

Waimakariri Residential Capacity and Demand Model – IPI 2023

Economic Assessment

Waimakariri District Council

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Contents

1	Introduction	6
1.1	Background	6
1.2	Scope	7
1.3	Structure	7
2	Waimakariri Residential PDP, IPI, and Future Growth	8
2.1	Proposed Waimakariri District Plan	8
2.2	Waimakariri Intensification Planning Instrument	9
2.3	Future Growth Areas	11
2.4	Summary – Residential PDP, IPI, and Future Growth	16
3	Waimakariri Capacity for Growth Model	17
3.1	Residential Demand Projections	17
3.2	Capacity Assessment Model	22
3.3	Feasibility Assessment Model	25
3.4	Sufficiency Modelling	27
3.5	Summary – Waimakariri Capacity for Growth Model	28
4	WCGM22 Results	29
4.1	Waimakariri District	29
4.2	Rangiora Situation	32
4.3	Kaiapoi Situation	33
4.4	Woodend/Pegasus Situation	35
4.5	Urban Environment Situation	36
5	Conclusion	37
	Appendix A – Zone Density Assumptions	39
	Appendix B – NPS-UD Requirements	40
	Implementation	40
	Demand Projections	42
	Supply Capacity	44
	Sufficiency Assessment	46

Ministry for the Environment Guidelines.....	47
Framework	48

Figures

Figure 2-1: Proposed Waimakariri District Plan Subdivision and Building Rules by Zone	8
Figure 2-2: Intensification Planning Instrument MDRZ Extents.....	10
Figure 3-1: Stylised Depiction of Population, Family, Household, and Dwelling Projections.....	19
Figure 3-2: Geospatial Property Model.....	23
Figure 4-1: Waimakariri District Residential Dwelling Demand Projections, including Competitive Margin.....	29
Figure 4-2: Waimakariri District Residential Dwelling Capacity, Plan Enabled, Reasonably Realised and Feasible	30
Figure 4-3: Waimakariri District Urban Dwelling Demand (+Margin) and Feasible Supply.....	32
Figure 4-4: Rangiora Residential Dwelling Demand (+Margin) and Feasible Supply	33
Figure 4-5: Kaiapoi Residential Dwelling Demand (+Margin) and Feasible Supply	34
Figure 4-6: Woodend/Pegasus Residential Dwelling Demand (+Margin) and Feasible Supply.....	36
Figure 4-7: Urban Environment Residential Dwelling Demand (+Margin) and Feasible Supply	36

Acronyms

FDS	Future Development Strategy
GCP	Greater Christchurch Partnership
IPI	Intensification Planning Instrument
NPS-HPL	National Policy Statement of Highly Productive Land
NPS-UD	National Policy Statement on Urban Development
PDP	Proposed District Plan
MDRS	Medium Density Residential Standards
MDRZ	Medium Density Residential Zone
WCGM	Waimakariri Capacity for Growth Model
WDC	Waimakariri District Council

1 Introduction

Over the last two decades, Waimakariri District has experienced rapid growth in population, from around 27,100 in 2000 to 69,000 in 2023. Population in the District has grown by 4% per annum, which is much faster than almost every other district in New Zealand, only Selwyn and Queenstown Lakes grew at a faster rate. Furthermore, there has been a rapid increase in residential development activity, in terms of dwelling construction, which has consistently outpaced the old Statistics New Zealand projection (medium 2018 based projections).

Waimakariri District Council (WDC) has been continually monitoring and planning for this growth. The Council has commissioned research on different aspects of residential capacity to ensure that there is sufficient supply to meet demands in the future. Most relevant research is the Waimakariri Capacity for Growth Model (WCGM) and associated research on commercial feasibility, which is described in this report.

1.1 Background

The National Policy Statement on Urban Development (NPS-UD) includes a set of reporting requirements relating to urban development capacity, both in terms of residential and business activity (which is discussed in more detail in Appendix B). A key part of the requirements is that Tier 1 councils must investigate how much capacity is enabled within their planning frameworks and the extent to which this capacity may be developed by the market. Councils are also required to assess the potential future demands of the community.

The comparison of the developable supply and the demand projections provides an indication of whether there is sufficient urban development capacity to meet the needs of the community. In the case that there is deemed to be insufficient supply then the local council must act to provide more capacity.

WDC is a Tier 1 council, as such it has commissioned the development of the WCGM and research on commercial feasibility. Over the last seven years the research has been updated to match changes in demand and supply, with three significant updates being completed in 2017, 2019, and 2022. In terms of residential component of the models, the early version of the models indicated that there was insufficient supply to meet demand in the medium terms and long term.

Since the first model was completed a number of things have changed, with the most important changes being:

- ❖ population growth and dwelling building activity has exceeded expectations.¹
- ❖ global pandemic and border closures, which impacted immigration.
- ❖ private plan changes, has resulted in an increase in capacity.
- ❖ planning process, District Plan Review and Intensification Planning Instrument (IPI), have contributed to considerable increase in capacity.

In summary, over the past seven years there has been unprecedented change in both demand and supply within the Waimakariri District. This has meant that WDC has needed to continually update the research on the residential market, and the Council has exceeded the requirements set out within the National Policy Statement on Urban Development.

1.2 Scope

The scope of this report is to provide a summary of the WCGM22. Council has requested that Formative develop a written report that provides:

- ❖ A summary of the approach adopted in the residential components of the model;
- ❖ The assumptions used within the modelling, including demand (location, typology, etc) and capacity (plan enabled, feasibility, etc);
- ❖ Specific outputs for urban environments within Waimakariri (Rangiora, Kaiapoi, and Woodend/Pegasus) for the residential components of the model.

1.3 Structure

This report is structured into four subsequent sections, as follows:

- ❖ Section 2 briefly discusses key aspects of the District Plan Review, Intensification Planning Instrument, and Future Growth areas that are reflected within the model.
- ❖ Section 3 outlines the findings of the nature of the Waimakariri Capacity for Growth Model 2022, which covers method and assumptions used within the model.
- ❖ Section 4 describes the District and township level residential outcomes for Waimakariri.
- ❖ Section 5 provides the findings of this report.

¹ Statistics New Zealand (2022) Subnational Population Estimates.

2 Waimakariri Residential PDP, IPI, and Future Growth

The following section provides a brief summary of the local planning framework, which includes the key aspects of the PDP, IPI, and Future Growth planning which have been included within the WCGM22. The focus of the discussion is on residential zones only.

2.1 Proposed Waimakariri District Plan

The Council is proposing to shift to the standard zones within the National Planning Framework, with the residential zones changing to General Residential, Medium Density Residential Zone, Settlement, and Large Lot Residential zones. The change will reduce the number of zones and associated rules that apply within the District. On balance, the proposed changes to zones and the associated rules will allow a small increase in capacity within the existing urban areas in the District.

The General Residential zone enables development to a level that is slightly more enabling than the existing density provided for in the operative District Plan. The Medium Density Residential Zone was proposed to increase housing density close to town centres and public transport routes.² The Settlement zone provides for activity that is equivalent to that observed in most of the smaller townships, which results in little change in capacity. The Large Lot Residential Zone provides for residential living opportunities for predominantly detached residential units on lots larger than other Residential Zones. This means that the change in the zone definitions (and associated rules), in of itself, will not result in a significant increase in development capacity. The table below shows the proposed rules that have been adopted within the WCGM22.

Figure 2-1: Proposed Waimakariri District Plan Subdivision and Building Rules by Zone

Subdivision and Building Rules	Boundary setback (m)	Road setback (m)	Minimum Average Lot (m ²)	Site Coverage	Height (m)	Minimum Building Sqaure
Medium density residential zone	1	2	200	55%	12	
General residential zone	1	2	500	45%	8	15x15m
Settlement zone	1	2	600	45%	8	15x15m
Large lot residential zone	5	10	5,000	20%	8	15x15m

² The notified Medium Density Residential Zone was subsequently changed by Variation 1 to upzone all of the General Residential Zone in Rangiora, Kaiapoi, Woodend/Ravenswood/Pegasus to the MDRS standards as well as the notified MDRZ.

The proposed residential zones will result in most towns shifting from three or more residential zones under the operative District Plan, to less than three, and in most cases the proposed rules will be more enabling, more so using the MDR standards, however in some instances the rules will be less enabling.

Also, the Council is proposing to increase the area covered by residential zones, which can be expected to enable more capacity. Overall, the change in extent (and proposed rules) of the zones is expected to increase capacity within the District. Figure 2-2 below shows the zone extents that have been adopted within the WCGM22.

It is also important to acknowledge that there are a number of submissions on the PDP (and IPI Variation 1) which could result in more land being available for development or land being used more intensively. These proposed changes have not been modelled because decisions on the submissions have not yet been made.

The combination of the change in zones to the National Planning Standards, changes in rules in the PDP, and change in zone extents, have all contributed to providing additional capacity within the District.

2.2 Waimakariri Intensification Planning Instrument

The NPS-UD and the subsequent Housing Enabling Act placed a legislative requirement on Tier 1 councils to produce an IPI to give effect to nationally defined intensification requirements. For Waimakariri there was mandatory requirement that the Medium Density Residential Standards (MDRS) would be adopted in a relevant residential zones of the urban environment³.

As required, the Council notified the Variation 1 to the Proposed District Plan (IPI) in August 2022, which proposes that MDRS is adopted in Rangiora, Kaiapoi, Woodend and Pegasus. Importantly, the IPI and the associated standards have immediate legal effect for sites within relevant residential zones (called Medium Density Residential Zone – MDRZ). This means affected landowners have the opportunity to utilise the new development potential that is enabled in the IPI.

The MDRZ allows landholders to build up to three levels and three units per site, which is much more intensive than is enabled in the proposed residential zones in the notified PDP. Based on the average size of new dwellings in the district⁴ and the rules⁵ within the standards, it would be possible development one dwelling for every 125m² of land.

³ A relevant residential zone is any urban environment with a population of 5000 or more, or any area that is urban in character but intending to become part of an urban environment, but does not include large lot residential zones or settlement zones – s2 RMA.

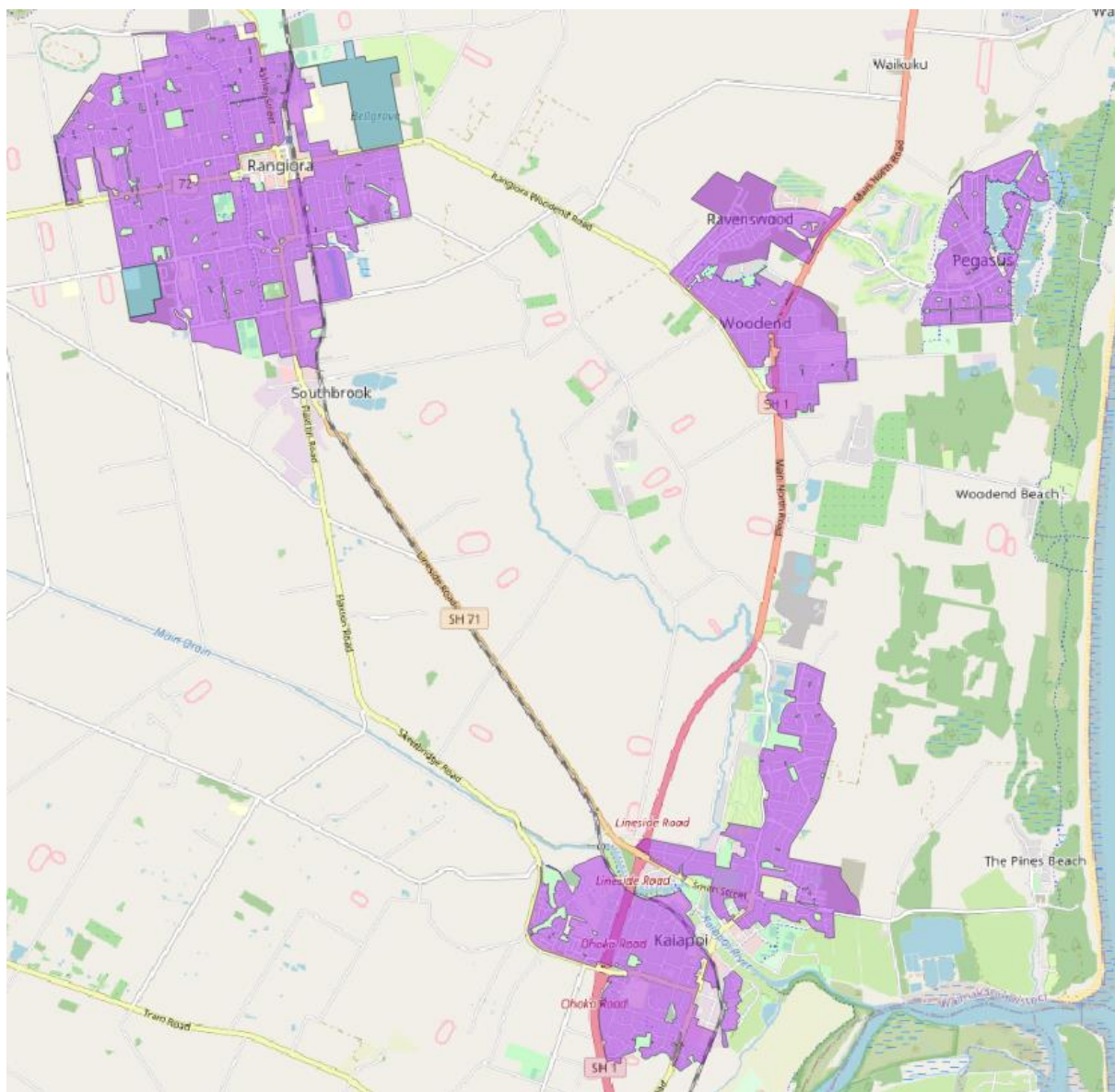
⁴ Statistics New Zealand (2022) Residential Dwelling Floorspace.

⁵ Maximum building coverage of 50%, minimum front boundary 1.5m, minimum internal boundary 1m, and height of 11m.

The variation applies to land that is within the existing urban areas (Rangiora, Kaiapoi, Woodend and Pegasus) and proposed development on the edge of these urban areas. This has meant that a number of submissions on PDP provisions have been altered through Variation 1 and are impacted by the IPI and MDRS. The merit / content of these submissions may be able to be considered in decision-making on the IPI, but the submission remains on the PDP.

Below is a map of the Medium Density Residential Zone (MDRZ) areas, which shows the areas with immediate legal effect as purple and the areas without immediate legal effect in blue (only Bellgrove to east of Rangiora and Townsend Fields to the south). The legislation framework requires that existing relevant residential zones that are changed to MDRS would have immediate effect, while areas that were not previously zoned for residential would not have effect until after the decisions.

Figure 2-2: Intensification Planning Instrument MDRZ Extents



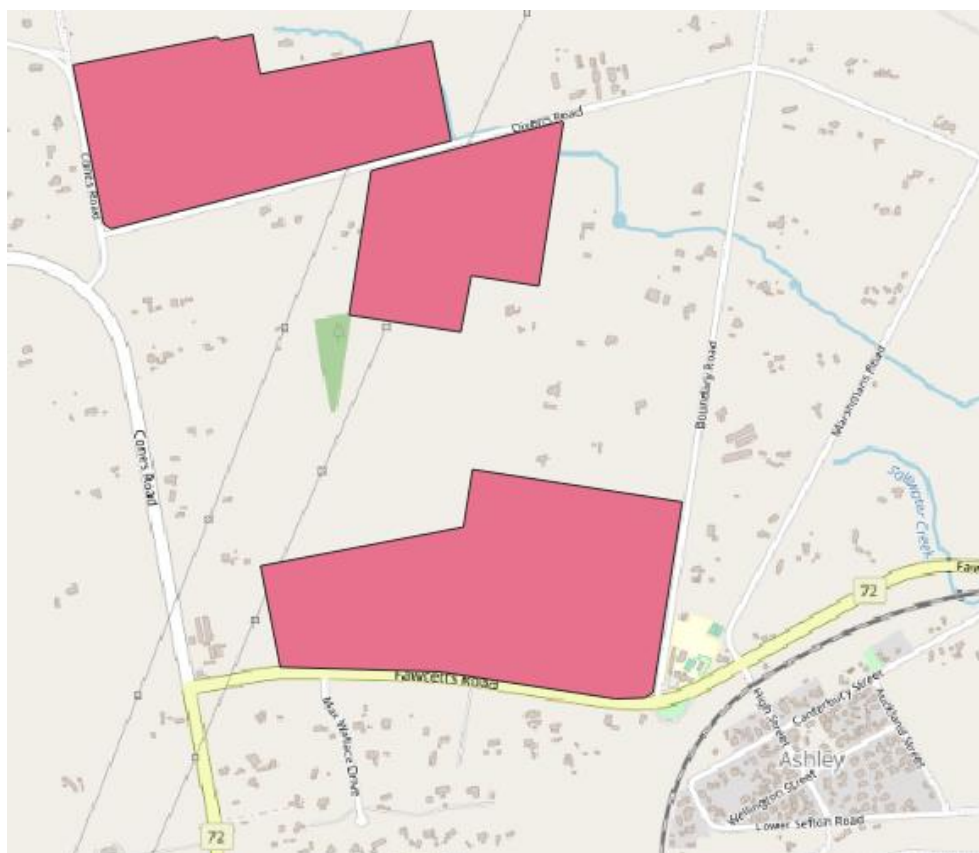
The extent of the MDRZ and the increase in development potential enabled by the rules in the IPI suggests that there will be a significant increase in additional capacity within the District. However, we note that while plan enable capacity can be expected to increase by a large amount that much of this capacity **will not be** commercially feasible or reasonably realisable, which means that it will not be developed in the medium or long term. This is a common outcome observed in other urban environments in New Zealand, with the MDRS providing capacity that is well above the level of conceivable demand and/or much of the capacity is not currently commercially feasible. These aspects of the capacity is discussed further in Section 3.

2.3 Future Growth Areas

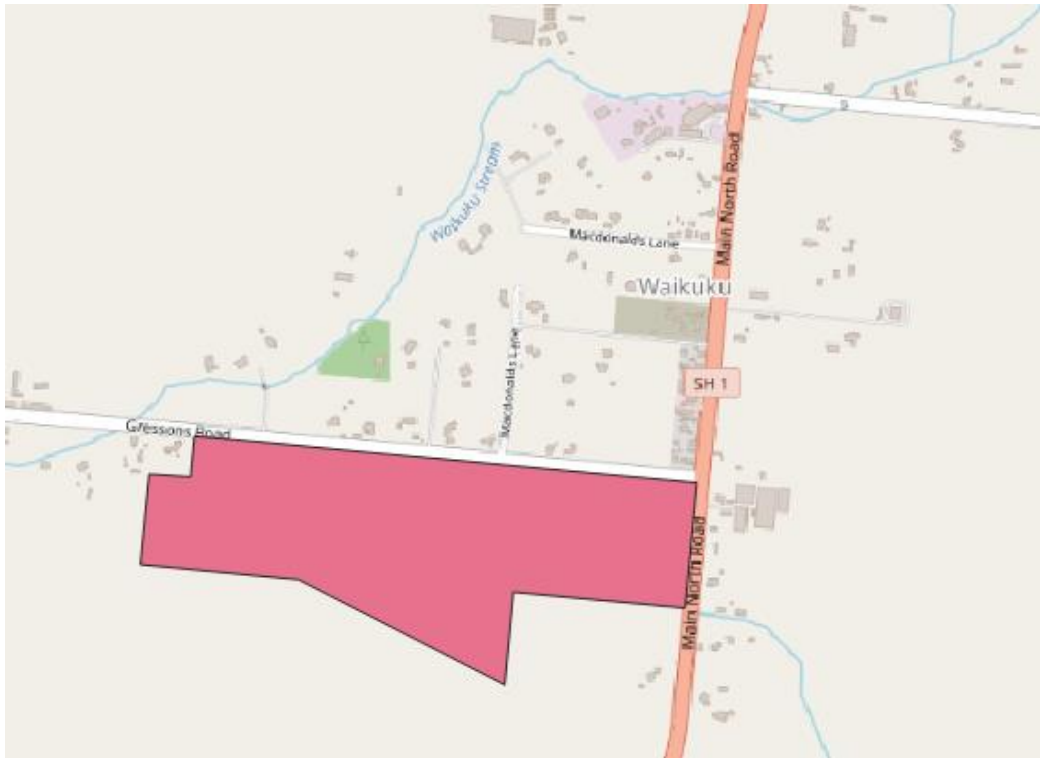
The Council is also planning for additional growth areas, which are indicated via New Development Areas overlays in the PDP. This includes the remaining land within the Projected Infrastructure Boundary (PIB) around Rangiora (235ha) and Kaiapoi (97ha).

There are also the following overlay and precinct areas:

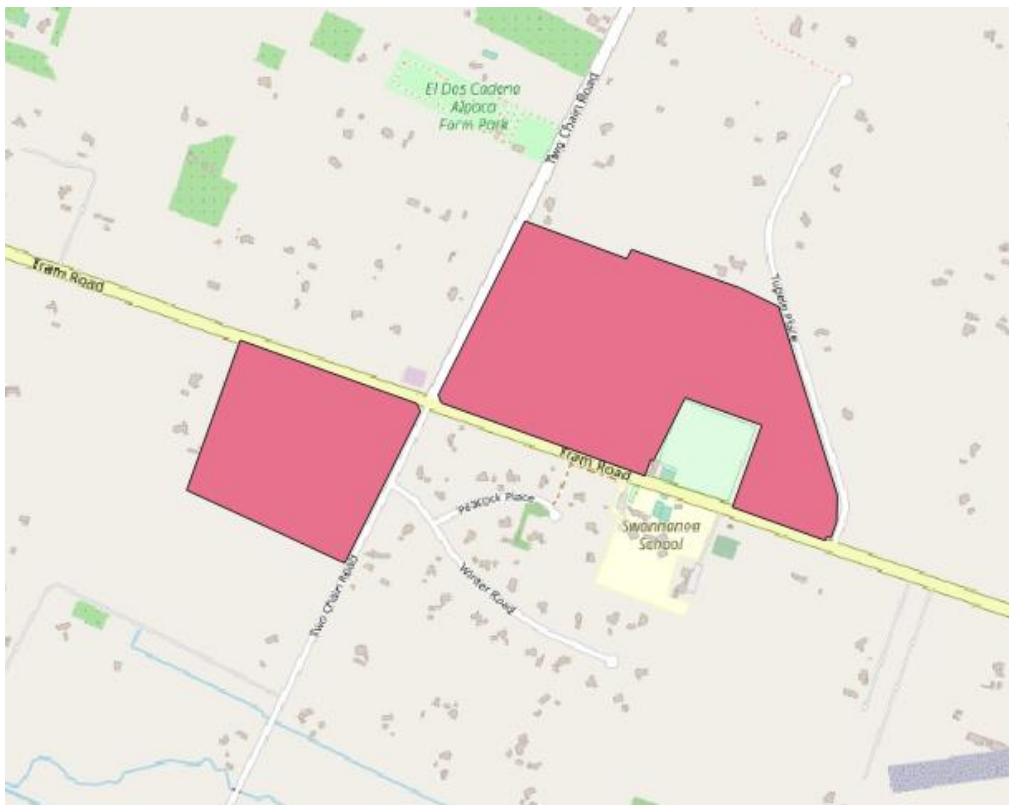
- ❖ **Ashley Overlay:** 73ha area to the north of Fawcetts Road and west of Boundary road, which will be available in the long term and is currently signalled to be Large Lot Residential zone.



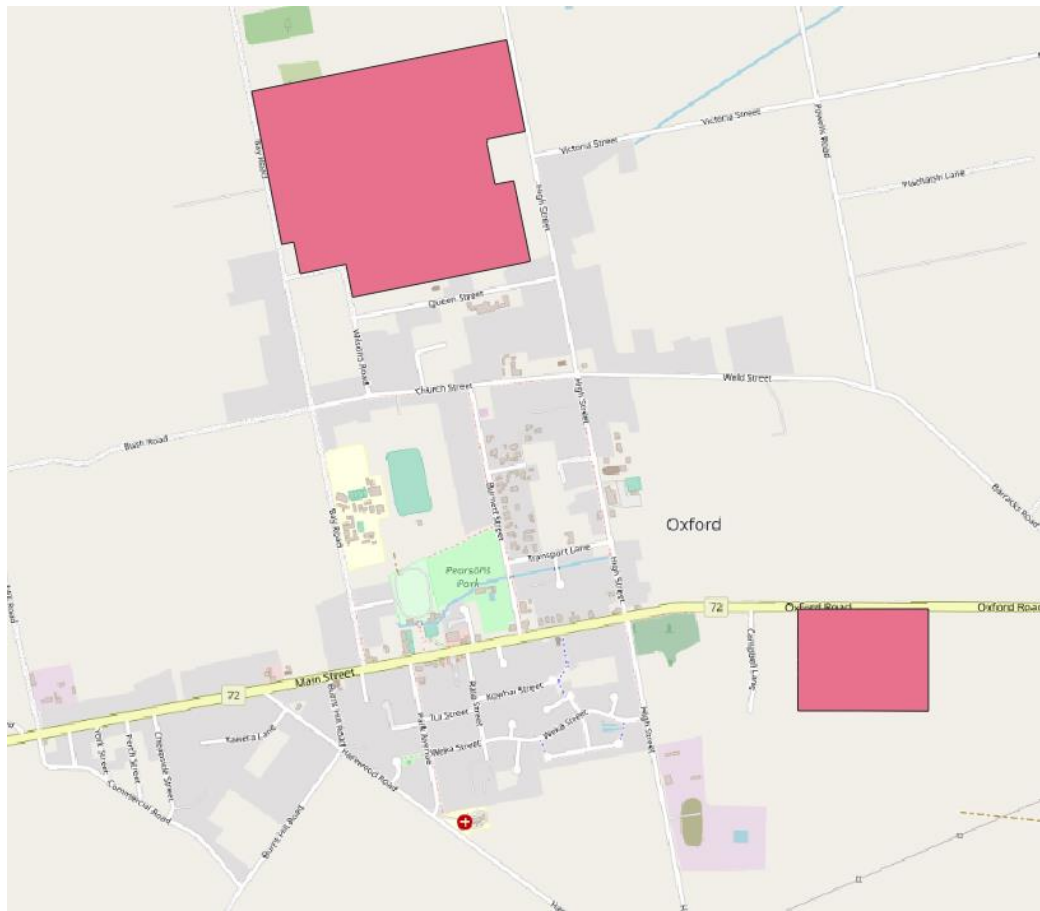
- ❖ **Waikuku Overlay:** a 34ha area to the south of Gressons Road at Waikuku, which will be available in the long term and is currently signalled to be Large Lot Residential zone.



- ❖ **Swannanoa Overlay:** two blocks of land totalling 51ha, one opposite Swannanoa School and the other to the west of Two Chains Road. This land will be available in the long term and is currently signalled to be Large Lot Residential zone.



- ❖ **Oxford Overlay:** two blocks of land totalling 63ha, one to the north of Queen Street and the other to the south of Oxford Road, which will be available in the long term and is currently signalled to be Large Lot Residential zone.

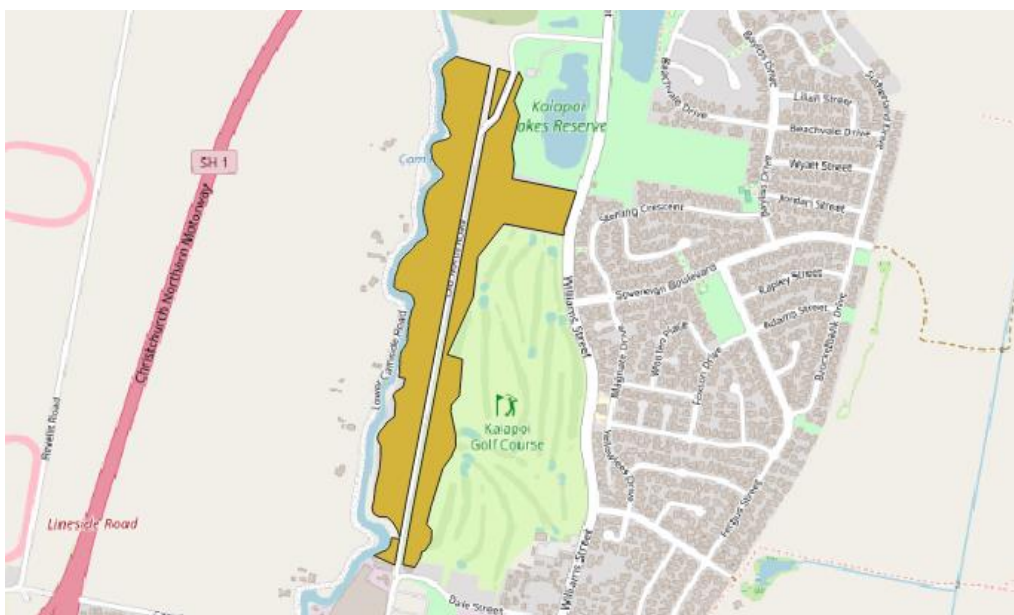


- ❖ **Tuahiwi Precinct:** a number of parcels totalling 30ha, which together makes up Tuahiwi settlement. For the WCGM22 this precinct is assumed to be Settlement zone and be available in the short-medium term. However, it is acknowledged that this land has

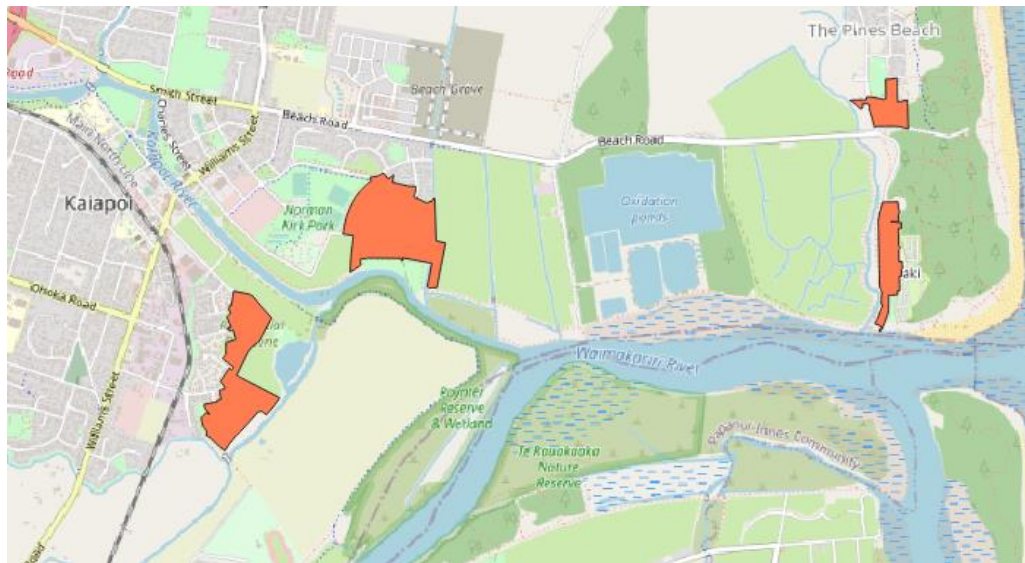
special significance and the use could be more intensive than shown in the Settlement zone.



- ❖ **Kaiapo Precinct:** a number of parcels totalling 20ha either side of Old North Road. For the WCGM22 this precinct is assumed to be Large Lot Residential Zone, and be available in the short-medium term. However, it is acknowledged that this land could be more intensively used in the future than is shown in the Large Lot Residential Zone.



- ❖ **Kaiapoi and Pines Beach Special Purpose:** two areas adjacent to the eastern edge of Kaiapoi (32ha) and other land adjacent to the Pines Beach (9.5ha) which are zoned for regeneration. These areas are excluded from the WCGM22 as being non-developable.



- ❖ **Kainga Nohoanga Special Purpose:** a large block stretch of land from Kaiapoi to Woodend which covers 1,147ha, which is zoned for special purpose. The purpose of the zone is to enable Te Ngāi Tūāhuriri Rūnanga to further develop the land for the purposes as originally intended, including places of residence and for the use and processing of

natural resources. This land is excluded from the WCGM22 as being non-developable, however it is acknowledged that this land could be used more intensively in the future.



The Council has identified a considerable amount of land for residential growth in the future. In the Greater Christchurch⁶ part of the Waimakariri District there is 333ha that is already within the PIB and a further 84ha outside of the PIB. There is also a considerable amount of land (187ha) provided around the smaller settlements in the rest of the wider district.

2.4 Summary – Residential PDP, IPI, and Future Growth

In summary, the Council is proposing to provide a considerable amount of additional development capacity within the District. The combination of the PDP, IPI, and Future Growth areas have combined to result in a substantial change in the planning framework within the District. This is understandable as Waimakariri area is facing strong levels of residential growth, even when compared to the wider region or nationally. The next section describes the modelling method used to estimate the capacity that would be enabled by the planning framework described in this section.

⁶ The area shown in Map A of the Canterbury Regional Policy Statement. For Waimakariri District the Greater Christchurch area includes the land to the east of Two Chain Road and south of Ashley River.

3 Waimakariri Capacity for Growth Model

Tier 1 councils are required under NPS-UD to undertake research of housing demand and development capacity assessment. These assessments are defined within the NPS-UD and the Ministry for the Environment provides guidelines on the development of the assessments. We have provided modelling for the NPS-UD and/or reviewed modelling for most Tier 1 councils in the country. Broadly, each Tier 1 Council maintains a similar model as we have provided for Waimakariri.

Each council either relies directly on Statistics New Zealand population projections for their demand projections, or commissions bespoke demographic projections, all of which use a similar methodology as is adopted in the WCGM22 (i.e. Cohort Component Projection). Also, for Capacity Assessment most councils either develop their own internal GIS based spatial model or commission the development of a model, both of which estimate the amount of development potential spatially (i.e. Geospatial Property Model). The assessment of feasibility is conducted either using case study approach (i.e. subset of the total property base is tested) or property level assessment, however both adopt the same simple approach of assessing the likely sale price and costs of development to establish feasibility.

The key difference between the modelling methods adopted by each Tier 1 council relates to the assumptions that are input into the model. Inherently there must be differences in the assumptions as these must vary to match the local planning framework and market conditions. While some assumptions will be the same (e.g. interest rates), there must be differences between each Tier 1 council for other assumptions (e.g. sales prices).

The following discussion outlines the method that is adopted in the WCGM22 and key assumptions.

3.1 Residential Demand Projections

The residential demand projections used within the WCGM22 use the same approach as Statistics New Zealand Projections, which is called Cohort Component Projection. This method accounts for the fundamental aspects of population change, which is driven by three factors: births (fertility), deaths (mortality), and migration, with the population in a given year equal to the population in the previous year plus births, less deaths, and plus net migration.

This simple account of population is shown in the equation form below.

$$\text{Pop}_y = \text{Pop}_{y-1} + B - D + \text{NM}$$

Where:

Pop_y is the population at end of year

Pop_{y-1} population at start of year

B births during year

D deaths during year

NM net migration (arrivals – departures) during year.



For the projections, the population is rolled forward by calculating the effect of recorded deaths and migration within each age-sex group (or cohort). New birth cohorts are based on recorded births.

The model uses the official Statistics New Zealand Estimated Residential Population as the base population (2022). The assumptions for fertility, mortality and net migration are set for three scenarios, (low, medium, and high), using the official Statistics New Zealand assumptions from the 2018-based projections.⁷

This means that the projections are consistent with the Statistics New Zealand projections, however they have been updated to a newer base year which provides a contemporary set of projections that reflect the growth that has eventuated between 2018 and 2022. For Waimakariri this means that our medium projection set is higher than what was shown on Statistics New Zealand official projections, while the high projection is slightly lower.

The population is then converted to families, households and dwellings. The number of households is estimated by converting the population by age cohort group into families and households using living arrangement propensities from the Census⁸ and household formation rates⁹. The resulting households are used to establish the number of dwellings, both occupied and unoccupied, again based on utilisation recorded in the Census.¹⁰

The projection of households and dwellings is shown in the equation form below.

$$\text{Household}_{type} = \frac{\sum_{age} \text{Pop}_{age} \times \text{LATR}_{age}}{\text{Formation}_{type}}$$

Pop_{age} population in each age cohort group.

⁷ Statistics New Zealand (2022) Updated Population Projections.

⁸ Statistics New Zealand (2022) Family and household projections - Living Arrangement Type Rates.

⁹ Statistics New Zealand (2022) Family and household projections - Average Family per Household Rates.

¹⁰ Statistics New Zealand (2022) Census 2018 Occupied dwellings and unoccupied dwellings.

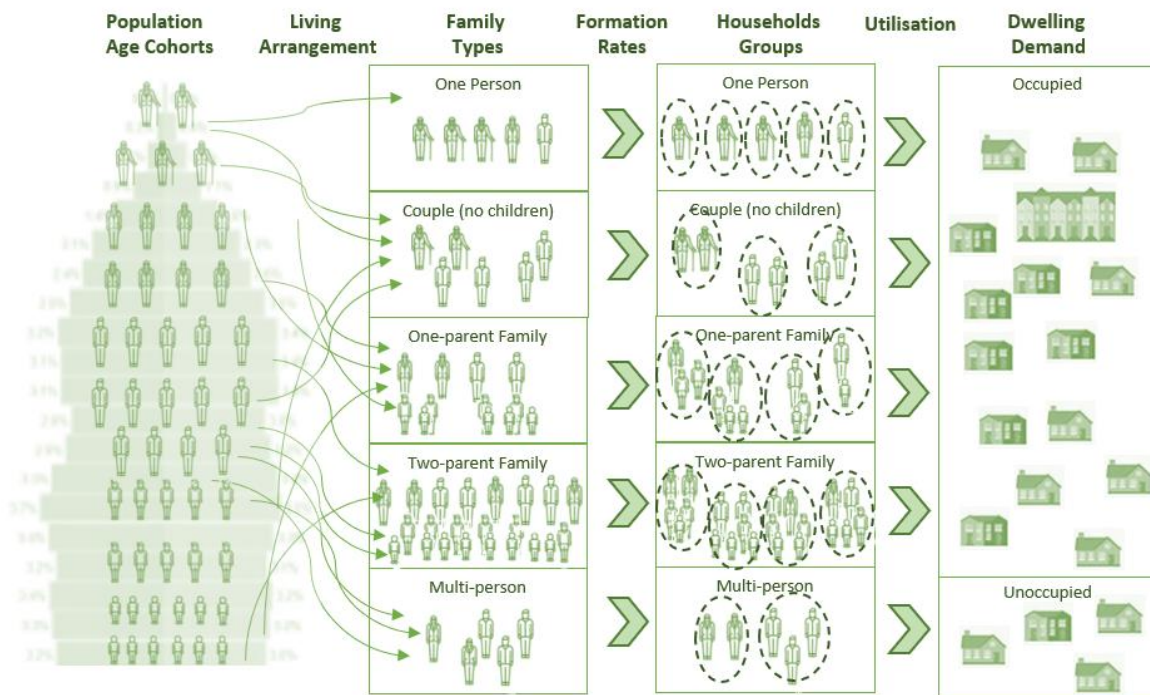
$LATR_{b_{age}}$ the propensity of each age cohort group to live in a family type.

$Formation_{type}$ the conversion factors between family members to household types

$Utilisation_{use}$ the rates of occupied and unoccupied dwellings.

This model uses the official Statistics New Zealand assumptions for living arrangement and formation rates. This means that the projections are consistent with the official household projections, however they have been updated to a newer (2022) base year which provides a contemporary set of projections that reflect the growth that has eventuated since 2018. In the case of Waimakariri, recent population growth has been more focussed on younger family cohorts, which means that the overall population has not aged as quickly as expected and there will be more natural growth in the future than anticipated.¹¹ Also, this means that there are expected to be more families and fewer single person households than was projected in the past. The result is that the household size has not declined as much as anticipated, and in the future the household size is now not expected to decline as quickly.

Figure 3-1: Stylised Depiction of Population, Family, Household, and Dwelling Projections



Demand was then allocated to locations in the District using a midpoint between the demand shares in the Statistics New Zealand projections SA2 and recent building consents (2019-2022). The demand

¹¹ Since 2018 31% of population growth was in 20-44 years old cohorts. This compares to the old Statistics New Zealand projection which suggested only 17% of population growth in these cohorts.

by dwelling type has been estimated using the shares provided in the Greater Christchurch housing need assessment.¹²

Commonly, councils use a medium projection from Statistics New Zealand as the standard projection that is the best estimate of growth. However, for Waimakariri the medium projection has been too low. In the last assessment of residential capacity, the Greater Christchurch Partnership and WDC elected to use a high projection.¹³ This position acknowledged the level of growth that had been observed in Waimakariri, but was cognisant of the then expected impacts of the border closure and the impacts of the Covid19 pandemic. As it transpired the border closures and Covid19 pandemic had minimal negative, and maybe even a positive effect on the growth in Waimakariri, with residential development continuing at high levels. Importantly the medium projection has consistently been surpassed in recent years.

We consider that the Council should adopt a conservative stance and apply a High projection as the basis of planning. We acknowledge that only a few other Tier 1 councils have adopted a High Projection as their baseline for planning. However, we consider that Waimakariri is in a position where there is a likelihood that demand will continue at high levels, which Council should plan for so as not to underestimate future growth. Also, we note that Greater Christchurch Partnership has just released a new housing capacity assessment which has adopted a High projection and that the dwelling demand in the report is higher than shown in WCGM22.¹⁴

Over the past six years the population of the District has grown by 1,500 per annum¹⁵, while the number of dwellings consented grown by 700 per annum¹⁶. Most of the population growth has been driven by net internal migration (over 80%), with people moving to the District from Christchurch and other areas in New Zealand. The remainder of the growth is related to natural growth and to a lesser extent international migration. If the migration trends and associated development continue at these levels then there is a chance that the demand could exceed the High projection.

We consider that there is a low chance that demand will exceed the High projection for such an extended period and that if growth does continue at this level that there will be sufficient opportunity over the coming three decades to adjust the planning framework to ensure that demand is catered for within the District.

¹² Livingston and Associates (2021) Housing Demand and Need in Christchurch.

¹³ Greater Christchurch Partnership (2021) Greater Christchurch Housing Development Capacity Assessment.

¹⁴ Greater Christchurch Partnership (2023) Greater Christchurch Housing Development Capacity Assessment.

¹⁵ Statistics New Zealand (2022) Subnational Population Estimates.

¹⁶ Statistics New Zealand (2022) Building Consents New Dwellings.

We note that there are several signs that point towards a potential decline in residential dwelling construction in the coming years. We consider that the following issues that influence demand should be considered as part of the demand projections:

- ❖ The residential market is cyclical, with peaks and troughs in activity. This means that outcomes within the market will vary from the projections, with overs and unders. Importantly, in the last year residential dwelling growth has reached a record level of activity, nationally (50,000 new dwellings), in Greater Christchurch (8,000 new dwellings) and in Waimakariri District (almost 1,000 new dwellings). There are signs that the peak has been reached, with the last few months showing declining numbers and value of consents (as of May 2023 Waimakariri is down 26% from peak). It may be that growth rates could decrease from current levels in the coming years.
- ❖ The value of new mortgage lending hit peak levels in 2021, with households borrowing record amounts. The amount of new mortgages has been consistently dropping in 2022. The most recent data shows that the value of new mortgage lending has dropped to less than 60% of the value a year ago (January 2023).¹⁷ This significant decrease in borrowing can be expected to have an impact on the number of houses that can be purchased in the coming months and years.
- ❖ The growth in the economy appears to be slowing, with the potential for negative quarters in the future. The latest data shows GDP dropped by -0.7% in December and further by -0.1% in March and New Zealand has entered a recession.¹⁸ However, the unemployment rate is low, and while we are optimistic that the recession may be relatively minor, but that growth rates can be expected to decline which will have implications for household incomes and the housing market.
- ❖ The Reserve Bank of New Zealand has signalled that it is expecting to continue with a restrictive monetary policy for some time. This is likely to result in interest rates increasing from record lows two years ago, both for mortgages and businesses. The result is that housing will become more expensive to afford and suppliers of houses may face increased costs of capital.
- ❖ Recent house sale prices have declined, which will influence outcomes in the market. The feasibility of developments could change rapidly.
- ❖ The post-Gabrielle cyclone rebuild that is required will draw a considerable amount of resources into the areas affected. Similar to the post-earthquake rebuilds in

¹⁷ Reserve Bank of New Zealand (2023) New Mortgages Issued.

¹⁸ Statistics New Zealand (2023) Gross domestic product: March quarter.

Christchurch and Kaikoura, it may be that construction workers are drawn out of unaffected areas which impacts outcomes in the rest of New Zealand.

Taking these factors into consideration, we consider that it is likely that demand in Waimakariri in the short and medium term cannot be expected to continuously reach the high population projection. Therefore, it is a conservative position to adopt the High scenario projection.

3.2 Capacity Assessment Model

The capacity assessments used in the WCGM22 was developed using our proprietary Geospatial Property Model (“GPM”). The GPM provides estimates of the number of additional dwellings that can be developed on each property within the urban areas of the district. The GPM applies a two-stage process, involving a first stage of GIS processing of properties to establish the nature of each property and a second stage that estimates the different types of capacity (as required in the National Policy Statement on Urban Development).

For stage 1, a geospatial analysis was conducted to draw together data for all the properties within the urban areas that could be used for residential and business activities. The geospatial analysis applied the following steps:

- ❖ **Urban Land:** extract land that is currently zoned urban or expected to be zoned urban. A spatial join between LINZ primary parcels (which is a complete and unique record of all land) and the District Plan zones and any proposed new urban areas. The output from this step is a set of parcels that can be used for urban activities.
- ❖ **Developable Urban Land:** remove land that cannot be used for residential and business activities, which includes roads, waterways, open space, reserves, walkways, rail lines, cemeteries, places of worship, and special purpose activities (universities, schools, military, ports, airports, hospitals, etc). The output from this step is a set of parcels that are developable for residential and business activities.
- ❖ **Developable Urban Properties:** establish the nature of the activity that is currently located on each developable urban property. Spatially join data to each property, which includes building footprints, rateable property, building consents, and land use surveys. This step also included both desktop and field trip validation of the data sets, with a focus on new activity in known development areas – both business and residential. The output from this step is a set of properties that are developable for residential and business activities, along with existing activities.

The Developable Urban Properties list is a critical element of the assessment as it forms the baseline from which the Capacity Assessment is conducted. Much of the processing conducted in the Capacity

Assessment is focused on ensuring that information recorded for each of the Developable Urban Properties is accurate and contemporary.

Figure 3-2: Geospatial Property Model



For stage 2, the assessment calculates the different types of capacity as required under the NPS-UD which includes Plan Enabled, Infrastructure Ready, and Reasonably Expected to be Realised, while feasibility was calculated using an additional module. The following steps were used to estimate each of the capacity types:

- ❖ **Plan Enabled:** applies the rules within the local planning framework (PDP and IPI) to establish the maximum theoretical capacity that can be developed on each urban site, which includes height limits, setbacks, minimum site size, etc.
- ❖ **Infrastructure Ready:** draws from Council’s infrastructure information and planning to establish the capacity that will be able to be serviced.
- ❖ **Reasonably Realised:** as discussed in the previous section the amount of plan enabled capacity is significantly larger than will ever be realised within the foreseeable future. It is likely that a large share of the capacity will not be developable, either because of demand side constraints¹⁹ or supply side constraints²⁰. For this assessment the model draws from recent developments, both consents and 224c subdivision data, to establish the development patterns that are being realised by the market, now and in the future. Broadly, the model assumes that development intensity will not increase markedly in the future. To be clear, we consider that most of the development potential enabled by

¹⁹ Given the scale of demand it is likely that only a small share of development will conceivably be needed. Also, households will demand a range of dwelling types, which means that the maximum potential would not be demanded.

²⁰ There are a range of reasons why development potential may not be achieved by the market. Common examples are that developers tend to subdivide to provide a range of options to maximise the potential market that they can serve. Another example is that landholders choose to keep land for their own reasons (aging in place, cultural reasons, etc) which means that development is not achievable on some land.

the IPI within the MDRZ areas will not be reasonably realisable, either in the medium or long term.

The output of the Capacity Assessment is a property-level estimate of the potential development that could be accommodated in the urban parts of the District. It is beyond the scope of the capacity assessment to establish the intentions of landholders, who may or may not develop a site.

We note that in the previous assessments the capacity was measured according to the rules set out in the Operative District Plan (ODP). In the case of Rangiora, Kaiapoi, Woodend and Pegasus developers generally achieved a density of 12 dwellings per hectare, which is equivalent to an average site size of 600m² to 700m². Historically there has been a trend towards increasing density, which has continued. Most recently the development density has increased to 15 dwellings per hectare, which is equivalent to an average dwelling size of 500m² to 550m² per site. The MDRZ which applies to much of the existing and future urban areas in the District provides for density which is much higher than what is currently achieved in Waimakariri. We would expect that the introduction of the MDRZ would at least allow a continuation of this process and may potentially encourage development density trend to increase even faster.

However, there are proposed qualifying matters to the MDRZ. If accepted as recommended, these will limit the density in various ways, such as the Minimum lot sizes for natural hazard areas and noise in Kaiapoi (200m² and 500m², whichever is the greater where both apply).

However, the densities applied to calculate reasonably expected to be realised is much lower than the densities enabled under the qualifying matters. This means that the assessment of capacity is conservative, as it adopts densities which are lower than what is achievable in the zone and also lower than what is being achieved by the market. However, there is small part of Kaiapoi where the density of 500m² is proposed (Natural Hazard Kaiapoi Area B), which is lower than modelled. This area has a small amount of capacity, which means that exclusion of this area would not be material to the assessment.²¹

In summary, the WCGM22 applies the most recent density data, which has resulted in the greenfield areas providing more capacity. For the longer term developments a higher density has been applied, which accounts for change in density over the coming three decades. This has meant that the New Development Areas are estimated to provide more capacity than under the previous model and the previous zones provisions.

²¹ In this area, the WCGM22 has a capacity for 27 new dwellings in the medium term. If the 500m² minimum is applied then capacity would drop from 27 modelled to 17. Therefore, the application of this proposed qualifying matter would not have a material impact on capacity estimated in the WCGM22 (at 0.2% of medium term capacity).

3.3 Feasibility Assessment Model

The structure of the Feasibility Assessment model is similar to most feasibility tools – i.e. it tests whether a commercial developer could purchase the land, invest money to undertake subdivision or dwelling construction and then on-sell at a price that will return sufficient profit. The nature of this process is the same as for most feasibility models, it is simply a financial or accounting assessment of costs and revenues to establish whether a return is sufficient to warrant investment.

The module allows the testing of thirty-six dwelling types, which is defined to reflect both the existing types of dwellings built in the District as well as the types that may be built in the future. The model includes:

- ❖ four typologies of dwelling (detached, attached, townhouses and apartments),
- ❖ three dwelling sizes (large, medium and small)²² and
- ❖ three build qualities (premium, average and budget).

The assessment tests the feasibility of land development and build development within the greenfield areas and urban areas differently. Specifically, the greenfield development is tested using a ‘group home builder’ business model, where the developer reduces the risks and capital requirements by selling home-and-land or design-and-build packages.²³

For brownfield development the model applies speculative builder model, where the developer buys the existing dwelling, either subdivides for infill or demolition for intensification. In both options the speculative build must invest more capital and bears more risk, with uncertainty around sale period and price.

The key inputs into the modelling have been drawn from research conducted for the GCP on subdivision costs²⁴ and build costs²⁵. The sales prices have been estimated using sales data from Quotable Value²⁶. In the short and medium term the model is run with no inflation adjustments, which is required under the NPS-UD. In the long term the model has been using business-as-usual scenario, which assumes that land, construction and sales prices continue according to past trends into the

²² Defined based on the floorspace sizes of new builds in the District. Sourced from Quotable Value (2022) Residential Sales Records – 2018-2022.

²³ In this business model the customer agrees to a price and pays instalments throughout the build, which reduces the risk to the developer and capital requirement.

²⁴ Harrison Grierson (2021) NPS-UD Input Review – Update: Land Feasibility calculator Inputs.

²⁵ WTP (2021) NPS-UD Input Review – Update: Build Feasibility calculator Inputs.

²⁶ Quotable Value (2022) Residential Sales Records – 2018-2022.

future.²⁷ Other key assumptions include the cost of capital (10%)²⁸ and profit margin²⁹. For brownfield sites the value of the existing dwelling and land are estimated for each site using capital value and the change in values since the last valuation data. This assessment was based in June 2022 dollars, and all assumed costs and revenues were converted to this point using available inflation information.

In summary the results of the assessment show that greenfield development opportunities are all feasible currently, although the profit achieved from detached and attached are higher than townhouses, which means that for the medium term that there are unlikely to be many townhouses or apartments, developed within the greenfield areas. In the longer term the profitability of these other denser typologies increases. However, for the most part the modelling indicates that the MDRZ is unlikely to result in a considerable amount of intensive development.

For the existing urban areas (brownfields), infill development is currently viable, although there is not much potential for this type of development. Intensification within the existing urban area is for the most part not financially feasible, which is driven by the high value of the existing dwelling stock (being relatively new), the high cost of constructing multi-level dwellings and the low sales price that will be achieved. From a pure commercial viability perspective, most of the existing land that is proposed for intensification development is unlikely to be developable over the coming decade. In summary, the existing urban areas are unlikely to provide much additional capacity for residential intensification (as compared to maximum that is plan enabled). However, towards the end of the long term intensification may become viable.

The discussion above should not be taken to mean that MDRZ will not have a significant effect as the model does predict some intensification will be developable which will accommodate a reasonable share of demand. Moreover, we note that since MDRZ became operative that the dwelling consents

²⁷ Specifically, in real terms the costs associated with development of a greenfield subdivision increases by 0.7% per annum and the sale price per site is assumed to increase by 1.5% per annum. In real terms the costs associated with dwelling construction increase by 0.7% per annum and sale price per dwelling is assumed to increase by 4.9% per annum.

²⁸ Ministry of Business, Innovation and Employment (2017) NPS-UDC Development Feasibility Tool 3.

²⁹ Statistics New Zealand (2021) Business Performance Benchmark 2017-2020. For land developers was set at 23%, which is the average of land development company profits. The development of detached, attached, and townhouses was set at 7%, which is the average of Residential Building company returns. Finally, developers of apartments are assumed to require 9%, which is the average of Other Residential Building company returns. In the 2021 HBA the GCP undertook discussions with developers who noted that there are considerable amounts of contingencies set aside for risk at each stage of the project, and these costs may or may not arise during the project. Therefore, the return that the developer is expected to receive will be higher than simply profit margin alone, as only some of these contingencies will be spent. The feasibility model is a detailed account of all costs, even uncertain costs, which means that total expected return (combining profit margin and contingencies not required) from land and building development will be higher profit margin alone. The MFE guidelines on feasibility assessment suggest that "this rate of return may vary according to the perceived risks of the project" and mentions 20% return with no reference, or discussion of how this rate was derived or what type of project it relates. This rate is lower than our land developer rate (which are comparatively more risky) and higher than builder developer rate (which are comparatively less risky) within the model.

data shows that developers are achieving much higher densities than WCGM22 predicts, albeit not to the full plan enabled potential.³⁰

Also at this time, greenfield developments in the district can be developed to provide dwellings at a price that is comparatively affordable and is commercially feasible. This situation will not always be the case, in the future when prices of greenfield increase then intensification will start to become a more viable alternative. It is likely that in the future that greater density will mostly be achieved in the greenfield areas, via small lot sizes and more attached dwellings being provided. Also there is likely to some intensification within the brownfield areas, as housing stock ages and attached dwellings (single and double level) become relatively more viable and affordable. Finally, in the future the development of townhouses of three-levels or apartments may become viable. However, this type of multi-level intensification is not likely to be significant within the medium-term, but may become viable in the later parts of the long-term (2040 and beyond).

We conclude that changes in the IPI that will enable intensification in the existing and future urban areas in the district are unlikely to greatly modify the supply situation in the district over the coming decade and that most demand will still be accommodated in greenfield. We note that this outcome will be reviewed every three years (as required in the NPS-UD), so if this situation changes the Council will have another opportunity to act.

3.4 Sufficiency Modelling

The WCGM22 compares the expected demand for dwellings with the supply³¹ within the urban parts of the district, to establish whether there is sufficient capacity to accommodate the expected growth.

The WCGM22 applies a two-stage process, involving a first stage that converts demand to types and locations within the urban areas and a second stage that assesses whether there is sufficient supply to accommodate the demand (as required in the NPS-UD).

The first stage is to assess and convert the demand into key typologies and locations within the urban areas. In summary, this stage takes the demand from the Residential Demand Projections and converts it into typologies and locations, which can then be compared to the Capacity Assessment. The Dwelling demand is converted into types of dwellings, standalone and attached using a set of assumptions – which have been set as baseline preferences observed in the Census and can be varied to allow the user to test different scenarios. These dwellings are then allocated spatially to urban areas in the District based on the observed patterns in building consents. The output of this step is detailed demand by typology and location, for both dwellings and business land.

³⁰ Waimakariri District Council (2023) Comprehensive Dwelling Consents.

³¹ The capacity that is plan-enabled, infrastructure-ready, and feasible and reasonably expected to be realised.

The second stage is to assess the sufficiency of the supply to meet demands, which compares the demand from the first stage with the supply from the Feasibility Assessment. The WCGM22 applies the Competitiveness Margin (20% for short-medium term and 15% for long terms as defined in the NPS-UD), which provides a measure of the minimum amount of dwellings that is required to be 'Sufficient' – i.e. expected demand plus the Competitiveness Margin. The key output of this assessment is to show when and where there may be a need for more supply of developable land within the urban areas.

3.5 Summary – Waimakariri Capacity for Growth Model

Broadly, the WCGM22 uses the same approach to assess demand and capacity as the other Tier 1 councils. The difference between the modelling methods adopted by each Tier 1 council relates to the assumptions that are input into the model. Inherently there must be differences in the assumptions as these must vary to match the local planning framework and market conditions. While some assumptions will be the same (e.g. interest rates), there must be differences between each Tier 1 council for other assumptions (e.g. sales prices).

In summary the WCGM22 has the following modelling:

- ❖ **Residential Demand Projections:** which is standard cohort component model. However, Waimakariri situation means that we consider that it should adopt a conservative stance and use High growth projections. We acknowledge that few Tier 1 council have adopted a High Projection as their baseline for planning, however we consider that the high growth has been persistent in Waimakariri and there is a risk that demand continues at high levels, which Council should plan for. Therefore we have suggested that Council adopt High growth projection.
- ❖ **Capacity Assessment Model:** which is a GIS processing of properties to establish the nature of each property and to estimate the different types of capacity that are enabled by Council. The method adopted in the WCGM22 is similar to the methods applied by other Tier 1 Councils.
- ❖ **Feasibility Assessment Model:** which is a financial or accounting assessment of costs and revenues to establish whether a return is sufficient to warrant investment. This method is a standard method, which is adopted by all Tier 1 councils.
- ❖ **Sufficiency Modelling:** converts demand to location and type of dwelling based on existing preferences, which is then compared to the amount of capacity available in each location. This method is applied in the absence of consumer preferences data, and is the method suggested in the MFE guidelines.

4 WCGM22 Results

The following section provides a brief summary of the results from the WCGM22. The results are from a model run which has the following key assumptions:

- ❖ Residential Demand set at Formative High Projection.
- ❖ Competitive Margin of 20% for short-medium term and 15% for long term, all figures presented include appropriate margin.
- ❖ PDP, IPI, and recently approved Plan Changes are available for development in the medium term.
- ❖ PDP, IPI, recently approved Plan Changes, and Growth Areas, are available for development in the long term.
- ❖ Commercial feasibility is calculated using current prices for medium term and Business-as-usual for the long term.

4.1 Waimakariri District

The WCGM22 projects that over the medium term (coming 10 years) there is demand for over 6,260 new dwellings in the residential areas of the District (626 a year on average), and most of which will be standalone (i.e. a single detached dwelling on a lot). In the long term there will be demand for approximately 14,730 new dwellings (491 a year on average), and again most are expected to be standalone.

Figure 4-1: Waimakariri District Residential Dwelling Demand Projections, including Competitive Margin.

	2023-2033 Short- Medium	2023-2053 Long
Waimakariri District Dwelling Demand		
Standalone	5,726	13,473
Attached	534	1,254
Total	6,260	14,727
Average demand per annum	626	491

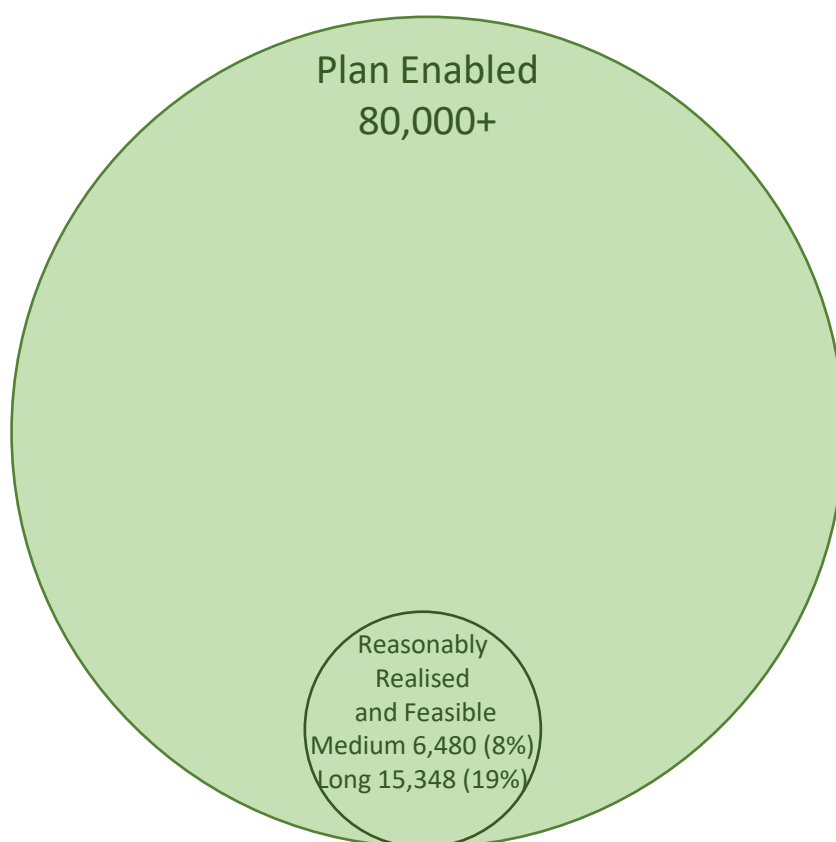
Compared to the 2021 demand projections used in the GCP Housing Assessment, the WCGM22 High projection has a new dwelling demand which is 3% lower in the coming decade and 8% lower over the long term, which is due to the change in population demographics meaning that that household size is not expected to decline as much as previously anticipated.

The capacity assessment shows that there is a large increase in plan enabled capacity from the previous version of the WCGM, which as discussed above mostly relates to the changes required in

the IPI, and to a lesser extent the PDP and new Plan Change areas that have been adopted. In total there is capacity for over 80,000 new dwellings in Waimakariri, which is almost 3 times the number of dwellings currently in Waimakariri. Alternatively, this is almost 13 times more than projected dwellings under the high growth scenario in the medium term, and 5.5 times the long term demand.

Clearly, **most** of this supply will not be reasonably developable or feasible, either in the medium or long term. In total the assessment shows that less than 8% of total plan enabled capacity is feasible in the medium term and 19% in the long term. Also, most of the feasible capacity is within the greenfield areas, with some infill or redevelopment being either reasonably realisable or feasible.

Figure 4-2: Waimakariri District Residential Dwelling Capacity, Plan Enabled, Reasonably Realised and Feasible



However, we acknowledge that there has already been residential developments within the MDRZ parts of the District that have density of development that is close to the plan enabled rules. Consider the following recent comprehensive developments that show that development intensity is increasing:

- ❖ **50 Ashley Street, Rangiora:** demolition of a 1920s dwelling and development of 4 new two-level dwellings. The site has a land area of 811m², which means that each dwelling will have 203m² of land. For this site the WCGM22 predicted no capacity for net additional dwellings (commercially feasible or reasonably realisable) on this site.

- ❖ **152 Ōhoka Road, Kaiapoi:** demolition of a 1960s dwelling and development of 4 new two-level dwellings. The site has a land area of 809m², which means that each dwelling will have 202m² of land. For this site the WCGM22 predicted no capacity for net additional dwellings (commercially feasible or reasonably realisable) on this site.
- ❖ **236 Williams Street, Kaiapoi:** demolition of a 1920s dwelling and development of 6 new two-level dwellings. The site has a land area of 964m², which means that each dwelling will have 161m² of land. For this site the WCGM22 predicted that capacity of 1 net additional dwelling (commercially feasible or reasonably realisable).
- ❖ **20 Seddon Street, Rangiora:** demolition of a 1920s dwelling and development of 5 new two-level dwellings. The site has a land area of 779m², which means that each dwelling will have 156m² of land. For this site the WCGM22 predicted that capacity of 1 net additional dwelling (commercially feasible or reasonably realisable).

These examples are just a small selection of the recent examples of comprehensive developments that are occurring in the District since the MDRZ came into effect.

While there are no examples of development reaching the maximum plan enabled capacity (i.e. 3 dwellings to 3 levels - '3-by-3') in the MDRZ, it is clear that development intensity is increasing.³² The average lot size in comprehensive developments in the district dropped from 380m² in 2018 to 273m² in 2022, and importantly, in the one year since the MRDS came into effect the average lot size has decreased a further 21% to 215m².

This is a significant change in a very short period of time. Importantly the development intensity is materially greater than in the past, and is also greater than modelled in the WCGM22. The WCGM22 predicts a capacity of only 2 new dwellings for the examples above, and yet the market is going to deliver 19 new dwellings (15 net additional), which is almost seven times the level predicted in the model. This indicates that the WCGM22 may be conservative in its yield estimates, and does not account for the recent change in intensity that is being achieved in the Urban Environment.

Furthermore, the comprehensive development consents provided by Council shows that over 100 dwellings were consented during the last year (since MDRS was effective). This is a material amount of supply in a short period of time. These examples suggest that the feasibility assessment within the WCGM22 may be overly conservative, and that a larger share of plan enabled capacity maybe feasible in the medium and long terms as dwelling typology preferences change and purchasers become more accepting of higher density living (see Appendix A).

In total terms the amount of feasible capacity has increased (from the previous version of the WCGM) in the medium term and long term, which is mostly driven by the additional land that is being brought

³² Waimakariri District Council (2023) Comprehensive Dwelling Consents.

forward for development and the trend towards smaller sites resulting in greenfield land yielding more supply.

In conclusion, the large changes made to the local planning framework can be expected to provide sufficient supply to meet demand in the coming medium term and long term. We note that there is a small positive margin, and Council should monitor the situation. However, it is a positive margin and this means that WDC planning framework is sufficient to meet expected demands in the District.

Figure 4-3: Waimakariri District Urban Dwelling Demand (+Margin) and Feasible Supply

Waimakariri District Dwelling Demand	Demand +Margin	Feasible Supply	Sufficiency
Short-Medium	6,260	6,480	220
Long	14,727	15,348	621

However, as has been seen as a result of the earthquakes, Covid19, and recent weather events, the demand situation can change rapidly with people changing preferences to live in new locations than was previously anticipated. This inherent uncertainty is important issue for Waimakariri. While the Council is required by the NPS-UD to update the assessment of demand and supply every three years we support the proactive stance of updating the assessment more regularly. This will ensure that the Council can pivot and change to match demand needs as they arise, including responses such as live-zoning of future growth areas.

4.2 Rangiora Situation

Rangiora is the largest town within the District and is part of the wider Christchurch Urban Environment. As such all residential zones within the existing and greenfield areas are proposed to be changed to MRDZ via the IPI. This is a significant change in the planning framework, with total plan enabled capacity now estimated to be around 43,400 new dwellings, or around 5 times the existing number of dwellings in the town.

In total the demand projections suggest that there is a need for around 1,260 new dwellings in the coming decade and 2,960 in the long term.³³ The projections suggest that just over 20% of growth in residential dwellings in the District will be located in Rangiora and that the town would grow by 36% in the coming three decades, which is equivalent to 1.4% per annum.

The assessment of feasibility shows that there is a capacity for 2,450 new dwellings in the medium term and 7,560 in the long term. The assessment shows that only a small share of capacity will be feasible in the medium term (8%) and long term (17%), which relates to various factors which mean that much of the intensification enabled by MDRZ is not viable for most of the area in either the

³³ Demand plus required competitiveness margin.

medium or long term.³⁴ Most of the capacity is located in new urban areas, with 70% of medium term capacity in the greenfield areas and a density of just under 15 dwellings per hectare.

The model suggests that some infill redevelopment is financially feasible, where properties are subdivided and additional dwelling(s) are added. In the medium term there is potential for 753 new dwellings in the existing area, of which 58% are on sites of more than 400m² and the remainder being on slightly smaller lots of 300-400m². As discussed above these densities are much lower than is enabled in the MDRZ³⁵, and are more akin to either standalone houses or low density attached units with a small backyard. In the long term there is potential for 2,650 new dwellings in the existing area, of which 42% are on sites with more than 400m² and the remainder being smaller lots of 300-400m². Again, these densities are much lower than is enabled in the MDRZ.

The comparison of demand and supply results suggest that there is expected to be ample supply in Rangiora in the medium term and long term.

Figure 4-4: Rangiora Residential Dwelling Demand (+Margin) and Feasible Supply

Rangiora Dwelling Situation	2023-2033 Short-Medium	2023-2053 Long
Demand +Margin	1,260	2,960
Feasible Supply	2,450	7,560
Sufficiency	1,190	4,600

If the future growth areas to the east and west of Rangiora are zoned via the PDP and IPI process then this would bring forward more supply. These two blocks contain 235 hectares of land which could allow thousands of dwellings to be developed. However, given the level of demand we would expect that development of these sites would stretch beyond the medium term, and potentially beyond the long term as well. Additionally, if development density continues to increase in the coming decade that the existing zoned area in the IPI could be expected to provide more capacity than has been estimated in the model.

4.3 Kaiapoi Situation

Kaiapoi is the second largest town within the District and is also part of the wider Christchurch Urban Environment, as such all residential zones within the existing and greenfield areas are proposed to be changed to MDRZ via the IPI as is the case in Rangiora. Total plan enabled capacity now estimated to be around 20,400 new dwellings, or almost 4 times the existing number of dwellings in the town.

³⁴ Importantly, the high density dwelling types that are enabled within the MRZ (i.e. intensification) are not shown to be commercially viable in the District for the medium or long term.

³⁵ i.e. three dwellings of three levels per site.

In total the demand projections suggest that there is a need for around 1,230 new dwellings in Kaiapoi in the coming decade and 2,900 in the long term. The projection suggests that just under 20% of growth in residential dwellings in the District will be located in Kaiapoi and that the town would grow by 52% in the coming three decades, which is equivalent to 2.0% per annum.

The assessment of feasibility shows that there is capacity for 1,290 new dwellings in the medium term and 4,100 in the long term. The assessment shows that only a small share of capacity will be feasible in the medium term (6%) and long term (20%). Most of the capacity is located in new urban areas, with 56% of medium term capacity in the greenfield areas and a density of over 12 dwellings per hectare.

The model suggests that some infill redevelopment is financially feasible, where properties are subdivided and additional dwelling(s) are added. In the medium term there is potential for 595 new dwellings in the existing area, of which 81% are on sites with more than 400m² and remainder being 300-400m² sites. These densities are much lower than is enabled in the MDRZ, and more akin to either standalone houses or low density attached units. In the long term there is potential for 1,622 new dwellings in the existing area, of which 37% are on sites with more than 400m² and remainder on 300-400m². These densities are much lower than is enabled in the MDRZ.

The comparison of demand and supply results suggest that there is sufficient supply in Kaiapoi the for medium and long term. However, that sufficiency may be tight, and that the situation should be monitored and if growth continues at or exceeds the High projection then the Council may need to provide more capacity.

Figure 4-5: Kaiapoi Residential Dwelling Demand (+Margin) and Feasible Supply

Kaipoi Dwelling Situation	2023-2033 Short-Medium	2023-2053 Long
Demand +Margin	1,230	2,900
Feasible Supply	1,290	4,100
Sufficiency	60	1,200

If the future growth areas to the central and north of Kaiapoi are zoned via the PDP and IPI process, then this would bring forward more supply. These two blocks contain 97 hectares of land which could allow well over a thousand dwellings to be developed. However, given the level of demand we would expect that development of these sites would stretch beyond the medium term. Additionally, if development density continues to increase in the coming decade that the existing zoned area in the IPI could be expected to provide more capacity than has been estimated in the model.

4.4 Woodend/Pegasus Situation

Woodend (which includes Ravenswood)/Pegasus is Waimakariri's the third largest town within the District and is part of the Greater Christchurch Urban Environment, as such all relevant residential zones within the existing and greenfield areas are proposed to be changed to MRZ via the IPI. Total plan enabled capacity in Woodend/Pegasus is now estimated to be around 15,660 new dwellings, or over 5 times the existing number of dwellings in this area.

In total the demand projections suggest that there is a need for around 2,480 new dwellings in the coming decade and 5,840 in the long term. This would mean that Woodend/Pegasus would grow by 190% in the coming three decades, which is equivalent to 6.1% per annum.

The assessment of feasibility shows that there is a capacity for 2,200 new dwellings in the medium term and 2,790 in the long term. Only a small share of capacity will be feasible in the medium term (14%) and long term (18%). Most of the capacity is located in new urban areas, with 55% of medium term capacity in the greenfield areas and a density of under 14 dwellings per hectare.

The model suggests that some infill redevelopment is financially feasible, where properties are subdivided and additional dwelling(s) are added. In the medium term there is potential for 1,080 new dwellings in the existing area, of which 72% are on sites with more than 400m² and remainder are sites of 300-400m². These densities are much lower than is enabled in the MDRZ, and more akin to either standalone houses or low density attached units. In the long term there is potential for 1,676 new dwellings in the existing area, of which 58% are on sites with more than 400m² and the remainder 300-400m² sites. These densities are much lower than is enabled in the MDRZ.

The comparison of demand and supply results suggest that there may not be sufficient supply in Woodend/Pegasus in the medium term, with a small shortfall. This technical shortfall is smaller than the competitiveness margin, and if the competitiveness margin is excluded demand for dwellings in Woodend/Pegasus is 2,070 in the medium term, yielding sufficient supply.

Also, while there is a small technical shortfall of capacity in this location we would expect that there is ample supply in other parts of the Urban Environment (Rangiora and Kaiapoi) which would most likely be available to accommodate the demand in Woodend/Pegasus. Alternatively, there would only need to be a small increase in development intensity in Woodend/Pegasus for there to be sufficient capacity in the medium term.

Figure 4-6: Woodend/Pegasus Residential Dwelling Demand (+Margin) and Feasible Supply

Woodend-Pegasus Dwelling Situation	2023-2033 Short- Medium	2023-2053 Long
Demand +Margin	2,480	5,840
Feasible Supply	2,200	2,790
Sufficiency	-280	-3,050

However, we note that in the long term the WCGM22 suggests that there could be a shortage of supply in Woodend/Pegasus, and that this could eventuate around 2037. While the WCGM22 suggests that the shortage will not occur for decades, this situation should be monitored.

We also acknowledge that at the Urban Environment level (Rangiora, Kaiapoi, and Woodend/Pegasus) that there is sufficient capacity to meet long term demands and that the shortfall in Woodend/Pegasus could be accommodated in the other towns.

4.5 Urban Environment Situation

Finally, we present aggregate results for the Urban Environment which is the urban zoned land in Rangiora, Kaiapoi, and Woodend/Pegasus. This area is defined as set out in the NPS-UD and is the same geography used within the Greater Christchurch housing capacity assessments.

There is demand for 4,970 dwellings in the medium term and 11,700 in the long term. The WCGM22 estimates a capacity of 5,940 dwellings in the medium term and 14,450 in the long term. This means that there is sufficient capacity within the Urban Environment to meet expected demand for both the medium and long term.

Figure 4-7: Urban Environment Residential Dwelling Demand (+Margin) and Feasible Supply

Urban Environment Dwelling Situation	2023-2033 Short- Medium	2023-2053 Long
Demand +Margin	4,970	11,700
Feasible Supply	5,940	14,450
Sufficiency	970	2,750

In both the medium term and long term there is a small positive margin, and Council should monitor the situation. However, it is a positive margin and this means that the requirements of the NPS-UD are met, at least in terms of exceeding the threshold. Also as noted above more capacity could be provided via IPI and PDP processes and that development intensity has been increasing in the Urban Environment since the MDRZ was adopted. Therefore, it is likely that there will be more than sufficient capacity in the medium and long term.

5 Conclusion

Waimakariri District has experienced rapid growth which has exceeded the levels predicted by Statistics New Zealand or the Greater Christchurch Partnership. While there have been several unprecedented events (earthquake and Covid19) that have affected dwelling demand in ways that was not anticipated, we consider that it would be prudent for Waimakariri District Council to continue using the High population projection. We acknowledge that this is not a normal position for a Tier 1 council, however all signs point towards continued high growth in the District.

The changes in the local planning framework that have been proposed (PDP and IPI) and recent Plan Changes, have combined to generate a significant increase in the District's residential development potential, and only a small share of the development potential will be required in the coming decades to meet demand.

The changes in demand and local planning framework have meant that the 2019 modelling is now out of date. While not required under the NPS-UD, in 2022 Waimakariri District Council commissioned an additional update of the demand and capacity modelling. The WCGM22 has been developed using methods which follow the MFE guidelines and is broadly consistent with the other Tier 1 assessment models, with the main difference being the input assumptions, which are set according to the local situation in the residential market.

The results from the WCGM22 show that at the District level there is sufficient supply to accommodate demand in the medium (2023-33). After the medium term there may be shortages in some locations in the District (2033-53) toward the end of the long term. In the Urban Environment there is more than sufficient capacity.

Only a small share of the plan enabled development capacity will be required to meet expected demand – 8% in the medium term and 19% in the long term. The low uptake is predicted because most of the intensification development opportunities created in the three main towns are estimated to not be commercially feasible.

We acknowledge that recent residential developments within the three main towns have shown a preference for densities approaching the plan enabled rules, and much higher than the density assumptions in the WCGM22. These examples suggest that the capacity and feasibility assessment within the WCGM22 may be conservative, and that a larger share of plan enabled capacity maybe feasible in the medium and long terms.

The WCGM22 indicates that there may be insufficient residential supply, in Woodend-Pegasus. The Council should monitor that situations to ensure that a shortage does not arise. We consider that given the scale of development potential around the District and Urban Environment that these small

(technical) shortages could be accommodated either within other towns or by slightly more intensive development than assumed in the model. Both of those outcomes could occur and the small undersupply may not eventuate.

Finally, we note that the NPS-UD sets out minimum requirements for sufficiency within urban areas. We consider that these minimums are not a target to be reached and are rather a threshold which should be exceeded. Therefore, it is reasonable for the Council to provide more capacity for urban growth than is required to meet expected demand, both within the urban environment and other townships in the District, while also balancing and taking into account other social, economic and cultural well beings, environmental outcomes³⁶ and the wider goal of encouraging well-functioning urban environments.

³⁶ National Policy Statement on Highly Productive Land.

Appendix A – Zone Density Assumptions

Township	Zone	Type	Plan Enabled (lot m ²)	Reasonably Expected to be Realised (lot m ²)
Rangiora	MDR Zone	Future	125	496
Rangiora	MDR Zone	Other	125	300
Rangiora	Large Lot Residential Zone	Other	5,000	6,000
Kaiapoi	MDR Zone	Future	125	383
Kaiapoi	MDR Zone	Other	125	300
Kaiapoi	Large Lot Residential Zone	Other	5,000	6,000
Woodend	MDR Zone	Future	125	496
Woodend	MDR Zone	Other	125	300
Woodend	Large Lot Residential Zone	Other	5,000	6,000
Pegasus	MDR Zone	Other	125	300
Ravenswood	MDR Zone	Future	125	496
Ravenswood	MDR Zone	Other	125	300
Oxford	General Residential Zone	Other	500	600
Ashley	Large Lot Residential Zone	Other	5,000	6,000
Fernside	Large Lot Residential Zone	Other	5,000	6,000
Loburn	Large Lot Residential Zone	Other	5,000	6,000
Mandeville	Large Lot Residential Zone	Other	5,000	6,000
Ohoka	Large Lot Residential Zone	Other	5,000	6,000
Oxford	Large Lot Residential Zone	Other	5,000	6,000
Swannanoa	Large Lot Residential Zone	Other	5,000	6,000
Waikuku	Large Lot Residential Zone	Other	5,000	6,000
Waikuku Beach	Large Lot Residential Zone	Other	5,000	6,000
West Eyreton	Large Lot Residential Zone	Other	5,000	6,000
Ashley	Settlement Zone	Other	600	1,000
Cust	Settlement Zone	Other	600	1,000
Ohoka	Settlement Zone	Other	600	1,000
Pines	Settlement Zone	Other	600	1,000
Sefton	Settlement Zone	Other	600	1,000
Tuahiwi	Settlement Zone	Other	600	1,000
Waikuku Beach	Settlement Zone	Other	600	1,000
Woodend Beach	Settlement Zone	Other	600	1,000

Appendix B – NPS-UD Requirements

The WCGM22 was developed to meet some of the requirements of the NPS-UD, and its predecessor NPS Urban Development Capacity. Importantly, no model can provide outputs for every aspect of the NPS-UD, and that most councils have adopted different research methods to meet the various requirements in the NPS-UD.

The focus of this report is on the WCGM22 which provides an assessment of the demand for housing and capacity within the District, and the sufficiency assessment required in the NPS-UD. The concept of “sufficiency” is outlined in Policy 2 and then implemented in clause 3.2, and defined further in clauses 3.24, 3.25, and 3.27.

Also of importance is that the National Policy Statement of Highly Productive Land (NPS-HPL) which refers directly to the NPS-UD, stating that Highly Productive land (HPL) can only be rezoned for urban use if it gives effect to the NPS-UD³⁷. Also that even if there is a need for more urban land, that an assessment of alternatives should be undertaken³⁸ and this assessment should look at areas where there is demand in the HBA completed for NPS-UD³⁹ and for types of dwellings in the HBA completed for NPS-UD⁴⁰. While not directly stated in the NPS-HPL, we consider that this new requirement is referring to clause 3.2 and associated clauses 3.24, 3.25 and 3.27 of the NPS-UD.

Therefore, it is important to establish what is required under the NPS-UD, and then this is used as a framework from which the WCGM22 was developed.

Implementation

Policy 2 requires that Tier 1, 2, and 3 local authorities, at all times, provide at least sufficient development capacity to meet expected demand for housing and for business land over the short term, medium term, and long term. For housing the implementation of this policy is set out at Part 3 Subpart 1 of the NPS-UD which is repeated below (emphasis added):

3.2 Sufficient development capacity for housing

(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.

³⁷ NPS-HPL 3.6(1)(a).

³⁸ NPS-HPL 3.6(1)(b).

³⁹ NPS-HPL 3.6(3)(a).

⁴⁰ NPS-HPL 3.6(3)(b).

(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).

Waimakariri is defined as a Tier 1 urban environment⁴¹, so it is required to meet this obligation.

First, the implementation section of the NPS-UD refers to different geographies “region”, “district”, and “urban areas”. Also, the focus of the NPS-UD is on “Urban Environment”, with many aspects of the NPS referring to the Urban Environment as the key geography, which can exclude smaller settlements that are not predominantly urban in character or are not within a housing or labour market (of at least 10,000 people).

In terms of geography, the most relevant section of NPS is set out in subpart 5, which outlines the obligations to undertake a housing development capacity assessment (such as the WCGM22) and it notes that (emphasis added):

3.19 Obligation to prepare HBA

(2) The HBA must apply, at a minimum, to the relevant tier 1 or tier 2 urban environments of the local authority (i.e., must assess demand and capacity within the boundaries of those urban environments), but may apply to any wider area.

Therefore, WDC must at least model the Urban Environment within the District. It is clear that rural areas in the District are not within the Urban Environment, but there may be some small towns that are non-rural zoned that are also not part of the urban environment.

Consider as an example the town of Oxford, which is approximately a 45 minute drive from Christchurch (over 54km) and has a population of around 2,200. While it has non-rural zoning it may not be part of the urban environment as defined in the NPS-UD. WDC and GCP have chosen to exclude Oxford from the Urban Environment, however the WCGM22 includes information for this town. This is acceptable as WDC may use the WCGM22 to plan for Oxford, even though it is not part of the Urban Environment for the purposes of the NPS-UD.

⁴¹ NPS-UD – Appendix: Tier 1 and tier 2 urban environments and local authorities – Table 2.

The second element of 3.2(1) refers to two types of dwellings that must be considered - “standalone” and “attached”. This requirement is straightforward and would be defined as follows:

- ❖ **Standalone:** a dwelling that has no adjoining walls with another dwelling. However, there may be multiple standalone houses on one property (i.e. detached dwellings on a cross lease or granny flat).
- ❖ **Attached:** a dwelling that has one or more adjoining walls, which includes units, townhouses, duplex, apartments, etc.

Third, the time periods used in the NPS-UD are important, which includes short term (3 years), medium term (3-10 years), and long term (10-30 years) – are important because they have implications for what capacity is considered under 3.2(2) in each period, which is discussed further in the following subsections of this appendix.

Fourth, there is a requirement that Tier 1 and Tier 2 councils include a “competitiveness margin” when assessing the sufficiency of capacity. The competitiveness margin is defined as 20% above the expected demand in the short-medium term and 15% above the expected demand in the long term (3.22). The purpose of this margin is to ensure that there is choice and competitiveness in the housing market.

The NPS-UD provides further details on the aspects of the Housing Capacity Assessment in Subpart 5, that covers the requirements of the demand projections, supply capacity, and sufficiency, which are outlined in the following three sections.

Demand Projections

The NPS-UD outlines the requirements for demand assessment in Subpart 5 at 3.24 which is repeated below (emphasis added).

3.24 Housing demand assessment

(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:

- (a) in different *locations*; and
- (b) 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:

- (a) set out a range of projections of demand for housing in the short term, medium term, and long term; and
- (b) identify which of the projections are the *most likely* in each of the short term, medium term, and long term; and
- (c) set out the assumptions underpinning the different projections and the reason for selecting the most likely; and
- (d) if those assumptions involve a high level of uncertainty, the nature and potential effects of that uncertainty.

Most of the terminology used in this clause is consistent with the implementation clause 3.2. The clause refers to demand for dwelling types needs which should identify and distinguish between “standalone” and “attached”, which is consistent with the sufficiency test in 3.2(1), as such the discussion in the previous subsection of this appendix applies. The same applies to the time periods that must be assessed, being short term, medium term, and long term.

The clause does introduce new concepts as follows:

- ❖ **Locations:** the requirements set out in 3.24(1)(a) are that the demand assessment includes “locations”, which may be identified by councils as they choose (3.24(2)). Based on our experience with other HBA around the country we note that the publicly available demand assessments have generally defined locations as groupings of towns or suburbs which are sub parts of the wider urban environment, and in some instances that individual townships have been defined as a single location. Importantly, the NPS-UD sufficiency requirement in 3.2(1) does not refer to “locations” which implies that they may not be required for this test.
- ❖ **Most Likely:** the demand assessment must identify which projection is the “most likely” 3.24(5)(b). The concept of “most likely” is consistent with the sufficiency test in 3.2(1) which refers to “expected” demand. The expected outcome is a commonly applied concept in economics, statistics, and mathematics, which is applied when dealing with probabilities and future outcomes that are uncertain. The expected outcome is the outcome that has the highest probability of occurring. As an example, if a person was to flip two coins at the same time then the event with the highest probability of occurring is one head and one tail (probability of 50%). While the probability of flipping two heads (or two tails) is a lower probability of 25%. In economics, statistics, and mathematics the expected outcome is the most likely outcome. Therefore, this concept is relatively clear and that while clauses 3.2(1) and 3.24 use different terminology, they refer to the same concept.

In conclusion, the NPS-UD requirements mean that the WCGM22 should include the following dwelling demand metrics:

- ❖ short term, medium term, and long term,
- ❖ distinguish between standalone dwellings and attached dwellings,
- ❖ geographies that include at least the urban environment, and can include locations,
- ❖ most likely projection that represents the expected demand.

Finally, the NPS-UD has other requirements that relate to other aspects of demand as well, such as intensification (Policy 5 – density relative to demand), monitoring (3.9 – prices, rents, housing affordability), and impacts of planning (3.23 – housing demand of Māori, older people, renters, homeowners, low-income households, visitors, and seasonal workers, lower-cost housing, papakāinga, student accommodation, housing affordability, price efficiency indicators). Generally, councils have conducted these other types of demand assessments using bespoke research methods which is outside of the HCA. Specifically, the WCGM22 should not be required to carry out these other assessments of policy or submarkets.

Supply Capacity

The NPS-UD outlines the requirements for supply assessment in Subpart 5 at 3.25 which is repeated below (emphasis added).

3.25 Housing development capacity assessment

(1) 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:

- (a) *plan-enabled*; and
- (b) plan-enabled and *infrastructure-ready*; and
- (c) plan-enabled, infrastructure-ready, and *feasible* and *reasonably expected to be realised*.

(2) The development capacity must be quantified as numbers of dwellings:

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

As with the demand, most of the terminology used in this clause is consistent with the implementation clause 3.2. The clause refers to development capacity for dwelling types including “standalone” and “attached”, which is consistent with the sufficiency test in 3.2(1). The same applies to the time periods that must be assessed, short term, medium term, and long term. The clause also refers to four types of capacity “plan enabled”, “infrastructure-ready”, “feasible” and “reasonably expected to be

realised” which are also included in 3.2. Finally, the assessment in 3.25 also includes “locations”, which is the same as the demand assessment in 3.24.

The four concepts of capacity are important and they are defined further within the NPS-UD as follows:

- ❖ **Plan Enabled:** is the theoretical maximum development capacity that is enabled within the planning framework. The definition of plan enabled is provided in 3.4(1)-(2) and it is different for each of the time periods in the NPS-UD, as follows:
 - ❖ **Short term:** land that is zoned in the operative district plan (permitted, controlled or restricted discretionary).
 - ❖ **Medium term:** land that is zoned in the operative district plan or proposed district plan.
 - ❖ **Long term:** land that is zoned in the operative district plan, proposed district plan, or identified for future urban use.
- ❖ **Infrastructure-ready:** is the share of plan enabled capacity that can be serviced by development infrastructure to support the development of the land⁴². The definition of plan enabled is provided in 3.4(3) and it is different for each of the time periods in the NPS-UD, as follows:
 - ❖ **Short term:** development infrastructure exists.
 - ❖ **Medium term:** development infrastructure exists or funding is identified in Long Term Plan.
 - ❖ **Long term:** development infrastructure exists, funding is identified in Long Term Plan, or identified in the local authority’s infrastructure strategy.
- ❖ **Feasible:** is defined in the interpretation section of the NPS-UD as commercially viable to a developer based on costs and revenue from the development of the land and is different for each of the time periods in the NPS-UD, as follows:
 - ❖ **Short term or Medium term:** requires model based on the “current relationship”, which means that costs and revenue must remain static at the base year.
 - ❖ **Long term:** allows the model to apply “any reasonable adjustment”, which means that the costs and revenue can be adjusted for future changes in the market.

⁴² Development infrastructure means the following, to the extent they are controlled by a local authority or council controlled organisation - network infrastructure for water supply, wastewater, or stormwater and land transport (as defined in section 5 of the Land Transport Management Act 2003).

- ❖ **Reasonably expected to be realised:** is not defined in the NPS-UD and local authorities “may use any appropriate method” and “must outline and justify the method” 3.26(1). The NPSUD provides example methods at 3.26(2)-(3):
 - ❖ **Uptake:** an assessment of past capacity that was enabled and building consents to establish realisation rates achieved (i.e. share of opportunity that is developed each year).
 - ❖ **Developer Intentions:** use information about the intentions of developers to establish the proportion of capacity that could be realised (i.e. stated market intention).
 - ❖ **Modifying:** use past development trends to modify densities and timing of development (i.e. projecting past development trends).

The NPS-UD states that different methods may be appropriate when various types of development (greenfield, brownfield, infill)⁴³.

The assessments of plan enabled and infrastructure-ready capacity are comparatively straightforward, and is inherently based on robust input data. Conversely, the assessment of feasibility and reasonably expected to be realised is more complex, and is inherently based on modelling and assumptions.

Sufficiency Assessment

The NPS-UD outlines the requirements for the sufficiency assessment in Subpart 5 at 3.27 which is repeated below (emphasis added).

3.27 Assessment of sufficient development capacity for housing

- (1) Every HBA must clearly identify, for the short term, medium term, and long term, where there is sufficient development capacity to meet demand for housing in the region and each constituent district of the tier 1 or tier 2 urban environment.
- (2) The requirements of subclause (1) must be based on a comparison of:
 - (a) the demand for housing referred to in clause 3.24 *plus the appropriate competitiveness margin*; and
 - (b) the development capacity identified under clause 3.25.
- (3) If there is any insufficiency, the HBA must identify where and when this will occur and analyse the extent to which RMA planning documents, a lack of development infrastructure, or both, cause or contribute to the insufficiency.

⁴³ NPS-UD 3.26(4).

As with the supply and demand, the terminology used in this clause is consistent with the implementation clause 3.2. The clause includes the requirement to include the appropriate competitiveness margin on top of the demand.

Ministry for the Environment Guidelines

The Ministry for the Environment released guidelines on how to undertake an assessment of housing capacity and demand for the NPS Urban Development Capacity.⁴⁴ Since then no new guidelines have been provided for the NPS-UD, as such these previous guidelines are still relevant to the WCGM22.⁴⁵ These guidelines provide additional detail on demand projections and some aspects of the supply assessment.

In terms of demand, the guidelines suggest that Statistics New Zealand population projections are a starting point, or if available household projections, for understanding demand for dwellings. However, the guidelines acknowledge that local authorities may commission bespoke projections. It also notes that *“Should a local authority wish to depart from using a medium projection, the rationale should be explained in the assessment in a way that can be traced and audited.”*

Most Tier 1 and Tier 2 councils have adopted the Statistics New Zealand medium scenario projection, however some have commissioned bespoke projections or adopted Statistics New Zealand high scenario projection (or even medium-high projection). Generally, this decision to adopt other projections has been driven by the fact that Statistics New Zealand only produces projections every 3-4 years and that in high growth areas, the official projections can become out of date quickly.

In terms of the allocation of demand to location and dwelling type, the guidelines suggest that a good assessment applies current and recent patterns of consumption for housing. The guidelines refer to this use of recent patterns as revealed preferences of the existing households within the current market. There is no discussion of what current or recent means, however it is likely between short and medium term periods – i.e. 4-5 years.

The guidelines also suggested that the allocation could be augmented with information about unmet demand for particular types of housing. The guidelines reference the Housing We’d Choose methodology which was first applied in Auckland⁴⁶ and has since been adopted in numerous other

⁴⁴ Ministry for the Environment (2017) National Policy Statement on Urban Development Capacity: Guide on Evidence and Monitoring.

⁴⁵ However, some aspects of the NPS-UDC were changed in the NPS-UD, importantly price point assessment was dropped and feasibility assessment was changed to allow changes in the relationship between revenue to costs in the long term.

⁴⁶ Yeoman, R and Akehurst, G (2015). *The housing we’d choose: a study of housing preferences, choices and trade-offs in Auckland*. Auckland Council technical report, TR2015/016.

cities in New Zealand. In summary, this method collects primary data on housing preferences via a survey which can then be used to model future demand for location and dwelling type.

Turning to the supply assessment, the guidelines suggest that feasibility be tested according to the difference between costs (as estimated by Quantity Surveyor) and revenue using real estate sales price data, with a profit margin. The guidelines note that “rate of return may vary according to the perceived risks of the project” and that a profit margin could be 20%. However, no reference is provided for the target rate suggested and it is unclear what type of development project this relates to. While the guidelines are clear that profit margin varies according to development project type, there is no guidance on what or how the profit margin should be set in the modelling.

Finally, in terms of the modelling approach the guidelines suggest that parcel level models be used in areas with brownfield development and case study representative models be applied to areas with greenfield developments. However, local authorities are advised to use the modelling approach that best suits the nature and complexity of development capacity in the assessment study area. Generally, larger urban environments have adopted models that use a parcel level assessment, while smaller urban environments have adopted the case study approach.

The directions within the guidance are not binding, however they are useful points from which the WCGM22 framework can be defined.

Framework

The discussion above provides a framework from which the WCGM23 was undertaken. This framework provides direction on how the modelling should be defined and some of the key assumptions should be set. However, it is important to note that the NPS-UD and the guidelines do not provide all the information from which a model can be built. There are other inputs and assumptions which must also be set and these are discussed in the body of this report.