m² of office floorspace in centres in the two decades to 2021, at a rate of just less than 50,000m² annually (Table 5-8). The largest share has been attracted to the central city 34%), ahead of the Metropolitan centres (13%)., with some to Town centres (8%). There has been a significant amount (over 12,000m² per year, 15% of the total) in Light industry zoned areas.

Table 5-8: Floorspace Consented 2002-2021 – Office and Admin

Spatial Economy	2002-06	2007-11	2012-16	2017-21	2002-21	2002-21 %
City Centre	109,150	208,340	122,710	120,920	561,120	34%
Metropolitan Centres	61,560	38,690	26,550	91,130	217,930	13%
Town Centres	9,670	50,250	52,120	28,020	140,060	8%
Local Centres	7,830	12,120	5,930	3,850	29,730	2%
Neighbourhood Centres	9,550	2,110	5,390	1,240	18,290	1%
Total Centres	197,760	311,510	212,700	245,160	967,130	58%
Mixed Use	13,200	58,560	25,560	9,360	106,680	6%
Business Parks	39,600	17,470	29,190	700	86,960	5%
General Business	90,100	35,200	4,540	1,490	131,330	8%
Light Industry	88,540	37,740	71,310	46,220	243,810	15%
Heavy Industry	33,030	32,940	23,560	7,150	96,680	6%
Airports	-	-	-	-	-	0%
Port	4,040	7,650	-	-	11,690	1%
Health Nodes	2,340	15,300	700	-	18,340	1%
Recreation Nodes	-	-	-	-	-	0%
Total Business Areas	270,850	204,860	154,860	64,920	695,490	42%
Centres & Business Areas	468,610	516,370	367,560	310,080	1,662,620	100%

Source: Auckland Economy Growth Model 2023

The total value of consented floorspace (in inflation-adjusted \$2023 terms) for office and administration buildings was \$1.749Bn over the period, an average annual investment rate of just under \$90 million. Some

60% of the total was directed to centres, with the CBD attracting the largest share (\$487m, 28%), while Metropolitan and Town centres also attracted substantial investments in office space (Table 5-9).

Table 5-9: Value of Floorspace Consented 2002-2021 – Office and Admin (\$'000)

Spatial Economy	2002-06	2007-11	2012-16	2017-21	2002-21	2002-21 %
City Centre	110,528	157,016	107,635	112,429	487,608	28%
Metropolitan Centres	89,507	45,290	25,487	126,491	286,775	16%
Town Centres	8,923	61,062	99,258	51,608	220,851	13%
Local Centres	8,115	10,461	10,159	12,658	41,393	2%
Neighbourhood Centres	5,349	2,487	5,478	3,364	16,678	1%
Total Centres	222,422	276,316	248,017	306,550	1,053,305	60%
Mixed Use	9,925	51,045	17,240	18,755	96,965	6%
Business Parks	39,500	11,500	23,490	750	75,240	4%
General Business	85,214	38,271	7,520	1,270	132,275	8%
Light Industry	87,651	35,897	63,990	85,630	273,168	16%
Heavy Industry	21,797	35,498	29,268	15,438	102,001	6%
Airports	-	-	-	-	-	0%
Port	9,500	-	-	-	9,500	1%
Health Nodes	1,210	4,850	800	-	6,860	0%
Recreation Nodes	-	-	-	-	-	0%
Total Business Areas	254,797	177,061	142,308	121,843	696,009	40%
Centres & Business Areas	477,219	453,377	390,325	428,393	1,749,314	100%

Source: Auckland Economy Growth Model 2023

For Other Shops and Retail, the consented volumes were significantly larger, with 1,863,000 m² consented in the two decades to 2021, at a rate of over 90,000m² annually (Table 5-10). Centres accounted for 70% of the total, although the CBD had a small share at 4%, considerably less than in the Metropolitan centres (37%), and Town centres (21%). Again, a significant amount (over 15,000m² per year, 16% of the total) was recorded in Light industry zoned areas.

Table 5-10: Floorspace Consented 2002-2021 – Other Shops and Retail (m²)

Spatial Economy	2002-06	2007-11	2012-16	2017-21	2002-21	2002-21 %
City Centre	17,510	14,640	8,670	29,390	70,210	4%
Metropolitan Centres	176,440	132,530	179,440	193,050	681,460	37%
Town Centres	66,310	104,900	116,000	96,130	383,340	21%
Local Centres	26,910	31,350	34,650	29,660	122,570	7%
Neighbourhood Centres	17,440	9,810	9,910	2,260	39,420	2%
Total Centres	304,610	293,230	348,670	350,490	1,297,000	70%
Mixed Use	22,760	18,630	27,840	23,450	92,680	5%
Business Parks	50	-	110	12,080	12,240	1%
General Business	14,970	30,020	15,010	21,500	81,500	4%
Light Industry	98,780	55,180	59,010	88,160	301,130	16%
Heavy Industry	31,690	18,510	21,650	4,770	76,620	4%
Airports	-	-	-	-	-	0%
Port	1,090	60	-	-	1,150	0%
Health Nodes	1,030	-	-	-	1,030	0%
Recreation Nodes	-	-	-	-	-	0%
Total Business Areas	170,370	122,400	123,620	149,960	566,350	30%
Centres & Business Areas	474,980	415,630	472,290	500,450	1,863,350	100%

Source: Auckland Economy Growth Model 2023

The total value of consented floorspace (in inflation-adjusted \$2023 terms) for Other Shops and Retail was \$1.948Bn over the period, an average annual investment rate of just under \$98 million. By value, some 69%

of the total was directed to centres, but with the CBD attracting only 7%. Just over \$1Bn was directed to the Metropolitan and Town centres (Table 5-11).

Table 5-11: Value of Floorspace Consented 2002-2021 – Other Shops and Retail (\$000)

Spatial Economy	2002-06	2007-11	2012-16	2017-21	2002-21	2002-21 %
City Centre	14,949	16,730	17,035	78,202	126,916	7%
Metropolitan Centres	132,384	49,314	157,603	237,781	577,082	30%
Town Centres	54,743	99,155	133,106	136,096	423,100	22%
Local Centres	22,408	35,276	60,356	56,297	174,337	9%
Neighbourhood Centres	17,073	8,974	9,395	5,601	41,043	2%
Total Centres	241,557	209,449	377,495	513,977	1,342,478	69%
Mixed Use	16,913	21,214	40,529	30,204	108,860	6%
Business Parks	30	-	65	8,000	8,095	0%
General Business	9,144	36,927	25,400	33,524	104,995	5%
Light Industry	66,759	46,621	57,133	134,479	304,992	16%
Heavy Industry	21,621	17,034	26,797	12,472	77,924	4%
Airports	-	-	-	-	-	0%
Port	568	64	-	-	632	0%
Health Nodes	300	-	-	-	300	0%
Recreation Nodes	-	-	-	-	-	0%
Total Business Areas	115,335	121,860	149,924	218,679	605,798	31%
Centres & Business Areas	356,892	331,309	527,419	732,656	1,948,276	100%

Source: Auckland Economy Growth Model 2023

The largest area of new floorspace was in Storage buildings, with 3,804,000 m² consented in the period to 2021. This is a rate of over 190,000m² annually (Table 5-12). Centres accounted for only 12% of the total, with just 1% in the CBD. The bulk of the development has been in the Light Industry zone, with 1,960,000 m² consented. There was a further 1,132,000m² in the Heavy Industry zoned areas.

Table 5-12: Floorspace Consented 2002-2021 – Storage Buildings (m²)

Spatial Economy	2002-06	2007-11	2012-16	2017-21	2002-21	2002-21 %
City Centre	-	590	460	28,490	29,540	1%
Metropolitan Centres	25,960	11,110	58,970	121,260	217,300	6%
Town Centres	33,610	14,470	4,560	45,000	97,640	3%
Local Centres	16,720	-	16,670	26,020	59,410	2%
Neighbourhood Centres	18,410	11,070	7,020	26,020	62,520	2%
Total Centres	94,700	37,240	87,680	246,790	466,410	12%
Mixed Use	5,240	3,810	6,810	2,480	18,340	0%
Business Parks	-	-	-	-	-	0%
General Business	112,510	16,820	20,430	1,800	151,560	4%
Light Industry	492,920	340,700	454,970	672,300	1,960,890	52%
Heavy Industry	294,640	187,260	203,160	447,700	1,132,760	30%
Airports	-	-	-	-	-	0%
Port	-	-	390	37,060	37,450	1%
Health Nodes	-	-	3,240	33,590	36,830	1%
Recreation Nodes	-	-	-	-	-	0%
Total Business Areas	905,310	548,590	689,000	1,194,930	3,337,830	88%
Centres & Business Areas	1,000,010	585,830	776,680	1,441,720	3,804,240	100%

Source: Auckland Economy Growth Model 2023

The total value of consented floorspace (in inflation-adjusted \$2023 terms) for Storage buildings was \$2.697Bn over the period, an average annual investment rate of just under \$135 million. By value, some 50% of the total was directed to Light Industry area (\$1.335Bn) with \$0.775Bn directed to Heavy Industry zones (Table 5-13).

Table 5-13: Value of Floorspace Consented 2002-2021 – Storage Buildings (\$'000)

Spatial Economy	2002-06	2007-11	2012-16	2017-21	2002-21	2002-21 %
City Centre	-	1,750	533	23,450	25,733	1%
Metropolitan Centres	20,642	6,743	37,227	148,544	213,156	8%
Town Centres	28,932	4,539	3,338	39,755	76,564	3%
Local Centres	5,931	-	11,130	25,877	42,938	2%
Neighbourhood Centres	10,513	6,850	5,170	9,042	31,575	1%
Total Centres	66,018	19,882	57,398	246,668	389,966	14%
Mixed Use	2,709	2,650	7,400	3,815	16,574	1%
Business Parks	-	-	-	-	-	0%
General Business	69,727	13,685	14,748	3,100	101,260	4%
Light Industry	256,067	196,739	303,773	579,128	1,335,707	50%
Heavy Industry	163,690	106,680	142,277	362,442	775,089	29%
Airports	-	-	-	-	-	0%
Port	-	-	375	33,096	33,471	1%
Health Nodes	-	-	1,500	43,610	45,110	2%
Recreation Nodes	-	-	-	-	-	0%
Total Business Areas	492,193	319,754	470,073	1,025,191	2,307,211	86%
Centres & Business Areas	558,211	339,636	527,471	1,271,859	2,697,177	100%

Source: Auckland Economy Growth Model 2023

The fourth major category is Factory and industrial space. The total area of floorspace consented was 1,311,000m², which is just one-third the area for Storage buildings. There is some development shown across the centres network, however the Major share as expected is in the Light and Heavy industry zones with 67% of the total (Table 5-14). Centres accounted for 30%.

Table 5-14: Floorspace Consented 2002-2021 – Factory and Industrial (m²)

Spatial Economy	2002-06	2007-11	2012-16	2017-21	2002-21	2002-21 %
City Centre	180	-	210	130	520	0%
Metropolitan Centres	12,020	81,390	14,890	33,780	142,080	11%
Town Centres	18,600	21,700	1,910	36,550	78,760	6%
Local Centres	117,030	5,200	1,530	6,340	130,100	10%
Neighbourhood Centres	10,310	20,840	8,950	5,710	45,810	3%
Total Centres	158,140	129,130	27,490	82,510	397,270	30%
Mixed Use	1,430	240	140	700	2,510	0%
Business Parks	-	2,000	-	380	2,380	0%
General Business	14,460	950	850	1,000	17,260	1%
Light Industry	165,980	106,400	71,430	184,680	528,490	40%
Heavy Industry	151,430	69,380	50,300	88,020	359,130	27%
Airports	-	-	-	-	-	0%
Port	-	-	700	-	700	0%
Health Nodes	-	-	-	4,200	4,200	0%
Recreation Nodes	-	-	-	-	-	0%
Total Business Areas	333,300	178,970	123,420	278,980	914,670	70%
Centres & Business Areas	491,440	308,100	150,910	361,490	1,311,940	100%

Source: Auckland Economy Growth Model 2023

The total value of consented floorspace (in inflation-adjusted \$2023 terms) for Factory and industrial development \$1.070Bn over the period, an average annual investment rate of around \$54million. By value, 44% of the total was directed to Light Industry area (\$0.472Bn) with \$0.278Bn directed to Heavy Industry zones (Table 5-15).

Table 5-15: Value of Floorspace Consented 2002-2021 – Factory and Industrial (\$000)

Spatial Economy	2002-06	2007-11	2012-16	2017-21	2002-21	2002-21 %
City Centre	95	-	250	185	530	0%
Metropolitan Centres	4,885	46,832	15,969	82,625	150,311	14%
Town Centres	9,990	10,033	1,973	53,645	75,641	7%
Local Centres	15,170	3,310	2,387	9,414	30,281	3%
Neighbourhood Centres	5,471	8,634	8,845	12,551	35,501	3%
Total Centres	35,611	68,809	29,424	158,420	292,264	27%
Mixed Use	700	120	192	860	1,872	0%
Business Parks	-	2,000	-	225	2,225	0%
General Business	10,418	1,585	1,100	1,200	14,303	1%
Light Industry	129,602	48,694	54,902	239,063	472,261	44%
Heavy Industry	86,596	47,441	34,296	110,337	278,670	26%
Airports	-	-	-	-	-	0%
Port	-	-	1,000	-	1,000	0%
Health Nodes	-	-	-	7,500	7,500	1%
Recreation Nodes	-	-	-	-	-	0%
Total Business Areas	227,316	99,840	91,490	359,185	777,831	73%
Centres & Business Areas	262,927	168,649	120,914	517,605	1,070,095	100%

Source: Auckland Economy Growth Model 2023

5.7 Current Floorspace Utilisation

Current floorspace utilisation in terms of m² per MEC is shown in Table 5-16. Total capacity is estimated at 29.1 million m². The estimates of utilisation are based on current employment in each zoned area for each location. Note that in many instances the employment data is available only at the SA1 level, which may mean that it is apportioned (*pro rata*) across all Business zones in that SA1, rather than estimated for each zone within a centre or business area.

On average, mean floorspace utilisation is 42m² per MEC, including 44m² per MEC in centres, and 40m² per MEC in business areas. Note that these averages should be treated with caution, as they are derived from matching floorspace estimates across several zones in some cases. This information for each centre and business area, and business locations generally, is drawn on for the final assessments of sufficiency.

Table 5-16: Estimated Floorspace Utilisation 2022 (mean m² per MEC)

Spatial Economy Element	Current m ² per MEC
City Centre	24
Metropolitan Centres	70
Town Centres	89
Local Centres	36
Neighbourhood Centres	29
Total Centres	44
Mixed Use	12
Business Parks	10
General Business	56
Light Industry	136
Heavy Industry	29
Total Business Areas	40
Centres & Business Areas	42

Source: Auckland Economy Growth Model 2023

5.8 Suitability

The NPSUD requires assessment of the suitability of the enabled supply to meet the needs of businesses by sector.

Suitability relates primarily to the ability of a location to meet the needs of a specific industry or sector of the economy, assuming the required amount of capacity is available or potentially available. This has been assessed here on the basis that the existing pattern of activity for an industry - that is, its incidence in a location (centre or business area) - indicates the general suitability of that location.

That said, while the presence of an industry will establish that the location is suitable for that industry, the absence of the industry does not show a location is not suitable. It is important to recognise that most industries are characterised by a relatively large number of Business Units of varying sizes, and the presence

of operating Business Units in multiple locations. This is because if the industry is not currently present in a location then that could be due to at least three reasons - because:

- i. Situation 1 - that location is not suitable for that industry, or
- ii. Situation 2 – the location is otherwise suitable for that industry, but there is not sufficient capacity for it to establish there, even though the location is otherwise suitable; or
- iii. Situation 3 - the location is suitable, but there is not sufficient demand from that industry to establish there, including because other locations may be more suitable and have adequate capacity to satisfy demand.

Although there is no definitive test to identify these circumstances, there is substantial information to assess suitability. If the location is not suitable, then as long as there is not a capacity constraint - ie there is capacity for more activity generally - the absence of that industry there shows it is not a chosen/suitable location. As long as there is capacity for that sector in (an)other location(s) then it may be concluded that sector's needs are met. This may be examined by general locality, ie less than whole-of-Auckland level.

On this basis, the Auckland economy has been examined at the 109-sector level, in terms of sector incidence in centres and business areas, and the capacity for further growth including through vacant land, or further intensification of existing sites. Clearly, not all sectors would expect to locate in all locations, and primary sector (rural and extraction) is excluded. Similarly, schools and hospitals typically locate outside business zones or in specified sites.

The key indicators used are first the incidence of sectors in centres and business areas where they can be expected to occur, and second whether there is additional capacity in those centres which would enable activities to establish. The analysis indicates that there is sufficient business-zoned capacity in suitable locations across the network of centres and business areas. There is not strong evidence of insufficient capacity, or capacity in only unsuitable locations.

The incidence patterns are shown in Table 5-17 and Table 5-18. As may be expected, there is wide incidence of sectors across the spatial economy, at all levels and in nearly all locations. Further, there is additional plan enabled capacity across the network of centres and business areas, including vacant and vacant potential capacity.

This conclusion is consistent with the nature of the major share of economic activity in Auckland, which is characterised by mostly small-medium sized operations, with considerable flexibility of location options.

However, that conclusion may not apply in all situations or to all sectors of the economy. This is because some sectors are characterised by a limited number of business units which are large in size and require large sites. These are primarily in large-scale manufacturing, transport or exchange hubs, or large scale construction including yard-based activities. Such activities are recognised as space-extensive industries, which are likely to have specific site size and location requirements, as well as related requirements for infrastructure and transport links. Requirements for large sites may come from established activities seeking to expand as well as new developments.

Until proposals arise, it is not possible to directly assess specific site size or location requirements. Nevertheless, in a large and growing economy such as Auckland, demand for sites should be anticipated. The current Auckland context shows there are significant areas of vacant land especially in Light Industry zoning, and there is substantial opportunity to provide for future capacity through the Future Urban zoned areas, on the fringes of urban Auckland. This suggests that Auckland has sufficient and suitable capacity for business growth for the great majority of sectors, and is very likely to have sufficient and suitable capacity for space-extensive activities, when these are identified in the future.

Table 5-17 : Incidence of Sectors in Centres and Business Locations 2022 (Manufacturing-Transport)

Sector	City Centre	Metro politan Centre	Town Centre	Local Centre	Neigh bourhd centre	Mixed Use	Centres and Mixed Use	General Business	Busines s Park	Light Industry	Heavy industry	Busines s and Industry	Airports	Port	Hospitals	Recrea tion	Other Major Nodes	Total Centres and Business Areas
NUMBER OF LOCATIONS	1	10	47	73	418	101	650	10	4	79	7	100	5	1	14	7	27	777
Manufacturing																		
Meat and meat product manufacturing	-	2	5	5	2	2	16	2	-	9	3	14	-	-	-	-	-	30
Seafood processing	1	1	-	2	-	-	4	1	1	6	2	10	1	-	-	-	-	15
Dairy product manufacturing	1	2	4	1	2	2	12	1	-	15	3	19	-	1	-	-	-	32
Fruit, oil, cereal and other food product	1	10	37	36	92	34	210	2	2	41	6	51	1	-	2	-	-	264
Beverage and tobacco product manufac	1	6	8	9	9	9	42	1	2	16	4	23	1	1	1	-	-	68
Textile and leather manufacturing	1	6	12	6	13	12	50	2	1	24	4	31	1	-	1	-	-	83
Clothing, knitted products and footwea	1	6	21	8	17	17	70	2	-	16	3	21	-	-	-	-	-	91
Wood product manufacturing	1	8	15	8	21	12	65	4	-	28	5	37	-	-	1	-	-	103
Pulp, paper and converted paper produ	1	3	-	2	2	1	9	1	1	8	5	15	-	-	-	-	-	24
Printing	1	8	24	13	20	21	87	2	1	34	3	40	1	-	1	-	-	129
Petroleum and coal product manufactu	-	1	2	-	-	1	4	-	-	3	1	4	-	-	-	-	-	8
Basic chemical and basic polymer manu	-	1	4	2	-	2	9	-	1	9	6	16	-	-	-	-	-	25
Fertiliser and pesticide manufacturing	-	-	-	1	1	-	2	-	-	4	1	5	-	-	1	-	-	8
Pharmaceutical, cleaning and other che	1	5	13	10	7	6	42	2	1	20	4	27	-	-	1	-	-	70
Polymer product and rubber product m	1	7	10	2	7	10	37	2	-	31	5	38	1	-	2	-	-	78
Non-metallic mineral product manufact	1	5	12	8	9	6	41	2	1	28	5	36	1	1	-	-	-	79
Primary metal and metal product manu	1	1	2	-	1	3	8	1	-	7	6	14	-	-	-	-	-	22
Fabricated metal product manufacturin	1	9	22	13	25	26	96	2	1	44	6	53	-	-	2	-	-	151
Transport equipment manufacturing	1	6	14	14	17	16	68	3	1	33	6	43	3	-	-	1	-	115
Electronic and electrical equipment ma	1	8	20	9	17	17	72	3	1	24	4	32	1	1	1	-	-	107
Machinery manufacturing	1	8	17	7	28	23	84	2	2	35	6	45	-	-	-	2	-	131
Furniture manufacturing	1	9	21	13	19	20	83	4	1	28	5	38	-	-	-	-	-	121
Other manufacturing	1	7	17	13	16	18	72	1	2	17	4	24	1	-	-	-	-	97
Utilities																		
Electricity generation and on-selling	1	2	3	1	1	1	9	1	1	1	2	5	1	1	-	-	-	16
Electricity transmission and distributor	1	1	-	-	-	-	2	-	-	2	2	4	-	-	-	-	-	6
Gas supply	1	-	1	-	-	-	2	-	1	-	2	3	-	-	-	-	-	5
Water supply	1	-	-	1	1	2	5	-	-	3	1	4	-	1	-	1	-	11
Sewerage and drainage services	1	-	-	-	-	-	1	1	-	1	1	3	-	-	-	-	-	4
Waste collection, treatment and dispos	1	6	12	4	5	7	35	1	1	20	6	28	1	-	1	1	-	66
Construction																		
Residential building construction	1	10	45	66	266	76	464	8	4	60	6	78	5	1	5	3	-	556
Non-residential building construction	1	7	19	20	22	20	89	2	3	24	3	32	-	1	1	-	-	123
Heavy and civil engineering constructio	1	8	19	19	23	20	90	3	1	31	7	42	3	-	3	1	-	139
Construction services	1	10	47	68	310	86	522	7	3	74	7	91	5	1	10	2	-	631
Wholesale																		
Basic material wholesaling	1	10	25	19	32	30	117	2	3	42	7	54	1	1	1	2	-	176
Machinery and equipment wholesaling	1	10	26	22	25	39	123	4	3	39	6	52	3	1	3	1	-	183
Motor vehicle and motor vehicle parts	1	9	19	14	24	23	90	3	1	36	6	46	2	1	1	-	-	140
Grocery, liquor and tobacco product wh	1	10	28	31	50	41	161	4	2	47	5	58	1	1	1	1	-	223
Other goods and commission based wh	1	10	42	38	96	59	246	6	3	48	6	63	2	1	5	-	-	317
Retail																		
Motor vehicle and parts retailing	1	10	31	21	39	40	142	3	1	36	6	46	1	1	1	1	-	192
Fuel retailing	1	9	29	35	47	26	147	5	1	22	4	32	1	1	1	-	-	182
Supermarket and grocery stores	1	10	45	59	224	37	376	4	1	26	4	35	1	1	1	-	-	414
Specialised food retailing	1	10	42	46	121	42	262	6	1	23	4	34	1	1	3	-	-	301
Furniture, electrical and hardware retail	1	10	43	37	68	47	206	6	3	52	6	67	1	1	3	1	-	279
Recreational, clothing, footwear and pe	1	10	40	41	87	42	221	3	2	28	7	40	1	1	2	-	-	265
Department stores	1	10	12	2	-	2	27	1	1	6	1	9	1	-	-	-	-	37
Other store based retailing; non-store a	1	10	45	64	156	60	336	5	4	45	6	60	1	1	7	1	-	406
Accommodation	1	9	23	21	39	40	133	3	4	17	2	26	2	1	1	-	-	163
Food and beverage services	1	10	45	68	261	79	464	6	3	46	7	62	3	1	5	3	-	538
Transport																		
Road transport	1	8	32	34	104	45	224	3	2	50	7	62	2	-	4	2	-	294
Rail transport	1	-	-	-	-	1	2	-	-	-	2	2	-	1	-	-	-	5
Other transport	1	6	10	9	15	10	51	1	1	16	3	21	1	1	1	-	-	75
Air and space transport	1	1	7	4	7	4	24	1	1	5	1	8	3	1	-	-	-	36
Postal and courier pick up and delivery	1	9	33	32	70	37	182	2	-	34	3	39	1	-	4	1	-	227
Transport support services	1	9	17	20	29	25	101	3	2	25	6	36	4	1	1	2	-	145
Warehousing and storage services	1	7	11	4	8	10	41	4	1	29	4	38	1	1	1	1	-	83

Table 5-18 : Incidence of Sectors in Centres and Business Locations 2022 (Information-Other)

Sector	City Centre	Metro politan Centre	Town Centre	Local Centre	Neigh- bourhd centre	Mixed Use	Centres and Mixed Use	General Business	Busines s Park	Light Industry	Heavy industry	Busines s and Industry	Airports	Port	Hos- pitals	Recrea- tion	Other Major Nodes	Total Centres and Business Areas
Information																		
Publishing (except internet and music p	1	5	14	11	23	25	79	3	3	12	3	21	1	1	1	-	3	103
Motion picture and sound recording ac	1	9	22	38	82	42	194	4	3	22	2	31	-	-	1	2	3	228
Broadcasting and internet publishing	1	4	7	6	6	14	38	1	2	5	3	11	-	-	-	-	-	49
Telecommunications services including	1	8	18	11	14	13	65	2	3	12	3	20	1	1	-	-	2	87
Library and other information services	1	7	30	10	1	7	56	-	-	3	-	3	-	-	-	-	-	59
Finance																		
Banking and financing; financial asset ir	1	10	42	46	137	60	296	3	3	51	7	64	4	1	5	3	13	373
Life insurance	1	3	-	-	-	-	4	-	1	-	-	1	-	-	-	-	-	5
Health and general insurance	1	4	4	-	1	5	15	-	2	6	1	9	-	-	-	-	-	24
Superannuation funds	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Auxiliary finance and insurance services	1	10	41	43	103	54	252	5	2	30	3	40	3	1	3	3	10	302
Property																		
Rental and hiring services (except real e	1	9	35	32	62	43	182	3	2	43	6	54	3	1	2	2	8	244
Residential property operation	1	9	46	62	298	84	500	6	3	59	7	75	4	1	5	3	13	588
Non-residential property operation	1	10	46	68	268	83	476	7	4	68	7	86	5	1	12	3	21	583
Real estate services	1	9	41	59	168	66	344	4	3	33	4	44	1	1	3	4	9	397
Specialist and Household Services																		
Scientific, architectural and engineering	1	9	40	54	201	71	376	5	4	53	6	68	2	1	3	2	8	452
Legal and accounting services	1	9	40	43	137	56	286	2	2	33	5	42	2	1	3	3	9	337
Advertising, market research and mana	1	10	39	57	225	75	407	6	4	55	6	71	4	1	8	4	17	495
Veterinary and other professional servi	1	10	33	30	66	44	184	4	2	17	3	26	1	1	1	1	4	214
Computer system design and related se	1	10	41	50	177	78	357	4	4	43	4	55	3	1	3	3	10	422
Travel agency and tour arrangement se	1	9	23	26	35	19	113	2	1	14	2	19	1	1	-	-	2	134
Employment and other administrative :	1	9	36	37	105	53	241	4	3	44	4	55	3	1	8	1	13	309
Building cleaning, pest control and othe	1	9	41	48	165	63	327	3	1	48	4	56	1	1	4	2	8	391
Government																		
Local government administration	1	7	13	5	3	1	30	1	1	3	1	6	1	1	-	-	2	38
Central government administration anc	1	9	16	4	1	4	35	2	2	4	1	9	1	1	1	-	3	47
Defence	1	1	-	1	-	2	5	-	-	-	-	-	-	-	-	-	-	5
Public order, safety and regulatory serv	1	9	28	19	28	23	108	2	2	33	5	42	2	1	-	-	3	153
Education																		
Preschool education	1	9	31	29	76	37	183	3	4	31	3	41	1	-	3	1	5	229
School education	1	6	22	21	44	26	120	1	3	18	2	24	1	-	3	4	8	152
Tertiary education	1	8	10	5	8	14	46	1	2	11	3	17	1	-	2	-	3	66
Adult, community and other education	1	10	38	45	92	42	228	3	2	35	5	45	3	1	4	3	11	284
Health																		
Hospitals	1	-	3	5	1	8	18	-	1	3	-	4	-	-	11	-	11	33
Medical and other health care services	1	10	44	64	198	79	396	6	4	37	5	52	2	1	12	4	19	467
Residential care services and social assi	1	8	38	37	77	47	208	4	3	30	4	41	2	-	7	1	10	259
Other Services																		
Heritage and artistic activities	1	9	30	31	79	50	200	3	3	24	3	33	1	1	5	1	8	241
Sport and recreation activities	1	9	39	34	62	44	189	5	3	35	4	47	2	1	4	6	13	249
Gambling activities	1	2	4	7	4	4	22	1	-	3	1	5	-	-	-	-	-	27
Repair and maintenance	1	10	41	43	135	54	284	3	2	52	6	63	1	1	3	1	6	353
Personal services; domestic household	1	10	43	60	177	66	357	4	3	41	5	53	3	1	6	2	12	422
Religious services; civil, professional an	1	10	43	43	59	52	208	4	4	47	6	61	2	1	5	3	11	280
Total	98	678	2,178	2,225	5,906	2,767	13,852	255	168	2,497	389	3,309	134	60	211	93	498	17,659

Source: Auckland Economy Growth Model 2023

5.9 Plan-Enabled Capacity

Council undertook an update of its detailed assessment of the plan-enabled capacity in business zoned areas in July 2022, as part of preparation for Plan Change 78 – this included reassessment of capacity enabled by the AUPOIP and notified provisions of PC78 on that same date.

That analysis took into account zoned area and plan provisions including potential height, setbacks and HIRB matters. The principal outputs were estimates of plan-enabled capacity by floor-level for each business zoned property, with summaries for each centre and business area.

That analysis takes account of the total potential for property development under the planning provisions. The method identifies the potential maximum floorspace which is enabled at the site level. Part of this is estimation of the floorspace enabled at each height or storey, to take into account plan provisions for building structure in terms of setbacks, development planes and so on. The assessment examined what would be enabled on a bare site, and it does not take into account the current amount of floorspace developed on each site. It is on the basis that what is enabled in the AUPOIP to be developed, irrespective of the current economics and feasibility of such built development. This includes consideration of the vacant capacity and vacant potential in each location.

That approach is appropriate for a long-term assessment such as in this case, particularly when supported by detailed information on current levels of development, current and projected employment, and other key indicators including the value of land and built improvements, and new floorspace consenting patterns which add to understanding of key drivers.

Importantly, this assessment assumes that the plan-enabled capacity is **not** affected by infrastructure constraints. This is on the basis that it is relevant to understand what the Plan enables, whether or not the infrastructure is or will be in place to support that level of activity (employment). Potential infrastructure constraints may be short or long term.

5.9.1 Plan-Enabled Floorspace Capacity

The estimated plan-enabled floorspace capacity for business activity is summarised in Table 5-19. This shows capacity by the defined centres and business areas in the network. For the assessment, the capacities are tied to zonings and to functioning centres and business areas. For example, the capacity for town centres as hubs of activity is estimated at more than 37 million m² of floorspace, but less than half of this is in Town Centre zoning itself, which is predominantly but not entirely in centres which are functionally and geographically town centres.

The estimated plan-enabled capacity is very substantial, and totals in excess of 414 million m². One third of the total relates to centres (139 million m²), with two-thirds (275 million m²) in business areas. The largest capacity is in areas identified as Light Industry areas, although these include substantial capacity in Mixed Use, General Business and Heavy Industry zonings. In relation to the total zoned area, full take up of the plan-enabled capacity implies a mean FAR across all business zoned land of around 4.5.

Table 5-19 : Estimated Plan-enabled Floorspace Capacity by Area Type 2022 (GFA 000m²)

Spatial Economy Element	City Centre Zone	Metropolitan Centre Zone	Town Centre Zone	Local Centre Zone	Neighbourhood Centre Zone	Mixed Use Zone	General Business Zone	Business Park Zone	Heavy Industry Zone	Light Industry Zone	Total Business	Share %
City Centre	23,200	-	10	-	-	110	-	-	-	-	23,300	5.6%
Metropolitan Centres	-	35,500	-	50	50	2,340	1,940	840	-	13,000	53,700	13.0%
Town Centres	-	-	17,610	-	70	4,300	1,080	-	2,190	11,940	37,200	9.0%
Local Centres	-	-	-	6,980	90	2,700	50	-	1,480	6,140	17,400	4.2%
Neighbourhood Centres	-	-	-	-	3,020	260	200	-	-	3,820	7,300	1.8%
Total Centres	23,200	35,500	17,600	7,000	3,200	9,700	3,300	800	3,700	34,900	139,000	33.6%
Mixed Use	-	-	-	-	-	10,510	-	-	-	460	11,000	2.7%
Business Parks	-	-	-	-	-	830	-	1,530	-	-	2,400	0.6%
General Business	-	-	-	-	-	10	6,890	-	-	6,890	13,800	3.3%
Light Industry	-	-	60	-	-	2,350	2,620	-	9,770	137,520	152,300	36.8%
Heavy Industry	-	-	-	-	-	30	70	400	73,100	21,850	95,500	23.1%
Total Business Areas	-	-	60	-	-	13,730	9,580	1,930	82,870	166,720	275,000	66.4%
Centres & Business Areas	23,200	35,500	17,660	7,000	3,200	23,430	12,880	2,730	86,570	201,620	414,000	100.0%

Source: Auckland Economy Growth Model 2023

Of the total plan-enabled capacity, a substantial amount (38%, 160 million m²) is at ground floor and first floor level (Table 5-20). The GFA potential and ground and first floor is important, as many businesses such as retail, light industrial or transport/automotive activity require or prefer ground floor space, whereas capacity at higher levels is predominantly usable as office space or visitor accommodation, and suited to a narrower range of activities.

Table 5-20 : Estimated Plan-enabled Ground & First-Floor Capacity (GFA 000m²)

Spatial Economy Element	City Centre Zone	Metropolitan Centre Zone	Town Centre Zone	Local Centre Zone	Neighbourhood Centre Zone	Mixed Use Zone	General Business Zone	Business Park Zone	Heavy Industry Zone	Light Industry Zone	Total Business
City Centre	4,500	-	-	-	-	-	-	-	-	-	4,500
Metropolitan Centres	-	6,700	-	-	-	900	1,000	300	-	5,200	14,100
Town Centres	-	-	7,400	-	-	2,100	600	-	900	5,000	16,000
Local Centres	-	-	-	3,900	100	1,400	-	-	600	2,500	8,500
Neighbourhood Centres	-	-	-	-	2,200	100	100	-	-	1,600	4,000
Total Centres	4,500	6,700	7,400	3,900	2,300	4,500	1,700	300	1,500	14,300	47,100
Mixed Use	-	-	-	-	-	5,300	-	-	-	200	5,500
Business Parks	-	-	-	-	-	-	3,500	-	-	2,800	6,300
General Business	-	-	-	-	-	400	-	600	-	-	1,000
Light Industry	-	-	100	-	-	1,100	1,300	-	3,900	55,700	62,100
Heavy Industry	-	-	-	-	-	-	-	100	29,200	8,800	38,100
Total Business Areas	-	-	100	-	-	6,800	4,800	700	33,100	67,500	113,000
Centres & Business Areas	4,500	6,700	7,500	3,900	2,300	11,300	6,500	1,000	34,600	81,800	160,100

Source: Auckland Economy Growth Model 2023

Excludes Residential Capacity

The enabled floorspace capacity is distributed widely across Auckland, with the indicated distribution by LBA shown in Table 5-21.

Table 5-21: Estimated Plan-enabled Floorspace Capacity by Local Board Area 2022 (GFA 000m²)

Local Board Area	City Centre Zone	Metro-politan Centre Zone	Town Centre Zone	Local Centre Zone	Neighbourhood Centre Zone	Mixed Use Zone	General Business Zone	Business Park Zone	Heavy Industry Zone	Light Industry Zone	Total Business	Share %
Rodney LBA	-	-	1,400	760	310	470	260	-	-	12,090	15,300	3.7%
Hibiscus and Bays LBA	-	-	1,700	210	230	1,210	2,950	-	1,370	4,310	12,000	2.9%
Upper Harbour LBA	-	7,500	-	740	200	1,500	3,510	840	-	16,110	30,400	7.3%
Kaipatiki LBA	-	-	1,000	110	120	570	460	330	-	8,020	10,600	2.6%
Devonport-Takapuna LBA	-	1,600	500	50	90	1,200	-	510	-	370	4,300	1.0%
Waitakere Ranges LBA	-	-	500	140	40	30	-	-	-	910	1,600	0.4%
Henderson-Massey LBA	-	7,100	200	800	150	790	870	-	1,060	15,080	26,100	6.3%
Whau LBA	-	4,100	1,100	180	50	660	500	-	4,170	7,770	18,500	4.5%
Waitemata LBA	23,200	2,100	700	200	50	4,130	20	-	-	-	30,400	7.3%
Orakei LBA	-	-	200	290	100	1,240	730	-	350	4,800	7,700	1.9%
Maungakiekie-Tamaki LBA	-	2,500	2,400	140	110	2,890	560	780	21,610	17,290	48,300	11.7%
Albert-Eden LBA	-	-	800	580	140	3,420	40	310	-	350	5,600	1.4%
Puketapapa LBA	-	-	200	180	110	290	160	-	-	1,020	2,000	0.5%
Howick LBA	-	-	2,300	320	240	390	40	-	9,540	12,000	24,800	6.0%
Mangere-Otahuhu LBA	-	-	1,600	180	50	1,420	-	-	4,490	25,860	33,600	8.1%
Otara-Papatoetoe LBA	-	9,300	1,300	90	200	1,560	1,360	-	650	39,730	54,200	13.1%
Manurewa LBA	-	-	600	200	90	280	70	-	19,330	8,280	28,900	7.0%
Papakura LBA	-	1,300	600	170	150	490	90	-	6,180	7,730	16,700	4.0%
Franklin LBA	-	-	500	1,410	810	1,010	1,230	-	18,080	19,870	42,900	10.4%
Total	23,200	35,500	17,600	6,800	3,200	23,600	12,900	2,800	86,800	201,600	414,000	100.0%

Source: Auckland Economy Growth Model 2023

Excludes Residential Capacity

Values rounded

5.9.2 Plan-Enabled Employment Capacity

This enabled floorspace capacity has very considerable potential to accommodate business activity. The total plan-enabled capacity of some 414 million m² would be able to accommodate some 6,012,000 persons even at a high average of 70m² per MEC (Table 5-22). If allowance is made for less floorspace per MEC, the theoretical employment capacity would be considerably greater, for example more than 8,000,000 persons at an average of 50 m² per MEC. For this assessment, a conservative approach is taken by assuming a relatively high floorspace per MEC.

This theoretical potential is around 6.4 times current employment.

Table 5-22 : Estimated Plan-enabled Employment Capacity (000 MEC) (High Floorspace per MEC)

Spatial Economy Element	m ² per MEC	City Centre Zone	Metropolitan Centre Zone	Town Centre Zone	Local Centre Zone	Neighbourhood Centre Zone	Mixed Use Zone	General Business Zone	Business Park Zone	Heavy Industry Zone	Light Industry Zone	Total Business
City Centre	35	664	-	-	-	-	3	-	-	-	-	667
Metropolitan Centres	35	-	1,016	-	1	1	67	43	19	-	118	1,265
Town Centres	40	-	-	440	-	2	123	24	-	20	109	718
Local Centres	40	-	-	-	174	2	77	1	-	13	56	323
Neighbourhood Centres	40	-	-	-	-	75	7	4	-	-	35	121
Total Centres	45	664	1,016	440	175	80	277	72	19	33	318	3,094
Mixed Use	35	-	-	-	-	-	300	-	-	-	4	304
Business Parks	45	-	-	-	-	-	24	-	34	-	-	58
General Business	45	-	-	-	-	-	-	153	-	-	63	216
Light Industry	110	-	-	1	-	-	67	58	-	89	1,250	1,465
Heavy Industry	110	-	-	-	-	-	1	1	9	665	199	875
Total Business Areas	94	-	-	1	-	-	392	212	43	754	1,516	2,918
Centres & Business Areas	70	664	1,016	441	175	80	669	284	62	787	1,834	6,012

Source: Auckland Economy Growth Model 2023

The plan-enabled floorspace at just the lower building levels (ground and first floor) would be able to accommodate around 2,218,000 persons, at even a high floorspace per MEC (Table 5-23). This is important, because the potential for business activity to take place above the ground and first floor levels is mainly related to office activities, and is common in the CBD and Metropolitan centres, and Business parks, but much less common in Town centres and smaller Local and Neighbourhood centres, and in business areas characterised by light and heavy industrial activities.

Such high levels of built development are very unlikely even into the very long term. The key point from this assessment is that Auckland has very considerable plan-enabled capacity which is potentially able to accommodate employment growth.

Table 5-23 : Estimated Plan-enabled Employment Capacity 000 MEC - Ground and 1st Floor

Spatial Economy Element	m ² per MEC	City Centre Zone	Metropolitan Centre Zone	Town Centre Zone	Local Centre Zone	Neighbourhood Centre Zone	Mixed Use Zone	General Business Zone	Business Park Zone	Heavy Industry Zone	Light Industry Zone	Total Business
City Centre	35	128	-	-	-	-	1	-	-	-	-	129
Metropolitan Centres	35	-	190	-	1	1	26	22	8	-	47	295
Town Centres	40	-	-	186	-	1	61	13	-	8	45	314
Local Centres	40	-	-	-	99	2	38	-	-	-	8	147
Neighbourhood Centres	40	-	-	-	-	54	4	2	-	-	14	74
Total Centres	44	128	190	186	100	58	130	37	8	8	114	959
Mixed Use	35	-	-	-	-	-	158	-	-	-	2	160
Business Parks	45	-	-	-	-	-	6	-	14	-	-	20
General Business	45	-	-	-	-	-	-	79	-	-	2	81
Light Industry	110	-	-	1	-	-	32	29	-	41	544	647
Heavy Industry	110	-	-	-	-	-	1	1	3	266	80	351
Total Business Areas	94	-	-	1	-	-	197	109	17	307	628	1,259
Centres & Business Areas	70	128	190	187	100	58	327	146	25	315	742	2,218

Source: Auckland Economy Growth Model 2023

The estimated distribution of potential employment capacity by Local Board Area is shown in Table 5-24. There is considerable capacity for business growth across Auckland. At the aggregate level, all of the LBAs show substantial scope for future employment growth.

Table 5-24: Estimated Plan-enabled Employment Capacity by LBA 000 MEC – Ground and 1st Floor

Local Board Area	m ² per MEC	City Centre Zone	Metropolitan Centre Zone	Town Centre Zone	Local Centre Zone	Neighbourhood Centre Zone	Mixed Use Zone	General Business Zone	Business Park Zone	Heavy Industry Zone	Light Industry Zone	Total Business	Share %
Rodney LBA	75	-	-	18	12	5	8	3	-	-	45	90	4.1%
Hibiscus and Bays LBA	56	-	-	21	3	4	18	33	-	5	16	100	4.5%
Upper Harbour LBA	63	-	35	-	10	4	22	40	8	-	59	178	8.0%
Kaipatiki LBA	74	-	-	9	2	2	8	5	3	-	30	60	2.7%
Devonport-Takapuna LBA	39	-	11	6	1	2	18	-	5	-	1	43	1.9%
Waitakere Ranges LBA	62	-	-	4	3	1	0	-	-	-	3	11	0.5%
Henderson-Massey LBA	70	-	38	2	11	3	12	10	-	4	56	135	6.1%
Whau LBA	71	-	22	11	3	1	9	6	-	15	29	96	4.3%
Waitemata LBA	35	128	18	11	3	1	52	0	-	-	0	213	9.6%
Orakei LBA	64	-	-	2	4	2	17	9	-	1	19	55	2.5%
Maungakiekie-Tamaki LBA	83	-	11	23	2	2	38	6	6	80	65	232	10.5%
Albert-Eden LBA	38	-	-	11	10	3	50	0	3	-	1	78	3.5%
Puketapapa LBA	54	-	-	2	2	2	4	2	-	-	4	17	0.8%
Howick LBA	88	-	-	20	4	4	7	0	-	35	44	115	5.2%
Mangere-Otahuhu LBA	91	-	-	17	3	1	21	-	-	17	97	155	7.0%
Otara-Papatoetoe LBA	82	-	43	13	1	3	17	15	-	2	146	242	10.9%
Manurewa LBA	101	-	-	5	3	2	4	1	-	71	31	117	5.3%
Papakura LBA	82	-	12	6	2	3	7	1	-	23	29	84	3.8%
Franklin LBA	87	-	-	6	20	14	15	14	-	67	73	208	9.4%
Total	70	128	190	187	100	58	327	146	25	315	742	2,218	100.0%

Source: Auckland Economy Growth Model 2023

5.10 Overall Sufficiency Assessment

The preceding analyses have been drawn on for the final assessment of sufficiency of capacity.

The question of sufficiency is not straightforward, especially given the complexities of a large urban economy like Auckland, and the variety of circumstances within that economy. A systematic approach has been applied as follows:

5.10.1 Approach

The current situation for each centre and business area is the obvious starting point. This relates to the key parameters for each location, the recent and longer term history, the type of centre or business area, and the performance of similar locations.

The estimation involves a number of steps, as follows:

1. Step 1 - Analyse current employment, Business zoned area and floorspace to identify m² per MEC (employment intensity) and floorspace per ha (development intensity); and consented floorspace trends last 10 and 20 years.
2. Step 2 - Estimate the potential extra employment capacity from more intensive use of existing space. This is based on modelled change in m² per person in the short, medium and long terms. The base point is current m² per MEC for each centre. Allowance options are for a low increase (+6% over 30 years), a medium increase (+9%) or a high increase (+12%). These shifts are applied to all locations. The current m² per MEC is used as the best indication of the centre's performance and role.
3. Step 3 - Estimate the potential uptake of vacant and vacant potential land for each centre, identified as ha of land area. A scenario approach is applied to all centres and business areas. The medium scenario assumes that over the 2022-2052 period 40% of the vacant and vacant potential capacity is taken up and developed. This occurs at the current (2022) development intensity for that location.

The low and high scenarios allow for take up around one-sixth either side of the medium – the low scenario allows for 33% by 2052, the high scenario allows for 47% by 2052. In all scenarios, the uptake is assumed to occur *pro rata* over the 30-year plan period.

These estimates are purposely conservative, for the purposes of the sufficiency assessment. The figures in each case show the potential employment capacity, assuming the same rates of uptake apply at all centres and business areas, which may be greater than the demand increase.

4. Step 4 – Estimate the additional employment which could be accommodated through the addition of floorspace combined with the increase in employment intensity (reduction in m² per MEC). This shows the potential additional employment for the centre/business area (for 2025, 2032 and 2052).
5. Step 5 – Compare the total employment capacity for each future year with the projected employment levels generated by the Model. This simply identifies the employment (MECs) which would not be accommodated by the extra floorspace and increase in intensity. This is total employment growth, less additional employment capacity (Step 4).
6. Step 6 – calculate the amount of additional floorspace (m²) which would need to be developed to accommodate this uncatered for employment growth. This is on the basis that any additional floorspace has the same intensity of use as the existing floorspace.

7. Step 7 – express this estimated additional floorspace amount (m²) as a % share of the total development capacity – that is, plan-enabled floorspace capacity, not yet developed or redeveloped.

5.10.2 Scenarios

The base case Scenarios are:

Low scenario – low economic and population projection; low increase in employment intensity (m² per MEC) of +6% over 30 years, and low uptake of vacant and vacant potential land (33% of maximum over 30 years).

Medium scenario – medium economic and population projection; medium increase in employment intensity (+9% over 30 years) and medium uptake of vacant and vacant potential land (40% of the maximum).

High scenario – high economic and population projection; high increase in employment intensity (+12% over 30 years) and high uptake of vacant and vacant potential land (47% of the maximum over 30 years).

5.10.3 Sufficiency Framework

The outputs for each scenario are summarised in a standard Framework.

This Framework necessarily has some detail. This is because the assessment of sufficiency must take a range of matters into account. There are several steps, discussed above, to go from the initial estimation of demand for additional floorspace, and to then work through how that demand may be met. That starts with the easiest steps – using existing space more intensively, and developing new floorspace on vacant land – and then follows with the more difficult and costly step, which is to add more space by re-developing on already developed land. The final step is to consider how much re-development would need to occur over the short, medium and long terms, in order to provide for expected demand.

The approach taken here is to draw those steps together into one Framework, so that they are visible at one time and in one place, and in a logical sequence from easiest to most difficult. As a consequence, the final table showing the results contains some detail. This is done for each type of location (Business zoning). Some detail is necessary when assessing sufficiency.

In the Framework (output table) there is detail on each step in the assessment, leading to the results. For each type of location there is a standard set of indicators. The Framework table has standard Columns A to P, as below.

Sufficiency in Employment Terms

The left side of the table examines sufficiency in employment terms.

1. The first three columns (A, B, C) track employment in that location - current 2022 (A), projected 2052 (B), and the net increase (C) from current to future.
2. The next column D *Extra Capacity Vacant Land Uptake* shows the estimated additional employment capacity (MECs) which could be accommodated on newly developed vacant and vacant potential land.
3. Column E *Extra Capacity More Intensive Space Use* shows the estimated additional employment capacity (MECs) from using existing floorspace more intensively;

4. Those two estimates are simply added together for the next column F *Total Extra Capacity Without Redevelt*. This is the estimated additional employment capacity (MECs), from the combined effect of adding more floorspace (D), and using all floorspace more intensively (E).
5. The next estimate compares the additional demand (C) Total Extra Capacity (), to identify how much of the additional employment will need floorspace from re-development. This is shown in column G *MEC Requiring Extra Space*. That is the balance of the estimated employment growth.
6. Finally in the Employment assessment, that additional floorspace required is compared with the amount of remaining additional plan-enabled capacity. This is expressed as the share (%) of total projected employment growth which would require more capacity than what may be realised from bringing in vacant and vacant potential land and using floorspace more intensively. This is shown in Column H *Share % of MEC Requiring Redevelt*.

This (H) is a key measure because it shows how much of the demand growth which is expected to require some re-development of existing built properties (assuming that no further development of still unutilised vacant land occurs instead).

It is expressed as a percentage share in order to highlight its significance. A large percentage figure would indicate there is substantial need for redevelopment. That would indicate some pressure on sufficiency. A small percentage figure would indicate there is plenty of scope or more latitude in terms of sufficiency.

Sufficiency in Floorspace Terms

The right side of the Table examines the floorspace implications of the additional demand from employment growth.

7. Column I *Space 2022* shows the current situation in terms of existing floorspace (m²).
8. Column J *Extra Floorspace* shows the projected increase in floorspace which would arise from additional development on vacant land and land with vacant potential. This is a standard rate assumed for all locations.
9. Together, the existing and projected increase are shown in Column K *Estimated Built Space* (in the projection year). Column K is simply the sum of Column I plus Column J.
10. This projected total is then compared with the estimated total floorspace demand (m²) which would be required to cater for projected total employment. This is shown in Column L *Future Floorspace Demand*.
11. The next column shows the estimated balance, between total demand and estimated supply. This is Column M *Extra Space Needed (gross)*. Note that this is expressed as a gross figure, because it is the sum of all centres and business areas of that type (Zone). It is important to add all locations, and to not assume that a shortfall in one location would be offset by available capacity in another.

Sufficiency

The final 3 columns seek to show the significance of the matters relating to sufficiency.

12. First, there is an estimate of the extra floorspace required to accommodate demand (employment). This is expressed as a % share of the estimated built space at that time. Column N *Extra as % (year) Built Space*. It is to show how much of a change there would need to be to accommodate demand. It is expressed as a percentage to put it in context. A small percentage indicates not much change

would be required. It is important to recognise that in a growing urban economy, business floorspace is regularly being added, so the starting base is not 0%.

13. The next indicator (O) provides further context. It expresses (Column O) the additional floorspace required in relation to the total which is potentially available – the plan-enabled capacity. That is the % requirement in total over the planning horizon. It shows what share of the total potential capacity would need to be developed to meet demand.

14. The final indicator P then brings in the time element. Column P takes that additional floorspace required (O) and expresses it as an annualised percentage.

This is a key measure because it brings in the time element. It recognises specifically that a shortfall in sufficiency does not necessarily need to be solved immediately. Instead, it places any potential shortfall into its context, to show the mean annual change or rate of re-development which would be required each year, or over any selected time period.

That is very important. In the urban environment things are not static. The basic economic processes proceed as economies develop and grow, including commercial development and investment in built floorspace capacity, and public sector investment in infrastructure. Simply, it indicates how much change would need to be taking place each year in order to accommodate projected demand.

The assessment is undertaken for every centre and business area individually. The Framework table shows the summary statistics in aggregate for each type of centre and business area. That presents the total outcome for that centre type.

It is important to note that the totals for each type of centre show the gross figures, especially for the estimates of employment requiring more space, and the extra space needed. This means that the totals for each centre type do not simply net out the totals, since it is not realistic to assume that centres with plenty of capacity would be able offset shortfalls or tight supply circumstances in other locations.

Overall, this Framework provides a mechanism for both high level and detailed assessment of the sufficiency of capacity, as required by the NPSUD. It covers demand for capacity, and each component of potential additional capacity, from more intensive use of existing space through to re-development of properties.

5.10.4 Location-specific Assessment of Sufficiency

This Framework can be applied to provide overall high-level assessment of sufficiency. As noted, one of the Model outputs is identification of centres and business areas which are expected to face the most pressure on their sufficiency. That is because sufficiency of capacity needs to be assessed on a location-specific basis. A shortfall in capacity in one location would not be offset by a surplus of capacity in another location.

This means that assessment of sufficiency needs to be carried out at a location-specific level, and the results aggregated, in order to provide an accurate assessment. The Model estimates sufficiency at the location-specific level. The results presented in the following tables are the high-level results aggregated from the location-specific assessment.

5.11 Centres and Business Areas' Sufficiency - Medium Future

5.11.1 Short Term 2025

This short term assessment of sufficiency in the medium growth future is set out in Table 5-25. This applies the Framework described above (Section 5.10.3). Key results are:

- a. Over the 2022 to 2025 period, total employment in the centres and business areas is projected to increase by 31,000 MECs (Column C). This represents 76% of the region's total projected growth.
- b. Over that period, the major share of growth would be able to be accommodated by development of floorspace on vacant or vacant potential land, and through more intensive use of existing floorspace. At the region-wide level, these two sources of additional capacity could more than cater for projected growth.
- c. However, sufficiency of capacity needs to be assessed on a location-specific basis (Section 5.10.4), because a shortfall in one location would not necessarily be offset by a surplus of capacity in another location.
- d. In a number of locations, the vacant land and increase in intensity of usage would not be sufficient to accommodate growth. Across multiple centres including some with and others without sufficient capacity, in net terms approximately 18,000 MECs would require more space than is likely to become available from take-up of vacant land, and more intensive use of space (Table 5-25 Column G).
- e. Overall, for 2025 the estimates suggest those requiring additional space represent around 3% of total regional employment (Column H).

That said, there is significant potential for variation – for example, more floorspace development than estimated on vacant and vacant potential land would reduce the requirement for more floorspace through re-development – and vice versa.

The right side of the table puts the focus on Floorspace. It indicates a projected increase in floorspace as vacant and vacant potential land is taken up could add in the order of 0.78 million m² over the three years, or around 260,000 m² annually. At the high level, this rate is somewhat lower than that observed in Auckland over the last decade, where the mean amount of floorspace consented through non-dwelling consents has been in the order of 470,000m² annually, across all centres and business areas.

However, as noted the assessment needs to be location-specific. Across all centres and business areas, the gross estimate of required floorspace would be in the order of 600,000m² (Column M). That would be around 2% of the estimated 2025 built space. That matches broadly with the employment shortfall estimates (column H).

The key point is that under the assumptions and modelling estimates, the potential floorspace requirement is in the order of 2% of the projected demand over the three year period. That indicates relatively low pressure in terms of sufficiency at the high level, though not for every location.

This is consistent with the estimate in Column O which expresses the extra floorspace required as a percent share of unutilised plan-enabled capacity. This figure of 0.4% indicates that only a small share of enabled capacity would need to be taken up to accommodate projected growth in employment.

It is important to recognise that the plan-enabled capacity in Auckland is very large, so that it is not surprising that the requirement is small in percentage terms. That indicator is one part of any overall assessment, albeit an important one in relation to sufficiency.

The final indicator (Column P) expresses the estimated shortfall in terms of the annual uptake of plan-enabled capacity which would be needed to accommodate projected growth. Overall, this is low at around 0.1% pa for centres and overall, and 0.2% pa for business areas. One key point is that the analysis shows a low rate of required re-development, and also at a scale below current floorspace consenting levels. These indicators suggest there is good sufficiency and flexibility to meet demand, while utilising a small share of the potential capacity.

It is very important to recognise that the required uptake rates shown in Column P are very low because they take into account the effect of time and timing. The amount of plan-enabled capacity is very large, and in terms of immediacy or urgency, Column N is an important indicator. That is because it expresses the additional floorspace required in relation to the projected future level of floorspace on the ground. That is in line with the 2% additional capacity indicated for Centres in Column N would equate to around 0.2%pa.

Expressing sufficiency in relation to time does not change the overall quantum of additional capacity likely to be required, but it is important to show how the time frames over which that would need to occur.

An important **caveat** is that this assessment is to show what could happen in the future, taking account of knowledge of established trends and known information on capacity across all locations. There is no guarantee that the modelled growth and development would happen. Private landowners of vacant land could opt to not develop their land further, just as owners of already developed land could opt to develop further in the short term.

This issue is whether the available information and understanding of the market suggests that Auckland does have sufficient zoned capacity and development potential so as to not constrain business growth.

The assessment for the short term, medium growth future suggests there is sufficient capacity for growth at the aggregate level across all types of centres and business areas.

Table 5-25: Sufficiency Assessment 2022-2025 – Medium Future

Medium Future 2025	EMPLOYMENT ANALYSIS (MEC)										FLOORSPACE ANALYSIS (000M ²)									
	Employment Intensity Shift:					1.0% Medium					Vacant Take up:					4% ha of				
	2022	2025	Change 2022-25	Extra Capacity Vacant Land Uptake	Extra Capacity - More Intensive Space Use	Total Extra Capacity without Redevelt	MEC Requiring Extra Space	Share % of MEC Demand Req Redevelt	Space 2022	Extra Floor Space	Estimated Built Space 2025	Future Floorspace Demand 2025	Extra Space Needed (gross)	Extra Space as % 2025 Built Space	Extra Space as % Unused Enabled Capacity	Annual % Uptake Reqd 2022-25				
Column Reference	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
City Centre	127,020	134,580	7,560	820	1,160	1,980	5,580	4%	3,075	20	3,094	3,265	134	4%	1.0%	0.3%				
Metropolitan Centres	84,070	89,700	5,630	2,170	770	2,940	2,830	3%	3,516	97	3,614	3,789	129	4%	0.3%	0.1%				
Town Centres	79,400	82,540	3,140	3,060	570	3,630	2,100	3%	3,903	161	4,064	3,955	19	0%	0.1%	0.0%				
Local Centres	33,500	34,160	660	860	210	1,070	310	1%	794	16	810	806	8	1%	0.1%	0.0%				
Neighbourhood Centres	28,600	29,090	490	570	170	740	380	1%	667	8	674	644	4	1%	0.1%	0.0%				
Total Centres	352,590	370,060	17,470	7,500	2,900	10,400	11,200	3%	11,954	302	12,256	12,459	293	2%	0.3%	0.1%				
Mixed Use	73,990	78,780	4,790	850	480	1,330	3,710	5%	1,630	18	1,647	1,751	88	5%	2.2%	0.7%				
Business Parks	11,460	12,040	580	740	10	730	210	2%	199	12	211	209	4	2%	0.2%	0.1%				
General Business	11,580	12,320	740	400	100	500	560	5%	613	22	635	651	27	4%	0.9%	0.3%				
Light Industry	147,440	152,860	5,420	4,530	2,850	7,380	1,810	1%	9,094	304	9,399	9,353	111	1%	0.5%	0.2%				
Heavy Industry	73,510	76,420	2,910	2,210	600	2,810	970	1%	5,434	116	5,550	5,650	76	1%	0.6%	0.2%				
Total Business Areas	317,980	332,420	14,440	8,700	4,100	12,800	7,300	2%	16,969	472	17,442	17,614	306	2%	0.7%	0.2%				
Centres & Business Areas	671,000	702,000	31,000	16,000	7,000	23,000	18,000	3%	29,000	775	30,000	30,000	599	2%	0.4%	0.1%				

Source: Auckland Economy Growth Model 2023

5.11.2 Medium Term 2032

This medium term assessment in the medium growth future is set out in Table 5-26. Key results are:

- Over the 2022 to 2032 period, total employment in the centres and business areas is projected to increase by 73,000 MECs, again in the order of 76% of the regional total.
- In similar vein to the short term estimate, a substantial share of growth would be able to be accommodated by development of floorspace on vacant or vacant potential land, and through more intensive use of existing floorspace. This is not surprising, given the substantial areas of vacant and vacant potential land identified.

Table 5-26: Sufficiency Assessment 2022-2032 – Medium Future

Medium Future 2032	EMPLOYMENT ANALYSIS (MEC)										FLOORSPACE ANALYSIS (000M ²)									
	Employment Intensity Shift:					3.0% Medium					Vacant Take up:					13% ha of 3,668 Medium				
	2022	2032	Change 2022-32	Extra Capacity Vacant Land Uptake	Extra Capacity - More Intensive Space Use	Total Extra Capacity without Redevelt	MEC Requiring Extra Space	Share % of MEC Demand Req Redevelt	Space 2022	Extra Floor Space	Estimated Built Space 2032	Future Floorspace Demand 2032	Extra Space Needed (gross)	Extra Space as % 2032 Built Space	Extra Space as % Unused Enabled Capacity	Annual % Uptake Reqd 2022-32				
Column Reference	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
City Centre	127,020	144,740	17,720	2,790	3,830	6,620	11,100	8%	3,075	66	3,140	3,485	261	8%	1.9%	0.2%				
Metropolitan Centres	84,070	94,950	10,880	7,400	2,510	9,910	2,760	3%	3,516	326	3,842	3,969	97	3%	0.2%	0.0%				
Town Centres	79,400	89,100	9,700	10,450	2,250	12,700	6,550	7%	3,903	540	4,443	3,975	14	0%	0.0%	0.0%				
Local Centres	33,500	34,960	1,460	3,150	640	3,790	450	1%	794	61	855	813	12	1%	0.2%	0.0%				
Neighbourhood Centres	28,600	29,980	1,380	2,050	280	2,330	770	3%	667	27	693	662	10	1%	0.3%	0.0%				
Total Centres	352,590	393,720	41,130	25,800	9,500	35,300	21,600	5%	11,954	1,019	12,973	12,904	394	3%	0.4%	0.0%				
Mixed Use	73,990	85,110	11,120	2,970	1,840	4,810	7,390	9%	1,630	60	1,689	1,888	174	10%	4.3%	0.4%				
Business Parks	11,460	12,830	1,370	2,520	290	2,810	240	2%	199	40	239	224	6	3%	0.4%	0.0%				
General Business	11,580	13,090	1,510	1,360	290	1,650	920	7%	613	74	686	684	43	6%	1.4%	0.1%				
Light Industry	147,440	159,120	11,680	15,670	6,150	21,820	2,580	2%	9,094	1,034	10,128	9,620	153	2%	0.7%	0.1%				
Heavy Industry	73,510	79,740	6,230	7,520	2,140	9,660	730	1%	5,434	389	5,823	5,827	62	1%	0.5%	0.0%				
Total Business Areas	317,980	349,890	31,910	30,000	10,700	40,700	11,900	3%	16,969	1,597	18,566	18,243	437	2%	1.0%	0.1%				
Centres & Business Areas	671,000	744,000	73,000	56,000	20,000	76,000	33,000	4%	29,000	2,616	32,000	31,000	831	3%	0.6%	0.1%				

Source: Auckland Economy Growth Model 2023

- c. However, the analysis shows across multiple centres without and with enough capacity, there is a net of some 33,000 MECs requiring more space (Column G, Table 5-26). Overall, as at 2032, the estimates suggest that those requiring additional space represent around 4% of total employment, with higher demand in the CBD and Mixed Use areas.
- d. Note that the demand estimate for town centres space is high because it includes the allowance for three new town centres. Those centres account for the bulk of the indicated MEC requiring extra space (Column G), as well as the estimated extra space needed (Column J).
- e. The projected potential increase in floorspace possible with 13% of the vacant land taken up could add in the order of 2.6million m² over the decade, noting that this is below the rate observed in Auckland over the last decade. Across all centres and business areas, the gross estimate of

required floorspace would be in the order of 831,000m² (column M). That would be around 3% of the estimated 2032 built space, which matches broadly with the employment shortfall estimates (column H). Under the assumptions and modelling estimates the overall shortfall is within 3% of the projected demand (Column N), indicating relatively low pressure on sufficiency in the medium term.

The estimates of the shortfall as a required % rate of annual uptake of plan-enabled capacity to cater for growth, again show low required rates in the order of 0.1% to 0.2% pa for centres and business areas. This low rate of required development, at a scale below current floorspace consenting levels, indicates Auckland has good sufficiency and flexibility to meet demand, using a small share of the potential plan-enabled capacity.

On this basis, the assessment for the medium term, medium growth future suggests there is sufficient capacity in Auckland for growth at the aggregate level, across all types of centres and business areas.

5.1.1.3 Long Term 2052

This long term assessment in the medium growth future is set out in Table 5-27. Over the 2022 to 2052 period, total employment in the centres and business areas is projected to increase by 190,000 MECs, just over three-quarters of total regional demand. In similar vein to the short and medium term estimates, a substantial share of employment growth would be able to be accommodated by development of floorspace on vacant or vacant potential land, and through more intensive use of existing floorspace. This is again consistent with the amount of vacant and vacant potential land, at least in aggregate. The modelling allows for 40% of the vacant land to be taken up by 2052.

The table shows across multiple centres without and with enough capacity, and others not, there is a net of some 78,000 MECs requiring more space than what the increases in intensity of use and vacant land uptake would provide for. That is around 41% of the projected growth. Overall, as at 2052, the estimates suggest that those requiring additional space represent around 9% of total employment, with higher demand in the CBD, town centres and Mixed Use areas.

The projected potential increase in floorspace possible with 40% of the vacant land taken up could add in the order of 7.8 million m² over the 30 years, again lower than the annual rate observed in Auckland over the last decade. Across all centres and business areas, the gross estimate of required floorspace would be in the order of 1,824,000m² (column M). That would be around 5% of the estimated 2052 built space. Under the assumptions and modelling estimates the overall shortfall is within 5% of the projected demand, suggesting relatively low pressure on sufficiency in the long term.

Under the modelling assumptions, the overall shortfall without re-development of existing developed sites would be within 9% of the projected demand. That is the aggregate over a 30 year period. The potential to redevelop sites, shown by the scale of plan-enabled capacity, would offer considerable opportunity to offset that potential 9% shortfall, over a 30 year period.

That is consistent with the estimates of required annual uptake of plan-enabled capacity (Column P) showing annual rates of uptake in the order of 0.1% to 0.2% pa, reflecting the large amount of plan-enabled capacity, and the relatively long time frame over 30 years.

On this basis, the assessment for the long term, medium growth future suggests there is sufficient capacity for employment growth at the aggregate level, across all types of centres and business areas. As for the short and medium term estimates, this does not mean that each location would meet the sufficiency requirements.

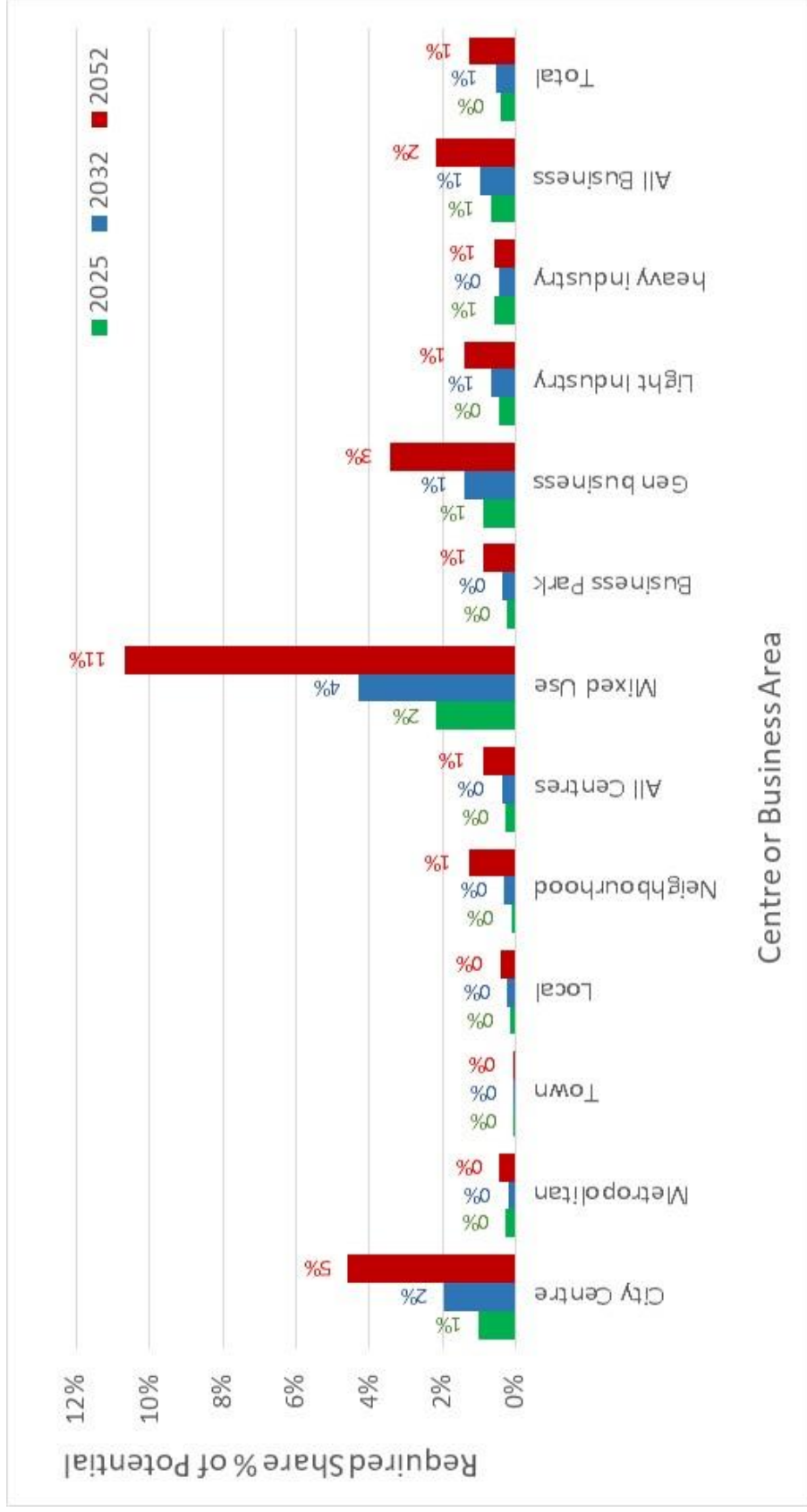
Table 5-27: Sufficiency Assessment 2022-2052 – Medium Future

Medium Future 2052	EMPLOYMENT ANALYSIS (MEC)										FLOORSPACE ANALYSIS (000M ²)						
	Employment Intensity Shift:					9.0% Medium					Vacant Take up: 40%						
	2022	2052	Change 2022-52	Extra Capacity Vacant Land Uptake	Extra Capacity - More Intensive Space Use	Total Extra Capacity without Redevelit	MEC Requiring Extra Space	Share % of MEC Demand Req Redevelit	Space 2022	Extra Floor Space	Estimated Built Space 2052	Future Floorspace Demand 2052	Extra Space Needed (gross)	Extra as % 2052 Built space	Extra Space as % Unused Enabled Capacity	Annual % Uptake Reqd 2022-52	
Column Reference	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
City Centre	127,020	174,780	47,760	8,860	11,450	20,310	27,450	16%	3,075	197	3,271	4,093	610	19%	4.6%	0.2%	
Metropolitan Centres	84,070	111,420	27,350	23,470	7,570	31,040	6,630	6%	3,516	977	4,493	4,516	219	5%	0.4%	0.0%	
Town Centres	79,400	100,950	21,550	33,090	6,990	40,080	12,480	12%	3,903	1,615	5,518	4,066	22	0%	0.1%	0.0%	
Local Centres	33,500	37,610	4,110	9,980	2,150	12,130	930	2%	794	182	976	835	22	2%	0.4%	0.0%	
Neighbourhood Centres	28,600	33,270	4,670	6,760	1,650	8,410	2,430	7%	667	85	752	718	41	5%	1.3%	0.0%	
Total Centres	352,590	458,020	105,430	82,200	29,800	112,000	49,900	11%	11,954	3,056	15,010	14,228	915	6%	0.9%	0.0%	
Mixed Use	73,990	104,660	30,670	9,490	5,860	15,350	18,960	18%	1,630	181	1,810	2,289	420	23%	10.7%	0.4%	
Business Parks	11,460	15,210	3,750	8,020	1,030	9,050	480	3%	199	122	320	262	14	4%	0.9%	0.0%	
General Business	11,580	15,720	4,140	4,320	1,100	5,420	2,310	15%	613	221	833	790	101	12%	3.4%	0.1%	
Light Industry	147,440	177,750	30,310	49,630	16,500	66,130	5,440	3%	9,094	3,093	12,187	10,353	300	2%	1.4%	0.0%	
Heavy Industry	73,510	89,330	15,820	23,850	6,800	30,650	980	1%	5,434	1,167	6,601	6,301	74	1%	0.6%	0.0%	
Total Business Areas	317,980	402,680	84,700	95,300	31,300	126,600	28,200	7%	16,969	4,783	21,752	19,995	909	4%	2.2%	0.1%	
Centres & Business Areas	671,000	861,000	190,000	177,000	62,000	239,000	78,000	9%	29,000	7,838	37,000	34,000	1,824	5%	1.3%	0.0%	

Source: Auckland Economy Growth Model 2023

The required uptake rates overall for short, medium and long term are shown in Figure 5-2. This supports the conclusion of low required uptake rates across most of the spatial economy.

Figure 5-2 : Indicated Redevelopment % required for sufficiency – Medium Future



5.12 Centres and Business Areas Sufficiency – High Future

If the Auckland economy grows at a faster rate, there would be stronger employment growth, and correspondingly greater demand for land and floorspace for business activity. The assessment also considers the likely outcomes in the high growth future.

5.12.1 Short Term 2025

The short term assessment in the high growth future is set out in Table 5-28. Over the 2022 to 2025 period, total employment in the centres and business areas is projected to increase by 40,000 MECs. As with the medium future, this is around 75% of the regional total. A substantial share of that employment would be able to be accommodated by development on vacant or vacant potential land, and by more intensive use of existing floorspace.

The table shows across multiple centres and business areas, including those without and with enough capacity, there is a net of some 23,000 MECs requiring more space than would be likely provided from more intensive use and take up of vacant land. That is around 58% of the total growth. Overall, as at 2025, the estimates suggest that those requiring additional space represent around 3% of total employment, reflecting the higher demand in the CBD, Metro centres and Mixed Use areas.

The projected potential increase in floorspace possible with 5% of the vacant land taken up could add in the order of 0.9million m² over the short term (Column J). As with the medium future, that is less than though close to the rate observed in Auckland since 2017. Across all centres and business areas, the gross estimate of required floorspace would be in the order of 762,000m² (column M). That would be some 3% of the estimated 2025 built space. As previously, this matches broadly with the employment shortfall estimates (column H). Under the assumptions and modelling estimates the overall shortfall is within 2% of the projected demand, indicating relatively low pressure on sufficiency in the short term.

The estimates of required annual uptake of plan-enabled capacity (Column P) similarly show rates in the order of just 0.1% to 0.2% pa for centres and business areas. This low rate of required development indicates generally good short term sufficiency and flexibility to meet demand, by taking up a small share of the potential capacity.

On this basis, the assessment for the short term, high growth future suggests there is sufficient capacity for growth at the aggregate level, across all types of centres and business areas.

Table 5-28: Sufficiency Assessment 2022-2025 – High Future

High Future 2025	EMPLOYMENT ANALYSIS (MEC)										FLOORSPACE ANALYSIS (000M ²)						
	Employment Intensity Shift:					1.3% High					Vacant Take up:			5% 171 ha of 3,668 High			
	2022	2025	Change 2022-25	Extra Capacity Vacant Land Uptake	Extra Capacity - More Intensive Space Use	Total Extra Capacity without Redevelt	MEC Requiring Extra Space	Share % of MEC Demand Req Redevelt	Space 2022	Extra Floor Space	Estimated Built Space 2025	Future Floorspace Demand 2025	Extra Space Needed (gross)	Extra Space as % 2025 Built Space	Extra Space as % Unused Enabled Capacity	Annual % Uptake Req 2022-25	
Column Reference	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
City Centre	127,020	136,960	9,940	960	1,530	2,490	7,450	5%	3,075	23	3,098	3,323	178	6%	1.3%	0.4%	
Metropolitan Centres	84,070	91,010	6,940	2,550	940	3,490	3,520	4%	3,516	114	3,631	3,843	154	4%	0.3%	0.1%	
Town Centres	79,400	83,080	3,680	3,590	830	4,420	2,230	3%	3,903	190	4,092	3,970	23	1%	0.1%	0.0%	
Local Centres	33,500	34,390	890	1,030	240	1,270	420	1%	794	20	813	809	10	1%	0.2%	0.1%	
Neighbourhood Centres	28,600	29,380	780	690	330	1,020	540	2%	667	10	677	660	7	1%	0.2%	0.1%	
Total Centres	352,590	374,810	22,220	8,800	3,900	12,700	14,200	4%	11,954	356	12,311	12,605	373	3%	0.4%	0.1%	
Mixed Use	73,990	80,240	6,250	980	690	1,670	4,790	6%	1,630	20	1,649	1,789	113	7%	2.8%	0.9%	
Business Parks	11,460	12,220	760	870	80	950	290	2%	199	14	213	214	5	2%	0.3%	0.1%	
General Business	11,580	12,540	960	460	140	600	720	6%	613	25	638	664	35	5%	1.1%	0.4%	
Light Industry	147,440	154,300	6,860	5,330	3,290	8,620	2,330	2%	9,094	356	9,451	9,432	142	2%	0.6%	0.2%	
Heavy Industry	73,510	77,130	3,620	2,580	1,060	3,640	1,200	2%	5,434	136	5,570	5,695	93	2%	0.7%	0.2%	
Total Business Areas	317,980	336,450	18,470	10,200	5,300	15,500	9,300	3%	16,969	551	17,520	17,794	389	2%	0.8%	0.3%	
Centres & Business Areas	671,000	711,000	40,000	19,000	9,000	28,000	23,000	3%	29,000	908	30,000	30,000	762	3%	0.5%	0.2%	

Source: Auckland Economy Growth Model 2023

5.12.2 Medium Term 2032

This medium term assessment in the high growth future is set out in Table 5-29. Over the 2022 to 2032 period, total employment in the centres and business areas is projected to increase by 103,000 MECs, three quarters of the regional total. Similar to the short term estimate, a significant share of employment growth would be able to be accommodated by development of floorspace on vacant or vacant potential land, and through more intensive use of existing floorspace. This allows for the substantial areas of vacant and vacant potential land in some locations.

Table 5-29: Sufficiency Assessment 2022-2032 – High Future

High Future 2032	EMPLOYMENT ANALYSIS (MEC)										FLOORSPACE ANALYSIS (000M ²)						
	Employment Intensity Shift:					High					Vacant Take up:						
	2022	2032	Change 2022-32	Extra Capacity Vacant Land Uptake	Extra Capacity - More Intensive Space Use	Total Extra Capacity without Redevel	MEC Requiring Extra Space	Share % of MEC Demand Req Redevel	Space 2022	Extra Floor Space	Estimated Built Space 2032	Future Floorspace Demand 2032	Extra Space Needed (gross)	Extra Space as % 2032 Built Space	Extra Space as % Unused Enabled Capacity	Annual % Uptake Req 2022-32	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		
City Centre	127,020	152,880	25,860	3,290	5,060	8,350	17,510	11%	3,075	77	3,151	3,679	408	13%	3.0%	0.3%	
Metropolitan Centres	84,070	99,440	15,370	8,690	3,340	12,030	4,890	5%	3,516	379	3,895	4,146	180	5%	0.4%	0.0%	
Town Centres	79,400	90,830	11,430	12,290	3,200	15,490	6,930	8%	3,903	629	4,531	4,029	25	1%	0.1%	0.0%	
Local Centres	33,500	35,640	2,140	3,720	770	4,490	690	2%	794	71	865	825	17	2%	0.3%	0.0%	
Neighbourhood Centres	28,600	30,910	2,310	2,430	350	2,780	1,310	4%	667	32	699	686	21	3%	0.6%	0.1%	
Total Centres	352,590	409,700	57,110	30,400	12,700	43,100	31,300	8%	11,954	1,187	13,141	13,365	651	5%	0.6%	0.1%	
Mixed Use	73,990	89,860	15,870	3,510	2,550	6,060	11,020	12%	1,630	70	1,699	2,001	259	15%	6.4%	0.6%	
Business Parks	11,460	13,440	1,980	2,980	510	3,490	320	2%	199	47	246	235	10	4%	0.6%	0.1%	
General Business	11,580	13,860	2,280	1,610	400	2,010	1,520	11%	613	86	699	721	71	10%	2.3%	0.2%	
Light Industry	147,440	164,820	17,380	18,400	7,770	26,170	4,400	3%	9,094	1,202	10,296	9,928	263	3%	1.1%	0.1%	
Heavy Industry	73,510	82,660	9,150	8,850	2,810	11,660	1,750	2%	5,434	454	5,888	6,023	140	2%	1.1%	0.1%	
Total Business Areas	317,980	364,640	46,660	35,400	14,000	49,400	19,000	5%	16,969	1,859	18,829	18,908	742	4%	1.6%	0.2%	
Centres & Business Areas	671,000	774,000	103,000	66,000	27,000	93,000	50,000	6%	29,000	3,047	32,000	32,000	1,393	4%	0.9%	0.1%	

Source: Auckland Economy Growth Model 2023

The table shows across multiple centres without and with enough capacity, there is a net of some 50,000 MECs requiring more space. That corresponds with 49% of the projected growth in centres and business areas. Overall, as at 2032, the estimates suggest that the workforce requiring additional space would represent around 6% of total employment, again with significantly higher demand levels in the CBD and Mixed Use areas.

The projected potential increase in floorspace possible with 16% of the vacant land taken up could add in the order of 3.0 million m² over the decade. This is still consistent with, though lower than, the Auckland rate over the last decade. Across all centres and business areas, the gross estimate of required floorspace would be in the order of 1,393,000m² (column M), equating with 4% of the estimated 2032 built space. That is less than the employment shortfall

estimates (column H). Under the assumptions and modelling estimates the overall shortfall is within 6% of the projected demand, indicating relatively low pressure on sufficiency in the medium term.

The estimates of required annual uptake of plan-enabled capacity (Column P) similarly show rates in the order of just 0.1% to 0.2% pa for centres and business areas, again suggesting generally good medium term sufficiency and flexibility to meet demand, through take-up of a relatively small share of the potential capacity.

On this basis, the assessment for the medium term, high growth future suggests there is sufficient capacity for growth at the aggregate level, across all types of centres and business areas.

5.12.3 Long Term 2052

This long term assessment in the high growth future is set out in Table 5-30. Over the 2022 to 2052 period, total employment in the centres and business areas is projected to increase by 321,000 MECs, Again on the basis that three-quarters of employment locates in business areas and centres., a significant share of growth would be able to be accommodated by developing vacant or vacant potential land, and using existing floorspace more intensively.

The table shows that in aggregate some 156,000 MECs would require more space than that generated from vacant development and more intensive use. That corresponds with 49% of the projected growth in centres and business areas Overall, as at 2052, the estimates suggest that those requiring additional space represent around 16% of total employment, with higher demand in the CBD, town centres, General Business and Mixed Use areas.

The projected potential increase in floorspace possible with 47% of the vacant land taken up could add in the order of 9.1million m² over the 30 years, around 0,3 million per year. Across all centres and business areas, the gross estimate of required floorspace would be in the order of 4,140,000m² (column M). That would equate with around 11% of the estimated 2052 built space, less than the employment shortfall estimates (column H).

Under the modelling assumptions, the overall shortfall without re-development of existing developed sites would be within 16% of the projected demand. This is the aggregate over a 30 year period. The potential to redevelop sites, as indicated by the scale of plan-enabled capacity, would offer considerable opportunity to offset the potential 16% shortfall, over a 30 year period.

That is consistent with the estimates of required annual uptake of plan-enabled capacity (Column P) showing annual rates of uptake in the order of 0.1% to 0.2% pa of the capacity for centres and business areas. At the high level, this indicates generally good long term sufficiency and flexibility to meet demand, through take-up of a relatively small share of the potential capacity.

On this basis, the assessment for the long term, high growth future suggests there is sufficient capacity for growth at the aggregate level, across all types of centres and business areas.

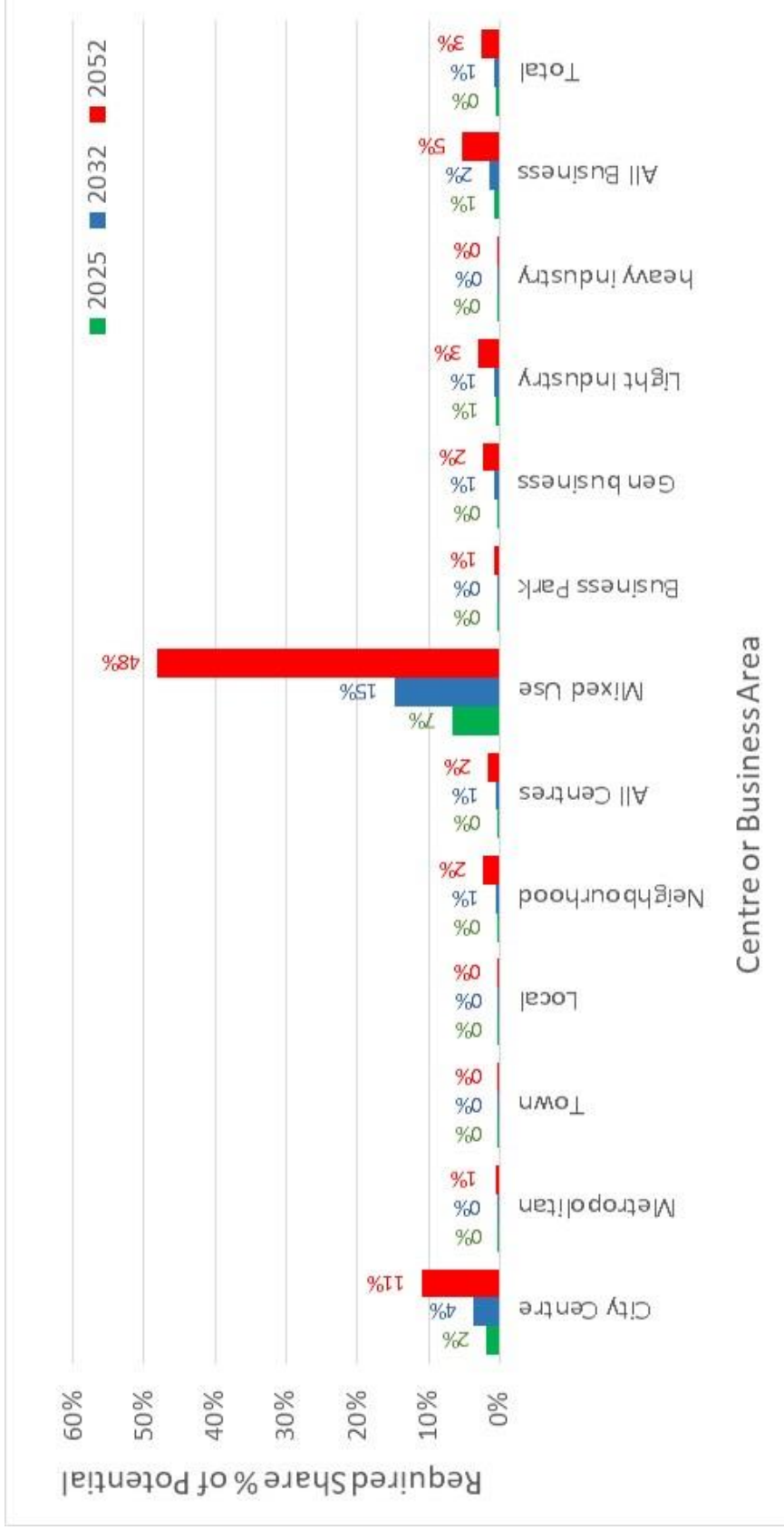
Table 5-30: Sufficiency Assessment 2022-2052 – High Future

High Future 2052	EMPLOYMENT ANALYSIS (MEC)										FLOORSPACE ANALYSIS (000M ²)						
	Employment Intensity Shift:					12.0% High					Vacant Take up:						
	2022	2052	Change 2022-52	Extra Capacity Vacant Land Uptake	Extra Capacity - More Intensive Space Use	Total Extra Capacity without Redevel	MEC Requiring Extra Space	Share % of MEC Demand Req Redevel	Space 2022	Extra Floor Space	Estimated Built Space 2052	Future Floorspace Demand 2052	Extra Space Needed (gross)	Extra % 2052 Built space	Extra Space as % Unused Enabled Capacity	Annual % Uptake Req 2022-52	
Column Reference	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
City Centre	127,020	209,230	82,210	10,620	15,220	25,840	56,370	27%	3,075	230	3,304	4,877	1,218	37%	9.2%	0.3%	
Metropolitan Centres	84,070	130,810	46,740	28,140	10,050	38,190	16,300	12%	3,516	1,139	4,656	5,267	570	12%	1.2%	0.0%	
Town Centres	79,400	108,320	28,920	39,710	9,430	49,140	14,760	14%	3,903	1,886	5,789	4,325	83	1%	0.3%	0.0%	
Local Centres	33,500	40,720	7,220	11,900	3,070	14,970	2,120	5%	794	211	1,004	893	50	5%	0.9%	0.0%	
Neighbourhood Centres	28,600	37,240	8,640	8,170	1,730	9,900	5,170	14%	667	102	769	808	92	12%	2.9%	0.1%	
Total Centres	352,590	526,320	173,730	98,500	39,500	138,000	94,700	18%	11,954	3,568	15,522	16,170	2,014	13%	2.0%	0.1%	
Mixed Use	73,990	126,660	52,670	11,350	7,910	19,260	36,850	29%	1,630	211	1,840	2,792	793	43%	20.3%	0.7%	
Business Parks	11,460	17,870	6,410	9,600	1,440	11,040	1,290	7%	199	142	340	311	31	9%	2.0%	0.1%	
General Business	11,580	19,070	7,490	5,160	1,430	6,590	5,060	27%	613	257	870	951	222	26%	7.6%	0.3%	
Light Industry	147,440	200,840	53,400	59,490	21,140	80,630	13,550	7%	9,094	3,610	12,704	11,596	747	6%	3.6%	0.1%	
Heavy Industry	73,510	100,940	27,430	28,590	8,780	37,370	4,460	4%	5,434	1,362	6,796	7,069	333	5%	2.7%	0.1%	
Total Business Areas	317,980	465,380	147,400	114,200	40,700	154,900	61,200	13%	16,969	5,580	22,549	22,719	2,126	9%	5.1%	0.2%	
Centres & Business Areas	671,000	992,000	321,000	213,000	80,000	293,000	156,000	16%	29,000	9,149	38,000	39,000	4,140	11%	2.9%	0.1%	

Source: Auckland Economy Growth Model 2023

The required uptake rates overall for short, medium and long term in the high growth future are shown in Figure 5-3. This supports the conclusion of that the required uptake rates of plan-enabled capacity are low across most of the spatial economy.

Figure 5-3 : Indicated Redevelopment required for Sufficiency – High Future



5.13 Sufficiency for Individual Centres and Business Areas

The final part of the sufficiency assessment is to consider specific centres and business areas. This is because neither demand nor capacity is distributed evenly or *pro rata* across the Auckland economy. Some locations have abundant capacity to accommodate growth, including vacant land, while others have limited capacity.

It is not practicable to provide commentary on every centre and business area. It is appropriate to focus in on locations where the scale of demand for capacity is expected to be greatest, reflecting their importance within the wider picture for Auckland. To address this, the Model provides focus on the key locations by rank ordering, according to the most relevant indicators.

For this assessment, the focus is on the areas which have the greatest demand for floorspace. The 40 locations with greatest demand are shown in in Table 5-31. That criterion is taken as indicating locations where sufficiency is likely to be under most pressure.

The table contains both core parameters of demand and capacity for each centre, and a simple prioritisation indication to show which locations may be under greatest capacity pressure. One is the '*Extra Space as Required Relative to Unused Enabled Capacity*'. This is to indicate locations with high floorspace demand in relation to growth potential. The second is '*Annual % Uptake Required 2022-52*', to show locations where demand would require a significant amount of additional floorspace.

The table is colour coded to highlight locations (in red) where the potential sufficiency issues would be greatest (more than 50% of capacity would be needed, or a development rate in excess of 5%pa would be required). Equally, locations which are not highlighted indicate places where demand would be readily accommodated.

Key points from the table are:

- a. The central city shows out as the location with highest demand for additional floorspace. This is expected as it is a main focus of regional and national business activity, attracting a substantial share of new activity and employment. Although the required floorspace is substantial (around 610,000m²) this is the net estimate over the three decades to 2052. That projected annual requirement would be substantially less than the trends in non-dwelling floorspace consented over the last decade (and more). The annual uptake of presently unutilised plan-enabled capacity would be low (in aggregate), at just 0.2% annually. However, the actual development take up would be through a relatively small number of individual sites being developed. This indicates considerable potential (or at least limited evidence of a planning constraint, in aggregate) to accommodate business growth through the standard and established process seen in almost all economies, where there is progressive re-development of existing sites to provide more capacity in response to expected demand.
- b. Similar conclusions may be drawn for other large centres, notably Newmarket, New Lynn, Takapuna and Papakura Metropolitan centres, and Wairau Valley as a large area of Light Industry. In each case, the required annual uptake of plan-enabled capacity to accommodate projected employment growth demand is low. This indicates considerable plan-enabled scope for further intensification and increased take-up.

- c. The other locations showing specific pressure on sufficiency are generally smaller scale, with a number of Mixed Use areas on the Auckland isthmus indicating likely growth pressure associated with a relatively modest zoned capacity. This is consistent with the general intensification of housing and business land, and competition for land and built space within the business sector.

Similar results are shown in the High growth future (Table 5-32). While the larger centres and business areas can be expected to attract the major shares of business growth, these generally have plan-enabled capacity with substantial scope to accommodate future growth in business activity.

The pressures on sufficiency are more focused on smaller locations, for which the requirements may be significant, but which represent minor shares of the total economy.

That is not to diminish the importance of provision there to accommodate more business activity. However, the challenge is location-specific, within a wider picture of general sufficiency for business growth into the long term.

Table 5-31 : Sufficiency Assessment – Key Centres and Business Areas 2022-2052 – Medium Future

Centre Name	MECs 2022	MECs 2052	MECs Change 2022-52	FLOORSPACE (000M2)						
				FloorSpace 2022	Estimated Built Space 2052	Extra Floor space Needed (gross)	Plan-enabled less utilised Capacity	Extra Space as Required Relative to Unused Enabled Capacity	Annual % Uptake Reqd 2022-52	Mean New Floorspace pa last 10yrs
City Centre	127,020	174,780	47,760	3,075	3,271	610	13,324	0.0	0.2%	57
New Lynn	5,990	8,020	2,030	494	528	79	5,245	0.0	0.1%	5
Newmarket	19,570	25,790	6,220	460	480	76	1,901	0.0	0.1%	14
Wairau Valley	11,570	13,870	2,300	776	789	65	729	0.1	0.3%	2
Highbrook	21,080	25,260	4,180	1,713	1,822	60	1,969	0.0	0.1%	17
Three Kings Hunters Park Dr	150	510	360	19	19	39	13	3.1	10.4%	-
Takapuna	8,220	10,880	2,660	220	232	35	1,428	0.0	0.1%	1
Mairangi Bay Constellation Dr	7,470	9,180	1,710	412	430	35	1,335	0.0	0.1%	5
Glendene	10	110	100	4	15	25	17	1.5	4.9%	-
Parnell	8,410	10,970	2,560	151	156	25	45	0.5	1.8%	3
Papakura	3,150	4,170	1,020	155	164	24	1,333	0.0	0.1%	1
Manurewa	20	100	80	4	4	21	18	1.2	4.0%	-
Newmarket George St	130	360	230	12	12	19	1	20.9	69.6%	-
Newton - Upper Symonds St	2,310	3,160	850	84	87	18	72	0.3	0.8%	-
Mt Eden Normanby Rd	5,330	7,150	1,820	88	90	18	146	0.1	0.4%	0
Favona Mahunga Dr	1,060	1,290	230	144	147	15	146	0.1	0.4%	0
Favona	2,270	2,850	580	118	120	15	140	0.1	0.4%	-
Howick Wellington St	10	80	70	2	2	15	1	18.8	62.8%	-
Mt Eden New North Rd	1,670	2,300	630	58	59	14	52	0.3	0.9%	-
Three Kings Carr Rd	1,160	1,470	310	100	102	14	60	0.2	0.8%	1
Central Park	2,680	3,680	1,000	85	94	14	283	0.0	0.2%	2
Glendene Bancroft Cres	1,030	1,440	410	93	107	14	177	0.1	0.3%	0
Epsom Manukau Rd	2,300	3,170	870	56	57	14	81	0.2	0.6%	0
Manukau Centre	2,550	3,190	640	117	121	13	152	0.1	0.3%	0
Ellerslie Lunn Ave	2,820	3,640	820	139	152	13	490	0.0	0.1%	2
Grafton Upper Symonds St	160	400	240	9	9	12	33	0.4	1.3%	0
New Lynn Wolverton St	710	920	210	66	66	12	65	0.2	0.6%	-
Arch Hill	2,620	3,500	880	81	87	12	73	0.2	0.6%	1
Mt Eden Dominion Rd North	960	1,470	510	30	31	12	29	0.4	1.4%	-
Takapuna Barrys Point Rd	1,450	1,930	480	59	59	12	71	0.2	0.5%	0
Kingsland	750	1,160	410	26	27	11	30	0.4	1.3%	-
Morningside	600	930	330	26	26	11	30	0.4	1.3%	-
St Lukes Road	220	430	210	15	15	11	20	0.5	1.8%	-
Kelston Centre	20	110	90	3	3	11	11	1.0	3.2%	-
Pakuranga Ben Lomond Cres	1,330	1,620	290	101	103	10	78	0.1	0.4%	0
Ellerslie Marua Rd	710	940	230	49	49	10	54	0.2	0.6%	1
Otahuhu	2,600	3,130	530	239	255	10	240	0.0	0.1%	0
Grey Lynn Richmond Rd	970	1,410	440	30	30	10	37	0.3	0.9%	-
Newmarket Remuera Rd	2,410	3,240	830	46	47	10	104	0.1	0.3%	0
Greenlane	1,540	2,120	580	42	44	9	35	0.3	0.8%	0

uckland Economy Growth Model 2023

Table 5-32 : Sufficiency Assessment – Key Centres & Business Areas 2022-52 – High Growth Future

Centre Name	MECs 2022	MECs 2052	MECs Change 2022-52	FLOORSPACE (000M2)						
				FloorSpace 2022	Estimated Built Space 2052	Extra Floor space Needed (gross)	Plan-enabled less utilised Capacity	Extra Space as Required Relative to Unused Enabled Capacity	Annual % Uptake Req'd 2022-52	Mean New Floorspace pa last 10yrs
City Centre	127,020	209,230	82,210	3,075	3,304	1,218	13,292	0.1	0.3%	57
Highbrook	21,080	28,330	7,250	1,713	1,840	215	1,951	0.1	0.4%	17
New Lynn	5,990	9,510	3,520	494	534	168	5,240	0.0	0.1%	5
Newmarket	19,570	30,340	10,770	460	483	153	1,897	0.1	0.3%	14
Wairau Valley	11,570	15,540	3,970	776	790	140	727	0.2	0.6%	2
Mairangi Bay Constellation Dr	7,470	10,710	3,240	412	433	95	1,332	0.1	0.2%	5
Mt Wellington	17,960	24,280	6,320	1,026	1,148	91	1,081	0.1	0.3%	5
Takapuna	8,220	12,800	4,580	220	234	73	1,427	0.1	0.2%	1
Three Kings Hunters Park Dr	150	780	630	19	19	68	13	5.4	17.9%	-
Henderson	5,560	8,280	2,720	344	406	53	4,856	0.0	0.0%	1
Papakura	3,150	4,920	1,770	155	165	51	1,332	0.0	0.1%	1
Glendene	10	180	170	4	18	50	15	3.3	10.8%	-
Parnell	8,410	12,820	4,410	151	157	49	44	1.1	3.7%	3
Botany	9,090	13,620	4,530	552	694	45	7,446	0.0	0.0%	5
Otahuhu	2,650	4,000	1,350	402	498	43	632	0.1	0.2%	12
Penrose	30,340	42,120	11,780	1,844	2,244	42	2,311	0.0	0.1%	12
Manurewa	20	170	150	4	4	36	18	2.0	6.7%	-
Newton - Upper Symonds St	2,310	3,790	1,480	84	87	35	71	0.5	1.6%	-
Mt Eden Normanby Rd	5,330	8,450	3,120	88	90	35	146	0.2	0.8%	0
Ellerslie Lunn Ave	2,820	4,260	1,440	139	155	33	488	0.1	0.2%	2
Glendene Bancroft Cres	1,030	1,740	710	93	109	33	175	0.2	0.6%	0
Newmarket George St	130	530	400	12	12	32	1	35.7	118.9%	-
Favona Mahunga Dr	1,060	1,470	410	144	147	31	145	0.2	0.7%	0
Otahuhu	2,600	3,510	910	239	257	31	237	0.1	0.4%	0
Central Park	2,680	4,410	1,730	85	95	30	281	0.1	0.4%	2
Favona	2,270	3,260	990	118	121	30	139	0.2	0.7%	-
Sylvia Park	4,940	8,030	3,090	204	268	28	2,992	0.0	0.0%	6
Three Kings Carr Rd	1,160	1,700	540	100	103	28	59	0.5	1.6%	1
Mt Eden New North Rd	1,670	2,770	1,100	58	59	27	52	0.5	1.7%	-
Arch Hill	2,620	4,140	1,520	81	88	26	72	0.4	1.2%	1
Manukau Centre	2,550	3,600	1,050	117	121	26	151	0.2	0.6%	0
Epsom Manukau Rd	2,300	3,770	1,470	56	57	25	81	0.3	1.0%	0
Howick Wellington St	10	140	130	2	2	25	1	32.1	106.9%	-
Takapuna Barrys Point Rd	1,450	2,290	840	59	60	23	71	0.3	1.1%	0
New Lynn Wolverson St	710	1,070	360	66	66	23	65	0.3	1.2%	-
Central Park	8,040	12,180	4,140	95	106	22	120	0.2	0.6%	-
Pakuranga Ben Lomond Cres	1,330	1,840	510	101	103	21	78	0.3	0.9%	0
Mt Eden Dominion Rd North	960	1,840	880	30	31	21	29	0.7	2.5%	-
Grafton Upper Symonds St	160	580	420	9	9	21	33	0.7	2.2%	0
Freemans Bay College Hill	5,970	9,090	3,120	100	115	21	75	0.3	0.9%	0

Auckland Economy Growth Model 2023

Further analysis was undertaken for each centre and business area, to compare plan-enabled employment capacity with the projected increases from the modelling analysis. In all instances, the plan-enabled capacity exceeded the projected growth by some margin.

5.14 Overall Assessment

The assessment shows that the Auckland economy has substantial plan-enabled capacity to accommodate future employment growth. That conclusion may also be drawn from the centre- and business area-based assessment.

The assessment indicates that the Auckland economy in general, and the large majority of centres and business areas will be well able to accommodate future business growth.

This meets a key requirement of the HBA. There is substantial capacity for business activity across a very large number of locations, including locations where there is ongoing growth.

At the high level, and the local level, Auckland's plan-enabled capacity largely meets the requirements of sufficiency and suitability for all of the sectors in the Auckland economy. Importantly, the capacity for growth is well-located in terms of the established and working structure of the economy. This provides for potential in the important hubs of activity, especially the CBD and major centres, and the large industrial employment hubs. It also provides for capacity in areas which are expected to see considerable household and population growth going forward.

This does not mean that all locations have sufficient capacity, or that there will not be pressures in terms of feasible development occurring which can cater for employment demand. Nor does it suggest that everything will simply roll into place in the future – the current evolution of a strong centres-based economy with major business areas is a result of considerable effort to have Plan provisions which seek to be well oriented to the needs of the business sectors. It does suggest that the current planning environment provides an appropriate foundation.

There is clear indication that some locations will not individually meet the sufficiency requirement. This is especially so for a number of minor centres and business areas, whose needs may be more difficult to address.

At the high level, however, our view is that Auckland does have sufficient capacity to provide for growth into the long term, in locations which are suitable for the needs of individual sectors and for the economy as a whole. The ongoing performance of the Auckland economy, including the steady path of property redevelopment and addition of business floorspace, indicates that the underlying economic processes are well established to take up the potential capacity as demand arises.

6 Conclusions and Key Findings

6.1 Summary

This research has been undertaken to meet the requirements in the NPSUD (2020) to prepare an HBA report for the Business sector.

It has examined the current structure of Auckland's economy in terms of employment and numbers of business units, and the geography of that activity across the network of more than 770 centres and business areas. It has also considered in detail the likely growth in the Auckland economy, and the consequences for future employment and business units, assessing this against the potential supply of business land and plan-enabled capacity for business activity into the long-term. It takes account of the likely and potential patterns of growth, considering the past trends observed since 2001, and taking account of the key drivers of the spatial growth patterns.

The research has examined in detail the potential supply of business land and plan-enabled floorspace to accommodate the expected growth, including the likelihood and potential for further development at the region level and at the local level.

The study has considered the potential for different growth and land use outcomes in Auckland, recognising the prospect of major changes to the residential environment through the HSAA and NPSUD which may significantly alter Auckland's future housing and population growth patterns, with consequences for the patterns of business activity.

6.2 Key Findings

There are three key findings:

1. First, Auckland can expect substantial growth in its economy into the short, medium and long terms. While the low growth and very low growth scenarios would indicate a substantially slowing of Auckland's momentum, these can be expected to arise only in futures where all of New Zealand's economic growth is very substantially slowed. Otherwise, it is extremely unlikely that Auckland's role in the national economy would be significantly diminished.
2. Second, Auckland's future growth path in any future can be expected to reflect the established geography and functioning of the centres and business areas across the city. This includes because much of the population growth is to be accommodated by intensification of housing capacity around the established centres. While this is unremarkable in itself, it is important to recognise that most of the increase in economic activity will also need to be accommodated in the established network of centres and business areas, and that the efficient functioning of these locations will need to be supported by appropriate transport and other infrastructure.
3. Third, Auckland has substantial capacity to accommodate the projected increases in business activity. The plan-enabled capacity for built floorspace is substantial, with considerable potential to increase intensity of use on business zoned land.

These suggest that, to a considerable degree, Auckland in 2052 is likely to be Auckland 2022++, rather than a city with substantially different urban form and growth outcomes.

6.3 Issues

All that said, the region's economic growth and associated employment and business activity will not just arise smoothly and easily. Auckland faces a number of challenges.

One is that the intensification of land use will generate substantial increases in the value of land. This will affect residential land across the city, and can be expected to have a strong effect on competition for land between the housing and business sectors. Globally, there is evidence that less intensive business activities such as light industry and general business activity are less able to compete for land whose values reflect more intensive uses such as housing. One outcome is that such activities are displaced into locations further from central areas, with employment potential more dispersed as a consequence.

Related to this is the requirement for relatively large footprints of these less intensive uses, partly for large areas for single businesses, but often for aggregations of similar activities on smaller sites. In Auckland there are areas of Light Industry zoning in locations such as the Wairau Valley and Albany estate where there is substantial business activity at relatively low intensity, where there will be increasing pressure on such uses because of increases in the underlying land values. This makes it important to plan carefully for Light Industrial land, to ensure that there is adequate capacity in the Future Urban zone areas. This will mean having sufficiently large footprints of LI zone to offer some buffer against higher intensity uses, and provision to the north and west, and the east and south.

Another issue is the ability to accommodate housing growth in the CBD and inner suburbs, in relation to not just transport infrastructure capacity, but the economics of high-rise apartment development. Auckland has seen limited development of such high-rise apartments, with the apartment typologies mostly at smaller scale, and with terrace housing development often favoured by both developers and purchasers. Since there is limited scope for housing development in the central city in other than high rise formats, that raises the question of the final quantum of residential intensification in central Auckland to support business activity and employment growth.

A third issue is the potential for Auckland's housing growth to become more dispersed rather than focused around centres and business locations. This is especially because the MDRS provisions which will be introduced through forthcoming PC78 will enable significant development throughout residential zones. The provisions enabling three dwellings on every site are likely to the development of terrace housing especially across many sites in a relatively dispersed and opportunistic pattern. The lower value and larger sites associated with areas more distant from the central city can be expected to attract considerable development under the MDRS provisions, which would see a growth pattern which is more dispersed than one where a greater share of housing development is close to centres and the central city.

7 Attachment - Light Industry Zone

Relating to the wider HBA research, a specific assessment was undertaken for the Light Industry areas, and the Light industry zoned land specifically. This was in response to wider concerns about pressure on the Light Industry Zone and its capacity, especially through competition for this land from residential and other uses. It is part of the wider picture of sufficient capacity for growth overall, and the potential for the displacement of light industrial activity by higher yielding uses including housing, and mixed use developments²¹.

This has been assessed primarily by examining how employment patterns are shifting in Auckland, especially to identify whether the level of employment in the LI zone has kept pace with Auckland's overall growth, whether particular sectors of the economy have become less evident in the LI zoned areas over the 2002 to 2022 period, and whether there is evidence of any outward shift from the more central areas of the city toward the periphery.

7.1 Total Employment in Light Industry Zone

In total, employment in the Light Industry zoned areas has kept pace with Auckland's total growth. This is shown in Table 7-1, where estimated employment in the Light Industry zoned areas increased by +54%, slightly ahead of Auckland's total growth of +52%. A similar outcome was evident for the 2002-2012 period, where employment growth in the LI zone (+21%) was slightly ahead of the Auckland change (+19%).

Table 7-1: Employment Growth by Zone 2002-2022

Zone	2002	2012	2022	Change	Change %	Share of Change %
City Centre Zone	81,800	101,700	131,200	49,400	60%	22%
Metropolitan Centre Zone	37,100	43,700	52,300	15,200	41%	7%
Town Centre Zone	41,900	42,100	46,000	4,100	10%	2%
Local Centre Zone	17,400	20,100	24,000	6,600	38%	3%
Neighbourhood Centre Zone	17,100	19,600	24,700	7,600	44%	3%
Mixed Use Zone	94,200	105,400	131,200	37,000	39%	17%
General Business Zone	10,900	15,500	18,400	7,500	69%	3%
Business Park Zone	5,000	9,300	11,500	6,500	130%	3%
Heavy Industry Zone	45,600	54,800	65,500	19,900	44%	9%
Light Industry Zone	122,900	149,300	189,300	66,400	54%	30%
Total Allocated to Zoning	473,800	561,500	694,200	220,400	47%	100%
Auckland Total	615,300	731,600	936,200	320,900	52%	

Source: Auckland Economy Growth Model 2023

Overall, some 30% of Auckland's total employment growth was accommodated in this zone over the 2002 to 2022 period.

²¹ Note that there is not a direct match between employment data recorded at the SA1 level, and the zoned areas recorded at the property level. Nonetheless, on the basis that employment recorded in each SA1 occurs predominantly in the areas zoned for business activity in that SA1, a close approximation is possible.

7.2 Light Industry Trends by Location

Analysis of the shifts in employment in the LI zone show four main trends (Table 7-2). One is the overall increase in employment in the LI zone in total, and in each broad sector of the city. However, the pattern is mixed. The second trend is a relative decline in the LBAs which have smaller LI zoned areas and where smaller shares of employment were observed in 2002 and 2012.

The third is the evidence of stronger growth in the areas further from the city centre. The 'outer' LBAs of Rodney, Hibiscus Coast, Papakura and Franklin all showed gains, whereas Devonport-Takapuna, Kaipatiki, Albert-Eden and Puketapapa showed decline in percentage terms, and typically off a lower base.

The fourth trend is some relative shift toward the south, with the most substantial growth in Howick and Mangere-Otahuhu (though substantial growth also in Upper Harbour LBA).

There is evidence of some drift outward from the central areas, but also consolidation around the larger areas of LI zoning. This is consistent with reports of pressure for LI zoned areas to change including to MU zoning to enable more intensive activities including housing.

Table 7-2: Employment Change in LI Zone 2002 to 2022 by LBA

Local Board Area		2002	2012	2022	2002-22	2002-12 %	2002-22 %
Rodney LBA	<i>Outer</i>	2,857	3,526	4,223	1,366	23%	48%
Hibiscus and Bays LBA	<i>Outer</i>	724	1,681	2,576	1,853	132%	256%
Upper Harbour LBA	<i>Mid-North</i>	12,088	19,957	23,440	11,352	65%	94%
Kaipatiki LBA	<i>Mid-North</i>	13,617	12,089	12,992	- 625	-11%	-5%
Devonport-Takapuna LBA	<i>Mid-North</i>	1,576	191	210	- 1,365	-88%	-87%
Henderson-Massey LBA	<i>Mid-North</i>	10,178	11,680	14,387	4,209	15%	41%
Waitakere Ranges LBA	<i>Outer</i>	707	673	753	46	-5%	7%
Whau LBA	<i>Isthmus</i>	8,377	9,045	9,344	967	8%	12%
Waitemata LBA	<i>Central</i>	55	73	94	39	32%	70%
Puketapapa LBA	<i>Isthmus</i>	2,400	1,484	1,584	- 816	-38%	-34%
Orakei LBA	<i>Isthmus</i>	1,913	1,896	2,290	377	-1%	20%
Albert-Eden LBA	<i>Isthmus</i>	1,025	770	947	- 79	-25%	-8%
Maungakiekie-Tamaki LBA	<i>Isthmus</i>	23,216	26,708	32,613	9,397	15%	40%
Howick LBA	<i>Mid-South</i>	10,439	15,702	23,882	13,443	50%	129%
Mangere-Otahuhu LBA	<i>Mid-South</i>	10,560	14,928	23,355	12,795	41%	121%
Otara-Papatoetoe LBA	<i>Mid-South</i>	12,110	15,885	19,916	7,806	31%	64%
Manurewa LBA	<i>Mid-South</i>	4,409	4,831	7,257	2,848	10%	65%
Papakura LBA	<i>Outer</i>	4,423	5,069	5,795	1,373	15%	31%
Franklin LBA	<i>Outer</i>	2,205	3,149	3,660	1,455	43%	66%
Total		122,900	149,300	189,300	66,400	21%	54%
	<i>Central</i>	55	73	94	39	32%	70%
	<i>Isthmus</i>	36,931	39,903	46,777	9,846	8%	27%
	<i>Mid-North</i>	37,459	43,918	51,029	13,570	17%	36%
	<i>Mid-South</i>	37,519	51,346	74,410	36,891	37%	98%
	<i>Outer</i>	10,916	14,099	17,008	6,093	29%	56%
	<i>Central</i>	0%	0%	0%	0%		
	<i>Isthmus</i>	30%	27%	25%	15%		
	<i>Mid-North</i>	30%	29%	27%	20%		
	<i>Mid-South</i>	31%	34%	39%	56%		
	<i>Outer</i>	9%	9%	9%	9%		

Source: Auckland Economy Growth Model 2023

7.2.1 Sector Preferences for Light Industry Zoned areas

Finally, it is useful to understand the nature of business activity which utilises the Light Industry zone. Analysis of the relative preference for the zone by sector shows a consistent pattern over the last two decades (and before that). The zone is very important for substantial parts of the Auckland economy. Table 7-3 shows a substantial workforce in the zone, and with the zone accounting for significant shares of employment across industries throughout the manufacturing and service sectors.

While this is to be expected, it nonetheless serves to show the importance of the Light Industry zone as a general zone accommodating a wide range of business activity, and providing substantial hubs of employment across the city.

The preceding analysis meets the other key part of the requirements of the NPSUD 3.28 and 3.29. it shows:

- a. Demand for business capacity for commercial, retail and industrial activity at a refined geographic level. This reflects the established structure of the Auckland economy, where each broad sector occurs in multiple locations.
- b. Commercial activity is oriented to the centres structure, with the CBD and Metropolitan centres in particular accommodating larger scale entities, and town centres and local centres accommodating business more oriented to the household market.
- c. In the same way, retail activity is largely oriented to the centres network, though with substantial representation in other zones apart from Light Industry and Heavy Industry.
- d. The analysis of plan-enabled floorspace capacity by centre type and location addresses the question of sufficiency of capacity (3.28 and 3.29) for the commercial and retail sectors, throughout the economy. This is supported by the detailed analysis across all centres and business areas.
- e. Similarly, for industrial land, the analysis has been undertaken at a refined geographic level, consistent with the assessment of likely demand. This shows the plan-enabled capacity has considerable potential to accommodate future employment growth well beyond the long term.
- f. Importantly, the analysis is based on existing zonings, where land has been zoned to take account of the underlying infrastructure and service requirements (with regard to NPSUD 3.29). There is additional land which is anticipated to be zoned for industrial activity in the future, however there is substantial capacity without that.
- g. The assessment has considered the Light Industry zone in considerable detail, the largest resource for industrial and services activities. This has examined key trends and sufficiency not just at the regional and LBA level, but also to consider the potential for the LI zoned areas to change as other uses are pursued – including through re-zoning to Mixed Use. This analysis shows there is considerable capacity, and overall sufficiency.

Table 7-3: Employment by Sector in Light Industry Zone 2022 (top 40 sectors).

Sector	Employment in Light Industry Zone			Auckland 2022	Light Industry Zone Share % of Auckland	Share % Light Industry Zone Employment
	2002	2012	2022			
Total All Sectors	122,900	149,300	189,300	936,200		
Construction services	4,610	7,010	11,913	52,700	23%	6.3%
Employment and other administrative services	4,291	6,865	9,251	40,832	23%	4.9%
Machinery and equipment wholesaling	5,289	6,808	7,519	16,634	45%	4.0%
Other goods and commission based wholesaler	8,104	8,117	7,330	18,290	40%	3.9%
Grocery, liquor and tobacco product wholesaler	3,141	4,272	7,099	13,601	52%	3.7%
Electronic and electrical equipment manufacture	2,578	3,893	6,575	9,833	67%	3.5%
Heavy and civil engineering construction	2,998	4,587	5,823	13,631	43%	3.1%
Advertising, market research and management	4,046	5,168	5,692	35,617	16%	3.0%
Road transport	3,544	4,515	5,513	15,561	35%	2.9%
Fabricated metal product manufacturing	4,924	4,515	5,432	10,590	51%	2.9%
Furniture, electrical and hardware retailing	2,381	3,585	5,287	17,008	31%	2.8%
Fruit, oil, cereal and other food product manufacture	3,957	4,966	4,963	11,881	42%	2.6%
Basic material wholesaling	3,444	4,062	4,877	11,137	44%	2.6%
Medical and other health care services	1,051	2,965	4,328	33,395	13%	2.3%
Public order, safety and regulatory services	789	2,324	3,880	16,681	23%	2.0%
Repair and maintenance	3,287	3,342	3,628	11,933	30%	1.9%
Transport support services	2,133	2,723	3,616	8,661	42%	1.9%
Scientific, architectural and engineering services	1,252	1,758	3,423	29,434	12%	1.8%
Polymer product and rubber product manufacture	4,275	3,400	3,401	5,398	63%	1.8%
Supermarket and grocery stores	1,068	1,883	2,939	18,457	16%	1.6%
Building cleaning, pest control and other support	1,168	1,885	2,832	15,586	18%	1.5%
Machinery manufacturing	2,654	2,464	2,781	5,307	52%	1.5%
Other store based retailing; non-store and commercial	1,111	1,599	2,725	14,968	18%	1.4%
Postal and courier pick up and delivery services	1,284	1,187	2,590	6,306	41%	1.4%
Residential care services and social assistance	1,385	2,742	2,530	27,340	9%	1.3%
Warehousing and storage services	1,084	1,694	2,491	3,910	64%	1.3%
Motor vehicle and parts retailing	1,312	1,529	2,150	6,555	33%	1.1%
Residential building construction	562	878	2,056	21,752	9%	1.1%
Meat and meat product manufacturing	974	1,520	2,037	3,294	62%	1.1%
Pharmaceutical, cleaning and other chemical products	1,113	1,424	2,003	3,233	62%	1.1%
School education	1,210	1,678	1,937	33,590	6%	1.0%
Motor vehicle and motor vehicle parts wholesaler	1,531	1,617	1,895	4,378	43%	1.0%
Rental and hiring services (except real estate);	1,048	1,700	1,876	6,627	28%	1.0%
Non-metallic mineral product manufacturing	1,125	1,385	1,787	3,533	51%	0.9%
Adult, community and other education	508	1,079	1,673	8,877	19%	0.9%
Beverage and tobacco product manufacturing	1,253	1,256	1,607	3,557	45%	0.8%
Wood product manufacturing	1,522	1,362	1,550	3,378	46%	0.8%
Central government administration and justice	473	625	1,545	10,894	14%	0.8%
Printing	2,584	2,211	1,532	3,447	44%	0.8%
Furniture manufacturing	2,649	1,516	1,431	3,038	47%	0.8%
Dairy product manufacturing	854	1,022	1,357	1,698	80%	0.7%
Non-residential building construction	762	709	1,350	5,496	25%	0.7%
Transport equipment manufacturing	2,292	1,659	1,280	4,246	30%	0.7%
Sport and recreation activities	775	958	1,279	9,278	14%	0.7%
Religious services; civil, professional and other	412	881	1,278	9,529	13%	0.7%
Preschool education	242	878	1,229	9,509	13%	0.6%
Textile and leather manufacturing	1,416	1,234	1,165	2,442	48%	0.6%
Department stores	627	761	1,139	7,237	16%	0.6%
Waste collection, treatment and disposal services	523	548	1,050	2,834	37%	0.6%
Pulp, paper and converted paper product manufacture	1,030	866	1,020	1,916	53%	0.5%

Source: Auckland Economy Growth Model 2023

Note: Totals may vary slightly due to rounding

Appendices

HBA Requirements

The NPSUD requirements for an HBA are set out below.

Subpart 5 – Housing and Business Development Capacity Assessment (HBA)²²

3.19 Obligation to prepare HBA

- 1) Every tier 1 and tier 2 local authority must prepare, and make publicly available, an HBA for its tier 1 or tier 2 urban environments every 3 years, in time to inform the relevant local authority's next long-term plan.
- 2) The HBA must apply, at a minimum, to the relevant tier 1 or tier 2 urban environments of the local authority (i.e., must assess demand and capacity within the boundaries of those urban environments), but may apply to any wider area.
- 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 HBA as required by this subpart.

3.20 Purpose of HBA

- 1) The purpose of an HBA is to:
 - a. provide information on the demand and supply of housing and of business land in the relevant tier 1 or tier 2 urban environment, and the impact of planning and infrastructure decisions of the relevant local authorities on that demand and supply; and
 - b. inform RMA planning documents, FDSs, and long-term plans; and
 - c. quantify the development capacity that is sufficient to meet expected demand for housing and for business land in the short term, medium term, and long term.

3.21 Involving development sector and others

- 1) In preparing an HBA, every tier 1 and tier 2 local authority must seek information and comment from:
 - a. expert or experienced people in the development sector; and
 - b. providers of development infrastructure and additional infrastructure; and
 - c. anyone else who has information that may materially affect the calculation of the development capacity.

3.22 Competitiveness margin

- 1) A competitiveness margin is a margin of development capacity, over and above the expected demand that tier 1 and tier 2 local authorities are required to provide, that is required in order to support choice and competitiveness in housing and business land markets.
- 2) The competitiveness margins for both housing and business land are:
 - a. for the short term, 20%

²² [National policy statement on urban development | Ministry for the Environment.](#)

- b. for the medium term, 20%
- c. for the long term, 15%.

Business land

3.28 Business land demand assessment

- 1) Every HBA must estimate, for the short term, medium term, and long term, the demand from each business sector for additional business land in the region and each constituent district of the tier 1 or tier 2 urban environment.
- 2) The demand must be expressed in hectares or floor areas
- 3) For the purpose of this clause, a local authority may identify business sectors in any way it chooses but must, as a minimum, distinguish between sectors that would use land zoned for commercial, retail, or industrial uses.
- 4) The HBA for a tier 1 urban environment must:
 - a. set out a range of projections of demand for business land by business sector, for the short term, medium term, and long term; and
 - b. identify which of the projections is the most likely in each of the short term, medium term, and long term; and
 - c. set out the assumptions underpinning the different projections and the reason for selecting which is the most likely; and
 - d. if those assumptions involve a high level of uncertainty, the nature and potential effects of that uncertainty.

3.29 Business land development capacity assessment

- 1) Every HBA must estimate the following, for the short term, medium term, and long term, for the region and each constituent district of the tier 1 or tier 2 urban environment:
 - a. the development capacity (in terms of hectares or floor areas) to meet expected demand for business land for each business sector, plus the appropriate competitiveness margin; and
 - b. of that development capacity, the development capacity that is:
 - i. plan-enabled; and
 - ii. plan-enabled and infrastructure-ready; and
 - iii. plan-enabled, infrastructure-ready, and suitable for each business sector.
- 2) A local authority may define what it means for development capacity to be “suitable” in any way it chooses, but suitability must, at a minimum, include suitability in terms of location and site size.

3.30 Assessment of sufficient development capacity for business land

- 4) Every HBA must clearly identify, for the short term, medium term, and long term, whether there is sufficient development capacity to meet demand for business land in the region and each constituent district of the tier 1 or tier 2 urban environment
- 5) The requirements of subclause (1) must be based on a comparison of:
 - a. the demand for business land referred to in clause 3.28 plus the appropriate competitiveness margin; and
 - b. the development capacity identified under clause 3.29.
- 6) If there is any insufficiency, the HBA must identify where and when this will occur and analyse the extent to which RMA planning documents, a lack of development infrastructure, or both, cause or contribute to the insufficiency.

Business Growth Diagnostics

Medium Future

Figure A-1 : Top 50 Centres and Business Areas with Highest % Growth Outcomes (Medium)

DIAGNOSTICS OF MODEL PERFORMANCE

GROWTH RATES FOR CENTRES (%) OVER SHORT-MEDIUM-LONG

Scenario: *Medium*

Spatial: *Last 2 Decades*

5%		45091	11%		99210	28%		258440
Growth to 2025	Centre	Growth to 2025 n	Growth to 2032	Centre	Growth to 2032 n	Growth to 2052	Centre	Growth to 2052 n
35%	Ararimu	12	10120%	Red Hills	1518	15760%	Red Hills	2364
17%	Pukekohe Hospital	50	5198%	Whenuapai	1518	8099%	Whenuapai	2365
12%	Clevedon Subdivision	8	1227%	Drury	1519	1914%	Drury	2369
12%	Drury	21	75%	Westgate / Massey North	2764	176%	Ararimu	60
11%	Glenbrook Beach	12	70%	Ararimu	24	139%	Westgate / Massey North	5146
11%	Awhitu	1	29%	Pukekohe Hospital	85	64%	Smales Farm	2747
11%	Kaipara Flats Airport	5	21%	Waiuku Hospital	10	62%	Mt Albert	659
9%	Whenuapai Airport	4	21%	Auckland Hospital	2049	60%	Akoranga	2050
9%	Pukekohe Belgium Rd	2	21%	North Shore Hospital	1341	59%	Ellerslie Great South Rd	5992
8%	Waiuku Hospital	4	21%	Middlemore Hospital	1576	59%	Pukekohe Hospital	173
8%	Warkworth Medical	7	20%	Waitakere Hospital	338	58%	Auckland Hospital	5746
8%	Orere Point Rd	3	20%	Botany Super Clinic	64	58%	North Shore Hospital	3753
8%	Ellerslie Great South Rd	841	20%	Mercy Hospital	160	58%	Middlemore Hospital	4420
8%	Waitemata Health	18	20%	Wilson Home Trust	43	58%	Warkworth Medical	46
8%	Northcote	19	20%	Warkworth Medical	16	57%	Botany Super Clinic	181
8%	Manukau Super Clinic	337	20%	Waitemata Health	44	57%	Waitakere Hospital	946
8%	Akoranga	262	19%	East Med	50	56%	Mercy Hospital	449
8%	Silverdale	32	19%	Akoranga	639	56%	Wilson Home Trust	121
7%	Three Kings Hunters Park Dr	11	19%	Mt Albert	199	56%	Waitemata Health	126
7%	Mason Clinic	37	19%	Ellerslie Great South Rd	1898	56%	East Med	144
7%	Pukekohe Harris St	1	19%	Mason Clinic	95	54%	Waiuku Hospital	25
7%	Pollak	2	18%	Smales Farm	798	53%	Northcote	128
7%	Wilson Home Trust	15	18%	Manukau Super Clinic	773	53%	Mt Albert New North Rd	132
7%	Mairangi Bay Constellation Dr	1000	17%	Northcote	42	52%	Silverdale	221
7%	Ellerslie Lunn Ave	197	17%	Drury	31	50%	Grey Lynn Richmond Rd	93
7%	Auckland Hospital	687	17%	Clevedon Subdivision	11	50%	Pukekohe Harris St	7
7%	Middlemore Hospital	530	17%	Silverdale	70	50%	Mason Clinic	254
7%	North Shore Hospital	449	16%	Mt Albert New North Rd	41	48%	Mairangi Bay Constellation Dr	6752
7%	Smales Farm	298	16%	Mairangi Bay Constellation D	2292	46%	Ellerslie Lunn Ave	1305
7%	Botany Super Clinic	22	16%	Glenbrook Beach	17	45%	Manukau Super Clinic	1926
7%	Mt Albert	73	16%	Ellerslie Lunn Ave	445	36%	Warkworth Showgrounds	13
7%	Mercy Hospital	54	16%	Grey Lynn Richmond Rd	29	32%	Newmarket	6334
7%	Waitakere Hospital	113	15%	Kaipara Flats Airport	7	32%	Takapuna	2646
7%	Mt Albert New North Rd	17	15%	Three Kings Hunters Park Dr	23	32%	Albany	2700
7%	Harrisville Motorcross Track	6	15%	Whenuapai Airport	6	31%	Three Kings Hunters Park Dr	48
6%	Grey Lynn Richmond Rd	12	14%	Orere Point Rd	5	31%	Manukau	4843
6%	Mangere East Wickman Way	1	14%	Pukekohe Harris St	2	31%	Henderson	1727
6%	East Med	16	14%	Warkworth Showgrounds	5	31%	New Lynn	1853
6%	Middlemore Rosella Rd	2	12%	Harrisville Motorcross Track	11	31%	Sylvia Park	1518
6%	Warkworth	4	11%	Warkworth	7	30%	Pinehill	10
6%	New Lynn Wolverton St	4	11%	Waimauku	15	30%	Favona	675
6%	Waimauku	8	11%	Awhitu	1	30%	Lynfield	9
6%	Warkworth	2	11%	Lynfield Richardson Rd	4	30%	East Tamaki Rd	10
6%	Northcote Pupuke Rd	2	11%	Mangere Bridge	6	29%	Papakura	929
6%	Onehunga	18	11%	Papakura Clevedon Rd	4	29%	Botany	2652
5%	Bombay	29	11%	Ellerslie	4	29%	City Centre	36246
5%	Massey Triangle Rd	5	10%	Waterview Great North Rd Pe	2	28%	Botany Junction Chapel Rd	11
5%	Clarks Beach New Subdivision	2	10%	Royal Heights Royal Rd	2	28%	Ellerslie	10
5%	Papakura Clevedon Rd	2	10%	Franklin A&P	2	28%	Manukau Great South Rd	44
5%	Lynfield Richardson Rd	2	10%	Newmarket	2039	27%	Northcote Onewa Rd	107

Source: Auckland Economy Growth Model 2023

Figure A-2 : Top 50 Centres and Business Areas with Highest N Growth Outcomes (Medium)

DIAGNOSTICS OF MODEL PERFORMANCE

GROWTH VOLUMES FOR CENTRES OVER SHORT-MEDIUM-LONG

Scenario: *Medium*Spatial: *Last 2 Decades*

		45091		99210		258440		
Growth to 2025	Centre	Share of Auckland	Growth to 2032	Centre	Share of Auckland	Growth to 2052	Share of Auckland	
4,766	City Centre	10.6%	11,248	City Centre	11.3%	36,246	14.0%	
1,150	Penrose	2.6%	2,764	Westgate / Massey North	2.8%	6,752	2.6%	
1,000	Mairangi Bay Constellation Dr	2.2%	2,484	Penrose	2.5%	6,714	2.6%	
884	Newmarket	2.0%	2,292	Mairangi Bay Constellation Dr	2.3%	6,334	2.5%	
841	Ellerslie Great South Rd	1.9%	2,049	Auckland Hospital	2.1%	5,992	2.3%	
795	Highbrook	1.8%	2,039	Newmarket	2.1%	5,746	2.2%	
729	Manukau	1.6%	1,898	Ellerslie Great South Rd	1.9%	5,146	2.0%	
687	Auckland Hospital	1.5%	1,700	Highbrook	1.7%	4,843	1.9%	
551	Wiri	1.2%	1,586	Manukau	1.6%	4,420	1.7%	
530	Middlemore Hospital	1.2%	1,576	Middlemore Hospital	1.6%	4,333	1.7%	
466	Highbrook	1.0%	1,519	Drury	1.5%	3,753	1.5%	
456	Mt Wellington	1.0%	1,518	Red Hills	1.5%	3,045	1.2%	
449	Wairau Valley	1.0%	1,518	Whenuapai	1.5%	2,819	1.1%	
449	North Shore Hospital	1.0%	1,341	North Shore Hospital	1.4%	2,747	1.1%	
447	North Harbour	1.0%	1,184	Wiri	1.2%	2,703	1.0%	
413	Botany	0.9%	1,002	Mt Wellington	1.0%	2,700	1.0%	
361	Mangere	0.8%	997	Wairau Valley	1.0%	2,652	1.0%	
352	Takapuna	0.8%	987	Highbrook	1.0%	2,646	1.0%	
351	Auckland International Airport	0.8%	984	North Harbour	1.0%	2,620	1.0%	
345	Albany	0.8%	910	Botany	0.9%	2,369	0.9%	
337	Manukau Super Clinic	0.7%	828	Takapuna	0.8%	2,365	0.9%	
333	Rosebank	0.7%	828	Albany	0.8%	2,364	0.9%	
298	Smales Farm	0.7%	798	Smales Farm	0.8%	2,309	0.9%	
291	Parnell	0.6%	773	Manukau Super Clinic	0.8%	2,168	0.8%	
290	Lincoln	0.6%	767	Mangere	0.8%	2,050	0.8%	
264	New Lynn	0.6%	728	Auckland International Airport	0.7%	1,926	0.7%	
262	Akoranga	0.6%	711	Rosebank	0.7%	1,909	0.7%	
258	Airport North	0.6%	687	Parnell	0.7%	1,853	0.7%	
257	Henderson	0.6%	654	Lincoln	0.7%	1,852	0.7%	
218	Auckland Port	0.5%	639	Akoranga	0.6%	1,823	0.7%	
214	Sylvia Park	0.5%	608	New Lynn	0.6%	1,727	0.7%	
207	Ellerslie	0.5%	569	Henderson	0.6%	1,650	0.6%	
201	Freemans Bay College Hill	0.4%	551	Airport North	0.6%	1,518	0.6%	
197	Ellerslie Lunn Ave	0.4%	523	Auckland Port	0.5%	1,477	0.6%	
191	Mt Eden Normanby Rd	0.4%	497	Sylvia Park	0.5%	1,476	0.6%	
166	Panama Road	0.4%	494	Freemans Bay College Hill	0.5%	1,397	0.5%	
160	Westgate / Massey North	0.4%	484	Ellerslie	0.5%	1,369	0.5%	
148	Papakura	0.3%	445	Ellerslie Lunn Ave	0.4%	1,357	0.5%	
140	Silverdale	0.3%	442	Mt Eden Normanby Rd	0.4%	1,305	0.5%	
137	Devonport Naval Base	0.3%	364	Panama Road	0.4%	982	0.4%	
117	Highbrook South	0.3%	338	Waitakere Hospital	0.3%	946	0.4%	
113	Waitakere Hospital	0.3%	317	Papakura	0.3%	929	0.4%	
107	St Johns	0.2%	297	Silverdale	0.3%	721	0.3%	
103	Otahuhu	0.2%	257	Devonport Naval Base	0.3%	678	0.3%	
101	Pukekohe	0.2%	254	Highbrook South	0.3%	675	0.3%	
99	Otahuhu	0.2%	229	Manukau Centre	0.2%	672	0.3%	
98	Wiri	0.2%	228	Pukekohe	0.2%	659	0.3%	
97	Papakura Hunua Rd	0.2%	228	St Johns	0.2%	647	0.3%	
94	Takanini North	0.2%	221	Otahuhu	0.2%	633	0.2%	
92	Arch Hill	0.2%	212	Arch Hill	0.2%	627	0.2%	
21,612	Top 50 Locations	47.9%	56,565	Top 50 Locations	57.0%	156,642	Top 50 Locations	60.6%

Source: *Auckland Economy Growth Model 2023*

7.2.1 High Future

Figure A-3 : Top 50 Centres and Business Areas with Highest % Growth Outcomes (High)

DIAGNOSTICS OF MODEL PERFORMANCE

GROWTH RATES FOR CENTRES (%) OVER SHORT-MEDIUM-LONG

Scenario: *High*

Spatial: *Last 2 Decades*

6%	56809	15%	138925	47%	438340			
Growth to 2025	Centre	Growth to 2025 n	Growth to 2032	Centre	Growth to 2032 n	Growth to 2052	Centre	Growth to 2052 n
38%	Ararimu	13	10160%	Red Hills	1524	16213%	Red Hills	2432
19%	Pukekohe Hospital	57	5218%	Whenuapai	1524	8332%	Whenuapai	2433
12%	Glenbrook Beach	13	1234%	Drury	1527	1971%	Drury	2440
12%	Clevedon Subdivision	8	94%	Ararimu	32	299%	Ararimu	102
12%	Drury	22	81%	Westgate / Massey North	2981	173%	Westgate / Massey North	6402
11%	Awhitu	1	35%	Pukekohe Hospital	102	111%	Smales Farm	4789
11%	Avondale Racecourse	1	28%	Ellerslie Great South Rd	2892	109%	Akoranga	3714
11%	Warkworth Medical	9	28%	Akoranga	939	107%	Ellerslie Great South Rd	10900
11%	Ellerslie Great South Rd	1096	26%	Smales Farm	1141	107%	Mt Albert	1135
11%	Waitemata Health	24	26%	Mt Albert New North Rd	65	99%	Mt Albert New North Rd	246
11%	Waiuku Hospital	5	26%	Mt Albert	272	96%	Silverdale	405
11%	Kaipara Flats Airport	5	25%	Grey Lynn Richmond Rd	47	95%	Warkworth Medical	76
10%	Akoranga	356	25%	Silverdale	107	95%	Waitemata Health	214
10%	Silverdale	43	25%	Northcote	60	95%	Northcote	227
10%	Northcote	24	25%	Warkworth Super Clinic	1074	93%	Pukekohe Hospital	276
10%	Mt Albert New North Rd	25	25%	Waitemata Health	56	92%	Grey Lynn Richmond Rd	170
10%	Botany Super Clinic	31	25%	Warkworth Medical	20	92%	Botany Super Clinic	290
10%	Grey Lynn Richmond Rd	18	24%	Ellerslie Lunn Ave	687	91%	Auckland Hospital	9021
10%	Auckland Hospital	951	24%	Mairangi Bay Constellation D	3446	91%	Middlemore Hospital	6946
10%	Middlemore Hospital	733	24%	Mason Clinic	121	90%	North Shore Hospital	5872
10%	Manukau Super Clinic	412	24%	Waiuku Hospital	11	89%	Waitakere Hospital	1485
10%	North Shore Hospital	619	24%	Three Kings Hunters Park Dr	36	89%	Mercy Hospital	708
9%	Mercy Hospital	75	22%	Avondale Racecourse	2	89%	Waiuku Hospital	41
9%	Waitakere Hospital	157	22%	Warkworth Showgrounds	8	89%	Wilson Home Trust	191
9%	Whenuapai Airport	4	22%	Botany Super Clinic	70	89%	East Med	229
9%	Mt Albert	100	22%	Wilson Home Trust	47	86%	Mairangi Bay Constellation Dr	12156
9%	Smales Farm	404	22%	Auckland Hospital	2149	84%	Ellerslie Lunn Ave	2383
9%	Wilson Home Trust	20	22%	Middlemore Hospital	1657	84%	Mason Clinic	429
9%	Mason Clinic	48	21%	North Shore Hospital	1395	78%	Manukau Super Clinic	3354
9%	Mairangi Bay Constellation Dr	1283	21%	Mercy Hospital	170	71%	Pukekohe Harris St	10
9%	East Med	23	21%	Waitakere Hospital	355	68%	Warkworth Showgrounds	24
9%	Ellerslie Lunn Ave	252	21%	East Med	54	57%	Newmarket	11222
9%	Pukekohe Belgium Rd	2	20%	Drury	36	57%	Albany	4798
8%	Orere Point Rd	3	18%	Clevedon Subdivision	12	57%	Takapuna	4665
8%	Warkworth Showgrounds	3	18%	Glenbrook Beach	19	57%	Three Kings Hunters Park Dr	87
8%	Three Kings Hunters Park Dr	12	18%	Kaipara Flats Airport	8	56%	Manukau	8650
7%	Orakei Eastridge	4	16%	Orakei Eastridge	9	56%	Avondale Racecourse	5
7%	Pukekohe Harris St	1	16%	Newmarket	3103	55%	New Lynn	3314
7%	Mangere Bridge	4	16%	Sylvia Park	781	55%	Sylvia Park	2733
7%	Pollok	2	16%	New Lynn Portage Rd	3	55%	Henderson	3064
7%	Blockhouse Bay Boundary Rd	3	16%	Mt Albert	15	54%	East Tamaki Rd	18
7%	Huapai	3	16%	Manukau	2414	53%	New Lynn Portage Rd	10
7%	Papakura Kelvin Rd	1	15%	New Lynn	926	52%	Papakura	1656
7%	Waimauku	9	15%	Botany	1406	52%	Botany	4746
7%	Three Kings Fearon Ave	1	15%	Papakura	483	52%	Orakei Eastridge	28
7%	Glenfield Chartwell Ave	3	15%	Takapuna	1256	51%	Favona	1161
7%	Pakuranga Rd	2	15%	Henderson	849	51%	Hingaia	66
7%	Garnet Rd	5	15%	Albany	1270	50%	Mt Wellington Panmure Highw	2
7%	Harrisville Motorcross Track	6	15%	Hillsborough Melrose Rd	5	50%	Stanmore Bay	103
6%	Onehunga	21	15%	Botany North	5	50%	City Centre	63271

Source: Auckland Economy Growth Model 2023

Figure A-4 : Top 50 Centres and Business Areas with Highest n Growth Outcomes (High)

DIAGNOSTICS OF MODEL PERFORMANCE

GROWTH VOLUMES FOR CENTRES OVER SHORT-MEDIUM-LONG

Scenario: High

Spatial: Last 2 Decades

		56809			138925			438340
Growth to 2025	Centre	Share of Auckland	Growth to 2032	Centre	Share of Auckland	Growth to 2052	Centre	Share of Auckland
6,201	City Centre	10.9%	16,965	City Centre	12.2%	63,271	City Centre	14.4%
1,407	Penrose	2.5%	3,835	Penrose	2.8%	12,156	Mairangi Bay Constellation Dr	2.8%
1,283	Mairangi Bay Constellation Dr	2.3%	3,446	Mairangi Bay Constellation Dr	2.5%	11,937	Penrose	2.7%
1,150	Newmarket	2.0%	3,103	Newmarket	2.2%	11,222	Newmarket	2.6%
1,096	Ellerslie Great South Rd	1.9%	2,981	Westgate / Massey North	2.1%	10,900	Ellerslie Great South Rd	2.5%
954	Highbrook	1.7%	2,892	Ellerslie Great South Rd	2.1%	9,021	Auckland Hospital	2.1%
951	Auckland Hospital	1.7%	2,647	Highbrook	1.9%	8,650	Manukau	2.0%
948	Manukau	1.7%	2,414	Manukau	1.7%	7,742	Highbrook	1.8%
733	Middlemore Hospital	1.3%	2,149	Auckland Hospital	1.5%	6,946	Middlemore Hospital	1.6%
666	Wiri	1.2%	1,803	Wiri	1.3%	6,402	Westgate / Massey North	1.5%
619	North Shore Hospital	1.1%	1,657	Middlemore Hospital	1.2%	5,872	North Shore Hospital	1.3%
570	Mt Wellington	1.0%	1,527	Drury	1.1%	5,406	Wiri	1.2%
554	Wairau Valley	1.0%	1,527	Mt Wellington	1.1%	5,011	Mt Wellington	1.1%
544	Highbrook	1.0%	1,525	Highbrook	1.1%	4,805	Wairau Valley	1.1%
543	North Harbour	1.0%	1,524	Red Hills	1.1%	4,798	Albany	1.1%
524	Botany	0.9%	1,524	Whenuapai	1.1%	4,789	Smales Farm	1.1%
462	Albany	0.8%	1,520	Wairau Valley	1.1%	4,746	Botany	1.1%
461	Takapuna	0.8%	1,511	North Harbour	1.1%	4,665	Takapuna	1.1%
431	Mangere	0.8%	1,406	Botany	1.0%	4,642	North Harbour	1.1%
412	Manukau Super Clinic	0.7%	1,395	North Shore Hospital	1.0%	4,115	Highbrook	0.9%
404	Smales Farm	0.7%	1,270	Albany	0.9%	3,787	Parnell	0.9%
401	Auckland International Airport	0.7%	1,256	Takapuna	0.9%	3,714	Akoranga	0.8%
399	Rosebank	0.7%	1,189	Mangere	0.9%	3,406	Mangere	0.8%
371	Parnell	0.7%	1,141	Smales Farm	0.8%	3,354	Manukau Super Clinic	0.8%
364	Lincoln	0.6%	1,122	Auckland International Airport	0.8%	3,314	New Lynn	0.8%
356	Akoranga	0.6%	1,102	Rosebank	0.8%	3,289	Lincoln	0.8%
348	New Lynn	0.6%	1,074	Manukau Super Clinic	0.8%	3,250	Rosebank	0.7%
334	Henderson	0.6%	1,050	Parnell	0.8%	3,064	Henderson	0.7%
310	Airport North	0.5%	998	Lincoln	0.7%	2,929	Auckland International Airport	0.7%
278	Sylvia Park	0.5%	939	Akoranga	0.7%	2,733	Sylvia Park	0.6%
276	Auckland Port	0.5%	926	New Lynn	0.7%	2,527	Freemans Bay College Hill	0.6%
257	Ellerslie	0.5%	867	Airport North	0.6%	2,517	Airport North	0.6%
257	Freemans Bay College Hill	0.5%	849	Henderson	0.6%	2,507	Auckland Port	0.6%
252	Ellerslie Lunn Ave	0.4%	781	Sylvia Park	0.6%	2,440	Drury	0.6%
246	Mt Eden Normanby Rd	0.4%	716	Auckland Port	0.5%	2,433	Whenuapai	0.6%
211	Westgate / Massey North	0.4%	707	Ellerslie	0.5%	2,432	Red Hills	0.6%
198	Panama Road	0.3%	697	Freemans Bay College Hill	0.5%	2,383	Ellerslie Lunn Ave	0.5%
187	Papakura	0.3%	687	Ellerslie Lunn Ave	0.5%	2,365	Ellerslie	0.5%
173	Devonport Naval Base	0.3%	653	Mt Eden Normanby Rd	0.5%	2,363	Mt Eden Normanby Rd	0.5%
158	Silverdale	0.3%	573	Panama Road	0.4%	1,744	Panama Road	0.4%
157	Waitakere Hospital	0.3%	483	Papakura	0.3%	1,656	Papakura	0.4%
136	Highbrook South	0.2%	450	Silverdale	0.3%	1,485	Waitakere Hospital	0.3%
129	St Johns	0.2%	405	Devonport Naval Base	0.3%	1,308	Devonport Naval Base	0.3%
126	Pukekohe	0.2%	384	Highbrook South	0.3%	1,210	Ponsonby	0.3%
119	Otahuhu	0.2%	355	Waitakere Hospital	0.3%	1,184	Silverdale	0.3%
118	Arch Hill	0.2%	350	St Johns	0.3%	1,161	Favona	0.3%
116	Manukau Centre	0.2%	341	Pukekohe	0.2%	1,146	Arch Hill	0.3%
116	Favona	0.2%	329	Arch Hill	0.2%	1,135	Mt Albert	0.3%
112	Otahuhu	0.2%	327	Otahuhu	0.2%	1,120	Pukekohe	0.3%
112	Wiri	0.2%	318	Otahuhu	0.2%	1,069	Highbrook South	0.2%
27,529	Top 50 Locations	48.5%	79,688	Top 50 Locations	57.4%	266,120	Top 50 Locations	60.7%

Source: Auckland Economy Growth Model 2023

7.2.2 Low Future

Figure A-5 : Top 50 Centres and Business Areas with Highest % Growth Outcomes (Low)

Scenario: <i>Low</i>		Spatial: <i>Last 2 Decades</i>						
3%		32733	7%		64446	11%		104783
Growth to 2025	Centre	Growth to 2025 n	Growth to 2032	Centre	Growth to 2032 n	Growth to 2052	Centre	Growth to 2052 n
26%	Ararimu	9	10100%	Red Hills	1515	15327%	Red Hills	2299
15%	Pukekohe Hospital	45	5188%	Whenuapai	1515	7873%	Whenuapai	2299
11%	Glenbrook Beach	12	1225%	Drury	1516	1858%	Drury	2300
11%	Awhitu	1	71%	Westgate / Massey North	2627	110%	Westgate / Massey North	4070
11%	Drury	19	50%	Ararimu	17	76%	Ararimu	26
9%	Whenuapai Airport	4	20%	Pukekohe Hospital	60	29%	Pukekohe Hospital	86
9%	Clevedon Subdivision	6	14%	Pukekohe Harris St	2	22%	Waiemata Health	50
9%	Pukekohe Belgium Rd	2	13%	Waiuku Hospital	6	22%	Ellerslie Great South Rd	2202
8%	Orere Point Rd	3	13%	Drury	23	21%	Waiuku Hospital	10
8%	Kaipara Flats Airport	4	12%	Warkworth Medical	10	21%	Pukekohe Harris St	3
7%	Pukekohe Harris St	1	12%	Whenuapai Airport	5	20%	Akoranga	679
6%	Waiuku Hospital	3	12%	Akoranga	406	20%	Auckland Hospital	1970
6%	Ellerslie Great South Rd	632	12%	Ellerslie Great South Rd	1195	20%	Middlemore Hospital	1518
6%	Akoranga	205	12%	Manukau Super Clinic	501	20%	Warkworth Medical	16
6%	Warkworth Medical	5	11%	Glenbrook Beach	12	20%	North Shore Hospital	1285
6%	Silverdale	25	11%	Waiemata Health	25	20%	Mt Albert	210
5%	Ellerslie Lunn Ave	155	11%	Awhitu	1	20%	Silverdale	83
5%	Mt Albert New North Rd	14	11%	Mason Clinic	56	20%	Mercy Hospital	156
5%	Waiemata Health	12	11%	Warkworth Showgrounds	4	19%	Waitakere Hospital	324
5%	Manukau Super Clinic	232	11%	Northcote	26	19%	Wilson Home Trust	41
5%	Grey Lynn Richmond Rd	10	11%	Auckland Hospital	1064	19%	Smales Farm	822
5%	Northcote	13	11%	Middlemore Hospital	819	19%	East Med	49
5%	Clarks Beach New Subdivision	2	11%	North Shore Hospital	694	19%	Manukau Super Clinic	809
5%	Mairangi Bay Constellation Dr	744	11%	Silverdale	45	19%	Northcote	45
5%	Warkworth Showgrounds	2	11%	Waitakere Hospital	176	19%	Botany Super Clinic	59
5%	Hauraki Lake Rd Cameron St	4	11%	Mercy Hospital	84	18%	Mason Clinic	91
5%	Bombay	27	11%	Ellerslie Lunn Ave	299	18%	Mairangi Bay Constellation Dr	2500
5%	Franklin A&P	1	11%	Three Kings Hunters Park Dr	16	17%	Grey Lynn Richmond Rd	31
5%	Waterview Great North Rd Petrol	1	10%	Botany Super Clinic	33	17%	Ellerslie Lunn Ave	469
5%	Mason Clinic	25	10%	Mairangi Bay Constellation D	1471	16%	Warkworth Showgrounds	6
5%	Botany Junction Chapel Rd	2	10%	Mt Albert New North Rd	26	16%	Mt Albert New North Rd	39
5%	Three Kings Hunters Park Dr	7	10%	Wilson Home Trust	22	15%	Drury	27
5%	Mt Albert	49	10%	Grey Lynn Richmond Rd	19	14%	Three Kings Hunters Park Dr	22
5%	Hunua	3	10%	East Med	26	13%	Pukekohe Belgium Rd	3
5%	Waimauku	6	10%	Mt Albert	105	12%	Glenbrook Beach	13
5%	Smales Farm	195	9%	Northcote	2	12%	Ellerslie Panmure Highway	80
4%	Graham Tagg Park Opaheke Rd	3	9%	Smales Farm	406	12%	Devonport Naval Base	360
4%	Mangere East Mckinstry Ave	1	9%	Clevedon Subdivision	6	12%	Whenuapai Airport	5
4%	Northcote	1	9%	Kelston	2	12%	Henderson	661
4%	Kelston Brandon Road	2	9%	Pukekohe Belgium Rd	2	12%	Manukau	1836
4%	Onehunga	14	8%	Orere Point Rd	3	11%	Eden Park	21
4%	Kelston	1	8%	Kaipara Flats Airport	4	11%	Sylvia Park	39
4%	Wilson Home Trust	9	8%	Pakuranga Latham Ave	2	11%	Papakura	361
4%	Massey Triangle Rd	4	8%	Hunua	5	11%	Newmarket	2209
4%	Waitoki	2	8%	Graham Tagg Park Opaheke R	5	11%	Papakura Elliot St	14
4%	Harrisville Motorcross Track	4	8%	Waimauku	10	11%	Pakuranga	87
4%	Lynfield Donovan St	3	7%	Onehunga	24	11%	Awhitu	1
4%	Middlemore Hospital	315	7%	Bombay	38	11%	Avondale Racecourse	1
4%	Auckland Hospital	407	7%	St Lukes Road	16	11%	Takapuna	906
4%	North Shore Hospital	265	7%	Kelston Brandon Road	3	11%	New Lynn	652

Source: Auckland Economy Growth Model 2023

Figure A-6 : Top 50 Centres and Business Areas with Highest N Growth Outcomes (Low)

DIAGNOSTICS OF MODEL PERFORMANCE

GROWTH VOLUMES FOR CENTRES OVER SHORT-MEDIUM-LONG

Scenario: <i>Low</i>		Spatial: <i>Last 2 Decades</i>						
		32733		64446		104783		
Growth to 2025	Centre	Share of Auckland	Growth to 2032	Centre	Share of Auckland	Growth to 2052	Centre	Share of Auckland
3,419	City Centre	10.4%	6,321	City Centre	9.8%	12,344	City Centre	11.8%
843	Penrose	2.6%	2,627	Westgate / Massey North	4.1%	4,070	Westgate / Massey North	3.9%
744	Mairangi Bay Constellation Dr	2.3%	1,637	Penrose	2.5%	2,682	Penrose	2.6%
664	Newmarket	2.0%	1,516	Drury	2.4%	2,500	Mairangi Bay Constellation Dr	2.4%
632	Ellerslie Great South Rd	1.9%	1,515	Red Hills	2.4%	2,300	Drury	2.2%
589	Highbrook	1.8%	1,515	Whenuapai	2.4%	2,299	Red Hills	2.2%
564	Manukau	1.7%	1,471	Mairangi Bay Constellation Dr	2.3%	2,299	Whenuapai	2.2%
407	Auckland Hospital	1.2%	1,246	Newmarket	1.9%	2,209	Newmarket	2.1%
406	Wiri	1.2%	1,195	Ellerslie Great South Rd	1.9%	2,202	Ellerslie Great South Rd	2.1%
341	Mt Wellington	1.0%	1,166	Highbrook	1.8%	1,970	Auckland Hospital	1.9%
338	Wairau Valley	1.0%	1,064	Auckland Hospital	1.7%	1,836	Manukau	1.8%
334	Highbrook	1.0%	1,016	Manukau	1.6%	1,759	Highbrook	1.7%
327	North Harbour	1.0%	819	Middlemore Hospital	1.3%	1,518	Middlemore Hospital	1.4%
315	Middlemore Hospital	1.0%	805	Wiri	1.2%	1,285	North Shore Hospital	1.2%
313	Botany	1.0%	694	North Shore Hospital	1.1%	1,258	Wiri	1.2%
265	Mangere	0.8%	688	Highbrook	1.1%	1,087	Mt Wellington	1.0%
265	North Shore Hospital	0.8%	664	Wairau Valley	1.0%	1,026	Wairau Valley	1.0%
262	Albany	0.8%	654	Mt Wellington	1.0%	1,013	North Harbour	1.0%
258	Takapuna	0.8%	647	North Harbour	1.0%	1,005	Highbrook	1.0%
250	Auckland International Airport	0.8%	590	Botany	0.9%	982	Botany	0.9%
243	Rosebank	0.7%	527	Mangere	0.8%	906	Takapuna	0.9%
232	Manukau Super Clinic	0.7%	512	Auckland International Airport	0.8%	870	Albany	0.8%
218	Lincoln	0.7%	501	Manukau Super Clinic	0.8%	822	Smales Farm	0.8%
206	New Lynn	0.6%	497	Albany	0.8%	809	Manukau Super Clinic	0.8%
205	Parnell	0.6%	485	Takapuna	0.8%	795	Mangere	0.8%
205	Akoranga	0.6%	481	Rosebank	0.7%	750	Auckland International Airport	0.7%
195	Henderson	0.6%	425	Lincoln	0.7%	744	Rosebank	0.7%
195	Smales Farm	0.6%	406	Smales Farm	0.6%	732	Parnell	0.7%
192	Airport North	0.6%	406	Akoranga	0.6%	679	Akoranga	0.6%
168	Sylvia Park	0.5%	391	New Lynn	0.6%	678	Lincoln	0.6%
155	Ellerslie Lunn Ave	0.5%	390	Parnell	0.6%	661	Henderson	0.6%
149	Auckland Port	0.5%	384	Airport North	0.6%	652	New Lynn	0.6%
142	Ellerslie	0.4%	360	Henderson	0.6%	561	Airport North	0.5%
138	Freemans Bay College Hill	0.4%	322	Sylvia Park	0.5%	543	Auckland Port	0.5%
137	Mt Eden Normanby Rd	0.4%	304	Auckland Port	0.5%	519	Freemans Bay College Hill	0.5%
126	Westgate / Massey North	0.4%	299	Ellerslie Lunn Ave	0.5%	509	Ellerslie	0.5%
123	Panama Road	0.4%	288	Ellerslie	0.4%	507	Sylvia Park	0.5%
114	Papakura	0.3%	281	Freemans Bay College Hill	0.4%	498	Mt Eden Normanby Rd	0.5%
108	Devonport Naval Base	0.3%	258	Mt Eden Normanby Rd	0.4%	469	Ellerslie Lunn Ave	0.4%
100	Silverdale	0.3%	242	Panama Road	0.4%	361	Papakura	0.3%
82	Highbrook South	0.3%	208	Silverdale	0.3%	360	Devonport Naval Base	0.3%
81	St Johns	0.2%	208	Papakura	0.3%	355	Panama Road	0.3%
76	Pukekohe	0.2%	182	Devonport Naval Base	0.3%	324	Waitakere Hospital	0.3%
73	Wiri	0.2%	176	Waitakere Hospital	0.3%	293	Silverdale	0.3%
72	Otahuhu	0.2%	172	Highbrook South	0.3%	251	Highbrook South	0.2%
70	Arch Hill	0.2%	157	St Johns	0.2%	242	St Johns	0.2%
70	Favona	0.2%	150	Otahuhu	0.2%	234	Pukekohe	0.2%
68	Otahuhu	0.2%	149	Pukekohe	0.2%	231	Manukau Centre	0.2%
68	Papakura Hunua Rd	0.2%	144	Otahuhu	0.2%	228	Arch Hill	0.2%
68	Takanini North	0.2%	144	Papakura Hunua Rd	0.2%	222	Otahuhu	0.2%
15,614	Top 50 Locations	47.7%	37,298	Top 50 Locations	57.9%	63,447	Top 50 Locations	60.6%

Source: Auckland Economy Growth Model 2023

Appendix 1 Business sufficiency assessment

Appendix 2 Property developer survey

Purpose of the survey:

To understand the intentions of property developers for future development, and the drivers of developers' decision-making. The findings will help Auckland Council inform its strategic future planning.

To partially fulfil the legislative requirements under the National Policy Statement on Urban Development (NPS-UD)¹. The NPS-UD requires Auckland Council to engage with the development community as part of developing Auckland's Future Development Strategy (FDS) & Housing and Business Assessment (HBA).

About your company

The first section of this survey is about your property development company.

[Multi-choice: Development Type]

What kind of developments does your company currently undertake in the Auckland region?

Answer	Logic/notes/code
Residential	
Commercial	Screen out if only selected
Mixed residential and commercial	
Subdivide land	
Something else, please specify:	

[Multi-choice: Location]

Where in Aotearoa New Zealand does your company currently develop properties?

Answer	Logic/notes/code
Auckland	Must select to continue
Elsewhere in the North Island	
South Island	
I don't know	Exclusive

[Single choice: Company Size Indicator]

In the last 5 years how many residential dwellings or equivalent sections has your company developed in Auckland each year, on average?

Answer	Logic/notes/code
1 – 10 dwellings or sections	
11 – 30 dwellings or sections	
31 – 50 dwellings or sections	
51 – 100 dwellings or sections	
101 – 200 dwellings or sections	
More than 200 dwellings or sections	
Prefer not to say	

¹ More details of National Policy Statement on Urban Development can be found via <https://environment.govt.nz/publications/national-policy-statement-on-urban-development-2020-updated-may-2022/>

Last 5 years

These questions are about the past 5 years.

[Single/multi-choice: Typology Types (Past)]

What kind of buildings or sections/superlots for these buildings has your company developed in the past 5 years?

Answer	Logic/notes/code
Apartments up to 3 storeys	
Apartments with 4-6 storeys	
Apartments with 7 storeys or more	
Townhouses, terraced houses or duplex	
Standalone houses	
Mixed use (commercial and residential in the same development)	
Commercial (e.g. restaurants, offices, retail)	
Industrial (e.g. warehousing, factories)	
Something else, please specify:	
Prefer not to say	

[Single/multi-choice: Land Types (Past)]

What kind of land has your company developed in the past 5 years?

Answer	Logic/notes/code
'Greenfields' land development (e.g. conversion of farmland to sections)	
'Brownfields' land development (e.g. infill or redevelopment of existing urban land)	
Land zoned for future urban development	
Prefer not to say	

[Single-choice and free-text: Future Primary]

Are the locations, kind of buildings, or types of land being developed by your company likely to be different over the next 10 years compared with the past 5 years?

Answer	Logic/notes/code
Yes, please explain	
No, please explain	
Prefer not to say	

[Matrix: Barriers]

Over the past few years, how, if at all, has the following impacted your company's development in the Auckland region?

Statements	Logic/notes/code
Auckland Council building consent process	
Auckland Council resource consent process	
Changes to the Auckland Unitary Plan	
Central government policy changes	
Financial matters (e.g. cost of preparing sites for development, changes in sale prices, financing developments, tax implications, cost of purchasing sites)	
Market demand changes	
Infrastructure (e.g. availability of capacity/connections, timeliness, complexity of processes, fees)	
Suitability of land (e.g. issues relating to geotechnical, flooding, steepness, natural hazards)	

Answer	Logic/notes/code
Major negative impact	
Minor negative impact	
No impact / have not experienced this	
Minor positive impact	
Major positive impact	

Decision-making

This set of questions is about how your company makes decisions.

[Matrix: Factors]

When thinking about your company's future developments in the Auckland region, how important are the following factors in decision-making?

Statements	Logic/notes/code
Demand for new residential builds	
Long term housing trends in Auckland	
Availability of development infrastructure (e.g. Public transport, roads, three waters pipes)	
Suitability of land (e.g. issues relating to geotechnical, flooding, steepness, natural hazards)	
Funding/financing for development	
Selling dwellings off-plans prior to commencing development	
Currently commercially feasible development	
Land amalgamation opportunities	
Familiarity with location/area	
Familiarity with product/building typology	

Statements	Logic/notes/code
Long-term sustainability, resilience and maintenance of developments	
Building beyond the minimum requirements of the building code	
Applying urban design principles beyond the minimum requirement	
Employing environmentally sustainable practices beyond the minimum requirement	

Answer	Logic/notes/code
Critically important	
Important	
Somewhat important	
Not important at all	
I don't know	

[Single choice and free text: Other Drivers]

Are there any other important factor your company considers when making decisions about future developments in the Auckland region?

Answer	Logic/notes/code
Yes, please explain:	
No	
I don't know	

[Matrix: Policy]

What impact do you expect the following to have on your company's residential property development over the next 10 years?

Statement	Logic/notes/code
Auckland Unitary Plan (zoning, need for resource consents)	
National Policy Statement on Urban Development	
Medium Density Residential Standards	
Development charges (e.g. Development Contributions, targeted rates)	
Building Code changes (e.g. structural and building performance rules, multiproof, ability to substitute materials)	
Climate change policy or effects (e.g. emissions reduction, managed retreat)	
Opportunities to partner (e.g. with central government or housing providers, rent to build, shared ownership)	

Answer	Logic/notes/code
Major negative impact	
Minor negative impact	
No impact	
Minor positive impact	
Major positive impact	
I don't know	

Looking into the next 10 years

These questions are about your company's intentions for the next 10 years.

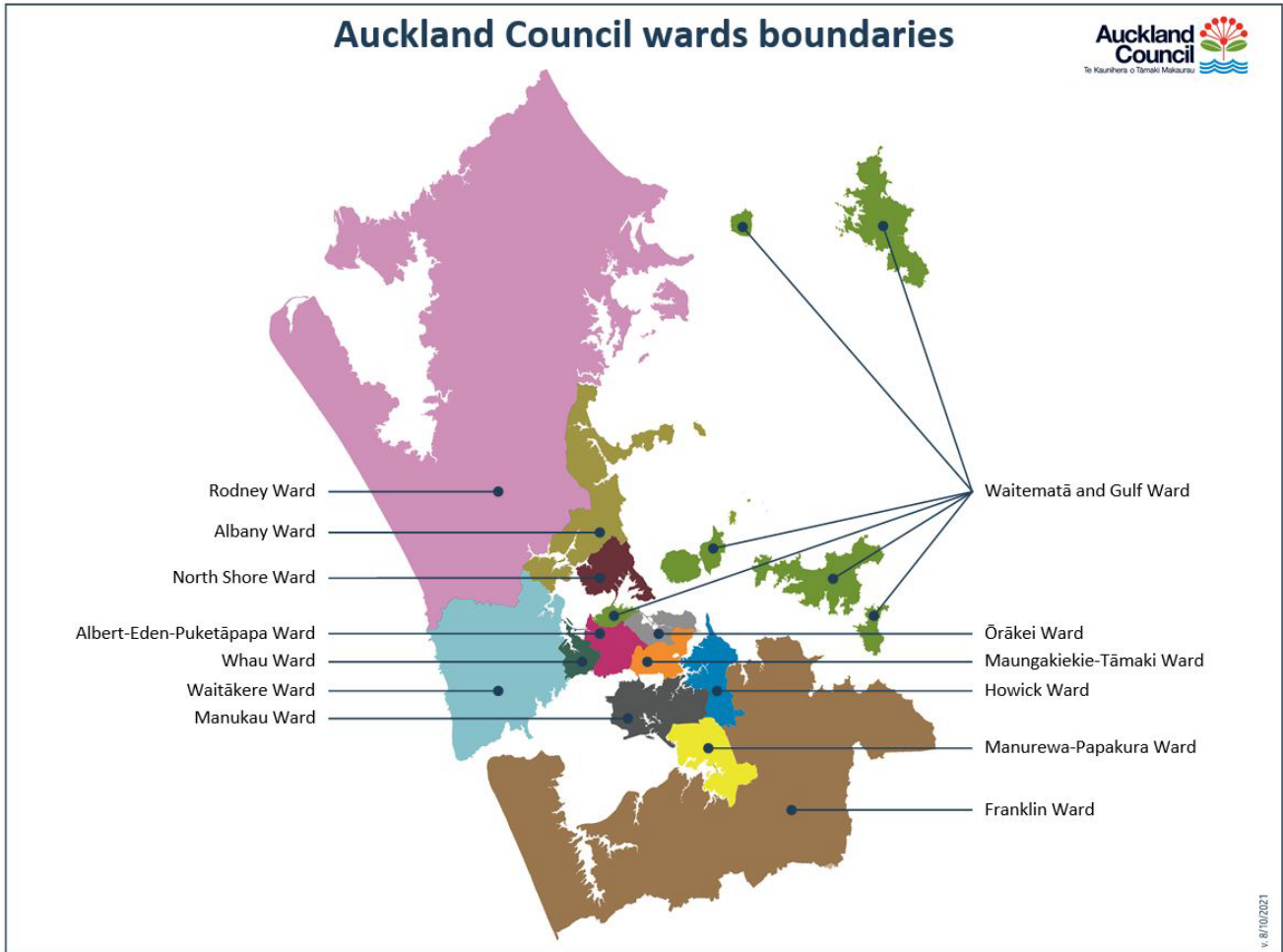
[Single/multi-choice: Location]

Where in the Auckland region your company is likely to develop in the next 10 years?

Click on locations in the map below to place up to 10 dots indicating the locations your company is likely to develop.

If you're not sure exactly in which locations your developments are likely to be, please make your best estimate.

Answer	Logic/notes/code
Rodney Ward	
Albany Ward	
North Shore Ward	
Albert-Eden-Puketāpapa Ward	
Whau Ward	
Waitākere Ward	
Manukau Ward	
Waitematā and Gulf Ward	
CBD	
Ōrākei Ward	
Manungakiekie-Tāmaki Ward	
Howick Ward	
Manurewa-Papakura Ward	
Franklin Ward	



[Single/multi-choice: Typology Types]

What kind of buildings, or sections/superlots for these buildings, is your company likely to develop in the next 10 years?

Answer	Logic/notes/code
Apartments up to 3 storeys	
Apartments with 4-6 storeys	
Apartments with 7 storeys or more	
Townhouses, terraced houses or duplex	
Standalone houses	
Mixed use (commercial and residential in the same development)	
Commercial (e.g. restaurants, offices, retail)	
Industrial (e.g. warehousing, factories)	
Something else, please specify:	
Prefer not to say	

[Single/multi-choice: Land Types]

What kind of land is your company likely to develop in the next 10 years?

Answer	Logic/notes/code
'Greenfields' land development (e.g. conversion of farmland to sections)	
'Brownfields' land development (e.g. infill or redevelopment of existing urban land)	
Land zoned for future urban development	
Prefer not to say	

Open-ended questions

[Free text: Council Support]

Thinking about your company's future developments outlined above, what could Auckland Council start, continue or stop that would best support your company's intentions?

Answer	Logic/notes/code
<i>Open</i>	

[Free text: Further Comment]

Would you like to tell us anything else about your company's experience in property development in Auckland or your intentions for the future?

Answer	Logic/notes/code
<i>Open</i>	

[Single choice: Contact Details]

Would you like to receive a copy of the report containing the findings from this survey?

Answer	Logic/notes/code
Yes	
No	

Please provide your contact details.

These details will only be used to send you a copy of the report and will not be associated with your survey responses.

Statements for form	Logic/notes/code
Name	
Email	

Appendix 3 Supply inputs, assumptions, and methodology

The NPS-UD has particular requirements² in terms of defining and considering what is *plan-enabled* development capacity supply over time, considering currently available potential in the short term, any additional potential from proposed plan changes in the medium term, and increases from land identified for future urban use or urban intensification from longer term spatial strategies for the long term. The provision of infrastructure follows a similar path considering what is currently or shortly available in the short term, what's funded for the next 10 years in the medium term, and longer-term investment plans such as Infrastructure Strategies. This information must be based on what is published and available, not what may be published in the future.

The purpose of the HBA is to assess the suitability of *existing* land use and infrastructure plans so future iterations of those plans can be better informed and improved, rather than assume future plans will be suitable.

This supply must also be considered against a number of 'filters', including, if the plan enabled capacity is development 'infrastructure ready' at the bulk level, and if that plan enabled capacity is feasible (for residential development) or 'suitable' for business development and if it is reasonably likely to be realised (Table 1).

The steps for calculating plan-enabled capacity and infrastructure-readiness are similar for both dwelling units and business space. Plan enabled residential supply is considered further via 'commercial feasibility and likely to be realised' considerations, while plan enabled business supply is considered against 'suitability' for its intended business use.

The commercial feasibility approach taken to residential development, effectively tests if a profit motivated developer would take up the provided opportunities (because the expected price covers expected costs plus a reasonable profit) – some additional consideration for how this feasible supply matches with demand, particularly in terms of affordability is also undertaken.

For business, the test is slightly different and focusses on 'suitability' of the site for the intended business use. Site suitability reflects the complexity of business development feasibility decisions and the wider range of tenure and investment approaches to business space, design and build, leasing and temporary rentals. For example, some businesses (like coffee shops, hairdressers and takeaways) have preferences for being close to their customers, and generally occupy smaller premises on the ground floor in a centre zone. We can assume that the provision of enabled ground floor centre zoned floorspace capacity will be typically 'suitable' for these sorts of uses. Light industrial on the other hand have a different set of requirements, for a range of site sizes. This includes larger sites, that are level, surrounded by similar businesses, mostly separated from sensitive uses and with good motorway access. Again, the provision of land meeting these criteria can be generally assumed to be suitable for light industrial use.

² See NPSUD Clause 3.4, subclause (1) for plan enabled, and (3) for infrastructure ready meanings

Table 1. Plan Enabled and Infrastructure ready sources.

	Short Term (Years 1-3)	Medium Term (years 4-10)	Long Term (years 11-30)
Plan Enabled?	AUPOIP + Live zoned Greenfields (CFGS Model(s))	PC78 as notified + FDS 2023 pre 2035 Greenfields (CFGS Model(s))	PC 78 + Draft FDS 2023 pre 2050 Greenfields (CFGS Model(s))
Infrastructure Ready? (Bulk Transport, Water Supply and Wastewater)	Current Capacity + projects soon to be completed	LTP/AMP/RLTP Funded projects expected to be online pre 2032.	Post 2032 - Longer term Investment Strategies (ATAP v2 for Transport, 2021 AMP for WSL)
Feasible Residential? Suitable Business?	Residential – Feasible and expected to be realised (as tested by ME Housing Affordability Model, and/or Auckland Council Development Capacity Model (ACDC)) Business – Suitable (Business Capacity Assessment)		

The following sections describe the data, methods, and assumptions applied to determine the plan enabled and infrastructure ready capacity estimates.

Plan-enabled capacity: The Capacity for Growth model

The following section describes the Capacity for Growth model process used to calculate plan-enabled capacity. This information is the necessary starting point for all subsequent assessments of sufficiency – without understanding of what is enabled, there is no way to determine if it is feasible, what it might cost or sell for, or if it is infrastructure serviceable. Plan enabled capacity provides (or imposes) the upper limit or ceiling to what is possible under the regulatory system being tested.

Note: Due to changes to the majority of unitary plan provisions moving away from directly controlling density or dwellings (except in some lower density zones), towards primarily a providing a set of building envelope controls, the primary or initial plan enabled output is *floorspace* (rather than dwellings). This space is then post-assessment converted to potential dwelling units and/or business capacity (zone dependent) using an average dwelling size (most reporting uses 120m² – an assumed dwelling size of 60m² would instantly double ‘dwelling capacity’ for a given building envelopes floorspace area). Accordingly, as floorspace is what is actually enabled, dwelling capacity is only a rough estimate, a function of arbitrary dwelling size assumptions rather than a direct measure of what the plan actually enables (which is actually mathematically infinite but practically constrained). This is also why feasibility calculations can result in both higher and lower numbers than ‘dwelling capacity’ because the feasibility modelling may find a smaller (or larger) floor area than assumed in the initial plan enabled floorspace capacity to dwelling conversion makes better commercial sense.

Measuring development capacity for Auckland begins with assessing the maximum plan enabled development capacity enabled by the Auckland Unitary Plan Operative in part provisions (the operative plan, for the short term only) and the notified Plan Change 78: Intensification provisions (the notified plan, for the medium and long terms).

The assessment model used for this HBA is built upon the Capacity for Growth Study (CFGS) approach initially developed by the Auckland Regional Council/Regional Growth Forum and further refined by Auckland Council. The current model has been constantly refined and updated to reflect ongoing changes in the planning system, software updates, new techniques, evolving interest in and use of the model in the

planning process and data availability, but its current iteration is fundamentally built on the FME model initially developed for the 2013 Capacity for Growth Study, and utilised for the Auckland Unitary Plan Hearings, and more recently the 2021 HBA³. The latest updates include several process improvements, as well as numerous architecture redesigns of the model's core functions and calculations. These changes are applied to better reflect new and amended planning provisions introduced by the notified plan and to retrofit past models with new components so that model outputs of the operative plan are comparable to recent model runs. Figure 1 depicts the modelling process applied for this HBA.

In light of recent residential development trends enabled by the operative plan as well as the introduction of the Medium Density Residential Standards, the modelling of residential development capacity assumes all residential zoned sites are (re)developed while existing building structure(s) is (are) ignored. While infill development (e.g. adding additional dwelling units at rear site or extending existing dwelling structure for more dwelling) is still a valid development option, recent trends have suggested the majority of housing development has taken up opportunities enabled by the AUP which resulted in a shift towards attached developments which are much higher in density and dwelling yield, and require the whole of the site to make work, than infill housing options where additional, usually detached, and usually one or maybe two units at a time squeezed in around existing detached development. Though infill assessments are still being calculated, and the outputs are available upon request, they are no longer included for HBA reporting purposes.

The capacity model process necessarily involves a simplification of the complex and discretionary planning system so that it can apply multiple rules to derive a number of dwellings (now relatively rare and restricted to a few low density zones) or floor area yield (which applies to the bulk of capacity). By doing so, it requires a simplification process to determine which plan provisions are 'essential', which rules are able to be ignored (because they do not materially affect yield – this may relate to exterior appearance or interior requirements), and what rules can be converted to numerical or spatial formats which allows the utilisation of mathematical or spatial calculations to quantify enabled development capacity.

The latest model is developed for evaluating the maximum plan-enabled development capacity under the combination of zone standards, and how (or if) overlays and qualifying matters could limit an otherwise possible development yield. It is a desktop quantitative assessment of individual development sites based on selected provisions of the operative plan and the notified plan. It follows a process which calculates the maximum possible development footprint first. It is followed by a volumetric calculation of the upper storeys accounting for increasing impacts of setbacks and recession planes as the building increases in height. Development potential is reported as total gross floor area, which for residential sites is then converted (by dividing floor area by an assumed dwelling floor area) to estimate the total dwelling capacity of the development site.

³ See 2013 CFGS Methodology report: <https://knowledgeauckland.org.nz/publications/capacity-for-growth-study-2013-proposed-auckland-unitary-plan-methodology-part-2/>

Plan-enabled capacity assessment 2022/2023

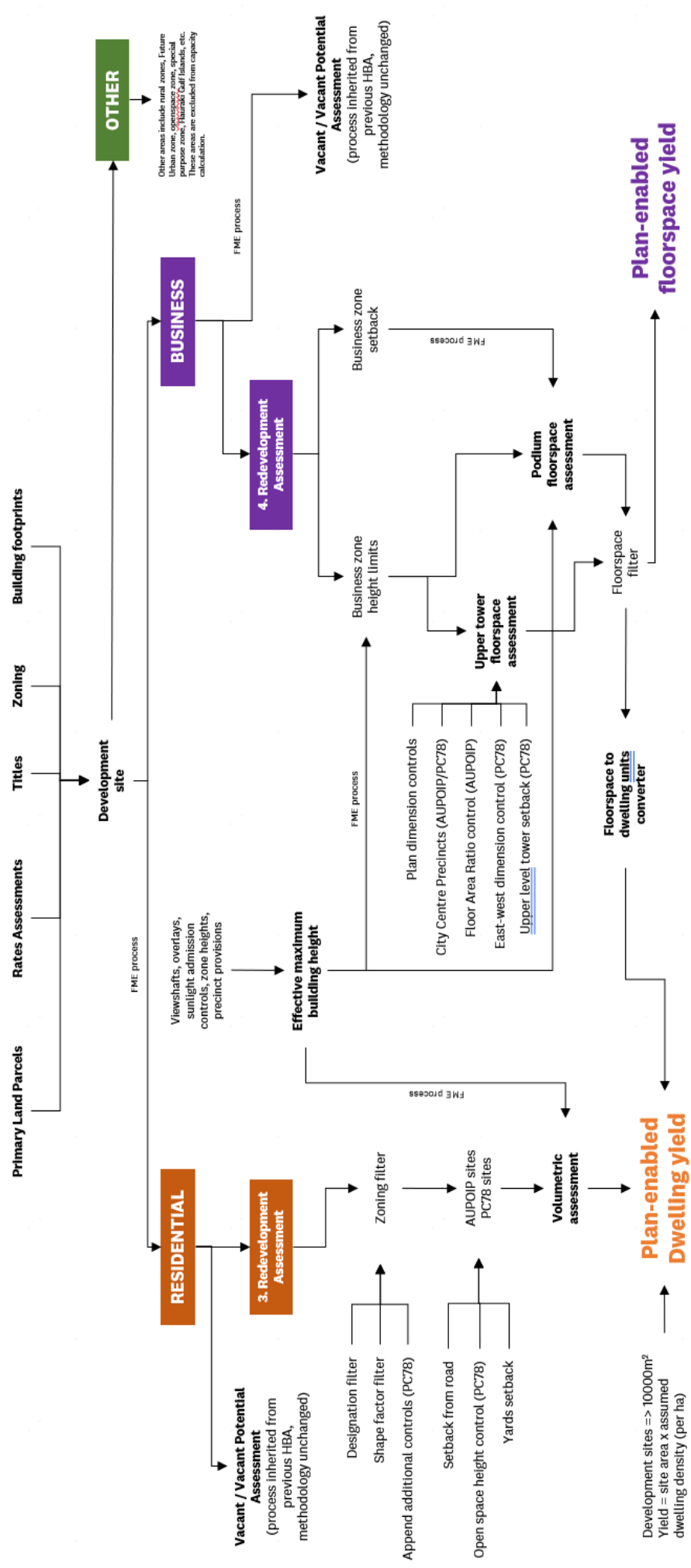


Figure 1. Plan-enabled capacity assessment process.

For modelling purposes, zoning, overlay and precinct standards are grouped as 'CFGS modelling zones'. These CFGS zones are grouped into two broad categories:

1. provisions that control the bulk and location of where development can occur with a site at the ground level. These provisions include setback rules, impervious surface coverage, and maximum building coverage.
2. provisions that limit the vertical buildable floor area above the initially established development footprint/ground level. These include, base zone height, height variation controls, and other height limiting overlays.

It is worth noting some provisions contain specific rules that spread across both categories, such as the 'Special Character Overlay', the 'Volcanic Viewshafts and Height Sensitive Areas Overlay' and some Qualifying Matters (QMs), which specifically regulate site coverage and building height and override base zone standards. Therefore, additional ranking processes are applied in the model to refine the rules that apply to individual development sites e.g. applying relevant overlay rules rather than simply modelling the base zone standards.

A key update from the previous models is the move to 'development site' as the base geographic unit input to the CFGS model. Its boundary is constructed using a combination of Council's Rates Assessment Area(s)⁴ (RAAs) and Parcel(s)⁵ and Title(s)⁶ from Toitū Te Land Information New Zealand (LINZ) to establish the smallest contiguous land area that is owned by an individual or collectively by a group (which could span across multiple land parcels, titles and/or rates assessment areas). For many standard suburban sections with a single house, these three definitions (the RAA, Parcel and Title) would cover the same area, the 'section'. For more complex sites, such as an apartment building may have 100 titles, over 2 parcels and 150 RAAs (including the common areas and carparks). The Model can now recognise that the two parcels are in fact one development site that cannot be treated separately.

This data preparation process of joining Council's and LINZ's land-use datasets (RAAs, parcels and titles) is derived from LINZ's Title Dataset Model⁷ which establishes the linkages between Titles and their commonly shared estates (if applicable), as well as titles listed under each RAA entry.

Through this process, the development site input to the model contains a rich bundle of attributes on existing dwelling count (if this exists), estimated dwelling age (if applicable), total building floor area (if this exists), primary and secondary land use information (e.g. multi-storey apartment building with retail space at ground level) as well as the latest valuation values (land, improvement, and capital values). This enables the calculation of the maximum development yield by gross and net dwelling units, and gross and net floor area. Sites where existing development exceeds or equals plan enabled capacity are reported as zero – not a negative, as consented buildings existing use rights override new planning rules.

⁴ Rating Assessment is a three-yearly assessment of property value in relation to current market values. It contains detailed appraisal information on a property such as land value, improvement value, total floor area, total living area, quality of built, etc. to inform the property's market value.

⁵ Parcels are units of land defined in cadastral surveys. "Parcel information is used to define property land rights and boundaries in New Zealand". <http://www.linz.govt.nz/data/linz-data/property-ownership-and-boundary-data/types-lds-property-ownership-and-boundary-data>

⁶ Titles are legal property ownership documents, generally parcels tied together by ownership. "Property titles data includes information about ownership, all estates, encumbrances and easements that affect a piece of land, such as mortgages, leases and right of ways.

⁷ LINZ Data Service: Full Landonline Dataset. Data Dictionary and Data Models. <https://data.linz.govt.nz/document/11095-lds-full-landonline-data-dictionary-and-models/>

This development site preparation process also enables the capability of removing non-developable land areas from calculation, such as privately owned driveways that are shared by multiple properties. This avoids over-reporting plan-enabled capacity on land that is not likely to be available for development.

After identifying residential sites with development potential, the maximum developable envelope is modelled using a formula which considers individual site area's maximum building coverage, maximum number of permitted storeys controlled by height in relation to boundary rules to produce the maximum allowable floorspace on the development site.

The formula is shown below:

$$\text{Total gross floor area} = \sum_{i=1}^n \min\{\alpha, \beta^i\}_{i=1}^n \quad (1)$$

where n is the maximum storeys enabled by the plan (operative, or notified), i is the index of summation which refers to the storey calculated that starts from one (being the ground floor) to n (being the maximum storey allowed), α is the maximum building footprint (Net site area x Maximum building coverage), and β is the calculated maximum floor plate controlled by height in relations to boundary rules.

This calculation is intended to calculate total gross floor area of a low-rise apartment building or a group of attached terrace houses on a development site. Upper floor plates are controlled by the recession plane (if applicable) and individual floor plate is tested against the building footprint to ensure no upper level floor plate is greater than the footprint or any floor below it, to avoid building an 'up-side-down pyramid' or other impractical or improbable building envelopes.

Additional internal circulation and storage spaces are incorporated into dwelling capacity calculation. These inputs are sourced from architecturally designed worked examples undertaken by Jasmax as part of the s32 evaluation report (Auckland Council, 2022c).

$$\text{Gross dwelling yield} = \frac{\text{Total gross floor area} \times (1 - (\text{internal circulation\%} + \text{storage\%}))}{\text{Average dwelling floor area}} \quad (2)$$

A total of 25 per cent floorspace (20 per cent internal circulation and five per cent storage space⁸) reduction is factored in, then the remaining 75 per cent of the total floorspace is divided by an average dwelling floor area rounded down to the nearest integer to provide the gross dwelling yield (equation 2).

As mentioned in the assumption section, if a development site is greater than one hectare, development capacity is modelled utilising a simplified 'density controlled' subdivision approach. Dwelling yield is calculated using equation 3, as shown below,

$$\text{Gross dwelling yield} = \frac{\text{Total site area} \times (1 - \gamma)}{300} \quad (3)$$

where γ is an assumed percentage of non-yield related land area set aside for other use, such as roads and communal open spaces. Currently, γ is set at 25 per cent. This number, the site threshold and assumed density is inherited from previous CFGS models and remains unchanged to ensure the outputs are comparable to previous assessments. The approach taken is likely to underestimate plan enabled capacity on these relatively rare sites. The 1Ha threshold also reflects that the capacity model is optimised for 'typical' sites where a single building envelope reflects reasonable development options. A one hectare site processed through the normal capacity model would produce a very large footplate building, that while plan enabled, is unlikely.

⁸ These figures are adjustable – the 5% storage space provision was initially included to allow for bike parking and waste receptacles. Internal circulation space is a practical requirement for multi-unit developments.

The following part of the section provides an overview of the residential vacant/redevelopment modelling process.

Building on residential capacity assessment, the business development capacity measurement consists of three types of assessments, namely vacant business land area assessment, vacant potential business land assessment, and redevelopment floorspace assessment. The foundation of methodologies adopted for the latest HBA were first established for the Capacity for Growth Study 2012/13. The methodology of vacant and vacant potential business land assessment remains unchanged. Detailed explanations of vacant and vacant potential assessment are available on Knowledge Auckland.

For assessing vacant business land, the primary input utilised is building footprint data sourced from both council's in-house LiDAR data, and data extracted from LINZ. The assessment extracts land area that is currently⁹ empty or is without any building structure identified but has been used for other purposes (such as storage yard or carparking). Business vacant land capacity yield is reported by land area (in hectares).

Vacant potential land assessment examines all occupied business land and identifies land area that is currently underutilised which could be further developed or be used for other purposes. Residual business land is calculated using total site coverage and site building footprint coverage derived from council's latest rating database (as at March 2022). Residual business land is ranked and filtered by comparing to all existing business sites of similar typologies (in this case, commercial use and industrial use are treated separately). The ranking and filtering process means that only larger sites with a large portion of vacant potential area are reported for yield calculation. Sites with lower vacant potential are excluded and assumed that the associated residual business land is part of the existing business activities. Therefore, it is not suitable for further development or for other purposes.

Significant improvements have been made to assessing redevelopment floorspace capacity on business zoned land which aims to better reflect the variations of planning provisions between the operative plan and the notified plan (PC78). The latest updates have been focused on improving assessment methodology of three main stages, namely,

Determining effective maximum permitted heights – height controls over business zones are highly complex compared to residential zones. Multiple sources of height controls¹⁰ have been imposed to ensure that adverse effects imposed by taller buildings on business zoned land are appropriately mitigated. Through this initial stage, all height controls are combined and ranked to determine the effective height limit on each individual business site.

Calculating maximum developable podium (lower storeys) floor area – the second stage is modelling podium floor area by counting for yard setbacks, maximum frontage heights, road frontage and upper-level (podium) setbacks, as well as recession plane controls when abutting residential and open space zones.

Calculating maximum developable tower (upper storeys) floor area – the third stage calculates the maximum individual floor plate that is enabled by either the operative plan or the notified plan, and the maximum number of tower blocks each individual site can accommodate. Maximum tower dimension is regulated by plan diagonal distance of the two furthest points of individual tower floorplate (e.g. 50m or

⁹ This is subject to data availability and update/survey frequency. For most part of Auckland, building footprint data is derived from the 2016/17 LiDAR survey. Recent development occurred afterwards is not included.

¹⁰ Height controls can be categorised in three main categories, namely a) base zone heights, b) height variation controls (which either trumps base zone heights or imposes height limits below base zone heights), c) special height restrictions (e.g. regional volcanic and local viewshafts, height sensitive areas, sunlight admission controls, specific precinct height controls etc.).

55m depending on base zone type), tower setback requirements and tower orientation dimension (PC78 only).

Maximum building floor area is then calculated by combining outputs from the three main components. It is then compared to maximum gross floor area (GFA) permitted controlled by gross floor area ratio if applicable (requirements imposed by the operative plan, these GFA controls are largely removed from the notified plan, except for a few City Centre precincts). Floorspace yield is reported in square metres.

Residential Feasibility and Affordability – the ME Housing Affordability Model

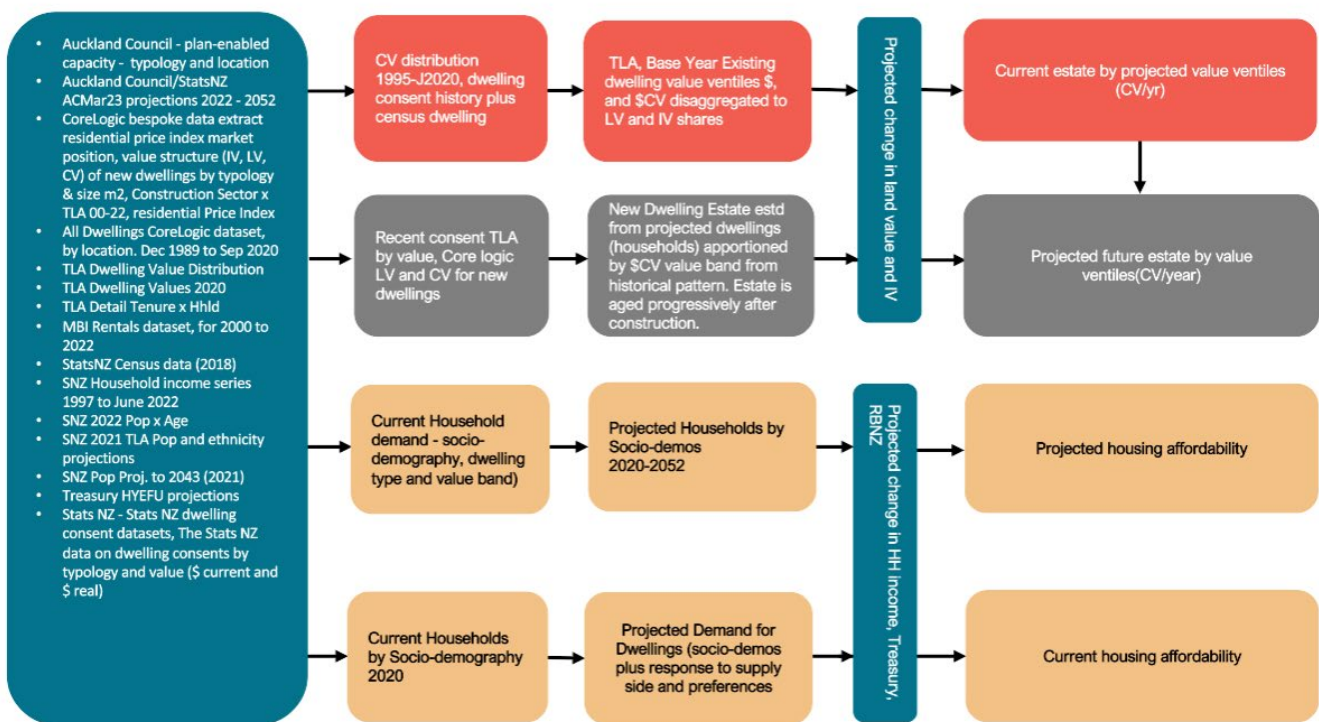


Figure 2. Housing demand and affordability flowchart.

Residential Feasibility – The Auckland Council Development Capacity Model (ACDC)

The ACDC model is a cost and price-based feasibility model initially developed for the IHP for the Auckland Unitary Plan, designed to assess the commercial feasibility of plan enabled capacity inputs from the CFGS modelling, and was last used in the 2021 HBA, where it is more fully described¹¹.

Cost and Price assumptions from the 2021 HBA have been reused to assess the feasibility of PC78 capacity inputs, to enable a like for like comparison between AUPIOP and PC78.

Further work is proposed to update the cost and price inputs to late 2022 data, with this assessment data to be released in due course once this is completed.

Given the steep reduction in prices since 2021 and the ongoing increases in costs, it is expected that late 2022 feasibility would be considerably less than early 2021 feasibility (when prices were high and rising and costs were relatively slower moving) all else being equal.

This rapid fluctuation in under two years highlights the main issue with using a point in time feasibility assessment to determine long term sufficiency – it is not a forecast of development – feasibility, as essentially a measure of the ‘gap’ between costs and price, is constantly changing, including in response to new opportunities and constraints, and the relative balance between supply and demand.

Assuming early 2021 and late 2022 reflect the upper and lower bounds of how feasibility might cycle between really good and not so good over the next 30 years, having feasibility tested under both scenarios could provide a more realistic indication (as a range), if the use of feasibility as a forecast or indication of sufficiency is required, despite its shortcomings.

Business Suitability - the Market Economics Spatial Economy Model

-The Market Economics Spatial Economy Model is briefly explained below. For a more detailed understanding of the model techniques applied, please see Appendix 1 – The 2023 Business Assessment.

To undertake the business assessment for Auckland, ME applied the Auckland Economy Growth Model which draws together the critical information on the Auckland economy and community in a structure which enables examination and analysis by location and over time (Figure 3).

The model is structured to reflect (as closely as possible) the Auckland spatial economy. The core spatial components in the model are the centres and business areas and nodes around which the Auckland economy itself is structured. The City Centre, Metropolitan centres, Town centres and so on are the nodes of activity in the economy, and it is logical to examine patterns of activity – past, current and future – in relation to these nodes.

¹¹ <https://knowledgeauckland.org.nz/publications/housing-assessment-for-the-auckland-region-national-policy-statement-on-urban-development-2020/>, see especially Appendix 2 ACDC Model look up tables.

The model holds datasets at SA1 level¹² and at each higher level in the economy, in order to track economic activity as business units (Business Units) and employment, for the 6 mega-sectors, the 19 main ANZSIC sectors, and the 109 industries. The fully detailed economy data is for 484 sectors defined at 6D ANZSIC level. The supporting data includes the principal drivers of social activity (population and households, and their key characteristics). Other datasets are also organised at this geographic structure, as these include information that is material to social and economic activity (dwellings and built structures, land, property, building consents, and travel interactions).

The business areas include special nodes such as major hospitals. Other information about the nodes of activity including zoned business land, built improvements and property values is directly relevant and supports this structure.

The model is structured to examine a wide variety of future outcomes by applying various growth projections and assumptions to understand likely outcomes under higher or lower employment projections, and/or different population futures, and/or different patterns of population growth within Auckland.

Further, the Model structure allows examination of the specific as well as the general. This means that any specific centre or business area or node, or wider area such as a Local Board Area, can be readily examined by itself and in its wider context, for a range of indicators. The structure also offers diagnostics to place each centre, business area and so on in context.

¹² The Spatial Economy modelling requires some reconciliation of different geographies. This is because the zone data follows cadastral boundaries, whereas the data on economic activity (business units and employment) is available only at SA1 level. The SA1 boundaries often do not concord precisely with the cadastral boundaries. The SA1 data also has some limitations because the geography is decided by Stats NZ on the basis of the distribution of population and households. One consequence is that economic activity data is organised spatially according to the distribution of population, and because areas of business and industrial activity commonly have nil or very small resident populations, the StatsNZ boundaries encompass large areas within single SA1 areas. For example, the Albany Metropolitan Centre is fully contained within a single SA1 area, and a very substantial scale of economic activity (1,500 business units, more than 9,800 MECs) is not able to be spatially differentiated – for example, to distinguish the Albany Mall, the Albany large format centre and the Mercari Centre.

Spatial Economy Model

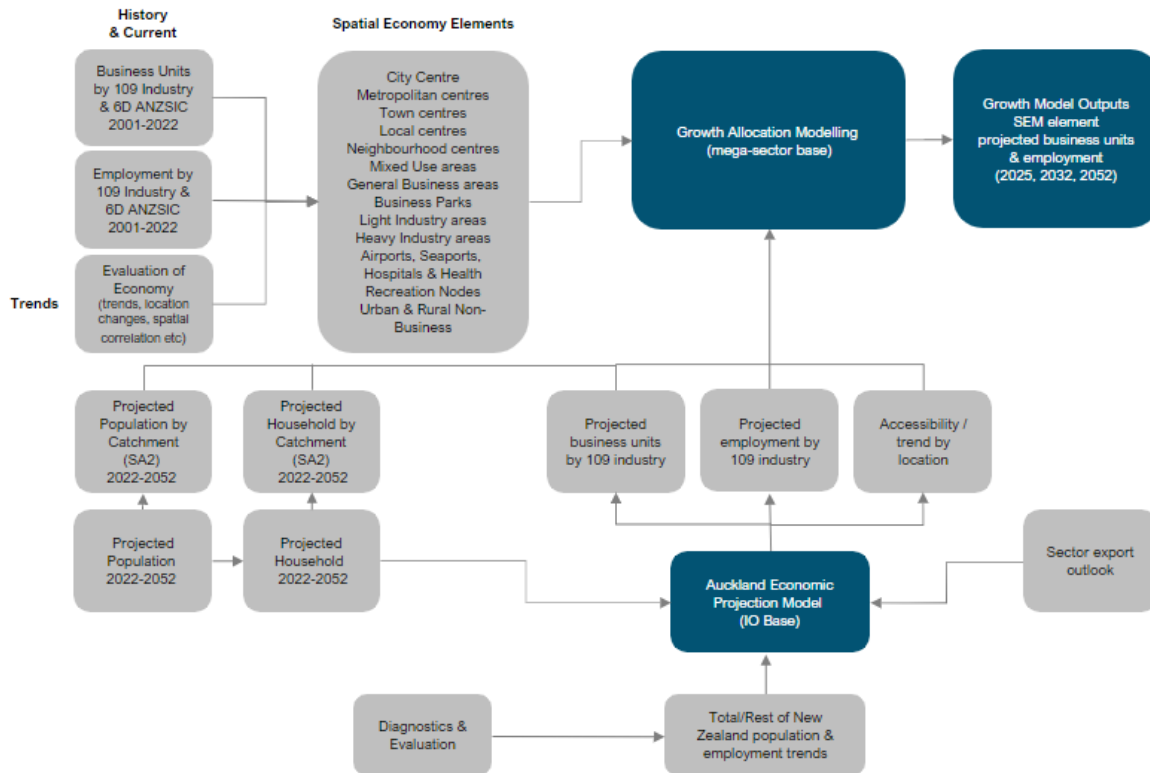


Figure 3. Auckland's Spatial and Economic Growth Model.

Development infrastructure readiness

Defining infrastructure readiness

Clause 3.2(2)(b) of the NPS-UD describes that, for development capacity to be sufficient to meet expected demand for housing, capacity must be 'infrastructure-ready'.

The council must look at infrastructure availability at a whole of Auckland regional level, rather than focus on specific areas. Under clause 3.4(3) of the NPS-UD, for development capacity to be considered as 'infrastructure-ready', it must meet the following definitions.

Infrastructure-ready development capacity – definitions

Short-term (0-3 years)	Development capacity with adequate existing development infrastructure to support development of land.
Medium-term (3-10 years)	Development capacity with adequate existing development infrastructure to support the development of the land, or adequate development infrastructure is included in a long-term plan.

Long-term (10-30 years)	Development capacity with adequate existing development infrastructure to support the development of the land, or adequate development infrastructure is included in a long-term plan or infrastructure strategy.
------------------------------------	---

The definition of ‘development infrastructure’ focuses the council to consider network (bulk) infrastructure for water supply and wastewater, stormwater, and land transport. ‘Local’ infrastructure capacity has not been included. However, it is recognised that there are likely to be some limitations in some locations at some times for some developments due to local-level infrastructure capacity constraints.

Defining development infrastructure

Development infrastructure means the following, to the extent they are controlled by a local authority or council-controlled organisation (as defined in section 6 of the Local Government Act 2002):

- *network infrastructure for water supply, wastewater, or stormwater*
- *land transport (as defined in section 5 of the Land Transport Management Act 2003)*

Additional infrastructure means:

- *public open space*
- *community infrastructure as defined in section 197 of the Local Government Act 2002*
- *land transport (as defined in the Land Transport Management Act 2003) that is not controlled by local authorities*
- *social infrastructure, such as schools and healthcare facilities*
- *a network operated for the purpose of telecommunications (as defined in section 5 of the Telecommunications Act 2001)*
- *a network operated for the purpose of transmitting or distributing electricity or gas*

Infrastructure-ready has the meaning in clause 3.4(3), repeated below.

- *Development capacity is infrastructure-ready if:*
 - *in relation to the short term, there is adequate existing development infrastructure to support the development of the land;*
 - *in relation to the medium term, either paragraph (a) applies, or funding for adequate development infrastructure to support development of the land is identified in a long-term plan;*
 - *in relation to the long term, either paragraph (b) applies, or the development infrastructure to support the development capacity is identified in the local authority’s infrastructure strategy (as required as part of its long-term plan).*

Clause 3.5 is relevant to the assessment of additional infrastructure: Local authorities must be satisfied that the additional infrastructure to service the development capacity is likely to be available.

Bulk infrastructure networks comprise the following components:

Water supply Watercare transmission mains up to and inclusive of the bulk supply points (beyond the bulk supply point is considered local infrastructure)

Water treatment plants

Wastewater Transmission mains (interceptors and branch sewers)

Wastewater treatment plants

Transport The transport network, ‘land transport’, as defined by the Land Transport Management Act 2003 includes any transport on land by any means, and the infrastructure, goods and services facilitating that transport. This includes, state highways (see section 1.1.3), arterial roads and footpaths, public transport including bus, rail and ferry and cycling infrastructure.

Note that state highways and rail capacity have been included. This is broader than the definition of ‘development infrastructure’ in the NPSUD due to the integration and combination of the transport network in Auckland. It is not functionally possible or nor useful to separate the functioning of the transport network based on ‘ownership’.

Stormwater The piped network is the primary system. New networks are required to have a design capacity (under the Stormwater Code of Practice) for the 10 per cent AEP flow / 10-year ARI storm event. In many brownfield areas, the existing systems will rarely have the design capacity (as the RMA has required the upzoning of land while also increasing impervious surface limits on a widespread basis, irrespective of existing and planned stormwater network capacity, overland flow paths or flood risk).

Overland flow paths (i.e., where flows exceed the capacity of the primary system) are considered to be the secondary system.

Public stormwater infrastructure¹³ also includes manholes, public streams, ponds, wetlands etc.

Development infrastructure readiness assessment data included in this HBA

For the purpose of this assessment, each infrastructure provider has supplied a discrete indicator of whether any given area is infrastructure-ready within the short, medium, and long term time frame. The following subsections outline the nature of the data supplied to council by each CCO.

Water supply and wastewater

To assess infrastructure readiness for water supply and wastewater, bulk network capacity, which includes the ‘transmission network’ and treatment plants, was identified using information on known constraints and planned projects in Watercare’s 30-year 2021 Asset Management Plan (Watercare, 2021), including

¹³ Note: private streams and overland flow paths form part of the “drainage network”, as they are not public assets, they are not considered to be stormwater infrastructure as such.

Waikato 2 Watermain, Central Interceptor and the Māngere wastewater treatment plant capacity upgrade. The supporting methodology can be found in the ‘Wastewater and water supply constraints assessment’ section.

A discrete indicator of infrastructure readiness was given at the assessment site level. For each assessment site, an indication is given as to whether it will be serviced in the short, medium, or long term, or not serviced, based on the ability of the water and wastewater bulk network to accommodate growth.

Transport

Transport was not previously included in the 2021 Housing Capacity Assessment. Further work has now been completed by Auckland Council and Auckland Transport and is included in this HBA. The supporting report outlining the method can be found in the ‘Transport infrastructure assessment’ section.

A range of data sources have been used to inform the infrastructure-ready assessment, including Future Connect and the Macro Strategic Model (MSM)¹⁴ – the regional transport model that assesses the land use and transport scenarios. The assessment identifies areas that are ‘infrastructure-ready’ based on the 596 MSM zones into which the region is divided within the model.

For each MSM zone, infrastructure readiness was given as a “Ready” or “Not Ready” indicator, for residential, centre, and industrial land uses, in time periods 2018, 2031, and 2048.

The transport infrastructure-ready assessment supplied by AT assessment on three key criteria:

- Criteria 1:** Accessibility to employment and key destinations
- Criteria 2:** Proximity to transport infrastructure
- Criteria 3:** Capacity and quality of transport infrastructure

For the purposes of the HBA, “adequate” has been defined as where the strategic network infrastructure enables walking, cycling, and public transport, and minimises vehicle movements generated by development. This is consistent with the objectives and policies in the Auckland Unitary Plan, the Auckland Plan, and the NPS-UD.

The assessment has been undertaken for the three term periods of the HBA, by aligning with the most appropriate/closest equivalent model year available within the MSM outputs (which are at five-year intervals for the transport model).

The assessment has been undertaken for the three term periods of the HBA, by aligning with the most appropriate/closest equivalent model year available within the MSM outputs (which are at five-year intervals for the transport model).

The future transport network used in the infrastructure-ready assessment reflects the current and planned improvements over the next 30 years as outlined in the transport infrastructure assessment section. For the purposes of this HBA, the following assumed networks within each time period are as follows.

¹⁴ The Macro Strategy Model (MSM) is an equilibrium traffic assessment tool developed and maintained by the Auckland Forecasting Centre. The model contains a total of 596 MSM zones. The Auckland region is represented by 594 MSM zones. Two out of region zones are also included to simulate intra region transport interactions.

Short term:	Assumes the existing strategic transport network.
Medium term:	Assumes the strategic transport upgrades included in the RLTP 2021-31 are fully implemented by 2031.
Long term:	Assumes strategic transport projects identified in the Auckland Transport Alignment Project (ATAP 2 scenario) are fully implemented by 2051, including the Auckland Light Rail and Airport to Botany projects.

As a result, the infrastructure-ready assessment assumes that infrastructure identified in the Regional Land Transport Plan (RLTP) and Infrastructure Strategy will be fully funded and delivered within the planned timeframes to support the projected growth, consistent with the requirements of the NPS-UD.

State Highways and rail improvements have also been included in the infrastructure-ready assessment, as although they are managed and controlled by Waka Kotahi and KiwiRail, the projects form part of ATAP and the RLTP scenarios and are unable to be functionally separated from the overall transport network's performance.

The ownership or control-based criteria of the NPS-UD is not considered further, reflecting the integrated nature of Auckland's transport system as a *network*, and that consumers of transport infrastructure make no distinction in their transport or travel choices based on this arbitrary administrative delineation. Additionally, the transport models' outputs do not allow for this distinction.¹⁵ Furthermore, all transport investments are jointly funded and/or determined through collaborative multi-agency legislative and consultative processes covering long time periods, or provided at a local level by developers which are then vested in council.

Development infrastructure readiness data assumptions and limitations

This section highlights some of the key challenges of working with infrastructure constraint data, and sets out some limitations to bear in mind when interpreting how this data relates to other key datasets used in this HBA, such as plan-enabled capacity and projected growth.

Focus on the bulk network level

Development infrastructure readiness is based on feedback from Watercare on water supply and wastewater networks, and Auckland Transport (AT) on the performance of the transport network.

In summary, this assessment identifies existing challenges, particularly around transport, which is not a surprise to any resident in Auckland. Challenges also exist in wastewater and water supply, but these are expected to be resolved in the short term as major projects are completed, unlocking considerable capacity in the network. All constraints tend to reduce over time. Transport constraints are more challenging and persistent, but generally are less acute closer to the City Centre, more acute further away, with the distance from the City Centre where challenges exist moving outwards over time.

These assessments focus on the bulk network, not local issues. This is not because local issues do not exist or matter, but because local issues cannot be resolved if the bulk network is underperforming.

AT's assessment is of the functional transport network as a whole, which includes assets, facilities and services that are not entirely controlled by Auckland Council. However, from a network performance or

¹⁵ Potentially, separate model runs with only council-controlled and only non-council-controlled infrastructure could be carried out, but would likely fail to converge (that is, the model would crash prior to the modelling horizon year) with major components and aspects of the region's transport network missing, making the NPS-UD's requirement largely moot in any case.

user experience perspective, these aspects cannot be separated, nor is it practically relevant to overall network performance in any case, also noting the funding and planning processes are legislatively joint and collaborative across these agencies.

Assumptions upon which the datasets are based

These assessments are based on the existing business-as-usual financial plans and strategies, and the existing demand forecasting that has informed them. Watercare's assessment utilises hydrological models of the existing and 2021 AMP planned wastewater and water supply networks¹⁶ to assess performance given i11v6 growth, in the short, medium, and long term. AT's assessment utilises a multicriteria analysis of outputs from the Macro Strategic Model (MSM; a multimodal transport model) incorporating projects agreed in ATAPv2 and i11v6 growth.

Limitations of applying infrastructure constraints to capacity and growth projection data: a 'worst-case scenario'

A key component of this HBA is to better quantify the ability for Auckland to respond to growth by understanding (where possible) how constraints impact housing and business outcomes. To understand the 'worst-case scenario' for Auckland, water and transport constraints data has been measured against the i11v6, Auckland's growth model for infrastructure strategy and investment.

Data from Watercare pertains to areas within wastewater or water supply catchments that are constrained by modelled network performance. Data from AT pertains to land use types (residential, industrial, and centres land uses) within MSM zones that are constrained by modelled network performance.

Challenges with this approach are that the assessment results provided are relatively binary, effectively an answer of "yes" or "no" to the question "does the existing and planned network perform adequately relative to desired metrics given forecast i11v6 growth?"

This means that for locations that are performing adequately relative to i11v6, we know i11v6 growth can be accommodated, but we don't know how much capacity slack there is to accommodate growth above forecast growth. Capacity able to be serviced is at least equal to i11v6 growth. It could be greater than, i11v6 but we don't know by how much. In these scenarios, we can only report i11v6 capacity as being serviceable.

Conversely, in constrained locations, we know that i11v6 growth is not able to be serviced, but we don't know where the threshold for growth sits, i.e., the capacity which could be accommodated before the network's performance is below the operator's level of service threshold fails. Capacity able to be serviced is "some unknown number, that we only know is less than i11v6 forecast growth", but in the absence of a specific number, we have reported capacity in these constrained areas as 'zero'.

Accordingly, results utilising i11v6 results are a 'worst-case' scenario. For Watercare's network, the issues are transmission based: the treatment plants and water sources have more than enough capacity for overall projected growth with some margin, but the issue is getting water to where it is consumed and wastewater from there back to where it is. For transport, the issues are more complex, including the relative priority of investments, uncertainty around major city-shaping projects, the challenge of the underlying land use patterns (concentration of employment and dispersal and expansion of residential growth) and the non-measurement of active modes.

An additional measure of identifying plan-enabled capacity in areas that are constrained and not constrained has also been undertaken, however this plan-enabled capacity exceeds both total expected demand (100% of capacity in aggregate is unlikely to be consumed) by a factor of around 10, and exceeds

¹⁶ Noting Watercare consider the two networks as functionally one network – e.g., a lack of water supply capacity is also an issue for the wastewater treatment system.

the ability of the networks at their highest level to service the plan-enabled capacity irrespective of distribution. Therefore, there is limited utility in using these figures to assess whether any area of plan-enabled capacity is technically infrastructure-ready, other than giving a sense of the amount of options for i11v6 forecast demand to be met within areas that have relatively more infrastructure headroom relative to i11v6 demand, and the scale of options that are potentially impacted by being located in areas that are infrastructurally challenged, relative to i11v6 demand.

The infrastructure data provides a good indication of where challenges exist and where they don't, but it is difficult to draw definitive conclusions on exactly how much plan-enabled capacity is infrastructure-ready or not, particularly as the assessment applies only to currently-planned networks and i11v6 expected demand – if either of these changes, the complex network modelling and assessment would need to be undertaken again using demand inputs, at least as refined as i11v6.

Future improvements will be to improve understanding of network performance relative to growth to get a better sense of how much 'slack' exists in the systems, noting that for most infrastructure an excess of capacity is at best a significant capital expenditure opportunity cost, or an active issue resulting in considerable operational expenditure issues (wastewater systems, for example, operate best when operating near design capacity, to prevent crusting and solidification that requires expensive and regular maintenance).

Factors not included in this HBA

Stormwater

The built stormwater network as a whole is defined in Healthy Waters' 2018 Asset Management Plan (Auckland Council, 2018) as that which "takes stormwater away from properties to prevent flooding from rainfall events below what's expected in a 1 in 10 year rainfall event. Detention and treatment facilities and devices control stormwater flows and prevent pollutants from entering our receiving environments."

The capacity of the public stormwater network is considered to have limited or no capacity to accommodate increased volumes of stormwater from unmanaged increase in impervious surfaces.

The 2018 Auckland Council Stormwater Asset Management Plan also highlighted that "larger impervious areas will increase across the region, creating demand for stormwater infrastructure and putting pressure on the receiving environments. Redevelopment of existing areas will provide an opportunity to apply innovative water sensitive design and optimise the existing stormwater infrastructure". It also highlighted that, depending on the location, increases in density might not result in a similar change in impervious surfaces – greenfield result in the most change (going from generally low density semi-rural land to urban land), while in existing developed areas, growth might not increase imperviousness much at all.¹⁷

For this assessment, public stormwater capacity is not deemed a 'hard constraint' on development as the council's existing policy setting suggests¹⁸, in most instances, appropriate solutions can be found to mitigate or minimise any impact upon the receiving environment. Any development which is beyond certain imperviousness percentage limits (% imperviousness) is required to demonstrate that post-development runoff is no greater than the pre-development situation conditions. Assuming hydrological neutrality occurs in practice means intensification may not necessarily increase pressure on the

¹⁷ Figures are based on 2018 forecasting, utilising a pre-MDRS/Policy 3 Unitary Plan, Auckland Plan 2050, and associated subregional growth distribution, but aside from blanket changes in impervious surface rules imposed by MDRS, the spatial relationship between impervious surface change potential are similar even if the distribution of growth may be slightly different with increased opportunities for development closer to the centre.

¹⁸ The HBA team acknowledges the ongoing investigation process resulting from the Auckland Flooding Response Review and anticipates future policy changes. At the time the analyses were carried out, no new policy had been introduced. Therefore, the existing policies were incorporated for this HBA.

stormwater network, and the replacement and upgrade of existing development infrastructure with new water-sensitive approaches, hazard-responsive design and improved infrastructure can potentially result in water quality, quantity and risk improvements.

As long as the stormwater network is still able to manage stormwater runoff to minimise flood damage and adverse effects on both built and natural environments (i.e., not making the network performance or downstream quantity or quality worse), then a workable solution can usually be found. Typically, a developer must make a financial decision, weighing up cost and feasibility of any stormwater solutions or mitigation measures required.

For this assessment, the presence of flood plains on a site is not considered to limit plan-enabled capacity. However, identifying, assessing and avoiding, remedying or mitigating this hazard may pose practical, financial or demand constraints on development. However, this impact is not able to be accurately assessed particularly at a regional level in advance, as the level of constraint imposed by the presence of any hazard, flooding or otherwise, will depend on the nature of the hazard, and the specific development and design response proposed, including a wide range of potential mitigation approaches.

Given Auckland's topography, geology, climate, and historical development practices, many areas in the region are vulnerable to flooding. Flooding risk with respect to new development is currently managed by the existing provisions in the Auckland Unitary Plan (AUP). These provisions seek to ensure that subdivision, use and development on sites that may be subject to such a hazard is appropriately assessed so that the level of potential flood risk is identified, with the extent of management or mitigation proposed being reflective of the level of risk present. These are supported by other provisions in the plan that also contribute to the management of flood risk including offsite and downstream, and impacts on the environment from increased quantity and decreased quality such as restrictions on maximum impervious areas.

Taking a more detailed 'catchment by catchment' capacity approach was not feasible for this assessment due to timing and information available as it would require site-specific detail, e.g., as to the location of possible new dwellings and specific mitigation approaches.

Following the January storm events in Auckland 2023, work is underway to strengthen Auckland Council's response to natural hazards.¹⁹ These programmes include; Resilient Tāmaki Makaurau Auckland and the Making Space for Water programme. These programmes may provide additional detail of both the scale and nature of specific hazards and the best response to them that can be used in future assessments.

Giving effect to the NPS-UD and MDRS

Since the 2021 HBA, Auckland Council has notified its proposed plan change (Proposed Plan Change 78 – Intensification) in response to the government's National Policy Statement on Urban Development 2020 (NPS-UD; updated in May 2022). In December 2021, the Government also made amendments to the Resource Management Act 1991 (RMA) which requires the council to incorporate new Medium Density Residential Standards (MDRS) in relevant residential zones. MDRS applies to all residentially-zoned land within the 'urban environment', unless a qualifying matter applies, and allows for up to three dwellings up to three stories high as a permitted activity. Removal of carparking controls is also required. Changes to height limits (minimum six stories) and density within walkable catchments and centres is also required,

¹⁹ This fact alone could suggest that the existing planning system may not impose meaningful constraints on development with respect to stormwater or flooding issues, and that future planning systems may impose greater levels of regulation. Even under a future more constraining planning framework it is expected that any constraint would be proportionate to risk, noting that one of the outcomes may also be a greater identification, communication and appreciation of the risk from future flooding.

again, unless a qualifying matter applies (NPSUD Policy 3).²⁰ All of this has resulted in a significant increase in plan-enabled capacity across almost the entire urban area.²¹ For the purpose of the infrastructure readiness assessment, the **notified** Plan Change, in accordance with the NPS-UD, will be considered as plan-enabled capacity across the short, medium, and long term.

As part of this proposed plan change, the council has included qualifying matters in relation to infrastructure. Constraints relating to bulk infrastructure do presently exist in Auckland, particularly in areas which had not previously been planned for intensification that have been upzoned, but also in other areas where infrastructure improvements were expected and scheduled due to previously expected growth and change. Therefore, the following qualifying matters have been identified:

5. Water and wastewater servicing constraints (Auckland Council, 2022f)
6. Stormwater disposal constraints (Auckland Council, 2022e)
7. Beachlands transport constraint (Auckland Council, 2022d)

There are investments planned to alleviate the water and wastewater servicing constraints. The HBA assumes planned investments are delivered and therefore the qualifying matters will be reviewed and or removed as the projects and programmes are delivered. Further rationale for the application of these infrastructure qualifying matters is available in the relevant section 32 evidence reports.

Detailed methodology of infrastructure readiness assessment

We use a very simple approach where spatial data supplied by infrastructure providers is used to tag spatial data about development capacity to determine if the development capacity is in an area that is indicated by the infrastructure provider to be constrained, or not.

Based on this determination, capacity²² is then indicated as ‘constrained’ or ‘not constrained’ by the various infrastructures, either individually, or in combination, over time. This is indicated conceptually in Figure 4.

²⁰ The extent and impact of qualifying matters on the otherwise required upzoning is likely to be an area of considerable debate as the Independent Hearings Panel process progresses.

²¹ The main exception being the Special Character Areas qualifying matter, which are largely concentrated in close proximity to the City Centre. Other qualifying matters do apply but are more randomly distributed and not as spatially extensive, and in the case of infrastructure, will reduce over time.

²² Any set of spatial distributions could be utilised in this way. For this reporting, for the HBA, the input distribution used is Plan Enabled Development Capacity from the Capacity for Growth Model to identify Plan Enabled Capacity that is and is not ‘Infrastructure ready’. Filtering Feasible or Likely to be realised capacity could be done in much the same way to identify otherwise expected development that appears to be precluded by infrastructure constraints.

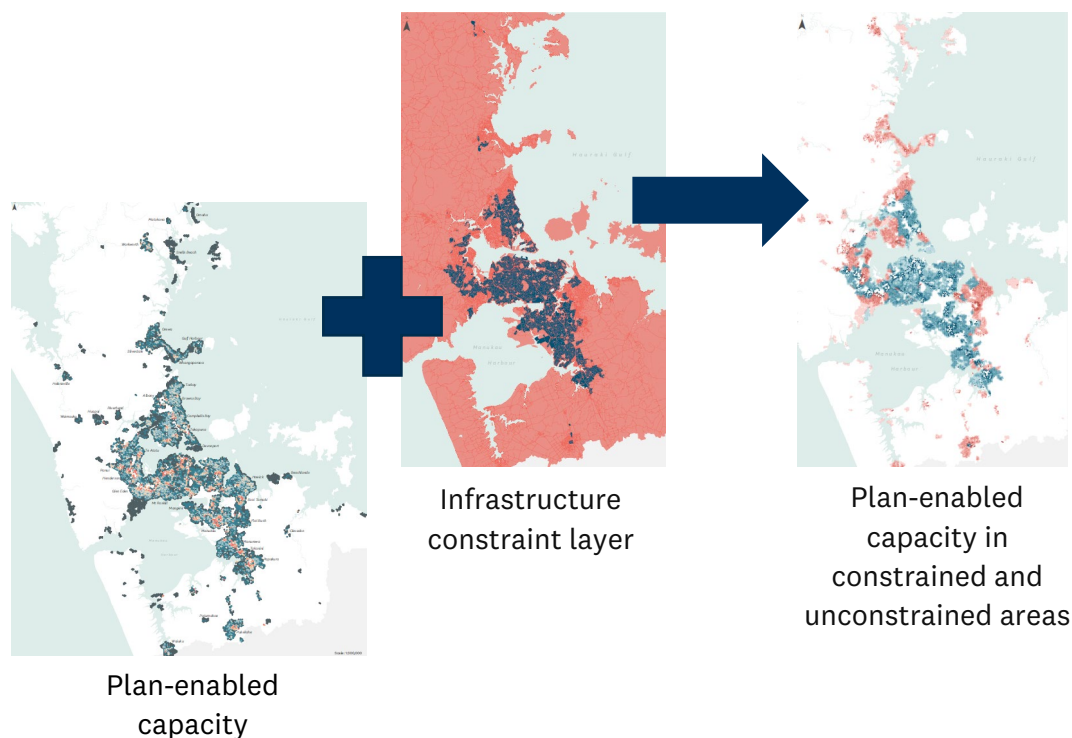


Figure 4. Infrastructure constraint test on plan-enabled capacity.

While the approach is simple, due to the nature of the data, and how many people will tend to read the results it does raise a number of potential interpretation issues.

Assumptions and risks

While simple in concept, the approach does have a number of potential issues, largely related to the binary nature of the ‘constrained/not constrained’ data we presently have, and the likely inferences users might take (or would potentially like to take) from the information presented.

In particular, the approach will:

- ‘over-constrain’ plan enabled development capacity in locations where there are indicated infrastructure constraints (the approach will report 0% capacity available) and
- ‘under-constrain’ plan enabled development potential in locations where there are no indicated infrastructure issues (reporting 100% of plan enabled capacity as being infrastructure ready).

Data is provided by Watercare and Auckland Transport based on ‘bulk’ level assessments, not detailed local conditions.

Both approaches are based on modelling the complex interactions of the planned infrastructure network and its changed capacity over time, against assumed growth in demand over time.

A highly simplified indication of how infrastructure capacity and assumed demand (conceived as HUEs) might interact over time in an example locality is shown in Figure 5. Because of the tight interaction between growth and infrastructure, growth (from Council’s non-financial growth forecasts, such as i11v6) may already be adjusted to account for infrastructure constraints. Conversely, infrastructure also responds to forecast growth.

Changes from this assumption do take time to work through particularly as the infrastructure funding systems require significant long term certainty (a requirement that is increasingly harder to provide), and are a highly participatory public process.

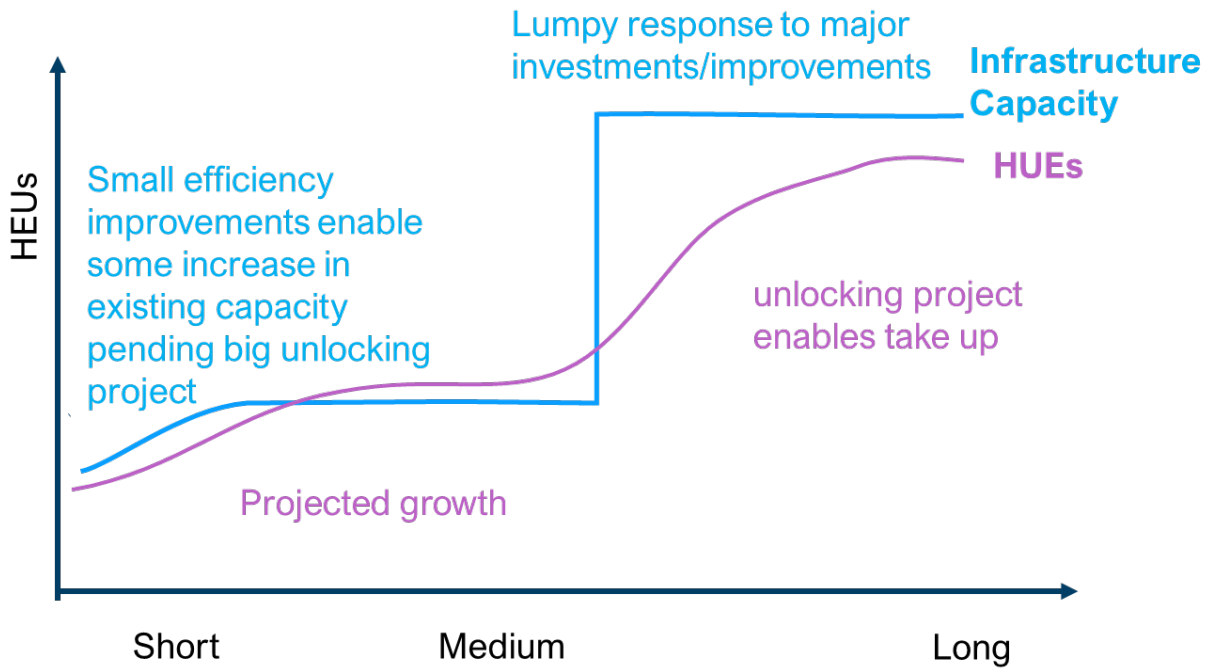


Figure 5. Example Infrastructure Capacity vs Modelled demand.

The infrastructure models determine, at a network level using the providers determined thresholds, if the forecast demand is less than the capacity of the network (and is therefore unconstrained), or if demand is more than the capacity of the network (and is therefore constrained).

This determination is indicated conceptually in Figure 6 below.

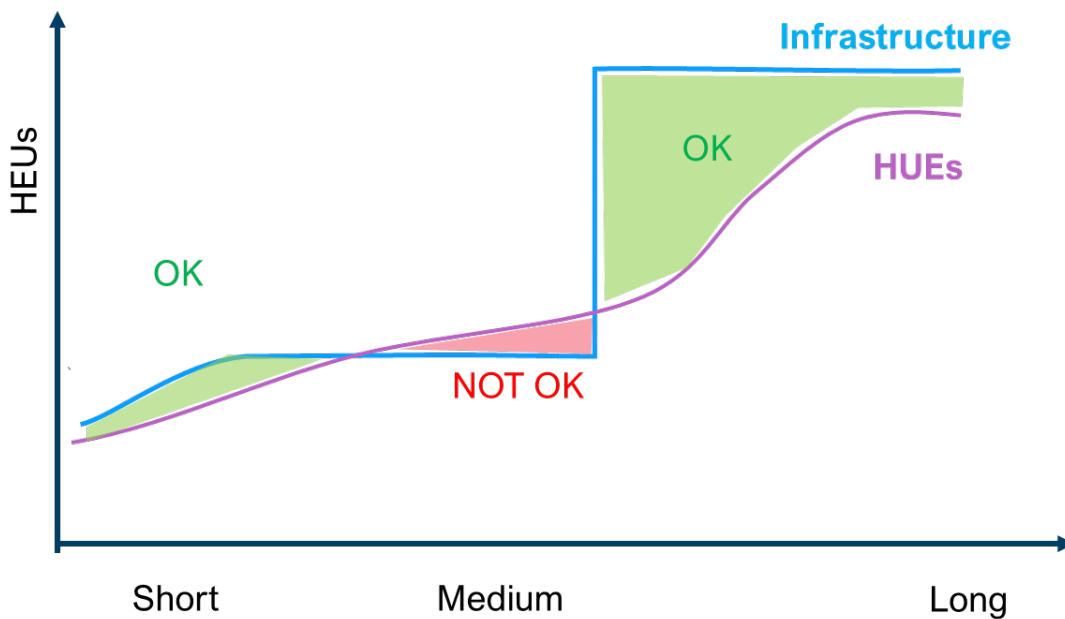


Figure 6. Determining Constrained/Unconstrained.

The information available however does not include infrastructure capacity, nor assumed demand, only the outcome of the assessment, in a relatively binary form as indicated in Figure 7 below, applied across a number of areas to in turn represent constraints in the attribute table of the spatial data:

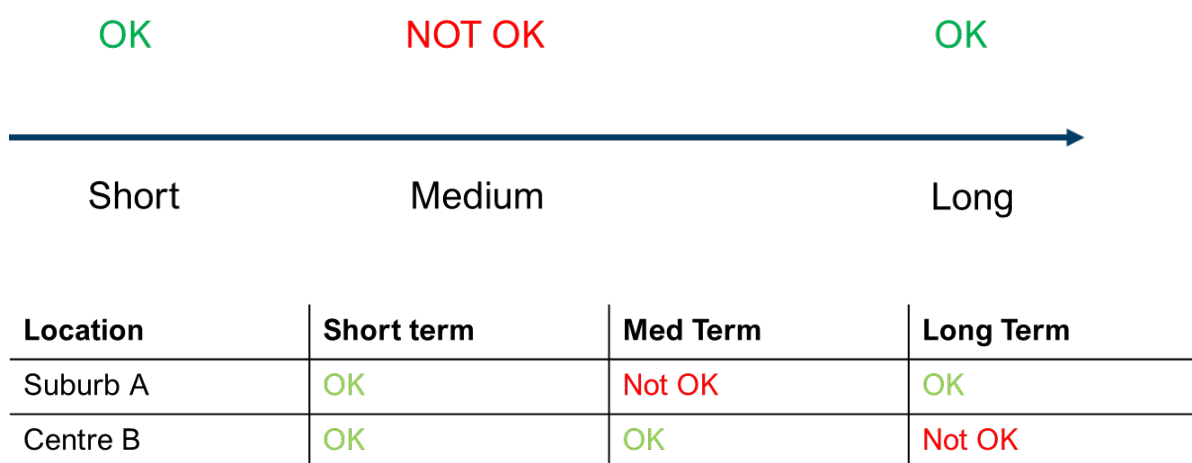


Figure 7. Binary Assessment Data.

As these assessments are binary (yes/no) they only allow us to apply an ‘all in/all out’ approach to any capacity input at a spatial level.

That is, the provided assessment information is applied to the *area* indicated (sites with the zoning to match the assessment) at the *time frame* provided.

All three ‘infrastructures’ are complex interdependent systems, and assessed at the bulk level, and it is not likely to ever be possible to be definitive about the ‘nth’ development that can be serviced or not in any given location. We understand the planned networks are based on current allocated funding and published programmes, and the assumed demands are the extant growth forecasts in use at the time of generating the project lists/funding.

Further information is contained in the following sections and Table 2 below.

Table 2. Infrastructure assessment source and assumptions

	Infrastructure Provider/Source	Growth Assumption Used	Network Assumption	Notes
Transport	Auckland Transport	Illv6, PC78 not included	ATAPv2	MSM model run multicriteria analysis – refer to Commute Report in ‘Transport infrastructure assessment’ section of this appendix.
Wastewater	Watercare Services Ltd	i11v6, PC78 not included	Watercare’s 30-year 2021 Asset Management Plan (AMP)*	Refer to ‘Wastewater and water supply constraints assessment’ section of this appendix.
Water Supply	Watercare Services Ltd	l11v6, PC78 not included	Watercare’s 30-year 2021 Asset	Refer to ‘Wastewater and water supply constraints assessment’ section of this appendix.

	Infrastructure Provider/Source	Growth Assumption Used	Network Assumption	Notes
			Management Plan (AMP)*	

*2023 AMP in development

This means that the data is a reflection of outcomes under a particular set of conditions that may not be applicable to other circumstances, including, but not limited to:

- Changes in funding e.g. slow down or acceleration of funding for planned network components)
- Changes in networks (e.g. new previously unknown projects commencing or disasters affecting existing networks)
- Change in demand quantum (e.g. overall faster or slower growth than previously expected)
- Changes in demand distribution (e.g. changes in where development occurs due to relaxed reduction or changes in preferences or unlocking new development areas)

In reality, there is probably some (but unknown as yet) potential to accommodate more connections in constrained areas, and conversely in ‘unconstrained’ areas while there is some capacity (but unknown as yet) it is probably unlikely that there is sufficient to accommodate all of the sometimes hundreds of thousands of enabled developments. It is also likely that the timing of various projects and demand mean that the timeframes assessed may not be (un)constrained for the entirety of the 3 reported periods, that 3-, 10- or 30-year period.

Accordingly, the assessment is better considered as an indication of relative level of constraints applying under BAU infrastructure and land use assumptions, and how those are expected to change over time.

In particular, considering the infrastructures individually and in combination enables identification of the particular network(s) that may be the source of any constraint and therefore more informed discussions about what might be done to address those constraints.

Stretching the present analysis beyond this is particularly risky.

Potential future improvements

A seemingly simple solution would be improved information about the capacity available in networks, including over time and the relationship to funded projects, the amount of demand growth assumed in the respective models, and the difference between these two values would be needed to reduce (but not avoid) the risks above.

However, because of the complex networks being considered, even with the two data points (assumed demand and capacity), the complexity of interactions between them at a network level mean it is best to test proposed changes to demand or infrastructure supply through the relevant models rather than apply the outcomes from this set of assumptions to another scenario(s).

This is an area that will need to improve over time, including as greater certainty about major planning regulatory changes, and major transport projects becomes clearer (which should provide greater certainty about locations of relative take up changes).

It will be desirable that future iterations of this process are able to provide more nuance about the relative level of infrastructure capacity available, the project that any capacity improvement relates to, levels of demand assumed, and greater temporal resolution of all of those.

“Infrastructure readiness” data – as supplied

The infrastructure readiness data is provided as a spatial layer by AT and Watercare respectively.

Auckland Transport uses a multicriteria analysis of outputs from the MSM transport model at MSM zone level – A detailed description of the approach is outlined in Appendix 2: Transport Infrastructure Assessment.

Due to different criteria used for each land use type modelled in MSM, each MSM zone has a Residential, Centres (mixed) and Industrial readiness assessment. These assessments are transposed onto the relevant capacity analysis using zone groups that align to the land use descriptions to identify Plan enabled capacity that is and is not infrastructure ready. Time frames provided are 2018, 2031 and 2048.

Watercare’s data is an output of their network models, and outlined in more detail in the Wastewater and water supply constraints assessment’ section of this appendix. These outputs are provided at a site/zone level, avoiding the need for any spatial translation (c.f. AT MSM scale data) but we understand the assessment geography to be catchment level. Timeframes are Short, Medium and Long Term.

A summary of the data formats is shown below in Figure 8 and Figure 9 below.

AT example	Residential 2018	Residential 2031	Residential 2048	Centre 2018	Centre 2031	Centre 2048	Industrial 2018	Industrial 2031	Industrial 2048
MSM a	Ready	Not Ready	Ready	Ready	Not Ready	Not Ready	Ready	Ready	Ready
MSM b	Not Ready	Not Ready	Ready	Not Ready	Not Ready	Not Ready	Ready	Ready	Not Ready
etc...									

Figure 8: AT Example Data

WSL example	Zoning	Servicing term
Assessment site 1	Residential – MHU	Long Term
Assessment site 2	Business – Local Centre Zone	Medium Term
Assessment site 3	Residential – SHZ	Not Serviced

Figure 9: Watercare Example Data.

This raw data is converted to a consistent approach for comparability and use in the HBA as outlined in Table 3. A more detailed layout of the data attributes and logic of conversion are included in the ‘Detailed infrastructure service data conversion logic’ section of this appendix.

Table 3. Raw data conversion

HBA ATTRIBUTE	AT	Watercare	Our approach
How servicing level is communicated in the dataset	Ready / Not Ready (binary measure) for each time period	Short Term / Medium Term / Long Term / Not Serviced (essentially also a yes/no binary measure)	Converted Watercare’s measure to mirror AT’s measure across the Short, Medium, and Long Term.
Time periods	2018 / 2031 / 2048	Short Term / Medium Term / Long Term	Approximated: AT 2018 = Watercare Short Term AT 2031 = Watercare Medium Term AT 2048 = Watercare Long Term
Spatial delineation	MSM zone	Assessment sites	Overlaid assessment sites onto MSMs and created a combined constraints mesh, at the capacity site level
Land use	For all MSMs, provides “Ready / Not Ready” for the following land uses: - Residential - Centres - Industrial	Already correlated with the assessment site’s zoning	Matched each capacity site’s zoning to the corresponding AT land use, and used that to determine whether the site was considered constrained or not

Wastewater and water supply constraints assessment

Capacity constraints in the wastewater network

Transmission network

The wastewater network consists of catchments of pipes, pumpstations, EOPs and manholes. Pipes, pumpstations, EOPs and manholes are subsequently divided into Transmission assets (bulk infrastructure) and Local assets. Wastewater treatment plants ("WWTP") are termed "headworks". In short, capacity issues and wastewater overflows arise in the wastewater network when a pipe is full, or if the upper limit of flow able to be accommodated by a pumpstation is exceeded.

Pipe is full

During wet weather events in Auckland, stormwater runoff infiltrates the wastewater network. If a wastewater pipe is at capacity (i.e., full) during or post a wet weather event, then wastewater overflows can occur at EOPs or elsewhere along the network, including overflows at manholes in private property.

Stormwater can enter the wastewater network as a result of the following:

Illegal connections to the wastewater network – i.e., people illegally connect their house or roof stormwater drainage to the wastewater network without Watercare's knowledge. This means that when it rains, stormwater is diverted from these connections to the wastewater network. Where there is evidence of high stormwater inflow / infiltration ("I/I") in a network, Watercare carries out smoke testing to identify illegal connections. Where smoke identifies an illegal connection (i.e. smoke comes out of the gutter of a house), this information is then forwarded to the Council and the Council contacts the landowner/occupier to resolve the illegal connection.

Deteriorating pipe conditions – Wastewater pipes deteriorate over time. Where pipes are in poor condition, stormwater can infiltrate into the network through small holes or cracks. In networks where there is evidence of high I/I, Watercare undertakes CCTV investigations to identify where a pipe is in poor condition and therefore places for possible stormwater ingress. Pipes can be patch repaired or relined, however, if a pipe is relined this decreases the diameter of the pipe and can cause further capacity issues for that network.

Poor quality lateral pipes on private property – Watercare is responsible for the public water and wastewater network only. Lateral pipes from the dwelling to the property boundary are the landowner's responsibility to maintain and upgrade. These private pipes can be a cause of significant stormwater infiltration issues. Even if Watercare's pipes are brand new, stormwater can still enter the network through the poor-quality private pipes connecting to Watercare's network (i.e. through cracks and holes in those pipes).

Stormwater will always find a way to enter Watercare's wastewater network during and post wet weather events. Once stormwater enters the network it is incredibly difficult to remove. I/I of stormwater to the wastewater network results in increased flows in pumping stations along the network and increased flows to the relevant WWTP at the end of the line.

Pumpstations

Pumpstations are designed for an upper limit of flow and when this is exceeded the wastewater backs up in the upstream catchment (pipe) and can cause overflows at EOPs, manholes and around the pumpstation. EOPs within the network are designed to relieve the pressure on the network by controlling wastewater overflows in a planned manner. However, if the upper limit of flow for a pumpstation is greatly exceeded,

wastewater will back up significantly upstream of the pumpstation and cause overflows at manholes along the network. These manholes are sometimes in public property but may be located in private properties.

Capacity constraints in the water supply network

Transmission network

Capacity issues arise in a water supply network when there is inadequate water supply and pressure to meet the required levels of service in peak demand. Chapter 6 of the Auckland Code of Practice for Land Development and Subdivision, Version 2.4 ("Code of Practice") sets out the requirements for the design and construction of drinking water supply systems. The objectives of the requirements are to ensure that the water reticulation system is functional and that the required quality and quantity of water is supplied to all customers within Watercare's water supply area.²³ Section 6.3.5 of the Code of Practice sets out the design criteria for water supply networks and requires that the design pressure be between 250kPa and 800kPa (25 m to 80 m), unless otherwise specified by Watercare. Pursuant to section 6.3.5.5, the minimum flow rate must be the greater of 25 L/min at the customer meter; or the hydrant fire flow targets set by Watercare under sections 6.3.5.5 and 6.3.11 of the Code of Practice respectively.

To determine peak demand on a network, the following two processes are followed by Watercare or Consultants undertaking the model development to determine the existing peak demand and future predicted peak demand with new developments:

Existing peak demand – Available Telemetry Flow Data is analysed across several years by either Watercare or Consultants undertaking the model development to identify the legitimate peak demand period.

Future predicted peak demand – Follows assumptions set out in the Code of Practice with demands and peaking factors applied to future populations (see section 6.3.5.3). These peaking factors address seasonal demand changes identifying maximum yearly demands as well as peak time (highest daily flows) e.g. morning high flow times. Further, section 6.3.5.6 provides the minimum water demands, being typically for residential housing a daily consumption per person 220 l/p/day. Peak Hourly Demand is then calculated as the average hourly demand (on the peak day) x the peak factor (set out in section 6.3.5.3) (over a 24-hour period). High rise developments have slight changes l/h/day along with commercial developments which have specific assumptions based around industry type and area.

Water supply network capacity constraints can impact level of service in a number of ways as summarised below:

Insufficient bulk transfer capacity – with an increase in demand on the network, the transmission network may have insufficient capacity to transfer water across the entire network from Watercare's key water sources. This results from increased losses within the watermains which reduces water transfer daily volumes. This can be particularly realised during the higher summer (peak demand) periods and can impact whether or not the strategic reservoirs are replenished daily.

Excessive local pipe losses within the local network causing pressure drops particularly on peak days and peak hour flows which affects whether minimum pressures can be maintained. This can cause low pressure issues or loss of supply to existing and new customers.

²³ The Auckland Code of Practice for Land Development and Subdivision, Version 2.4, Chapter 6 at 6.1 and 6.2.1.

Inability to meet firefighting requirements as set out in SNZ PAS 4509:2008 due to excessive pipe losses and impact to available reservoir storage volume.²⁴

The Watercare water supply network is broken down into a number of areas / zones supplied from a large number of reservoirs, pumps, flow meters and control valves across the Auckland region. To support network management these zones are broken down by key factors around customer elevations (contours), residential / industry and transmission infrastructure enabling different pressure zones to be created. Even with this setup the network is tightly interconnected to provide resilience and manage customer impacts as a result of planned and unplanned events on the network. That is, planned and unplanned events causing disruption to certain parts of the network or key water sources, sites and watermains. Where possible Watercare has built in a number of resilience measures (sufficient water storage or alternate supplies) to enable the water supply network to function at the same levels of service or reduced (low pressures) while important maintenance work is undertaken or emergency repairs occur therefore reducing customer disruption. Water supply network constraints have the potential to impact these resilience measures and may reduce their effectiveness. This may result in reduced operating pressures, loss of supply or worse case the lack of ability to operate, potentially resulting in a loss of water supply to a large number of customers.

Planned events are self-explanatory and include required maintenance and upgrade works to parts of the network. Unplanned events include extreme weather events (i.e., drought or floods) and accidents that disrupt the network. One very recent example of an unplanned event that posed a risk to the resilience of the drinking water network and security of safe drinking water in Auckland was Cyclone Gabrielle in mid-February 2023. This Cyclone brought record rainfall, slips and subsidence and caused extensive damage to Watercare's water and wastewater assets. A number of communities around Auckland suffered service disruptions due to this damage. Watercare has identified issues at three operational water treatment plants: Huia, Muriwai and Pukekohe and a number of issues within the water distribution network which were mainly caused by landslides. Cyclone Gabrielle only highlights the importance of ensuring resilience is built into Watercare's network to maintain the ability to supply safe drinking water to customers.

Hydraulic models

Hydraulic models assist with our understanding of the current and future system performance within the water and wastewater network.

The hydraulic models are used world-wide using fluid mechanic principles to determine the impacts of changes within water and wastewater networks.

Watercare undertakes water and wastewater hydraulic modelling as part of the Network Performance Monitoring and Modelling ("NP2M") which requires that hydraulic models are regularly updated to include population, flow and network changes within the catchment. These models which are prepared for the water and wastewater network include models for the:

- (a) Strategic Management Area which consists of mainly transmission assets.
- (b) The entire water and wastewater network assets within a catchment.

To create a model, this requires building a replica of the network (digital twin) and monitoring the network to understand and quantify the flows/pressure/level within that network. Temporary monitoring at key points within the network is undertaken to supply data for the calibration of the models. The water network is generally monitored during the summer months to determine the highest demand and ascertain

²⁴ Watercare has a minimum firefighting requirement to meet FW2 25 l/s from 2 hydrants at a minimal residual operating pressure of 10m.

non-revenue water (leakage). The wastewater network is monitored during the winter months to determine flows and I/I (illegal connections and pipe network in poor condition).

This monitored data is then used to calibrate the hydraulic model to replicate the flows within the water and wastewater network over the monitoring period. Once this is done a number of scenarios can be run through the models to predict how the network will react. These scenarios include:

- (a) Flows and demand resulting from forecast population growth in a catchment;
- (b) Impacts of climate change (including increasing severity of drought and flooding events);
and
- (c) Optioneering scenarios to determine infrastructure requirements to solve existing and future issues.

These models are “live” meaning they are always being updated with the latest information to give up to date system performance of the water and wastewater networks.

While developers can undertake their own capacity assessments based on population data, flows and the pipe full capacity (slope, diameter and friction) as per the Auckland Code of Practice for land development and subdivision, version 2.4 ("COP"), the hydraulic models are also used to assess whether efficiencies can be gained by taking the opportunity to upsize infrastructure for future flows (“Dig Once”). Hydraulic models can also be used for operational modelling to:

- (a) Determine minimal disruption to customers when undertaking repairs on the water network;
- (b) Optimise the wastewater network to reduce overflows during wet weather; and
- (c) Use rain forecasting to determine impacts of predicted rain events on the wastewater network

Transport infrastructure assessment

HBA Assessment of Auckland Region Transport Assessment

4 November 2022





4 Leek Street, Newmarket
PO Box 128259, Remuera 1541, Auckland
Ph. 09 869 2825
www.commute.kiwi

Project: AT HBA assessment
Report title: Transportation Assessment
Document reference: HBA assessment report
Date: 4 November 2022

Report Status	Prepared By	Reviewed By	Approved By
V2	Graham Norman / Shu Mak	Tony Innes	Tony Innes

Contents

1	Introduction.....	1
2	Assessment methodology.....	1
2.1	Criteria 1: Accessibility to employment and key destinations	1
2.2	Proximity to Transport Infrastructure.....	2
2.3	Capacity and Quality of Transport Infrastructure.....	2
2.4	Assessment banding	2
3	Application of criteria	4
3.1	Modelling Used.....	4
3.2	Aggregation of criteria to a single zone score	5
4	Results of assessment.....	6
	Attachment A – Assessment Results	7

1 INTRODUCTION

As part of the National Policy Statement: Urban Development all Tier 1 Councils are required to undertake a (HBA). One of the 'tests' as part of this assessment is to determine 'infrastructure ready' areas.

Auckland Transport's role in this is to supply information to Auckland Council illustrating which parts of the region are infrastructure ready with respect to transport. This requires delineating spatially the transport infrastructure ready areas of the region over the short, medium and long term. This is required for:

- **Residential Use**
- **Business Use (Industrial)**
- **Business Use (Other)**

This report sets out a framework for assessment of the region and outlines the results of the assessment.

2 ASSESSMENT METHODOLOGY

Auckland Transport has a wealth of information to answer the questions posed by the HBA. This includes the recently completed Future Connect dataset and analysis as well as the suite of regional transport models that combine the latest land use and transport forecasts.

In determining the adequacy of the transport infrastructure it is a core assumption that the transport infrastructure assessment covers all transport modes and these are all equally weighted.

There are three key criteria proposed, being:

- **Criteria 1: Accessibility to employment and key destinations**
- **Criteria 2: Proximity to Transport Infrastructure**
- **Criteria 3: Capacity and Quality of Transport Infrastructure**

The measures for each criteria are set out in the sections below.

For simplicity, the assessment has been carried out on regional transport model zones (Macro Strategic Model) for the Auckland region. These zones are based on Census area units. There is a total of 596 zones in the region.

2.1 CRITERIA 1: ACCESSIBILITY TO EMPLOYMENT AND KEY DESTINATIONS

Criteria 1 looks to make use measures which assess access to jobs and labour pools for each zone in the Auckland region. We have proposed accessibility as a key appropriate metric for infrastructure readiness, as it is accessibility of an area from a transport perspective that is being used in other areas such as ATAP planning (and assessment) and provides a strong indication of the transport infrastructure's ability to cope with and provide for development.

Table 2-1: Measures for Criteria 1

Residential Use	Business Use (Industrial)	Business Use (Centres)
No. of jobs within (45 mins of home by PT and 30 mins by car)	No. of working adults within 45 mins of zone by PT and 30mins by car	No. of working adults within 45 mins of zone by PT and 30mins by car

The measures proposed for criteria 1 are consistent with measured used in the ATAP project.

2.2 PROXIMITY TO TRANSPORT INFRASTRUCTURE

Criteria 2 assesses the proximity of transport infrastructure for each zone. The types of transport infrastructure vary between land use type.

Table 2-2: Measures for Criteria 2

Residential Use	Business Use (Industrial)	Business Use (Centres)
Proportion of the zone within a catchment for bus, ferry and train services	Proximity to the AT Strategic Freight network ¹	Proportion of the zone within a catchment for bus, ferry and train services
Availability of active mode facilities		Availability of active mode facilities

2.3 CAPACITY AND QUALITY OF TRANSPORT INFRASTRUCTURE

Criteria 3 assesses the capacity and quality of transport infrastructure in each zone. The measures vary between land use type. We have provided ‘amount of time in severe congestion’ and proximity to key transport infrastructure to provide a quality of accessibility perspective.

Table 2-3: Measures for Criteria 2

Residential Use	Business Use (Industrial)	Business Use (Centres)
% of Time by Mode in Severe Congestion (LOS F) –by bus	% of HCV travel time spent in sever congestion (LOS F)	% of Time by Mode in Severe Congestion (LOS F) –by bus

2.4 ASSESSMENT BANDING

The following table sets out the proposed performance bands for each proposed criteria. These bands include:

- **Not Ready** – Where a criterion indicates it is not ready for further development

¹ As defined by the AT Strategic Freight Map

- **Ready by poor LOS** - Where a criterion indicates it is ready for further development but there will be a poor level of service
- **Ready** - Where a criterion indicates it is ready for further development

For each of the criteria outlined above, the various scoring bands have been set out in

Table 2-4: Assessment criteria bands

Criteria	Not Infrastructure-Ready	Ready but poor LOS	Infrastructure-Ready
Access to jobs within 45mins	Less than 30% of the total regional jobs	Between 30-60% of the total regional jobs	Over 60% of the total regional jobs
No. of working adults within 45 mins of employment	Less than 30% of the total regional jobs	Between 30-80% of the total regional jobs	Over 80% of the total regional jobs
% of population who can access key destinations (Metro Centres and Town Centres) in 30 mins (by car and PT)	Less than 30% of the total population	Between 30-60% of the total population	Over 60% of the total population
No. of households within XX mins from destinations	Less than 25% of the total population	Between 25-50% of the total population	Over 50% of the total population
Proximity to the Frequent Transit Network (FTN) - rapid transit network + frequent bus services	Less than 30% of zone is within catchment of PT services	Between 30-80% of zone is within catchment of PT services	Over 80% of zone is within catchment of PT services
Proximity to the Strategic Freight Network	No direct connection to Freight network	Proximity to Level 1B, 2 and 3 of the strategic freight network	Proximity to Level 1a strategic freight network
Deficiency of active mode facilities	Less than 30% of zone is within catchment of Active mode facilities	Between 30-80% of zone is within catchment Active mode facilities	Over 80% of zone is within catchment Active mode facilities
% of Time by Mode in Severe Congestion (LOS E/F) – by bus	Over 15% of time is spent in severe congestion	Between 5-15% of time is spent in severe congestion	Less than 5% of time spent in severe congestion
% of HCV travel time spent in severe congestion (LOS E/F)	Over 40% of time is spent in severe congestion	Between 25-40% of time is spent in severe congestion	Less than 25% of time spent in severe congestion

3 APPLICATION OF CRITERIA

3.1 MODELLING USED

This framework is applied to MSM zones within the Auckland region (some 600 zones for the region). This allows a detailed assessment to be carried out across the city.

The assessment has been undertaken for three periods, being:

- Short Term – 2018 model (AM Peak only)
- Medium Term – 2031 model (AM Peak only)
- Long Term – 2048 model (AM Peak only)

The following model scenarios have been used:

- 2018 – MSM base model
- 2031 – RLTP scenario – Assumes a sweet of transport upgrades in line with what is currently specified in the RLTP 10 year plan.
- 2048 – ATAP 2 scenario – This scenario assumes projects identified in ATAP 2 are included. This includes some significant transport projects including AMETI, ALR and the AWHC project.

Table 3-1 sets out the key infrastructure changes to the network assumed in the 2031 and 2051 years.

Table 3-1: Infrastructure assumptions in future years

Scenario	Infrastructure changes
2031 – RLTP scenario	<ul style="list-style-type: none"> • Downtown bus improvements • Airport to Botany interim bus improvements • Sylvia Park Bus Improvements • Albert and Vincent Street Bus Priority Improvement • Rosedale Road corridor • Neighbourhood Interchanges • Northern Busway Enhancements • Lincoln Road Corridor Improvements • SH18 Squadron Drive interchange upgrade • Glenvar Road/East Coast Road intersection • Smales Allens Widening and Intersection Upgrade • NorthWest - Option 1 – Bus lanes Fred Taylor to Maki • Brownfields High Priority • Drury - Minimal Budget with NZUP Basic Paerata Station + Route Protect
2048 – ATAP 2 scenario	<p>Based on ATAP 1.1 Indicative Programme with the following notable exceptions:</p> <ul style="list-style-type: none"> • Northwest LRT included - was busway in ATAP 1.1 • East-West Link excluded

	<ul style="list-style-type: none">• 2015 ATAP TFUG network has been replaced with the Supporting Growth Alliance (SGA) 2019 Indicative Business Case preferred network• Onewa Road widening excluded - Onewa Road widened to provide two general traffic lanes and a bus lane in each direction in ATAP 1.1. Now one general traffic lane and a bus/transit lane in each direction.• SH20B four laning (two lanes each direction) for general traffic excluded - now widening assumed to provide bus/transit lanes – not general traffic lanes• Updated arterial bus lane programme - reflects rollout of AT's whole of route bus priority programme started in first decade• Updated 2028, 2038 and 2048 bus networks – revised bus network developed in conjunction with AT Metro team. Bus network optimised to work with major infrastructure initiatives.• Upper Harbour RTN bus – ATAP references this as a busway or motorway shoulder bus lanes. Originally included in model as bus shoulder lanes with stops at motorway interchanges. Assumptions revised to provide offline busway from Westgate to Squadron Drive with two busway stations. Motorway shoulder lanes from Squadron Drive to Constellation Drive (no stopping along this section of route).• Cross Isthmus RTN bus – replaced with multiple cross isthmus frequent routes (some with whole of route bus priority)• Third decade widening of SH1 between Papakura and Takanini interchanges removed
--	--

3.2 AGGREGATION OF CRITERIA TO A SINGLE ZONE SCORE

Following assessment at an individual criteria level, scores have been aggregated at a zonal level for the three uses (i.e. each zone will have up to three scores where applicable), being:

- Residential
- Business (Industrial)
- Business (centres)

For each zone, the score across all criteria (given equal weighting) have been averaged to find an overall score.

- Infrastructure-Ready – Average score of 2.0 or better out of 3.
- Not Infrastructure-Ready

4 RESULTS OF ASSESSMENT

The overall results of the assessment are outlined in Attachment A. Three maps are provided for each time period outlining the overall assessment against:

- Residential development
- Centre development
- Industrial development

A summary of the results are outlined in Figure 4-1.

Figure 4-1: Summary of assessment

	2018			2031			2048		
	Residential	Industrial	Centre	Residential	Industrial	Centre	Residential	Industrial	Centre
Not Infrastructure Ready (Not)	261	241	245	214	268	181	161	244	148
Infrastructure Ready (Ready)	335	355	351	382	328	415	435	352	448

Overall, the assessment shows:

- For residential development, a general trend where the number of areas within Auckland deemed infrastructure ready increase over time as investment is made in the Transport network. This is primarily influenced by changes to the Rapid Transit network.
- Just over half the zones in the Auckland region are deemed as infrastructure ready from a Transport perspective.
- From a centre development perspective, the trends follow residential lane.
- For industrial development, the development ready zones tend to mirror access to the strategic freight network.

Detailed infrastructure service data conversion logic

If all within row are true, then tagged with:	AT_Centre_2018	AT_Centre_2031	AT_Centre_2048	AT_Ind_2018	AT_Ind_2031	AT_Ind_2048	AT_Res_2018	AT_Res_2031	AT_Res_2048	WSL_VW	WSL_WA
RESIDENTIAL CAPACITY											
Residential zoned											
Unconstrained short term							Ready			Short	Short
Unconstrained medium term								Ready		Short OR Medium	Short OR Medium
Unconstrained long term									Ready	Short OR Medium OR Long	Short OR Medium OR Long
Centre zoned											
Unconstrained short term	Ready									Short	Short
Unconstrained medium term		Ready								Short OR Medium	Short OR Medium
Unconstrained long term			Ready							Short OR Medium OR Long	Short OR Medium OR Long
Mixed use zoned											
Unconstrained short term	Ready									Short	Short
Unconstrained medium term		Ready								Short OR Medium	Short OR Medium
Unconstrained long term			Ready							Short OR Medium OR Long	Short OR Medium OR Long
BUSINESS CAPACITY											
Centre zoned											
Unconstrained short term	Ready									Short	Short
Unconstrained medium term		Ready								Short OR Medium	Short OR Medium
Unconstrained long term			Ready							Short OR Medium OR Long	Short OR Medium OR Long
Mixed use zoned											
Unconstrained short term	Ready									Short	Short

Unconstrained medium term	Ready									Short OR Medium	Short OR Medium
Unconstrained long term		Ready								Short OR Medium OR Long	Short OR Medium OR Long
Other business zoned (industrial, general business, business park)											
Unconstrained short term				Ready						Short	Short
Unconstrained medium term				Ready						Short OR Medium	Short OR Medium
Unconstrained long term								Ready		Short OR Medium OR Long	Short OR Medium OR Long

If any one within row is true, then tagged with:	AT_Centre_2018	AT_Centre_2031	AT_Centre_2048	AT_Ind_2018	AT_Ind_2031	AT_Ind_2048	AT_Res_2018	AT_Res_2031	AT_Res_2048	WSL_VW	WSL_WA
RESIDENTIAL CAPACITY											
Residential zoned											
Constrained short term							Not			Medium OR Long OR Not Serviced	Medium OR Long OR Not Serviced
Constrained medium term								Not		Long OR Not Serviced	Long OR Not Serviced
Constrained long term									Not	Not Serviced	Not Serviced
Centre zoned											
Constrained short term	Not									Medium OR Long OR Not Serviced	Medium OR Long OR Not Serviced
Constrained medium term		Not								Long OR Not Serviced	Long OR Not Serviced
Constrained long term			Not							Not Serviced	Not Serviced
Mixed use zoned											
Constrained short term	Not									Medium OR Long OR Not Serviced	Medium OR Long OR Not Serviced
Constrained medium term		Not								Long OR Not Serviced	Long OR Not Serviced
Constrained long term			Not							Not Serviced	Not Serviced
BUSINESS CAPACITY											
Centre zoned											
Constrained short term	Not									Medium OR Long OR Not Serviced	Medium OR Long OR Not Serviced
Constrained medium term		Not								Long OR Not Serviced	Long OR Not Serviced
Constrained long term			Not							Not Serviced	Not Serviced
Mixed use zoned											
Constrained short term	Not									Medium OR Long OR Not Serviced	Medium OR Long OR Not Serviced

Constrained short term	Not															Medium OR Long OR Not Serviced
Constrained medium term		Not														Long OR Not Serviced
Constrained long term			Not													Not Serviced
Other business zoned (industrial, general business, business park)																
Constrained short term							Not									Medium OR Long OR Not Serviced
Constrained medium term									Not							Long OR Not Serviced
Constrained long term																Not Serviced

Reported Capacity Type	Reported Capacity Type	Residential Capacity (reported as Dwellings)		Business Capacity (reported as FS and or Land Area)	
		Residential Zone Capacity	Centres and Mixed Use Zones	Other Business Zones	Other Business Zones
Zone Group Type					
Zone Type					
PEC FS Type		50% of FS above L1/120m2 per DU	100% of GL, L1 and 50% of FS above L1		100% of FS
Residential		Applies	NA	NA	NA
Centre		NA	Applies	NA	NA
Industrial		NA	NA	Applies	Applies
Water Supply		Applies	Applies	Applies	Applies
Wastewater		Applies	Applies	Applies	Applies

Applying the combined infrastructure constraints to i11v6 projected growth for households, population and employment

During the course of this assessment, it was noted that the infrastructure readiness data provided to us by Watercare and Auckland Transport were based assumption that residential and business growth would occur as projected in i11v6. As noted on various occasions throughout this HBA, it is therefore unreasonable to expect that, for any given infrastructure-ready area, that the full extent of the plan-enabled capacity under AUPOIP or PC78 for that area could be considered truly “plan-enabled and infrastructure-ready”. This is because the plan-enabled capacity under a fairly permissive AUPOIP and even more permissive PC78 is a quantity that far exceeds the projected growth across the region.

It is therefore important to be able to contextualise infrastructure readiness against the assumptions upon which those assessments are based. While greater amounts of plan-enabled capacity in areas which are infrastructure-ready opens up a greater level of choice for development, it needs to be emphasised that the full amount of capacity enabled under the plan is not the scale to which infrastructure providers are planning investment and servicing.

In order to ascertain a “worst-case scenario” of infrastructure servicing, the proportion of each area affected by any infrastructure constraint was used to pro-rate the i11v6 growth projections for households, population, and employment.

Household and population growth projections were considered to be affected by any infrastructure constraint related to residential land use. Employment growth projections were considered to be affected by any infrastructure constraint related to business land use. There were also limitations regarding the centre-zoned areas, and their contribution to providing dwelling supply to service household and population growth.

The i11v6 growth projections are given at the MSM zone level. The distribution of projected growth within each MSM is not known - there is currently not enough information about the concentration/intensity of land use activity in each type of zone that would enable this sort of modelling to be carried out. For the purpose of this assessment, growth is assumed to occur in a uniform way across the MSM – while this is most certainly not the case in the majority of MSM zones, it does allow for a more conservative figure to be generated, which forms the ‘floor’ level of possible infrastructure-serviced development regionally.

Auckland Transport has provided an infrastructure readiness assessment at the MSM zone level. For each MSM zone, a binary measure of “Ready” or “Not Ready” has been provided, for each of the three following land uses: residential, industrial, and centres. Watercare, on the other hand, has provided a site/catchment level assessment, which has the zoning of each site built into it.

For the purpose of this assessment, the AT “residential” land use has been allocated to any residentially-zoned sites in Watercare’s assessment, the AT “industrial” land use has been allocated to any non-centre zoned business sites in Watercare’s assessment, and the AT “centres” land use has been allocated to any centre or mixed use zoned site in Watercare’s assessment.

Residential land use – households and population projections

In order to determine the percentage of residentially-zoned land affected by an infrastructure constraint, the land area of residentially-zoned assessment sites affected by any one infrastructure constraint was divided by the total land area of residentially-zoned assessment sites. This factor was multiplied with the

i11v6 projected figures for households and population for each MSM zone, to calculate the estimated amount of i11v6 projected growth that could possibly be constrained by infrastructure. This was completed for the short, medium, and long term projections.

Business land use – employment projections

Similarly to the residential land use, the percentage of business-zoned land (not including centre-zoned sites) affected by an infrastructure constraint was calculated by dividing the land area of business-zoned assessment sites affected by any one infrastructure constraint by the total land area of business-zoned assessment sites. This factor was then multiplied with the i11v6 projected figures for employment for each MSM zone. The result was the estimated amount of i11v6 projected employment growth that could possibly be constrained by infrastructure. This was completed for the short, medium, and long term projections.

Limitations around centres and their contribution to households and population in areas which are infrastructure-ready

Due to the unknown and highly variable distribution of residential activities in centre zones across the region, it was not possible in this assessment to determine the extent to which a constraint in a centre-zoned site would impact the ability for that area to carry out residential activities. I.e., it was not possible to determine to what extent/proportion a centre-zoned site which was indicated as “Not Ready” in AT’s centre land use assessment would impact its ability to house some of the projected households and population. Therefore, those sites which are centre-zoned have only been used to contribute to the pro-rating of infrastructure constraint to projected employment figures, and not household and population figures.

This provides an explanation for why certain local board areas, especially those with a large proportion of centre-zoned sites, may show unexpectedly low figures for projected household and population growth located. The most notable case in the assessment is that of Waitemata Local Board area, which shows approximately 57 per cent of projected households and 50 per cent of projected dwellings being in areas constrained by infrastructure. In this instance, the factor by which the projection was multiplied for the pro-rata calculation was likely only being contributed to by areas of residential zoning which were not in City Centre zoning.

In any instance, this has led to a fairly conservative ‘floor’ for infrastructure-ready levels of development, providing a useful indicator to contextualise infrastructure readiness where plan-enabled capacity is far greater than anticipated growth, and to give a sense of the ‘worst-case scenario’ for infrastructure servicing.

Appendix 4 Workflow for the model for dwelling demand

The housing market and demand assessment utilised the Market Economics Housing Affordability Model.

The model brings together key datasets to enable direct comparisons between the current and future state at specified time periods, for the HBA, these were the short- medium- and long-terms; 2022-25, 2025-2032 and 2032-2052. The model structure and outputs are detailed below in Figure 11.

The model builds on detailed information of customised and standard Census 2018 data, other StatsNZ data including, but not limited to, dwelling consent data, data purchased from CoreLogic on housing values, sale prices and purchaser patterns, and Auckland Council's dwelling growth projections. The growth projections used for the model are the Auckland Council March 2023 series, which are detailed in section 3 of the HBA. The medium results of the medium growth projections for demand are outlined in section 4 of the HBA. The high and low growth scenarios are outlined below.

This data is used to build a profile of current housing demand as at December 2022 (the base year of this HBA), housing supply, future housing demand and housing affordability. It provides insight on how the current and likely future demands for housing by different groups in the community are met, including the demand for different types and forms of housing.

Future demand for housing by attached and standalone dwelling types, as well as future dwelling demand by price band for the urban environment are derived from consenting data, demand trends and demographic preferences. Population and households are estimated from current and projected demographic trends (StatsNZ 2018 census data), to reflect shifts in population size and age structure, and the numbers of households of each type expected over time.

Future household incomes are baselined as (2020\$) household income distribution for households of each age and type are assumed to continue over the long term. This allows for overall household incomes and distributions (i.e., budget for housing controlling affordability) to shift according to expected demographic changes only, in the base situation.

New housing typology, particularly the detached to attached split is assumed to follow the current trend based on consents received over the past 7 years. This allows for the expected mix of additional dwellings to reflect trends (again reflecting revealed preferences, but also potentially influenced by planning and infrastructure parameters over that). This means the additional dwellings to accommodate the larger population are estimated according to the typology-and value mix of current additions, or the typology-and-value mix of dwellings identified in the feasibility analysis. The nature of the mix has direct implications for the expected price of new dwellings as detached dwellings are generally higher priced largely due to the cost of the land underlying them and the ratio of floorspace to land area possible.

For housing tenure, the starting assumption is that the owned vs not-owned split for each household group (household type and income) persists into the future. This is on the basis that households in each group will achieve the same levels of ownership in the future as the equivalent group in 2020. It is recognised that those future households will have had a different history and path to dwelling ownership or otherwise from the current households. However, rather than speculate how the mix of economic and other circumstances might see higher or lower levels of ownership in the future, the most useful starting point is simple projection of the status quo for each group. In particular, that provides a starting estimate of the numbers of future households in each group who would be non-owners, for the assessment of future affordability.

Otherwise, there is potential to cloud the affordability assessment with normative assumptions about changing ownership levels.

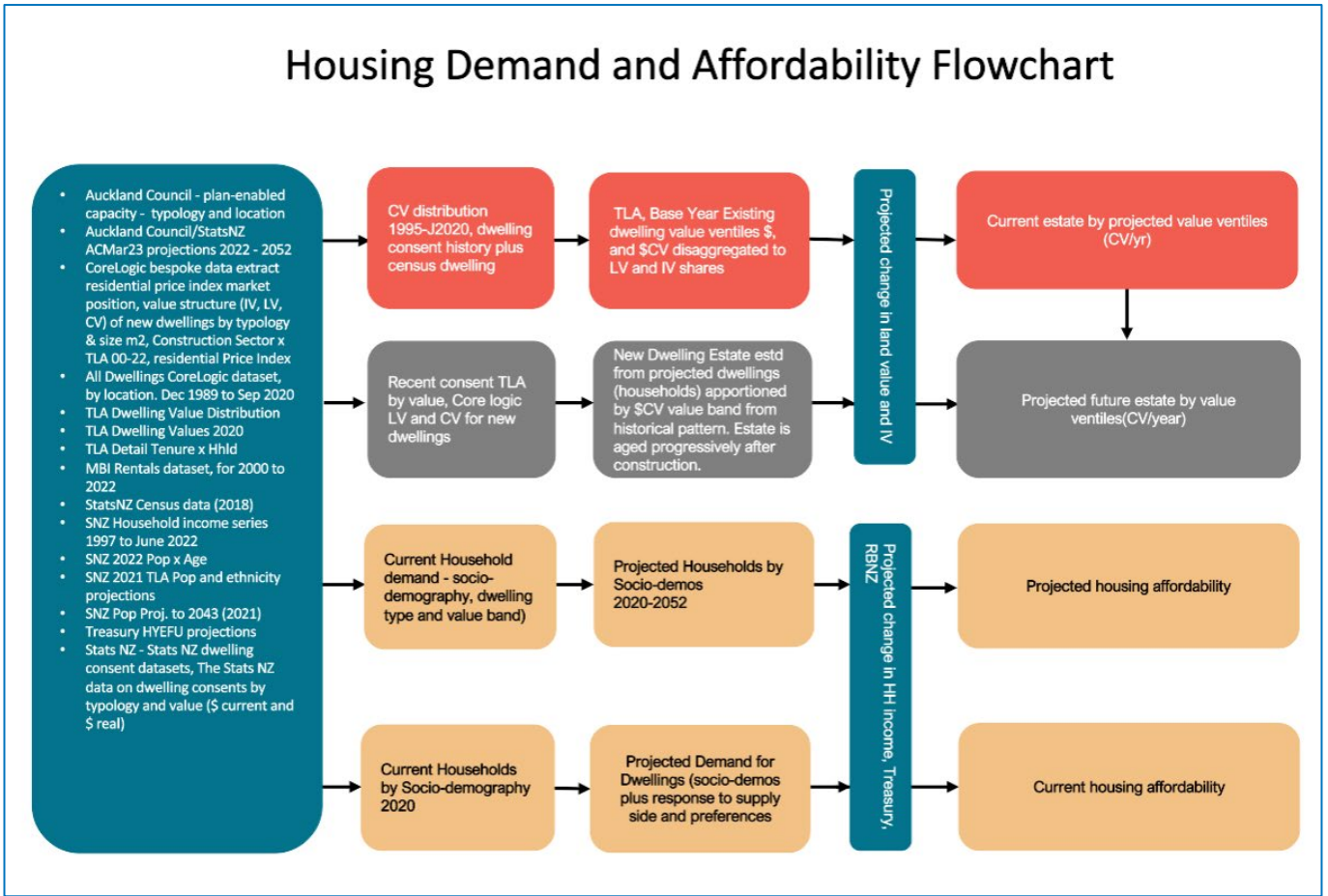


Figure 10. Flow diagram for the Market Economics Housing Affordability Model.

Appendix 5 Demand for dwellings based on ACMar23 low and high projection

Delivering outcomes to enable housing equity for all is a major challenge in Auckland, especially when the median house price in Auckland is around 10 times greater than the median household income. Auckland’s current (2022) and projected (2052) housing market is characterised by the supply of housing to parts of the market that can afford it. This does not address the ongoing need of those on lower income bands in providing affordable housing that meets the needs of our communities. The 2021 Auckland HBA explored these concepts in depth and the findings of that assessment still stand and will not be readdressed in this assessment. What is important, is to continue to measure the ability of the market to meet the needs of Aucklanders. Therefore, it is not sufficient to think in terms of the total demand vs supply, but how housing supply is enabled across the full spectrum of the market and is accessible to all income and ethnic groups. Leaving the private sector to supply affordable housing without policy intervention and/or financial incentives will not address the existing housing shortfall and meet the future demand of low- and middle-income households.

Figure 20 shows the projected demand requirements for housing across the full range of the housing market. Of particular interest is the significant shortfall of housing identified across the short, medium and long term in the lower value band. This figure is drawn from the medium growth projection.

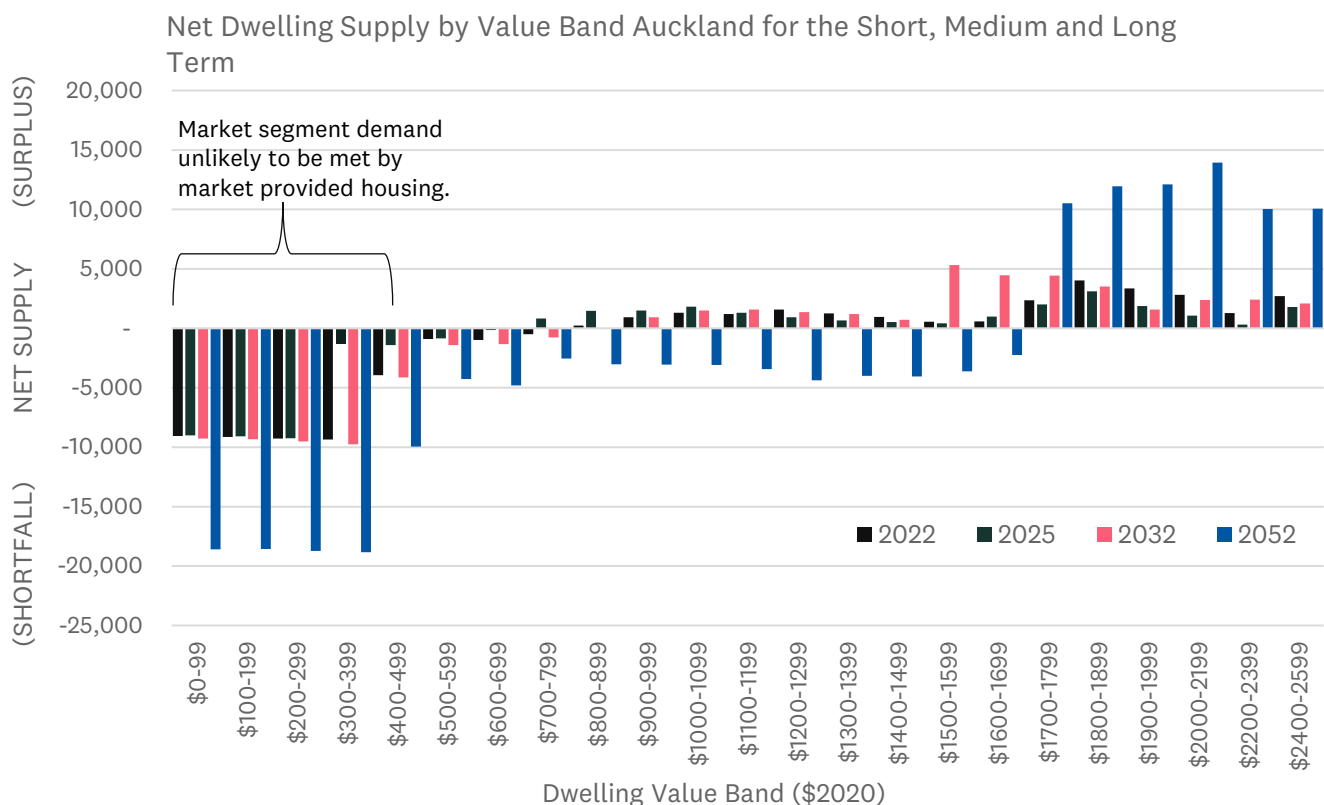


Figure 11 Net Dwelling Supply by Value Band Auckland for the Short, Medium and Long Term. Source: Market Economics Housing Affordability Model 2023.

Demand for Dwellings – Low Projection

Table 4. Projected dwelling demand by family structure, age band and income band type for the short, medium, and long term, ACMar23 low projection 2022 - 2052.

Household Type	Current	Short Term		Medium Term		Long Term	
Family structure	2022	2022-25	2022-25 %	2022-32	2022-32 %	2022-52	2022-52 %
One Person household	99,240	1,410	1%	2,890	3%	8,290	8%
Couple household	141,250	3,320	2%	9,150	7%	19,630	14%
2 Parents 1-2 children	157,160	5,680	4%	20,100	13%	41,180	26%
2 Parents 3+ children	38,700	1,330	3%	5,180	13%	9,550	25%
1 Parent Family	72,120	1,430	2%	6,830	10%	16,110	22%
Multi-family household	32,450	690	2%	2,340	7%	4,780	15%
Non-family household	29,030	-130	0%	-130	0%	1,250	4%
Age							
15-29yr	66,980	-1,340	-2%	1,410	2%	-12,490	-19%
30-39yr	115,170	2,970	3%	1,140	1%	16,190	14%
40-49yr	112,340	3,580	3%	20,880	19%	22,040	20%
50-64yr	152,630	-1,080	-1%	-7,580	-5%	22,460	15%
65-74yr	70,570	4,900	7%	14,100	20%	3,450	5%
75yr+	52,270	4,720	9%	16,430	32%	49,140	95%
Income							
Under \$30,000	86,760	2,440	3%	7,950	9%	17,450	20%
\$30-50,000	67,280	2,310	3%	7,820	12%	17,120	26%
\$50-70,000	65,450	1,590	2%	5,340	8%	11,370	17%
\$70-100,000	84,400	1,820	2%	6,110	7%	12,800	15%
\$100-120,000	64,000	1,310	2%	4,440	7%	8,980	14%
\$120-150,000	54,450	1,110	2%	3,640	7%	8,140	15%
\$150,000+	147,600	3,160	2%	11,070	8%	24,930	17%
Total	569,950	13,800	2%	46,400	8%	100,800	18%

Note: May not sum to totals due to rounding.

Table 5. Household projections by household type, ACMar23 low projection 2022-2052 (ME Housing Demand Model 2023).

Household Type	2022	2052	2022-2052
One Person household	99,240	107,040	8,290
Couple household	141,250	160,220	19,630
2 Parents 1-2 children	157,160	197,720	41,180
2 Parents 3+ children	38,700	48,110	9,550
1 Parent Family	72,120	87,960	16,110
Multi-family household	32,450	37,110	4,780
Non-family household	29,030	30,240	1,250
Total Households	569,950	668,400	100,800
One Person household	17%	16%	8%
Couple household	25%	24%	19%
2 Parents 1-2 children	28%	30%	41%
2 Parents 3+ children	7%	7%	9%
1 Parent Family	13%	13%	16%
Multi-family household	6%	6%	5%
Non-family household	5%	5%	1%
Total Households	100.0%	100%	100%

Note: May not sum to totals due to rounding.

Table 6. Household projections by household income type, ACMar23 low projection 2022-2052 (ME Housing Demand Model 2023).

Household Income (real 2020\$)	AC23 Medium Projection		
	2022	2052	2022-2052
Under \$30,000	86,760	103,760	17,450
\$30-50,000	67,290	84,070	17,120
\$50-70,000	65,450	76,540	11,370
\$70-100,000	84,400	96,880	12,800
\$100-120,000	64,010	72,750	8,980
\$120-150,000	54,470	62,400	8,140
\$150,000+	147,600	172,000	24,930
Total Households	569,980	668,400	100,800
Under \$30,000	15%	16%	17%
\$30-50,000	12%	13%	17%
\$50-70,000	11%	11%	11%
\$70-100,000	15%	14%	13%
\$100-120,000	11%	11%	9%
\$120-150,000	10%	9%	8%
\$150,000+	26%	26%	25%
Total Households	100%	100%	100%

Table 7. Current stock and projected demand by dwelling type and tenure, 2022 and 2052 ACMar23 low projection (ME Housing Demand Model 2023). This includes an assumed trend towards attached dwellings at rate of 1.8% pa.

Dwelling Tenure	2022			2052		
	Detached	Attached	Total	Detached	Attached	Total
Owned with mortgage	134,160	9,080	143,240	142,710	17,130	159,840
Owned without mortgage	97,110	13,950	111,060	99,680	26,630	126,310
Owned by Trust	70,970	11,350	82,510	75,420	22,720	98,320
Total Owned or in Trust	302,240	34,380	336,810	317,810	66,480	384,470
Not Owned	164,860	67,190	233,140	160,970	122,000	283,930
Total Housing	467,100	101,570	569,950	478,780	188,480	668,400
Owned with mortgage	24%	2%	25%	21%	3%	24%
Owned without mortgage	17%	2%	19%	15%	4%	19%
Owned by Trust	12%	2%	14%	11%	3%	15%
Total Owned or in Trust	53%	6%	59%	48%	10%	58%
Not Owned	29%	12%	41%	24%	18%	42%
Total Housing	82%	18%	100%	72%	28%	100%

Note: Totals include a small number of "other" dwellings not classified as attached or detached. May not sum to totals due to rounding.

Table 8. Projected demand by dwelling type and tenure, 2022-2052 change based upon the ACMar23 low projection (ME Housing Demand Model 2023).

Dwelling Tenure	2022-2052 change			2022-2052 share of growth		
	Detached	Attached	Total	Detached	Attached	Total
Owned with mortgage	9,030	8,080	17,110	9%	8%	17%
Owned without mortgage	3,080	12,760	15,840	3%	13%	16%
Owned by Trust	4,770	11,420	16,180	5%	11%	16%
Total Owned or in Trust	16,880	32,260	49,130	17%	32%	49%
Not Owned	-3,290	55,080	51,670	-3%	55%	51%
Total Housing	13,590	87,340	100,800	13%	87%	100%

Note: Totals include a small number of "other" dwellings not classified as attached or detached. May not sum to totals due to rounding.

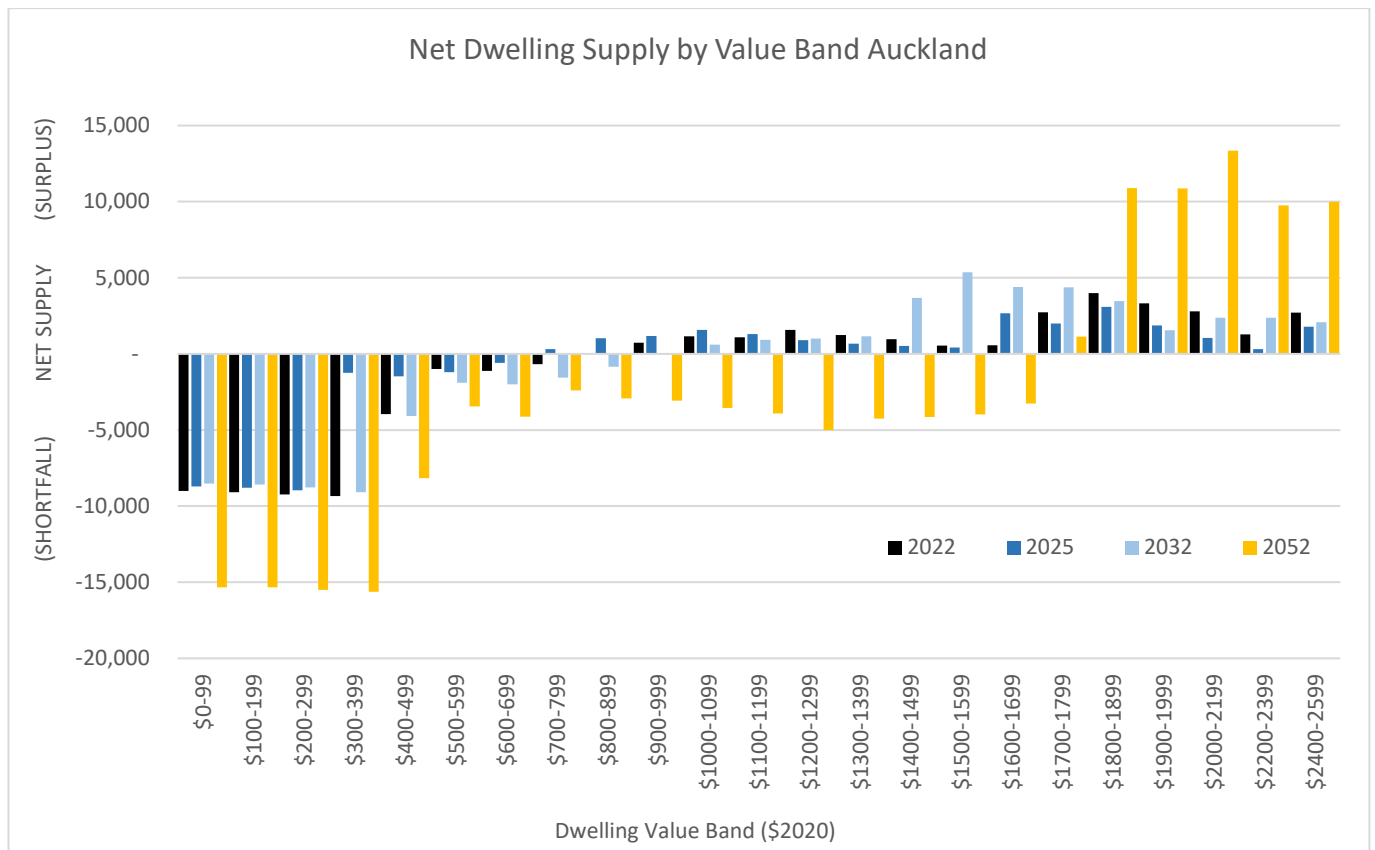


Figure 12. Net dwelling supply by value band Auckland, based upon the ACMar23 low projection (ME Housing Demand Model 2023).

Demand for Dwellings – High Projection

Table 9. Projected dwelling demand by family structure, age band and income band type for the short, medium, and long term, ACMar23 high projection 2022 - 2052.

Household Type	Current	Short Term		Medium Term		Long Term	
Family structure	2022	2022-25	2022-25 %	2022-32	2022-32 %	2022-52	2022-52 %
One Person household	99,240	3,510	4%	11,710	12%	41,130	41%
Couple household	141,250	6,130	4%	21,330	15%	66,590	47%
2 Parents 1-2 children	157,160	8,600	5%	33,200	21%	95,560	61%
2 Parents 3+ children	38,700	2,050	5%	8,370	22%	22,570	58%
1 Parent Family	72,120	2,770	4%	12,810	18%	40,710	56%
Multi-family household	32,450	1,300	4%	4,990	15%	15,320	47%
Non-family household	29,030	420	1%	2,110	7%	9,790	34%
Age							
15-29yr	66,980	-60	0%	6,540	10%	14,790	22%
30-39yr	115,170	4,990	4%	10,250	9%	44,420	38%
40-49yr	112,340	5,600	5%	30,000	27%	57,270	51%

Household Type	Current	Short Term	Medium Term	Long Term
50-64yr	152,630	1,790 1%	4,350 3%	66,490 43%
65-74yr	70,570	6,190 9%	20,110 28%	25,480 36%
75yr+	52,270	6,270 12%	23,270 44%	83,230 157%
Income				
Under \$30,000	86,760	4,280 5%	15,870 18%	49,560 57%
\$30-50,000	67,280	3,710 5%	13,920 21%	42,340 63%
\$50-70,000	65,450	2,860 4%	10,890 17%	33,430 51%
\$70-100,000	84,400	3,430 4%	13,090 15%	40,050 47%
\$100-120,000	64,000	2,490 4%	9,650 15%	29,380 46%
\$120-150,000	54,450	2,100 4%	8,020 15%	25,000 46%
\$150,000+	147,600	5,900 4%	23,060 16%	71,910 49%
Total	569,950	24,800 4%	94,500 17%	291,700 51%

Note: May not sum to totals due to rounding.

Table 10. Household projections by household type, ACMar23 high projection 2022-2052 (ME Housing Demand Model 2023).

Household Type	2022	2052	2022-2052
One Person household	99,240	140,930	41,130
Couple household	141,250	208,370	66,590
2 Parents 1-2 children	157,160	253,190	95,560
2 Parents 3+ children	38,700	61,390	22,570
1 Parent Family	72,120	113,090	40,710
Multi-family household	32,450	47,860	15,320
Non-family household	29,030	38,980	9790
Total Households	569,950	863,800	291,700
One Person household	17%	16%	14%
Couple household	25%	24%	23%
2 Parents 1-2 children	28%	29%	33%
2 Parents 3+ children	7%	7%	8%
1 Parent Family	13%	13%	14%
Multi-family household	6%	6%	5%
Non-family household	5%	5%	3%
Total Households	100%	100%	100%

Note: May not sum to totals due to rounding.

Table 11. Household projections by household income type, ACMar23 high projection 2022-2052 (ME Housing Demand Model 2023).

Household Income (real 2020\$)	AC23 Medium Projection		
	2022	2052	2022-2052
Under \$30,000	86,760	136,790	49,560
\$30-50,000	67,290	109,960	42,340
\$50-70,000	65,450	99,140	33,430
\$70-100,000	84,400	124,740	40,050
\$100-120,000	64,010	93,600	29,380
\$120-150,000	54,470	79,620	25,000
\$150,000+	147,600	219,960	71,910
Total Households	569,980	863,800	291,700
Under \$30,000	15%	16%	17%
\$30-50,000	12%	13%	15%
\$50-70,000	11%	11%	11%
\$70-100,000	15%	14%	14%
\$100-120,000	11%	11%	10%
\$120-150,000	10%	9%	9%
\$150,000+	26%	25%	25%
Total Households	100%	100%	100%

Table 12. Current stock and projected demand by dwelling type and tenure, 2022 and 2052 ACMar23 high projection (ME Housing Demand Model 2023). This includes an assumed trend towards attached dwellings at rate of 1.8% pa.

Dwelling Tenure	2022			2052		
	Detached	Attached	Total	Detached	Attached	Total
Owned with mortgage	134,160	9,080	143,240	181,890	21,850	203,740
Owned without mortgage	97,110	13,950	111,060	130,060	35,190	165,250
Owned by Trust	70,970	11,350	82,510	97,200	29,740	126,940
Total Owned or in Trust	302,240	34,380	336,810	409,150	86,780	495,930
Not Owned	164,860	67,190	233,140	208,390	159,500	367,890
Total Housing	467,100	101,570	569,950	617,500	246,300	863,800
Owned with mortgage	24%	2%	25%	21%	3%	24%
Owned without mortgage	17%	2%	20%	15%	4%	19%
Owned by Trust	12%	2%	14%	11%	3%	15%
Total Owned or in Trust	53%	6%	59%	47%	10%	57%
Not Owned	29%	12%	41%	24%	18%	43%
Total Housing	82%	18%	100%	71%	29%	100%

Note: Totals include a small number of "other" dwellings not classified as attached or detached. May not sum to totals due to rounding.

Table 13. Projected demand by dwelling type and tenure, 2022-2052 change based upon the ACPMar23 high projection (ME Housing Demand Model 2023).

Dwelling Tenure	2022-2052 change			2022-2052 share of growth		
	Detached	Attached	Total	Detached	Attached	Total
Owned with mortgage	47,310	12,740	60,050	16%	4%	21%
Owned without mortgage	32,470	21,150	53,620	11%	7%	18%
Owned by Trust	25,950	18,100	44,100	9%	6%	15%
Total Owned or in Trust	105,730	51,990	157,770	36%	18%	54%
Not Owned	42,930	90,850	133,920	15%	31%	46%
Total Housing	148,660	142,840	291,700	51%	49%	100%

Note: Totals include a small number of "other" dwellings not classified as attached or detached. May not sum to totals due to rounding.

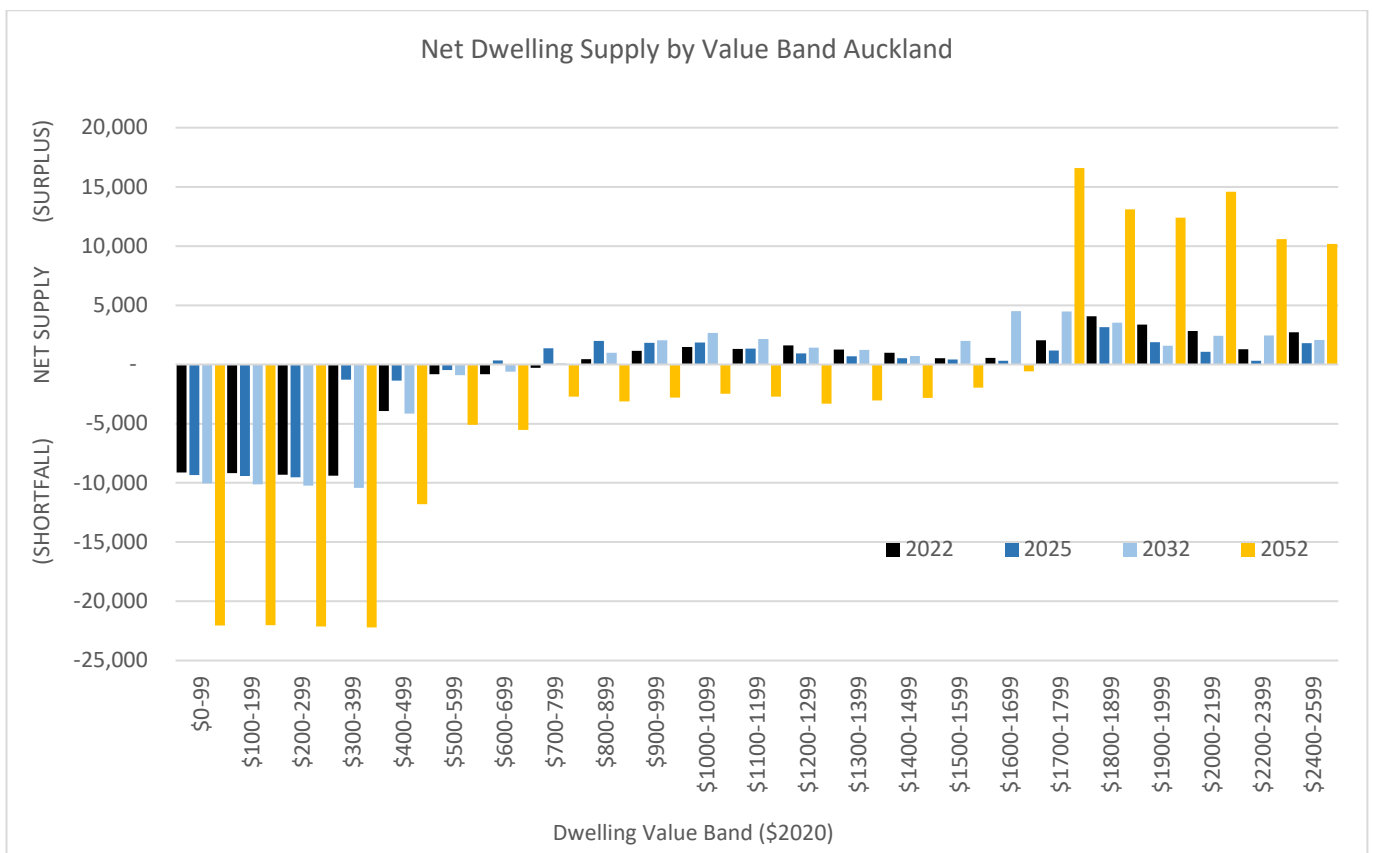


Figure 13. Net dwelling supply by value band Auckland based upon the ACPMar23 high projection (ME Housing Demand Model 2023).

Appendix 6 Infrastructure to support development capacity

Auckland’s infrastructure networks provide essential bulk services that enable the growth anticipated over the life of the Future Development Strategy. The following tables and maps show the likely bulk/significant development infrastructure and additional infrastructure required to support or service the development capacity. The following map shows the general location of the corridors and sites of required infrastructure over the first decade.

The projects identified have been either committed and funded or signalled. The timing of these key projects helps to inform a broad understanding of when and where growth at scale is likely to occur. There is particular uncertainty around the timing and delivery of medium and long-term projects due to the constrained financial environment and current planning underway. Waka Kotahi (New Zealand Transport Agency) and Kiwi Rail projects are also subject to funding by Central Government.

Note: The projects listed in the following tables are based on currently published information (for example the 2021 RLTP), are not exhaustive and there are interdependencies which may change as further investigations are completed. There are two key transport documents being consulted on and finalised in 2023 that will affect the number and timing of projects in the transport list. They are the Auckland Rapid Transit Plan (ARTP) and the Tāmaki Makaurau Integrated Transport Plan (TMTP).

*Table 14. Public transport & active mode network projects**

Decade One (2023+)	Decade Two (2023+)	Decade Three (2043+)
Northwestern Bus improvements Lincoln Road Corridor Improvements Project (multi-modal) City Rail Link Carrington Road Upgrade Eastern Busway (Pakuranga to Botany) Airport to Botany Stage 2 Bus Improvements Papakura to Pukekohe Rail Electrification Drury Railway Station (Drury Central) Ngākōroa Railway Station (Drury West) Paerātā Railway Station (Paerata) Third Main Line Rail Network Rebuild	Northern Busway Enhancements State Highway Improvements (north)[#] Walking and cycling path along SH1 (Albany to Grand Drive, Ōrewa) Connection from the active mode corridor at Silverdale to Highgate Parkway (the Silverdale to Highgate Active Mode connection) Wainui interchange active modes upgrade North West Rapid Transit Network (City centre to Westgate) Upper Harbour (SH18) Rapid Transit Network Waitematā Harbour Connections Downtown Bus Improvements Auckland Light Rail (City Centre to Māngere) Sylvia Park Bus Improvements Airport to Botany Stage 2 Bus Improvements Southwest Gateway 20Connect	North Shore Rapid Transit Network North West Rapid Transit Network (extension to Huapai) New Lynn to Ōnehunga (shared path)
<p><i>*These projects are delivered by Auckland Transport with support from Waka Kotahi and Kiwi Rail. [#] Projects still subject to business case work and statutory processes.</i></p>		

Table 15. Road network projects*

Decade One (2023+)	Decade Two (2023+)	Decade Three (2043+)
Penlink Ara Tūhono project (Pūhoi to Warkworth) The Papakura ki Pukekura - Papakura to Bombay project (Stage 1 Papakura to Drury)	Ara Tūhono project (Warkworth to Wellsford) State Highway Improvements (north)[#] SH1 widening (between Lonely Track Bridge and Silverdale interchange) Silverdale Interchange upgrade Wilks Road interchange Upgrade to Redvale interchange (upgrading the proposed Ō Mahurangi Penlink interchange) Waitematā Harbour Connections SH16 & SH18 Upgrades Drury to Pukekohe Corridor Mill Road[#1] The Papakura ki Pukekura - Papakura to Bombay project (Stage 2) East - West Link	Mill Road State Highway Improvements (north)[#]
<p><i>*These projects are delivered by Auckland Transport with support from Waka Kotahi and Kiwi Rail</i></p> <p><i>[#] Projects still subject to business case work and statutory processes.</i></p> <p><i>[#1] Full description of the Mill Road north area: Redoubt Road from Hollyford Drive to Mill Road; Murphys Road from Flatbush School Road to Redoubt Road; Mill Road from Redoubt Road to Hamlin Road; Cosgrave Road from Hamlin Road to Fernaig Street.</i></p>		

Table 16. Water supply projects*

Decade One (2023+)	Decade Two (2023+)	Decade Three (2043+)
Tamaki regeneration and Kāinga Ora water network upgrades Wellsford water treatment plant upgrade Huia water treatment plant Redoubt Road reservoir expansion Hingaia east-west resilience Watermain & BSP Waikato A water treatment plant	Waikato 2 watermain Helensville water treatment plant upgrade Trig Road reservoir North Harbour No.2 watermain Ōrewa 3 watermain Pukekohe West Reservoir Wesley-Paerata Watermain Waikato A water treatment plant	Warkworth water supply capacity upgrade Waitematā Harbour Connections (watermain) Ardmore water treatment plant upgrades
<p><i>*These projects are delivered by Watercare.</i></p>		

Table 17. Wastewater projects*

Decade One (2023+)	Decade Two (2023+)	Decade Three (2043+)
Warkworth wastewater Growth Strategy and Servicing Snells Beach Wastewater Treatment Plant North East Warkworth Sub-regional wastewater servicing Whenuapai wastewater packages Wellsford wastewater Treatment Plant upgrade Western Isthmus Water Quality Improvement Programme Helensville wastewater Treatment Plant upgrades Central Interceptor South-west wastewater scheme Pukekohe trunk sewer	Army Bay wastewater treatment plant upgrade Hibiscus Coast wastewater network improvements Rosedale wastewater Treatment Plant capacity upgrade Northern Interceptor Phase 2 Brigham Creek wastewater pump station Helensville wastewater treatment plant upgrades Māngere wastewater treatment plant capacity upgrade Hingaia Rising Main Southern Auckland Wastewater Service Scheme Paerata transmission wastewater pumpstation Beachlands – Maraetai wastewater servicing	Army Bay wastewater treatment plant upgrade Māngere wastewater treatment Plant capacity upgrade
*These projects are delivered by Watercare.		

Table 18. Stormwater projects*

Decade One (2023+)	Decade Two (2023+)	Decade Three (2043+)
Awakeri Wetlands Bottle Top Bay Asset Acquisition and Redevelopment Te Whakaoranga o te Puhinui (Puhinui Stream regeneration): Rata Vine Stream Naturalisation Hayman Park Wetland Upgrade (Stage 1) Stream Restoration DHB Land Tararata Creek catchment flooding (Moyle Park Detention) Te whakahou wai ua i Te Kūiti Te Atatū (Te Atatū Peninsula stormwater upgrade) Redhills HIF stormwater management	Flannagan Road / NIMT culvert upgrade Hayman Park Wetland Upgrade (Stage 2)	Takaanini North Conveyance channels and stormwater mitigation devices
*These projects are largely delivered by Auckland Council		

Table 19. Additional infrastructure (community facilities, solid waste) projects*

Decade One (2023+)	Decade Two (2023+)	Decade Three (2043+)
<p>Waste Food scraps services bins Community Recycling Centres (CRCs) Refuse Transfer Stations</p> <p>Community Facilities Community Facilities Network Action Plan/ Community Services Provision projects</p>	<p>Waste VISY Materials Recovery Facility (MRF) upgrade</p> <p>Community Facilities Community Facilities Network Action Plan/ Community Services Provision projects</p>	<p>Waste New food scraps processing facility New Materials Recovery Facility (MRF)</p> <p>Community Facilities Community Facilities Network Action Plan/ Community Services Provision projects</p>
<p>* Understanding where facilities are needed across a regional level is an important aspect to supporting development capacity.</p>		

ISBN 978-1-99-106082-2 (Print)
ISBN 978-1-99-106083-9 (PDF)

Auckland Council disclaims any liability whatsoever in connection with any action taken in reliance of this document for any error, deficiency, flaw or omission contained in it.
© 2023 Auckland Council, New Zealand

Find out more: phone 09 301 0101, email
rimu@aucklandcouncil.govt.nz or visit aucklandcouncil.govt.nz
and knowledgeauckland.org.nz

Research and
Evaluation Unit

RIMU

