Residential Capacity Modelling

Medium Density Residential Standards: Waipa District

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m.e consulting

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Waipa District

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1 Introduction

As part of the Future Proof Partnership[1] (FPP), Waipa District's urban areas are identified as a tier 1 high growth urban area. Tier 1 urban areas need to incorporate Medium Density Residential Standards (MDRS) into their district plans under the Resource Management (Enabling Housing Supply and Other Matters) Amendment Bill. The MDRS generally increases the level of development that is provided for within urban areas. This report calculates the amount of residential dwelling capacity is enabled within Waipa District's urban areas with the application of the MDRS.

The MDRS enables a higher level of residential development capacity in most areas. It increases the potential yield on each property parcel by enabling up to three dwellings on each site. It also increases the level of development opportunity on each site through expanding the three-dimensional development envelope[2] within which dwellings can be constructed. In combination, these provisions enable a shift in development patterns from those previously occurring across the district under the existing and past planning provisions. It is important for the FPPs to understand the level of residential capacity provided with the implementation of the MDRS.

M.E have been commissioned by the FPPs to undertake further residential capacity modelling across the urban residential zones in Hamilton City and the Waikato and Waipa districts to understand the level of capacity enabled by the MDRS. The additional modelling builds off the existing residential capacity modelling undertaken in 2021 for the FPPs to meet the requirements of the National Policy Statement on Urban Development (NPS-UD).

Understanding the capacity enabled by the MDRS is an important first stage in understanding the implications of the MDRS. It is likely that development will get taken up through time at a range of densities, including up to that of the MDRS in some locations. However, much of the development capacity delivered by the market is still likely to occur at lower densities, particularly within the short-term, as demand increases through time for higher density dwelling options.

The report briefly sets out the approach undertaken to model the MDRS provisions and presents the district's urban capacity calculations. It is not intended to be a detailed technical report on the model specifications, beyond outlining the key changes and extensions to the Waipa Residential Capacity Model used to model the MDRS. Further technical information on the structure of the Waipa Residential Capacity Model is instead contained within the FPPs Housing Development Capacity Assessment[3] (HDCA) and associated technical documentation.

[1] The FPP is formed by Waikato District, Hamilton City, Waipa District, and more recently, the main urban centres of Matamata-Piako District.

[2] This occurs through a combination of the maximum height allowances (up to three storeys), building setbacks and height to boundary building recession planes.

[3] M.E, 2021. *NPS-UD Housing Development Capacity Assessment: Future Proof Partners,* prepared for Future Proof Partners (Hamilton City Council, Waikato District Council and Waipa District Council), 30 July 2021.

The report is structured as follows. Section 2 outlines the changes in modelled development patterns with the application of the MDRS. The modelling approach is then described in Section 3. The focus of Section 3 is on the key stages and development of the modelling approach to reflect the MDRS from the residential capacity modelling undertaken for the HDCA in 2021. The summary results from the modelling are contained in Section 4, and concluding comment in Section 5.

2 Changes in Modelled Development Patterns

The development patterns enabled under the MDRS are substantially different to those that are currently provided for across much of the district's urban area within the District Plan. If taken up, they would represent a significant step-change in density to past development patterns that have occurred across much of the district's urban areas.

The district's urban areas have previously predominantly been characterised by lower density development in the form of single detached dwellings on full sites. These have generally occurred up to the densities enabled under the Plan, where much of the urban general residential suburban areas have had minimum site size requirements 500 m2. The minimum site size requirements, together with patterns of demand, mean that the development market has generally favoured single level, detached dwellings. Much of the development has occurred at densities lower than the planning minimums driven by inflows of retirement demand into the district where households have sought larger, higher quality dwellings.

The MDRS generally provides for a substantially higher level of development capacity across much of the district's urban residential areas. These are set out in the MDRS fact sheet[4] and Schedule 3A Part 2 of the Resource Management (Enabling Housing Supply and Other Matters) Amendment Bill. It enables up to three dwellings to be constructed on each site that are up to three storeys high. These are also able to be constructed within an expanded three-dimensional building envelope through the combination of greater allowances in height limits, required setbacks from boundaries and height to boundary recession planes.

These provisions, if applied across the district's urban residential areas, would enable higher density development and dwelling typologies than have previously been provided for within the district. This increases the total residential capacity within the district's urban areas.

If the MDRS provisions are applied to the existing underlying zoning structure, then they would produce a range of medium to higher density dwelling typologies. These range from smaller two-level detached dwellings on smaller sites, up to two to three-level attached dwellings on the smallest land areas (per dwelling) enabled by the standards. At the highest end of the modelled densities, the modelling has assumed that these would reflect horizontally attached 2-3 level walk-up terraced housing. The modelling assumptions around minimum site areas are outlined in Section 3.4.

[4] Ministry for the Environment, 2022. *Medium Density Residential Standards: A guide for territorial authorities,* 21 April 2022, https://environment.govt.nz/assets/publications/Medium-density-residential-standards-A-guide-for-territorial-authorities-v2.pdf, accessed at June 2022.

3 Modelling Approach

This section outlines the modelling approach that has been undertaken to model the capacity enabled by the MDRS within the Waipa District's urban areas. It identifies the key changes and extensions that have been constructed within the Waipa Residential Capacity Model to reflect the provisions of the MDRS.

The estimation of capacity has been undertaken at the parcel level, extending upon the M.E Residential Capacity Model developed for the 2021 HDCA. It is an estimation of the net additional dwellings that can be accommodated on each parcel.

The modelling firstly calculated the capacity enabled under the Plan (plan enabled capacity), and then estimated the share of capacity that is likely to potentially represent commercially feasible development options for profit-driven commercial developers. This section sets out the key changes and extensions developed for the 2021 HDCA capacity model to reflect the MDRS provisions. It is not intended to be a technical document describing the Model in its entirety, which can instead be found within the 2021 HDCA and associated documentation.

An outline of the approach, noting the key changes/extensions is set out in the sub-sections below.

3.1 Capacity Structure

Zoning and Urban Spatial Structure

Modelling has been undertaken across all urban residential zones within the district's urban areas. These include zones that are developed at an urban density and exclude residential development in other zones that are developed at lower densities (e.g. rural and lifestyle dwellings).

As requested by Waipa District Council (WDC), the Operative District Plan (ODP) has been applied as the underlying base zoning file for the modelling. It includes the Growth cells from Plan Change 5. This is consistent with the 2021 HDCA modelling, where the ODP was modelled in the short, medium and long-term.

The ODP urban residential zones across which the modelling has been undertaken include:

- Residential Zone
- Deferred Residential Zone

In alignment with the HDCA, capacity within the Large Lot Residential and Deferred Large Lot Residential zones was excluded as this is instead characterised as lifestyle and rural development.

Analysis was undertaken across the above zones using the same urban structure as the HDCA. The local areas within this structure include:

- Cambridge
- Te Awamutu

- Kihikihi

Analysis across these main urban areas is consistent with the analysis within the HDCA.

A further classification within these areas was then applied to better model the commercial feasibility of the capacity enabled under the MDRS. The residential areas were divided into different types of location, ranging from Level 1 to Level 5, based on the general value of the area. Level 1 areas are lower in value, while Level 5 areas are highest in value. The classifications applied within each area are shown in Figure 3-1 and Figure 3-2.

Figure 3-1: Area Level Classification in Cambridge

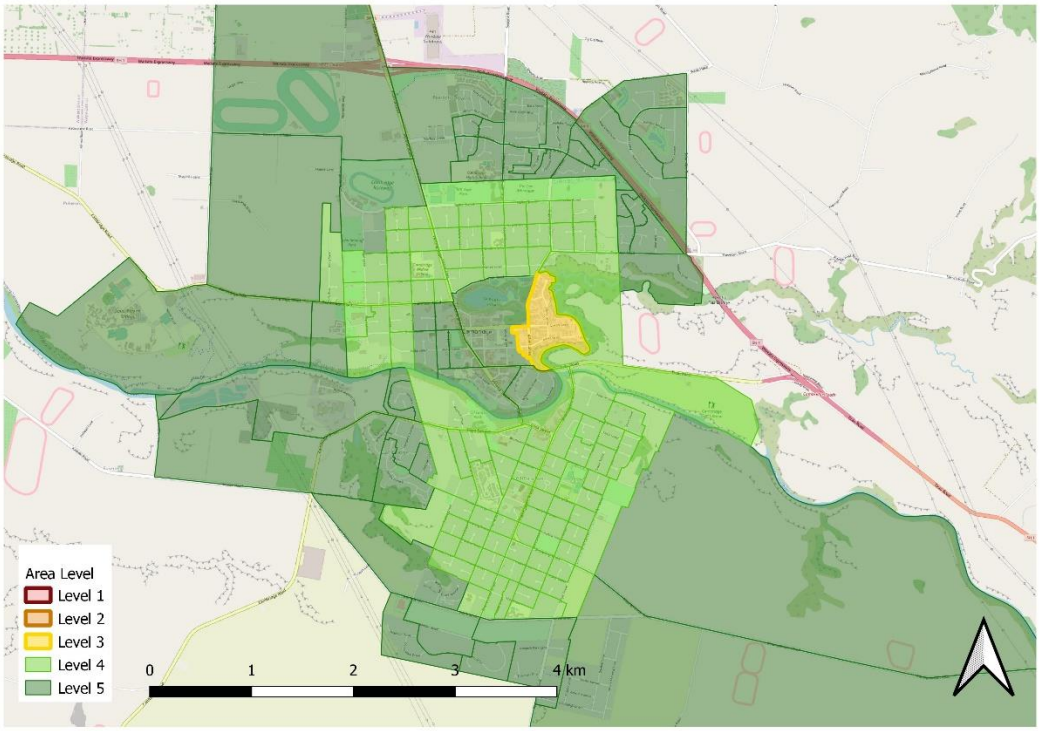
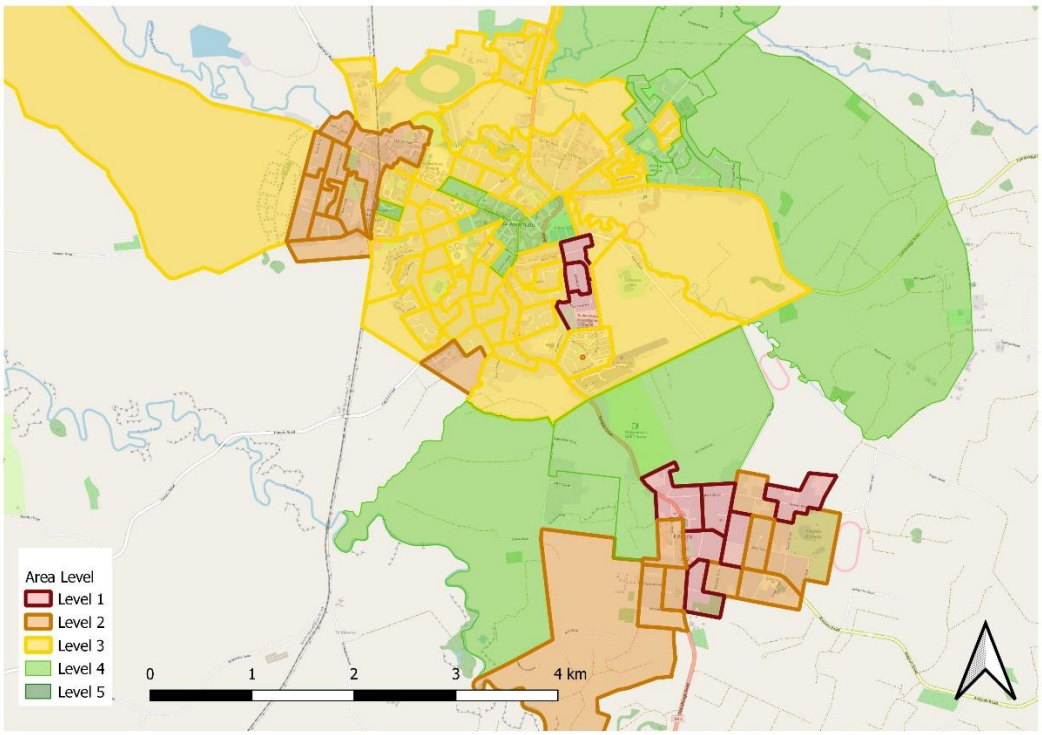


Figure 3-2: Area Level Classification in Te Awamutu and Kihikihi



Zoned areas within these locations were identified as either greenfield or existing urban areas. A similar approach to the HDCA was followed where the existing urban edge was identified through a combination of aerial photographs and analysis of the most recent LINZ parcel boundary file. There is likely to have been some outward expansion of the urban edge since the analysis undertaken for the HDCA.

Modelled Development Options and Dwelling Typologies

The modelling estimates the number of net additional dwellings that can be accommodated on each site. In line with the HDCA modelling, the Model tests for both infill and redevelopment capacity, and capacity within the existing urban vs. greenfield areas.

Within the existing urban area:

- Infill capacity refers to the number of additional dwellings that can be constructed within the existing urban area without the removal or demolition of any existing dwellings. It typically involves the construction of additional dwellings on the vacant areas of parcels (e.g. constructing an additional dwelling in a large back yard area of an already developed property parcel).
- Redevelopment capacity refers to the number of additional dwellings that can be constructed within the existing urban area through the redevelopment of sites. It involves the demolition or removal of existing dwellings on a site and the subsequent construction of a greater number of dwellings on the same site.

Within each category, three dwelling typologies are modelled, which each have different site size requirements. They also have different relationships between dwelling size and land area, where smaller sites can generally be developed more efficiently with attached dwellings. The modelled dwelling typologies include standalone (detached) dwellings, attached dwellings, and apartment dwellings. These

are a combination of mainly two-level standalone dwellings on smaller sites, and attached dwellings. Attached dwellings are typically 2 storeys and are attached horizontally, with some 3-level development.

The capacity results also include maximums (across the three modelled typologies) of each of infill and redevelopment capacity within the existing urban area. Here, the model returns the greatest yield for each parcel out of the infill and redevelopment capacity options. Under the plan enabled capacity, the maximum redevelopment option will almost always represent the greatest yield. However, under the commercially feasible capacity often only a subset of the development options will be feasible (e.g. infill detached dwellings). This means that the model selects the highest yield from this subset (i.e. feasible dwellings), often resulting in smaller feasible maximums on a parcel than plan enabled maximums.

3.2 Plan Enabled Capacity

The plan enabled capacity estimates the total number of additional dwellings enabled through the application of planning provisions. It does not take into account the commercial feasibility of construction of dwellings or infrastructure constraints.

Modelling Stages

The key stages of the plan enabled capacity modelling are outlined within the HDCA. The main changes and extensions to the MDRS modelling include:

- Defining the number of sites that can be formed through subdivision of each parcel/vacant area. This step identifies the number of sites that can be formed through applying the minimum site areas required for subdivision. These are based on the existing ODP minimum site areas for each base zone.
- Estimate the potential number of dwellings on each formed site. This additional stage applies assumptions on the land area required to construct a dwelling of each typology and then calculates how many dwellings can be accommodated within each of the formed sites. In line with the MDRS, the model allows for up to three dwellings to be accommodated on each formed site.
  The model tests for three dwelling typologies – standalone (detached) dwellings, attached dwellings and apartment dwellings. Larger minimum land areas are required to accommodate detached dwellings than attached dwellings.
  The input table in Section 3.4 identifies the input assumptions for minimum land area required for each dwelling typology within each zone and scenario. These minimum land areas take into account the maximum densities observed in recent developments in other locations in relation to the average land area required to accommodate each dwelling. They have also been tested for their ability to accommodate a minimum floorspace area within a 3-dimensional building footprint (up to 3 storeys) and outdoor living space requirements.
- Infill modelling. A geometrical approach has been undertaken within FME GIS modelling software to identify the vacant areas of existing parcels that are suitable for infill development. The approach is outlined in more detail within the 2021 HDCA and associated documentation, and has been modified in the following ways to reflect the MDRS:
  - The setbacks from site boundaries as set out within the MDRS have been applied.
  - Vacant areas are tested for their potential road access.
  - Road accessible vacant areas are then tested for their ability to accommodate dwellings through the application of shape factor input assumptions. Under the MDRS modelling, up

to three shape factors on each site were tested (compared to 1 to 2 shape factors under the HDCA modelling). The number of shape factors accommodated determined the number of dwellings tested on each site. The shape factor input assumptions are included within the input table.

- Infill areas were then adjusted to allow for planning requirements to be met for any existing dwellings on the remainder of the site (using the MDRS parameters). The final areas were then input into the Residential Capacity MDRS Model to test for plan enabled and feasible capacity.

3.3 Commercially Feasible Capacity

The commercially feasible capacity estimates the share of plan enabled capacity that would represent potentially feasible development options for commercial developers to construct a dwelling(s). The calculations are undertaken at the parcel level to estimate the costs of constructing the dwellings estimated to be able to be accommodated under the planning provisions, then compared to a potential sales price to determine if there is a sufficient margin for developments to be potentially commercially feasible.

The MDRS commercial feasibility model expands upon the existing modelling capability developed under the HDCA. Different components of the model are replaced/expanded to reflect the MDRS provisions. The key components are:

- Estimating the size and configuration of dwellings on each parcel. The model firstly estimates the physical features of each potential dwelling on the formed parcels. It estimates the floorspace size and number of storeys of each dwelling, with the three different dwelling types (not additive) tested for each site. This component of the HDCA model is replaced with a new component that reflects the step-change in the nature of development under the MDRS. This is important because the relationships of dwelling size and type relative to site sizes are likely to be substantially different under the MDRS. This has implications for construction costs.

  The model runs off a series of floor area ratio (FAR) curves that estimate the dwelling size that can be constructed on each site. These are established through assessing the dwelling sizes recently developed in higher density locations in other areas. They are also cross-checked against the three-dimensional parameters of the MDRS. This part of the model also identifies the number of storeys of each dwelling.

  Minimum dwelling site area for each typology and for each underlying ODP base zone are contained in Table 3-1 in Section 3.4. The model will tend toward these dwellings as a minimum, but will generate a range of dwelling sizes based on the initial site size formation. The dwelling sizes allocated will be at these levels or larger as they are scaled to the calculated land area per dwelling on each site.

  The outputs of this component of the model are the number of dwellings on each site, their floorspace size and storeys. This is calculated for each dwelling typology option (standalone dwellings vs. duplex/terraced dwellings vs. apartments). These are not additive, but a maximum yield is identified for each parcel (as set out in Section 3.1) where the model selects the highest individual yield that can be constructed. These outputs form the inputs to the next stage of the model where the cost is calculated to construct each potential dwelling.

- **Estimating the cost to construct each dwelling.** This stage of the model estimates the total cost to construct each dwelling identified within the previous stage. The structure of the model is consistent with that used under the HDCA, with a number of updated components as noted below. Updates have occurred in relation to both updated base costs as well as updates to the structure of costs to reflect the shift in the nature of dwelling development.

  The costs applied within the model include:

  i. Land costs.
  ii. Existing dwelling costs (redevelopment).
  iii. Site preparation costs including landscaping and driveway/parking areas and any demolition costs. These ratios to site area have also been updated from the HDCA.
  iv. Construction costs. In addition to the base level cost increases in construction, further cost increases have been applied within the model to reflect a shift in the average number of storeys per dwelling where per metre rates increase with the number of storeys. These have been applied at an individual level to reflect the estimated number of storeys of each dwelling. As such, there is a substantial per m2 cost increase within the model from the HDCA arising from a combination of base level shifts and changes in the nature of dwellings.
  v. Ancillary costs (infrastructure/utilities connections, professional services, consents, development contributions). WDC have supplied updated development contributions information which has been applied within the model[5].

- **Estimating the potential sales price of each dwelling.** This component of the model has been updated significantly from the HDCA. Updates relate to the sales prices for higher density dwellings as well as the underlying spatial structure affecting prices.
  - **Base Spatial Structure.** At a base level, the model applies the same spatial structure as the HDCA, driven by the urban spatial structure identified in Section 3.1. This structure is also applied to the parcel land prices. Further differentiation in prices have also been applied through the level 1 to 5 area value structure.
  - **Estimation from other markets.** Analysis of higher density dwellings within other urban economies was undertaken to inform the modelled sales prices within the urban areas across the district. This included considering the differences between sales prices of higher density dwellings and other dwellings at a density reflective of existing lower densities within similar areas. This approach was undertaken within the context of limited data from limited establishment of medium to higher density dwellings within the district's market.

As requested, commercial feasibility modelling has been undertaken within the current market and reflects the areas of plan enabled capacity that may potentially represent feasible options for commercial developers. Importantly, it should not be confused with growth – it is a measure of the potential capacity, some of which is likely to get taken up by the market with growth. Refer to the 2021 HDCA for a more detailed description of the measure of commercially feasible capacity.

[5] The Deferred Residential Zone area north of growth cell C2 in Cambridge did not contain development contribution information. At the request of WDC, the development contribution values from growth cell C2 have also been applied to this area.

3.4 Modelling Density Inputs

Minimum subdivision area requirements and land areas per dwelling formed intputs to the model. These are the initial land areas required to form a site within each zone, which could then be tested to accommodate up to three dwellings; and the land areas required, per dwelling, within these formed sites.

The minimum subdivision area requirements were supplied by WDC and reflect the subdivision requirements of the ODP. The minimum land area requirements were then established as input assumptions within the model. These are contained below in Table 3-1.

Initial three-dimensional modelling work undertaken by the Hamilton City Council (HCC) GIS team estimated the land areas required to accommodate different dwelling sizes and typologies. These were analysed as a starting point to determine parameters to apply to the Waipa District urban areas. The land areas per attached and apartment dwelling within each site reflect one-third of the initial site formation area to accommodate three dwellings upon each site. The viability of these densities was triangulated with the initial HCC modelling. Larger minimum areas (based on analysis of development patterns in other urban economies) were assumed to be required for detached dwellings to reflect the site area required to physically construct a standalone dwelling.

Importantly, Table 3-1 contains the *minimum* land areas which are formed within the model to accommodate dwellings. These have been applied to the existing spatial structure of the LINZ parcel dataset, with sites formed using the existing parcel boundaries. In most cases, the existing parcel boundaries exceed the minimum areas, meaning that sites (and corresponding land areas per dwelling) are are formed at lower densities than the minimums within the table[6].

Initial conversions have been applied to the Waipa District greenfield areas prior to the application of the land areas in Table 3-1. Greenfield areas were first multiplied by a factor of 70% to take account of the share of area within the greenfield growth cells that is unlikely to be developable. This is an important step as the ODP contains a number of greenfield areas that have been broadly identified as future growth areas that do not take into account land features that would likely limit the developable area.

Following the calculation of greenfield developable areas, these net areas were then multiplied by a further 70% to include an allowance of 30% of the developable area for roads and reserves[7]. The remaining net areas were then divided into lots and dwellings in accordance with Table 3-1.

[6] For example, if a Residential Zone parcel of 900m2 were entered into the model, it would form only one initial site due to insufficient land area to form two sites at the zone's minimum subdivision requirement of 500m2. Consequently, the model would construct dwellings at an average land area of 300m2 per dwelling.

[7] For example, a 10ha Residential Zone greenfield block of land identified broadly within the PDP in Te Awamutu would translate into 7ha of developable area. This would then translate into 4,900m2 of net land area that would be divided into lots at a density of 500m2 per lot to form around 98 lots, each potentially accommodating up to three dwellings.

Table 3-1: Minimum Site Area Subdivision and Land Area per Dwelling Minimum Modelling Inputs by Zone and Typology (MDRS Applied)

Waipa District ODP Base Zone	Dwelling Typology	Initial Subdivision Requirement - Land Area (m2)	Minimum Land Area per Dwelling (m2)
Residential Zone	Detached	500	200
Residential Zone	Attached	500	166
Residential Zone	Apartments	500	166
Deferred Residential Zone	Detached	500	200
Deferred Residential Zone	Attached	500	166
Deferred Residential Zone	Apartments	500	166

Source: M.E Waipa District Residential Capacity Model, 2022.

4 Modelled Capacity

This section contains the modelled results of the plan enabled and commercially feasible capacity through the application of the MDRS. It contains the summary tables of capacity by location across the spatial structure. More detailed information of capacity at a parcel level has been supplied as GIS files to WDC.

The capacity results are net additional dwellings where the existing dwellings have been removed from the calculated gross yields on each parcel. The tables within the following sub-sections show the net additional dwellings in accordance with the capacity structure outline in Section 3.1.

The first portion of the tables show the modelled capacity within each typology for infill development, including a maximum yield across the three typologies[8]. The middle section contains the redevelopment capacity across the three options, including maximums for redevelopment as well as redevelopment and infill options combined. The remainder of the table shows the greenfield capacity in this structure.

Importantly, the columns within the table are not additive. The maximum columns show the maximum yield combinations within each development pathway (infill, redevelopment or greenfield), as well as the final column containing the total across the greenfield and existing urban areas.

4.1 Plan Enabled Capacity

The modelled plan enabled capacity is contained in Table 4-1 and Table 4-2. It shows the net additional dwellings that would be enabled with the application of the MDRS to the ODP base zones.

In total, there is an estimated plan enabled capacity for an additional 68,900 dwellings. Over half (61%; 42,000 dwellings) of the capacity is within the existing urban area, where redevelopment capacity is nearly three times that of the infill capacity. Nearly two-thirds (62%; 42,400 dwellings) of the capacity is within the Residential Zone, with a further 26,500 dwelling capacity (38%) within the Deferred Residential Zone.

The plan enabled capacity, if taken up, would represent a large increase in the number of households within the existing urban footprint of the urban areas of the district. If all existing urban area parcels were redeveloped, then it would result in a number of dwellings around three times the size of the existing urban dwellings base.

The capacity is also large within the greenfield areas, enabling an additional 26,900 dwellings with the application of MDRS across these areas. Most (84%) of the capacity within the greenfield areas is within the Deferred Residential Zone.

[8] The maximum yield has been calculated at the parcel level and then aggregated to each location within the table. This means that the maximums within the commercially feasible tables will in most cases not align with the largest column value by typology. This is because some parcels may have feasible development options across higher density dwelling options, while others may only have feasible capacity for lower yield options. Therefore, the aggregation of feasible yields at the parcel level is a combination of some development within higher density typologies, and others at lower density typologies.

The plan enabled capacity is spread relatively evenly across the two main urban areas of the district (where Te Awamutu and Kihikihi are considered together). Over half (53%; 36,500 dwellings) of the total capacity is within Cambridge. Of this, around 60% is within the existing urban area and 40% within the greenfield area. Nearly all of the Cambridge greenfield capacity is in areas that are estimated to be the highest value type within the district.

The remaining 47% (32,300 dwellings) capacity is within the combined Te Awamutu and Kihikihi area. Most of this capacity occurs within Te Awamutu (27,300 dwellings), with a smaller share (5,000 dwellings) within Kihikihi. There is very little greenfield capacity within Kihikihi, with nearly all of the capacity occurring within the existing urban area. Kihikihi's modelled existing urban capacity is around 6 times its existing urban household base. This ratio is higher for Kihikihi than for Te Awamutu and Cambridge as many of the residential parcels have been developed at densities much lower than that under the Plan, thus enabling the formation of more new lots through subdivision.

The bulk of the capacity within Te Awamutu occurs within the Level 3 mid value range areas. This is the case for both existing urban and greenfield capacity.

Table 4-1: Plan Enabled Capacity by Zone within Waipa District with the Application of MDRS

	INFILL				REDEVELOPMENT					GREENFIELD				
Waipa Zone	Standalone	Attached	Apartment	Max Infill	Standalone	Attached	Apartment	Max Redevelopment	Max Infill or Redevelopment	Standalone	Attached	Apartment	Max Greenfield	Max Existing Urban and Greenfie
RESIDENTIAL ZONE	8,500	12,400	12,400	12,400	29,000	37,300	37,300	37,300	38,200	2,700	4,200	4,200	4,200	42,400
DEFERRED RESIDENTIAL ZONE	1,500	2,200	2,200	2,200	2,400	3,700	3,700	3,700	3,700	15,100	22,700	22,700	22,700	26,500
TOTAL	**9,900**	**14,500**	**14,500**	**14,500**	**31,400**	**41,000**	**41,000**	**41,000**	**42,000**	**17,900**	**26,900**	**26,900**	**26,900**	**68,900**

Source: M.E Waipa Residential Capacity MDRS Model, 2022.

Table 4-2: Plan Enabled Capacity by Location within Waipa District with the Application of MDRS

		INFILL				REDEVELOPMENT					GREENFIELD				
LOCATION	LEVEL	Standalone	Attached	Apartment	Max Infill	Standalone	Attached	Apartment	Max Redevelopment	Max Infill or Redevelopment	Standalone	Attached	Apartment	Max Greenfield	Max Existing Urban and Greenfie
Cambridge	Level 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cambridge	Level 4	1,700	2,800	2,800	2,800	8,800	11,300	11,300	11,300	11,500	200	200	200	200	11,700
Cambridge	Level 5	2,900	4,000	4,000	4,000	7,800	10,100	10,100	10,100	10,300	9,600	14,600	14,600	14,600	24,800
Te Awamutu	Level 1	100	200	200	200	400	400	400	400	500	-	-	-	-	500
Te Awamutu	Level 2	500	800	800	800	1,500	1,900	1,900	1,900	2,000	500	700	700	700	2,700
Te Awamutu	Level 3	2,500	3,700	3,700	3,700	7,900	10,600	10,600	10,600	10,800	6,900	10,300	10,300	10,300	21,100
Te Awamutu	Level 4	400	600	600	600	1,600	2,000	2,000	2,000	2,100	600	900	900	900	3,000
Kihikihi	Level 1	800	1,200	1,200	1,200	1,500	2,100	2,100	2,100	2,200	-	-	-	-	2,200
Kihikihi	Level 2	1,000	1,300	1,300	1,300	1,900	2,600	2,600	2,600	2,700	100	200	200	200	2,800
Kihikihi	Level 4	-	-	-	-	10	10	10	10	10	-	-	-	-	10
TOTAL	**TOTAL**	**9,900**	**14,500**	**14,500**	**14,500**	**31,400**	**41,000**	**41,000**	**41,000**	**42,000**	**17,800**	**26,900**	**26,900**	**26,900**	**68,900**

Source: M.E Waipa Residential Capacity MDRS Model, 2022.

4.2 Commercially Feasible Capacity

The estimated commercially feasible capacity is contained in Table 4-4 with the application of the MDRS to the ODP base zones. It shows the net additional dwellings that are estimated to represent potentially feasible development options for commercial developers. Importantly, the capacity should not be confused with growth – it is a measure of the potential capacity, some of which is likely to get taken up by the market

with growth. Refer to the 2021 HDCA for a more detailed description of the measure of commercially feasible capacity.

The commercially feasible capacity modelled within this section does not take into account any limits occurring through infrastructure constraints. As requested, the modelling has been undertaken to identify areas of potential feasibility without the consideration of infrastructure constraints.

As requested, commercial feasibility modelling has been undertaken within the current market and reflects the areas of plan enabled capacity that may potentially represent feasible options for commercial developers. Furthermore, the modelling has been undertaken using a 20% profit margin. It is likely that some development outside of this range may occur at a lower margin as there are increased shares of plan enabled capacity with estimated lower profit margins.

It is likely that higher shares of the plan enabled capacity would become commercially feasible development options for developers through time with market growth. Medium to higher density development is not yet well established within the Waipa District, particularly within Te Awamutu and Kihikihi. These areas are lower value, with strong market tendencies toward lower density development. The density of development may increase through time, where medium density may become more established over the medium to longer-term. This is more likely to occur within the higher value market area of Cambridge, and least likely in Kihikihi.

Table 4-3 and Table 4-4 show that there is an estimated commercially feasible capacity of an additional 6,300 dwellings across the Waipa District's urban areas. This amounts to around 9% of the plan enabled capacity estimated to represent commercially feasible options.

Between half and two-thirds (60%; 3,800 dwellings) of the estimated feasible capacity is located within the existing urban area, which is consistent with the existing urban area share of total plan enabled capacity. While greenfield capacity often represents an easier development option (than existing urban development), the modelled rate of feasibility is similar to the existing urban area due to the application of higher development contributions. It is likely that a greater share of greenfield capacity will still be developed, albeit at lower margins.

Nearly all (92%; 5,800 dwellings) of the feasible capacity is estimated to occur within Cambridge, with only a minor share (7%; 490 dwellings) within the combined Te Awamutu/Kihikihi urban areas. This occurs due to the higher value areas within Cambridge, where overall 16% of plan enabled capacity is estimated to be feasible.

Very small shares (1% to 2%) of the plan enabled capacity is estimated to be feasible within the Te Awamutu and Kihikihi areas. These areas are lower in value and have been characterised by lower density development of lower to mid-value detached dwellings on full sites. The feasibility of medium to higher density development patterns enabled by the MDRS is likely to be much lower in these types of locations. The market for increased density development typically first establishes in higher value locations, which, within the Waipa district, correspond to the Cambridge area.

Across the urban areas, the feasible capacity is concentrated into standalone detached dwellings, with little feasible capacity in attached dwellings. Within the modelling, most of this capacity would reflect the

development of two-level detached dwellings on smaller sites. This is closer to the existing development patterns than medium to higher density attached dwellings.

Table 4-3: Commercially Feasible Capacity by Zone within Waipa District with the Application of MDRS

Hamilton Zone	INFILL				REDEVELOPMENT					GREENFIELD				Max Existing Urban and Greenfie
	Standalone	Attached	Apartment	Max Infill	Standalone	Attached	Apartment	Max Redevelopment	Max Infill or Redevelopment	Standalone	Attached	Apartment	Max Greenfield	
RESIDENTIAL ZONE	1,900	600	10	1,900	1,500	100	20	1,600	2,800	100	-	-	100	2,900
DEFERRED RESIDENTIAL ZONE	800	30	-	800	300	-	-	300	1,000	2,400	60	-	2,400	3,400
TOTAL	**2,700**	**700**	**10**	**2,800**	**1,900**	**100**	**20**	**1,900**	**3,800**	**2,500**	**60**	**-**	**2,500**	**6,300**

Source: M.E Waipa Residential Capacity MDRS Model, 2022.

Table 4-4: Commercially Feasible Capacity by Location within Waipa District with the Application of MDRS

LOCATION	LEVEL	INFILL				REDEVELOPMENT					GREENFIELD				Max Existing Urban and Greenfie
		Standalone	Attached	Apartment	Max Infill	Standalone	Attached	Apartment	Max Redevelopment	Max Infill or Redevelopment	Standalone	Attached	Apartment	Max Greenfield	
Cambridge	Level 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cambridge	Level 4	500	40	-	600	900	-	-	900	1,100	100	-	-	100	1,200
Cambridge	Level 5	1,900	600	10	1,900	800	100	20	800	2,300	2,300	60	-	2,300	4,600
Te Awamutu	Level 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Te Awamutu	Level 2	40	-	-	40	10	-	-	10	40	20	-	-	20	70
Te Awamutu	Level 3	100	-	-	100	20	-	-	20	100	70	-	-	70	200
Te Awamutu	Level 4	100	-	-	100	100	-	-	100	200	20	-	-	20	200
Kihikihi	Level 1	10	-	-	10	-	-	-	-	10	-	-	-	-	10
Kihikihi	Level 2	-	-	-	-	-	-	-	-	-	10	-	-	10	10
Kihikihi	Level 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	**TOTAL**	**2,700**	**700**	**10**	**2,800**	**1,900**	**100**	**20**	**1,900**	**3,800**	**2,500**	**60**	**-**	**2,500**	**6,300**

Source: M.E Waipa Residential Capacity MDRS Model, 2022.

5 Conclusions

The MDRS provisions enable a greater level of capacity and development across much of the urban residential areas of Waipa District. They would enable greater intensification within the existing urban areas, together with higher yields within the greenfield areas.

The total capacity enabled by the provisions would represent large increases to the existing urban dwelling base. It has been estimated that a share of the plan enabled capacity is likely to represent commercially feasible options for developers, which amounts to around half of the size of the existing household base.

The types of capacity enabled by the MDRS is at a substantially higher density than that provided within many of the main urban residential zones of the ODP. If capacity is taken up at these densities, then it would represent a significant shift to the development patterns that have previously characterised growth across much of the district's urban areas. The greatest difference would occur with attached dwellings, with the detached dwellings being closer (than attached dwellings) to existing development patterns.

Understanding the capacity enabled by the MDRS is an important first stage in understanding the implications of the MDRS. It is likely that development will get taken up through time at a range of densities, including up to that of the MDRS in some locations. However, much of the development capacity delivered by the market is still likely to occur at lower densities, particularly within the short-term, as demand increases through time for higher density dwelling options.