Nelson City Housing and Business Capacity Assessment

July 2024

Table of Contents

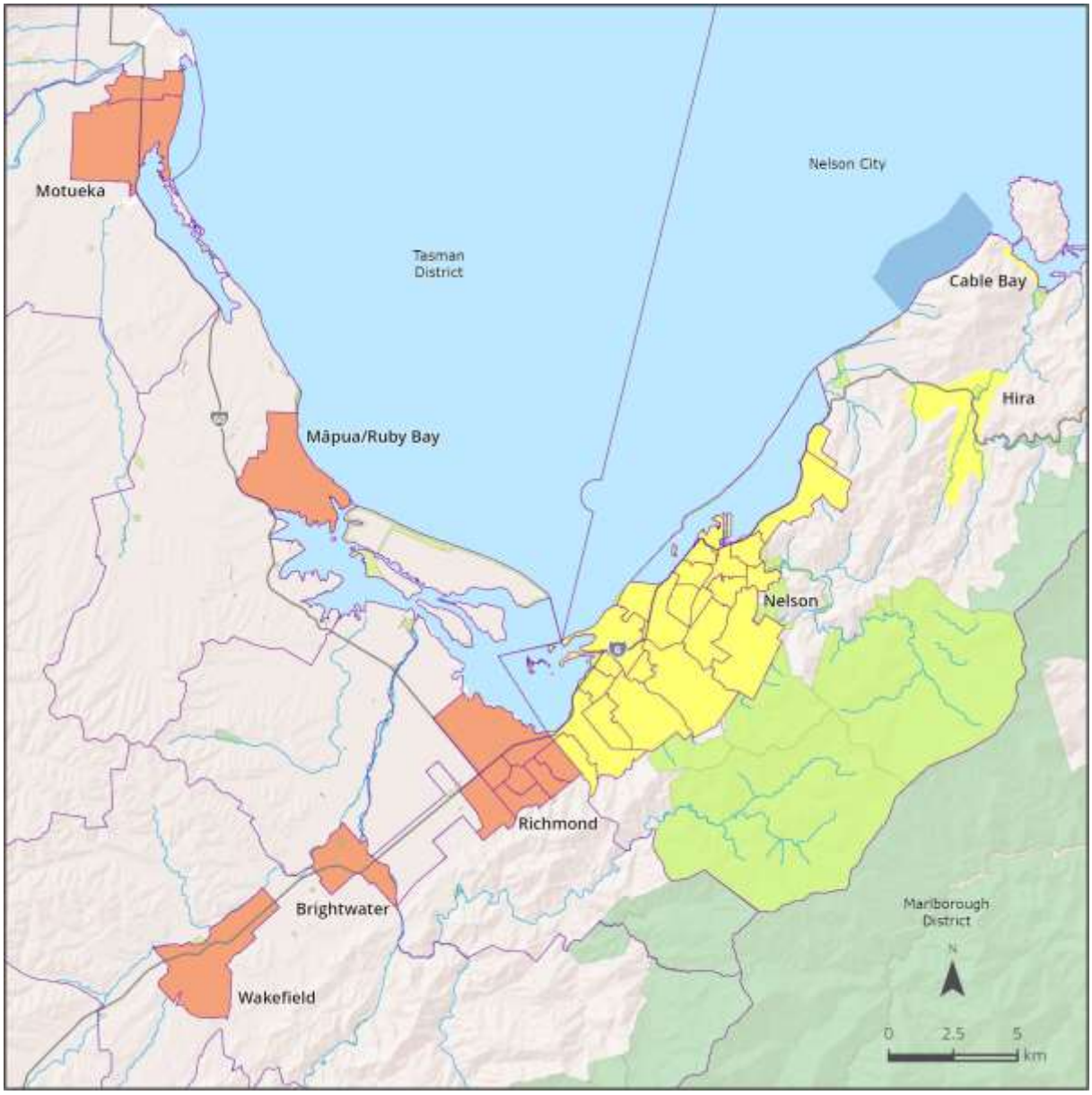
List of Figures

List of Tables

1. Executive Summary

The Nelson City Council territorial area forms part of the Nelson Tasman Urban Environment. An urban environment means any area of land that is part of a housing and labour market of at least 10,000 people.

The Nelson Tasman Urban Environment extends from Cable Bay to Wakefield and Motueka.



This report sets out the residential and business demand in Nelson over the short (3 years), medium (10 years), and long term (30 years). It also provides an assessment of the housing and business development capacity in the Nelson Urban Environment, part of the Nelson Tasman Urban Environment.

Development capacity means the capacity of land to be developed for housing or business use, based on:

(a) Zoning, objectives, policies, rules and overlays that apply in the relevant proposed and operative RMA planning documents; and

(b) The provision of adequate development infrastructure to support the development of land for housing and business use; and

(c) The commercial feasibility of development and whether the capacity can be reasonably expected to be realised by the market.

The National Policy Statement Urban Development (NPSUD) requires that Nelson and Tasman jointly report on development capacity; however, since each respective region is distinct, a separate assessment is undertaken, and report prepared for each region.

A seperate report (336940202-11473) provides an assessment of the Tasman Urban Area and a joint overview report (336940202-11146) provides an assessment of the demand and urban development capacity in the Nelson Tasman Urban Environment.

These assessments are required to meet Subpart 5 Housing and Business Capacity Assessments (HBA) of the National Policy Statement on Urban Development 2020 (NPSUD). The assessments are required to ensure that decision-makers have evidence to inform planning decisions, including the identification of housing bottom lines and demand and capacity projections to inform infrastructure planning and programming. Under the NPSUD, the capacity for the Nelson Tasman Urban Environment is assessed as a whole, and therefore excess capacity in one region can be shared to offset shortfall in the other.

This HBA builds on the findings of the previous HBA 2021, updating information where necessary, and complements and informs other Council strategies and plans incuding the Nelson Tasman Future Development Strategy (FDS) and Plan Change 29 – Housing and Hazards (PC29) to the Nelson Resource Management Plan (NRMP).

Assessment of development capacity for housing

The assessment of housing demand and capacity as set out in this report suggests an overall sufficiency of development capacity to meet demand for housing in Nelson over the short term, with a small deficit in the medium term (infrastructure related), before returning to a surplus in the long term. Table 1 summarises the housing demand (including the competitiveness margin[1]) and the projected capacity along with the difference between the two.

[1] Refer to clause 3.22 of the NPSUD

Table 1: Housing demand and capacity (cumulative[2])

Period	Demand	Capacity	Difference
Short term (1-3 years)	798	1,939	1,141
Medium term (4-10 years)	3,822	3,689	-133
Long term (11-30 years)	7,594	7,794	200

Assessment of development capacity for business

The assessment of demand and capacity as set out in this report identifies an overall insufficiency of business land in Nelson. Table 2 and Table 3 shows the business land demand and projected capacity and the difference between the two.

Table 2: Commercial business land demand and capacity (cumulative)

Period	Demand	Capacity	Difference
Short term (1-3 years)	2.36	4.5	2.14
Medium term (4-10 years)	6.61	4.5	-2.11
Long term (11-30 years)	13.36	4.5	-8.86

Table 3: Industrial business land demand and capacity (cumulative)

Period	Demand	Capacity	Difference
Short term (1-3 years)	3.97	10	6.03
Medium term (4-10 years)	17.03	10	-7.03
Long term (11-30 years)	37.67	10	-27.67

Despite the insufficency shown in Table 2 and Table 3, there is a cumlative surplus over the long term in the the Nelson Tasman Urban Enviroment:

- Commercial and retail: 60.64 HA
- Industrial: 14.57 HA
- Total business land: 75.21 HA

[2] Cumulative means that the medium term includes demand / capacity from the short term, and the long term includes demand / capacity from the short and medium term.

2. Introduction

This report builds on and updates the work of the previous Nelson Tasman HBA 2021. Key reports referenced in this HBA include:

- Nelson Housing and Business Capacity Assessment Report 2021 (HBA 2021) https://www.nelson.govt.nz/urban-development-capacity/
    - Appendices in this report include: 'Nelson-Tasman Housing We'd Choose' Housing Demand Preferences 2021 by Market Economics; and Demand for business land in the Nelson and Tasman shared urban environement 2020 by Sense Partners
- Urban Development Capacity Monitoring Report June 2023 https://www.nelson.govt.nz/urban-development-capacity/
- Nelson Tasman Future Development Strategy 2022-2052 (FDS) https://www.nelson.govt.nz/future-development-strategy)
- Tasman District Council and Nelson City Council Population Projections 2018-2058 Results, Appendix 1
- Housing Capacity Assessment 2023 to support the Nelson Tasman Housing and Business Development Capacity Assessment 2024 by Market Economics (M.E. feasibility assessment), Appendix 2

Method and approach

Firstly, the demand projections for residential and business use over the short, medium and long term were updated. NCC and TDC jointly commissioned independent population and household projections which form the basis of the demand projection.

From there, the available development capacity to meet that demand, based on the planning rules in the operative and proposed NRMP, the availiabilty of infrastructure and what would feasibly and realistically be delivered by the market, is assessed.

For existing urban areas, a stepped approach to determining housing capacity has been used drawing from modelling undertaken by Market Economics (M.E.). Housing capacity has been calculated for greenfield areas using scheme plans and conversations with developers for the land that is actively being developed.

Business land capacity has been calculated using building consents to update the figures in the HBA 2021 and comparing them to updated demand projections.

3. Housing Demand

NPSUD requirements (3.24):

1) Every HBA must estimate, for the short term, medium term, and long term, the demand for additional housing in the region and each constituent district of the tier 1 or tier 2 urban environment:
   - in different locations; and
   - in terms of dwelling types
2) Local authorities may identify locations in any way they choose.
3) Local authorities may identify the types of dwellings in any way they chose but must, at a minimum, distinguish between standalone dwellings and attached dwellings.
4) The demand for housing must be expressed in terms of numbers of dwellings.
5) Every HBA must:
   - set out a range of projections of demand for housing in the short term, medium term, and long term; and
   - identify which of the projections are the most likely in each of the short term, medium term, and long term; and
   - set out the assumptions underpinning the different projections and the reason for selecting the most likely; and
   - if those assumptions involve a high level of uncertainty, the nature and potential effects of that uncertainty.

Housing demand means estimating the demand for dwellings to meet the Nelson's population growth for the short, medium, and long term. This is achieved by breaking down the city's population projections into household demand and then adding the required competitiveness margin.

This section builds on analysis undertaken for the HBA 2021. This HBA updates:

- Population projection scenarios
- Household projections
- Demand for new dwellings
- Housing bottom line

The Nelson-Tasman region has historically experienced population growth at a higher rate than that projected by Statistics New Zealand (StatsNZ). Therefore, Nelson City Council and Tasman District Council commissioned the Tasman District Council and Nelson City Council Population Projections 2018-2058 Results (DOT) projections (Appendix 2) to enable robust decision making when planning for future growth. These projections inform the majority of this section on housing demand.

Table 4 below highlights key population projections and are discussed in further detail later in this document.

These projections include:

- Total population
- Dwelling ratio (average number of people living in a dwelling)
- Dwelling demand (existing dwellings + the number of dwellings needed to accommodate population growth)
- Competitiveness margin (a margin required by the NPSUD)
- Cumulative demand (number of new dwellings needed over 30 years)

Table 4: Key population projections, 2025-2054

Year ending in June	Term	Population	Dwelling demand	Comp. margin	Demand per year	Cumulative demand
2024	-	55406	23095	-	0	0
2025	Short	55938	23317	20%	266	266
2026	Short	56469	23538	20%	266	532
2027	Short	57001	23760	20%	266	798
2028	Medium	57532	23981	20%	266	1064
2029	Medium	58064	24203	20%	266	1330
2030	Medium	58535	24618	20%	498	1828
2031	Medium	59006	25034	20%	498	2327
2032	Medium	59477	25449	20%	498	2825
2033	Medium	59948	25865	20%	498	3324
2034	Medium	60419	26280	20%	498	3822
2035	Long	60837	26462	15%	209	4031
2036	Long	61255	26644	15%	209	4240
2037	Long	61673	26825	15%	209	4449
2038	Long	62091	27007	15%	209	4658
2039	Long	62509	27189	15%	209	4867
2040	Long	62839	27333	15%	165	5032
2041	Long	63169	27476	15%	165	5198
2042	Long	63499	27620	15%	165	5363
2043	Long	63829	27763	15%	165	5528
2044	Long	64159	27907	15%	165	5693

Year ending in June	Term	Population	Dwelling demand	Comp. margin	Demand per year	Cumulative demand
2045	Long	64421	28021	15%	131	5824
2046	Long	64683	28135	15%	131	5955
2047	Long	64946	28249	15%	131	6086
2048	Long	65208	28363	15%	131	6217
2049	Long	65470	28477	15%	131	6349
2050	Long	65673	28694	15%	250	6598
2051	Long	65876	28911	15%	250	6848
2052	Long	66079	29128	15%	250	7097
2053	Long	66282	29345	15%	250	7347
2054	Long	66485	29562	15%	250	7596

3.1 Population projections

DOT estimates that Nelson has experienced an average population growth of approximately 1.4% per year for the period between 2018 - 2023.

How does this compare to the HBA 2021?

At the time of writing the previous HBA, Nelson had experienced average annual growth of 1.7% (StatsNZ data), and anticipated a period of stagnation caused by COVID. For the period between 2021 - 2023 it predicted growth of 0.16% per year. StatsNZ data confirms this slow growth and estimates that Nelson grew by 0.32% per year during that period.

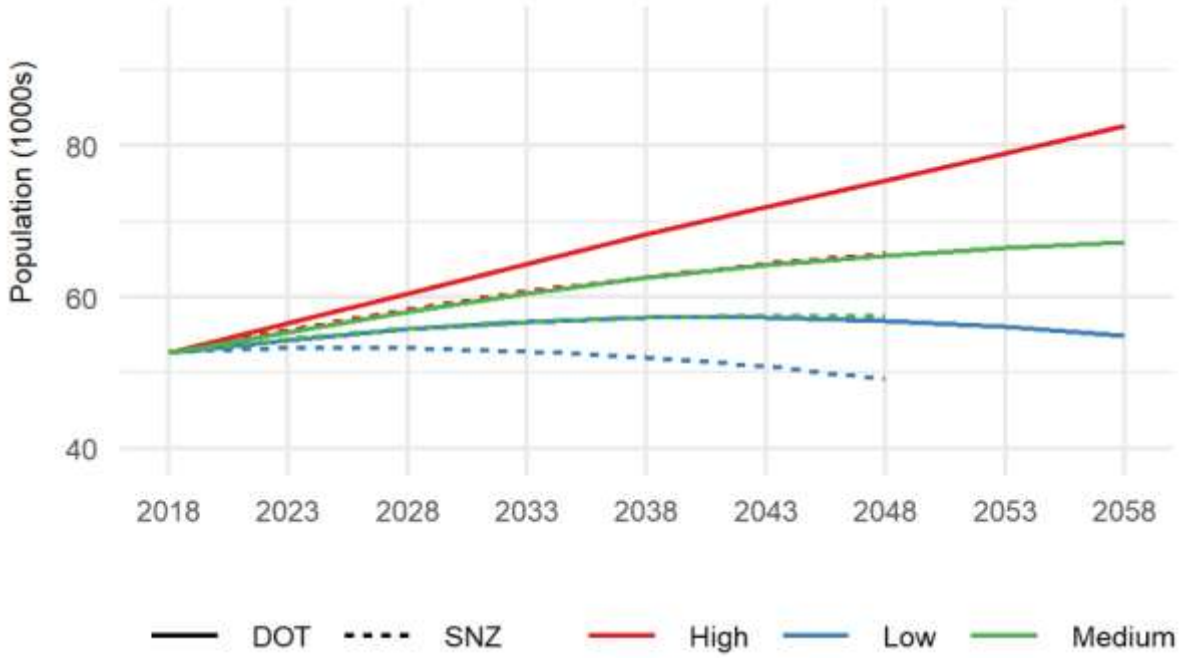
The DOT population projections consist of:

- Base population by age and sex
- Assumptions regarding fertility rates and age at childbearing for females
- Assumptions regarding life expentancy and survivorship by age and sex
- Assumptions regarding migration rates by age and sex

The NPSUD requires that a range of projected demand scenarios for the short, medium and long term also be considered. For this HBA, the DOT medium projection (green line in Figure 1 below) has been adopted as it is most in line with historic trends. Appendix 2 provides a comparitive analysis between the DOT and StatsNZ projections.

Figure 1 illustrates the comparison of DOT and StatsNZ population projections for Nelson, (low, medium and high).

Figure 1: Comparison of total population projections for DOT and Statistics New Zealand, by variant 2018-2058, Nelson City



3.2 Demand for new residential dwellings

Household demand projections are based on dwelling numbers and a competitiveness margin.

Projected dwelling numbers are based on:

- Population projections
- Average household size (starting at 2.4 people per household and gradually decreasing to 2.25 people per household as the population gets older)
- Unoccupied dwellings, such as holiday homes or rentals awaiting refurbishment (approx. 3.5% of total demand)

Table 4 shows that the number of households in Nelson is expected to rise from 23,095 in 2024 to 29,562 in 2054, an increase of 6,467 households over the thirty-year period, approximately 28% growth.

Competitiveness margin

Under the NPSUD a competitiveness margin is a margin of development capacity, over and above the expected demand, which is required to support choice and competitiveness in housing markets.

The NPSUD requires the following competitiveness margins be applied to housing and business demand:

- for the short-medium term (within the next ten years) 20%
- for the long term (between 11-30 years) 15%

As shown in Table 4, when these margins are applied, the total demand for housing in Nelson increases to 30,913 dwellings over the long term (dwelling demand in year 2025 + cumulative demand and margin in year 2054).

3.3 Unmet demand

This HBA defines unmet demand as the demand for housing that has not been met within a set period prior to the present day. Unmet demand may be illustrated through:

- overcrowding rates;
- homelessness and transitional housing rates;
- families or individuals having to live with friends or relatives;
- households having to live apart (the salary earner in Nelson and the rest of the family living elsewhere);
- households choosing to live in a neighbouring district when their preferred place of abode would be Nelson; and
- overall housing supply shortage evidenced by unaffordable rents and house prices.

There is currently no specific data or method to accurately measure unmet housing demand. This HBA utilises household estimates based on the StatsNZ population estimates updated in November 2023 for the last three years and compares them with the number of new dwelling building consents over that same period to provide a reasonable estimate of unmet demand in Nelson. The household occupancy rate of 2.4 people per household has been applied up until 2023 to reflect the StatsNZ estimated occupancy rate for that period. The difference between the two is used as a proxy for actual unmet dwelling demand in Nelson.

Table 5: Unmet dwelling demand - Nelson

Year (as of June 30)	Population estimates (StatsNZ - Nov 2023)	Households (based on average occupancy of 2.4 people per household)	Annual change in households	New dwelling building consents	Difference between previous household projections and new building consents issued (Proxy for unmet demand)
2021	54,900	22875	0	246	-246
2022	55,000	22917	42	303	-261
2023	55,600	23167	250	276	-26
		Three-year total			**-533**

Table 5 identifies that the supply of new dwellings has outstripped projected demand for housing over the last three years. Despite the apparant excess of housing, there has continued to be new building consents issued, which indicates that the market still sees a demand for housing. On the basis of this analysis, this HBA considers there to be no actual unmet demand. It is noted that there are several variables, such as the accuracy of the population estimates and household occupancy for example, that may affect this calculation and therefore it is to be treated as a simplified approximation that is used as a proxy only.

In relative terms, Nelson continues to see high demand for social housing, with 1,119 applicants identified across the Nelson-Tasman urban area on either the Ministry of Social Development's register or in the Nelson Tasman Housing Trust's survey.[3] This suggests that the housing being delivered may not be the correct typology or price for those seeking housing.

This theoretical excess in housing is also reflected in the Ministry of Housing and Urban Development (HUD) dashboard.[4] Figure 2 illustrates a negative demand.

Figure 2: New Dwelling consents compared to household growth (MHUD)

3.4 Housing affordability and price-efficiency

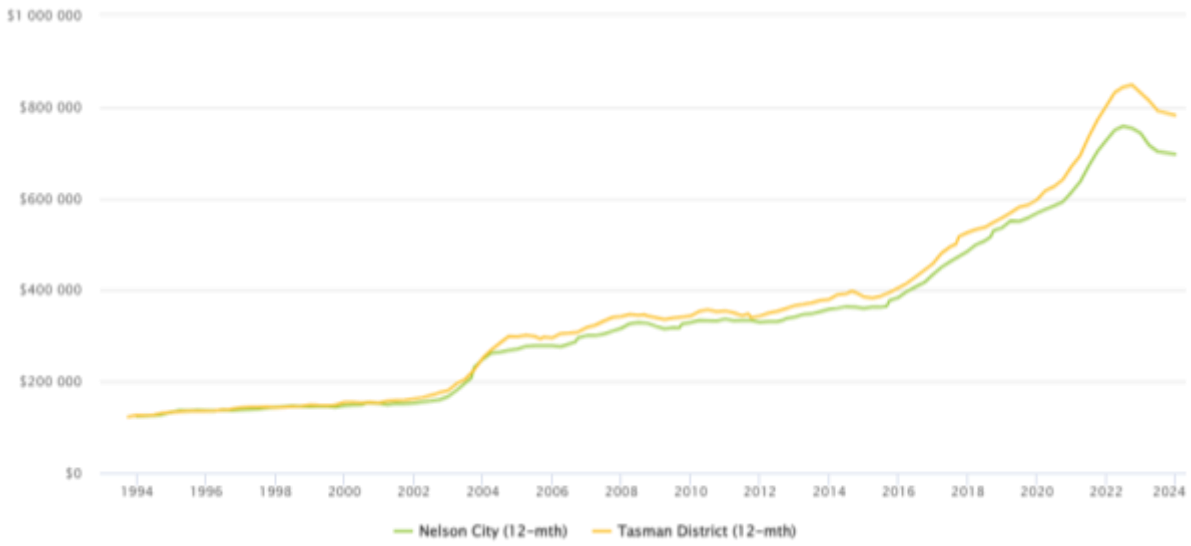
House prices and affordability

Data from HUD shows a steep rise in house prices in Nelson between 2016 and mid-2022, before reducing. The peak median sales price for a house in Nelson reached $758,000 in 2021 before dropping to $702,000 in 2023. Nelson house prices remain 38% higher compared to five years ago. Rents have also increased by 33% over five years to a current median of $513 per week.

[3] See Urban Development Capacity Monitoring Report June 2023 (page 10) https://www.nelson.govt.nz/urban-development-capacity/
[4] https://huddashboards.shinyapps.io/urban-development/

Multiple factors may be influencing this improvement to housing affordability, including the increased housing supply outlined above or other market factors that have placed downward pressure on house prices (such as increased interest rates and recessionary economic conditions).

Figure 3: Median 12-month rolling dwelling sales prices



Housing affordability across Nelson is reported annually in the NPS UD Nelson-Tasman Annual Monitoring Report. Highlights from the 2023 report include:

- Nelson is considered to be the fifth-least affordable region in the country to buy a house.
- The average house value is 8.6 times the average household income, after peaking at a ratio of 10 in 2021.
- Average rents in Nelson reached $513, 33% higher than five years ago.

The capacity analysis undertaken by M.E at Appendix 2, identifies that the higher volume of attached housing typologies enabled under Plan Change 29 may support the market to deliver more affordable forms of housing. While house prices will increase over time due to a range of factors, over the long term, attached forms of housing are expected to cost about 30% to 35% less than detached forms of housing[5]. This indicates that changes to the planning rules to enable more attached forms of housing could assist to support improved housing afffodability by enabling greater choice.

3.4.1 Housing preferences

Nelson City Council jointly commissioned with the Tasman District Council a housing preferences survey "Housing We'd Choose" undertaken by M.E. in partnership with Research First in June 2021. The purpose of the survey was to understand the housing preferences of current residents in Nelson, in terms of housing type (detached vs

[5] Refer to Section 4.3 of the M.E. report for further discussion.

attached) and location. While this analysis does not account for changes in housing preferences over time by future residents (i.e. young people and those living elsewhere), it does provide a baseline and is a useful informing document to the projected split of housing types applied in this HBA.

The findings in this report are still considered relevant and the survey has not been updated for this HBA. A full copy of the report and its findings can be found in appendix 4 of the HBA 2021. In summary:

- Nelson residents prioritise sun, safety from crime, safety from natural hazards, a freehold title, and a standalone house in this order.
- When choosing a dwelling type and taking into account financial constraints of a household, 8% choose an apartment, 28% choose an attached dwelling, and 65% choose a freestanding dwelling.

The M.E. feasiblity assessment makes comment about historic and current trends in preferences into the future. Current consent data shows that of the houses being consented, broadly 80% are detached and 20% are attached. This may partly reflect that attached forms of housing are not broadly enabled by the operative NRMP but may also reflect current demand patterns. Discussions with developers undertaken for this HBA indicate that there will be greater demand for attached forms of housing in the future.

Combining these numbers, this HBA broadly and conservatively assumes that current housing preferences in Nelson will continue in the future. This is appropriate given that there is uncertainty about how housing preferences will change, as the market evolves and the planning rules change over time.

At the same time, it is important to note that this HBA illustrates that the development capacity enabled provides flexibility for these preferences to change over time in response to changes in demand.[6]

3.5 Demand for Māori housing

Analysis in the HBA 2021 uses data from the 2018 census. Results from the 2023 census will not be avaiable until May 2024. Notwithstanding, the analysis undertaken in the HBA 2021 is still considered to be relevant. In summary:

- Māori households are, on average, larger than the general population and the number of Māori households is expected to increase.
- Larger household size may drive demand for larger houses although this demand could be offset by a reduction in demand for larger houses amongst the wider population.

Plan Change 29 looks to respond to the future demands for housing from Māori through introducing a wider definition for papakāinga into the zones affected by the plan change, introducing an enabling objective and policy framework for the development of papakāinga; and an associated refinement of the rules and standards in the NRMP that

[6] Refer to Section 4.4 of the M.E. report for further discussion, and the analysis of Figure 4-3 in particular.

relate to papakāinga development. For housing for Māori more generally, the planning rules in the operative NRMP and in Plan Change 29 enable a range of housing types, including larger household sizes. The findings of this HBA are also relevant, in that there is sufficient capacity to meet demand.

3.6 Housing bottom lines

NPSUD REQUIREMENTS (3.6) Housing bottom lines for tier 1 and 2 urban environments

1) For each tier 1 or tier 2 urban environment, as soon as practicable after an HBA is made publicly available:

   (a) the relevant regional council must insert into its regional policy statement:

      (i) a housing bottom line for the short-medium term; and

      (ii) a housing bottom line for the long term; and

   (b) every relevant territorial authority must insert into its district plan;

      (i) a housing bottom line for the short-medium term that is the proportion of the housing bottom line for the short-medium term (as set out in the relevant policy statement) that is attributable to the district of the territorial authority; and

      (ii) a housing bottom line for the long term that is the proportion of the housing bottom line for the long term (as set out in the relevant policy statement) that is attributable to the district of the territorial authority.

2) The housing bottom lines must be based on information in the most recently publicly available HBA for the urban environment and are:

   (a) for the short-medium term, the sum of:

      (i) the amount of feasible, reasonably expected to be realised development capacity that must be enabled to meet demand, along with the competitiveness margin, for the short term; and

      (ii) the amount of feasible, reasonably expected to be realised development capacity that must be enabled to meet demand, along with the competitiveness margin, for the medium term; and

   (b) for the long term, the amount of feasible, reasonably expected to be realised development capacity that must be enabled to meet demand, along with the competitiveness margin, for the long term.

3) The insertion of bottom lines must be done without using a process in Schedule 1 of the Act, but any changes to RMA planning documents required to give effect to the bottom lines must be made using a Schedule 1 process.

A housing bottom line is the amount of development capacity that is sufficient to meet expected housing demand plus the relevant competitiveness margin. It is used to inform the district plan/regional policy statement and will be updated every three years following completion of the HBA.

This results in the following total housing demand for the Nelson area that is within the Nelson Tasman Urban Environment:

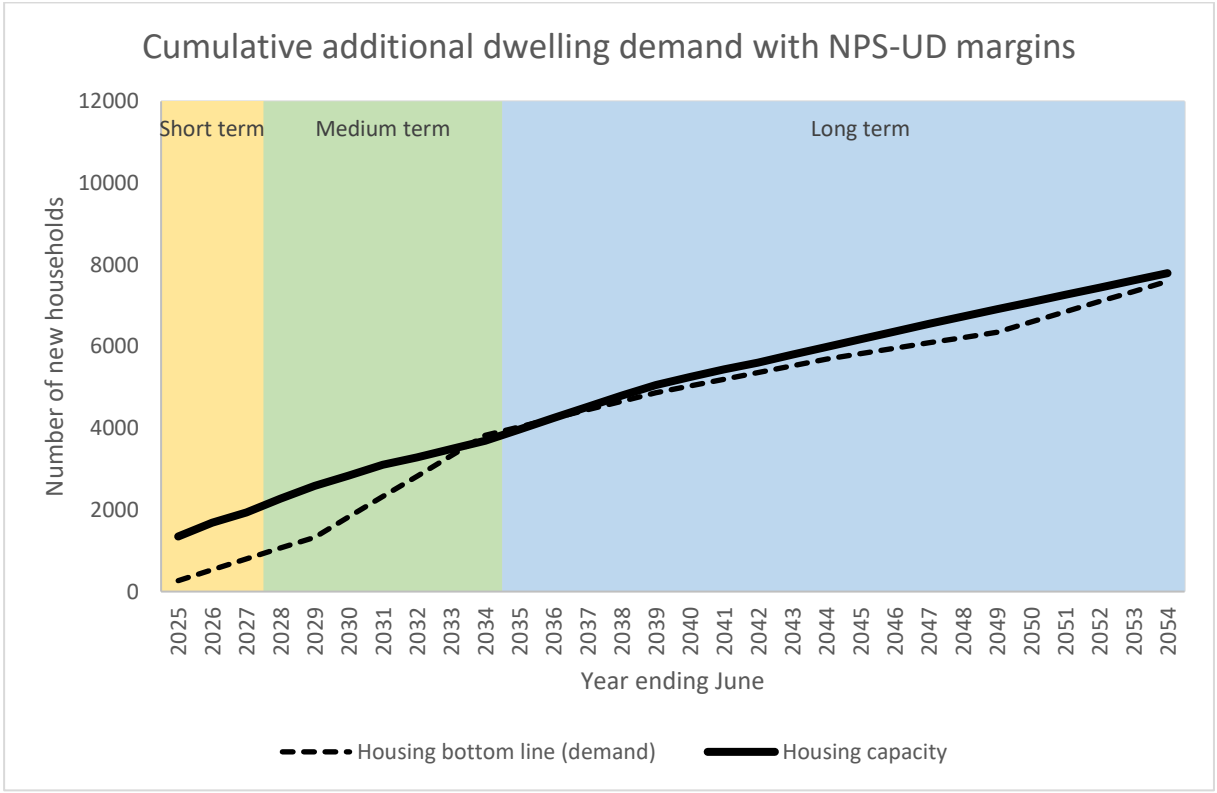
- Short term (1-3 years), 798 dwellings
- Medium term (4-10 years), 3024 dwellings
- Long term (11-30 years), 3772 dwellings

It can be useful in some situations to view the demand for housing in cumulative form as it allows for an easier description of the overall demand rather than just the demand in each time bracket. The total cumulative housing demand for the Nelson City area that is within the Nelson Tasman Urban Environment is as follows:

- Short term (1-3 years), 798 households
- Medium term (4-10 years) 3,822 households
- Long term (11-30 years) 7,594 households

Figure 4 below shows the change in housing demand (including competitiveness margins) over time.

Figure 4: Graph of Nelson's Housing Demand including margins



4. Housing Capacity

NPSUD requirements (Part 3-subpart 1 (3.2)):

1) Every tier 1, 2, and 3 local authority must provide at least sufficient development capacity in its region or district to meet expected demand for housing:

   (a) in existing and new urban areas; and

   (b) for both standalone dwellings and attached dwellings; and

   (c) in the short term, medium term, and long term

2) In order to be sufficient to meet expected demand for housing, the development capacity must be:

   (a) plan-enabled (see clause 3.4(1)); and

   (b) infrastructure-ready (see clause 3.4(3)); and

   (c) feasible and reasonably expected to be realised (see clause 3.26); and

   (d) for tier 1 and 2 local authorities only, meet the expected demand plus the appropriate competitiveness margin (see clause 3.22).

4.1 Introduction

This section sets out the methodology and results of the assessment of development capacity for additional housing in the Nelson region.

Although interrelated, working out Nelson's housing capacity is different from working out its housing supply. Housing supply is the supply of housing brought to the market at any given time, including both the rental and private ownership markets. Development capacity on the other hand is the availability of land for development to occur. The Council influences development capacity through appropriate zoning and infrastructure planning however, it has little effect on housing supply which is led by the market.

4.2 Methodology

The NPSUD requires development capacity to be assessed as set out in the report below.

Every HBA must quantify, for the short term, medium term, and long term, the housing development capacity for housing in the region and each constituent district of the tier 1 or tier 2 urban environment that is:

- plan-enabled; and
- plan-enabled and infrastructure-ready; and
- plan-enabled, infrastructure-ready, and feasible and reasonably expected to be realised.

The development capacity must be quantified as numbers of dwellings:

- in different locations, including in existing and new urban areas; and
- of different types, including standalone dwellings and attached dwellings.

To determine this, the HBA has assessed development capacity for existing residential areas of Nelson and 'greenfield' areas. Greenfield areas include zoned areas that are currently being developed such as Toi Toi and Marsden Valley, as well as long term unzoned areas identified in the Nelson Tasman FDS such as Orchard Flats.

The HBA applies a different methdology for calculating capacity within these areas given that the development economics are different. This is explained in the sections below.

The NPSUD and associated guidance directs how the capacity assessment is to be undertaken, and there are various definitions that apply, which are summarised below. Definitions	**Comments and assumptions**
Plan enabled capacity - in relation to the short term, it is on land that is zoned for housing or for business use (as applicable) in an operative district plan - in relation to the medium term, either paragraph (a) applies, or it is on land that is zoned for housing or for business use (as applicable) in a proposed district plan - in relation to the long term, either paragraph (b) applies, or it is on land identified by the local authority for future urban use or urban intensification in an FDS or, if the local authority is not required to have a FDS, any other relevant plan or strategy.	**Operative district plan** means the operative NRMP for Nelson. Proposed District Plan. This means Plan Change 29 as notified for Nelson. Any changes to Plan Change 29 through the hearings process in terms of the enabled development capacity will be addressed in the next HBA in 2027.
Infrastructure ready - 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).	Infrastructure activity managers provided information about current network capacity, as well as planned projects in the LTP 2024-34 and relevant Activity Management Plans.

The NPSUD and associated guidance directs how the capacity assessment is to be undertaken, and there are various definitions that apply, which are summarised below. Definitions	Comments and assumptions
Feasible and reasonably expected to be realised - For the purpose of estimating the amount of development capacity that is reasonably expected to be realised, or that is both feasible and reasonably expected to be realised, local authorities: a) may use any appropriate method; but b) must outline and justify the methods, inputs, and assumptions used to arrive at the estimates.	For intensification areas M.E. modelling was used and for greenfield, consent data and developer discussions. It is assumed that greenfield developers will only deliver sections if it is considered commercially feasible.

4.3 Greenfield capacity

The greenfield areas are identified in Figure 5 below. These areas are a combination of zoned areas that are currently being developed for housing, and longer term greenfield areas that are not currently zoned, but are identified for urban development in the Nelson Tasman FDS.

Development in greenfield areas is generally progressed comprehensively and delivered in a staged manner over time. The type of development delivered in these areas can be a combination of detached and attached forms of housing supported by complementary commercial/retail activities.

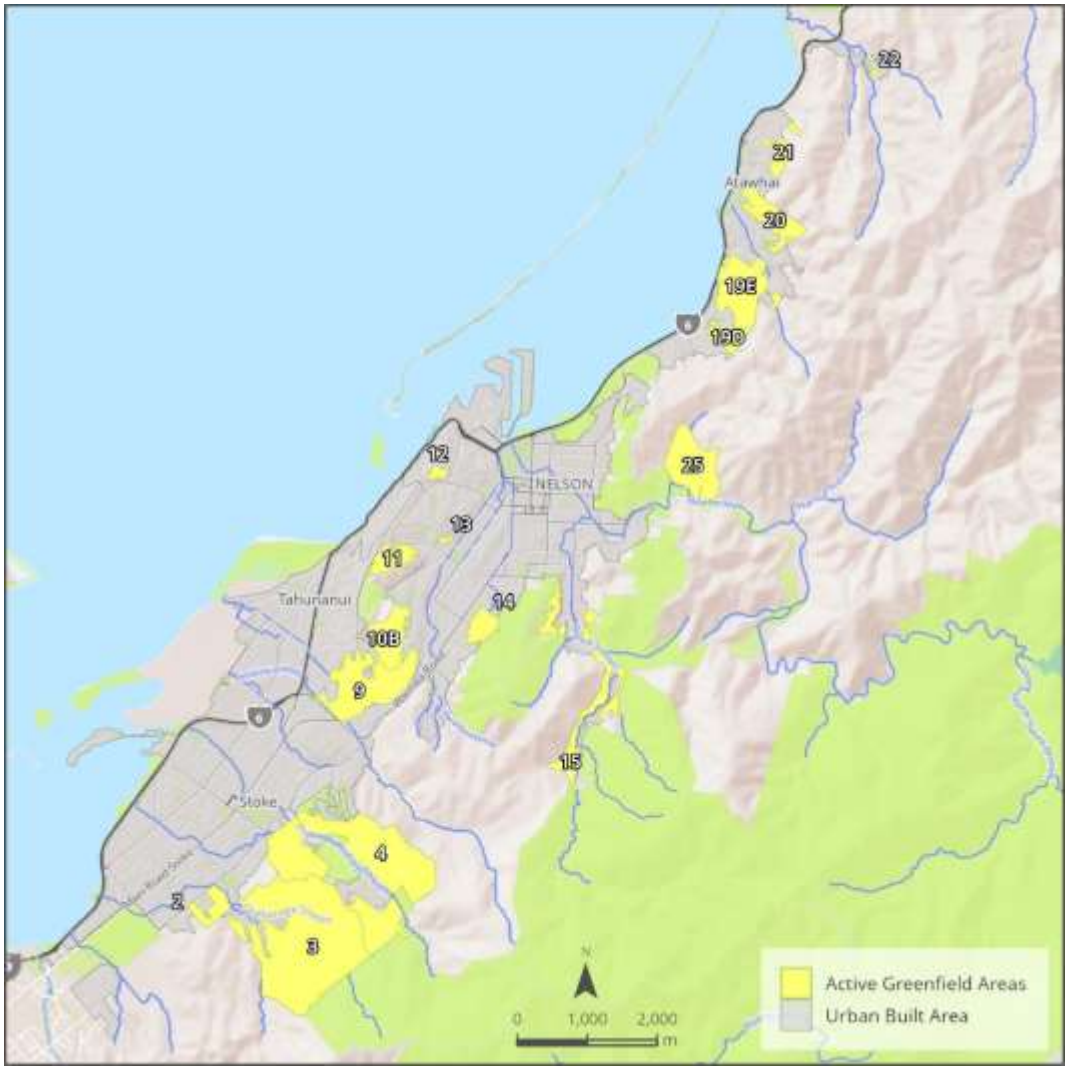
To determine the development capacity of greenfield areas, the HBA assessed recent resource consent applications and developer master plans, and has been informed by conversations with landowners about their intentions for development in terms of projected development yields and timing. Where these were not available, comparative assessments with adjoining developed land of the same nature were made. Feasibility and sequencing were determined through conversations with developers and servicing projects in the LTP.

Table 6: Expected yield of Greenfield areas (30 years)

Area name	Map key	Total yield (lots)
N-106 Maitahi/Bayview (Maitai Valley PPC28)	25	700
N-111 Marsden and Ngawhatu	3/4	2418
Ballard Drive/Ashdonleigh	2	53
Tasman Heights	9	506
Toi Toi	11	202

Area name	Map key	Total yield (lots)
Washington Valley	12	34
St Lawrence Street	13	15
Upper Brook	15	100
Werneth	20	21
Wastney Terrace	21	29
Todd Valley	22	4
Murphy	10b	124
Bishopdale Potterys	14	23
Lower Bayview	19D	100
Upper Bayview	19E	100

Figure 5: Locations of greenfield capacity



Nelson City Council has already provided infrastructure servicing to most of the greenfield growth areas identified as capacity. Where there are constraints, these are

planned to be remediated through further infrastructure provision in the LTP 2024-34. These areas include Toi Toi, Maitahi/Bayview, and Emano.

Capacity from the Private Plan Change 28 - Maitahi/Bayview is included in this HBA as NCC plans to provide servicing to these developments in the LTP 2024-34 [subject to the outcome of the Appeal].

Table 7 includes additional greenfield capacity that has not been been added to capacity because the land is not zoned or the landowner has indicated yield will not be delivered within the next 30 years.

Table 7: Expected future yield of Greenfield areas (not zoned or landowner intentions indicate development beyond 30 years)

Area name	Total yield (lots)
Orchard Flats (FDS area N-32)	100
Orphanage West (FDS area N-112)	80
Orphanage West Extension (FDS area N-116)	250
Saxton (FDS area N-11)	850
Griffin Site (FDS area N-100)	265
Saxton Extension (FDS area N-115)	160
Ngawhatu Valley (FDS area N-111)	950
Enner Glynn (FDS area N-111)	110

The NPSUD allows the HBA to consider capacity to be plan-enabled if it is identified in the FDS. From Table 7 above, 1,815 dwellings are in FDS areas and can be considered plan enabled in the long term (this value does not include the 950 dwellings in Ngawhatu, which are already zoned residential).

4.4 Intensification Capacity

Calculating development capacity within existing residential areas requires a different approach to greenfield areas. This is due to the multitude of landowners in existing neighbourhoods, most of which are not engaged in the property development market.

M.E. has developed a bespoke model for Nelson that examines development capacity at a parcel level including an evauation of the commercial feasibility of development. The methodology is summarised below. Further information about their methodology is available in their report, included at Appendix 2.

(a) Estimate **plan-enabled capacity** over the short, medium and long term as follows:

(i) Short term: the development capacity (number of dwellings) enabled in existing residential areas under the operative NRMP by housing type;

(ii) Medium and long term: the development capacity (number of dwellings) enabled in existing residential areas under the proposed NRMP (Plan Change 29) by housing type[7].

(b) Of the plan-enabled capacity, estimate what is **commercially feasible** to develop over the short, medium and long term using a range of assumptions including:

(i) Housing typology and size

(ii) Costs to aquire (e.g. land aquisition costs)

(iii) Council costs (fees and charges)

(iv) Professional services (design, consenting and construction)

(v) Development costs (e.g. construction costs, site preparation, utility connections)

(vi) Sales prices

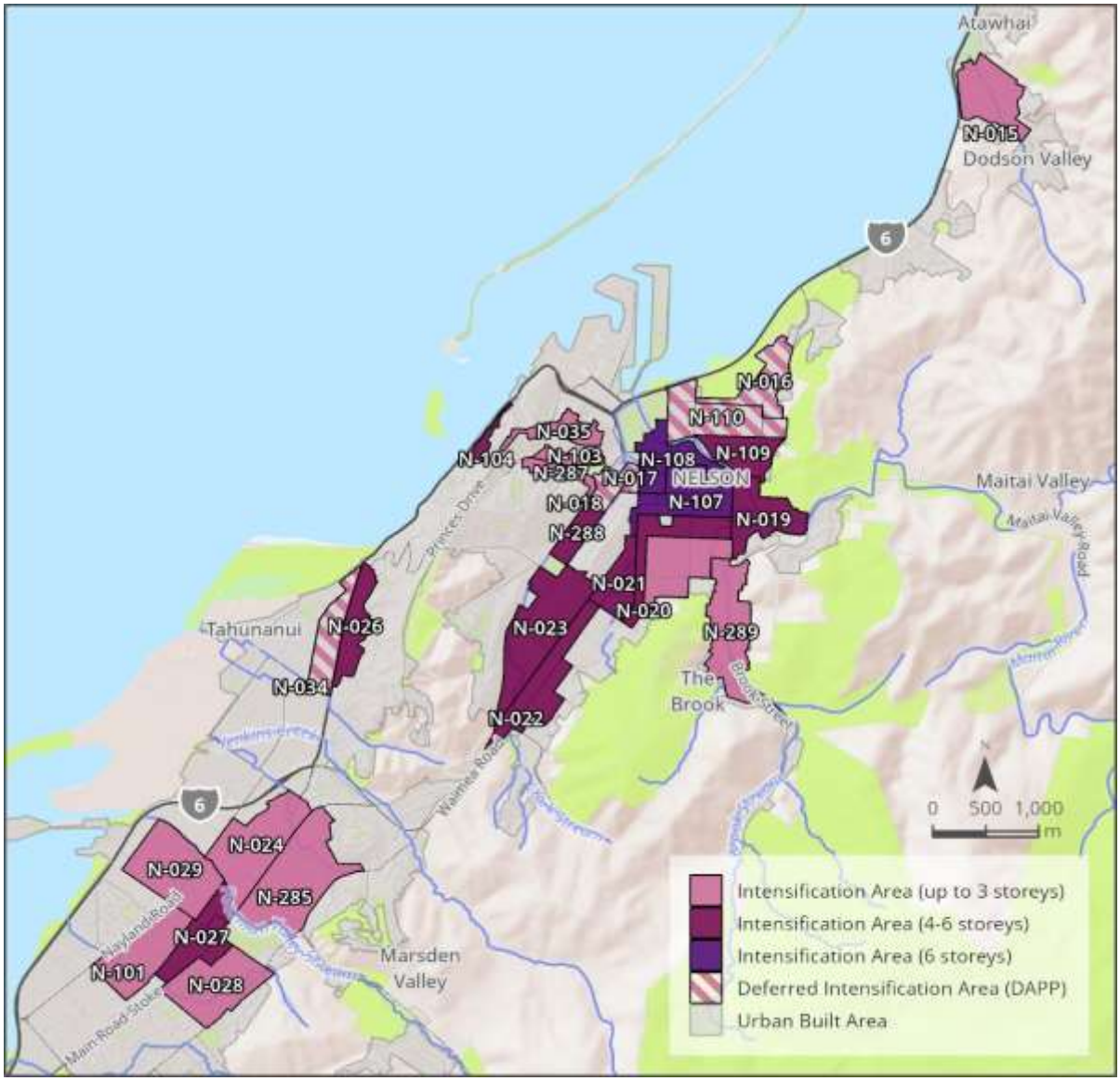
(vii) Developer profit margin

(c) Account for the amount of development capacity that can be serviced with infrastructure – i.e. **infrastructure-ready** (see section 4.4.2 below for discussion of this)

(d) Of the development capacity estimated in (a)-(c) evaluate what would be **reasonably expected to be realised** by the market and determine whether it is sufficient to meet demand, having regard to the type of housing demanded and the likely price point/sales price of feasible dwellings.

[7] This capacity assessment was completed as part of the economic assessment supporting PC29 and was delivered in March 2023.

Figure 6: Intensification areas identified in the FDS



Intensification of the existing urban area takes place via two development pathways:

- Infill capacity (additional dwellings that can be constructed on a parcel without removing or demolishing existing dwellings)
- Redevelopment capacity (additional dwellings that can be constructed on a parcel and involves demolishing or removing existing dwellings)

A landowner or developer would choose one of these pathways depending on the profit margin that could be realised and the level of complexity/risk.

A range of dwelling typologies have been modelled for infill and redevelopment to estimate the development capacity enabled. The following typologies were considered:

- Detached dwellings
- Attached dwellings (including terraced housing)
- Vertical apartments

Again, the profit margin and level of risk are relevant to the commercial feasibility of these typologies on any given site. At a macro-scale, a further consideration for typologies is the housing preferences of the Nelson market, and how we expect these to change over time. As discussed in Section 3.2 above, modest shifts in preferences to attached forms of housing over time are projected. However, this is based on historic trends, and it will be important that the capacity provide flexibility for this to change over time.

4.4.1 Plan-enabled capacity

Plan-enabled capacity is based on the operative NRMP in the short term, and proposed PC29[8] in the medium term as per the NPSUD requirements (clause 3.4). There is no additional plan changes anticipated for the built urban area in the long term.

Crucially, the plan-enabled capacity covers different typologies and development pathways (infill or redevelopment) at a parcel level and the results across typologies are not additive. For example, the back part of a parcel could be developed (infill) to deliver one additional dwelling. Alternatively, the same parcel could be redeveloped with the existing dwelling demolished and three new dwelling constructed on the parcel. This would provide a net yield of two additional dwellings after accounting for the original dwelling.

Clearly, the maximum yield is two additional dwellings and the redevelopment and infill capacity should not be added together. The example shows the difference between infill and redevelopment, but the same approach could be used to illustrate that following different typologies would deliver different outcomes and that these different outcomes should not be added together. The development options across pathways (infill or redevelopment) and typology (attached, detached) are mutually exclusive, thereby forming capacity limits.

Table 8: Plan enabled housing development capacity (non-cumulative and excluding greenfield)

Period	Attached dwellings	Detached dwellings
Short term (operative NRMP)	Up to 8,100	Up to 8,600
Medium term and long term (PC29)	Up to 42,800	Up to 20,000

4.4.2 Feasible and infrastructure ready capacity

The plan-enabled capacity is translated into commercially feasble capacity and the infrastructure capacity (current and future) is then overlayed.

Commercial feasible capacity estimates show capacity from a commercial developer's perspective, i.e. whether there is sufficient margin in the project to cover costs and to ensure that the risk-return profile is appropriate/favourable. It does not however factor

[8] PC29 has adopted scenario three from the M.E. economic assessment.

in individual landowner ability or aspirations to develop. i.e. just because a site is commercially feasible to develop and would theoretically return a profit, that does not mean it will occur. There are a range of reasons which could influence this decision and only a portion of feasible capacity will be taken up by the market.

M.E.'s feasibility assessment shows that there is considerable feasible capacity in Nelson over time and that the total feasible capacity will increase. This provides a range of choices for the market, and provides flexibility to respond to changing market conditions and preferences, in terms of the type, size and price point of future housing developments.[9]

The market is dynamic with both price and cost shifts in response to growth and pressures. These pressures change over time and development options that are currently unfeasible can become feasible as the relationship between land values, the value of existing buildings, construction costs and potential sales values change. However, evidence suggests that the rising interest rates and a tightening monetary cycle are slowing economic activity, reducing inflation and bringing prices changes down. Regardless, the assessment is forward looking, and normal price dynamics mean that, over time, more development opportunities will become feasible as the relationship between land values, building values, salary and wages, construction costs and property prices, as well as demographic features, all interact.

The M.E analysis shows that there is (existing) feasible capacity of 4,905 dwellings. This capacity increases over the short term (next three years), by 550 dwellings and reflects the shift in redevelopment potential for detached dwellings across Nelson. The medium term (next 7 years) will see maximum feasible capacity increase to 29,578. Over the long term (next 20 years), the total maximum dwellings that are feasible is estimated at 48,747. This is an additional 19,169 development opportunities that would become feasible over the mentioned period.

Appendix 2 includes a detailed breakdown of feasibility by location, dwelling type and priceband.

Council assessed infrastructure capacity by identifying infrastructure extensions, capacity upgrades and the potential timing of these projects.

For intensification, in the short and medium term, Council assessed:

- How much capacity exists within the current network,
- How much capacity can be unlocked through infrastructure projects planned in the 2024-34 LTP, including what will be funded in the next 10 years and beyond that, what will be provided for in the Infrastructure Strategy.

In the long term, the NPSUD considers capacity to be infrastructure-ready if it is identified in the local authority's Infrastructure Strategy. The NCC Infrastructure Strategy acknowledges the need to provide services for intensification areas identified in the FDS. Since this HBA focuses on the FDS intensification areas, it is assumed that long term servicing will be made available in line with demand projections.

[9] Refer to the discussion at Section 4.4 of the M.E report (Appendix 2).

Table 9 summarises feasible and infrastructure-ready capacity.

Table 9: Feasible and infrastructure ready development capacity (non-cumulative and excluding greenfield)

Period	Total
Short term (capacity supported by infrastructure available now)	1,360
Medium term (capacity supported by infrastructure funded in the LTP)	1,280
Long term (capacity supported by infrastructure identified in the infrastructure strategy)	2,030

The FDS recommends that prioirity intensification areas are identified and neighbourhood planning be undertaken to provide a detailed framework for the Council's future Long Term Plans. This action has been identified in the FDS Implimentation Plan 2023 and is planned to commence in 2024.[10]

4.4.3 Realistically expected to be realised capacity (excluding greenfield)

The final part of the capacity assessment relates to the feasible and reasonably expected to be realised (RER) capacity.

The RER capacity is estimated by considering a range of factors, including affordability and housing types, and is applied a city-wide level. RER is not a projection of development and is instead meant to reflect at a high level the likelihood of development – it does not show the specific uptakes of individual development opportunities.

The M.E. feasibility assessment found that there was ample RER capacity in Nelson across a variety of price bands. Notably, RER capacity aligns with the infrastructure ready capacity; because the infrastructure considerations form the binding constraint. Table 10 outlines the RER over the short, medium and long term. The complete RER assessment is detailed in the M.E. study, Appendix 2.

Table 10: Reasonably expected to be realised development capacity (non-cumulative)

Period	Total
Short term	460
Medium term	1,280
Long term	2,030
Note: The table shows the RER capacity and is influenced by affordability and overall demand levels. It is not intended to show the 'uptake' of development opportunities.	

[10] See the FDS Implimentation Plan 2023; https://www.nelson.govt.nz/future-development-strategy

The preference shift moves the share of development occuring via attached attached dwelling from around 20% of development in the short term, to approaching 25% of development over the long term. This reflects historic development trends and current preferences, and these may shift over time as greater levels of development are enabled in the urban area. Regular montioring of development uptake, including the type of housing delivered will be very important in considering how preferences actua change in Nelson over time.

The commercially feasible analysis summarised above and detailed in the M.E. report, shows that if the preference shift (share of demand that prefer attached typologies) accelerates, then sufficient capacity remains to accodate the shift.

4.5 Final housing capacity

Applying all the assumptions and methods above, the housing capacity within Nelson can be determined.

Figure 7 shows the housing capacity in graphical form along with the housing bottom line demand. The demand line includes the competitiveness margins.

Figure 7: Nelson City housing bottom line and capacity

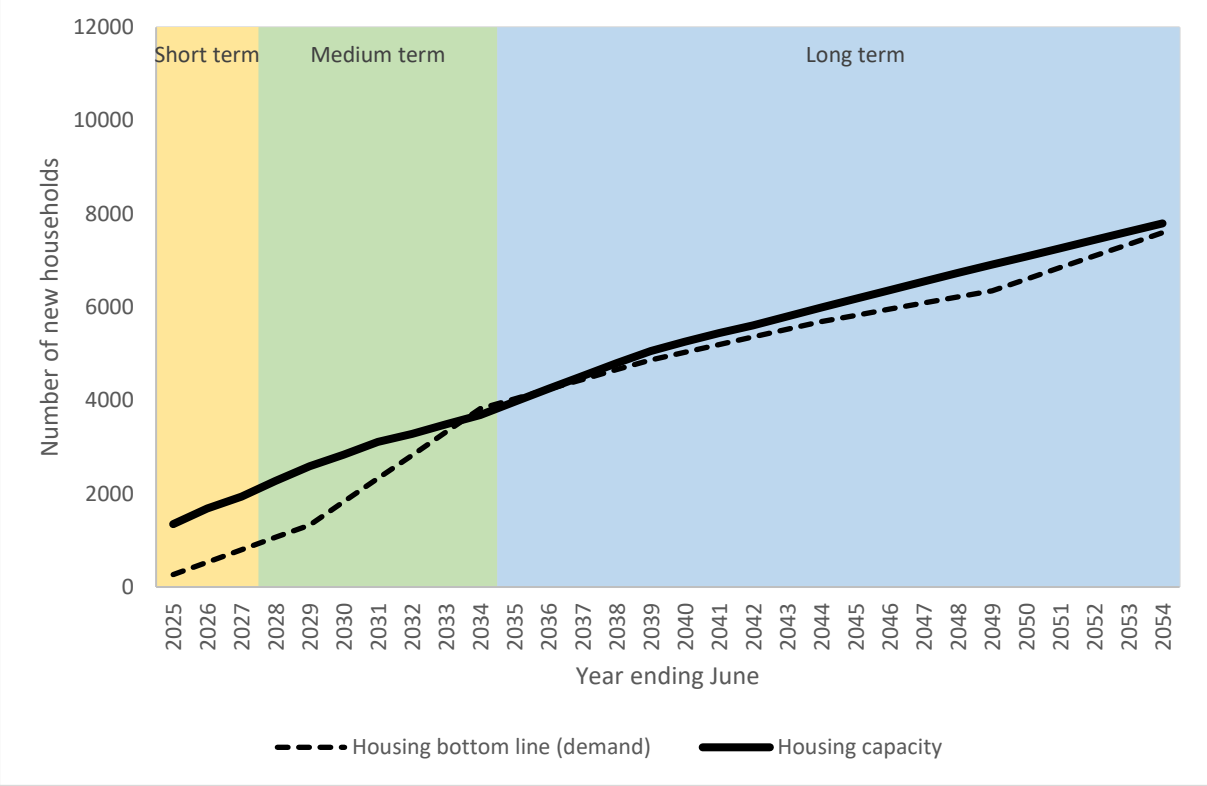
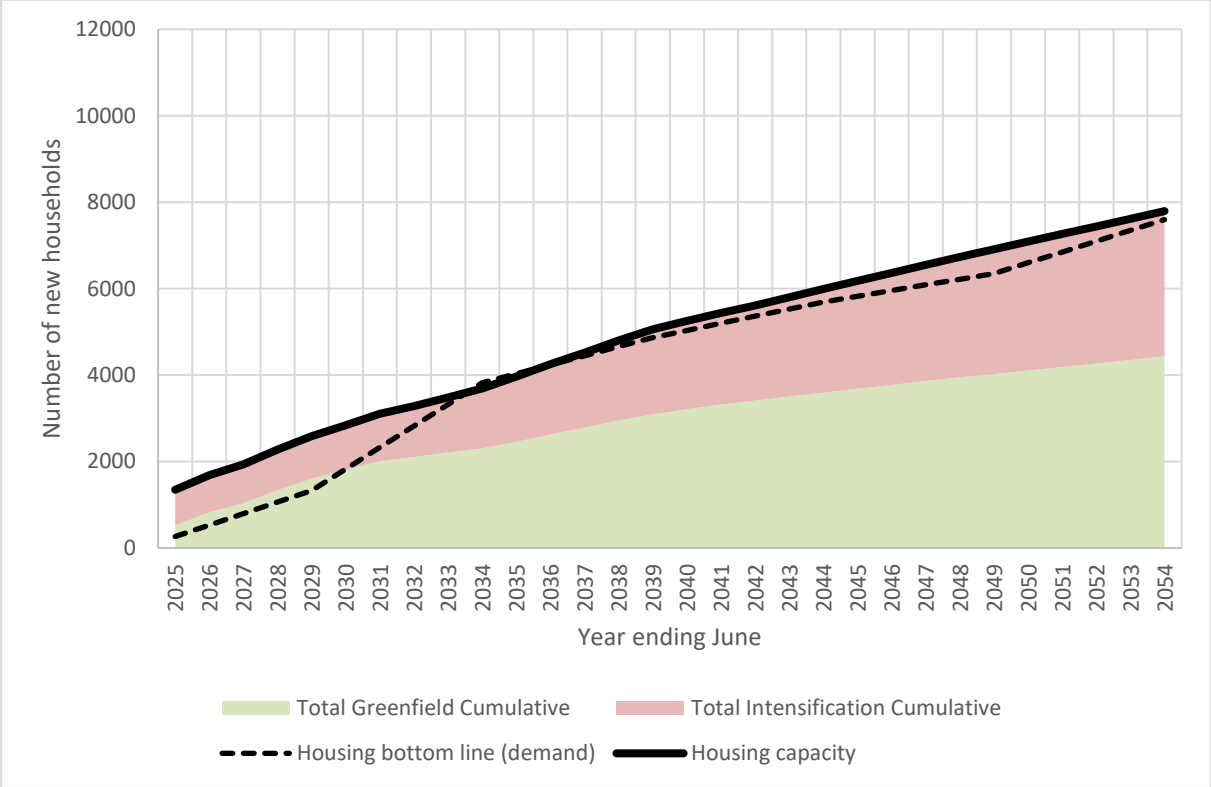


Figure 7 shows that housing capacity, shown as the solid line, exceeds the housing bottom-line until around 2034, where there is a deficency (133 dwellings), before returning to surplus throughout the long term.

Capacity is broken down into greenfield and intensification to indicate how each have influenced capacity figures. Figure 8 belows shows housing capacity broken down by type. This HBA assumes greenfield capacity will be made available in-line with what

developers have indicated will be feasible, and that excess demand will be met by the market through intensification activity.

Figure 8: Housing bottom line and capacity by residentially zoned greenfield and intensification



5. Business land demand

NPSUD requirements (3.28):

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 2 urban environment must:

   (a) set out the most likely projection of demand for business land by business sector in the short term, medium term, and long term; and

   (b) set out the assumptions underpinning that projection; and

   (c) if those assumptions involve a high level of uncertainty, the nature and potential effects of that uncertainty.

Nelson City Council and Tasman District Council commissioned Sense Partners to undertake an assessment of business land capacity for the HBA 2021; Sense Partners provided updated figures for this HBA in 2023.

Under the NPSUD a competitiveness margin is a margin of development capacity, over and above the expected demand, which is required to support choice and competitiveness in housing markets.

The NPSUD requires the following competitiveness margins be applied:

- for the short-medium term (within the next ten years) 20%
- for the long term (between 11-30 years) 15%

Table forecasts additional demand for commercial and industrial activity for Nelson.

Table 11: Business land demand with margins

Cumulative Business Land demand (in hectares)	Short term	Medium term	Long term
Commercial (and retail)	2.36	6.61	13.36
Industrial (includes some agriculture activity)	3.97	17.03	37.67
Total of additional land required	**6.34**	**23.64**	**51.03**

Updates in the Sense Partners demand model have resulted in higher projected demand for industrial land.

Industrial employment has been higher than expected, which lifts current industrial land demand. Since industrial demand has a large floorspace requirement per worker, this drives much of the demand for land.

The methodology of assessing future demand is set out in the Sense Partners report, as is the dialogue on the uncertainties associated with the business land demand forecasts.

The full Sense Partners report is included in Appendix 5 of the HBA 2021.

6. Business land capacity

NPSUD requirements (3.29):

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.

For the HBA 2021, Nelson City Council undertook a full stocktake of all business activity and land zoned for business activity in the NRMP. The purpose of the stocktake was to allow the capacity for further business demand to be accommodated as well as providing useful information to the Planning team in their plan review.

Business land capacity has been assessed by analysing commercial and industrial building consents issued since the last HBA 2021. It has not assessed whether these building consents have been implemented has not been assessed, but issues consents serve as a reasonable proxy for this coarse scale assessment.

The existing business land capacity is plan-enabled and infrastructure-ready, and therefore available for uptake now. Table summarises the results:

Table 12: Change in business land capacity

Type of land	2021 capacity	Building consents	2024 capacity
Commertial and retail	5.9 ha	1.4ha	4.5ha
Industrial	11.3ha	1.3ha	10ha

In addition to building consent data, the following policy changes are relevant.

Plan Change 31 (Nelson Junction) is a private plan change to the NRMP that sought to provide for a supermarket at 33 Cadillac Way. This Plan Change does not have an impact on this assessment because, while the land is zoned industrial in the NRMP, there is a designation on that land that allows commercial activity, and the HBA 2021 counted this land as vacant commercial capacity.

Plan Change 29 proposes a mixed-use area (ground floor commercial with residential above) change to land currently zoned for industrial use close to the city centre. It should

be noted that some capacity may shift from industrial to commercial as a result of PC29; however, this change is not reflected in the capacity figures because a site specific assessment of the land has not be undertaken.

Table 13: Remaining business land (cumulative)

Business land	Short term	Medium term	Long term
Commercial and retail	2.14	-2.11	-8.86
Industrial	6.03	-7.03	-27.67
Total of additional land remaining capacity	8.16	-9.14	-36.53

This HBA notes that there may be additional future commerical capacity that hasn't been captured in Table . This includes:

- Increase in floor area as a result of the redevelopment of existing single or double storey buildings within the existing commercial centres (particularly in the city centre, as envisioned by PC29).
- Any additional retail and commercial centres proposed as part of future greenfield developments (subject rezoning).

Nelson has historically been constrained for business land and collaborates with Tasman District Council to supply land to meet demand. This is because Richmond is close to Nelson and has had the space to accomodate the larger areas required for commercial and industrial activities. Table shows that there is a total surplus of business land across the Nelson Tasman urban area.

Table 14: Nelson Tasman Urban Area remaining business land (cumulative)

Business land	Short term	Medium term	Long term
Commercial and retail	32.83	38.83	60.64
Industrial	34.34	16.21	14.57
Total of additional land remaining capacity	67.16	55.04	75.21

7. Recommendations

The following recommendations are provided:

1) To continue to progress Plan Change 29:
   - To enable greater infill feasibility and higher density development where these meet the requirements of the NPSUD.
   - To enhance market choice such as more attached options, price-points and make efficient use of the urban land resource and infrastructure
   - To provide a well-functioning urban environment.

2) Identify priority intensification areas and undertake neighbourhood planning to provide a detailed framework for infrastructure planning.

3) Proactively monitor intensification activities to identify protential servicing restraints and programme funding as needed.

4) Actively pursue Government funding opportunities to ensure growth areas are infrastructure ready.

5) Build and strengthen developer relationships and identify potential partnership opportunities, including with central government agencies, working together to influence the volume and timing of supply.

6) Continue to work collaboratively with the Tasman District Council taking a regional approach to solving demand for capacity to achieve sufficient housing and business capacity across the Nelson-Tasman urban environment.

7) Continue to evaluate and monitor residential and business capacity with Tasman District Council to ensure decision making is aligned between the councils where it affects the potential to provide sufficient residential and business land capacity.

Appendix 1: Tasman District Council and Nelson City Council Population Projections 2018-2058 Results

Tasman District Council and Nelson City Council

Population Projections 2018-2058 Results

March 2023

Revised June 2024

DOT Consulting

Foreword

These projections were developed to inform long term planning for Tasman District and Nelson City Councils. The projections are not forecasts of predicted future populations, but are calculations of what will happen if specific assumptions about fertility, mortality, and migration are met in the future. Many social and economic factors influence population change, including central and local government policies, and the relationships between these various factors are complex. As a result of this complexity, the reliability of projections tends to decrease over time and as population size decreases, that is, there is greater uncertainty in population projections the further forward in time we go. These projections provide information on plausible scenarios for future populations to help inform decision making.

Valuable methodological support was provided by Dr. Natalie Jackson (previously Professor of Demography, University of Waikato; Adjunct Professor of Demography, Massey University; Natalie Jackson Demographics Ltd). Any errors that remain are the responsibility of DOT loves Data.

Table of contents

Revision June 2024:

Figures 4 and 5 have been updated to fix an error on the X axis (age groups were offset by 5 years).

1. Executive Summary

This report presents the results and approach for population, household and dwelling projections for Tasman District, Nelson City (Territorial Authorities), and their associated Statistical Area 2 (SA2s).

About the projections

Population projections were developed for 2023-2058 by age group and sex in five-year projection windows via a standard cohort component method. The Estimated Resident Population (ERP) count by age and sex at June 2018 is the population base.

The population projections require the following inputs:

1) the base population by age and sex;
2) assumptions regarding fertility rates and age at childbearing for females,
3) assumptions regarding life expectancy and survivorship by age and sex, and
4) assumptions regarding migration rates by age and sex.

Household and dwelling projections require assumptions regarding:

5) average household size and
6) the ratio of population to dwellings

Three projection variants were produced: high, medium and low, using corresponding variations to the input assumptions in order to generate each projection scenario.

Initial projections (population numbers, migration, natural increase and household and dwelling estimates) at SA2 level will be constrained to the output at TA level, by calculating population share for each element and prorating the total.

Key results

For both Nelson City and Tasman District:

- The population is expected to grow over the projection period, but at a decreasing rate
- Population ageing is driving changes in age structure
- Over a quarter of the population will be aged over 65 years in 2058
- Deaths will outnumber births (natural decrease) from the 2040s, and both regions will increasingly rely on migration for continued population growth
- We assumed that relatively high net migration among adults aged 25-40 years will continue. This delays the transition to natural decrease by sustaining birth numbers.

2. Assumptions and Methodology

Population projections were developed for Tasman District, Nelson City and their respective SA2s for the period 2018-2058. Projections are constructed in five-year periods for each sex and five-year age group using data and assumptions about population fertility (births), mortality (survivorship and life expectancy), and migration.

The projections are made via a standard cohort component method based on 2021 statistical geographies. The **population base** used in the projections will be the Estimated Resident Population (ERP) count by age and sex at June 2018. The underlying assumptions for both TAs and their respective SA2s were developed using the same methods and approach.

2.1 Cohort component method

These population projections are generated using a cohort component method (CCM). To implement the projections using this methodology, DOT loves Data developed R statistical code based on the methodology of Preston et. al (2006) using a modified version of the statistical code package "CCMP".

A CCM approach projects the future population by first reproducing, then surviving, migrating and 'ageing' the base population in a stepwise manner, separately for males and females in five-year age groups. Each step is repeated for each five-year projection period using assumptions regarding future mortality, migration and fertility.

Births generated for the previous five-year period are assigned to the 'new' 0-4 years age group and each surviving age group is aged five years, i.e. those aged 0-4 years in the preceding period become the new 5-9 years cohort at t+5 years, where t represent the beginning of the projection period. The 'new' oldest age group (85+ years) is produced by summing survivors in the two upper age groups (80-84 years and 85+ years) from the previous five-year period. Migration by age-and sex is then added to the surviving and aged population.

2.2 Projection assumptions

To generate the population projections, four main inputs are required:

- the base population by age and sex
- assumptions regarding fertility rates and age at childbearing for females
- assumptions regarding life expectancy and survivorship by age and sex
- assumptions regarding migration rates by age and sex.

Table 1: Summary of population projection assumptions and inputs

Input/ Assumption	Type	Definition	Details
Population base	Population in 2018	Census-based Estimated Resident Population	As at 30 June 2018, by sex and 5-year age groups for each TA and SA2. More recent population estimates, up to 2022 have been used to inform the first projection window to 2023
Fertility	Distribution (base assumption)	Age-specific fertility rates (ASFR)	A three-year average of ASFRs for women in their reproductive years (aged 15-45 years), by five-year age groups. Average of ASFRs between 2019-2021. TA-level data
	Level	Total Fertility rate (TFR)	SA2 & TA-level assumption data used to weight the base ASFR rates over the projection period.
Mortality	Distribution (base assumption)	Survivorship by age and sex, 2017-2019	The probability of surviving from one age group to the next, by sex. TA-level data
	Level	Life expectancy (at birth)	SA2 & TA-level assumptions data used to weight baseline survivorship over the projection period. Results in very minor adjustments to survivorship in older age ranges over projection period.
Migration	Distribution (base assumption)	Age-sex specific migration rates (%)	Generated for SA2 and TAs as the average of the last 3 inter-censal periods using residual net migration method.
	Level	Rates static over projection periods	With exception of modified rates for the first projection period informed by data to 2022.

To generate the household and dwelling projections, two additional assumptions are required:

- Average household size (occupied private dwellings / usually resident population)
- Dwelling ratio (total private dwellings / estimated resident population)

Data for generating the base population, fertility and mortality assumptions, average household size and dwelling ratio were sourced from Statistics NZ. Migration assumptions were generated using a residual migration methodology incorporating Statistics NZ

population, survivorship and births data. Three assumption variants (high, medium and low) were generated for each assumption type.

2.2.1 Fertility assumptions

Determining the number of births in each five-year period involves assumptions concerning the distribution of births (age at childbearing) and future fertility levels.

The number of births is projected by applying age-specific fertility rates (ASFR) for women in their reproductive years (aged 15-45 years) to the numbers of women at each age. The baseline distribution assumption (Figure 1) is the average ASFR for each age group between 2019-2021, calculated at the TA level for Tasman District and Nelson City Council using data published by Statistics NZ (2021a). The resulting number of births for each age-group of women is summed and then apportioned to each sex based on the sex ratio at birth: 105.5 males per 100 females.

Figure 1: ASFR assumptions (3-year average) and estimated ASFR (2018-2021) by 5-year age group, Tasman District & Nelson City

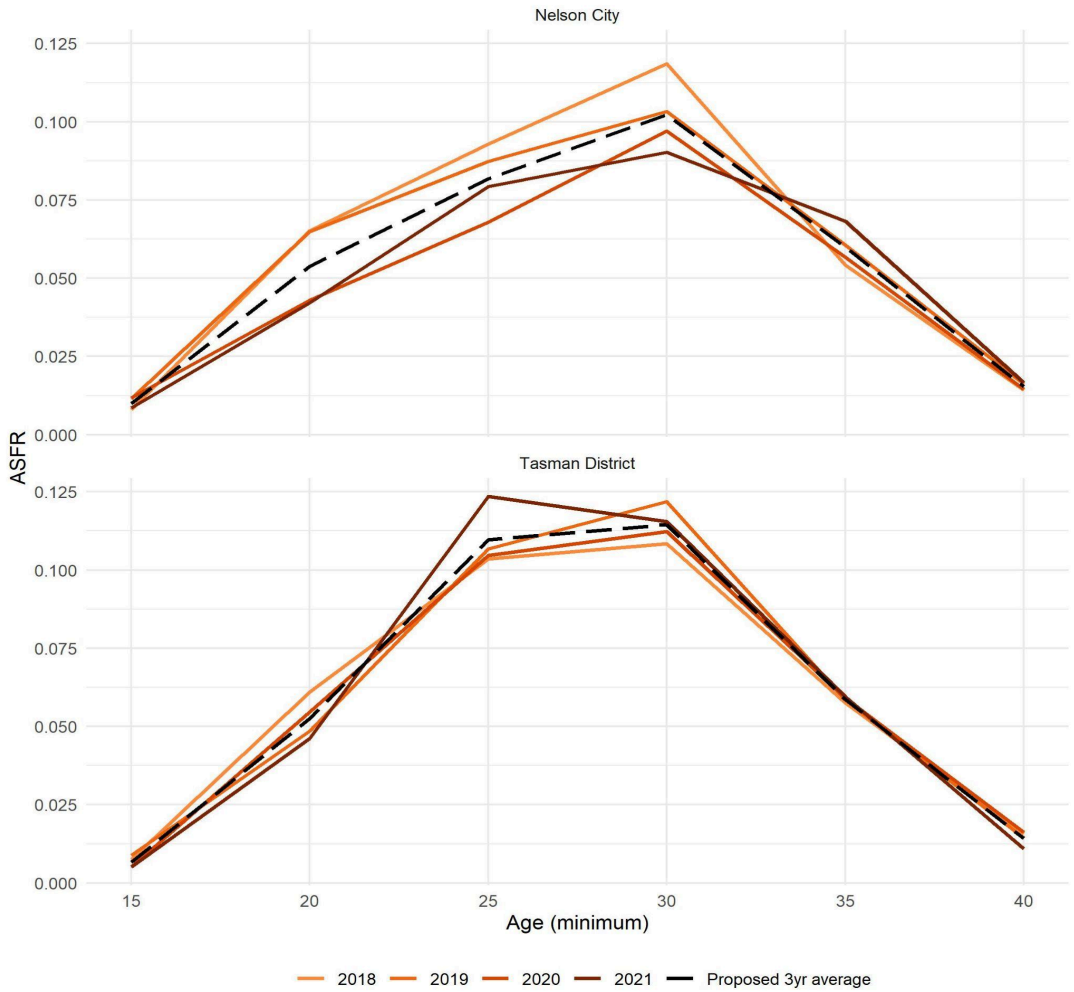


Figure 1 demonstrates that the shift to later child-bearing has already occurred, with peak fertility now among women aged 30-34 years, closely followed by 25-29 years of age. This trend to later ages for childbearing is in keeping with trends nationally. The shift to peak ASFRs among 30-34 year old women occurred between 2001-2006 for Nelson City and between 2013-2018 for Tasman District and is expected to remain stable based on international trends. Accordingly, the age-distribution of births is kept constant over the projection period with the TA-level age-profile of births applied to each SA2.

Figure 1 also reveals a general trend towards lower ASFR for women under 30 years. There is some variance in the data for older age groups, especially for the 30-34 years and 35-39 years age and the 2021 data appears somewhat anomalous overall relative to the 2016-2020 trend. This may represent a short-term deviation linked to covid social and economic disruptions in 2020-2021 and small declines in ASFR for most age groups, as per the trend to 2020, are anticipated in future years.

Table 2: Total Fertility Rate assumptions by variant, Nelson City and Tasman DIstrict

Nelson City

5yrs ended	High	Medium	Low
2023	1.75	1.65	1.55
2028	1.70	1.58	1.47
2033	1.70	1.57	1.43
2038	1.72	1.56	1.40
2043	1.74	1.56	1.39
2048	1.76	1.56	1.37
2053	1.79	1.56	1.34
2058	1.82	1.56	1.29

Tasman District

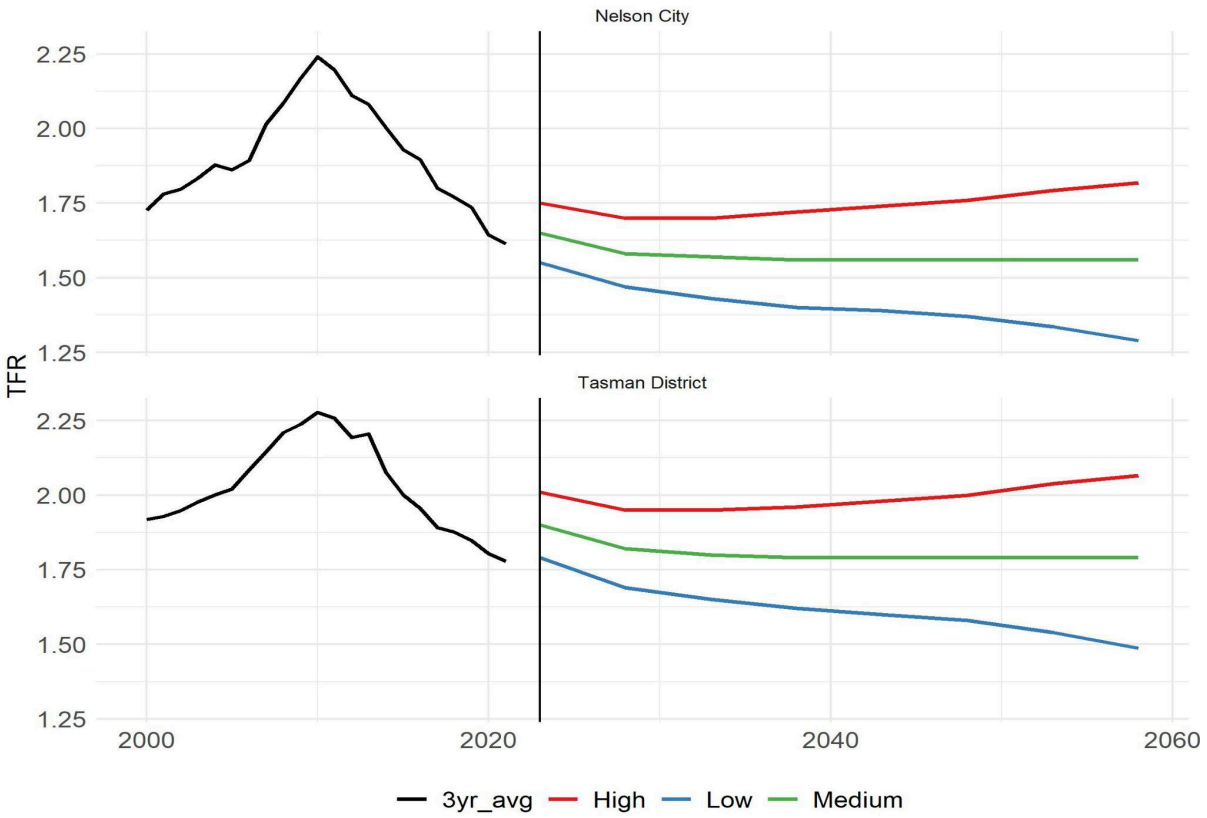
5yrs ended	High	Medium	Low
2023	2.01	1.90	1.79
2028	1.95	1.82	1.69
2033	1.95	1.80	1.65
2038	1.96	1.79	1.62
2043	1.98	1.79	1.60
2048	2.00	1.79	1.58
2053	2.04	1.79	1.54
2058	2.07	1.79	1.49

While the distribution of births (maternal age-structure) remains constant, total levels of fertility vary over time based on assumed trends in the Total Fertility Rate (TFR). The TFR assumptions used in these projections are the subnational TFR projection assumptions developed by Statistics NZ (2022a) and available at TA and SA2s level for the periods 2023-2048 (Figure 2, Table 2). These are available as High, Medium and Low variants.

To develop fertility assumptions for the periods 2048-2053 and 2053-2058, we draw on the national TFR assumptions developed by Statistics NZ out to 2078. This involves calculating

the ratio of the subnational TFR assumption for each projection and area (SA2 and TA) in 2048 to that of the total New Zealand rate in 2048. This ratio is then applied to the national TFR rates for 2053 and 2058 (Figure 2, Table 2). This process is repeated for each assumption variant. The TFR assumptions are then used to weight the base ASFR rates for each projection period and each variant.

Figure 2. Total Fertility Rate estimates and future assumptions by variant, Nelson City and Tasman District



2.2.2 Mortality assumptions

Future patterns of mortality involve assumptions about the level of mortality (life expectancy at birth) and the distribution of deaths across age groups (survivorship by age). The effects of mortality are incorporated into the population projection by:

- surviving each five-year age group by applying the probability of surviving from one age group to the next, separately by sex.
- Ageing survivors five years.

The probability of surviving from one age group to the next is drawn from subnational 'life tables' published by Statistics NZ (2021b). The most recent data at subnational level, for the

periods 2017-2019, 2012-2014, and 2005-2007, indicate that the age-distribution of survivorship for both sexes has remained stable over this period (Figure 3). Deaths are concentrated in the upper ages, with some minor increases in survivorship in these upper age groups over recent years. As a result we use the most recent survivorship data by age and sex at subnational level (2017-2019) as the baseline survivorship assumption.

Table 3. Life expectancy assumptions by sex, 2023-2058, Nelson City & Tasman District

Nelson City

	Low		Medium		High	
5yrs ended	Females	Males	Females	Males	Females	Males
2023	84.0	80.8	84.5	81.3	85.00	81.80
2028	84.3	81.0	85.0	81.7	85.70	82.40
2033	84.8	81.5	85.7	82.4	86.40	83.20
2038	85.2	82.0	86.2	83.1	87.20	84.10
2043	85.6	82.4	86.8	83.7	87.90	84.90
2048	86.0	82.8	87.4	84.3	88.60	85.70
2053	86.3	83.2	87.9	85.0	89.30	86.50
2058	86.6	83.5	88.4	85.6	89.89	87.19

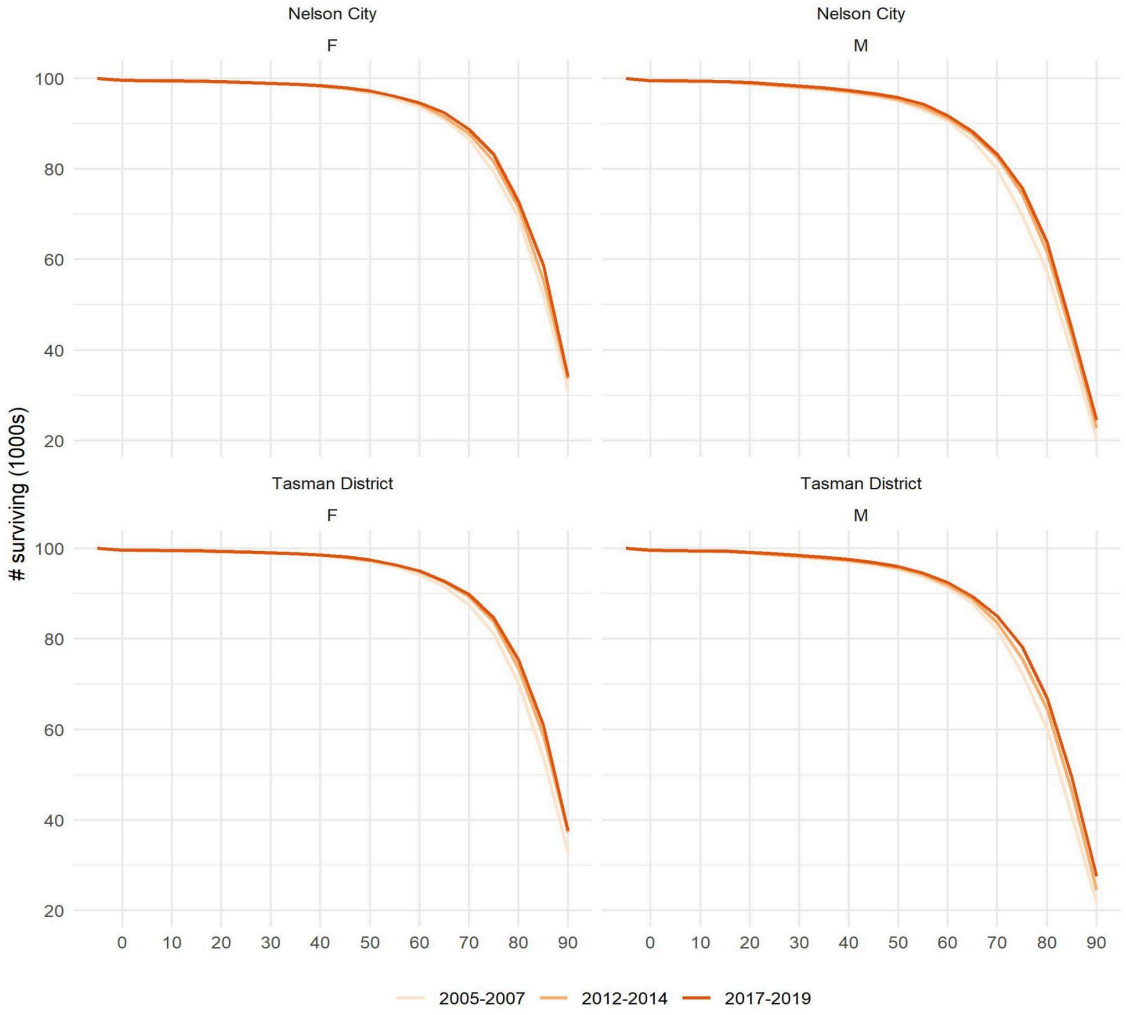
Tasman District

	Low		Medium		High	
5yrs ended	Females	Males	Females	Males	Females	Males
2023	85.40	82.20	85.90	82.70	86.40	83.20
2028	85.70	82.50	86.40	83.20	87.10	83.80
2033	86.20	82.90	87.10	83.80	87.80	84.70
2038	86.60	83.40	87.60	84.50	88.50	85.50
2043	87.00	83.80	88.20	85.20	89.20	86.30
2048	87.40	84.20	88.70	85.80	89.90	87.10
2053	87.70	84.61	89.21	86.51	90.61	87.91
2058	88.01	84.91	89.71	87.12	91.21	88.62

The minor increases in survivorship evident at older ages will likely continue, but at a decelerating rate, in step with small expected increases in life expectancy. Assumptions about future trends in life expectancy use Statistics NZ's latest published subnational life expectancy assumptions. These assumptions are available by sex for Tasman District and Nelson City and their associated SA2s for the period 2023 to 2048 (Statistics NZ, 2022a) as three assumption variants: high, medium and low (Table 3). National level assumptions have been published to 2073 (Statistics NZ, 2022b).

As for the fertility assumptions, to develop subnational assumptions for each variant for the periods 2048-2053 and 2053-2058, we calculate the ratio of the life expectancy assumption for each area to that of the New Zealand rate in 2048. This ratio is then applied (prorated) to the national rates for 2048 and 2058. These assumptions about future life expectancy are used to weight the baseline age distribution of survivorship over the projection period to generate the three variant assumptions.

Figure 3. Survivorship (lx) by age and sex (number surviving at each age from a hypothetical cohort of 100,000 people), 2005-2007, 2012-2014, 2017-2019, Tasman District and Nelson City



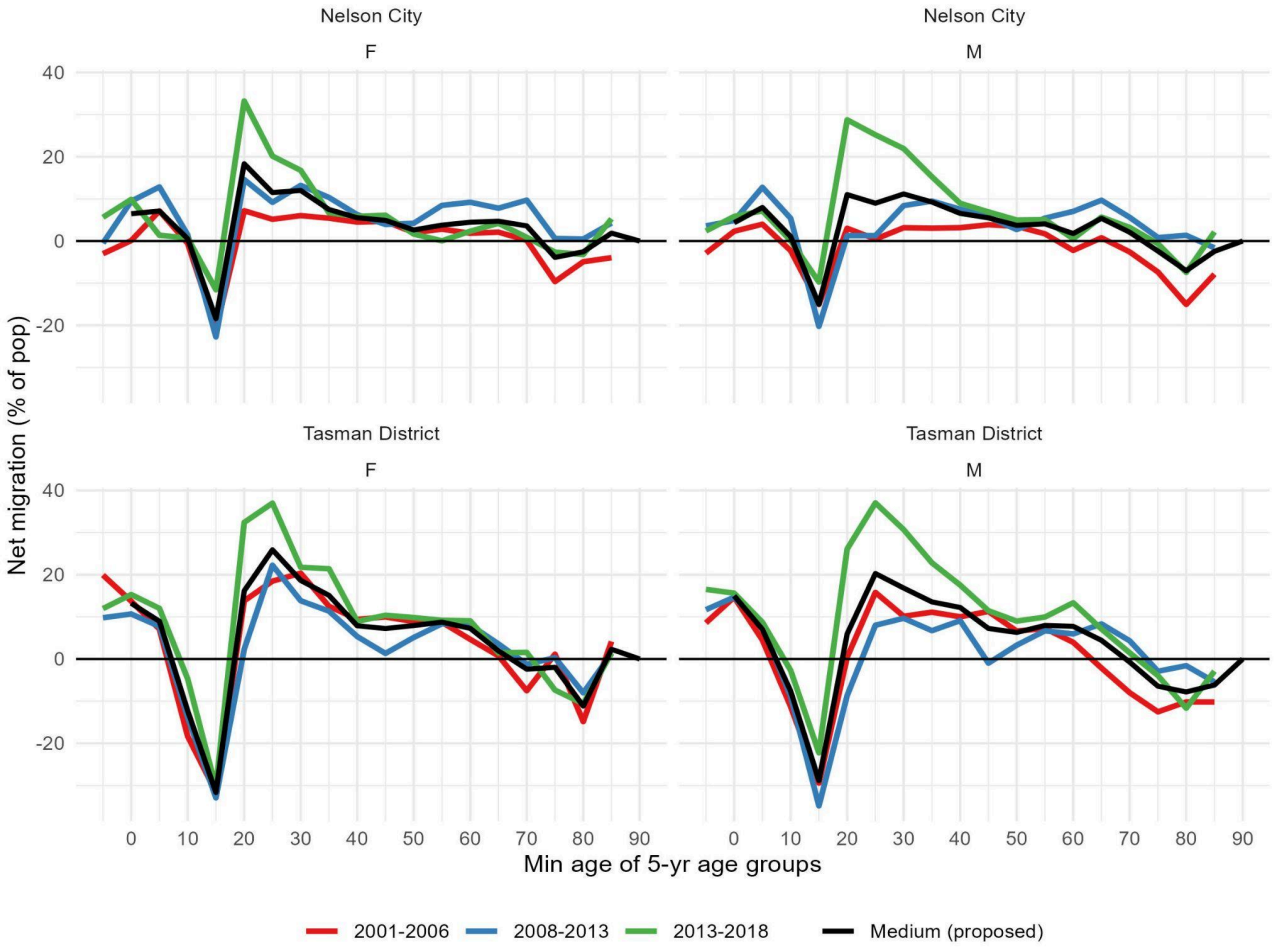
Note: Age is on X-axis. Y-axis is the number surviving to that age. For purposes of these projections survivorship at 90 years and over = 0.

2.2.3 Migration assumptions

The effects of migration are applied to the population by estimating age-sex-specific migration rates and applying these to the start population for each migration period.

We use migration rates, rather than predetermined migration numbers, as this allows the model to *generate* the total number of migrants at each projection step by applying age- and sex-specific migration rates to the population. This contrasts with predetermining the *numbers* of migrants and applying these to the population throughout the projection period irrespective of scale and direction of population change. This ensures that migration numbers keep pace with the growth or decline of the population, rather than migrants becoming a larger portion of a declining population or a smaller proportion of a growing population.

Figure 4. Migration rate (%) assumptions (medium variant) by sex and age compared to observed periods



As migration is a continuous process, we approximate this by assuming that half of the migrants for each projection period arrive at the start of the interval and are subject to the same fertility and mortality rates as the start population they have joined. The remaining half of migrants are added at the end of the migration period and aged-5 years.

The baseline age-sex profile for migration is drawn from past age-sex specific net migration rates for Tasman District, Nelson City and each SA2 (Figure 4). Past migration rates were modelled via a 'residual migration methodology' using a standard cohort component technique for the periods 2001-2006, 2008-2013, 2013-2018 for each TA and SA2. For example, to estimate net migration between 2006 and 2013:

- Estimated Resident Population numbers by age and sex at the 2013 censuses are reproduced and survived to the subsequent census (2018). This results in an 'expected' population in the absence of migration.
- The difference between the expected and the observed populations in 2018 for each age-sex group is used to approximate the net migration age-sex profile.

The TA-level net migration age profile in Figure 4 highlight some general patterns of migration for Nelson and Tasman:

- For both TAs, the age profile of migrants is broadly stable across time periods and characterised by:
    - a net loss of young adults (typically 15-20 year olds) and some older groups
    - net gain in most other age groups, notably in adults aged 20-40 years.
- A peak in migration levels in 2013-2018 (Tasman 4,800 and Nelson 3,550 total migrants), particularly for 20 to ~40 year olds.
- The period of lowest net migration was in 2008-2013 for Tasman (1,210) and in 2001-2006 for Nelson (570).

Table 4. Migration rate (%) assumptions by sex, age, and variant Tasman District and Nelson City

Tasman District

	Low		Medium		High	
Age group	Females	Males	Females	Males	Females	Males
0-4 years	10.05	11.16	13.40	14.88	16.75	18.61
5-9 years	5.82	4.83	7.76	6.43	9.70	8.04
10-14 years	-15.13	-10.14	-12.10	-8.12	-9.08	-6.09
15-19 years	-40.60	-35.58	-32.48	-28.46	-24.36	-21.35
20-24 years	12.87	3.98	17.16	5.31	21.45	6.64
25-29 years	19.02	14.17	25.36	18.90	31.71	23.62
30-34 years	13.69	13.74	18.25	18.32	22.81	22.89
35-39 years	11.53	9.54	15.37	12.72	19.21	15.90
40-44 years	5.92	9.53	7.89	12.70	9.87	15.88
45-49 years	4.68	4.92	6.25	6.56	7.81	8.20
50-54 years	5.48	4.70	7.30	6.27	9.13	7.84
55-59 years	5.94	4.67	7.92	6.22	9.90	7.78
60-64 years	5.58	5.65	7.44	7.53	9.29	9.42
65-69 years	0.99	3.10	1.32	4.13	1.65	5.16
70-74 years	-2.76	0.84	-2.21	1.13	-1.65	1.41
75-79 years	-1.84	-8.26	-1.48	-6.61	-1.11	-4.96
80-84 years	-15.55	-9.73	-12.44	-7.79	-9.33	-5.84
85-89 years	1.62	-13.77	2.15	-11.01	2.69	-8.26

Nelson City

	Low		Medium		High	
Age group	Females	Males	Females	Males	Females	Males
0-4 years	4.56	3.72	6.08	4.96	7.60	6.21
5-9 years	6.26	6.29	8.34	8.38	10.43	10.48
10-14 years	0.26	0.41	0.34	0.55	0.43	0.68
15-19 years	-23.25	-20.19	-18.60	-16.16	-13.95	-12.12
20-24 years	14.52	8.64	19.36	11.52	24.21	14.40
25-29 years	7.51	6.70	10.01	8.93	12.51	11.16
30-34 years	8.61	8.15	11.48	10.86	14.35	13.58
35-39 years	5.33	5.95	7.11	7.93	8.89	9.92
40-44 years	4.42	4.54	5.89	6.06	7.37	7.57
45-49 years	2.96	4.11	3.95	5.48	4.94	6.85
50-54 years	1.86	2.67	2.49	3.56	3.11	4.45
55-59 years	2.04	3.44	2.71	4.59	3.39	5.74
60-64 years	3.15	2.21	4.20	2.94	5.25	3.68
65-69 years	3.20	3.63	4.27	4.83	5.34	6.04
70-74 years	3.29	0.88	4.39	1.17	5.48	1.46
75-79 years	-5.52	0.03	-4.42	0.04	-3.31	0.05
80-84 years	0.06	-11.30	0.08	-9.04	0.10	-6.78
85-89 years	0.48	-8.33	0.64	-6.67	0.79	-5.00

- Some variation in age-specific migration rates is present between time periods. Variation between periods is greatest for young to middle-aged adults.

Data for the last four years (2018-2022), which covers the disruptions from Covid indicate migration comparable to past patterns. The main differences over the last four years suggest there was a reduction in the net migration loss of 15-20 year olds and a divergence in migration levels between Nelson and Tasman. For Nelson, migration between 2018-2022 appears similar to pre-2013 patterns, whereas for Tasman, migration during this period looks similar to the peaks seen in 2013-2018 especially for males. This may reflect differences in the contribution of international and internal migration between the two regions during the disruptions of the Covid pandemic.

We use the **average age-sex net migration rates of the periods 2001-2006, 2008-2013 and 2013-2018** as the baseline/medium assumption (Figure 4, Table 4). This incorporates some effects from the recent migration highs of 2013-2018.

At the SA2 level, due to the tendency of some small population numbers to generate extreme migration rates for some age-sex groups, SA2 rates were constrained to the range of the mean +/- standard deviation of the age-sex specific rates across the entire TA to reduce bias from small population sizes.

Table 5. Estimated migrant numbers with baseline migration rates applied to 2018 ERP

	High +25%	Medium	Low -25%
Tasman District	3,545	2,170	790
Nelson City	2,990	2,137	1,287
Note: Tasman uses an adjusted rate for the 2018-2023 period in the final projections			

Separate rates are generated for each TA (Table 4) and SA2. When applied to the 2018 ERP, the medium (baseline) assumption migration *rates* generate net migration *numbers* (Table 5) for Tasman District that are comparable to observed net migration numbers of 2,200 between 2001-2006. For Nelson City, these rates generate migrant numbers similar to the 2,070 net migrants estimated for the 2008-2013 period.

Projection variants

To generate the high and low migration variant assumptions, we adjust the baseline (medium) migration variant by **adding and subtracting 25%** to the rates for each age-sex group respectively to set the **high and low projection variants** (Table 6). These adjustments are based on observed variability in historic net migration rates. This approach ensures

consistency across projection variants, i.e. any one age-specific rate will always be lower in the low variant than the equivalent age-specific rate in the medium and high variants (Table 4).

Applied to the 2018 ERP, these variants create migrant numbers under the high scenario that approaches the 2013-2018 highs (4,800 and 3,500 migrants for Tasman and Nelson respectively) and substantially higher than long-term averages. The low variants generate migration *numbers* similar to those reported for Tasman in 1981-1996 (+930), but fewer than the recent low seen in 2008-2013 (+1,200). For Nelson City, the below variant generates migrant *numbers* intermediate between the net migration of 2001-2006 (+570) and 2008-2013 (+2,070).

Statistics NZ holds its migration assumptions constant between 2028-2048. We therefore also hold migration *rates* constant to 2058, with the exception of an adjusted migration *rate* for Tasman District in the first migration period (2018-2023). This is due to available data to 2022 indicating exceptionally high net migration for Tasman District for this period, while Nelson City appears to be experiencing net migration similar to the 3-period average (Figure 5).

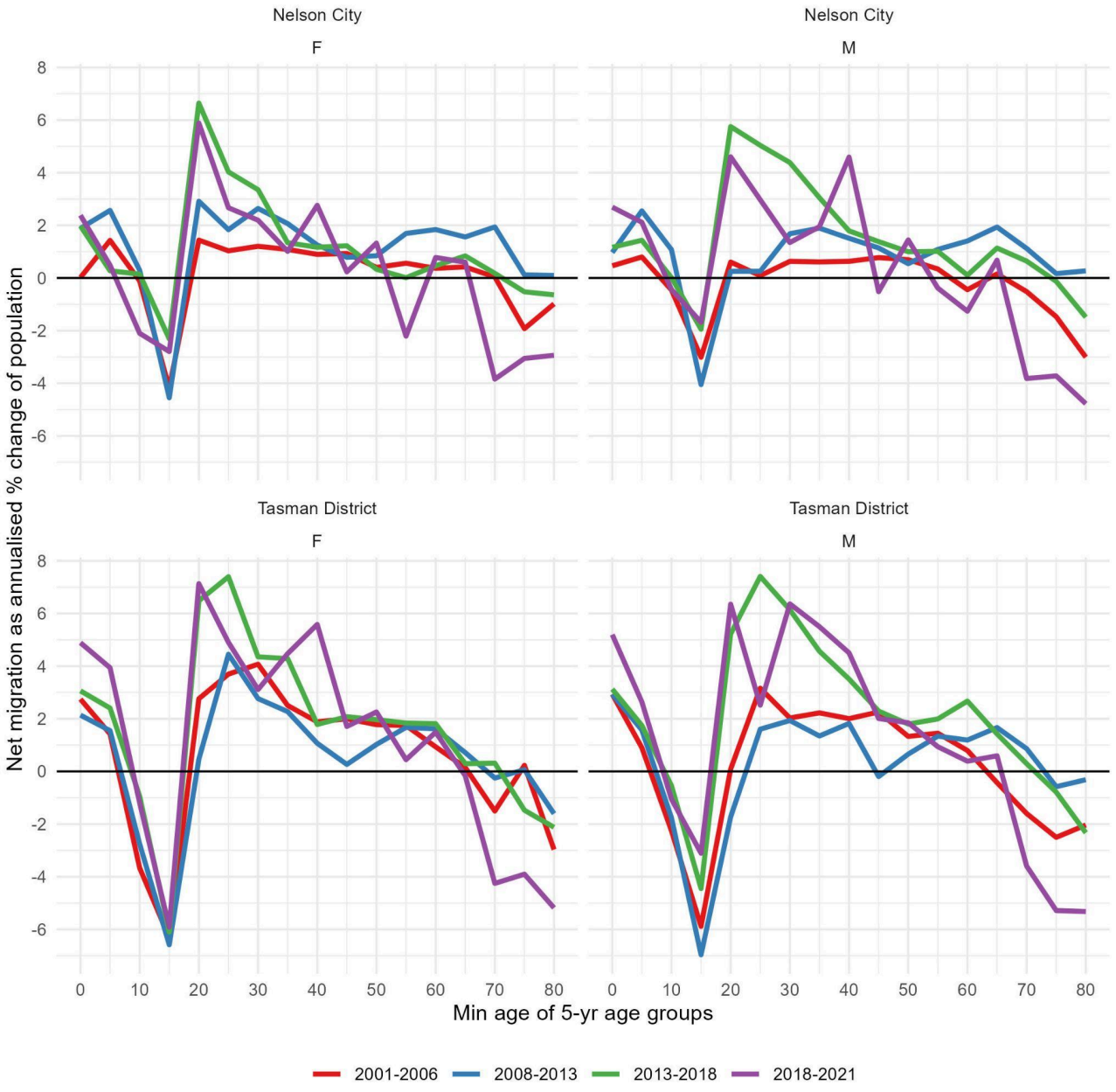
Note that although migration *rates* are constant between 2028-2058, these generate differing *numbers* of migrants in each period, with migrant *numbers* increasing as the projected population increases and decreasing with population decreases.

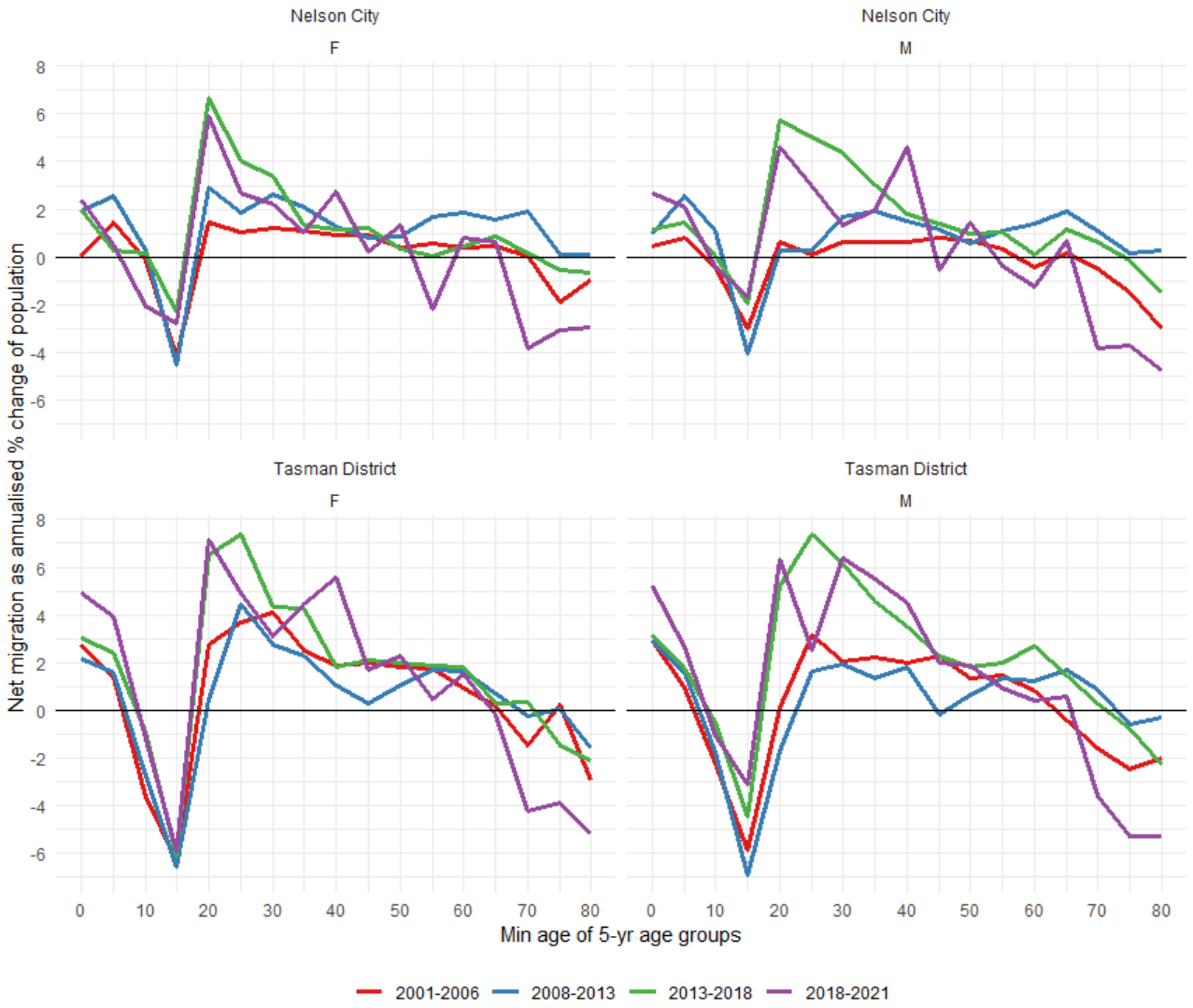
Table 6. Estimated migrant rate adjustments for Tasman for projection period 1 (2018-2013)

Tasman District	High	Medium	Low
% adjustment to baseline	+50	+40	+30
Estimated net migration numbers generated from 2018 ERP	5,172	4,600	4,038

Data for Nelson City suggests that net migration for the period 2018-2023 is tracking close to average (medium variant) and so no adjustment is required.

Figure 5. Annualised net migration rates, for last 3 intercensal periods and the 4 years 2018-2022, Nelson City & Tasman District





2.3 Household and Dwelling assumptions

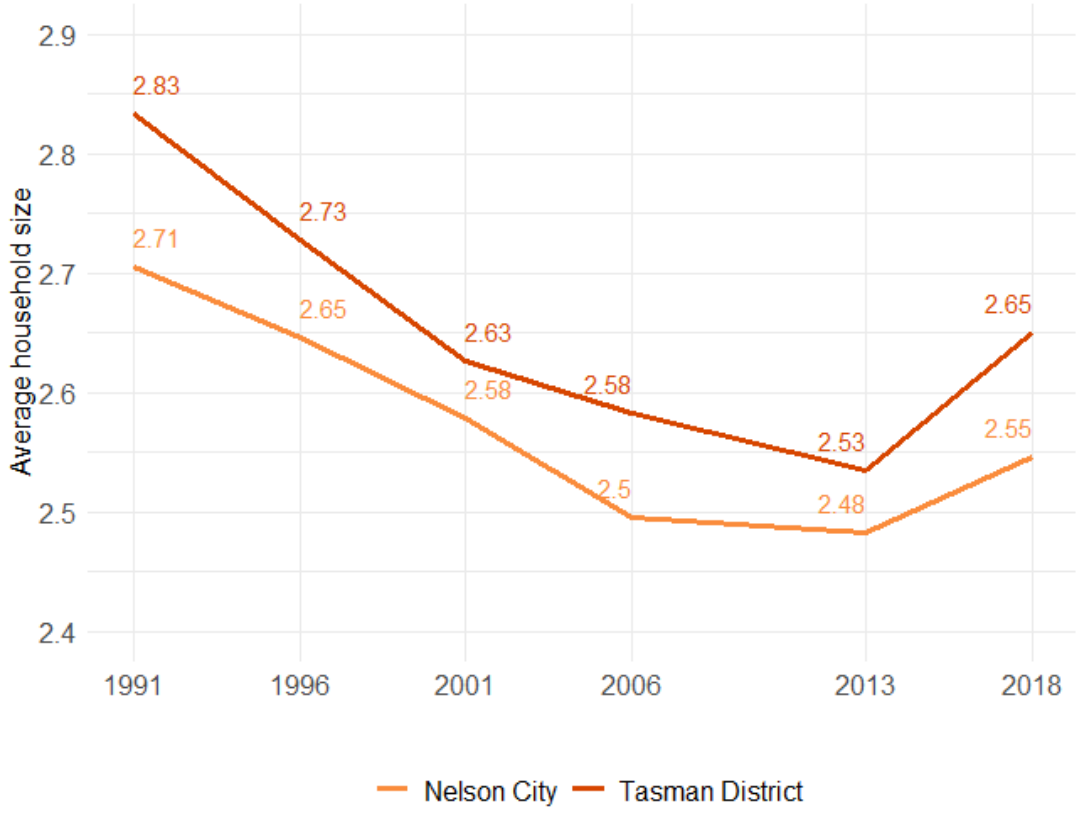
The projected number of households and dwellings are derived from projected population numbers and assumptions about average household size and the dwelling ratio respectively. As for the population projections, three projection variants (high, medium, low) are generated. These projections represent the required numbers of households and dwellings in order to maintain future assumptions about average household size and dwelling ratio.

2.3.1 Household assumptions

Household projections estimate the number of private occupied dwellings based on assumptions about average household size.

Household numbers for each projection period are generated by applying the average household size ratio to projected population numbers for each TA and SA2. This represents the number of households required to maintain the assumed future average household size.

Figure 6. Average household size estimates (ratio of census usually resident population to occupied private dwellings), 1991-2018, Tasman District & Nelson City



Past estimates of average household size are calculated for each TA and SA2 by dividing the Census Usually Resident Population (CURP) by the number of occupied private dwellings on census night. Dwelling data was sourced from Census data published from Statistics NZ (2019).

Due to data quality issues associated with the 2018 Census associated with the dwelling occupancy[1] variable and an unexpected pattern in household size, we use the **2013 average as the base assumption for household size** for all areas (TAs and SA2s). This results in a baseline of **2.53 for Tasman** and **2.48 for Nelson** (Figure 6).

Average household size assumptions for each projection variant are then generated by modifying the base assumption in line with the variant trends in subnational average

[1] Statistics NZ reports the variable 'count of dwellings' to have a data quality rating of "high", 'dwelling type' has a rating of "moderate", while 'dwelling occupancy' did not receive a rating in the 2018 Census.

household size assumptions (for both TAs and SA2s) published by Statistics NZ (2021c) for the period 2018 to 2043. Our assumption declines from ~2.5 persons per household for both TAs to 2.23 and 2.33 persons per household for Tasman and Nelson respectively under the medium (and low) variant(s) in 2058 (Table 7).

Only minor changes in the average household size are expected over the projection period and between projection variants and we extrapolate the decline in household size out to 2058.

Table 7. Average household size assumptions by variant, 2018-2058, Tasman District & Nelson City

	2018	2023	2028	2033	2038	2043	2048	2053	2058
Tasman District									
Low	2.53	2.43	2.43	2.33	2.33	2.33	2.23	2.23	2.23
Medium	2.53	2.43	2.43	2.33	2.33	2.33	2.33	2.23	2.23
High	2.53	2.43	2.43	2.43	2.33	2.43	2.43	2.43	2.33
Nelson City									
Low	2.48	2.48	2.38	2.38	2.38	2.38	2.33	2.33	2.33
Medium	2.48	2.48	2.48	2.38	2.38	2.38	2.38	2.33	2.33
High	2.48	2.48	2.48	2.48	2.38	2.48	2.48	2.48	2.38

Note: The baseline 2018 assumption in the projections uses the 2013 estimate.

2.4.2 Dwelling assumptions

Dwelling numbers are projected in a similar manner to household numbers based on assumptions about the number of people per dwelling (occupied and unoccupied) applied to projected population numbers.

For each TA and SA2, the past ratio of estimated resident population (ERP) to total dwellings (hereafter dwelling ratio) was calculated for previous Census years using data published by Statistics NZ (2019) (Figure 7). As total dwelling counts are considered by Statistics NZ to be of high quality, **the ratio for 2018 has been used as the base assumption**.

The dwelling ratio for each area was then prorated for the period 2018-2058 following the pattern indicated by Statistics NZ for Tasman District, Nelson City, and their respective SA2s to 2043. These ratios are then held constant to 2058.

Only minor changes in the dwelling ratio are expected over the projection period and between the three projection variants. As the proportion of occupied dwellings to total dwellings has remained stable over time (Figure 8) we use the Statistics NZ trend in average household size to modify the base dwelling ratio over the projection period. Table 8 shows the resulting dwelling ratio assumptions for 2023-2058 for Tasman District and Nelson City.

Figure 7. Dwelling Ratio (estimated resident population / all private dwellings), 2001-2018, Tasman District and Nelson City

Figure 8. Occupied private dwellings as percentage of total, 2001-2018, Tasman District and Nelson City

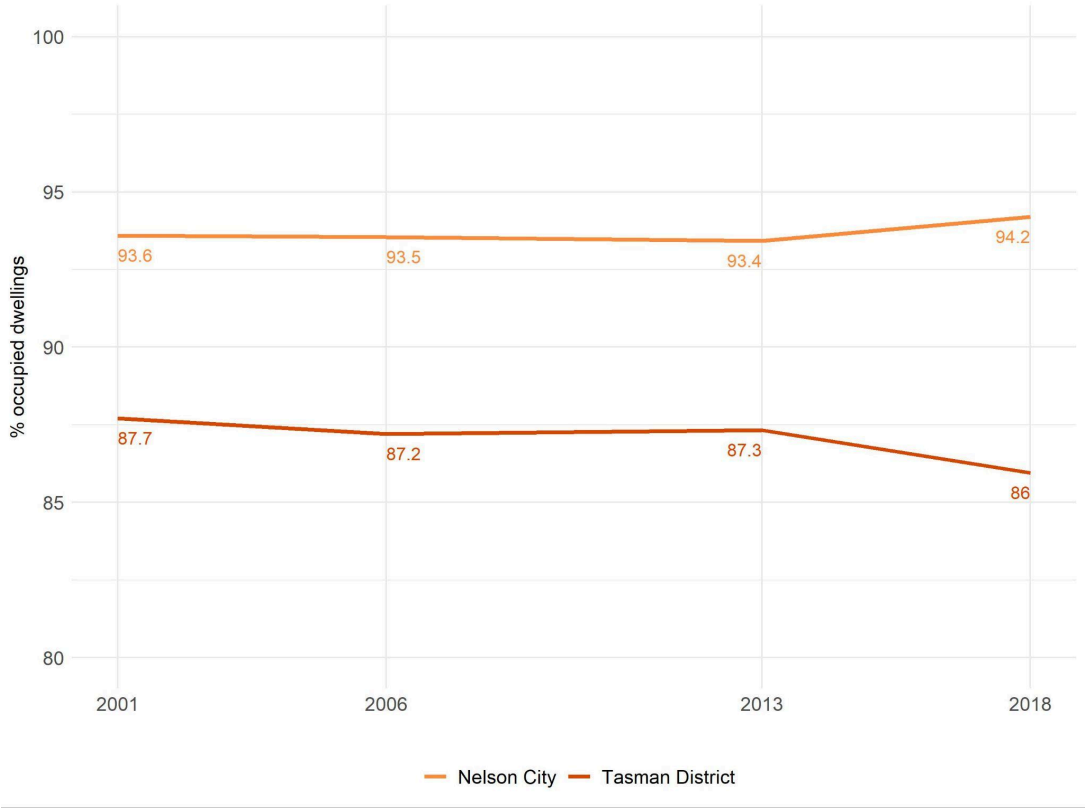


Table 8. Dwelling ratio assumptions by variant, 2018-2058, Tasman District & Nelson City

	2018	2023	2028	2033	2038	2043	2048	2053	2058
Tasman District									
Low	2.28	2.19	2.19	2.10	2.1	2.10	2.00	2.00	2.00
Medium	2.28	2.19	2.19	2.10	2.1	2.10	2.10	2.00	2.00
High	2.28	2.19	2.19	2.19	2.1	2.19	2.19	2.19	2.10
Nelson City									
Low	2.40	2.40	2.30	2.30	2.3	2.30	2.25	2.25	2.25
Medium	2.40	2.40	2.40	2.30	2.3	2.30	2.30	2.25	2.25
High	2.40	2.40	2.40	2.40	2.3	2.40	2.40	2.40	2.30

Note only minor changes in the dwelling ratio are expected over the projection period and between the three projection variants (Table 8). A projected increase in dwelling *numbers* will signify that additional dwellings will be required to maintain the stated people-to-dwellings

ratio, while a decline in numbers signifies fewer dwellings will be required to maintain that ratio (*not* that there will be fewer dwellings per se). The differing proportions of occupied and unoccupied dwellings in each geographic area should be considered when interpreting projected dwelling numbers.

2.4 Projection variants and differences with Statistics NZ subnational population projections

All three projection variants use approximately the same low, medium, and high fertility and mortality assumptions as Statistics NZ (2022a). In addition, there are only moderate differences in mortality and fertility between the three variants. The biggest difference between projections and variants is therefore driven by different migration assumptions.

For migration, DOT uses higher base (Medium variant) net migration assumptions compared to Statistics NZ. These are based on observed past migration *rates*, rather than predetermined migration *numbers* for each projection period. This means that migration numbers change in step with population growth and decline.

- The **medium** migration assumptions equate to the average of observed migration by age and sex for the periods 2001-2006, 2008-2013 and 2013-2018.
- The **high** migration assumptions equate to the medium migration assumption plus 25% applied separately to each age/sex group.
- The **low** migration assumptions equate to the medium migration assumption minus 25% applied separately to each age/sex group.

The High and Low variants represent scenarios if net migration is sustained at levels notably higher or lower than the historical *average*, but comparable to observed high and lows. It is unlikely, however, that very high levels of migration would continue unabated across the projection timeframe, and so these variants should be considered possible, though unlikely, scenarios of population change. They are not intended to represent upper or lower limits but to illustrate plausible alternative scenarios of future demographic behaviour and provide an indication of the inherent uncertainty of demographic behaviour. It should also be noted that they also do not encapsulate extreme events such as major disasters, wars, or pandemics.

2.5 Broader demographic context

The future New Zealand population is going to be larger and older. The national population is expected to grow over the next 40 years, albeit at a slowing rate (Statistics NZ, 2022c).

Population ageing is occurring across large parts of New Zealand as a result of increased life expectancy and declining total fertility rates (Statistics NZ, 2022c; Jackson & Brabyn, 2017; The New Zealand Initiative, 2014). Approximately 40% of New Zealand's TA's are projected to experience natural decrease within the next 20 years (Jackson & Cameron 2018). The shift reflects higher proportions of the population at older ages. Population ageing generates challenges for a range of public policies, including those related to healthcare, housing, and the labour force.

Household composition is also changing, in part in response to population ageing and reduced fertility levels, although it is also influenced by changes in family formation and break-up, and ethnic diversity. Nationally, the number of one-person and couple-without-children households is increasing, leading to a reduction in average household size.

New Zealand is also experiencing a progressive downward trend in fertility levels, and a shift to having children later in life (Statistics NZ, 2022c), both of which are trends experienced internationally in most developed countries (The New Zealand Initiative, 2014). Life expectancy is also increasing nationally, but at a declining rate as we approach the natural limit of human life spans. Increased life expectancy and declining fertility rates will cause a slow down in population growth, as fewer people will be born each generation to reproduce and replace the population. An additional implication of which is that this feeds back into increasing the ratio of old to younger people in the population.

For the country as a whole, population growth through natural increase will decline over the next few decades due to structural ageing. By the 2050s, deaths are expected to outnumber births (natural decrease). As a result, populations will be increasingly reliant on migration to stave off population decline. Slowing population growth and an ageing population will have wider societal effects, notably in labour markets.

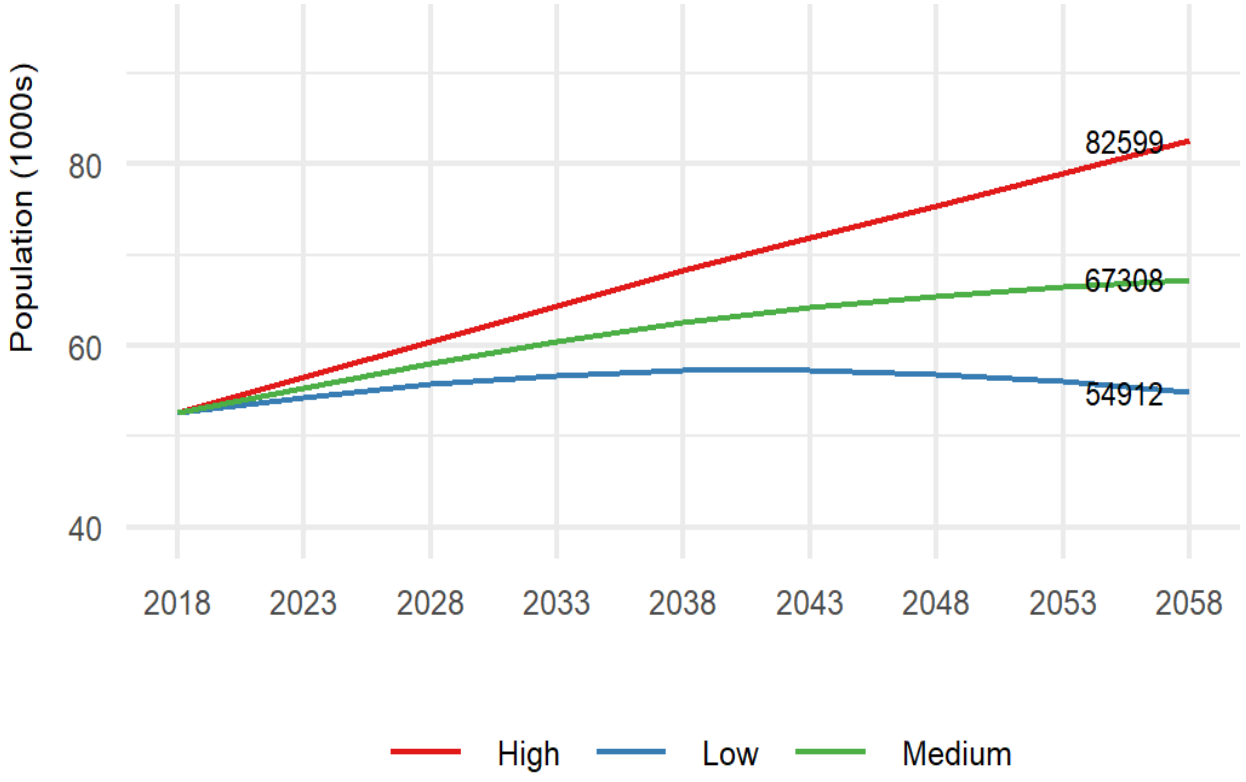
3. Results: Nelson City

An overview of the results for Nelson City are provided below. Please refer to the .csv data files for detailed results at TA level and SA2s. A summary of SA2 results is provided in section 3.4.

3.1 Total population

Figure 9 shows the overall projection results for Nelson City (see also Table 9). The population size of Nelson City increases under both the medium and high variants and remains broadly stable under the low variant. Under the medium variant the population (rounded to nearest 10) is projected to increase 27.8% from its estimated base of 52,660 in 2018 to 67,310 in 2058. Projected numbers under the high variant reach 82,600 in 2058 (+56.8%). Under the low variant, numbers reach 54,910 in 2058 (+4.3%).

Figure 9. Total population projections, by variant, 2018-2058, Nelson City



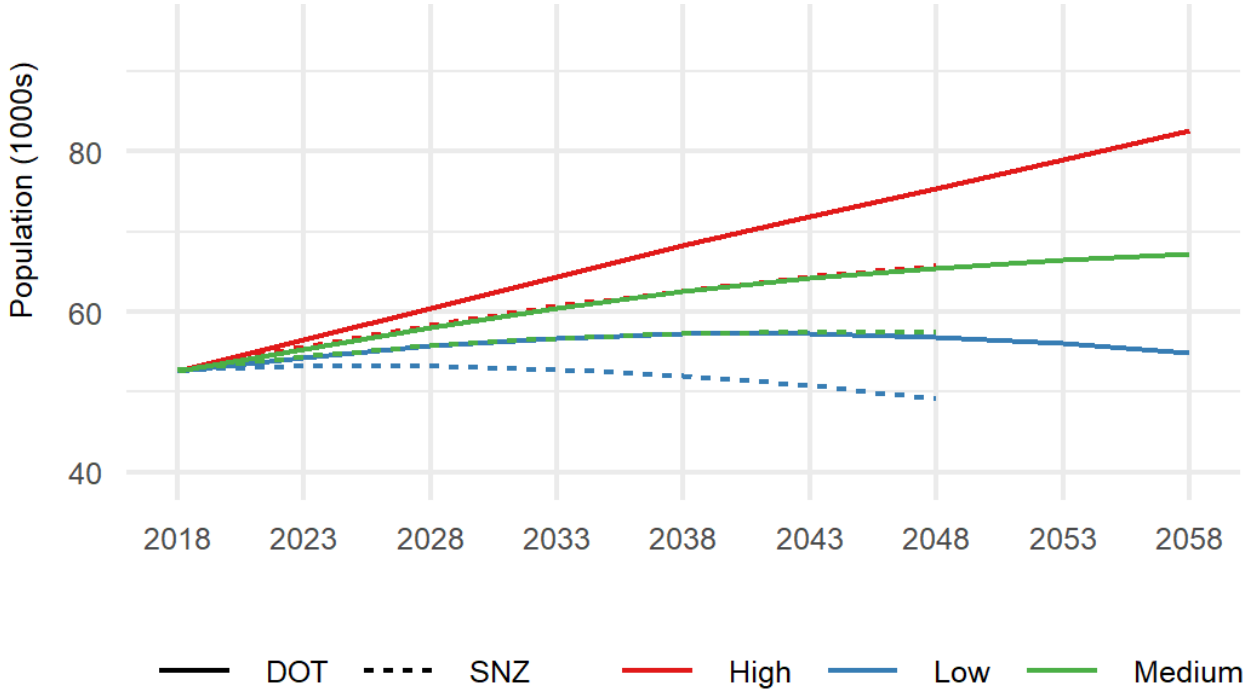
3.1.1 Comparison with Statistics NZ projections

Figure 10 contrasts the DOT projections with those produced by Statistics NZ (2022c). DOT's projections are higher for each variant primarily due to higher net migration assumptions employed in the DOT model. DOT's projection methodology, using average migration rates,

generates higher numbers of migrants than the predetermined migration numbers used by Statistics NZ. All three variants use similar fertility and mortality assumptions as Statistics NZ (2022a)

Total population numbers from the medium variant are similar to those from Statistics NZ High projection variant and the Low projection variant results are comparable to Statistics NZ's Medium variant. See section 2.4 for more information of the differences between the two sets of projections.

Figure 10. Comparison of total population projections for DOT and Statistics New Zealand, by variant, 2018-2058, Nelson City



3.1.2 Population change

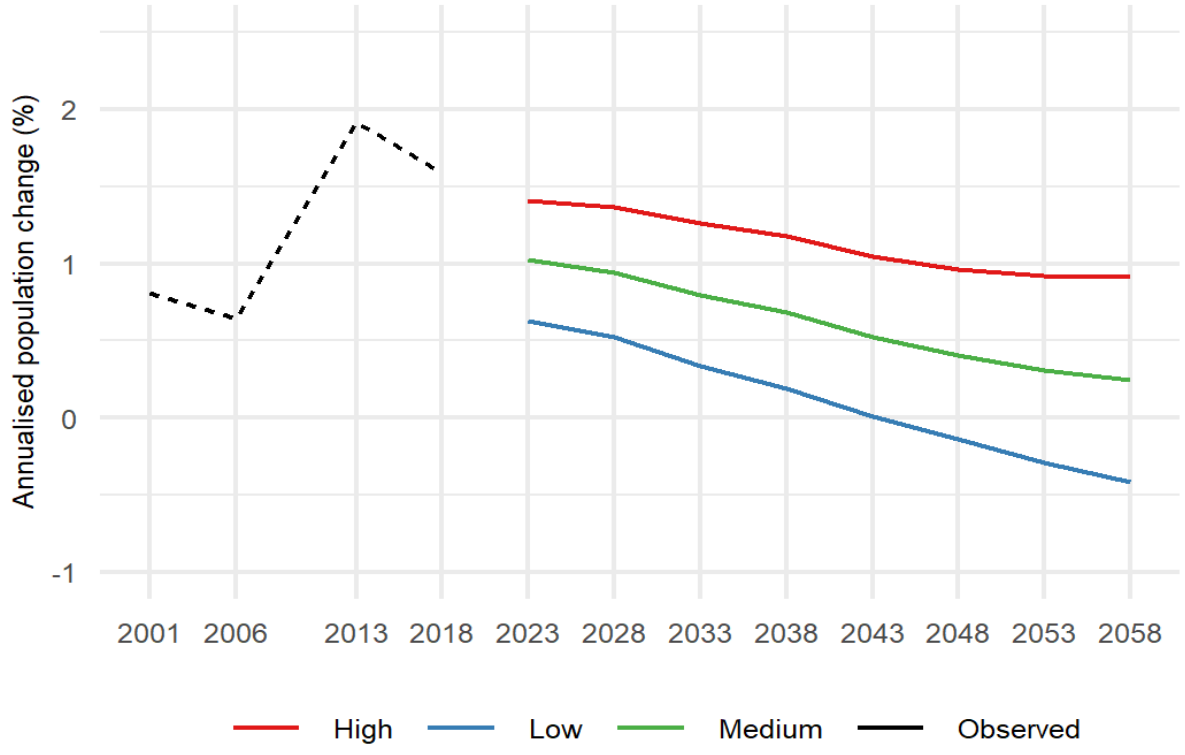
Between 2001 and 2018 average annual growth rates ranged between 0.64% and 1.91%. Population growth rates between 2006-2018 were unusually high compared to long term patterns (approximately double the rates for 1996-2006) and it is unlikely that growth will continue at this rate for the duration of the projection period.

These results show relatively modest average annual growth rates in comparison across the projection period (Figure 11, Table 9). Under the Medium projection, average annual growth ranges from 1.02% between 2018-2023 to 0.25% between 2053-2058. Under the high variant annual growth rates range from 1.41% between 2018-2023 to 0.91% in 2053-2058. While average annual growth rates for both the Medium and High projection variants remain positive across the projection period, population growth slows over time.

Table 9. Total population projections and average annual change, by variant, 2018-2058, Nelson City

	High		Medium		Low	
Proj. year	Pop	Annual pop change %	Pop	Annual pop change %	Pop	Annual pop change %
2018	52,660		52,660		52,660	
2023	56,479	1.41	55,406	1.02	54,340	0.63
2028	60,436	1.36	58,064	0.94	55,778	0.52
2033	64,347	1.26	60,419	0.80	56,717	0.33
2038	68,234	1.18	62,509	0.68	57,253	0.19
2043	71,866	1.04	64,159	0.52	57,283	0.01
2048	75,402	0.96	65,470	0.41	56,885	-0.14
2053	78,927	0.92	66,485	0.31	56,064	-0.29
2058	82,599	0.91	67,308	0.25	54,912	-0.41

Figure 11. Annualised population change, by variant, 2018-2058, Nelson City



Negative growth (declining population) is projected for the Low variant from 2048 with average annual growth rates ranging from 0.63% between 2018-2023 down to -0.41% between 2053-2058. The declines in growth rates over time for all three projection variants align with expectations of population ageing and reduced fertility levels.

Figure 12. Components of population change, by variant, 2018-2058, Nelson City

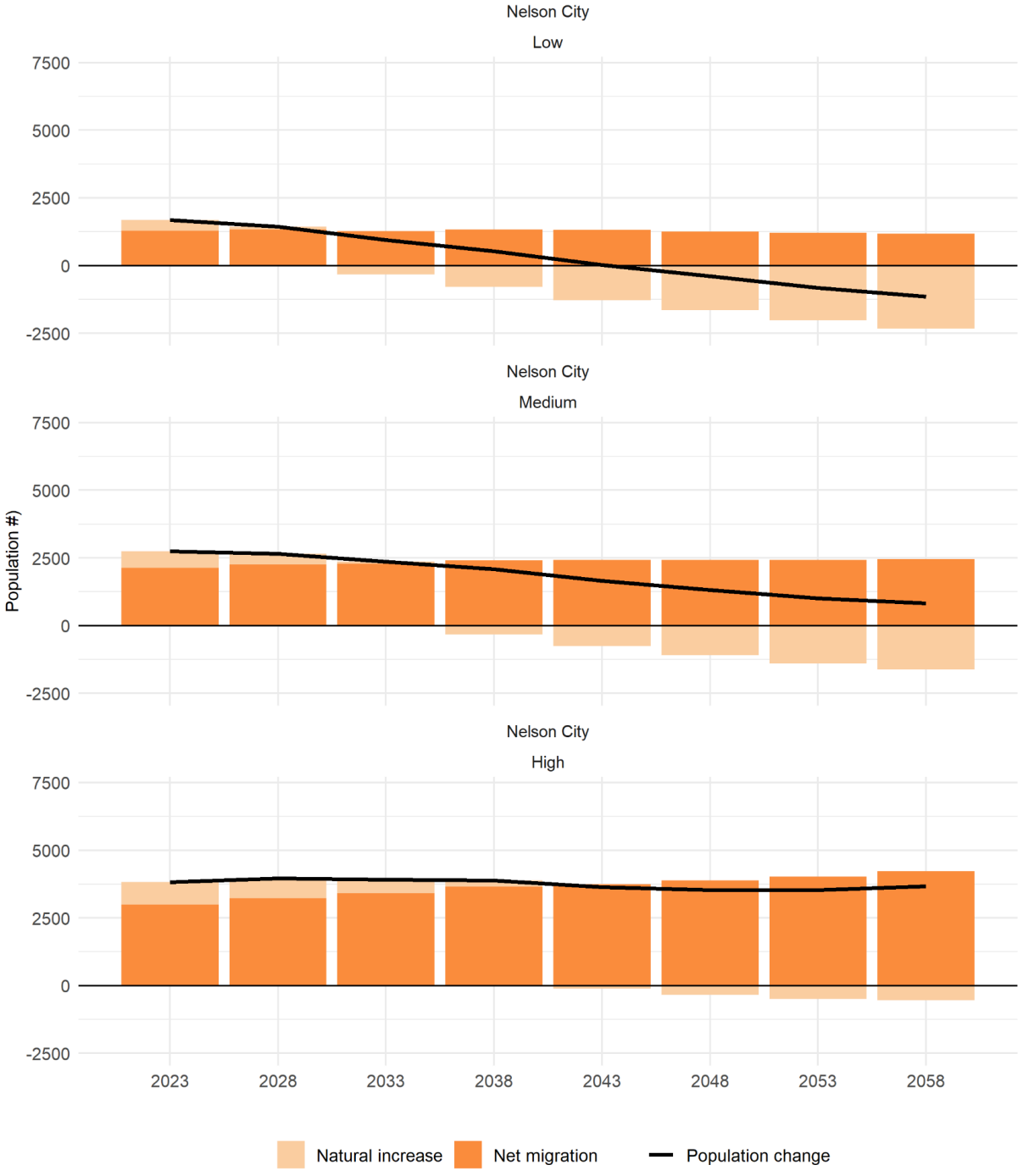


Table 10. Components of population change, by variant, 2018-2058, Nelson City

	2023	2028	2033	2038	2043	2048	2053	2058
High								
Change in population	3,819	3,957	3,911	3,887	3,632	3,536	3,525	3,672
Net migration	2,990	3,226	3,401	3,649	3,745	3,880	4,025	4,219
Natural increase	829	731	510	238	-113	-344	-500	-547
Migration as % of pop. change	78.29	81.53	86.96	93.88	103.11	109.73	114.18	114.90
Natural increase as % of pop. change	21.71	18.47	13.04	6.12	-3.11	-9.73	-14.18	-14.90
Medium								
Change in population	2,746	2,658	2,355	2,090	1,650	1,311	1,015	823
Net migration	2,137	2,257	2,283	2,414	2,418	2,418	2,420	2,449
Natural increase	609	401	72	-324	-768	-1,107	-1,405	-1,626
Migration as % of pop. change	77.82	84.91	96.94	115.50	146.54	184.44	238.42	297.57
Natural increase as % of pop. change	22.18	15.09	3.06	-15.50	-46.55	-84.44	-138.42	-197.57
Low								
Change in population	1,680	1,438	939	536	30	-398	-821	-1,152
Net migration	1,287	1,332	1,263	1,328	1,309	1,252	1,208	1,181
Natural increase	393	106	-324	-792	-1,279	-1,650	-2,029	-2,333
Migration as % of pop. change	76.61	92.63	134.50	247.76	4,363.33	314.57	147.14	102.52
Natural increase as % of pop. change	23.39	7.37	-34.50	-147.76	-4,263.33	-414.57	-247.14	-202.52

3.1.3 Components of population change

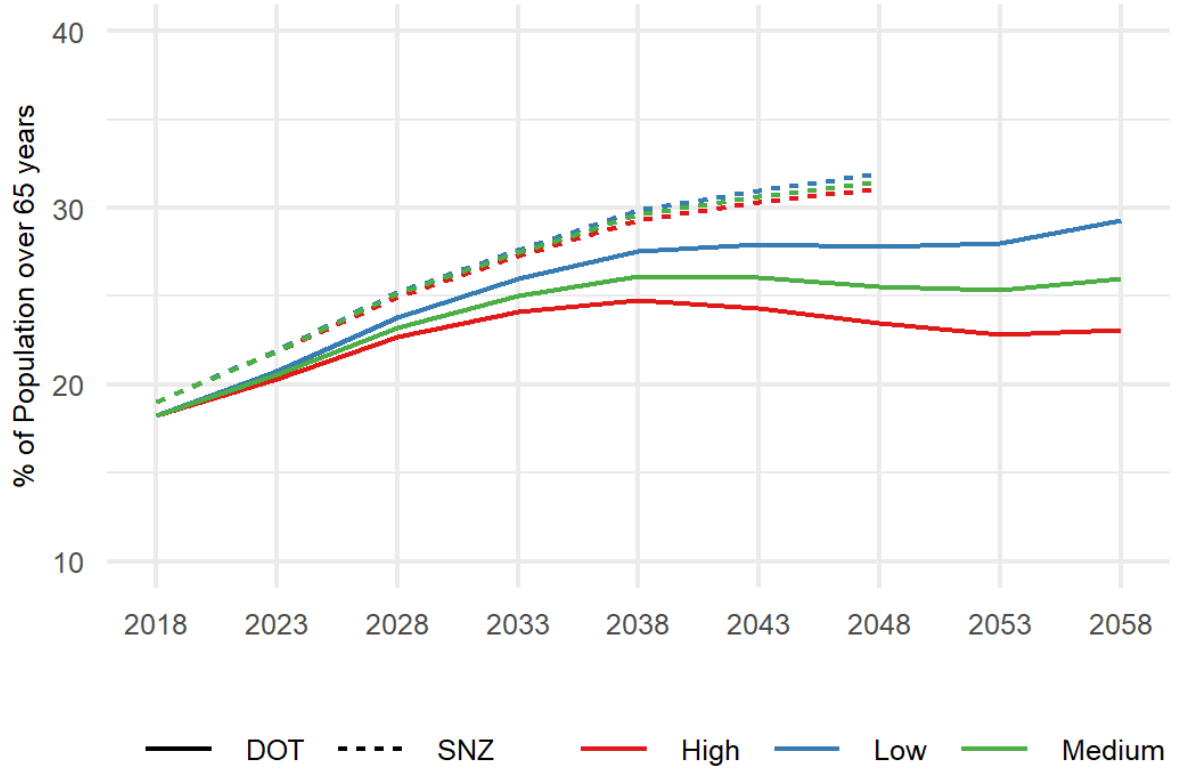
The relative contributions of net migration and natural increase/decrease to Nelson's projected population growth varies across time and between projection variants (Figure 12 and Table 10). Net migration is the major contributor to the district's growth under the Medium and High variants. Under the Medium variant, the generated number of migrants

remains relatively stable over time, while net migrant numbers increase moderately over time under the High variant. For the Low projection variant, net migration is a key contributor to growth till 2038, after which the effects of natural decrease become dominant. Migrant numbers decline over time under the low projection variant, but these declines are relatively modest.

3.2 Age-Sex structure

Population ageing is evident from the trend in projected population numbers by broad age group (Table 11, Figure 13, see data files for population by five-year age group) and in ageing indices (Table 12). In 2018, the population of Nelson City ranked 27th oldest out of 67 TAs with 19.1% of the population aged over 65 years (compared to 15.0% nationally). By 2022, this had increased to 21.2% compared to 16.4% nationally (Statistics NZ 2022d).

Figure 13. Percentage of population aged 65 years and over, by variant, 2018-2058, Nelson City



DOTs projected proportion of the population aged 65+ years falls below Stat'S NZs values, in large part due to higher migration assumptions. Under the three scenarios 30.8%, 25.5%, and 24.5% of the population are projected to be aged 65 years and over under the low, medium and high scenarios respectively. Statistics NZs (2022c) projections indicate that by 2048 Nelson City would become New Zealand's 11th oldest population.

Table 11. Population by broad age group and variant, 2018-2058, Nelson City

	2018	2023	2028	2033	2038	2043	2048	2053	2058
High									
0-14	9,200	9,416	9,578	10,192	10,804	11,437	12,017	12,567	13,176
15-24	5,820	6,175	6,336	6,284	6,335	6,723	7,114	7,568	7,991
25-54	20,300	21,116	22,322	24,004	25,993	27,285	28,226	29,390	30,266
55-64	7,330	7,949	8,129	7,947	7,606	8,231	9,517	10,251	10,906
65-74	5,700	6,471	7,523	8,176	8,383	8,209	7,867	8,466	9,754
75+	4,310	5,352	6,548	7,744	9,113	9,981	10,661	10,685	10,506
Total	52,660	56,479	60,436	64,347	68,234	71,866	75,402	78,927	82,599
Medium									
0-14	9,200	9,090	8,807	8,864	8,987	9,128	9,184	9,161	9,096
15-24	5,820	5,992	6,052	5,913	5,662	5,659	5,737	5,847	5,913
25-54	20,300	20,717	21,383	22,418	23,698	24,266	24,314	24,491	24,335
55-64	7,330	7,883	7,984	7,712	7,264	7,728	8,747	9,158	9,433
65-74	5,700	6,411	7,390	7,958	8,079	7,813	7,368	7,806	8,810
75+	4,310	5,313	6,448	7,554	8,819	9,565	10,120	10,022	9,721
Total	52,660	55,406	58,064	60,419	62,509	64,159	65,470	66,485	67,308
Low									
0-14	9,200	8,771	8,093	7,653	7,402	7,187	6,928	6,575	6,111
15-24	5,820	5,811	5,777	5,563	5,034	4,727	4,570	4,437	4,309
25-54	20,300	20,316	20,462	20,905	21,566	21,527	20,858	20,314	19,438
55-64	7,330	7,816	7,840	7,479	6,934	7,248	8,026	8,157	8,123
65-74	5,700	6,351	7,257	7,746	7,785	7,429	6,897	7,186	7,941
75+	4,310	5,275	6,349	7,371	8,532	9,165	9,606	9,395	8,990
Total	52,660	54,340	55,778	56,717	57,253	57,283	56,885	56,064	54,912

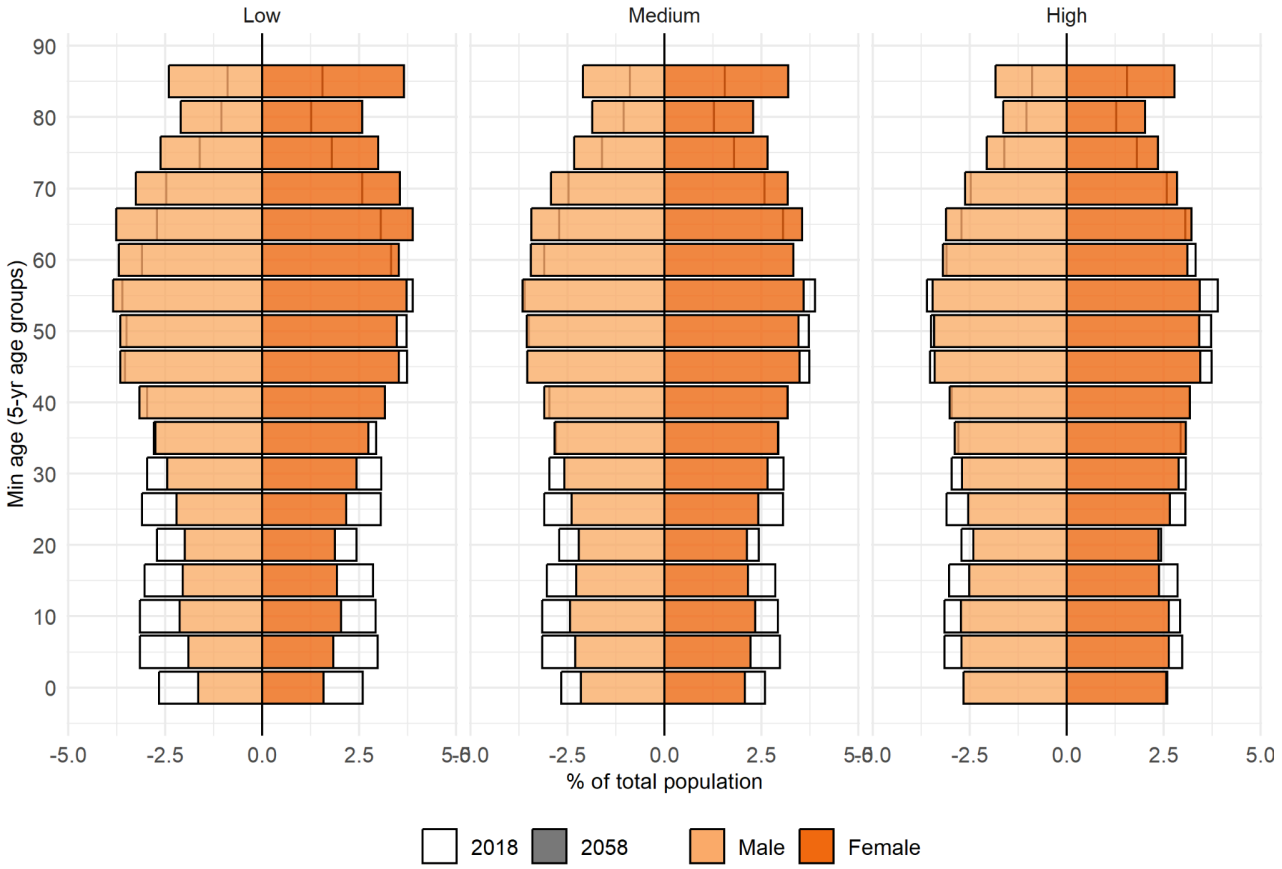
Table 12. Ageing indices & percent in key reproductive years, by variant, 2018-2058, Nelson City

	2018	2023	2028	2033	2038	2043	2048	2053	2058
% in Key Reproductive Ages (20-39 yrs)									
High	23.07	23.96	23.93	23.48	22.96	22.19	21.72	21.32	21.53
Medium	23.07	23.76	23.54	23.03	22.55	21.65	21.03	20.34	20.18
Low	23.07	23.54	23.13	22.55	22.09	21.04	20.26	19.20	18.62
% aged 65 years and older									
High	19.01	20.93	23.28	24.74	25.64	25.31	24.57	24.26	24.53
Medium	19.01	21.16	23.83	25.67	27.03	27.09	26.71	26.82	27.53
Low	19.01	21.40	24.39	26.65	28.50	28.97	29.01	29.58	30.83
Ratio 65+ years: 14 years and under									
High	1.09	1.26	1.47	1.56	1.62	1.59	1.54	1.52	1.54
Medium	1.09	1.29	1.57	1.75	1.88	1.90	1.90	1.95	2.04
Low	1.09	1.33	1.68	1.98	2.20	2.31	2.38	2.52	2.77

A population is considered to be approaching the end of natural increase once 20% or more of the population are aged over 65 years. This threshold will be crossed by 2023 under all projection variants (Figure 13). The ratio of older people (65+ years) to children (0-14 years) for Nelson City is already above 1 (2018 ratio = 1.09). By 2058, we project this ratio will increase further under all variants, ranging from 2.8 (Low) to 1.5 (High) (Table 12).

A further sign that a population is reaching the limits of sustaining itself through natural increase is a reduction in the proportion of women in key reproductive ages (aged 20-39 years). This trend is evident across all three variants and is visible when comparing the age-sex structure (proportions of the total population in each age/sex group) in 2018 and projected for 2053 (Figure 14, Table 11). The 'bite' in the age structure over the main reproductive age groups (primarily reflecting net migration loss at those ages) changes little over time, even with high migration. Although proportions aged 65+ years are projected to increase substantially, the age structures also remain relatively similar by variant. Proportions of younger ages in 2053 are lowest under the low variant and highest under the high variant.

Figure 14. Population pyramids by age, sex and variant, 2018 vs 2058, Nelson City



2058 population (orange shades) overlies the 2018 population (clear/outline).

3.3 Household and Dwelling projections

Projected household and dwelling numbers for Nelson city are presented in Tables 13 & 14.

Under the medium projection, the number of households (occupied private dwellings) will need to increase 36.2% between 2018 and 2058 if the assumptions regarding future average household size are met (Table 7). Average household size is projected to decline under all three variants, with the Medium projection indicating a decline from 2.48 in 2018 to 2.33 in 2058.

Change in household number between projection windows is positive throughout the projection period for the Medium and High projection variants (Table 7). Under the Low projection scenario, fewer households would be required to maintain the assumed household size ratio in the 2050s.

The projected total number of private dwellings follows a similar pattern, increasing by 36.3% between 2018 and 2058 (Table 14). Additional dwellings will be needed in each projection

period to maintain the assumed dwelling ratio (average number of people per private dwelling) under the High and Low variants. Under the Low scenario, fewer dwellings will be required to maintain this ratio in the 2050s (rather than there being fewer dwellings *per se*).

3.3.1 Interpreting change in household and dwelling numbers

Increases and decreases in the projected numbers represent changes in the demand for homes over the projection period based on household size and dwelling ratio expectations, and not a change in actual numbers of physical dwellings and households. That is, projected numbers indicate if additional or fewer households and dwellings are required to sustain the expected ratios for household size and dwellings, not an actual increase (new builds) or decline (destruction, abandonment, or repurposing) in dwellings and households in the region. A projected increase in dwelling *numbers* signifies that additional dwellings will be required to maintain the stated people-to-dwellings *ratio*, while a decline in numbers signifies fewer dwellings will be required to maintain that ratio.

The differing proportions of occupied and unoccupied dwellings in each geographic area should be considered when interpreting projected dwelling numbers.

Household and dwelling numbers increase by a greater margin than population numbers, under all three variants, due primarily to population ageing. That is, population ageing typically sees a reduction in average household size, in part because there are fewer children per household, more people live as couples without children and, especially at older ages, more people live alone. Added to this is the growing tendency for people to have a second (holiday or weekend) home, especially at mid-older ages, which contributes to the relative increase in dwelling numbers. The latter is particularly important at SA2 level, where unoccupied dwelling rates vary dramatically.

Table 13. Household projections, by variant, 2018-2058, Nelson City

	2018	2023	2028	2033	2038	2043	2048	2053	2058
High									
Population	52,660	56,479	60,436	64,347	68,234	71,866	75,402	78,927	82,599
Avg. household size	2.48	2.48	2.48	2.48	2.38	2.48	2.48	2.48	2.38
Households (#)	21,208	22,746	24,339	25,915	28,669	28,943	30,367	31,786	34,705
Change (#)		1,538	1,593	1,576	2,754	274	1,424	1,419	2,919
Change %		7.25	7.00	6.47	10.63	0.96	4.92	4.67	9.18
Medium									
Population	52,660	55,406	58,064	60,419	62,509	64,159	65,470	66,485	67,308
Avg. household size	2.48	2.48	2.48	2.38	2.38	2.38	2.38	2.33	2.33
Households (#)	21,208	22,314	23,384	25,386	26,264	26,957	27,508	28,534	28,887
Change (#)		1,106	1,070	2,002	878	693	551	1,026	353
Change %		5.22	4.80	8.56	3.46	2.64	2.04	3.73	1.24
Low									
Population	52,660	54,340	55,778	56,717	57,253	57,283	56,885	56,064	54,912
Avg. household size	2.48	2.48	2.38	2.38	2.38	2.38	2.33	2.33	2.33
Households (#)	21,208	21,884	23,436	23,830	24,055	24,068	24,414	24,061	23,567
Change (#)		676	1,552	394	225	13	346	-353	-494
Change %		3.19	7.09	1.68	0.94	0.05	1.44	-1.45	-2.05

Table 14. Dwelling projections, by variant, 2018-2058, Nelson City

	2018	2023	2028	2033	2038	2043	2048	2053	2058
High									
Population	52,660	56,479	60,436	64,347	68,234	71,866	75,402	78,927	82,599
Dwelling ratio	2.4	2.400	2.400	2.400	2.300	2.400	2.400	2.400	2.300
Dwellings (#)	21,950	23,542	25,192	26,822	29,679	29,956	31,430	32,899	35,928
Change (#)		1,592	1,650	1,630	2,857	277	1,474	1,469	3,029
Change %		7.253	7.009	6.470	10.652	0.933	4.921	4.674	9.207
Medium									
Population	52,660	55,406	58,064	60,419	62,509	64,159	65,470	66,485	67,308
Dwelling ratio	2.4	2.400	2.400	2.300	2.300	2.300	2.300	2.250	2.250
Dwellings (#)	21,950	23,095	24,203	26,280	27,189	27,907	28,477	29,562	29,927
Change (#)		1,145	1,108	2,077	909	718	570	1,085	365
Change %		5.216	4.798	8.582	3.459	2.641	2.042	3.810	1.235
Low									
Population	52,660	54,340	55,778	56,717	57,253	57,283	56,885	56,064	54,912
Dwelling ratio	2.4	2.400	2.300	2.300	2.300	2.300	2.250	2.250	2.250
Dwellings (#)	21,950	22,651	24,261	24,670	24,903	24,916	25,293	24,928	24,416
Change (#)		701	1,610	409	233	13	377	-365	-512
Change %		3.194	7.108	1.686	0.944	0.052	1.513	-1.443	-2.054

3.4. SA2 Results Summary - Nelson City

Figure S1a (Appendix) shows the total projected population for each SA2 and a comparison with the Statistics NZ subnational projections for each area and variant.

Four SA2s had an estimated population of <80 persons in 2018: Port Nelson (n=35), Inlets Nelson City (n=35), Saxton (n=40), and Nelson Airport (n=80). We have included the data for all SA2s in the final data output files for completeness, but these populations are too small to produce reliable projections for individual analyses. For small populations with under 1,000 persons in 2018, these have been flagged in the data files as some caution should be used in interpreting their results due to the inherent larger errors involved in modelling small populations.

The SA2s with the largest projected population in 2058 (under the medium projection) are Omaio (n = 7,229), Aldinga (n=4,484), Washington (n=4,217), Suffolk (n=4,052), and Atawhai (n=3,873). In comparison the largest SA2s in 2018 were Omaio, Aldinga, The Wood, Washington, and Enner Glenn.

The five SA2s with the largest population growth (under the Medium variant) between 2018 and 2058 are Omaio, Nayland, Daelyn, Suffolk, and Broadgreen-Monaco. The Omaio population is projected to approximately double, while the other four SA2s are projected to increase by 43%-55% between 2018 and 2058. However, Daelyn has a small population and so this result should be interpreted with some caution.

Focussing only on communities with a projected population of over 100 people in 2058, four SA2s are projected to experience population declines. These are Maitai (-24.2%), Marybank (-9.0%), Victory (-3.3%), and Rutherford (-3.3%). However, all but Rutherford had a population smaller than 1,700 in 2018. Tahunanui and Brittania are projected to increase modestly (4.6% and 3.2% respectively) over the projection period to 2058.

Eleven SA2s are projected to have over a third of their population aged over 65 years in 2058. The larger of these include The Wood, Britannia, Aldinga, Omaio, Suffolk, Marybank, and Maitai.

The youngest projected suburbs in 2058, i.e. those with the largest proportion of 0-14 year olds, is projected to be Broadgreen-Monaco (20.1%), Toi Toi (17.8%), Nayland (17.7%), Nelson Rural (16.6%), and Washington (16.4%).

Please refer to the data files for full SA2 level results.

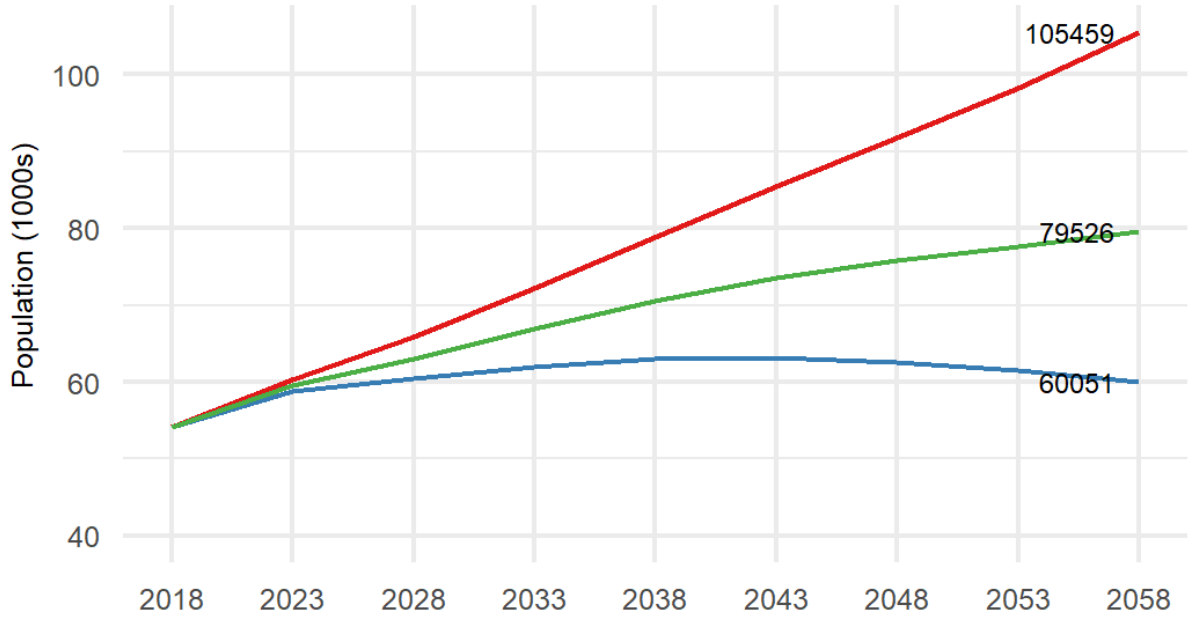
4. Results: Tasman District

Here we provide an overview of the results for Tasman District are provided below. Please refer to the data files for detailed results at TA level and for SA2 data. A summary of SA2 results is provided in section 4.4.

4.1 Total population

Figure 15 shows the overall projection results for Tasman District (see also Table 15). The population size of Tasman District increases under both the medium and high variants and remains broadly stable under the low variant. Under the medium variant the population is projected to increase 47.1% from its estimated base of 54,070, in 2018 to 79,530 in 2058. Projected numbers under the high variant reach 105,460 in 2058 (+95.0%). Under the low variant, numbers reach 60,050 in 2058 (+11.1%).

Figure 15. Total population projections, by variant, 2018-2058, Tasman District

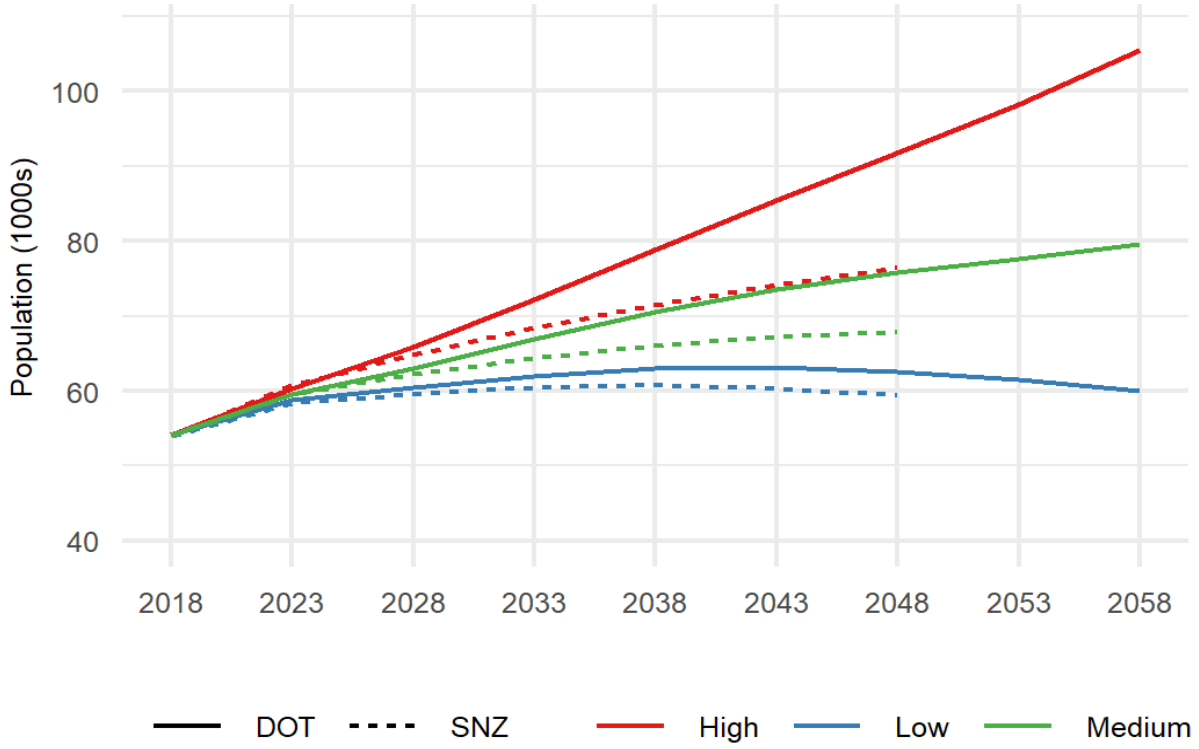


4.1.1 Comparison with Statistics NZ projections

Figure 16 contrasts the DOT projections with those produced by Statistics NZ (2022c). DOT's projections are higher for each variant primarily due to higher net migration assumptions employed in the DOT model. DOT's projection methodology, using average migration rates, generates more net migrants than the predetermined migration numbers used by Statistics NZ. All three variants use similar fertility and mortality assumptions as Statistics NZ (2022a).

Total population numbers from the medium projection variant are similar to those in Statistics NZ's High variant. Total population numbers in the Low variant is intermediate between Statistics NZ's Low and Medium outputs. See section 2.4 for more information of the differences between the two sets of projections.

Figure 16. Comparison of total population projections by DOT and Statistics New Zealand, by variant, 2018-2058, Tasman District



4.1.2 Population change

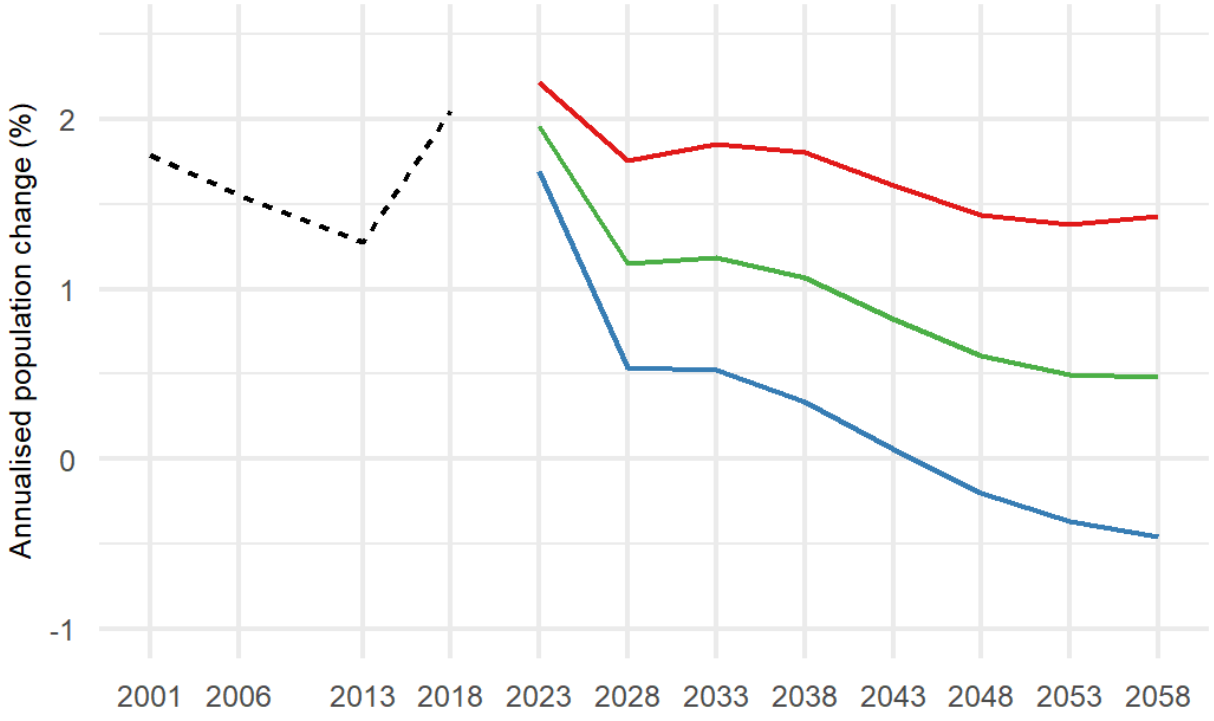
Between 2001 and 2018 average annual growth rates ranged between 1.31% and 2.13%. These results show relatively low-to-modest average annual growth rates in comparison (Figure 17). Average annual growth rates are positive across projection periods for both the Medium and High projection variants, although population growth slows over time. Under the Medium projection average annual growth ranges from 1.96% between 2018-2023 to 0.48% between 2053-2058. Under the high variant annual growth rates range from 2.21% between 2018-2023 to 1.43% in 2053-2058.

For the Low projection variant, population change is negative (declining population) from 2048 with average annual growth rates ranging from 1.70% between 2018-2023 down to -0.46% between 2053-2058.

Table 15. Total population projections and average annual change, by variant, 2018-2058, Tasman District

	High		Medium		Low	
Proj. year	Pop	Annual pop change %	Pop	Annual pop change %	Pop	Annual pop change %
2018	54,070		54,070		54,070	
2023	60,329	2.21	59,569	1.96	58,811	1.70
2028	65,822	1.76	63,071	1.15	60,406	0.54
2033	72,145	1.85	66,901	1.19	61,995	0.52
2038	78,885	1.80	70,541	1.06	63,046	0.34
2043	85,438	1.61	73,488	0.82	63,215	0.05
2048	91,739	1.43	75,747	0.61	62,589	-0.20
2053	98,235	1.38	77,635	0.49	61,442	-0.37
2058	105,459	1.43	79,526	0.48	60,051	-0.46

Figure 17. Annualised population change, by variant, 2018-2058, Tasman District



Population growth rates between 2013-2018 were unusually high (2.1% annual growth) compared to long term patterns and it is unlikely that growth will continue at this rate for the duration of the projection period.

The declines in growth rates over time for all three projection variants align with expectations of population ageing and reduced fertility levels.

Figure 18. Components of population change, by variant, 2018-2058, Tasman District

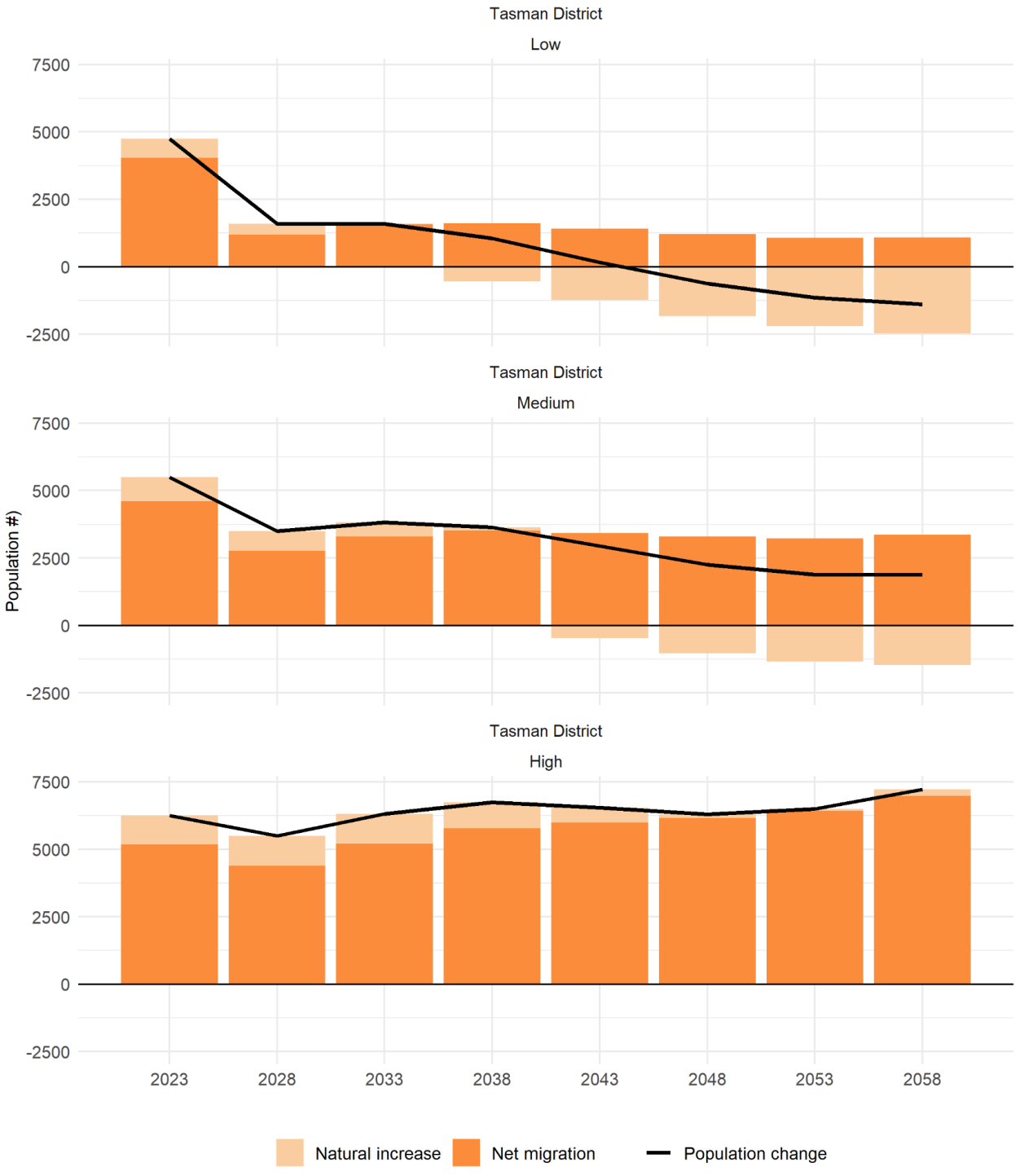


Table 16. Components of population change, by variant, 2018-2058, Tasman District

	2023	2028	2033	2038	2043	2048	2053	2058
High								
Change in population	6,259	5,493	6,323	6,740	6,553	6,301	6,496	7,224
Net migration	5,172	4,387	5,206	5,776	5,989	6,162	6,429	6,970
Natural increase	1,087	1,106	1,117	964	564	139	67	254
Migration as % of pop. change	82.63	79.86	82.33	85.70	91.39	97.79	98.97	96.48
Natural increase as % of pop. change	17.37	20.13	17.67	14.30	8.61	2.21	1.03	3.52
Medium								
Change in population	5,499	3,502	3,830	3,640	2,947	2,259	1,888	1,891
Net migration	4,600	2,757	3,303	3,519	3,421	3,297	3,230	3,355
Natural increase	899	745	527	121	-474	-1,038	-1,342	-1,464
Migration as % of pop. change	83.65	78.73	86.24	96.68	116.08	145.95	171.08	177.42
Natural increase as % of pop. change	16.35	21.27	13.76	3.32	-16.08	-45.95	-71.08	-77.42
Low								
Change in population	4,741	1,595	1,589	1,051	169	-626	-1,147	-1,391
Net migration	4,038	1,186	1,582	1,604	1,413	1,212	1,067	1,078
Natural increase	703	409	7	-553	-1,244	-1,838	-2,214	-2,469
Migration as % of pop. change	85.17	74.36	99.56	152.62	836.10	193.61	93.03	77.50
Natural increase as % of pop. change	14.83	25.64	0.44	-52.62	-736.09	-293.61	-193.03	-177.50

4.1.3 Components of population change

The relative contributions of net migration and natural increase to Tasman's projected growth varies across time and between projection variants (Figure 18 and Table 9). Net migration is the major contributor to the district's growth under the Medium and High variants. Under the Medium variant, the generated number of migrants remains relatively stable over time, while net migrant numbers increase moderately over time under the High variant.

For the Low projection variant net migration is a key contributor to growth till 2043, after which the effects of negative natural increase become dominant. Under the low variant, the generated number of migrants declines over time, but these declines are relatively modest.

Natural increase is only a small component of population change under all projection variants. For the Low and Medium variants, natural increase turns negative (natural decrease) between 2038 and 2043 and becomes a major component of population change during this time under the Medium and low variants. This shift from natural increase to natural increase is projected for a large proportion of New Zealand's TAs over the coming decades (Statistics NZ 2022c).

Net migration will be increasingly important in offsetting natural decrease and by the end of the migration period will be the main source of population growth. The maintenance of natural increase under the High variant is driven by higher net migration rates that help sustain the numbers of births for longer. However, by 2058 natural increase is barely positive. Due to the effects of structural ageing, it is unlikely that long term natural increase can be restored, and would be challenging to achieve even under very high fertility conditions.

4.2 Age-Sex structure

Population ageing is evident from the trend in projected population numbers by broad age group (Table 17, see the data files for population numbers by five-year age group) and in key ageing indices (Table 18). In 2018, the population of Tasman District ranked 16th oldest out of 67 TAs (Statistics NZ 2022d) with 20.7% of the population aged over 65 years (compared to 15.0% nationally). In 2022, this has increased to 23.1% compared to 16.4% nationally.

Statistics NZs (2022c) projections indicate that by 2048 Tasman District would become New Zealand's fifth oldest population. DOT's projected proportion of the population aged 65+ years in 2058 fall below Stat'S NZs values (Figure 19), in large part due to higher migration assumptions. Under the three scenarios 31.3%, 26.8% and 22.9% of the population are projected to be aged 65 years and over under the low, medium and high scenarios respectively (Table 18, Figure 19).

An indicator that a population is approaching the end of natural increase is when more than 20% of the population are aged 65+ years. Another indicator is if the ratio of older people (65+ years) to children (0-14 years) is above 1. Tasman District crossed both these thresholds in 2018. We project the ratio of over 65 year olds to under 15 year olds will increase under all variants, ranging from 2.8 under the Low projection to 1.3 under the High projection (Table 18).

Table 17. Population by broad age group and variant, 2018-2058, Tasman District

	2018	2023	2028	2033	2038	2043	2048	2053	2058
High									
0-14	9,630	9,707	10,480	12,337	14,115	15,691	16,653	17,302	18,308
15-24	5,570	6,666	6,121	5,413	5,841	6,867	7,951	9,078	9,779
25-54	19,440	20,891	22,740	25,570	28,650	31,373	33,838	36,363	38,050
55-64	8,230	9,264	9,956	9,887	9,155	9,288	10,779	12,579	15,165
65-74	6,900	7,917	8,889	9,853	10,590	10,528	9,755	9,885	11,451
75+	4,300	5,884	7,636	9,085	10,534	11,691	12,763	13,028	12,706
Total	54,070	60,329	65,822	72,145	78,885	85,438	91,739	98,235	105,459
Medium									
0-14	9,630	9,425	9,592	10,564	11,362	11,886	11,841	11,500	11,354
15-24	5,570	6,534	5,697	4,870	5,005	5,497	5,987	6,425	6,467
25-54	19,440	20,661	21,786	23,586	25,365	26,674	27,501	28,183	27,872
55-64	8,230	9,199	9,708	9,457	8,557	8,481	9,576	10,761	12,490
65-74	6,900	7,889	8,754	9,546	10,075	9,817	8,888	8,803	9,928
75+	4,300	5,861	7,534	8,878	10,177	11,133	11,954	11,963	11,415
Total	54,070	59,569	63,071	66,901	70,541	73,488	75,747	77,635	79,526
Low									
0-14	9,630	9,149	8,752	8,969	9,029	8,848	8,231	7,421	6,747
15-24	5,570	6,403	5,285	4,369	4,254	4,336	4,429	4,445	4,154
25-54	19,440	20,428	20,852	21,701	22,368	22,559	22,177	21,623	20,121
55-64	8,230	9,133	9,465	9,039	7,988	7,730	8,480	9,158	10,214
65-74	6,900	7,860	8,619	9,245	9,578	9,146	8,083	7,821	8,578

Figure 19. Percentage of population aged 65 years and over, by variant, 2018-2058, Tasman District

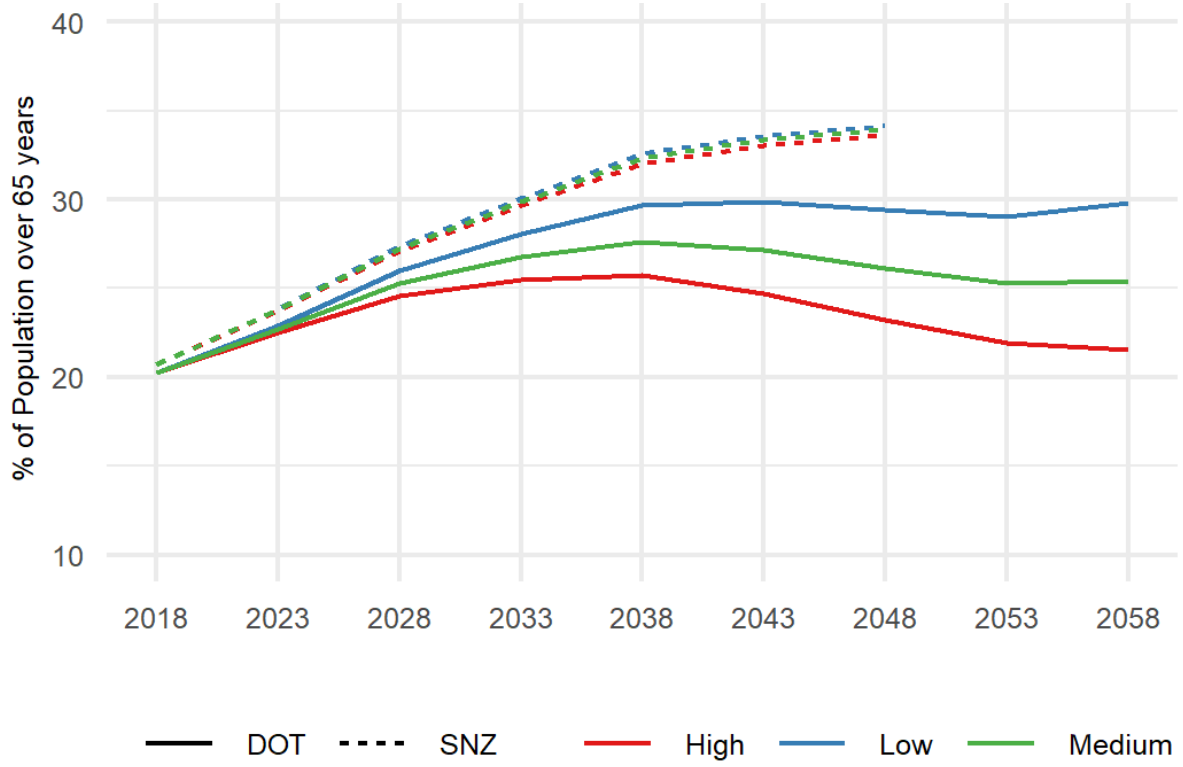
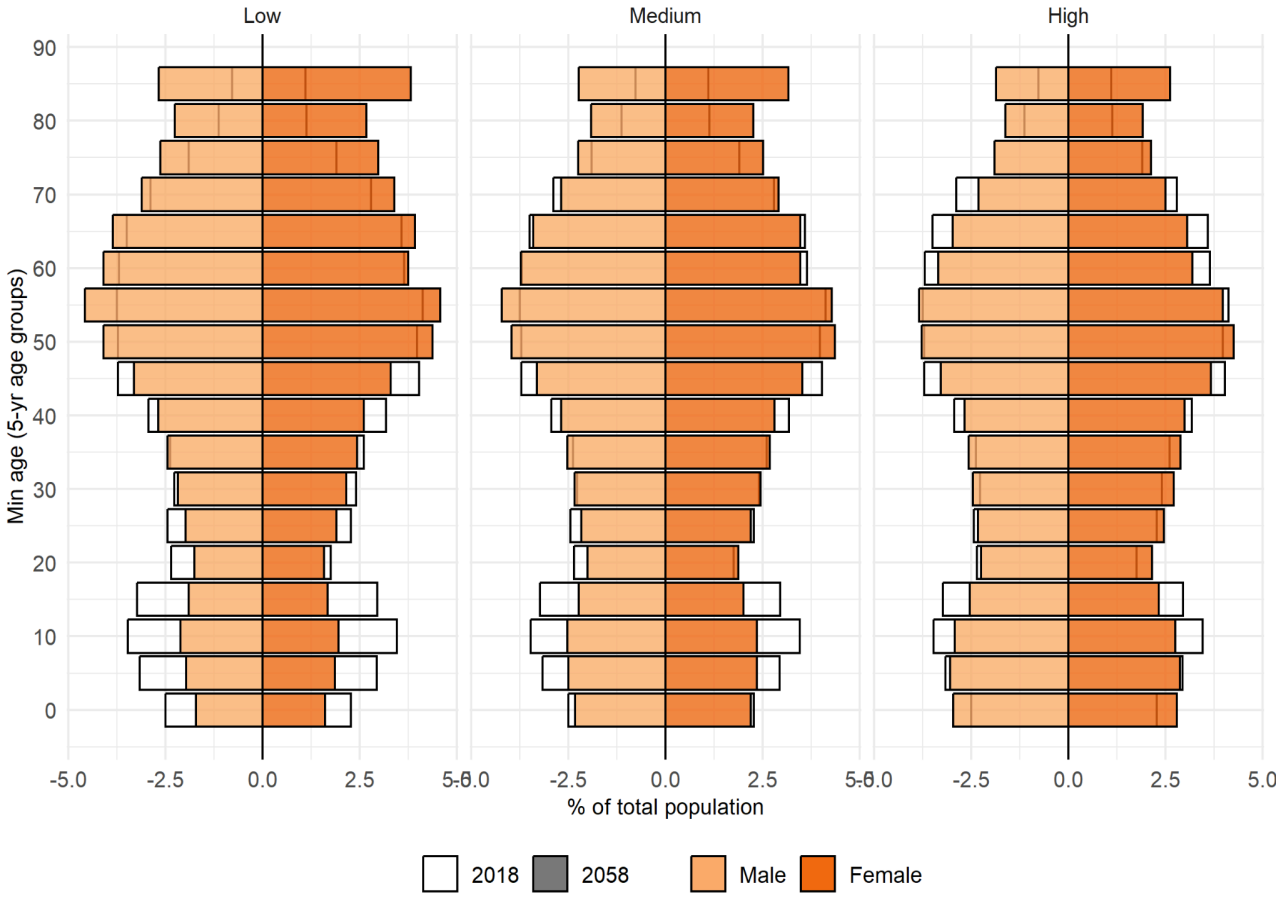


Table 18. Ageing indices & percent in key reproductive years, by variant, 2018-2058, Tasman District

	2018	2023	2028	2033	2038	2043	2048	2053	2058
% in Key Reproductive Ages (20-39 yrs)									
High	18.50	20.81	22.27	22.10	21.45	20.04	18.70	18.70	19.83
Medium	18.50	20.75	21.94	21.49	20.72	19.04	17.54	17.43	18.28
Low	18.50	20.68	21.58	20.82	19.90	17.91	16.24	15.98	16.47
% aged 65 years and older									
High	20.71	22.88	25.11	26.25	26.78	26.01	24.55	23.32	22.91
Medium	20.71	23.08	25.82	27.54	28.71	28.51	27.52	26.75	26.84
Low	20.71	23.29	26.57	28.90	30.78	31.23	30.79	30.59	31.33
Ratio 65+ years: 14 years and under									
High	1.16	1.42	1.58	1.54	1.50	1.42	1.35	1.32	1.32
Medium	1.16	1.46	1.70	1.74	1.78	1.76	1.76	1.81	1.88
Low	1.16	1.50	1.83	2.00	2.15	2.23	2.34	2.53	2.79

Another indicator that a population is reaching the limits of being able to sustain itself through natural increase is a reduction in the proportion of women in key reproductive (25-40 years) age groups (Table 18). This trend is evident in the population pyramid plots depicting the age-sex structure (proportions of the total population in each age/sex group) in 2018 and projected for 2058 (Figure 20). The 'bite' in the age structure over the main reproductive age groups changes little over time, even with high migration. The population age structure remains relatively similar by variant, with the proportion aged 65+ years projected to increase substantially. Proportions at the younger ages in 2058 are lowest under the low variant and highest under the high variant, driven primarily by differences in migration.

Figure 20. Population pyramids by age, sex and variant, 2018-2058, Tasman District



2058 population (orange shades) overlies the population pyramid for the 2018 population (clear/outline).

4.3 Dwelling and household projections

Projected household and dwelling numbers for Tasman District are presented in Tables 19 and 20. Under the medium projection, the number of households (occupied private dwellings) will need to increase 67.0% between 2018 and 2058 if the assumed future average household size is maintained (Table 19). The projected between-period change in household number is positive throughout the projection period for the Medium and High projection variants. Under the Low projection scenario, fewer households would be required to maintain the stated household size ratio in the 2050s.Average household size is projected to decline under all three variants, with the Medium projection indicating a decline from 2.54 in 2018 to 2.23 in 2058.

The projected total number of private dwellings follows a similar pattern, increasing by 67.9% between 2018 and 2058. Additional dwellings will be needed in each projection period to maintain the assumed dwelling ratio (average number of people per private dwelling) under the High and Medium variants. Under the Low variant, fewer dwellings will be required to maintain this ratio in the 2050s (rather than there being fewer dwellings *per se*).

4.3.1 Interpreting change in projected household and dwelling numbers

Increases and decreases in the projected numbers represent changes in housing demand over the projection period based on household size and dwelling ratio expectations. That is, projected numbers indicate if additional or fewer households and dwellings are required to sustain the expected ratios for household size and dwellings, and do not represent an actual increase (new builds) or decline (destruction, abandonment, or repurposing) in dwellings and households in the region. A projected increase in dwelling *numbers* signifies that additional dwellings will be required to maintain the stated people-to-dwellings *ratio*, while a decline in numbers signifies fewer dwellings will be required to maintain that ratio.

The differing proportions of occupied and unoccupied dwellings in each geographic area should be considered when interpreting projected dwelling numbers.

Household and dwelling numbers increase by a greater margin than population numbers, under all three variants, due primarily to population ageing. That is, population ageing typically sees a reduction in average household size, in part because there are fewer children per household, more people live as couples without children and, especially at older ages, more people live alone. Added to this is the growing tendency for people to have a second (holiday or weekend) home, especially at mid-older ages, which contributes to the relative increase in dwelling numbers. The latter is particularly important at SA2 level, where unoccupied dwelling rates vary dramatically.

Table 19. Household projections, by variant, 2018-2058, Tasman District

Tasman District

	2018	2023	2028	2033	2038	2043	2048	2053	2058
High									
Population	54,070	60,329	65,822	72,145	78,885	85,438	91,739	98,235	105,459
Avg. household size	2.54	2.43	2.43	2.43	2.33	2.43	2.43	2.43	2.33
Households (#)	21,329	24,796	27,053	29,652	33,827	35,116	37,706	40,376	45,222
Change (#)		3,467	2,257	2,599	4,175	1,289	2,590	2,670	4,846
Change %		16.25	9.10	9.61	14.08	3.81	7.38	7.08	12.00
Medium									
Population	54,070	59,569	63,071	66,901	70,541	73,488	75,747	77,635	79,526
Avg. household size	2.54	2.43	2.43	2.33	2.33	2.33	2.33	2.23	2.23
Households (#)	21,329	24,483	25,923	28,688	30,249	31,512	32,481	34,782	35,629
Change (#)		3,154	1,440	2,765	1,561	1,263	969	2,301	847
Change %		14.79	5.88	10.67	5.44	4.18	3.08	7.08	2.44
Low									
Population	54,070	58,811	60,406	61,995	63,046	63,215	62,589	61,442	60,051
Avg. household size	2.54	2.43	2.43	2.33	2.33	2.33	2.23	2.23	2.23
Households (#)	21,329	24,172	24,827	26,584	27,035	27,107	28,041	27,527	26,904
Change (#)		2,843	655	1,757	451	72	934	-514	-623
Change %		13.33	2.71	7.08	1.70	0.27	3.45	-1.83	-2.26

Table 20. Dwelling projections, by variant, 2018-2058, Tasman District

Tasman District

	2018	2023	2028	2033	2038	2043	2048	2053	2058
High									
Population	54,070	60,329	65,822	72,145	78,885	85,438	91,739	98,235	105,459
Dwelling ratio	2.28	2.190	2.190	2.190	2.100	2.190	2.190	2.190	2.100
Dwellings (#)	23,735	27,585	30,096	32,988	37,635	39,066	41,947	44,917	50,314
Change (#)		3,850	2,511	2,892	4,647	1,431	2,881	2,970	5,397
Change %		16.221	9.103	9.609	14.087	3.802	7.375	7.080	12.015
Medium									
Population	54,070	59,569	63,071	66,901	70,541	73,488	75,747	77,635	79,526
Dwelling ratio	2.28	2.190	2.190	2.100	2.100	2.100	2.100	2.000	2.000
Dwellings (#)	23,735	27,237	28,839	31,918	33,655	35,061	36,138	38,895	39,842
Change (#)		3,502	1,602	3,079	1,737	1,406	1,077	2,757	947
Change %		14.755	5.882	10.677	5.442	4.178	3.072	7.629	2.435
Low									
Population	54,070	58,811	60,406	61,995	63,046	63,215	62,589	61,442	60,051
Dwelling ratio	2.28	2.190	2.190	2.100	2.100	2.100	2.000	2.000	2.000
Dwellings (#)	23,735	26,891	27,620	29,577	30,079	30,159	31,357	30,782	30,085
Change (#)		3,156	729	1,957	502	80	1,198	-575	-697
Change %		13.297	2.711	7.085	1.697	0.266	3.972	-1.834	-2.264

4.4. SA2 Results Summary - Tasman District

Figure S2 (Appendix) shows the total projected population for each SA2 and a comparison with the Statistics NZ subnational projections for each area and variant.

Four SA2s from the Tasman district were removed from the analysis due to a 0 estimated population in 2018. These were the Oceanic Tasman Region, Inlets Golden Bay, Inlets Motueka, and Inlet Waimea West. Islands Tasman District had an estimated population of 70. We have included Islands Tasman District in the final data output for completeness, but this population is too small to produce reliable projections for individual analyses. For small populations with under 1,000 persons in 2018, these have been flagged in the data files as some caution should be used in interpreting their results.

The SA2s with the largest projected population in 2058 are Moutere Hills (n=6,962), Wakefield (n=5,192), Brightwater (n=4,636), Motueka North (n=4,615), and Motueka East (n = 3,918). In comparison, the largest SA2s in 2018 were Moutere Hills, Motueka East, Eastby Park, Motueka West, and Motueka North.

The five SA2s with the largest population growth (under the Medium variant) between 2018 and 2058 are Brightwater, Moutere Hills, Wakefield, Richmond South, and Motueka North. Of these, all but Motueka North (up 82.4%) are projected to approximately double over the projection period. Although the results for Richmond South should be treated with caution due its small population size.

Focussing on SA2s with populations of over 100 in 2058, three are projected to experience population declines between 2018-2058. These are Takaka Hills, Golden Bay / Mohua, and Richmond Central with projected declines of between 6.2% and 4.1%. Golden Downs is projected to have a modest increase of 3.4% respectively.

The SA2s with the highest projected proportion of people aged 65 years and over in 2058 are Fairose (43.4%), Richmond West (40.0%), Motueka East (38.6%), Templemore (38.1%), and Mapua (35.2%). Note however, that Mapua and Richmond West have populations under 1,000.

The youngest projected SA2s in 2058, i.e. those with the largest proportion of 0-14 year olds and a total population over 500, are Moutere Hills (23.2%), Lower Moutere (19.4%), Brightwater (18.6%), and Easby Park (16.3%).

Please refer to the data files for full SA2 level results.

5. References

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Appendix

Figure S1a. Total population by SA2 and variant, 2018-2058, Nelson City

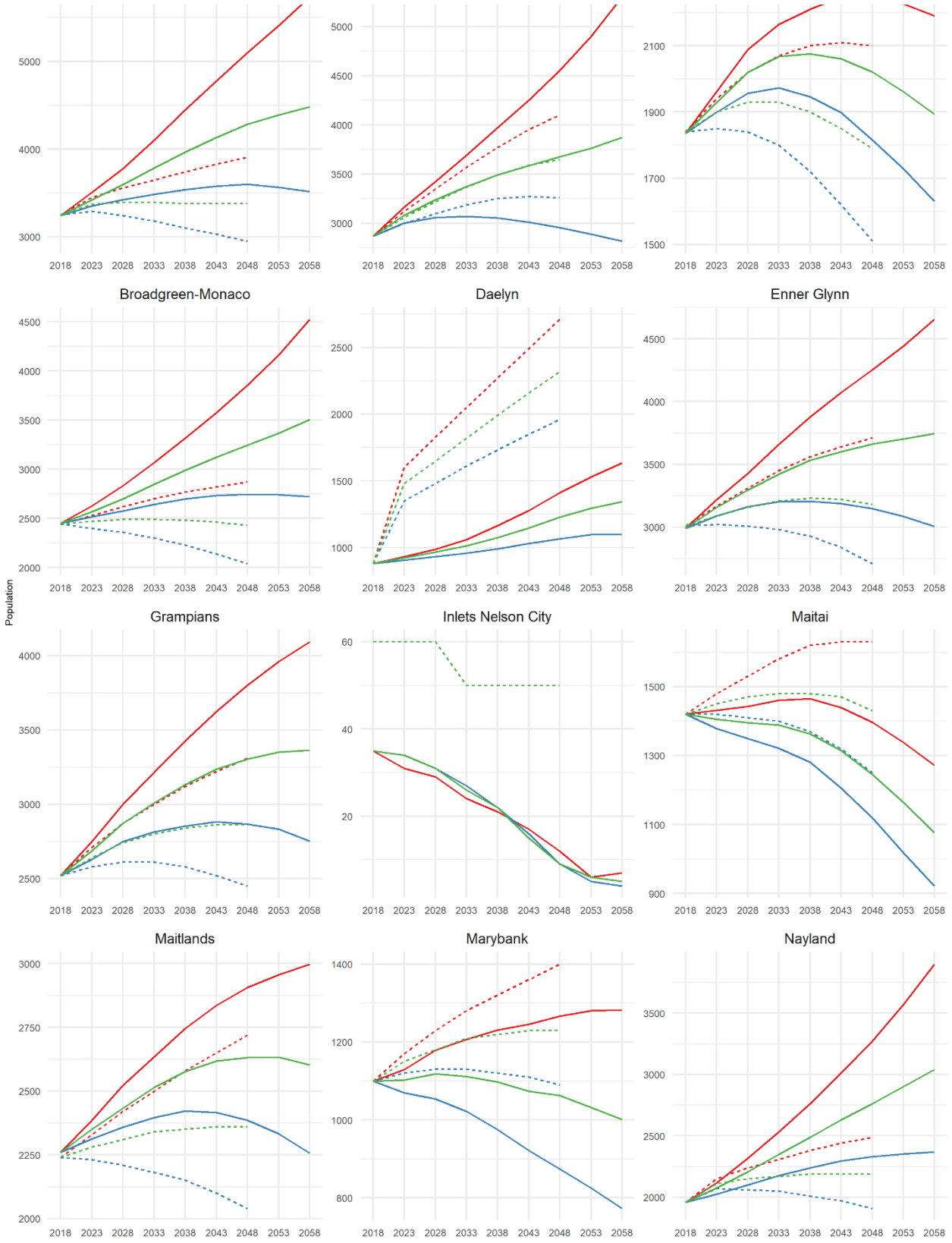

Figure S1a. Total population, SA2 - Nelson, cont 2

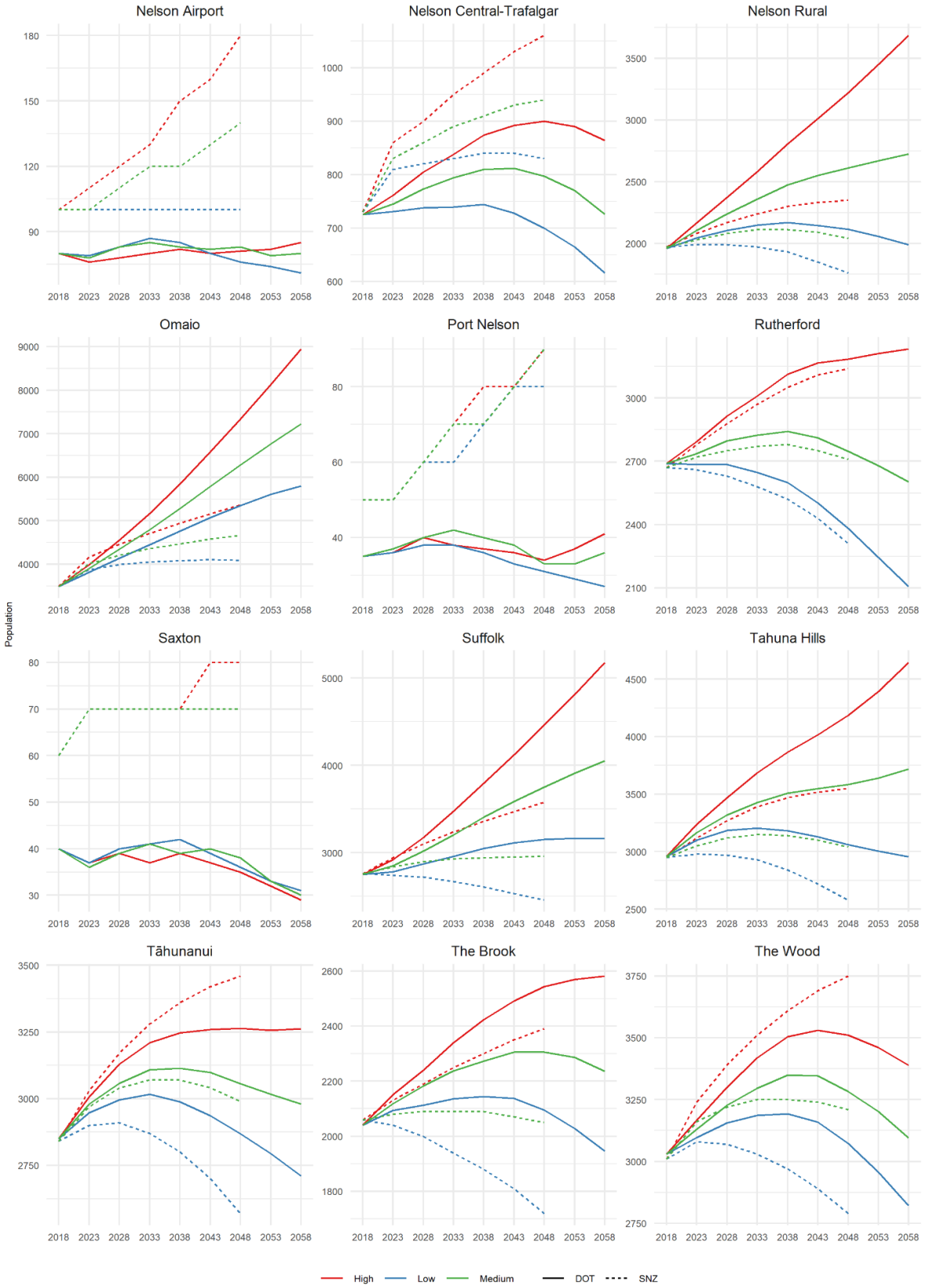

Figure S1a. Total population, SA2 - Nelson, cont 3

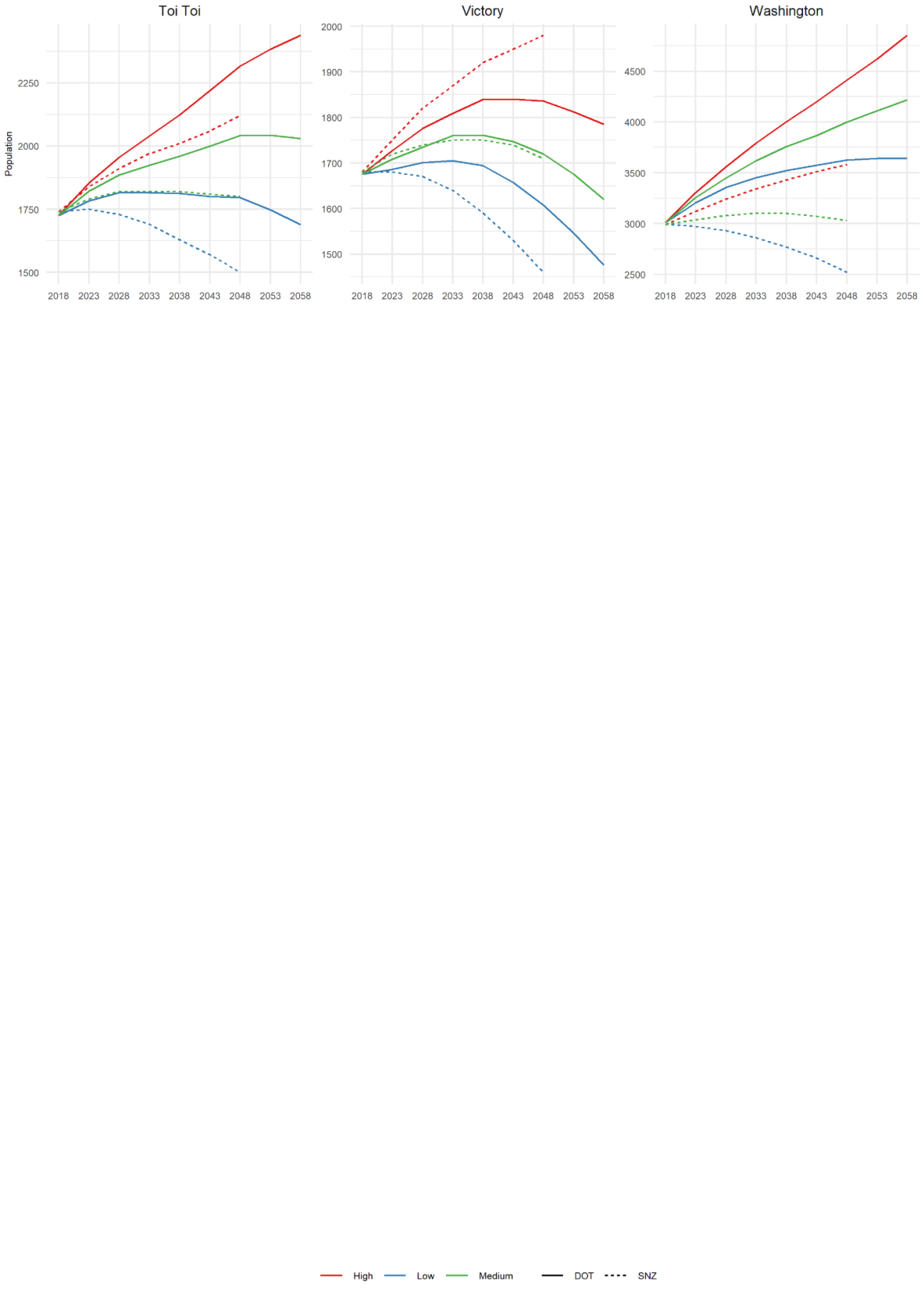

Figure S1b. Annualised population change for variant, by SA2 - Nelson City

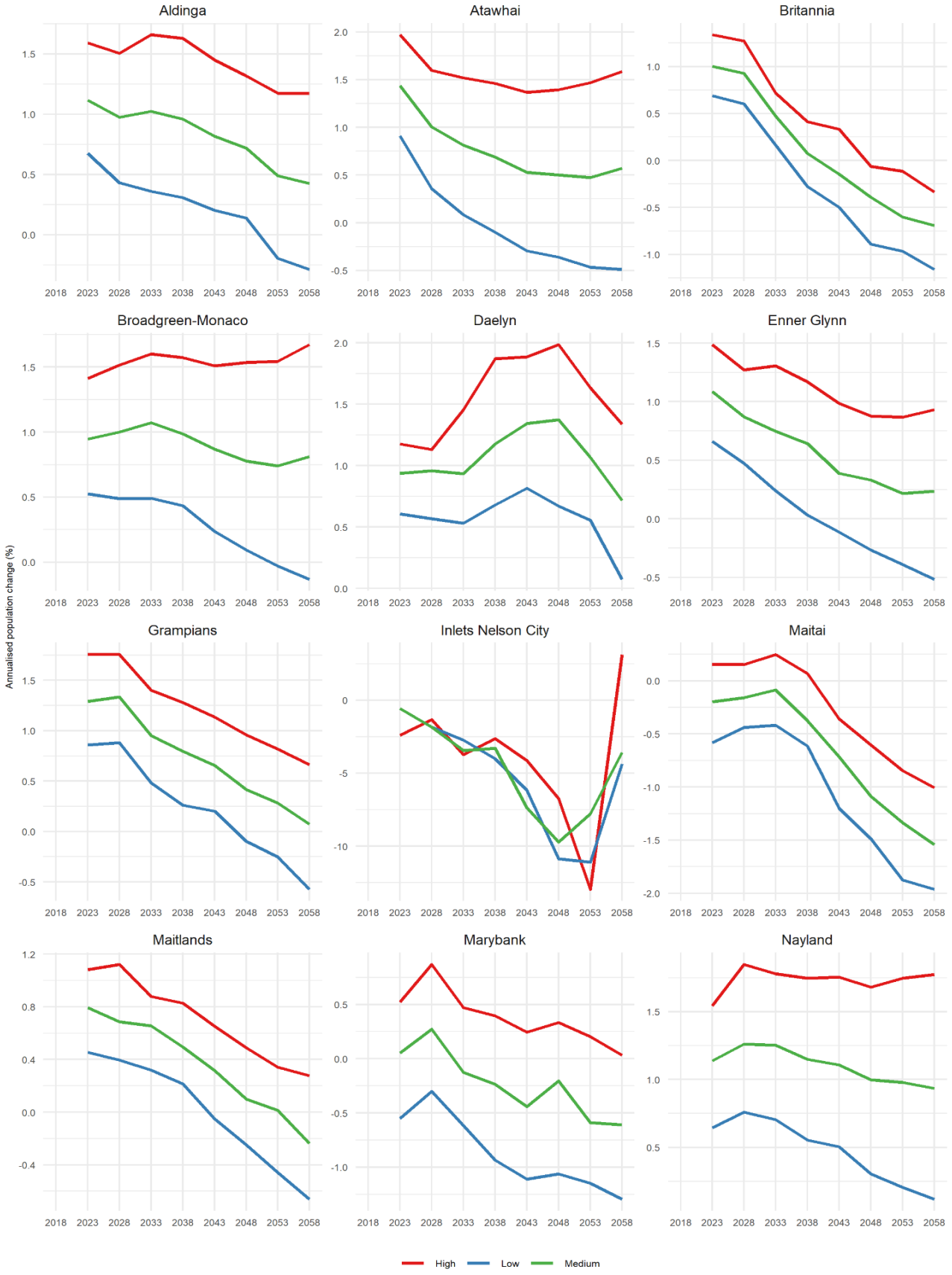

Figure S1b. Annualised population change, SA2 - Nelson, cont 2

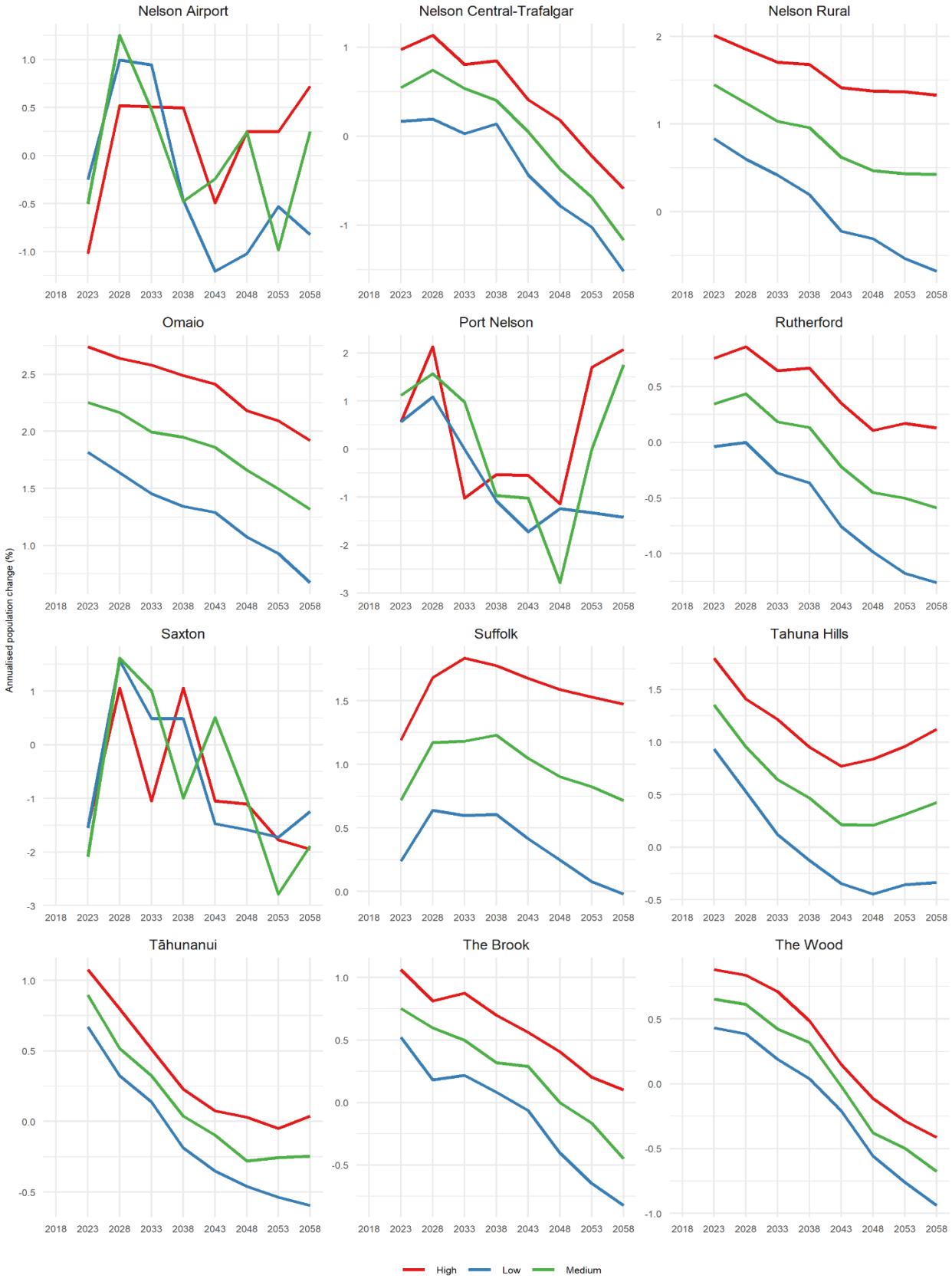

Figure S1b. Annualised population change, SA2 - Nelson, cont 3

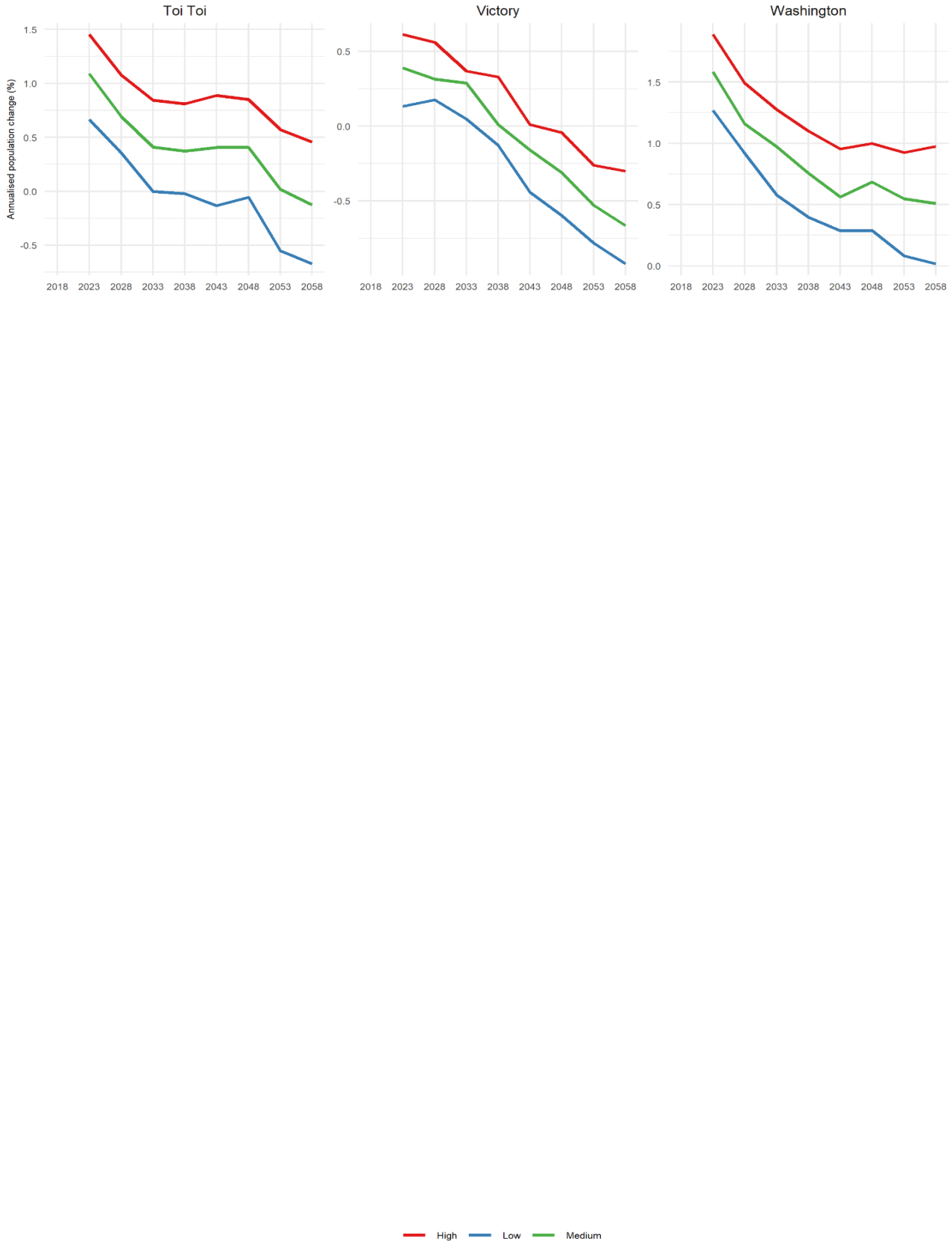

Figure S1c. Components of population change for Medium variant projections, by SA2 - Nelson City

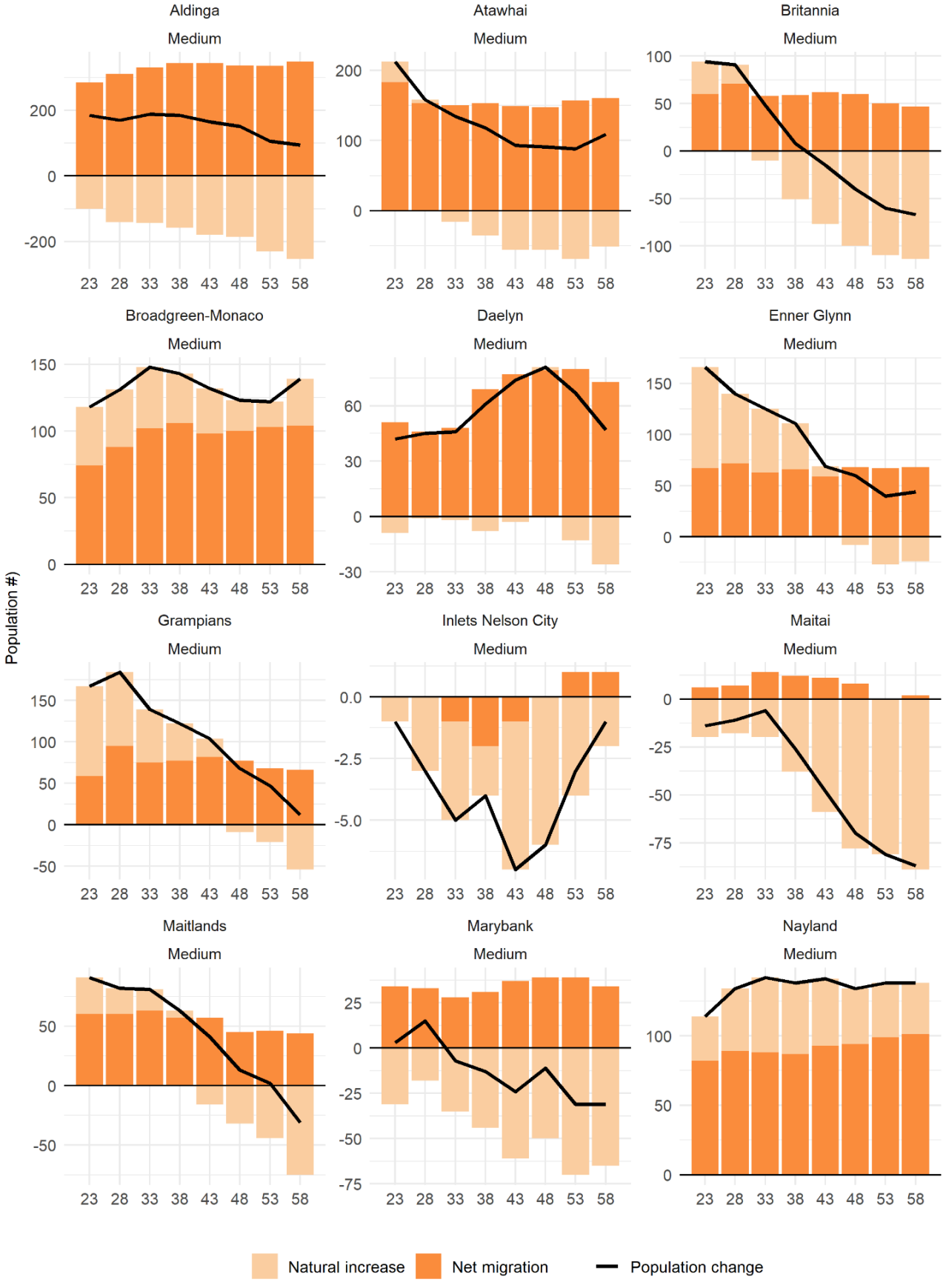

Figure S1c. Components of population change, SA2 - Nelson, cont 2

Figure S1c. Components of population change, SA2 - Nelson, cont 3

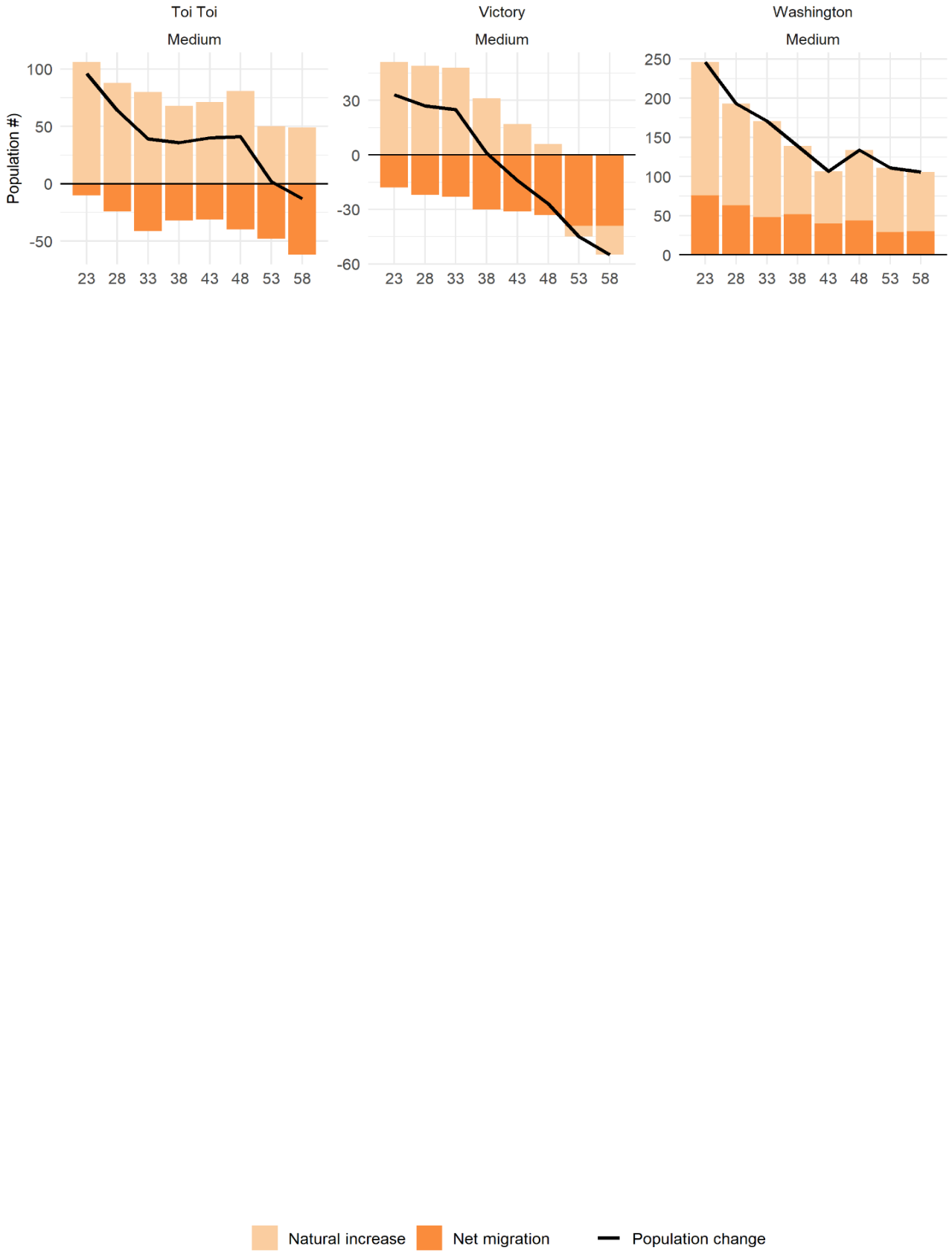

Figure S2. Total population by SA2 and variant, 2018-2058, Tasman District

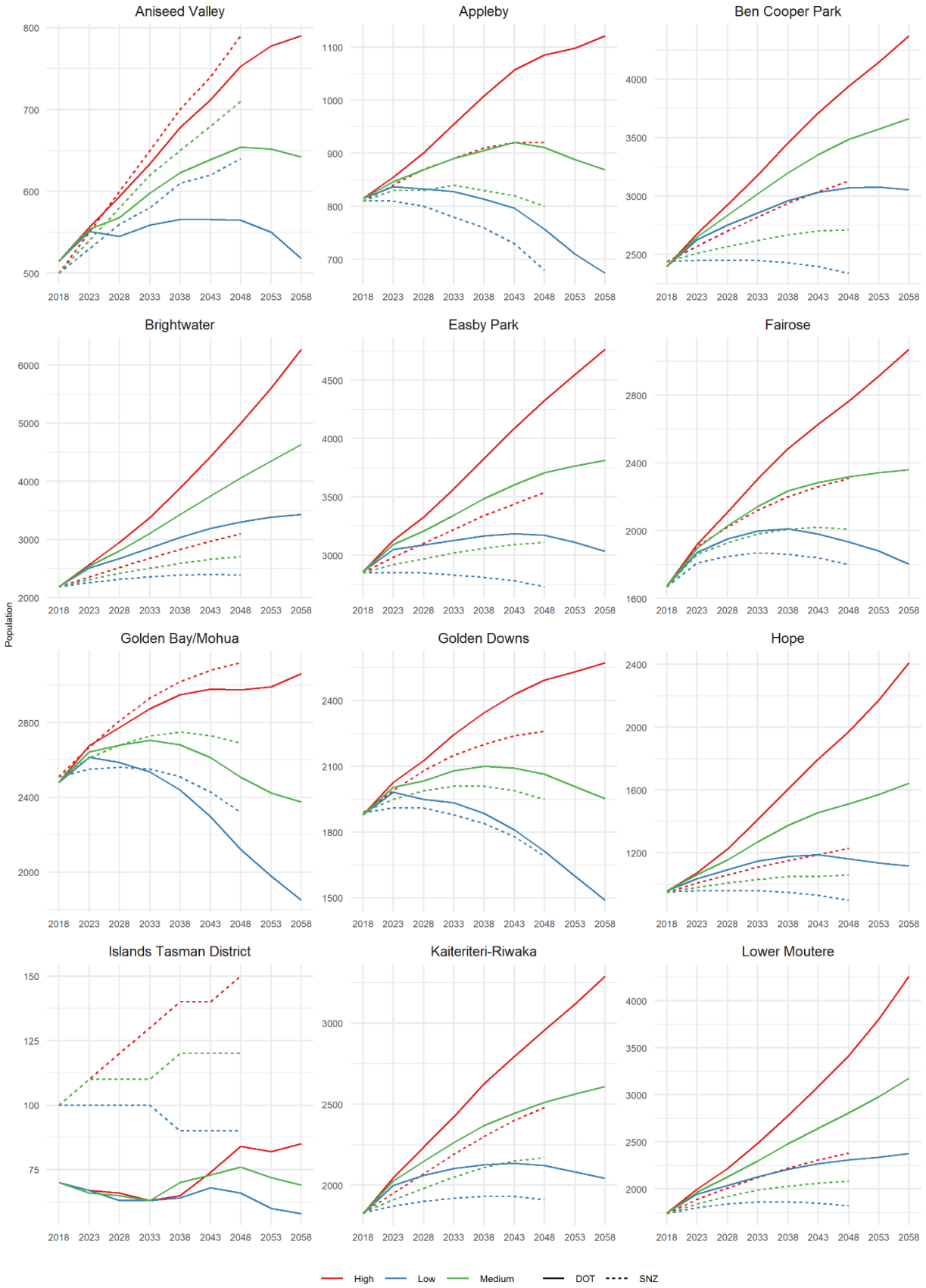

Figure S2. Total population, SA2 - Tasman, cont 2

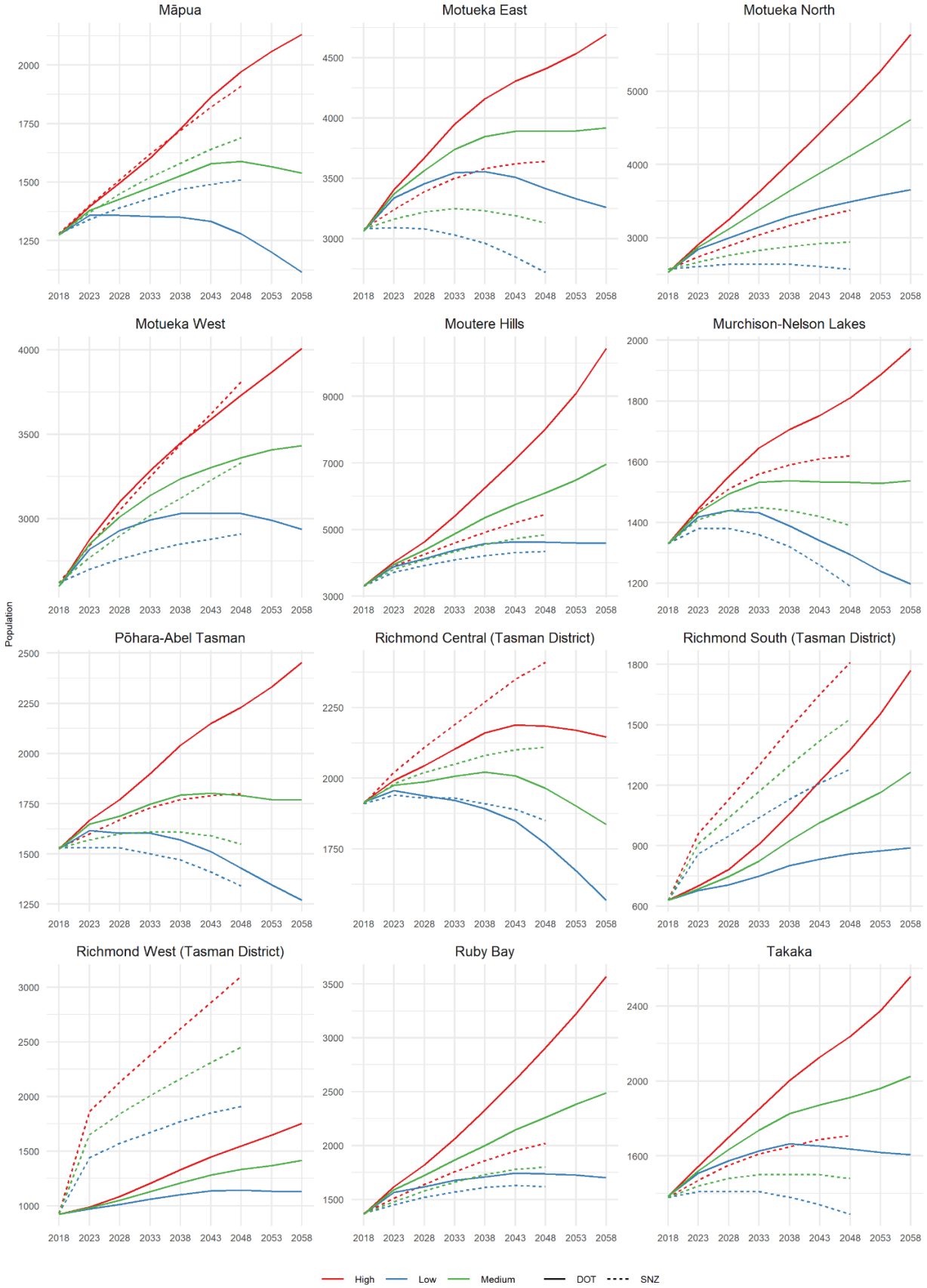

Figure S2. Total population, SA2 - Tasman, cont 3

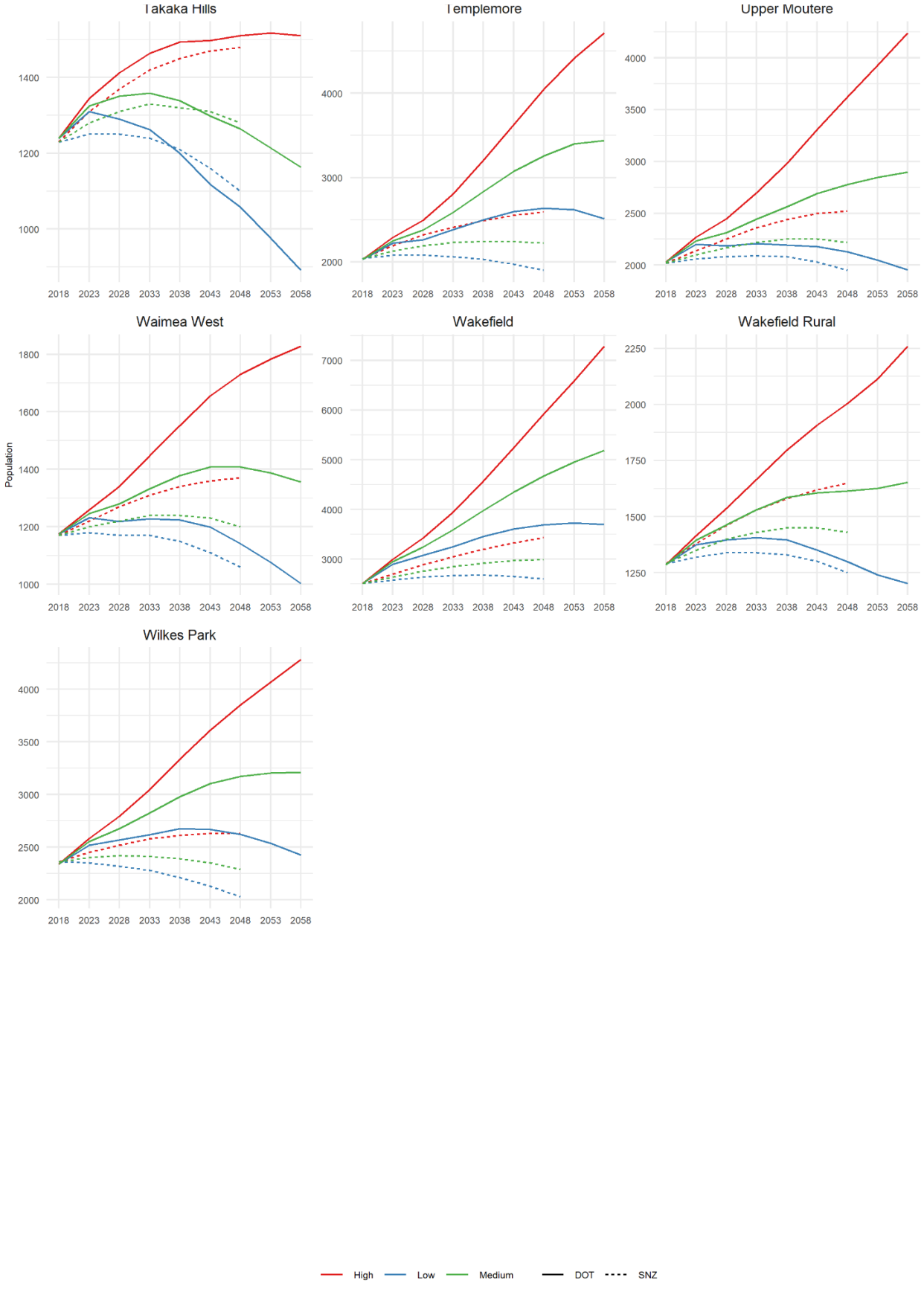

Figure S2b. Annualised population change for Medium variant projections, by SA2 - Tasman District

Figure S2b. Annualised population change, SA2 - Tasman, cont 2

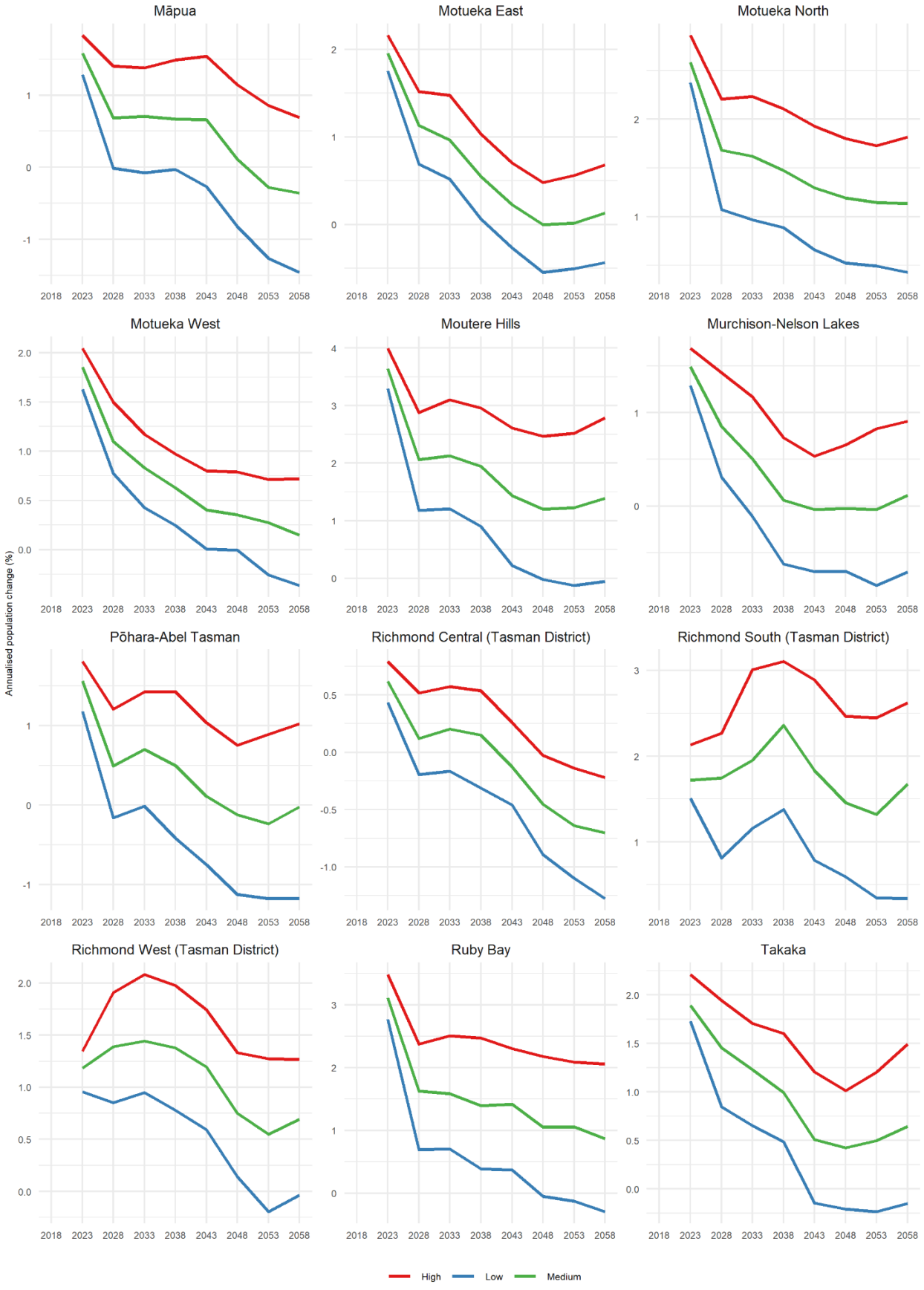

Figure S2b. Annualised population change, SA2 - Tasman, cont 3

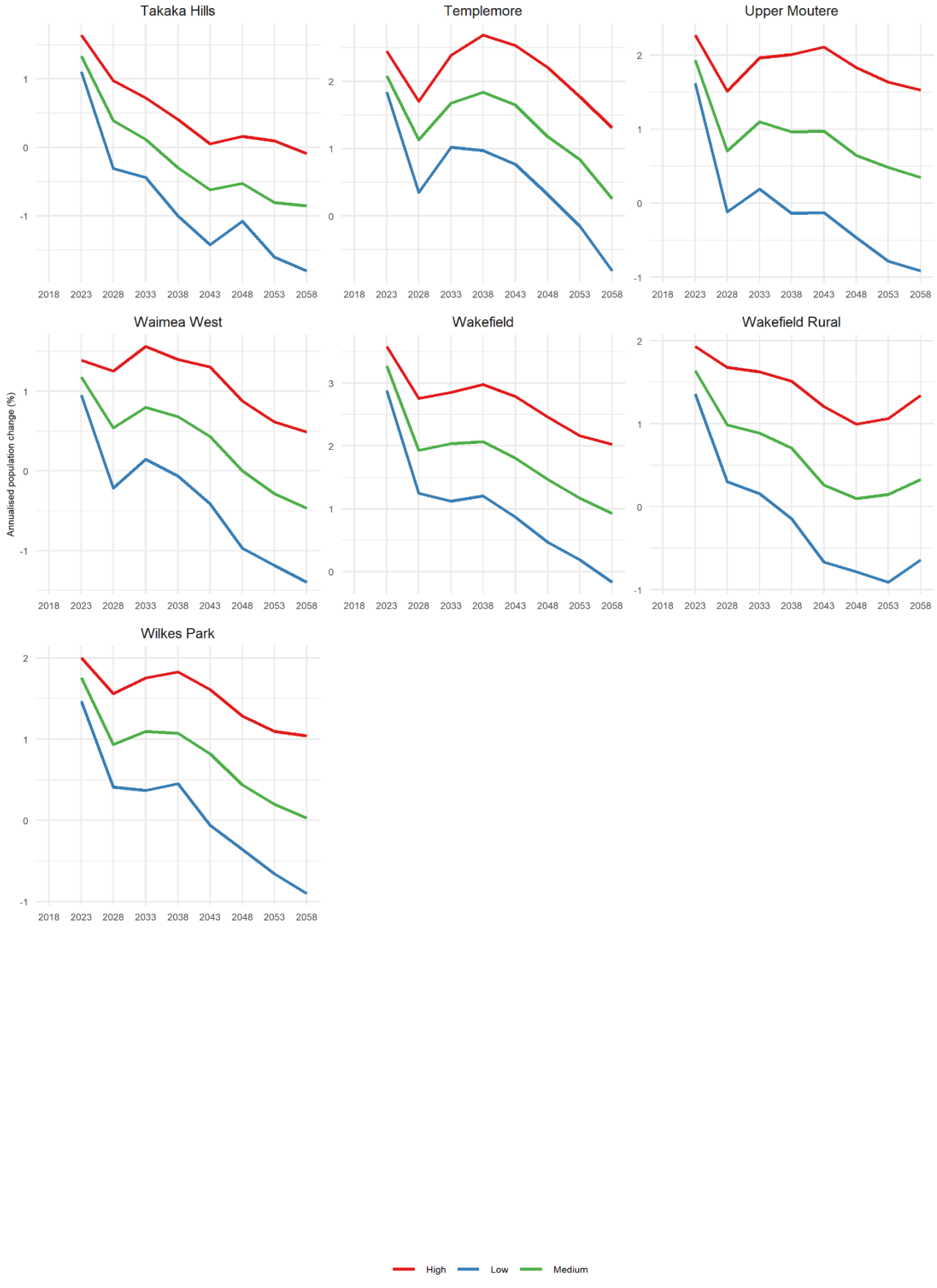

Figure S1c. Components of population change for Medium variant projections, by SA2 - Tasman District

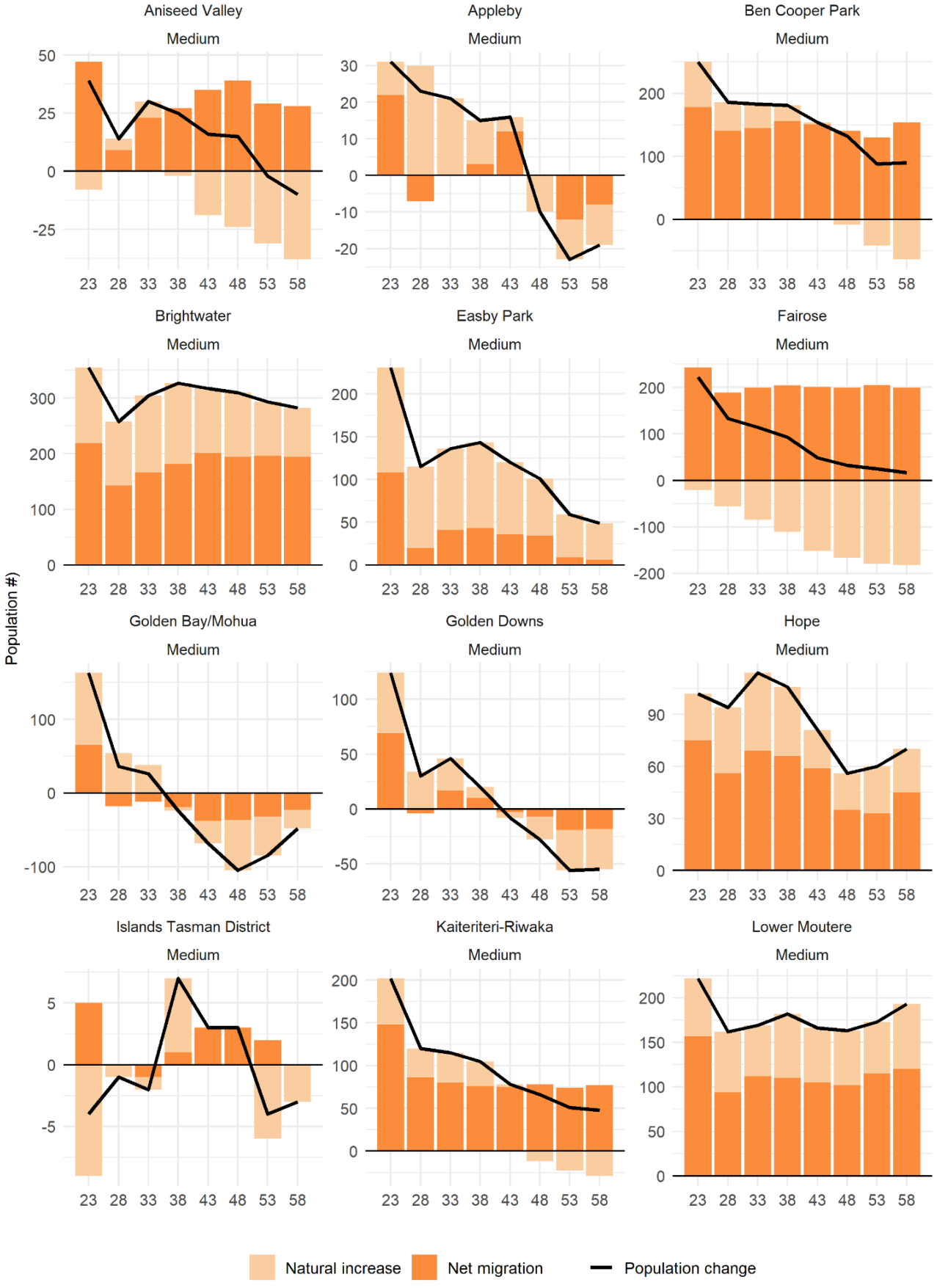

Figure S2c. Components of population change - SA2, Tasman, cont 2

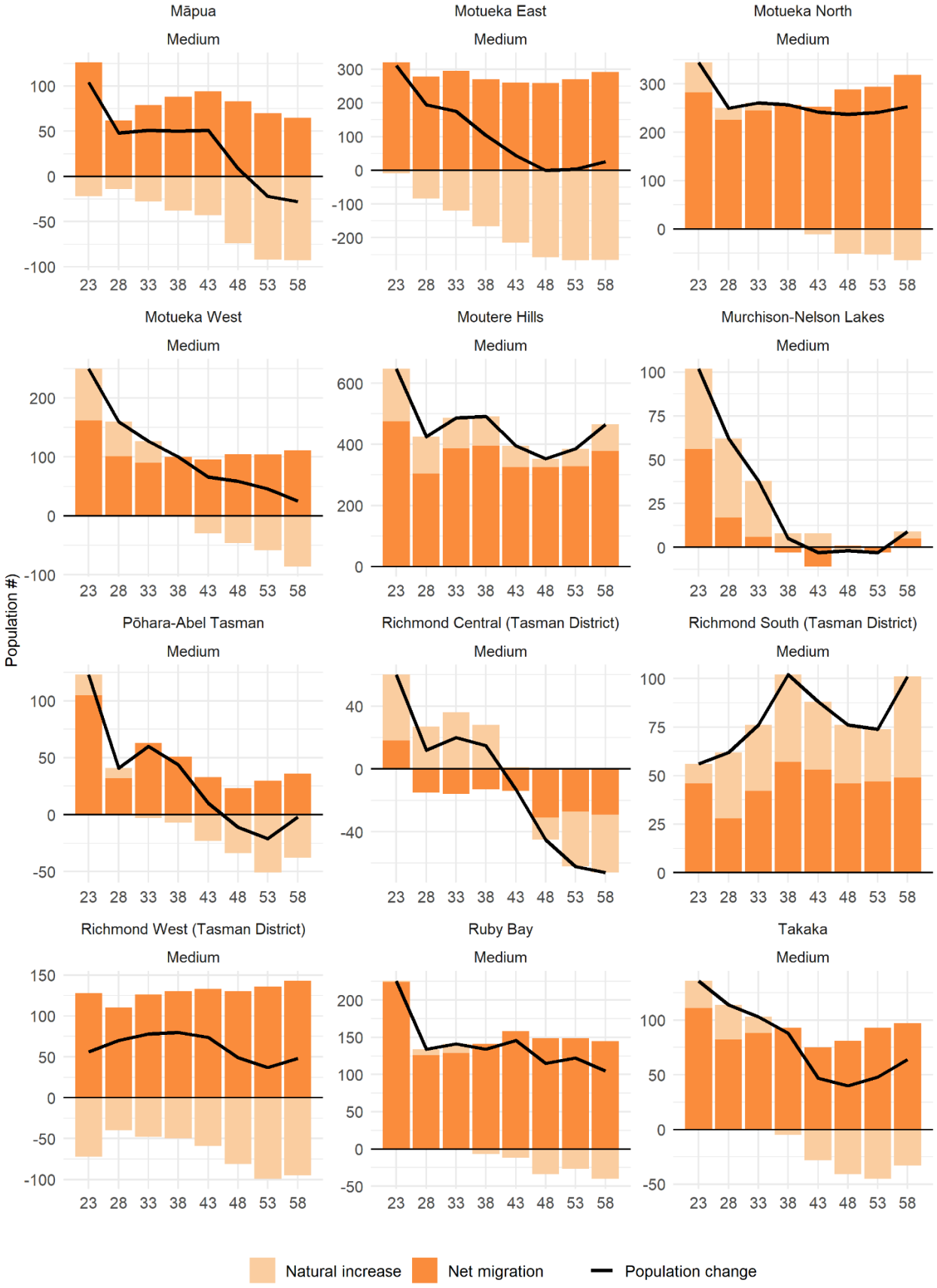

Figure S2c. Components of population change - SA2, Tasman, cont 3

Appendix 2: M.E. Housing Capacity Assessment to support the Nelson Tasman Housing and Business Development Capacity Assessment 2024

Housing Capacity Assessment to support the Nelson Tasman Housing and Business Development Capacity Assessment

Nelson City Council

January 2024

m.e consulting

Prepared for

Nelson City Council

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Version date	Comment
22/12/2023	First draft
26/01/2024	Responding to comments. Updating the greenfield capacity and infrastructure capacity assumptions to reflect further work by Nelson City Council. Amending short term capacity estimates to reflect the Operative NRMP.

Executive Summary

Like many parts of New Zealand, Nelson City has experienced considerable economic and population growth over the past two decades. The historic and anticipated growth together with intensifying housing pressures and shifts in the policy landscape means that Nelson City Council (NCC) must respond to manage growth pressures.

The assessment supports the Council's work in preparing the Nelson-Tasman Housing and Business Development Capacity Assessment 2024.[1] The report assesses the residential development capacity in the existing urban areas of Nelson over the short, medium and long term. In early 2023, Market Economics Ltd (M.E) worked with NCC to assess potential spatial structures associated with several intensification scenarios[2] and estimated the plan enabled capacity (PEC) of these scenarios. In this assessment, the preferred option[3] was analysed further by calculating that commercial feasibility capacity and expected sufficiency over the medium, and long term. The current and short term PEC is based on the Operative Nelson Resource Management Plan.

The assessment builds on the PEC work by evaluating the commercially feasible capacity and overlaying infrastructure capacity data to. The results are then compared against demand projections to shed light on the anticipated sufficiency positions.

In terms of process, the assessment starts the updated demand projections which forms the demand-side of the analysis. The supply-side is assessed using the PEC for the short, medium, and long term and then:

- Estimating the commercially feasible capacity at a parcel level by applying development costs (plus a margin) and comparing the results to potential sales prices. If the sales prices are greater than the development costs, then that development opportunity is treated as commercially feasible.
- Available infrastructure capacity, future infrastructure and greenfield capacity are combined with the feasibility analysis thereby providing an indication of the infrastructure ready capacity.
- Next, the demand levels are linked to the infrastructure capacity paying attention to the distribution of development opportunities, across typologies, and price points and affordability. This combination forms the realistically expected to be realised (RER) capacity and the sufficiency assessment draws on this.

The main points of the different steps follow.

<u>Demand</u>

The demand projections used in earlier National Policy Statement for Urban Development have been updated[4] and the resulting change in housing demand is integrated into the assessment. The demand outlook started with the population projections prepared for the Council by Dot Loves Data (DLD) and these were translated into household estimates. Using M.E's proprietary *Housing Demand Model* 2023 the household estimates were further refined to reflect attributes such as household types, income levels and so forth.

By 2053, the number of households in Nelson is projected to be in the order of 28,534 – up 27.9% from current levels. Nelson is expected to see growth over the short, medium, and long terms and the growth pattern suggests that demand for dwellings and the associated response will need to be front-loaded in the planning

[1] To ensure compliance with the National Policy Statement on Urban Development, 2020.
[2] Nelson City Housing Plan Change – Economic Assessment. 16 May 2023. Prepared for Nelson City Council by Market Economics.
[3] Scenario 3 reflects the proposed PC29 capacity but with the application of the 1% AEP event, 2130, SSP 8.5(H+) including VLM sea level rise scenario.
[4] Prepared for NCC by 'Dot Loves Data' (DLD) as reported in the March 2023 report titled: Population Projections 2018-2058 Results.

timeframe. The effective shift in housing demand is based on the DLD information[5] and allows for other housing segments (e.g., holiday homes). Adding the relevant NPS-UD competitiveness margins to the projections return the following demand levels:

• Short term	2023-2026, 3 years	800
• Medium term	2026-2033, 7 years	3,025
• Long term	2033-2053, 20 years	3,775
• **TOTAL**	**2023-2053, 30 years**	**7,595**

Importantly, beyond the headline numbers, household structures will also change reflecting demographic patterns such as ageing and changes in household income levels. The key features of the anticipated demand patterns are:

- Household types
  - The shift in the household mix towards smaller households is expected to continue. One person, and couple households feature strongly in the growth pattern over the next 30 years. This is expected to influence the housing market, and the typologies that would be required to accommodate residents even if existing patterns for these households show a preference for detached dwellings.
  - A third (36%) of housing demand is formed by family households (one and two parents, with children) and this share is expected to fall away marginally to 34% by 2053. In absolute terms, this broad group is expected to increase by 1,685 households. The demand profile across family households is anticipated to remained skewed towards detached dwellings.
- Household types by income bands
  - Household growth is skewed towards the lower income bands[6], and this will present affordability challenges. However, the low income cohorts include retirees, a portion of households that is traditionally low-income but with an asset base.
- Dwelling tenure (ownership)
  - Long term, there is a marginal increase in the share of dwellings owned without a mortgage. This shift occurs mostly in the ownership of detached dwellings.
  - Detached dwellings owned with a mortgage, shifts marginally downwards from 25.5%, to 23.6% by 2053. The share for attached dwellings remains constant at around 2% over the next 30 years.
  - By 2053, there will be an additional 2,600 households who own dwellings without a mortgage – likely to reflect long term homeownership.
  - The share of households who do not own their dwelling will remain stable, but the number will increase (+1,535).
  - Dwelling tenure is skewed towards detached dwellings, with current ownership patterns reflecting a preference for detached dwellings.

Capacity assessment and sufficiency

Assessing housing capacity deals with the current estate i.e., the existing dwellings[7], its attributes as well as plan enabled capacity. The current estate is part of the overall picture because households can purchase existing dwellings, and a portion of growth is accommodated through housing churn.

[5] The medium scenario is used.
[6] This includes households in the high age cohorts (e.g., retirees with low annual incomes but with assets).
[7] Base information about the existing estate is drawn from CoreLogic and StatsNZ data and is included in the report because if forms a useful addition to the knowledge base.

The PEC model estimates capacity across existing urban areas. Greenfield capacity has been calculated by Council and is excluded from the feasibility assessment but is considered as part of the sufficiency assessment. A range of typologies were considered, including – detached, attached, terrace and vertical apartments.

Commercially feasible capacity

The assessment reveals that there is existing feasible development capacity across Nelson. Currently, feasible capacity is estimated at 4,905 dwellings but this does not reflect infrastructure capacity or affordability considerations capacity, i.e., households' ability to purchase the housing product. These affordability considerations are factored into the assessment as part of realistically expected to be realised capacity and sufficiency assessment. Over time, the cost-price relationships change and, from a developer's perspective more capacity becomes possible. Over the short term (next 3 years), and additional 550 development opportunities will become feasible. This shift is associated with the Operative NRMP and over the medium to long term, PC29's PEC is used to assess commercially feasible capacity. This total feasible capacity continues to increase over the medium and long terms – to **29,578** over the medium term, and **48,747** by 2053. The large change is associated with the higher density capacity enabled by PC29.

There are feasible development options, but PC29 unlocks a significant level of additional capacity. This observation is based on the maximum change regardless of typology or development pathway (infill vs redevelopment). However, the bulk of the capacity is associated with the redevelopment pathway.

Looking at the infill and redevelopment pathways (excluding greenfield) in isolation shows that infill includes 1,560 detached dwelling opportunities and 65 attached dwelling opportunities. In contrast, *redevelopment* options are considerably greater – with 4,520 detached dwelling opportunities (redevelopment approach). Redeveloping sites for attached dwellings can deliver 1,575 additional dwellings. Currently, there are also 750 feasible development opportunities for vertically attached apartments.

The market is dynamic with both price and cost shifts in response to growth and pressures. These changes in land values and development costs mean that over the medium term (ten years) and long term (the subsequent 20 years):

- The scale of additional capacity that becomes feasible increases considerably.
- The overall contribution of infill opportunity to feasible capacity is less than that associated with redevelopment, suggesting that it will be comparatively more attractive to redevelop an entire site than to simply develop an infill opportunity.
- Infill capacity for detached dwelling is limited to the rest of the city (non-FDS locations). Similarly, infill opportunities associated with attached, terraced typologies, and vertical apartments become more prominent across the rest of the city.
- Over the long term (2033 to 2053), feasible capacity continues to increase with material and widespread increase in vertical apartment feasibility – 68% of the feasible capacity emerge over the long term.

Looking beyond typologies and locations to the distribution of feasible capacity across value bands[8] is important because it relates to affordability. Crucially, commercially feasible capacity is from a developer's perspective, and affordability is an important driver of development activity because it influences the market size (number of potential buyers). That is, if there is a mismatch between affordability and a developer's full cost, then a developer will treat the development option as high risk and unlikely to progress.

- With reference to ***infill*** feasible capacity:

[8] The value bands show the distribution of development opportunities across different $-value intervals ($100,000 bands) to illustrate the spread/distribution across the $-value spectrum.

- Current infill capacity for detached is concentrated between the $800,000 and $1m mark. Infill capacity for attached housing is concentrated in the $600,000-$700,000 mark.
- For the medium and long terms, infill capacity continues to increase. For detached dwellings the spread across the value bands widens with 41% of feasible capacity for detached dwellings falling in the $900,000 to $1.1m range. A second concentration (51%) of detached dwellings in the $1.4m-$1.7m band is expected.
- Development opportunities for attached dwellings via an infill pathway shows opportunities (62%)in the $600,000-$800,000 band and a further 27% in the $1.1m range.

- The ***redevelopment*** capacity pathway reveals that:
  - Redevelopment capacity is substantially greater than infill capacity.
  - The spread in price points across the typologies is also wider than that observed for infill capacity because there are more development opportunities because development costs are spread over more development opportunities (more units per site).
  - Currently, feasible capacity for detached dwelling is concentrated in the $500,000 to $700,000 bands – accounting for 81% of feasible capacity. Attached dwelling opportunities are concentrated in the $600,000 price band, with three quarters (79%) of capacity associated with this band.
  - The value bands with the largest share of feasible capacity are in the $800,000 to $1.1m range and these bands account for 83% of redevelopment options (for detached dwellings).
  - For attached dwellings, a large portion (55%) of development opportunities remain in the $600,000 value band pointing to a potential way to address housing affordability considerations.
  - The scale of vertical apartments that is feasible increases significantly over the medium and long terms, reflecting the effects of PC29 and shifting development economics – over the long term, the bulk of capacity in the $800,000 to $1m range.

Over time the weighted average price of feasible capacity increases[9]. For detached dwellings, the price points increase by between 61% and 65% over the long term regardless of the development pathway. For attached dwellings the relative shift is not as pronounced, coming in at 44%. As expected, the higher density development options return lower price points than the detached dwellings. **Over the long term, the price points associated with the higher density options – attached, terraced or vertical apartments – are on average 64% and 69% of detached dwellings.**

Infrastructure capacity

The Feasible Capacity must also be evaluated considering infrastructure capacity – just because a development opportunity is feasible does not mean it will be taken up by a developer. Infrastructure capacity also play a role in a developer's due diligence influencing the ability to deliver new housing products. NCC is constantly working through the infrastructure planning and associated processes and the infrastructure information should be treated as indicative. The infrastructure supported infrastructure capacities are estimated as follows:

• Currently feasible and supported by infrastructure	1,382
• Future feasible and supported by infrastructure	1,984
• Greenfield developments (assumed feasible)	4,429
• **Total**	**7,795**

[9] This reflects normal economic trends such as different growth rates for land values, building structure values, construction costs, and sales prices.

The current and future infrastructure capacity in the existing urban areas forms a binding constraint on the level of growth that can be accommodated via intensification. The relationship between greenfield capacity and intensification is set by these constraints, and the RER assessment uses the implied shares to allocate growth between greenfields and intensification. Additional work and further refinements will be needed to capture new information about infrastructure delivery schedules, spatial patterns, and any changes in network capacities.

Realistically expected to be realised capacity and sufficiency

The final part of the capacity assessment relates to the realistically expected to be realised capacity (RER) and sufficiency. This capacity is estimated by considering a range of factors such as affordability and typologies and is applied a city-wide level. **Crucially, RER is not a projection of development, and is instead meant to reflect at a high level the likelihood of development – it does not show the specific uptakes of individual development opportunities.**

The total demand (including margins) is estimated at 7,595 over thirty years and the feasible and infrastructure supported capacity is estimated at 7,795. These headline values suggest that there is sufficient capacity in Nelson to accommodate future growth. The analysis suggests that there is sufficient capacity over the short, medium and long term to accommodate growth when looked at from a total/aggregate level. Crucially, the sufficiency position is subject to the infrastructure capacity assumptions i.e., Council provided estimates and the associated assumptions), as well as the greenfield development capacities. Additional work to confirm these inputs would assist in lifting the robustness of the sufficiency assessment.

With reference to the sufficiency at a value band level, two observations are key:

- Low-income households will face affordability constraints meaning that they are unlikely to particate in the mainstream market and purchase new dwellings. Social housing providers and private market (rental) do provide for these households and there is sufficient capacity for there providers to participate in the market.
- At the top-end of the value bands (high value properties), there appears to be a mismatch between demand and supply, with demand observed for high value properties against the modelled outcome where portions of the capacity sits below where these households are demanding developments. This issue does not have a material impact on overall RER.

There is considerable feasible capacity based on the zoning provisions, with the feasible capacity for the short term (3 years) seventeen times anticipated demand levels. Over the long term, the magnitude increases with the effects of PC29 and the additional development opportunities it enables. The feasible capacity is 33-times estimated demand levels. The RER analysis for the short term shows that only a portion of the short term capacity is required and expected to be developed. Moving to the medium and long term shows that almost all the infrastructure ready and feasible capacity will be required in response to demand pressures.

The analysis considered the potential effects of a strong preference shift to attached dwellings. The shift is based on an increase in households' preference for higher density dwellings, specifically attached dwelling typologies. Affordability constraints remain an issue regardless of the preference shift[10] to higher density especially for lower income households.

[10] From around 20% of intensification demand, to 25% of intensification demand accommodated via attached dwellings.

Concluding remark

The analysis builds on earlier work by NCC and M.E around PC29. The PEC estimated in the earlier work forms the starting point for this assessment. The feasible capacity across Nelson for residential development will support the residential market to respond to housing demand over the short, medium and long terms. The feasible capacity is across typologies and value bands, providing choice to potential buyers.

The limited certainty around the infrastructure delivery timelines, funding and scale of supported capacity means that a set of assumption underpin parts of the sufficiency assessment. If this infrastructure investment occurs in a timely manner, then there will be enough capacity to accommodate growth. However, it is difficult to provide a definitive indication of whether this will be the case or not. We understand that this is further addressed by the Council in the Nelson Housing and Business Development Capacity Assessment 2024 report.

Contents

Figures

Tables

Appendices

1 Introduction

Located at the top of the South Island, Nelson City forms the largest city and commercial centre in this location. The city has experienced considerable economic and population growth over the past two decades. Plan Change 29 (PC29), also known as the Housing Plan Change, is currently underway and relates to accommodating future growth. This plan change is required to provide sufficient plan enabled capacity in appropriate locations within the urban environment, and forms part of Nelson City Council's work to comply with the National Policy Statement on Urban Development (NPS-UD[11]).

During early 2023, Market Economics Ltd (M.E) worked with council to assess different spatial intensification scenarios. The scenarios were assessed in terms of the total enabled capacity as well as the anticipated spatial patterns across the urban environment. The plan enabled capacities for the different scenarios were compared against high-level demand projections that reflected different dwelling typologies and housing preferences. The 2023 assessment was based on the plan enabled capacity.

Market Economics Ltd (M.E) were subsequently commissioned by the Nelson City Council (NCC) to expand the assessment to include commercial feasibility and a sufficiency assessment to reflect updated population projections. The purpose of this is to inform the Nelson Tasman Housing and Business Development Capacity Assessment 2024. In this report, M.E conveys the findings of the further assessment.

1.1 Project aim and objectives

The project aim is to assist the Nelson City Council with its Housing and Business Capacity Assessment by to the existing knowledge base around the residential development capacity in Nelson. This assessment expands the 2023 assessment of plan enabled capacity by adding commercial feasibility capacity and realistically expected to be realised (RER) capacity. In addition, the demand projections have also been updated based on new population projections that have been prepared for council. The assessment utilises the existing plan enabled capacity (PEC) modelling. The PEC work was not reviewed or refreshed. The following project objectives guided the modelling work and further assessment:

- To develop and apply a framework to estimate the commercial feasibility of the plan enabled capacity, and how it changes over time.
- To compare housing demand and capacity (over time) to form a view regarding the overall sufficiency and ability to meet the expected demand for housing over the short, medium, and long term.

1.2 Approach

This assessment was delivered using two separate work streams covering:

- the demand component, and
- the commercially feasible capacity (supply) assessment.

The demand component is based on population projections prepared for NCC by 'Dot Loves Data' (DLD) as reported in the March 2023 report titled: Population Projections 2018-2058 Results. The population and household projections are compared against StatsNZ's projections as well as M.E's proprietary demographic and household models which are considerably higher than StatsNZ's projections. NCC's M.E's Housing

[11] Ministry for the Environment, 2020. *National Policy Statement on Urban Development 2020,* July 2020.

Demand Model (2023)[12] is used to provide a breakdown of housing demand and typological considerations associated with the DLD projections. The model is calibrated to DLD population projections with the resulting household structures then calibrated to DLD's household estimates. The different components/attributes are estimated based on M.E's propriety Housing Demand Model and applied to the DLD totals. The following structural components are included:

- household types,
- dwelling types,
- dwelling tenure, and
- household incomes.

An important assumption underpinning the analysis is that one resident household equates to one dwelling i.e., it is assumed that one household occupies one dwelling. Therefore, future dwelling demand is based on the population and household growth patterns. At a finer level, demographic shifts and demand associated with non-residents, are integrated into the modelling.

However, the demand assessment's primary focus is on resident households across the district because resident households account for the largest share of private dwelling demand. Other demand segments e.g., holiday houses are included in the DLD data and the revealed relationships (e.g., relative shares) and patterns are used in the M.E modelling.

The capacity (supply) component considers the current and future residential estate. The housing supply situation is reviewed to identify the attributes of the current and future dwelling estates, including the value band (prices) per dwelling, and over time.

The plan enabled capacity (PEC) assessment, completed in early 2023, forms the basis and starting point for assessing the commercial feasibility. PEC is estimated at a parcel level and the commercial feasibility analysis is undertaken at the same spatial scale. The draft commercial feasibility results were reviewed by NCC staff from an infrastructure capacity perspective, with the estimated capacity adjusted to reflect any infrastructure constraints.

Additional technical details are presented throughout the report.

1.3 Information and data

An array of different data sources informed the analysis. These include:

- Population and household projections prepared by Dot Loves Data, and several StatsNZ datasets around population and households. Most of the StatsNZ data can be downloaded from sources such as Infoshare and Stat.NZ. These are supplemented using customised data requests that include StatsNZ's population growth assumptions.
- Rating datasets from NCC,
- District Plan and planning provisions,
- Custom data purchased from CoreLogic,
- Information from Land and Information New Zealand (LINZ), and
- In-house economic and demographic models and datasets.

[12] The Housing Demand Model is a proprietary model developed by Market Economics and it is used to identify and assess the current and projected size and the structure of demand for housing.

1.4 Caveats and Limitations

The work includes forward-looking statements and projections. It integrates M.E's own work with data from other third-parties and there are several caveats and limitations associated with the work. The limitations associated with third parties' work also apply. The main caveats and limitations are:

- The population and housing projections are based on the Dot Love Data projections as prepared for NCC. While we did not audit these, we note that the projections are significantly higher than the StatsNZ projections for Nelson. The implication of using high(er) projections is that dwelling demand levels used in estimating future sufficiency are aggressive and it is more likely that capacity deficits will emerge.
- Future affordability and demand across property value bands are based on known and observed trends. However, macro-economic trends such as interest rates, inflation, or the business cycle, are not reflected. Similarly, large disruptions like the recent Covid pandemic, are not reflected in the modelling.
- The input data is part of a dynamic landscape, constantly changing. The population projections and development costs are two examples of inputs that see such change. This means that some differences between reported and observed values can be expected.
- The assessment is designed to supplement the earlier PEC assessment completed for NCC and to provide supporting information for NCC's HBA in compliance with the NPS-UD. The NPS-UD includes both a housing and business capacity assessment, however, this assessment excludes business capacity.
- The work is limited by the availability of information that covers all the desired aspects. This includes elements like Māori households and the detailed aspects associated with this segment. The available data does not offer a spatial breakdown of attributes, but instead covers territorial areas at a total level. This introduced challenges, and these topics are considered using available information.
- NCC's information and data (e.g., rating information) were not reviewed or audited, and we have assumed that they are accurate. In addition, the assessment relied on some information pieces and sources with their own set of limitations and caveats. These also apply in this study. An area that would require additional analysis going forward is the long term (30 year) capacity associated with infrastructure as well as the degree to which the anticipated population/household growth materialises.
- The analysis draws on forward-looking data and forecasts about the macro-economic conditions for NZ and the economy in general. While important, the analysis does not look at the potential sensitivity of the local residential market to the macro-economic conditions.
- The post-Covid environment and recovery profile are not linear and pent-up demand is anticipated to continue to influence growth patterns, especially over the short term.
- The analysis is based on the recent data releases, but the property market is moving at considerable speed and therefore the data might be somewhat behind the market. There have been remarkable shifts in house prices, development costs as well as the cost of living. A conservative position relating to the rate of change is maintained meaning that some elements could be understated.
- Commercial areas are often reserved for exclusive business use. However, some higher density residential activities are enabled in commercial areas, but the commercial activity takes precedent, and the residential activity is ancillary. This means that the capacity and feasibility of the residential activity can only be considered if the commercial component is viable. The feasible capacity analysis did not consider the feasibility of the commercial component. In zones where residential activity is only permitted above ground level, it is assumed that the commercial activity on the ground floor is commercially viable.

Overall, the assessment is structured to provide a general understanding of the relationship between residential development capacity and demand, and the relationship between supply and demand. It uses a series of assumptions to enable the analysis, and, like all forward looking work, there is uncertainty.

1.5 Report Structure

The report consists of several sections and is structured as follows:

Section 2 describes the household demand profiles for Nelson. This section summarises the projections prepared by Dot Loves Data and covers the household demand projections. The section also provides baseline socio-demographic information around household types, income levels, age profile and tenure. The section reports the demand situation looking forward.

Section 3 starts with a short description of the current housing supply situation using the rating data. The section deals with housing affordability as well as recent development trends (consents) to illustrate the baseline trends.

In Section 4, the commercial feasibility analysis is presented. The section starts with an outline of the approach, relevant definitions, and the commercial feasibility capacity analysis. The section reports the realistically expected to be realised capacity and comments on sufficiency over the short, medium and long terms.

2 Housing Demand

The aim of this section is to set the scene for the housing assessment and outlines the housing demand for Nelson City. The section starts by presenting the population outlook based on work prepared for the Council by Dot Loves Data (DLD). These population projections were translated into household estimates and the socio-demographic attributes were linked to the estimates. This approach accounts for the expected growth in household numbers while capturing the dynamic effect of demographic changes such as ageing population. Both the total and the additional demand for housing are identified.

The analysis and structures are based on the M.E's proprietary *Housing Demand Model* 2023, which provides detail of current housing demand and projected future demand in Nelson City and the model has been calibrated to the DLD projecitons. The Model identifies the size and the structure of current housing demand[13], and for the projected future. The size of demand is presented in terms of numbers of households, allowing for one dwelling per household. The structure of demand is examined in terms of household types, dwelling types, dwelling tenure and household income. These elements form the basis for determining housing affordability. This Model is underpinned by analysis of district level data from the 2018 Census and projections of households in each segment. Based on the current and future household projections, demand is considered using different segments, including dwelling tenure (i.e., owned and not owned) and dwelling types (i.e. detached and attached). Such breakdown ensures that the reporting complies with the NPS-UD requirements by considering 'different groups in the community'.

The section starts by considering:

- The population and household base and the outlook for households
- The current housing demand in terms of household types, incomes, and ethnicities.
- The projected demand for housing allowing for demographic changes.

Note: The figures are rounded meaning that in some cases, the totals across multiple tables are similar, but not the same.

2.1 Base population and population outlook

The population outlook forms the basis for household estimates and is presented in tables covering three periods:

- Short-term 2023-2026 (3 years),
- Medium-term 2023-2033 (7 years), and
- Long-term 2023-2053 (20 years).

In 2023, DLD developed population projections for Nelson City Council (NCC) covering the period to 2058 to inform their long-term planning. Using StatsNZ's Estimated Resident Population (ERP) count as the base, the population projections are structed in five-year periods via a standard cohort component method. Three projection variants were produced: high, medium and low, using corresponding variations to the input assumptions such as fertility rates, life expectancy and migration rates. The projections are considerably higher than the StatNZ projection and the DLD medium projection is close to StatsNZ's high projection.

[13] This consistent with Policy 1, also 3.2(1), 3.10, HBA 3.19, 3.23(3).

DLD's medium projection for the short-, medium- and long-term inform the analysis in this report.

2.1.1 Population

The population growth outlook for Nelson City is presented in Table 2-1 and is based on the DLD work. In 2023, the Nelson population is estimated at between 54,340 and 56,479 people with the range showing the difference in the Low and High growth projections.

Table 2-1: Population Growth Outlook – Short, Medium and Long term

Year	2018	2023	2028	2033	2038	2043	2048	2053
High	52,660	56,479	60,436	64,347	68,234	71,866	75,402	78,927
Change in Population		3,819	3,957	3,911	3,887	3,632	3,536	3,525
% change		7.3%	7.0%	6.5%	6.0%	5.3%	4.9%	4.7%
Medium	52,660	55,406	58,064	60,419	62,509	64,159	65,470	66,485
Change in Population		2,746	2,658	2,355	2,090	1,650	1,311	1,015
% change		5.2%	4.8%	4.1%	3.5%	2.6%	2.0%	1.6%
Low	52,660	54,340	55,778	56,717	57,253	57,283	56,885	56,064
Change in Population		1,680	1,438	939	536	30	- 398	- 821
% change		3.2%	2.6%	1.7%	0.9%	0.1%	-0.7%	-1.4%

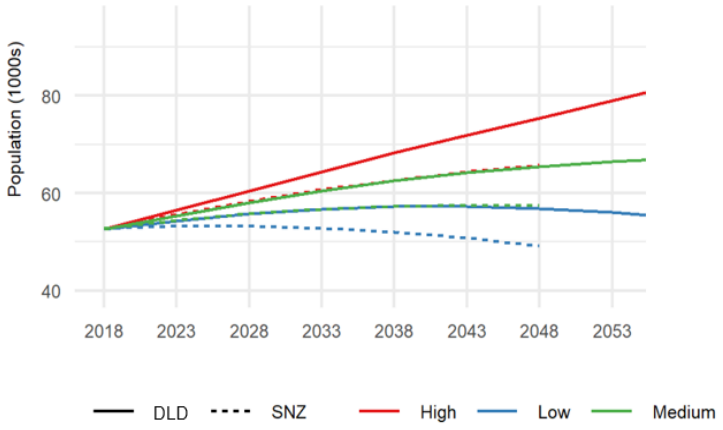
Source: DLD

Under the High outlook, the population is projected to increase by 22,448 people (39.7%), reaching 78,927 by 2053. In contrast, using the Medium projection shows a 20.0% increase in population this increase shows growth of an additional 11,079 people in the next 30 years. For the Low projection sees the population is still expected to only increase, lifting by 3.2% or 1,724 individuals.

Under the Medium projections annual growth rates range from 1.0% between 2018-2023 to 0.3% in 2048-2053. While average annual growth rates for the Medium projection remain positive across the entire period, the rate of change is projected to slow over time. Over the next 5 years, the Medium projection estimates suggest that Nelson's population will increase by 2,658. The next five years, between 2028 and 2033, will see the population increase by another 2,355 residents. Over the long term, (next 20 years to 2053), the population will jump by 6,066 people (10.0%), i.e., 1,517 additional people per five-year period but the change in these five year intervals is weighted to the earlier parts.

Compared to the Stats NZ's subnational population projections 2018-2048 (updated December 2022), DLD's projections are higher for each projection set. This primarily due to higher net migration assumptions employed by DLD as highlighted in the DLD-report [14] (see Figure 2-1). Total population numbers from the Medium projections are similar to those from StatsNZ's High projections whereas the DLD-Low projections are comparable to Stats NZ's Medium variant.

Figure 2-1: Comparison of population projections DLD vs. Stats NZ



[14] This is highlighted in the DLD report, and is a feature of their projection-approach.

2.2 Socio-demography profiles

The composition and structure of households are important drivers of housing demand. The socio-demographic attributes are discussed by linking attributes to household types and both income levels and age distribution are considered. This section shifts from using population as metric to households. Like the preceding section, DLD's medium projection series is used, i.e., the Medium growth pathway is employed. M.E understands that NCC uses the Medium projections as the preferred option because it reflects recent growth patterns and the shows a reasonable match with historic projection sets[15]. The medium set is also the one underpinning other Council workstreams, like the Long Term Plan.

The population projections were converted to households using M.E's in-house approach that has been used across several housing assessments for other councils throughout New Zealand. The resulting household structures were calibrated to the DLD household estimates.

2.2.1 Household Type and Income

In terms of household income levels, the available information suggests that there is a wide spread of household incomes with a noticeable concentration of households in the low(er) income cohort. Table 2-2 summarises the distribution of households along two dimensions:

- Household types (rows down the left), and
- Household income bands (column headings across the top).

Table 2-2: Households by type and income band - Nelson City, 2023

Household type	<$30,000	$30,000-$50,000	$50,000-$70,000	$70,0000-$100,000	$100,000-$120,000	$120,000-$150,000	$150,000+	Total
One-person household	3,275	1,210	655	350	65	15	55	5,625
Couple household	360	1,420	1,235	1,360	845	670	840	6,730
2 Parents, 1-2 Children	120	335	655	1,105	650	660	895	4,420
2 Parents, 3+ Children	40	140	210	305	165	130	275	1,265
One parent family	740	685	400	335	120	30	55	2,365
Multi-family household	-	25	40	90	50	110	235	550
Other Non-Family Household	140	285	295	285	150	105	115	1,375
Total household counts	4,675	4,100	3,490	3,830	2,045	1,720	2,470	22,315
One-person household	14.7%	5.4%	2.9%	1.6%	0.3%	0.1%	0.2%	25.2%
Couple household	1.6%	6.4%	5.5%	6.1%	3.8%	3.0%	3.8%	30.2%
2 Parents, 1-2 Children	0.5%	1.5%	2.9%	5.0%	2.9%	3.0%	4.0%	19.8%
2 Parents, 3+ Children	0.2%	0.6%	0.9%	1.4%	0.7%	0.6%	1.2%	5.7%
One parent family	3.3%	3.1%	1.8%	1.5%	0.5%	0.1%	0.2%	10.6%
Multi-family household	0.0%	0.1%	0.2%	0.4%	0.2%	0.5%	1.1%	2.5%
Other Non-Family Household	0.6%	1.3%	1.3%	1.3%	0.7%	0.5%	0.5%	6.2%
Total households (%)	21.0%	18.4%	15.6%	17.2%	9.2%	7.7%	11.1%	100.1%

Based on the DLD data, there are currently 21,315 households in Nelson. These households have different attributes in terms of the type of households and their income levels. As a collective group, households with parents and children form the biggest group, and includes:

- 2 Parents, 1-2 Children,
- 2 Parents, 3+ Children, and
- One parent family.

Combined, this group has 8,050 households, representing 36.1% of all households. This is followed by:

- couple households (6,730, 30.2%) and
- one-person households (5,625, 25.2%).

[15] This is the preferred option as per the Council staff.

Multi-family and other non-family households add another 550 (2.5%), and 1,375 (6.2%) households, respectively.

In terms of household size, small households make up a greater share of total households compared to larger households, as one person households and couple households represent 55.4% of all households in Nelson. This size distribution has implications for the dwelling typology going forward.

By income levels, just over one fifth (21.0%, or 4,675) of households earn incomes of $30,000 or less, and another 18.4% (4,100) earn between $30,000 and $50,000. Combined, this suggests that 39.3% of Nelson's households have incomes of $50,000 or less. This is higher than the national average of 34%. This highlights the relatively low-income levels of the local community.

At the other end of the spectrum, there are an estimated 2,470 households (11.1%) with incomes of $150,000 or higher. Another 16.8% of households fall in the $100,000-$150,000 income range. This suggests that 27.9% of households have incomes greater than $100,000 per year. The balance of households (32.8%) falls in the middle-income cohorts, i.e., between $50,000 and $100,000. This information is used in estimating future household affordability.

2.2.2 Household Type and Age

The second socio-demographic metric that is considered is age. There are limitations to reporting a household's age. For example, a household's age is defined based on the age of the reference person, and it does not reflect the age of other household members. Consequently, the age of the reference person is used as a proxy for household age. This analysis relies of Census data which is getting dated but in the absence of any new information, it is used.

Table 2-3 shows the age distribution of household types for Nelson City in 2023. The age distribution shows that smaller households are relatively overrepresented in the older age cohorts, especially the 65-year+ cohorts. More than half (56.8%) of one person households is aged 65 years or older.

Table 2-3: Households by type and age - Nelson City, 2023

Household Type	15-29	30-39	40-49	50-64	65-74	75+	Total
One-person household	130	315	440	1,520	1,400	1,810	5,615
Couple household	475	555	495	2,275	1,830	1,095	6,725
2 Parents, 1-2 Children	405	1,185	1,390	1,195	195	60	4,430
2 Parents, 3+ Children	80	520	525	130	5	-	1,260
One parent family	290	505	635	685	130	120	2,365
Multi-family household	70	95	100	210	75	-	550
Other Non-Family Household	315	190	175	390	160	140	1,370
Total household counts	1,765	3,365	3,760	6,405	3,795	3,225	22,315
One-person household	0.6%	1.4%	2.0%	6.8%	6.3%	8.1%	25.2%
Couple household	2.1%	2.5%	2.2%	10.2%	8.2%	4.9%	30.1%
2 Parents, 1-2 Children	1.8%	5.3%	6.2%	5.4%	0.9%	0.3%	19.9%
2 Parents, 3+ Children	0.4%	2.3%	2.4%	0.6%	0.0%	0.0%	5.6%
One parent family	1.3%	2.3%	2.8%	3.1%	0.6%	0.5%	10.6%
Multi-family household	0.3%	0.4%	0.4%	0.9%	0.3%	0.0%	2.5%
Other Non-Family Household	1.4%	0.9%	0.8%	1.7%	0.7%	0.6%	6.1%
Total households (%)	7.9%	15.1%	16.9%	28.7%	17.0%	14.5%	100.0%

Considering that over half of one person households earn less than $30,000 per year (see Table 2-2), the result highlights the linkages between the lower income levels and the elderly community. Another aspect to consider is that a portion of these households might be constrained in terms of incomes, but they might be on

a relatively strong position from an asset perspective (i.e., own a home), in other words, they are 'cash poor, but asset rich'.

Compared to one-person households, couple households have a slightly younger age profile with 43.5% aged 65 years or older and 33.8% falling within the 50–64-year cohort. That means 77.3% of the couple households are 50 years or older. This is consistent with the traditional household-life cycle where households become smaller as children age, and move out of the home. This pattern is also observed in the other categories where 84.0% of parent(s) with children household type are between 30 and 64 years old. Over time, families with children transition to 'empty nester' as the children leave home and the parents become 'couple-households' and singles later in life.

At a total, at city-wide level, the distribution of households is skewed towards the higher age cohorts, with more than half of households (60.5%) associated with over 50 years age cohort (for the reference person). In terms of the individual age cohorts:

- 50-64 and 65-74 are the largest at 29.1% and 17.0% of households.
- 15-29 and 30-39 are the smallest, representing 7.9% and 14.9% of households.
- Parent(s) with children-households are associated with the younger cohorts and are represented in the sub-49 age cohorts. A quarter of all households are classified as part of parent(s) with children household type that are in the sub-49-year cohorts. This segment is an important demand driver for larger dwelling types.

That said, affordability often becomes progressively more important for non-owner households in the middle and later years, as remaining lifetime earning potential reduces, and ability to access housing finance also reduces.

2.3 Household growth – Medium outlook

The outlook for household numbers is based on the DLD estimates and structured using StatsNZ's data. This dataset us NCC's preferred projections and is consistent with other work streams across Council. Using a marginally higher growth output is based on the belief that it is 'easier to slow down than to speed up' and to be aspirational in encouraging people to the Nelson area to live. We understand that the earlier work by the Councils has used growth rates that have tended to align with Stats NZ's High projections, and NCC is working to ensure that there is an adequate supply of housing in all instances irrespective of short-term volatility in the housing market. Therefore, the Medium growth projection from DLD is used to inform that base growth outlook, as it not only retains the a broad alignment relationship with Stats NZ's high estimate, but also reflects the expectation and recently observed patterns (at the Council level). The outlook is described in terms of the anticipated shift in household numbers and the changes in the demographic structures are outlined.

2.3.1 Household growth outlook

The focus of this section is on the outlook based on DLD's Medium projection. In Nelson City, it is estimated that there are 21,208 households in 2023. Based on DLD's projections (see Table 2-4), the total number of households are expected to continue to grow over the next 30 years.

Table 2-4: Households Medium growth outlook - Nelson City

Year	2023	2028	2033	2038	2043	2048	2053
DotLData -	*22,314*	*23,384*	*25,386*	*26,264*	*26,957*	*27,508*	*28,534*
Change in Household No.		1,070	2,002	878	693	551	1,026
% Change		4.8%	8.6%	3.5%	2.6%	2.0%	3.7%

Source: DLD information

The compounded growth rate over the long term is estimated at 0.87% p.a. from 2023 to 2053. But the rate of growth is expected to vary over time, declining over the long term. Under the medium projections, households will grow as follows:

- 2023 21,208,
- 2028 23,834,
- 2033 25,386,
- 2053 28,534.

By 2053, the number of households in Nelson is projected to be in the order of 28,534 – up 27.9% from current levels. The 5-year growth rate is expected to peak at 8.6% between 2033 and 2038. Over the short term, the annual growth in households is expected to be around 221 per year. The growth pattern suggests that demand for dwellings and the associated response will need to be front-loaded in the planning timeframe.

2.3.2 Demography and income shifts

Over time, the demographic attributes and patterns will change. The change is driven by internal forces, like the ageing population, as well as wider dynamics, like New Zealand's migration policies. Using the available projections and datasets from Stats NZ and DLD, the future profiles for Nelson's households are presented. The preceding section presented the overall change and this section supplements that by presenting the anticipated demographic shifts as well as the associated changes in household income levels.

Household types

The change in the households (by type) is shown in Table 2-5. This table shows the shifts using the medium pathway and over different time periods and Figure 2-2 shows the growth graphically.

Table 2-5: Medium growth outlook by household type - Nelson City

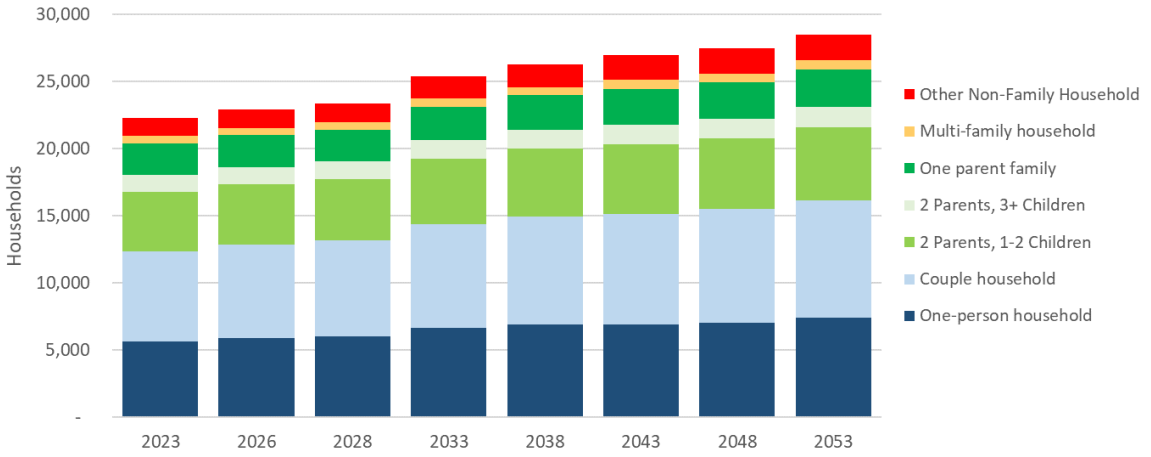
Household type	Current	Short-term			Medium-term			Long-term		
	2023	2026	2023-2026	2023-2026 (%)	2033	2023-2033	2023-2033 (%)	2053	2023-2053	2023-2053 (%)
One-person household	5,620	5,860	240	4.3%	6,615	995	17.7%	7,385	1,765	31.4%
Couple household	6,725	6,980	255	3.8%	7,775	1,050	15.6%	8,775	2,050	30.5%
2 Parents, 1-2 Children	4,420	4,520	100	2.3%	4,860	440	10.0%	5,440	1,020	23.1%
2 Parents, 3+ Children	1,260	1,290	30	2.4%	1,370	110	8.7%	1,490	230	18.3%
One parent family	2,365	2,365	-	0.0%	2,530	165	7.0%	2,800	435	18.4%
Multi-family household	550	550	-	0.0%	620	70	12.7%	705	155	28.2%
Other non-family household	1,375	1,395	20	1.5%	1,615	240	17.5%	1,935	560	40.7%
Total household counts	22,315	22,955	640	2.9%	25,385	3,070	13.8%	28,535	6,220	27.9%

Under the medium growth future, the shift in the household mix towards smaller households is expected to continue. One person, and couple households feature strongly in the growth pattern over the next 30 years. These two household types are expected to grow by 31.4% and 30.5%, respectively. Combined, these two household types dominate the growth profile.

Between 2023 and 2026, the number of households in Nelson are expected to grow by around 640 households. More than two thirds (77.3%) of this growth are expected in one-person and couple households. Over the medium and long term, the growth in smaller households is expected to moderate somewhat but remaining a key feature of the growth situation. In absolute terms, the shift in smaller households in the next 30 years is estimated at:

- 1,765 for one person households, and
- 2,050 for couple households.

Figure 2-2: Projected household growth by household type (Medium) – Nelson City



This points to a marked shift in the housing market, and the typologies that would be required to accommodate residents. The links to the ageing population and changing housing choices are underlined by these shifts.

Household types by income bands

As discussed in Section 2.2.1, households have varying income levels, and they can be grouped accordingly. Table 2-6 reports the change households by income bands between 2023 and 2053. Different timeframes are reported separately.

The analysis suggests that household growth over the short, medium, and long term is skewed towards the lower income bands. The three bands representing household incomes less than $70,000 feature prominently in the growth outlook for the next 30 years. These three household income bands account for:

- 75.0% of short-term growth,
- 68.2% of medium-term growth, and
- 67.7% of long-term growth.

Table 2-6: Medium growth outlook by income - Nelson City

Household type	Current	Short-term			Medium-term			Long-term		
	2023	2026	2023-2026	2023-2026 (%)	2033	2023-2033	2023-2033 (%)	2053	2023-2053	2023-2053 (%)
<$30,000	4,680	4,895	215	4.6%	5,580	900	19.2%	6,425	1,745	37.3%
$30,000-$50,000	4,100	4,275	175	4.3%	4,855	755	18.4%	5,640	1,540	37.6%
$50,000-$70,000	3,485	3,575	90	2.6%	3,925	440	12.6%	4,410	925	26.5%
$70,0000-$100,000	3,825	3,890	65	1.7%	4,195	370	9.7%	4,595	770	20.1%
$100,000-$120,000	2,045	2,075	30	1.5%	2,225	180	8.8%	2,430	385	18.8%
$120,000-$150,000	1,715	1,740	25	1.5%	1,875	160	9.3%	2,045	330	19.2%
$150,000+	2,465	2,505	40	1.6%	2,730	265	10.8%	2,985	520	21.1%
Total household counts	22,315	22,955	640	2.9%	25,385	3,070	13.8%	28,530	6,215	27.9%

Households with incomes less than $30,000 account for the highest growth, rising by 37.3% in the long term. This growth is equal to an increase of 1,745 households within the income band. A similar level of growth is seen in the income band between $30,000 and $50,000, with this band growing by 1,540 households over the long term, representing a 37.6% increase from 2023. The low income cohorts include retirees, a portion of households that is traditionally low-income but with an asset base.

2.4 Revealed household-dwelling patterns

This section presents the observed housing demand patterns to provide a foundation for estimating future demand (dwelling) patterns. The links between tenure, household types, and income levels can be used to inform future demand patterns. The observed relationships between these elements are held constant and then applied to the projected (future) households. This information is then used to provide an indication of future dwelling demand.

Available Census data (2018) is used to estimate some of the ratios regarding dwelling occupancy. Table 2-7 presents housing dwelling occupancy data for Nelson City for 2018. Is it important to note that according to StatsNZ's definitions of occupancy, unoccupied baches or holiday homes are defined as empty dwellings.

Table 2-7: Housing Supply Situation at Census 2018 - Nelson City

Census 2018	Private Dwellings	Private Dwellings %	NZ Average	Non-Private Dwellings	Non-Private Dwellings %	NZ Average	Total Dwellings	Total Dwellings %	NZ Average
Private Dwellings	21,297	100%		243	100%		21,540	100%	
Occupied	19,980	94%	89%	216	89%	66%	20,196	94%	89%
Unoccupied	1,230	6%	10%	21	9%	33%	1,251	6%	10%
Owners Away	732	3%	5%	12	5%	8%	744	3%	5%
Empty Dwelling	501	2%	5%	12	5%	25%	513	2%	5%
Under Construction	84	0%	1%	3	1%	1%	87	0%	1%
Usually Occupied	20,712	97%	94%	228	94%	74%	20,940	97%	94%
Usually Unoccupied	585	3%	6%	15	6%	26%	600	3%	6%
Compare Resident Households (2018)							19,821		
Difference (n)							-1,119		
Difference (%)							-5.3%		

Source: Census 2018

In 2018, there were approximately 21,540 dwellings in Nelson City. The majority (94%) of dwelling were recorded as occupied, 3% of dwellings indicated residents being temporarily absent and 2% were empty. Overall unoccupied dwellings account for around 6%. Compared to the national occupancy average (89%), Nelson city has a high proportion of occupied dwellings. Nelson City has a small share of non-private dwellings[16] (1.1%).

Studies by StatsNZ in some main cities have shown that commonly between 0.55 and 1.0% of dwellings are usually unoccupied, a smaller figure than the Census 2018 snapshot. The situation is complicated in cities where tourism is an important part of the economy. These cities usually have an above-average share of holiday homes (that are often operated via platforms like AirBnB).

2.4.1 Household Type and Tenure 2023

Dwelling ownership and dwelling type by household type for Nelson City in 2023 is presented in Table 2-8. Over two-thirds (69%) of the Nelson City's dwelling estate are owned, and approximately 31% of households are living in rented (not-owned) dwellings. In terms of typology, detached dwellings are the main (84%) housing preference, and attached dwelling account only 16% of the dwelling estate.

Ownership rates different between detached and attached dwellings. The ownership rate for detached dwellings is 74% which is greater than the overall ownership rate of 69%. The proportion of attached dwelling that are owned is significantly less with an ownership rate of 46%.

Couple households have the highest rate of ownership at 82%, followed by 2 parents with 1-2 children at 73%. Conversely, one-parent family and other non-family household types have the lowest ownership rates of 46%

[16] Non-private dwellings provide short or long-term communal or transitory type accommodation.

and 52%, respectively. The ownership structures align with the lifecycle model and older households are more likely than newly formed households to own their dwellings.

Table 2-8: Household Types and Dwelling Tenure – Nelson City, 2023

Household type	Owned or Trust			Not owned			Total		
	Detached	Attached	Total	Detached	Attached	Total	Detached	Attached	Total
One-person household	2,905	785	3,690	970	980	1,950	3,880	1,765	5,645
Couple household	5,070	495	5,570	835	355	1,195	5,910	855	6,760
2 Parents, 1-2 Children	3,050	185	3,235	985	215	1,195	4,030	400	4,430
2 Parents, 3+ Children	815	20	835	370	50	420	1,190	70	1,255
One parent family	970	125	1,095	1,005	270	1,275	1,975	395	2,370
Multi-family household	350	10	360	175	15	195	525	30	555
Other Non-Family Househ	705	15	720	590	70	660	1,295	85	1,380
Total household counts	13,870	1,635	15,505	4,930	1,960	6,890	18,800	3,595	22,395
One-person household	13%	4%	16%	4%	4%	9%	17%	8%	25%
Couple household	23%	2%	25%	4%	2%	5%	26%	4%	30%
2 Parents, 1-2 Children	14%	1%	14%	4%	1%	5%	18%	2%	20%
2 Parents, 3+ Children	4%	0%	4%	2%	0%	2%	5%	0%	6%
One parent family	4%	1%	5%	4%	1%	6%	9%	2%	11%
Multi-family household	2%	0%	2%	1%	0%	1%	2%	0%	2%
Other Non-Family Househ	3%	0%	3%	3%	0%	3%	6%	0%	6%
Total households (%)	61.9%	7.3%	69.2%	22.0%	8.8%	30.8%	83.9%	16.1%	100.0%

In terms of household types, attached dwellings are skewed towards smaller household types (one-person and couple households. Overall, approximately 21% of smaller household types are living in attached dwellings.

2.4.2 Household Income and Tenure 2023

Table 2-9 shows the distribution of household income bands by dwelling tenure for Nelson City in 2023. Overall, approximately one third (69%) of households own their dwelling.

Table 2-9: Household Income and Dwelling Tenure - Nelson City, 2023

Household type	Owned or Trust			Not owned			Total		
	Detached	Attached	Total	Detached	Attached	Total	Detached	Attached	Total
<$30,000	2,020	565	2,585	1,285	825	2,110	3,305	1,390	4,695
$30,000-$50,000	2,335	365	2,695	1,000	415	1,415	3,330	780	4,110
$50,000-$70,000	2,140	245	2,390	810	300	1,110	2,955	545	3,500
$70,0000-$100,000	2,625	155	2,780	835	225	1,055	3,460	380	3,840
$100,000-$120,000	1,495	125	1,620	355	75	430	1,850	200	2,050
$120,000-$150,000	1,295	85	1,380	285	55	345	1,585	140	1,725
$150,000+	1,955	100	2,055	360	65	425	2,320	160	2,480
Total household counts	13,870	1,635	15,505	4,930	1,960	6,890	18,800	3,595	22,395
<$30,000	9.0%	2.5%	11.5%	5.7%	3.7%	9.4%	14.8%	6.2%	21.0%
$30,000-$50,000	10.4%	1.6%	12.0%	4.5%	1.9%	6.3%	14.9%	3.5%	18.4%
$50,000-$70,000	9.6%	1.1%	10.7%	3.6%	1.3%	5.0%	13.2%	2.4%	15.6%
$70,0000-$100,000	11.7%	0.7%	12.4%	3.7%	1.0%	4.7%	15.4%	1.7%	17.1%
$100,000-$120,000	6.7%	0.6%	7.2%	1.6%	0.3%	1.9%	8.3%	0.9%	9.2%
$120,000-$150,000	5.8%	0.4%	6.2%	1.3%	0.2%	1.5%	7.1%	0.6%	7.7%
$150,000+	8.7%	0.4%	9.2%	1.6%	0.3%	1.9%	10.4%	0.7%	11.1%
Total households (%)	61.9%	7.3%	69.2%	22.0%	8.8%	30.8%	83.9%	16.1%	100.0%

The data indicates there is a positive relationship between household income band and the proportion of dwelling ownership. Households with incomes under $30,000 have the lowest ownership rate at 55%. The ownership proportion steadily increases as household income increases, with only 83% of households with incomes over $150,000 owning their dwelling. There is also a higher proportion of lower income households

living in attached dwellings. Around 30% of households with an income under $30,000 live in an attached dwelling, while the proportion for households with incomes over $150,000 is only 7%. As household income increases, the proportion of households living in attached dwellings decreases.

2.5 Future Housing Demand

The local population is dynamic, expected to grow in absolute terms and change in the relative composition. These shifts in size and mix are not linear over time. In turn, these shifts affect the level of demand over the short, medium, and long term. The shifts in household numbers and types inform the future demand for housing.

This section describes the future demand for housing based on the medium projections from DLD and calibrated using M.E's household type structure. Future demand is estimated by assuming that the revealed patterns at a household level remain constant into the future. That is, the change in the number of household types is expected to change over time, but the type of housing (dwellings) associated with the household types is kept constant. This means that we have allowed for changes in the mix of households to flow through to the demand estimates. Demand and income levels, by household segment, are assumed to persist for the assessment period. This provides a basis for assessing future affordability based on the assumed medium growth scenarios. Crucially, the future demand outlook (based on the medium scenario) does not seek to model macro-economic matters, like interest rates, exchange rates, migration policy, and so forth, beyond the established trends in household income levels.

As the future housing demand is based on the DLD medium scenario and the current housing preferences, the existing financial capabilities of different household segments are assumed to continue into the medium to long term. This means that dwelling ownership patterns, across different income cohorts are expected to remain broadly constant with current levels. This assumes that the decision to enter (or remain in) the housing market, made by households in different income bands, will remain stable. In relatively stable economies and communities like Nelson, these patterns have emerged over long periods and are an appropriate departure point (note: the capacity assessment captures a shift in housing preferences).

The section concludes with a discussion of the demand with a competitiveness margin included.

2.5.1 Demand outlook

The medium growth outlook forms the basis for the future demand assessment. The outlook is presented using several dimensions to illustrate the mix of demand looking forward. The outlook is based on historic data and observed patterns, and therefore does not account for a preference shift in housing typology (detached vs attached) – this is potential shift is included in Section 4. Table 2-10 summarises the results and shows future housing demand by dwelling type across:

- Dwelling tenure,
- Household type, and
- Income levels.

Table 2-10: Summary of Medium Future - Nelson City

Medium Growth	Current			Short-term			Medium-term			Long-term		
	2023			2026			2033			2053		
Dwelling Tenure	Detached	Attached	Total	Detached	Attached	Total	Detached	Attached	Total	Detached	Attached	Total
Owned with mortgage	5,680	490	6,170	5,765	500	6,265	6,210	535	6,745	6,740	580	7,320
Owned without mortgage	5,685	840	6,525	5,945	900	6,840	6,765	1,060	7,825	7,855	1,275	9,125
Owned by trust	2,450	295	2,745	2,545	310	2,855	2,865	355	3,220	3,265	415	3,680
Total owned or in trust	13,810	1,630	15,440	14,255	1,705	15,960	15,840	1,950	17,790	17,860	2,270	20,125
Not Owned	4,920	1,950	6,875	4,995	2,000	6,995	5,410	2,185	7,595	6,000	2,410	8,410
TOTAL	**18,735**	**3,580**	**22,315**	**19,250**	**3,705**	**22,955**	**21,250**	**4,135**	**25,385**	**23,855**	**4,680**	**28,535**
Household Type												
One-person household	3,860	1,760	5,620	4,025	1,835	5,860	4,540	2,075	6,615	5,060	2,325	7,385
Couple household	5,875	850	6,725	6,085	890	6,980	6,760	1,015	7,775	7,590	1,180	8,775
2 Parents, 1-2 Children	4,025	395	4,420	4,115	400	4,520	4,435	425	4,860	4,960	480	5,440
2 Parents, 3+ Children	1,190	70	1,260	1,220	70	1,290	1,295	75	1,370	1,410	80	1,490
One parent family	1,970	395	2,365	1,975	390	2,365	2,120	415	2,530	2,345	460	2,800
Multi-family household	520	30	550	525	30	550	585	35	620	670	35	705
Other Non-Family Household	1,290	85	1,375	1,310	85	1,395	1,515	100	1,615	1,815	120	1,935
TOTAL	**18,735**	**3,580**	**22,315**	**19,250**	**3,705**	**22,955**	**21,250**	**4,135**	**25,385**	**23,855**	**4,680**	**28,535**
Household Income												
<$30,000	3,295	1,385	4,680	3,440	1,455	4,895	3,910	1,670	5,580	4,500	1,925	6,425
$30,000-$50,000	3,320	775	4,100	3,465	805	4,275	3,945	910	4,855	4,600	1,040	5,640
$50,000-$70,000	2,945	540	3,485	3,020	555	3,575	3,325	600	3,925	3,745	665	4,410
$70,0000-$100,000	3,445	380	3,825	3,505	385	3,890	3,785	410	4,195	4,150	450	4,595
$100,000-$120,000	1,845	200	2,045	1,875	200	2,075	2,010	215	2,225	2,195	230	2,430
$120,000-$150,000	1,575	140	1,715	1,600	140	1,740	1,725	155	1,875	1,880	165	2,045
$150,000+	2,305	160	2,465	2,345	160	2,505	2,555	175	2,730	2,785	200	2,985
TOTAL	**18,735**	**3,580**	**22,315**	**19,250**	**3,705**	**22,955**	**21,250**	**4,135**	**25,385**	**23,855**	**4,680**	**28,535**
Share %												
Owned with mortgage	25.5%	2.2%	27.6%	25.1%	2.2%	27.3%	24.5%	2.1%	26.6%	23.6%	2.0%	25.7%
Owned without mortgage	25.5%	3.8%	29.2%	25.9%	3.9%	29.8%	26.6%	4.2%	30.8%	27.5%	4.5%	32.0%
Owned by trust	11.0%	1.3%	12.3%	11.1%	1.4%	12.4%	11.3%	1.4%	12.7%	11.4%	1.5%	12.9%
Total owned or in trust	61.9%	7.3%	69.2%	62.1%	7.4%	69.5%	62.4%	7.7%	70.1%	62.6%	8.0%	70.5%
Not Owned	22.0%	8.7%	30.8%	21.8%	8.7%	30.5%	21.3%	8.6%	29.9%	21.0%	8.4%	29.5%
TOTAL	**84.0%**	**16.0%**	**100.0%**	**83.9%**	**16.1%**	**100.0%**	**83.7%**	**16.3%**	**100.0%**	**83.6%**	**16.4%**	**100.0%**
One-person household	17.3%	7.9%	25.2%	17.5%	8.0%	25.5%	17.9%	8.2%	26.1%	17.7%	8.1%	25.9%
Couple household	26.3%	3.8%	30.1%	26.5%	3.9%	30.4%	26.6%	4.0%	30.6%	26.6%	4.1%	30.8%
2 Parents, 1-2 Children	18.0%	1.8%	19.8%	17.9%	1.7%	19.7%	17.5%	1.7%	19.1%	17.4%	1.7%	19.1%
2 Parents, 3+ Children	5.3%	0.3%	5.6%	5.3%	0.3%	5.6%	5.1%	0.3%	5.4%	4.9%	0.3%	5.2%
One parent family	8.8%	1.8%	10.6%	8.6%	1.7%	10.3%	8.4%	1.6%	10.0%	8.2%	1.6%	9.8%
Multi-family household	2.3%	0.1%	2.5%	2.3%	0.1%	2.4%	2.3%	0.1%	2.4%	2.3%	0.1%	2.5%
Other Non-Family Household	5.8%	0.4%	6.2%	5.7%	0.4%	6.1%	6.0%	0.4%	6.4%	6.4%	0.4%	6.8%
TOTAL	**84.0%**	**16.0%**	**100.0%**	**83.9%**	**16.1%**	**100.0%**	**83.7%**	**16.3%**	**100.0%**	**83.6%**	**16.4%**	**100.0%**
<$30,000	14.8%	6.2%	21.0%	15.0%	6.3%	21.3%	15.4%	6.6%	22.0%	15.8%	6.7%	22.5%
$30,000-$50,000	14.9%	3.5%	18.4%	15.1%	3.5%	18.6%	15.5%	3.6%	19.1%	16.1%	3.6%	19.8%
$50,000-$70,000	13.2%	2.4%	15.6%	13.2%	2.4%	15.6%	13.1%	2.4%	15.5%	13.1%	2.3%	15.5%
$70,0000-$100,000	15.4%	1.7%	17.1%	15.3%	1.7%	16.9%	14.9%	1.6%	16.5%	14.5%	1.6%	16.1%
$100,000-$120,000	8.3%	0.9%	9.2%	8.2%	0.9%	9.0%	7.9%	0.8%	8.8%	7.7%	0.8%	8.5%
$120,000-$150,000	7.1%	0.6%	7.7%	7.0%	0.6%	7.6%	6.8%	0.6%	7.4%	6.6%	0.6%	7.2%
$150,000+	10.3%	0.7%	11.0%	10.2%	0.7%	10.9%	10.1%	0.7%	10.8%	9.8%	0.7%	10.5%
TOTAL	**84.0%**	**16.0%**	**100.0%**	**83.9%**	**16.1%**	**100.0%**	**83.7%**	**16.3%**	**100.0%**	**83.6%**	**16.4%**	**100.0%**

Change in periods	2023-2026			2026-2033			2033-2053		
	Detached	Attached	Total	Detached	Attached	Total	Detached	Attached	Total
Owned with mortgage	85	10	95	445	35	480	530	45	575
Owned without mortgage	260	60	315	820	160	985	1,090	215	1,300
Owned by trust	95	15	110	320	45	365	400	60	460
Total owned or in trust	445	75	520	1,585	245	1,830	2,020	320	2,335
Not Owned	75	50	120	415	185	600	590	225	815
TOTAL	**515**	**125**	**640**	**2,000**	**430**	**2,430**	**2,605**	**545**	**3,150**
One-person household	165	75	240	515	240	755	520	250	770
Couple household	210	40	255	675	125	795	830	165	1,000
2 Parents, 1-2 Children	90	5	100	320	25	340	525	55	580
2 Parents, 3+ Children	30	0	30	75	5	80	115	5	120
One parent family	5	-5	0	145	25	165	225	45	270
Multi-family household	5	0	0	60	5	70	85	0	85
Other Non-Family Household	20	0	20	205	15	220	300	20	320
TOTAL	**515**	**125**	**640**	**2,000**	**430**	**2,430**	**2,605**	**545**	**3,150**
<$30,000	145	70	215	470	215	685	590	255	845
$30,000-$50,000	145	30	175	480	105	580	655	130	785
$50,000-$70,000	75	15	90	305	45	350	420	65	485
$70,0000-$100,000	60	5	65	280	25	305	365	40	400
$100,000-$120,000	30	0	30	135	15	150	185	15	205
$120,000-$150,000	25	0	25	125	15	135	155	10	170
$150,000+	40	0	40	210	15	225	230	25	255
TOTAL	**515**	**125**	**640**	**2,000**	**430**	**2,430**	**2,605**	**545**	**3,150**

As mentioned in section 2.3.1, Nelson City is expected to see growth over the short, medium, and long terms. Households[17] are expected to increase by 6,220 over the next three decades, with the growth expected to occur as follows:

- 2023 – 2026 640
- 2026 – 2033 2,430, and
- 2033 – 2053 3,150.

The relative demand for dwelling types (detached vs attached) is expected to remain skewed towards detached dwellings. Detached dwellings are expected to remain the dominant dwelling typology for Nelson compared to attached dwelling formats. Over the short, medium, and long term, around 80% of the expected dwelling demand is for detached dwellings. The number of attached dwellings increases over the long term, however, the overall share of attached dwellings as a proportion of total dwellings is marginal and remains relatively stable over time.

Over time, the relativity of demand for detached-attached dwellings is expected to change as follows:

- 2023-2026 0.24 attached dwelling demanded for every 1 detached dwelling demanded,
- 2026-2033 0.22 attached dwelling demanded for every 1 detached dwelling demanded, and
- 2033-2053 0.21 attached dwelling demanded for every 1 detached dwelling demanded.

Over the short, medium and long term, the demand patterns suggest that detached dwellings will remain the principal typology, but this does not reflect affordability considerations and households' potential trade-offs and potential shifts to attached typologies. The shift towards attached dwellings over the long term is marginal. As mentioned earlier, the demand outlooked is based on historic data and observed patterns associated with household patterns (not housing or building typology information[18]). The underlying patterns driving these movements are embedded in the SNZ datasets and the totals are calibrated to the DLD projections.

The ***tenure (ownership) of dwellings*** is included in the analysis and is differentiated in terms of the two dwelling types[19]. The not-owned category includes a small number of dwellings for which tenure is not specified.

The projections suggest:

- Over the long term there is a marginal increase in the share of dwellings owned without a mortgage. The current ownership rate is 29.2% and this is anticipated to increase to 32.0% by 2053. This shift occurs mostly in the ownership of detached dwellings, reflecting the shifting demographics. However, the proportional change in mortgage free and attached dwellings is slightly pronounced, which is expected to increase by more than half by 2053 (albeit off a low base).
- The share of detached dwellings owned with a mortgage shifts marginally downwards from a quarter of dwellings (25.5%) in 2023 to 23.6% by 2053. For attached dwellings the share remains constant at around 2% over the next 30 years. Again, this change is relative to a low base and the change in number terms is relatively small (+79 between 2023 and 2053).

[17] Note, this refers to households, and not dwellings. The potential demand from other segments is added at a later stage.
[18] Changing the planning provisions to enable greater uptake of attached typologies will change these patterns even if the rate of change is relatively slow.
[19] The distribution of dwelling tenure across dwelling types does not align with the dwelling type proportions of the other household characteristics. This is due ownership data and household type data not aligning. The modelled totals are pro-rated to match the estimated dwelling/household totals.

- The overall share of dwellings owned by trusts or not owned is expected to remain relatively stable, remaining rangebound between 12.3% and 12.9% of trusts and around 30.8% and 29.5% for not owned dwellings. The relative shifts associated with detached and attached dwellings are marginal.

By 2053, there will be an additional 2,600 households who own dwellings without a mortgage. It can be assumed that a significant proportion of this ownership group is representative of households who have previously held a mortgage which they have since paid off over the course of their prime earning years. The increase in the proportion of households under this ownership type reflects the long-term expectations for more households to be in the older age cohorts, closer to (in) retirement age. The proportion of households in this group living in attached dwellings also increases, which may further reflect smaller households (one person and couples) in the older age cohorts, shifting into dwellings which are generally smaller and better reflect their needs given their life stages.

Correspondingly, a decrease in the proportion of households who own with a mortgage is observed over the long term. Although this group increases by 1,150 households over the long term, the proportion falls from 27.6% currently, to 25.7% in 2053. These are likely representative of younger households such as first homeowners, who have not owned their dwelling for as long.

The share of households who do not own their dwelling is projected to remain relatively stable overtime. However, in absolute terms there is an increase of 1,535 household renting their accommodation. This shows the interplays between household growth and the rental market. But, the nature of the rental stock also changes over time, with a larger share of the newer rental stock coming in the attached group.

Overall, the dwelling tenure by dwelling type proportions show that households demand is skewed towards detached dwellings. The proportion of attached dwelling owned without a mortgage are projected to increase marginally over the long term. This may indicate a willingness of households to make trade-offs when purchasing dwellings to reflect affordability considerations.

In terms of the ***household types***, the demand patterns align with demographic shifts that manifest across all household types. Observations include:

- The shifts in household types show the increase in smaller households, specifically one person and couple households. Importantly, these household types include both young and aged individuals. One person and couple households currently reside in detached dwellings with 9,735 of these households in detached dwellings and 2,610 in attached dwellings. The current split between detached and attached of these households is a 79:21 percentage spilt. Over the long term, the split gradually shifts to 78:22 – moving towards the attached dwellings.
- Overall, 36% of housing demand is formed by family households (one and two parents, with children). Over time, this share is projected to decrease to 34% by 2053. However, in terms of the total numbers, the broad group is expected to increase by an additional 1,685 households. The demand profile across family households is anticipated to remained skewed towards detached dwellings. The proportion of family households living in attached dwelling remains stable over the next 30 years with a small change (+60) observed.
- Multi-family and non-family households are projected to experience growth of around 715 new households by 2053. The split between detached and attached dwelling is stable overtime with an overwhelming 94:6 split. This reflects the size (number of people) of these households and the preference for large(r) dwelling to accommodate household members.

A key observation is that the different household types show a distinct preference for detached dwellings. This pattern is linked to historic entrenched patterns of development associated with detached dwellings. However, a marginal shift is observed for smaller households towards attached dwellings overtime.

The dwelling demand outlook is also broken down into demand by ***household income levels***. Income level is an important determinant of housing affordability. Seven different cohorts are used to illustrate the outlook across income levels. In terms of household income levels, the projections suggest:

- Low income cohort households (<$30,000) are projected to grow the most, with an additional 1,745 households by 2053. This growth means that these households will make up a larger share of all households – increasing from 21.0% of all households to 22.5% by 2053.
- The next income cohort ($30,000-$50,000) will see the second highest growth, adding 1,540 households by 2053; the share of all households in this income cohort increases from 18.4% to 19.8%. This means that by 2053, nearly 42.3% of the households will have incomes less than $50,000, up from the current 39.3%.
- The proportion of households at the upper end (+$100,000) of the income spectrum are expected to decline overtime from 27.9% currently to 26.1%. Nevertheless, the number of households with incomes above $100,000 is expected to increase by 1,235 over the next 30 years.
- The remaining middle-income households, with incomes between $50,000 and $100,000, remain relatively stable in terms of proportions of total households, decreasing from 32.8% to 31.6%. Again, the number of households within these two bands increases, with an additional 1,695 households by 2053.

These projections do not necessarily mean, that households are poorer, but it points to a relative shift in income levels. **Importantly, the ageing population is seeing a portion of households recorded in the low-income groups. Therefore, care is needed when interpreting the shift in households in the low-income cohorts.**

2.5.2 Competitiveness Margin

Clause 3.22 of the NPS-UD requires that a competitiveness margin of be added to demand. This margin is 20% in the short and medium term, and 15% in the long term. The purpose of the margin is to support choice and competitiveness in housing and business land markets by ensuring that Council enables at least 15-20% more capacity than required to meet demand.

It is important to differentiate between providing for housing capacity – executed through planning tools to ensure sufficient plan-enabled and infrastructure-serviced land supply – and delivering that housing capacity. The preceding household projections and demand analysis identifies the number of dwellings expected to be required to accommodate Nelson City's future population. Using forward looking projections, Councils are required to provide for sufficient plan-enabled and infrastructure serviced land to accommodate that growth.

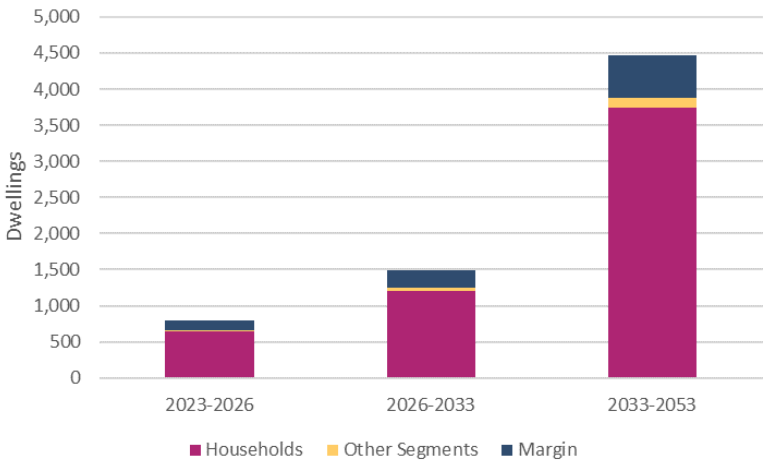
Figure 2-3 show the demand outlook (for dwellings) at an aggregate level, across the different timeframes for Nelson City using a medium growth outlook. The competitiveness margin adds a sizable additional component to the overall dwelling demand (Figure 2-3).

In addition to the household driven shifts, the effects of the wider market must be considered because activities like holiday homes also consume/occupy dwellings. Based on the DLD information, these segments account for 3.5% (additional demand). Demand increases to the effective level when the competitiveness margins are added:

- Short term 2023-2026 800,
- Medium term 2026-2033 3,025
- Long term 2033-2053 3,775
- **TOTAL 2023-2053 7,595.**

The assessment of future housing demand is based largely on a "Business as Usual" or BAU base case, in which the current housing preferences and capabilities for each socio-demographic group are assumed to continue into the medium and long term. That means that dwelling ownership levels for each household segment will be broadly similar over the medium and long terms. The BAU future assumes that households with those characteristics in 10- or 30-years' time will have the same ownership patterns. For Nelson City, which is a relatively stable economy, where current patterns have developed over a long period, the BAU assumption is generally the appropriate starting point.

Figure 2-3: Nelson City demand outlook and competitiveness margin (medium)



2.6 Concluding remarks

The analysis has shown that the population growth outlook for Nelson City is positive over the short, medium and long terms. A range of factors such as the ageing population and increase in the size of the population (in absolute terms) are expected to change the nature of demand for dwellings looking forward. Importantly, the growth projects show the change based on the preferred growth scenario as identified by Council, as prepared by DLD.

3 Housing Supply

This section examines the residential property estate of Nelson City, to identify the current dwelling composition and property values. The analysis is informed by a review of consent data, development trends and shifts in land values. These trends and shifts provide a way to develop a view about the housing estate in the future. This section reports estimates derived using the M.E *Housing Supply Model.* The model is used to identify the size and nature of the current and future dwelling estates, including dwelling typology and values. It provides the supply-side platform for the Housing Affordability assessment. The model reflects different parts:

- The current estate,
- The expected new estate, i.e., development activity and new additions over the short medium and long terms,
- The total (estimated) future estate.

This section relies heavily on information purchased from CoreLogic. It uses property attributes like typology, size, sales value, and location to segment the property estimate. The data draws on recent property sales (and value) data and is then structured in to enable an assessment of the distribution (of properties) across value bands.

3.1 Current Dwelling Estate

Currently (2023) Nelson City has a total of 23,000 residential properties in total as indicated by the *Housing Supply Model*. This section draws on historic data (Core Logic, June 2020) to describe the structure of the current estate. The analysis also shows the current housing price structure by value band. Note the property descriptions differ from those used by StatsNZ and does not align directly with the rating data.

In 2020, the CoreLogic data indicates that there were 21,970 residential properties in Nelson City. These can be broken down into residential dwelling types and structured to show the distribution of dwellings by value band.

The overall value of the property estate is estimated at $13.2bn, broken down to:

- Land value $6.3bn (48%)
- Value of improvements $6.9bn (52%).

Table 3-1 above presents the mean values for land values (LV), value of improvements (VoI) and capital values and across the portfolio, the mean values (excluding the lifestyle properties) are:

- Land value $283,000,
- Value of Improvement $313,000, and
- Capital Value $596,000.

It is important to note the difference in the mean values of the residential type and the lifestyle properties. The lifestyle properties have a larger LV component (due to larger area), but the VoI is also considerably higher. This higher level shows not only the residence, but also other building and improvements. Therefore, some caution is needed when using the 'total' value.

The righthand columns of the Table 3-1 compares the Nelson City estate with the NZ equivalent. The mean LV for Nelson City is indicatively lower than the NZ equivalents, with the residential sub-total showing a 72% rate. In comparison, the VoI across the main residential types are mostly higher except for the residential

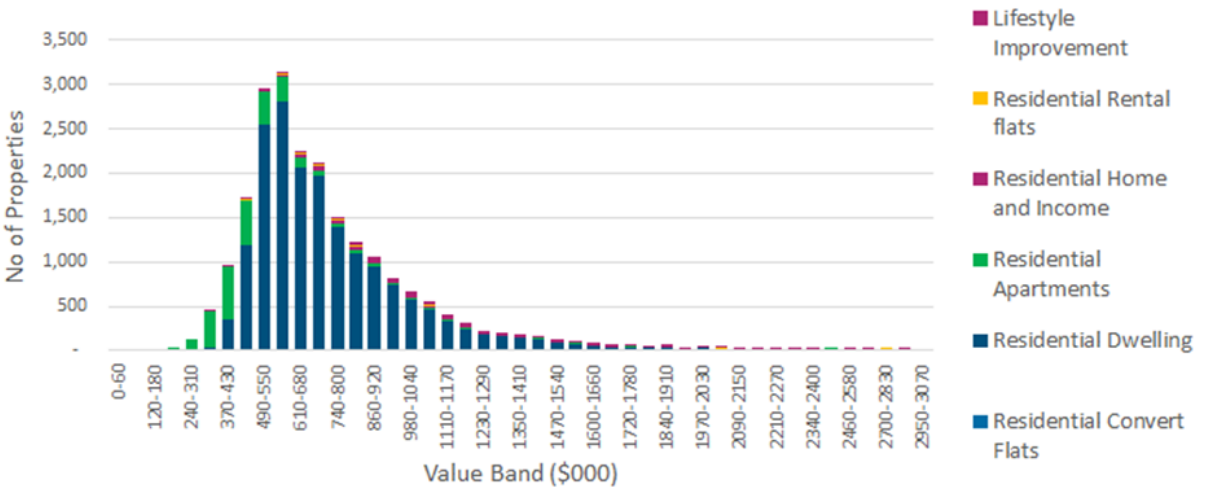
apartments segment which are lower relative to NZ. Nelson City Capital Values (LV plus VoI) are generally lower than the NZ levels. Importantly these relativities compare the mean values not the value of comparable properties. For the main residential types, Nelson City's values are 66% to 96% of the national figure. For Lifestyle properties, Nelson's estate is slightly higher than the New Zealand average values, +2%.

Table 3-1: Nelson City Residential Property Estate (2020)

Property Category	Count	Land Value ($m)	Improved Value ($m)	Capital Value ($m)	Mean LV ($000)	Mean IV ($000)	Mean CV ($000)	LV as % CV	Mean LV as % NZ	Mean IV as % NZ	Mean CV as % NZ
Residential Dwelling	17,820	$5,194	$5,714	$10,908	$291	$321	$612	48%	72%	112%	88%
Residential Home & Income	440	$163	$207	$370	$371	$471	$842	44%	57%	113%	78%
Residential Apartments	2,850	$593	$645	$1,238	$208	$226	$435	48%	70%	83%	76%
Residential Rental flats	180	$68	$89	$157	$376	$494	$870	43%	76%	120%	96%
Residential Convert Flats	130	$42	$41	$83	$323	$316	$639	51%	49%	103%	66%
Sub-total Residential	21,420	$6,060	$6,697	$12,757	$283	$313	$596	48%	72%	109%	87%
Lifestyle Improvement	550	$253	$244	$498	$461	$444	$905	51%	102%	102%	102%
Total	21,970	$6,314	$6,941	$13,255	$287	$316	$603	48%	72%	105%	86%
Source: Calculations based on CoreLogic											

Figure 3-1 shows the distribution of properties across value bands and for the main types. These have been adjusted to current prices.

Figure 3-1: Residential Real Estate by type and value band (adjusted to current prices), Nelson City



Note: The figure shows the 2020 estate, expressed in 2023 $-terms.

The main points are:

- The bulk (55%) of properties are concentrated around the $490,000-$740,000 band.
- For residential dwellings the distribution covers a wider range compared other dwelling types. Around three quarters (78%) of residential dwellings are in the $430,000-$920,000 bands. The balance is mostly in the bands over the $920,000-mark and around 2% is below $430,000.

- The value distribution for apartments is lower than that of residential dwellings. Eighty-five per cent of apartments are valued in the sub-$610,000 mark, however, apartments account for only 13% of the dwellings stock.
- Compared to apartments, lifestyle properties are distributed towards the higher value bands. Approximately 83% of lifestyle properties fall into value bands of +$740,000. Lifestyle properties account for 3% of all dwellings.

3.2 Dwelling Value Trends

Since 2000 residential property values have increased significantly throughout New Zealand. The increase in NZ's house prices is well documented and has gained significant media attend in recent years. The increase in residential prices appears to be a long process and has been driven by several factors:

- The ease of accessing finance,
- high consumer confidence (especially in the lead-up to the GFC),
- constraints on construction capacity,
- strong inward migration,
- overseas investment in New Zealand's housing market (until 2018),
- interest rates (cyclical) and
- the tax policy and environment.

Property values have increased across NZ; however, the scale and speed of the shifts have varied by district and region. Mean housing values in Nelson City have been identified from the CoreLogic residential property index, which reports monthly data across 125 locations. The key changes over the past two decades or so are summarised in Table 3-2 and Figure 3-2 shows the relative shifts in property values. Table 3-2 shows the mean values in both nominal (dollars of the day) and real terms (CPI-adjusted showing values in $2023).

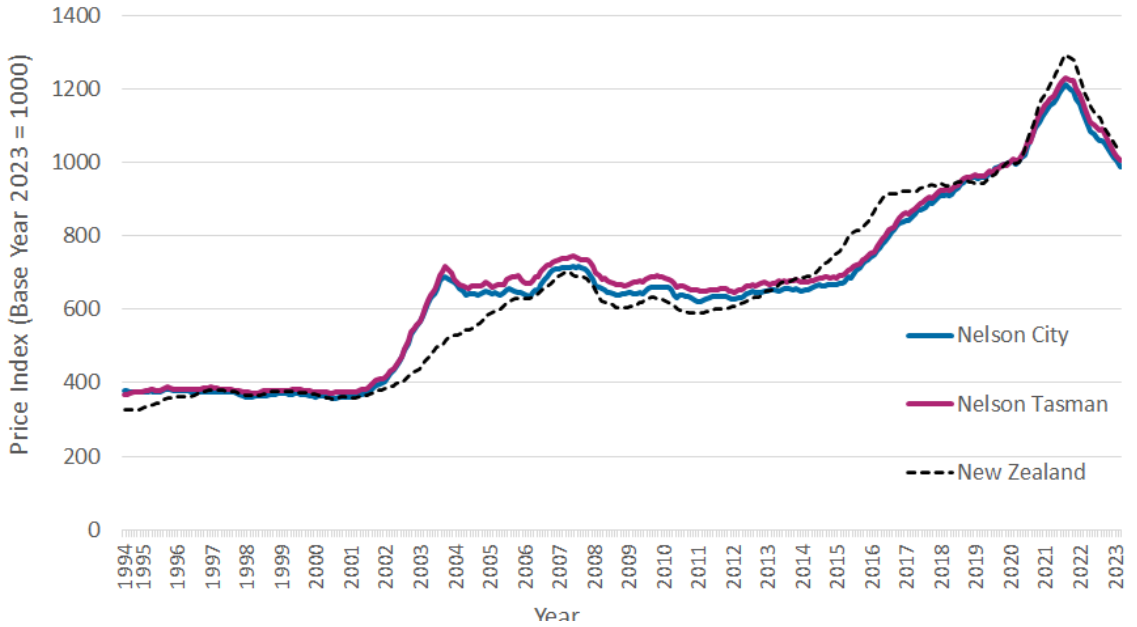
Since 1994 residential property values for Nelson City have followed a similar trend to the Nelson Tasman Region. Since 2000 prices have increased with notable spikes observed over 2003/2004 and mostly recently in 2021/2022. Some notable features are:

a. For Nelson City nominal prices have increased by 497% (almost 5 times) Since 2000. The rate of change observed for Nelson was marginally higher than that observed for Nelson Tasman (+489%) but lower than that observed across NZ where nominal prices increased by 506% over the same period.
b. In real terms (accounting for inflation), the Nelson residential property market shifted 279% since 2000 and the Nelson Tasman market moved by 275%. The shift observed across NZ was greater than both Nelson City and Nelson Tasman where the real price shift was 285%.
c. Overall, the data indicates that Nelson City residential property market has performed strongly over the last two decades or so with an increase in property values over the long term. However, it is evident that the price shifts have occurred in two distinct periods – the years before the Global Financial Crises and more recently in the period from around 2015. A recent spike in prices was observed across New Zealand and within the local market over 2021/2022 period. This period coincided with the Covid-19 pandemic, influencing the return of New Zealand citizens from abroad and a period of low interest rates.
d. In the past 5 years, Nelson have experienced some price increases - in real terms prices have increased by 11%. This aligned with the 11% recorded across Nelson Tasman and 12% across the NZ property estate for the same period.
e. Over the last year nominal and real prices have marginally declined. In real terms, the Nelson City and Nelson Tasman values have decreased by 13% in the year to June. Across NZ prices have declined by 15%.

Table 3-2: Nelson City Residential Property Values (Change)

Area	Indicator	June 2000	June 2008	June 2012	June 2018	June 2021	June 2022	June 2023	Increase				
									Since 2000 %	Since 2000 %pa	Last 5 Years %	Last 2 Years %	Inc Last 1 Year %
Nelson City	Nominal	$158	$372	$379	$583	$775	$848	$786	497%	7%	35%	1%	-7%
	Real (CPI adj)	$282	$530	$489	$707	$882	$899	$786	279%	5%	11%	-11%	-13%
Nelson Tasman	Nominal	$160	$384	$384	$580	$773	$851	$783	489%	7%	35%	1%	-8%
	Real (CPI adj)	$285	$547	$496	$704	$879	$902	$783	275%	4%	11%	-11%	-13%
New Zealand	Nominal	$180	$402	$408	$674	$904	$1,011	$911	506%	7%	35%	1%	-10%
	Real (CPI adj)	$320	$572	$526	$817	$1,028	$1,072	$911	285%	5%	12%	-11%	-15%

Figure 3-2: Nelson Residential Property Value Index (1994-2023)



3.3 Additions to the estate (new dwellings)

Movements and patterns associated with the construction sector are analysed in this section with regard to the type and quantum of additions to the dwelling estate. This shows how current trends in dwelling consents are translating to new dwellings, and how consents correspond to residential properties, by type and value.

Analysing any changes and additions to the dwelling estate going forwards is critical to understanding the future estate. The following analysis draws on historic StatsNZ consent data at the district level for Nelson City. The findings are applied to projected new dwellings, to understand their likely distribution by type and value, on the basis that recent trends in consents are a strong indicator of what is currently feasible in the market.

Recent trends in consenting are taken as a general indicator of feasibility, recognising that in most council areas a high proportion of consented builds progress to completions, and that indicates general feasibility especially when considered over the medium term.

The section presents information about recent development trends and patterns based on consent data, and looks at:

- Trends in consented size (m^2),
- Trends in consented values ($), and
- The mix in dwelling types.

3.3.1 Observed patterns

Residential consent data is used to illustrate development patterns over the last decade in Nelson City. This provides an indication of the scale and nature of development activity aimed at satisfying residential demand. Figure 3-3 shows the scale and nature of new dwelling consents in Nelson City since 1996. The early 2000s signal a high growth period followed by the GFC. The recent uptick in development over the last 5 years is also clearly visible. Detached houses represent the dominate development activity for the district. Since 2010 there has be a noticeable lift in consents associated with retirement units, especially over the last 5 years. This signals a strong increase in investment in the retirement sector – generally associated with an aging population. The data reveals an increase in recent apartment consent activity. Town houses and higher density typology development activity does not reveal any specific historic development patterns and forms a small portion of overall residential supply.

Figure 3-3: Nelson City Consent by type (1996-2023)

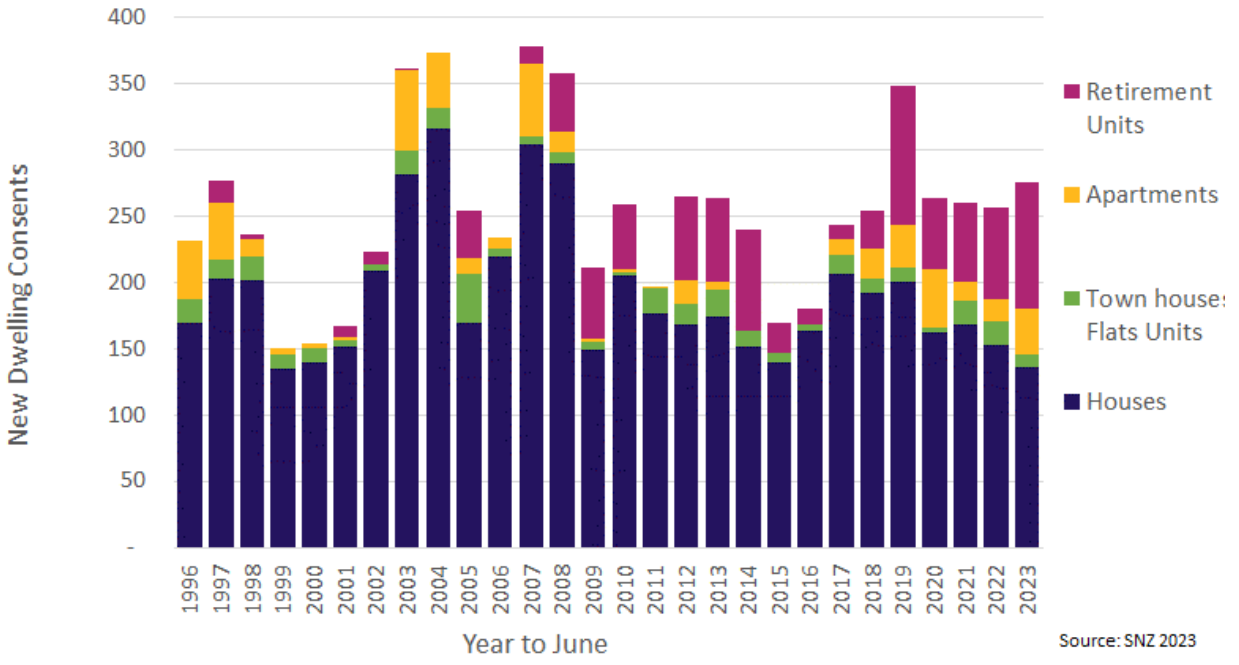


Table 3-3 provides consent parameters covering the 2018-2023 period (note the data has been aggregated). It is important to note that the above table shows the average values across different timeframes and is historic. Residential houses account for the largest share of value of total consent activity. Investment in this

segment over the past five year is $379m (total value) and the total floor area consented is put at over 147,900m^2. Between 2018-2023, the average size of the dwellings (total) was 153m^2, however, houses had a slightly higher footprint. The average size of houses was 181m^2, apartments was 157m^2, 102m^2 for retirement dwellings and 90m^2 for townhouses, flats and units. With reference to the construction costs, the average value (after adjusting for inflation) is put at $2,835/m^2. The value for houses is marginally higher ($2,875/m^2) and lower for retirement units at $2,429/m^2.

Table 3-3: Consent parameters, Nelson City

Parameter	Houses	Town houses Flats Units	Apartments	Retirement Units	Total Dwellings
2018-2023 Period					
Number of Consents	819	60	141	385	1,405
Total Value of Consents ($m)	$379	$19	$61	$87	$546
Total Value (Real $m) 2023	$422	$20	$68	$95	$606
Floor Area of Consents (sqm)	147,972	6,042	22,275	38,058	214,347
Mean Value of Consents ($000)	$471	$260	$467	$219	$393
Mean Real Value of Consents ($000)	$490	$266	$489	$228	$410
Mean Floor Area of Consents (sqm)	181	90	157	102	153
Mean Value $ per Sqm	$2,604	$2,616	$3,031	$2,191	$2,566
Mean Real Value $2023 per Sqm	$2,875	$2,881	$3,342	$2,429	$2,835

Figure 3-4 shows the trends for the weighted average size of residential consents and the distribution across value bands. Overall, the data indicates that the size of dwellings being consented is declining – a slow downward trend overtime. This is in part due to the shift in mix of properties overtime. Higher density dwelling typologies, in particular retirement units, are increasingly accounting for a growing portion of total development in Nelson City (Figure 3-3). Therefore, the gradual decline in average size relates to the increase in retirement accommodation and higher density housing. In the post-GFC period, the overall size of dwellings being consented is lumpy across size bands. In recent years, the smaller dwellings in the sub-140m^2 (green shades and below) have increased while larger dwellings (+220m^2) consented appears have remained relatively constant.

Figure 3-4: Nelson City Consent Trends

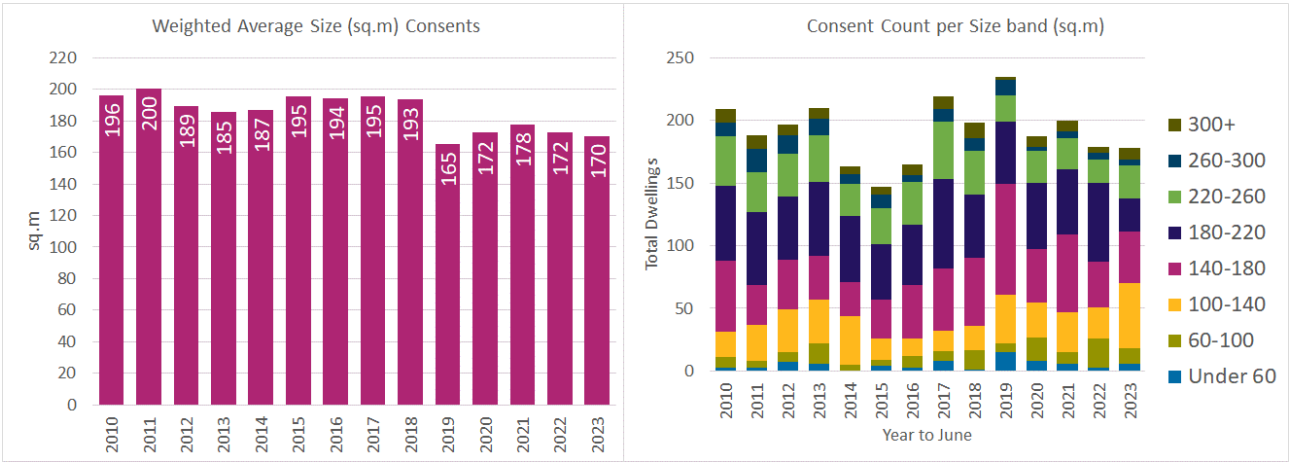


Table 3-4 presents total residential dwelling consents by value band for Nelson City. From 2015-2017 most consents fall into the $400,000-$500,000 band, shifting to a lower band over the 2018-2019 period. The past few years have seen a shift upwards in the overall value band split across the $400,000-$500,000 and $500,000-$600,000 bands.

Table 3-4: Nelson City Dwelling Consent by value band

Value Band	2015	2016	2017	2018	2019	2020	2021	2022
$0,000 - $100,000	2%	1%	0%	0%	1%	1%	1%	0%
$100,000 - $200,000	15%	9%	5%	1%	3%	1%	22%	20%
$200,000 - $300,000	18%	20%	16%	13%	36%	18%	8%	18%
$300,000 - $400,000	20%	31%	26%	48%	29%	14%	10%	10%
$400,000 - $500,000	35%	31%	41%	22%	15%	25%	23%	17%
$500,000 - $600,000	3%	1%	5%	6%	8%	31%	23%	23%
$600,000 - $700,000	2%	2%	2%	6%	4%	3%	4%	4%
$700,000 - $800,000	4%	1%	2%	1%	2%	3%	5%	2%
$800,000 - $900,000	1%	3%	1%	2%	1%	2%	3%	2%
$900,000 - $1.0M	0%	2%	0%	0%	1%	1%	0%	4%
$1.0M - $1.1M	0%	0%	1%	0%	1%	1%	1%	0%
$1.1M - $1.2M	1%	0%	0%	1%	0%	0%	1%	0%
$1.2M - $1.3M	0%	0%	1%	0%	0%	0%	0%	0%
$1.3M - $1.4M	0%	1%	0%	0%	0%	0%	0%	0%
$1.4M +	0%	0%	0%	0%	0%	0%	0%	0%

3.4 Conclusion

The current housing estate accommodates Nelson residents and is weighted towards detached dwellings. The development patterns over the recent past also shows a continued pattern that is biased towards detached dwellings. While these historic patterns offer some guidance about what future patterns could look like, they are based on historic planning provisions and household preferences. Changing the planning provisions and housing preferences mean that future patterns will likely differ from those currently observed. The rate of change is however uncertain and tends to be relatively slow.

4 Capacity assessment and sufficiency

The NPS-UD stipulates that local authorities must provide development capacity to meet expected demand for housing land over the short, medium, and long terms. The development capacity must also include appropriate competitiveness margins. The plan enabled capacities (PEC) associated with the NRMP and Plan Change 29 were estimated as part of an earlier project. These PEC estimates form the starting point for calculating the commercially feasible capacity over the short, medium and long term. The current and short term assessment is based on the Operative NRMP and the medium and long term estimates are underpinned by the PC29 settings. Infrastructure constraints and capacity, as well as realistically expected to be realised (RER) capacity are described.

This section focuses on the supply side in the local market and differentiates between development pathways, like infill and redevelopment, as well as attached or detached typologies. The RER component considers anticipated demand levels based on affordability levels. The section starts with a brief overview of the approach, definitions, and key assumptions before proceeding to the capacity estimates.

4.1 Approach and definitions

The commercial feasibility assessment starts with the PEC modelling. The identified development options (typologies) on each parcel are assessed by estimating the development costs and potential sales prices for the available options. In the commercial market, if a developer could make an appropriate return by following a specific development pathway, then the associated option is deemed feasible. An appropriate return is defined as all the development costs plus a 20% (profit) margin. The feasibility assessment process reflects the key elements that a commercial developer would normally reflect as part of his/her due diligence and returns an indication of the price-point of a development. However, a due diligence process normally also reflects market size, potential buyers, and affordability considerations i.e., the demand side considerations. The commercial feasibility assessment process does not explicitly integrate demand aspects or affordability considerations. However, the next stage of the assessment dealing with the realistically expected to be realised (RER) capacity considers these matters.

As mentioned earlier, the commercial feasibility assessment draws on the Operative NRMP for the current and short (3 year) period, and the medium- and long term period is based on the PEC associated with Scenario 3[20] of the PC29 process. The additional areas covered by this sea level rise scenario revert to Nelson Resource Management Plan (NRMP) enabled densities instead of the intensification provisions contained within PC29.

The PEC model estimates capacity across existing urban areas. Greenfield capacity directly reflects information as provided by the Council and is consequently calculated outside of the PEC/commercial feasibility process calculation process. With reference to the urban areas, these locations will accommodate intensification and offer future development opportunities to accommodate future growth. The bulk of the PEC-calculation relates to intensification and two development pathways are modelled:

- Infill capacity refers to additional dwellings that can be constructed on a parcel without removing or demolishing existing dwellings. It involves developing dwellings on a portion of the parcel e.g., developing the back or front yard.

[20] This scenario reflects the proposed PC29 capacity but with the application of the 1% AEP event, 2130, SSP 8.5(H+) including VLM sea level rise scenario.

- **Redevelopment capacity** refers to additional[21] dwellings that can be constructed on a parcel and involves demolishing or removing existing dwellings.

A range of dwelling typologies have been modelled on each parcel using both development pathways to estimate the capacity. The following typologies were considered:

- **Detached dwellings:** These range from one/two-storey detached dwellings on smaller sites up to larger single/multi-level detached dwellings on general suburban scale sites.
- **Attached dwellings:** These include different dwelling typologies ranging from single level attached units up to higher density, horizontally attached terraced houses. Dwellings within the higher density range can include two to three-level walk up terraced houses/apartments.
- **Terraced housing:** These are higher density, horizontally attached dwellings and are included as a separate dwelling typology to reflect either the upper end of the horizontally attached typologies, or more intensive terraced housing if enabled under the zone. This group includes dwellings that are two to three-level walk up terraced houses/apartments.
- **Vertical apartments:** These include vertically attached apartment dwellings in buildings that are up to the maximum height enabled within the zone. These dwellings are modelled within the commercial zones that allow for residential uses and within the High Density Residential Zone.

The size requirements of the different typologies are considered in the PEC calculations and the size attributes influence the development costs – smaller land areas per dwelling can reduce the total development cost because a share of land value (cost) that is assigned to each dwelling is lower. These patterns are built into the PEC and commercial feasibility modelling. The modelled typologies have different site size requirements that are integrated.

Importantly, redevelopment and infill capacity are mutually exclusive, not additive. The same applies to dwelling types. That is, if a detached dwelling is developed, then the duplex/apartment capacity can no longer be taken up on that parcel. It is beyond the scope of this assessment to decide what proportion of capacity uptake will consist of redevelopment, or infill but the potential profits that could be generated using different approach are used to provide an indicative illustration of the overall capacity estimates.

Assessing the feasibility of greenfield developments is complex and subject to specialist/expert assessment such as geotechnical, transport and engineering studies. The findings of these studies influence total development costs and yields. Greenfield areas do not have existing sales patterns to draw on to estimate the potential sales prices. Therefore, it is assumed that developers will deliver housing products in a way that is acceptable and feasible to the market. The greenfield capacity reflects information provided by NCC[22] and relates to large areas of previously undeveloped land.

The assessment reflects the different timeframes that align with the NPS-UD periods:

- Short term 2023-2026, or 3 years,
- Medium term 2026-2033, or 7 years, and
- Long term 2033-2053, or 20 years.

The timeframes inform the commercial feasibility assessment with the input values inflated based on assumed growth patterns and value changes. These parameters are based on StatsNZ and other official sources. Appendix 1 provides further detail about the commercial feasibility assessment and lists the main assumptions

[21] Simply replacing a small standalone dwelling with a larger standalone dwelling does not result in a net increase in dwellings on the parcel. Only the net change is considered.
[22] The M.E team did not have any input into estimating the greenfield yields, or the mix of densities and typologies associated with the greenfield capacity.

underpinning the analysis. The core assumptions used to estimate the commercial feasibility are associated with the type of elements that determines if developing a site would be feasible, and include:

- Costs:
  - To acquire the property (land and buildings),
  - Expenditure associated with site-preparation, remediation, and infrastructure charges,[23]
  - Construction costs that are based on the potential house size and driveway areas,
  - Allowance for extraordinary cost items related to hazards (liquefaction and slopes),
  - Costs associated with professional services, and
  - Developer's margin (20%).
- Sales price:
  - Based on the relative sales prices achieved in local sub-markets (by location and including land), adjusted for size (m^2) and applied to the potential development.

As mentioned earlier, if the anticipated sales price is greater than (>) the total development cost plus a developer's margin (20%), then it shows the price point at which a development would be feasible.

The commercial feasibility modelling reflects conservative price movements meaning that the recently observed spikes in inflation and interest rates are not included. The conservative positions show the growth rates required to generate different levels of feasible capacity. This helps to illustrate medium to long term market positions based on relationships between land values, values of improvements, construction and development costs and price changes.

The next section summarises the estimated commercial feasibility capacity for the intensification component of capacity.

4.2 Commercial feasible capacity

Commercial feasible capacity is a function of:

- plan enabled capacity,
- the enabled typology,
- development costs, and
- the anticipated sales prices across typologies, and location.

The commercial feasible capacity is reported by summarising the results to FDS areas (see Figure 4-1), and value bands[24] (Table 4-1). The shifts in feasible capacity due to price shifts over time, is illustrated.

This section reports the commercially feasible capacity and reports the price-points of potential development options. These results do not suggest that the development is guaranteed. It simply shows the number of development options across typologies, locations, and value bands (sales/price points).

[23] Like development contributions or financial contributions. It also includes costs like telecommunication connections fees and the like.

The value bands show the breakdown across property values and the bands are based on the expected sales prices. For the values bands follow $100,000 intervals.

Figure 4-1: FDS Areas

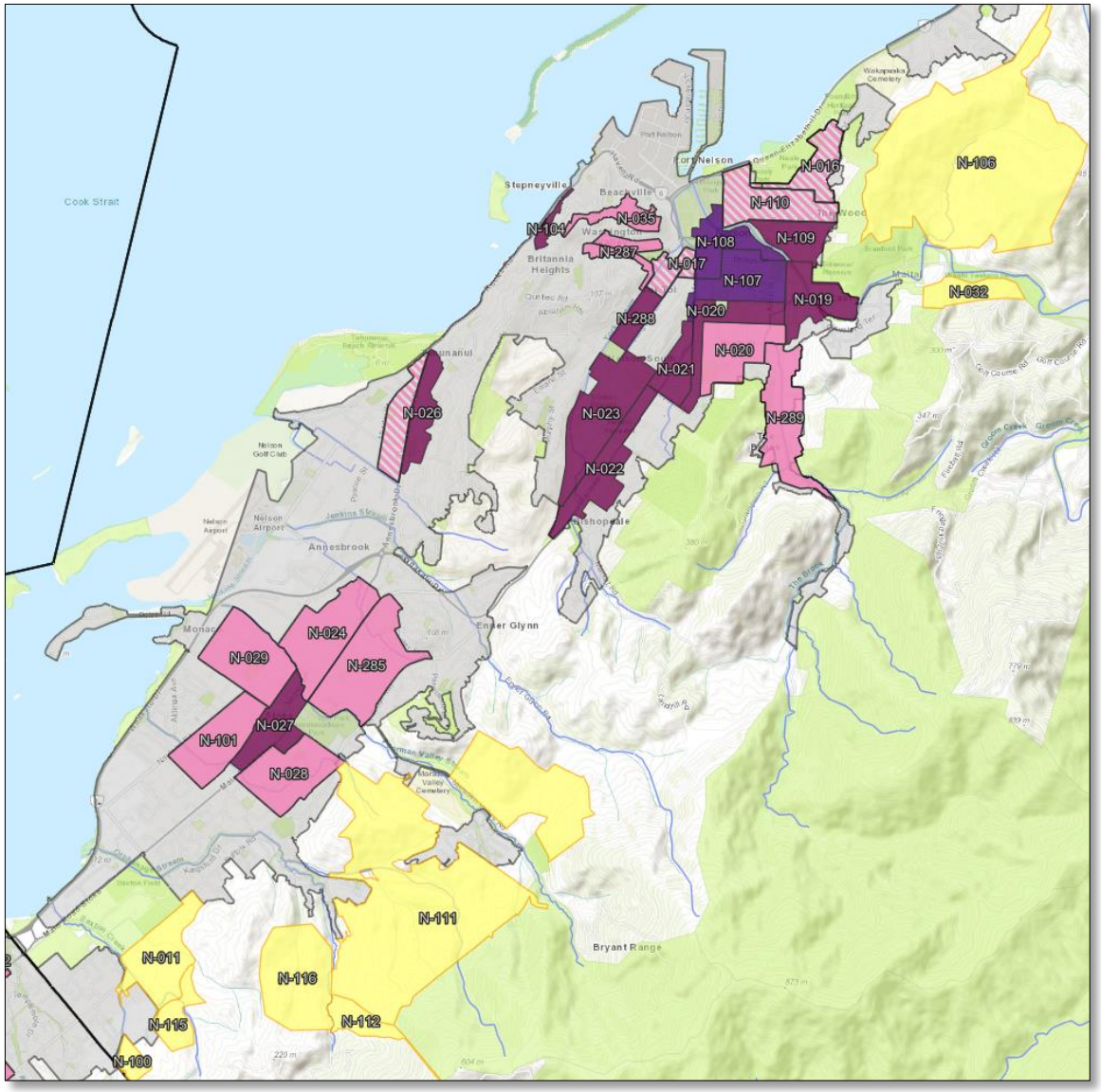


Table 4-1: Feasible Capacity by location

	Current (NMRP)								3 year (NRMP)							
	INFILL				REDEVELOPMENT (No Greenfield)				INFILL				REDEVELOPMENT (No Greenfield)			
FDS Areas	Detached	Attached	Terraced	Vertical Apartments	Detached	Attached	Terraced	Vertical Apartments	Detached	Attached	Terraced	Vertical Apartments	Detached	Attached	Terraced	Vertical Apartments
N-106 Maitahi/Bayview (Maitai Valley PPC	-	-	-	-	60	20	-	-	-	-	-	-	60	20	-	-
N-32 Orchard Flats (Maitai Valley)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-111 Marsden and Ngawhatu	-	-	-	-	100	65	-	-	-	-	-	-	105	65	-	-
N-112 Orphanage West	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-116 Orphanage West Extension	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-11 Saxton	-	-	-	-	10	-	-	-	-	-	-	-	10	-	-	-
N-100 Griffin Site	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-115 Saxton Extension	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-101 Marlowe Street (and surrounds)	5	-	-	-	165	140	-	50	5	-	-	-	175	140	-	50
N-28 Stoke School (and surrounds)	35	-	-	-	100	10	-	-	35	-	-	-	115	10	-	-
N-27 Stoke Centre	15	-	-	-	100	35	-	120	15	5	-	-	105	40	-	120
N-285 Arapiki and Isel	65	-	-	-	125	5	-	-	65	-	-	-	150	5	-	-
N-24 Nayland North	-	-	-	-	85	35	-	-	-	-	-	-	105	40	-	-
N-29 Nayland South	5	-	-	-	80	15	-	5	5	-	-	-	100	20	-	5
N-22 Hospital / Nelson South	20	-	-	-	40	25	-	-	20	-	-	-	50	25	-	-
N-23 Victory	30	-	-	-	115	65	-	5	35	-	-	-	135	65	-	5
N-26 TÄhunanui Drive East	65	-	-	-	80	-	-	45	70	-	-	-	100	-	-	45
N-34 TÄhunanui Drive West	10	-	-	-	30	5	-	355	10	-	-	-	30	5	-	355
N-104 Victoria Road (and surrounds)	-	-	-	-	10	-	-	-	5	-	-	-	10	-	-	-
N-35 Port Hills	15	-	-	-	15	-	-	-	15	-	-	-	15	-	-	-
N-103 Washington Valley North	10	-	-	-	30	-	-	-	10	-	-	-	30	-	-	-
N-287 Washington Valley South	20	-	-	-	35	-	-	-	20	-	-	-	40	-	-	-
N-18 Gloucester Street (and surrounds)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-21 Waimea Road North	10	-	-	-	20	5	-	60	10	-	-	-	20	10	-	60
N-288 St Vincent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-107 City Centre South	-	-	-	-	25	15	-	10	-	-	-	-	25	15	-	10
N-17 Vanguard Street (and surrounds)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-20 Fairfield Park	5	-	-	-	35	10	-	-	5	-	-	-	40	10	-	-
N-289 The Brook	50	10	-	-	145	55	-	-	50	10	-	-	155	80	-	-
N-19 Nile Street East	10	5	-	-	95	50	-	-	10	5	-	-	100	60	-	-
N-108 City Centre North	-	-	-	-	20	15	-	-	-	-	-	-	20	15	-	-
N-109 Wood South	-	-	-	-	80	60	-	5	-	-	-	-	85	65	-	5
N-110 Wood North	-	-	-	-	105	60	-	5	-	-	-	-	115	75	-	5
N-16 Neale Park	-	-	-	-	80	50	-	-	-	-	-	-	85	65	-	-
N-15 Dodson Valley Road (and surrounds)	45	-	-	-	80	25	-	10	45	-	-	-	105	35	-	10
Rest of the City	1,140	40	-	-	2,660	810	-	85	1,170	75	-	-	3,005	1,000	-	85
SUM	1,560	65	-	-	4,520	1,575	-	755	1,610	115	-	-	5,075	1,865	-	755

	10 year (PC29)								30 year (PC29)							
	INFILL				REDEVELOPMENT (No Greenfield)				INFILL				REDEVELOPMENT (No Greenfield)			
FDS Areas	Detached	Attached	Terraced	Vertical Apartments	Detached	Attached	Terraced	Vertical Apartments	Detached	Attached	Terraced	Vertical Apartments	Detached	Attached	Terraced	Vertical Apartments
N-106 Maitahi/Bayview (Maitai Valley PPC28	-	-	-	-	80	80	-	-	-	-	-	-	80	80	-	-
N-32 Orchard Flats (Maitai Valley)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-111 Marsden and Ngawhatu	-	-	-	-	195	155	-	-	-	-	-	-	210	185	-	-
N-112 Orphanage West	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-116 Orphanage West Extension	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-11 Saxton	-	-	-	-	10	-	-	-	-	-	-	-	10	10	-	-
N-100 Griffin Site	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-115 Saxton Extension	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-101 Marlowe Street (and surrounds)	10	5	10	-	740	330	515	-	10	10	10	-	795	680	515	375
N-28 Stoke School (and surrounds)	90	80	95	65	680	430	860	-	90	95	100	65	700	675	860	920
N-27 Stoke Centre	20	25	35	55	330	230	695	-	20	30	40	55	350	340	700	2,765
N-285 Arapiki and Isel	120	60	90	-	835	415	945	-	120	105	95	-	935	745	955	1,140
N-24 Nayland North	5	-	-	-	495	285	490	-	5	5	-	-	540	465	495	765
N-29 Nayland South	10	5	10	20	595	270	635	-	10	10	10	20	650	545	640	615
N-22 Hospital / Nelson South	55	50	75	-	530	310	960	-	55	55	75	110	560	570	965	2,410
N-23 Victory	65	60	130	-	820	670	1,970	-	65	65	130	385	865	935	1,970	7,075
N-26 TÄhunanui Drive East	120	-	100	-	365	10	475	-	120	65	135	-	440	135	490	70
N-34 TÄhunanui Drive West	10	-	-	-	50	30	40	210	10	10	-	-	55	45	40	880
N-104 Victoria Road (and surrounds)	5	-	-	-	35	5	-	-	5	-	-	-	35	25	-	-
N-35 Port Hills	20	-	-	-	60	10	-	-	20	5	-	-	75	20	-	-
N-103 Washington Valley North	25	5	40	-	130	5	325	175	25	20	50	-	140	120	325	565
N-287 Washington Valley South	30	-	20	-	135	5	170	-	30	15	20	-	150	95	170	775
N-18 Gloucester Street (and surrounds)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,775
N-21 Waimea Road North	30	10	45	-	215	205	675	1,435	30	30	55	170	240	265	680	2,880
N-288 St Vincent	-	-	-	-	20	15	55	-	-	-	-	-	20	20	55	2,205
N-107 City Centre South	-	-	5	-	75	105	210	2,275	-	-	5	10	80	110	210	2,855
N-17 Vanguard Street (and surrounds)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	595
N-20 Fairfield Park	15	5	25	-	690	635	1,530	4,880	15	15	30	85	775	815	1,545	4,965
N-289 The Brook	80	45	40	-	605	305	370	-	80	80	40	-	655	530	370	-
N-19 Nile Street East	20	15	20	-	345	335	505	1,080	20	20	20	-	365	380	505	1,090
N-108 City Centre North	-	-	-	-	20	20	-	2,020	-	-	-	-	20	20	-	2,060
N-109 Wood South	-	-	-	-	85	70	-	10	-	-	-	-	135	85	-	10
N-110 Wood North	-	-	-	-	125	85	-	15	-	-	-	-	135	110	-	15
N-16 Neale Park	-	-	-	-	85	75	-	-	-	-	-	-	85	80	-	-
N-15 Dodson Valley Road (and surrounds)	90	65	90	-	645	205	690	-	90	90	90	-	705	505	705	25
Rest of the City	1,430	275	290	-	7,380	2,440	1,750	420	1,435	875	320	-	8,975	4,425	1,765	2,200
SUM	2,255	720	1,120	135	16,375	7,715	13,865	12,525	2,270	1,610	1,225	890	18,785	13,005	13,960	39,030

The assessment reveals that there is existing feasible development capacity across Nelson. The maximum yield is estimated by considering the results (per development typology) for the different locations - the max yield is not shown in the tables, because it reflects different combinations. The analysis shows that there is (existing) feasible capacity of 4,905 dwellings. This capacity increases over the short term (next three years), by 550 dwellings and reflects the shift in redevelopment potential for detached dwellings across Nelson.

The medium term (next 7 years) will see maximum feasible capacity increase to 29,578. The increase is driven by the large lifts in locations associated with apartment developments (using the redevelopment pathway), including:

- Fairfield Park,
- City Centre North,
- City Centre South, and
- Waimea Road North.

Over the long term (next 20 years), the total maximum dwellings that are feasible is estimated at 48,747. This is an additional 19,169 development opportunities that would become feasible over the mentioned period. (20 years to 2053).

Currently, there is considerable feasible capacity and over time and the total feasible capacity will increase. This observation is based on the maximum change regardless of typology or development pathway (infill vs redevelopment). However, the bulk of the capacity is associated with the redevelopment pathway.

Table 4-1 presents feasible capacity by location for both infill and redevelopment pathways (excluding greenfield) over the short, medium and long terms. The currently feasible *infill* capacity (based on the NRMP) is distributed across Nelson and includes feasible capacity of 1,560 associated with detached dwelling typologies. Higher density typologies are limited to 65 attached dwellings. In contrast, *redevelopment* options are considerably greater – with 4,520 detached dwelling opportunities (redevelopment approach). Redeveloping sites for attached dwellings can deliver 1,575 additional dwellings. Currently, there are also 750 feasible development opportunities for vertically attached apartments.

The market is dynamic with both price and cost shifts in response to growth and pressures. These pressures change over time and development options that are currently unfeasible can become feasible as the relationship between land values, the value of existing buildings, construction costs and potential sales values change. However, evidence suggests that the rising interest rates and tightening monetary cycle are slowing economic activity, reducing inflation and bringing price changes down. Regardless, the assessment is forward looking, and normal price dynamics means that, over time, more development opportunities will become feasible as the relationship between land values, building values, salary and wages, construction costs and property prices, as well as demographic features, all interact.

Over the short term (next three years), the quantum of infill capacity increases slightly (50) for detached dwellings and the increase for attached dwellings is similar, +50. The redevelopment feasible capacity is substantially higher. Under the redevelopment pathway, the additional capacity over the short term is estimated at:

- Detached 560,
- Attached 290.

These changes highlight the effects of price shifts on feasibility. It is noteworthy that the commercially feasible capacity for vertically attached dwellings remains stable. The difference between the feasible capacity under the infill and redevelopment pathways is also worth highlighting because it points to the effect that economies of scale can have on project feasibility – some of the costs are distributed over more units thereby lowering the 'per unit' costs.

Spatially, the commercially feasible capacity is distributed broadly evenly across the FDS locations and the wider Nelson regardless of the typology i.e., detached and attached formats.

For the medium and long terms, the assessment is based on the Plan Enabled Capacity associated with PC29, with the associated shifts in densities and (potential) shifts in spatial patterns.

Over the medium term (next seven years) and the long term (the subsequent 20 years):

- The scale of additional capacity that becomes feasible increases considerably, with the analysis suggesting that an additional 24,120 dwelling development opportunities will become feasible. This takes the total (max) to 29,780. The shift is a function of the move to PC29 as well as the effects of price changes.
- The overall contribution of infill opportunity to feasible capacity is less than that associated with redevelopment. This is the case for all typologies and is pronounced for vertically attached dwellings. The period to 2033 will see a large lift in capacity across detached, attached and vertical apartments. These typologies see large increases, with vertical apartments seeing widespread increases, across multiple locations associated with intensification.
- Both infill and redevelopment opportunities increase but redevelopment opportunities form the bulk. In terms of typologies, the high density typologies see additional feasible capacity of:
    - Attached 5,850
    - Terrace 13,860
    - Vertically attached 11,770.
- Infill capacity for detached dwelling is limited to the rest of the city (non-FDS locations). Infill opportunities associated with attached, terraced typologies, and vertical apartments increase across the rest of the city.
- Over the long term (2033 to 2053; under the PC29 settings), feasible capacity continues to increase with material and widespread increase in vertical apartment feasibility. More than two-thirds (68%) of the feasible capacity associated with this typology emerge over the long term. This observation highlights the slow transition and market shifts that are required to return feasibility.

The change in feasible capacity reflects the total change for the different timeframes. Expressing the change on an annual basis reveals:

- The redevelopment pathway delivers more capacity than an infill approach regardless of timeframes and typologies.
- Additional development options will become feasible over time with redevelopment opportunities likely to play the key role. Over the short term, the annual changes are weighted to redevelopment with 185 detached dwelling development opportunities becoming feasible, and around 100 attached development opportunities. For the infill development pathway, the annual shifts are more muted at around 20 opportunities per year for both detached and attached typologies.
- The change to PC29 over the medium term sees a significant step-change in capacity across all typologies and development pathways. While the redevelopment pathway dominates the annual capacity, infill options are also expected to see solid increases. Under the redevelopment pathway detached opportunities will increase by approximately 1,615 per year, and terrace dwelling opportunities will increase by 1,980 with attached opportunities increasing by 840 per year. A substantial increase in vertically attached opportunities of 1,680 is expected. These changes are a due to the increased densities enabled by PC29 as well as the changing development economies.
- Over the long term (20 years to 2053), the additional annual change in commercial feasibility capacity is lower than then the large increase in the medium term. This is because the medium term shifts reflect the changes enable by PC29 whereas the long term changes are based on only PC29 provisions. Nevertheless, the annual changes are noteworthy. Under the redevelopment pathway, vertical

apartments will see annual increase of 1,325 opportunities and attached and detached opportunities will become feasible at an average rate of 265 and 120 dwelling per year. These increases show the difference in total commercial feasible capacity is impacted by the change in the underlying development economics (land values, value of buildings, development costs, sales prices) and higher density development options becoming feasible over time.

- Over the long term, the largest annual change relates to vertical apartments using the redevelopment pathway – the annual change increases to 1,681 (per year) over the 2026-2033 period before pulling back marginally to 1,325 per year over the 2033-2053 period.

The commercially feasible capacity estimates show capacity from a commercial developer's perspective, i.e., whether there is sufficient margin in the project to cover costs and to ensure that the risk-return profile is appropriate/favourable. The availability of feasible capacity should not be interpreted as actual development activity and residential development – it simply shows that developers could participate in the market to deliver different housing products. The reflects the assumed development costs, risk (20% margin) and potential sales prices.

The scale of redevelopment capacity means that its contribution towards, and role in supporting future housing across Nelson will be key to support the City's growth ambitions. Infill capacity will play a supporting role as there are practical limits and considerations when undertaking redevelopment. For example, during the redevelopment process there is a period during which existing dwellings are removed (demolished) from the housing stock and the households occupying the original dwelling will need to relocate. Additionally, existing dwellings are predominantly owner-occupied and the practicalities around finding alternative accommodation during development could limit redevelopment activities. Redevelopment opportunities are generally undertaken by developers, not owner-occupiers.

Looking beyond typologies and locations, the distribution of feasible capacity across value bands (or price points) is important. Recall that the commercially feasible capacity is from a developer's perspective, and affordability is an important driver of development activity. Understanding the price points of development is key.

Figure 4-2 summarises the feasible capacity, by value band for the short, medium, and long term. The top part of the table deals with the infill pathway, and the bottom deals with redevelopment. The main points about the distribution across value bands are:

- With reference to ***infill*** feasible capacity:
    - Current infill capacity is concentrated around two value bands, with circa 90% of detached capacity around the $800,000-mark and another 10% in the $900,000 to $1m range. Infill capacity for attached housing is concentrated in the $600,000-$700,000 mark.
    - Over the short term (3 years), the distribution across value bands becomes more spread out, especially for the attached typologies. The feasible capacity moves into higher value bands (becomes more expensive) as development costs increase in line with inflation. At the same time the ability of households to pay higher prices increase because salaries and wages increase. For detached dwellings, the most affordable (lowest cost) development options move up into the $700,000 cohort but this is a small portion of detached feasible capacity (1% of detached opportunities using the detached pathway). For detached dwellings, the $800,000 band is the most common, accounting for a third (50%) of feasible capacity. The $900,000 value band accounts for 39% of the detached, and infill capacity. Attached and terrace opportunities also shift upward into higher value bands. Vertically attached apartments appear to become feasible with opportunities emerging in the $600,000 range over the medium term, and over the long term vertically attached apartments become feasible in the $800,000 to $1m range.

Figure 4-2: Feasible Capacity per value band (Infill and Redevelopment)

	Current				Short term				Medium Term				Long Term			
	INFILL				INFILL				INFILL				INFILL			
$ Value Bands	Detached	Attached	Terraced	Vertical Apartments	Detached	Attached	Terraced	Vertical Apartments	Detached	Attached	Terraced	Vertical Apartments	Detached	Attached	Terraced	Vertical Apartments
300,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
400,000	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-
500,000	-	-	-	-	-	5	-	-	-	445	350	-	-	-	-	-
600,000	-	50	-	-	-	65	-	-	330	80	645	135	-	220	-	-
700,000	20	15	-	-	20	20	-	-	550	120	125	-	-	100	420	-
800,000	1,395	-	-	-	805	25	-	-	125	35	-	-	-	675	-	565
900,000	55	-	-	-	625	-	-	-	5	35	-	-	330	120	645	325
1,000,000	85	-	-	-	55	-	-	-	835	-	-	-	550	-	90	-
1,100,000	-	-	-	-	95	-	-	-	315	-	-	-	55	435	65	-
1,200,000	-	-	-	-	10	-	-	-	15	-	-	-	15	-	-	-
1,300,000	-	-	-	-	-	-	-	-	85	-	-	-	60	-	5	-
1,400,000	-	-	-	-	-	-	-	-	-	-	-	-	5	60	-	-
1,500,000	-	-	-	-	-	-	-	-	-	-	-	-	825	-	-	-
1,600,000	-	-	-	-	-	-	-	-	-	-	-	-	285	-	-	-
1,700,000	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-	-
1,800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,900,000	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-
2,000,000	-	-	-	-	-	-	-	-	-	-	-	-	90	-	-	-
2,100,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
+2,100000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feasible Capacity	**1,560**	**65**	**-**	**-**	**1,610**	**115**	**-**	**-**	**2,255**	**720**	**1,120**	**135**	**2,270**	**1,610**	**1,225**	**890**

	Current				Short term				Medium Term				Long Term			
	REDEVELOPMENT (No Greenfield)				REDEVELOPMENT (No Greenfield)				REDEVELOPMENT (No Greenfield)				REDEVELOPMENT (No Greenfield)			
$ Value Bands	Detached	Attached	Terraced	Vertical Apartments	Detached	Attached	Terraced	Vertical Apartments	Detached	Attached	Terraced	Vertical Apartments	Detached	Attached	Terraced	Vertical Apartments
300,000	-	-	-	40	-	-	-	-	-	-	-	-	-	-	-	-
400,000	-	-	-	395	-	-	-	55	-	5	-	-	-	-	-	-
500,000	-	60	-	285	-	40	-	635	-	3,165	1,585	-	-	-	-	-
600,000	-	1,240	-	30	-	1,035	-	50	725	2,850	7,940	3,565	-	415	-	1,670
700,000	160	225	-	-	65	510	-	10	5,530	1,175	3,515	8,960	-	1,290	590	-
800,000	2,675	45	-	-	525	230	-	-	3,835	290	635	-	-	5,220	1,140	18,750
900,000	970	5	-	-	2,510	45	-	-	3,085	140	105	-	680	2,935	6,910	9,370
1,000,000	380	-	-	-	1,150	5	-	-	1,465	55	40	-	2,810	1,465	3,310	9,140
1,100,000	185	-	-	-	370	-	-	-	455	30	45	-	3,560	845	1,305	105
1,200,000	80	-	-	-	250	-	-	-	565	-	-	-	2,985	315	405	-
1,300,000	30	-	-	-	100	-	-	-	415	-	-	-	3,240	285	190	-
1,400,000	15	-	-	-	45	-	-	-	135	-	-	-	1,685	130	25	-
1,500,000	15	-	-	-	25	-	-	-	50	-	-	-	1,315	55	30	-
1,600,000	5	-	-	-	20	-	-	-	45	-	-	-	795	35	35	-
1,700,000	-	-	-	-	10	-	-	-	20	-	-	-	260	20	15	-
1,800,000	-	-	-	-	5	-	-	-	20	-	-	-	405	5	-	-
1,900,000	-	-	-	-	-	-	-	-	15	-	-	-	420	-	-	-
2,000,000	-	-	-	-	-	-	-	-	5	-	-	-	300	-	-	-
2,100,000	-	-	-	-	-	-	-	-	-	-	-	-	115	-	-	-
+2,100000	-	-	-	-	-	-	-	-	-	-	-	-	220	-	-	-
Feasible Capacity	**4,520**	**1,575**	**-**	**755**	**5,075**	**1,865**	**-**	**755**	**16,375**	**7,715**	**13,865**	**12,525**	**18,785**	**13,005**	**13,960**	**39,030**

- For the medium and long terms, infill capacity continues to increase. For detached dwellings the spread across the value bands widens and the feasible capacity shift into higher bands with 41% of feasible infill capacity for detached dwellings falling in the $900,000 to $1.1m range. A second concentration (51%) of detached dwellings in the $1.4m-$1.7m band is expected. The spread of development opportunities for attached dwellings over the long term via an infill pathway is wide, with opportunities in the $600,000-$800,000 band and some (27%) in the $1.1m range.

- The ***redevelopment*** capacity pathway reveals that:
  - There is substantially more redevelopment capacity than infill capacity and this observation holds across all timeframes and typologies. The spread in price points across the typologies is also wider than that observed for infill capacity.
  - Currently, feasible capacity for detached dwelling is concentrated in the $500,000 to $700,000 bands – accounting for 81% of feasible capacity. Attached dwelling opportunities are concentrated in the $600,000 price band, with three quarters (79%) of capacity associated with this band.
  - Over the short term, there is an upward shift in detached dwelling that are feasible to redevelop. The value bands with the largest share of feasible capacity are in the $800,000 to $1.1m range and these bands account for 83% of redevelopment options (for detached dwellings). Attached dwellings see an upward shift in feasible capacity and the value bands also move into higher bands – falling between $600,000 to $800,000. However, a large portion (55%) of development opportunities associated with attached typologies remain in the $600,000 value band.
  - The modelling suggests that there are vertical apartments that are already feasible. The analysis shows that over the short term, some capacity is coming through in the $500,000 range. The scale of vertical apartments that is feasible increases significantly over the medium and long terms, reflecting the effects of PC29 and shifting development economics – with the long term position estimated at 39,030, with the bulk of capacity in the $800,000 to $1m range.

Over the medium and long terms, feasible capacity increases for all typologies and this is a function of the interplays between development costs, sales prices and asset values. However, the price points at which the capacity is feasible also increases over time. The analysis shows that over time more capacity is expected to be feasible, and this occurs as both development cost and potential sales prices increase. At the same time, the increasing prices raise the scale of feasible capacity. Table 4-2 shows the weighted average price points, over time and for each development pathway.

Table 4-2: Weighted Average Price Points ($)

$	INFILL			
	Detached	Attached	Terraced	Vertical Apartments
Current	763,800	576,200	-	-
3y	814,300	610,200	-	-
7y	833,700	528,200	529,500	550,000
20y	1,263,100	826,700	800,600	786,700
	REDEVELOPMENT			
	Detached	Attached	Terraced	Vertical Apartments
Current	813,100	567,700	-	390,800
3y	909,300	608,600	-	453,200
7y	792,300	541,900	578,100	621,500
20y	1,232,700	831,400	894,900	813,100

The upward trend in the price point is confirmed by the weighted averages – the shifts capture the effects of construction costs and inflation, changing in real estate values, as well as shifts in potential sales prices. For detached dwellings, the price points increase by between 61% and 65% over the long term regardless of the development pathway. A similar long term increase is observed for attached dwellings with the weighted average price points increasing by around 44% over the long term. As expected, the higher density development options return lower price points than the detached dwellings. **Over the long term, the price points associated with the higher density options – attached, terraced or vertical apartments – are on average 64% and 69% of detached dwellings. Put differently, the feasible capacity analysis shows that the higher density options are around 30% to 35% more affordable than detached dwelling.**

An important part of assessing the development capacity and ability of the local real estate market to deliver residential accommodation, is the link with infrastructure. The infrastructure capacity considerations are based on NCC work and are summarised in the next section.

4.3 Infrastructure and greenfields

The Council is constantly working on and assessing the infrastructure requirements and associated processes[25]. M.E understands that currently available infrastructure capacity information is being refined. The Council considered the infrastructure delivery plans and proposed projections with a view to provide high level estimates of the future development capacity that will be unlocked by the infrastructure work programme. These forward looking estimates are based on draft information and are unconfirmed. We understand that these estimates should be treated with caution and that they are likely to change going forward. In the absence of confirmed information, we use these estimates to provide an indication of infrastructure capacity. There are several limitations and caveats around the future infrastructure delivery programme, including uncertainty around the staging of projects and the timing of additional infrastructure capacity. To enable an analysis, it was assumed that the available capacity will be delivered in a linear fashion over the lifecycle. The estimates should be updated when more granular information becomes available.

Based on the understanding of network infrastructure and the number of dwellings across the different catchments around the city, the different networks can currently accommodate in the order of 1,382 additional dwellings throughout the existing urban areas of Nelson. Indicatively, forty-two percent of this capacity is in the FDS areas with each area assumed to have on average capacity to accommodate approximately 20 dwellings. However, this additional capacity varies across the FDS areas, with an upper limit approaching 40 dwellings per FDS area. The area beyond the FDS areas has existing infrastructure capacity to support approximately 800 dwellings.

With reference to greenfield capacity, again there are data limitations, and the Council is working through the available capacity, and the timing around when the capacity is expected to be ready for the market. Available information suggests that the greenfield capacity over the next 30-years is estimated at 4,425.

The current and anticipated infrastructure capacity were combined with the feasible capacity estimates. In most locations the feasible capacity outstrips infrastructure capacity. Applying a conditional selection process to the commercial feasibility process to identify the 'highest profit' (largest $-profit) to identify the development pathway and associated dwelling yields illustrates the degree to which the anticipated infrastructure delivery programme will support development. Based on Council provided information, infrastructure supported capacity is estimated at 7,795 – this includes capacity that is currently available

[25] These include asset management programmes and processes like the Annual Plan and Long Term Plan.

(through existing infrastructure), capacity that will be enabled by future investments in network infrastructure as well as greenfield capacity. The infrastructure supported capacities are estimated as follows:

- Currently feasible and supported by infrastructure 1,382
- Future feasible and supported by infrastructure 1,984
- Greenfield developments (assumed feasible) 4,429
- **Total** **7,795**

The current and future infrastructure capacity in the existing urban areas forms a binding constraint on the level of growth that can be accommodated via intensification. The relationship between greenfield capacity and intensification is set by these constraints, and the RER assessment uses the implied shares to allocate growth between greenfields and intensification. Additional work and further refinements will be needed to capture new information about infrastructure delivery schedules, spatial patterns, and any changes in network capacities.

4.4 Realistically expected to be realised (RER) capacity

The next part of the capacity assessment relates to the realistically expected to be realised capacity (RER). This capacity is estimated by considering a range of factors and is applied a city-wide level.

The anticipated demand-capacity situation shows the capacity that is required to comply with the NPS-UD requirements, and are:

- Demand
  - Overall demand level (growth) 6,220 + 247[26] dwellings
  - Additional competitiveness margin 1,130 dwellings (based on 20% and 15% margins depending on the timeframe)
  - **Total capacity required** **7,595**
- Total capacity
  - **Estimated**: **7,795**

These headline values suggest that there is **sufficient capacity** in Nelson to accommodate future growth. It is necessary to consider the attributes of the capacity estimates and the demand projections. Simply having capacity that is feasible and supported by infrastructure does not translate into RER capacity. Crucially, RER is not a projection of development, and is instead meant to reflect, at a high level, the likelihood of development – it does not show the specific uptakes of individual development opportunities. The RER is estimated by considering:

- feasible and infrastructure supported capacity
- estimated price points (i.e., the value bands)
- household income levels to reflect affordability and potential market size,
- different timeframes (as per the NPS-UD requirements),
- Using a 'stock-flow' approach with available capacity that is not used in one period carried to the next.

The RER process assumes that the greenfield development options will be exercised and therefore the RER results presented below focus on the share of growth that can be accommodated via

[26] Including demand from non-occupiers.

intensification/development in the existing urban area. Table 4-3 summarises the RER estimates for the intensification component and shows:

- the distribution of demand across value bands. The relevant competitiveness margins are excluded from this table and the demand component reflects only the share of growth to be accommodated via intensification.
- the second part of the table shows the feasible capacity for different timeframes. In this case, the feasible capacity has been summarised by only counting the capacity associated with the development pathway with the highest profit ($ terms).
- The available capacity based on a combination of feasible capacity and infrastructure capacity.
- The RER capacity.

Table 4-3: High level RER summary (Excl Greenfields)

		Value Bands ($)					
		400,000	800,000	1,200,000	1,600,000	2,100,000	SUM
Intensification demand (Excl margins)	3 years	240	90	40	30	-	400
	7 years	490	180	190	70	70	1,000
	20 years	230	320	230	90	440	1,310
Capacity (Infra supported and feasible)	3 years	-	400	870	80	10	1,360
	7 years	-	810	390	70	10	1,280
	20 years	-	170	1,600	190	70	2,030
RER Capacity	3 years	-	240	170	40	10	460
	7 years	-	810	390	70	10	1,280
	20 years	-	170	1,600	190	70	2,030
Sufficiency	3 years	Insufficient	Sufficient	Sufficient	Sufficient	Sufficient	Sufficient
	7 years	Insufficient	Sufficient	Sufficient	Insufficient	Insufficient	Sufficient
	20 years	Insufficient	Insufficient	Sufficient	Sufficient	Insufficient	Sufficient

Rounded

The degree to which feasible- and infrastructure supported capacity is greater than (or smaller than) demand across different property value bands informs the RER assessment. Two observations are key:

- There is portion of demand that is unlikely to be met through the mainstream market. Low-income households face affordability constraints meaning that they are unlikely to particate in the mainstream market and purchase new dwellings. Social housing providers in the public and private market do however provide for these households. Further, some households choose to rent over the long term and some of the lower income households could purchase lower value properties associated with the existing dwelling stock. Therefore, the RER capacity assessment also considers the future value of the current estimate.
- At the top-end of the value bands, there appears to be a mismatch between demand and supply, with demand observed for high value properties against the modelled outcome where portions of feasible capacity sits below where these households are demanding developments. This issue does not have a material impact on overall RER because these households can afford a cheaper development, or a more expensive development pathway could be used to satisfy the demands of high income households. These households' demand is included in the RER assessment.

Other observations from the results show that:

- There is considerable feasible capacity based on the zoning provisions, with the feasible capacity for the short term (3 years) seventeen times anticipated demand levels. Over the long term, the magnitude increases with the effects of PC29 and the additional development opportunities it enables. The feasible capacity is 33-times the estimated demand levels.
- At a total level, there is sufficient capacity to support development, however when affordability and the development costs are integrated into the assessment, then there is a deficit at the lower value band properties. As mentioned earlier, other market players can deliver dwellings for these vulnerable segments. The analysis shows that over the short to medium, there is capacity in the sub-$800,000 band that can be developed to support these households. However, price increases of the long term shift feasibility upward, with the feasible capacity moving upwards in the value-bands. Over the long term, demand for sub-$800,000 properties are estimated at 550 dwellings, but the RER in this band is estimated at 170 highlighting the mismatch. Expanding the value bands to look at development opportunities in the sub-$1.2m category shows that RER is 1,770 compared to demand of 780.
- It is important to note that the price increase reflected here include 30 years of price inflation, and the feasibility assessment includes construction price increase, property value shifts as well as salary and wage increases.
- The RER analysis for the short term shows that only a portion of the short term capacity is required and expected to be developed. Moving to the medium and long term shows that substantial portions the infrastructure ready capacity is likely to be developed in response to demand pressures (assuming it is available).

The feasible and infrastructure ready capacity is estimated spatially and differentiates between different housing typologies, including detached and detached dwellings. The demand for different typologies is derived from the DotLovesData and StatsNZ projections presented earlier in the report. In the previous section, feasible capacity was based on the maximum profit across the development pathways. This is now supplemented by taking a more nuanced view of the capacity by isolating the feasible capacity for detached and attached options. The maximum capacity on each parcel is identified for the infill or redevelopment approach based on the highest profit but it is assumed that only detached or attached typologies can be developed. The influence of infrastructure capacity remains embedded in the analysis. The results are compared against the estimated demand for detached and attached dwellings. The potential effects of a housing preference shift towards higher density dwellings are illustrated and discussed[27]. The shift is based on an increase in households' preference for higher density dwellings, specifically attached dwelling typologies. Affordability constraints remain an issue regardless of the preference shift, and a portion of households in the lower income bands (associated with properties in the lower value bands) remain.

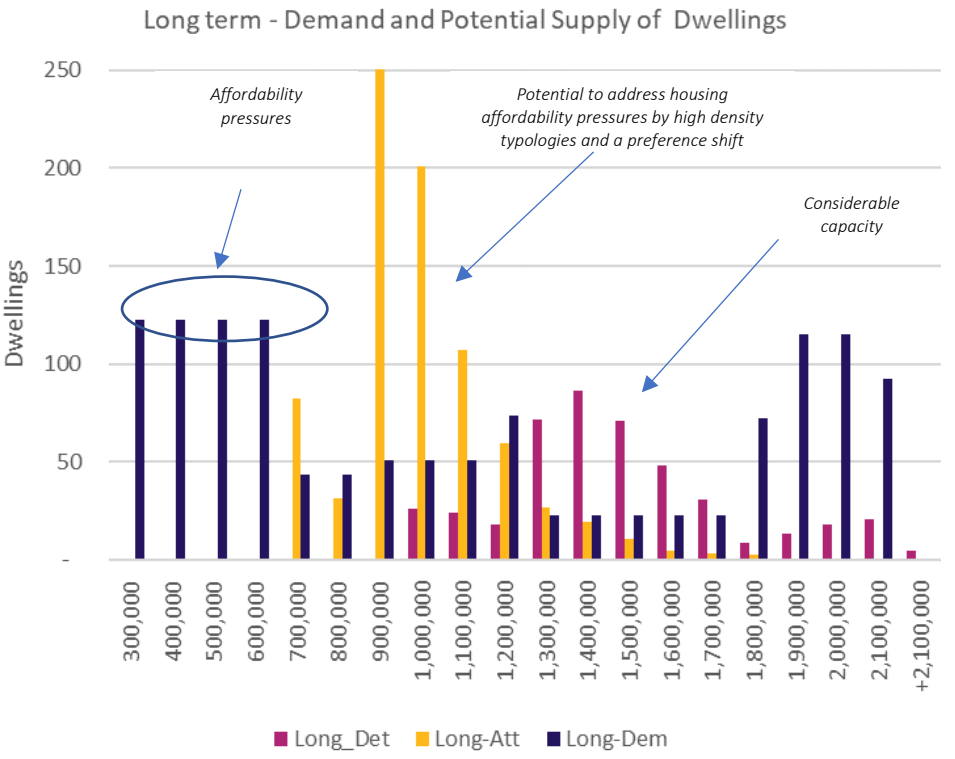
The analysis compared the feasible and infrastructure supported capacity for detached and attached dwellings. An important issue is that the financial attributes of development suggest that profit levels are generally greater using detached housing formats. However, households' ability of to buy (afford) detached housing products is likely to come under pressure, necessitating a response from the construction sector. The response could include delivering higher density attached typologies with a lower profit profile but responding to the market realities facing home buyers. Over the medium term, PC29 enables a shift towards higher density typologies, but it will take time for the market and households to adjust to emerging realities (i.e., a preference shift to high density housing products and changing in the housing attributes/features associated higher density houses[28]).

[27] From around 20% of intensification demand, to 25% of intensification demand accommodated via attached dwellings.
[28] For example, a smaller/no backyard.

Figure 4-3 illustrates the relative distribution of the feasible capacity for detached and attached dwelling across value bands, for the long term. The figure shows the potential capacity for detached and attached typologies regardless of infrastructure constraints.

Making this adjustment shows the availability of feasible capacity (and infrastructure supported) if the construction sector pursues different a typology approach in response to demand shifts from households due to affordability considerations.

Figure 4-3: Demand and potential supply (Long term, including preference shift)



Note: the FC for attached dwellings in the $900,000 band is not shown in the figure, and the actual value is 380.

There is considerable capacity across the middle value bands that could be used in response to preference shifts. The long term figure indicates a difference between the capacity and demand levels for developments associated with the high end of the price point. This is a feature of the modelling approach that estimates the average price for a development, not the upper or high end development. It is possible that these households, or developers servicing these market segments, could tap into the feasible capacity in the middle value bands, but develop properties to higher specification.

With reference to the sufficiency, the analysis suggests that there is sufficient capacity over the short, medium and long term to accommodate growth when looked at from a total/aggregate level. As highlighted above, there are misalignments at a value band level, especially for those bands associated with lower income households. Crucially, the sufficiency position is subject to the infrastructure capacity assumptions (i.e., Council provided estimates and the associated assumptions), as well as the greenfield development capacities. Additional work to confirm these inputs would assist in lifting the robustness of the sufficiency assessment.

4.5 Concluding remarks

The analysis builds on earlier work by NCC and M.E around plan enabled capacity associated with the NRMPS and PC29. The plan enabled capacity estimated in the earlier work forms the starting point for this assessment. The feasible capacity across Nelson for residential development will support the residential market to respond to housing demand over the short, medium and long terms. The feasible capacity is across typologies and value bands, providing choice to potential buyers.

The limited certainty around the infrastructure delivery timelines, funding and scale of supported capacity means that a set of assumption underpin parts of the sufficiency assessment. If this infrastructure investment occurs in a timely manner, then there will be enough capacity to accommodate growth. However, it is difficult to provide a definitive indication of whether this will be the case or not. Nevertheless, based on available information, there is sufficient capacity to support future residential growth and development across Nelson.

Appendices

Appendix 1: Estimating Commercial Feasibility Process

The model operates at a property parcel level to estimate commercial feasibility of each development typology – standalone dwellings, duplex, apartments – on each parcel. It uses base parcel information, sourced from the rating data and a GIS process, to calculate the section and dwelling capacity. Floor area ratios were used to estimate the size of the dwelling that could be built. To prevent dwellings from becoming non-sensical on large sites, an upper limit of 300m^2 was set.

The assessment process estimates the costs associated with each potential dwelling development option and size, as well as the expected sales price. The difference between building costs and sales prices are compared, relative to a set required profit margin. The required profit margin for commercial feasibility is currently set at 20% to be consistent with the feasibility tool provided as part of the NPS-UD technical guidance. In other words, a development option on a parcel is considered financially feasible if the sale price exceeds the costs by at least the set profit margin. If a higher margin is applied, then a smaller number of dwellings will be feasible, and vice versa.

It is assumed that land is purchased once it is ready for development – i.e., it is serviced by infrastructure, has had bulk earthworks completed and has the final property parcel boundaries established.

Next the potential sales price of each development option is estimated. The sale price is determined from a combination of dwelling size, type, and location. Property information, both publicly available and M.E's proprietary data, was used to supplement the data. From this, corresponding matrices of sales values by dwelling size and location were produced. The variables enabled factors to be established to differentiate sales prices between older and new floorspace, where newly constructed floorspace has a higher sales value. Further analysis of recent property sales was then undertaken to verify and calibrate the matrices.

The following key parameters underpin the cost analysis (current values and rounded):

- Site preparation costs $11 - $25 per m^2
- Driveways and landscaping $95 per m^2
- Other utilities $4,750
- Professional fees $6,420 plus 22% of ancillary costs
- Building costs (buildings only) between $2,040 to $4,380/m^2 (depending on typology)
- Development contributions between $26,080 and $38,870.