

**Proposed Plan Change I: Increasing
housing supply and choice**

Development Capacity Assessment – NPS-UD Clause 3.2

This document was prepared by Palmerston North City Council, City Shaping Division.

	Name	Signature	Date
Prepared by:	Sarah Jenkin		
	Stacey Andrews		
Reviewed by:			
Approved for Issue by:	Jono Ferguson-Pye		28 October 2024

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1 Introduction

The National Policy Statement for Urban Development 2020 (NPS-UD) requires that Palmerston North City Council (PNCC or the Council) provide 'sufficient' development capacity to meet the expected demand for housing in Palmerston North. This report documents the contribution to be made by Proposed Plan Change I (PC:I) to the operative Palmerston North City District Plan (ODP) towards meeting that requirement.

PC:I introduces a Medium Density Residential Zone (MRZ) to the ODP, which will enable residential intensification up to three residential units as a permitted activity, subject to compliance with relevant performance standards.

This report sets out whether the proposed MRZ will contribute towards meeting the NPS-UD target of 'sufficient' development capacity for housing. Looking at the requirements for development capacity to be 'sufficient' under the NPS-UD, this report assesses whether the predicted housing supply that the MRZ will provide is:

- Plan-enabled;
- Infrastructure-ready;
- Feasible and reasonably expected to be realised; and
- Includes an appropriate competitiveness margin.

The expected demand for housing in Palmerston North is set out in Council's Housing and Business Development Capacity Assessment 2023 (HBA).¹

In summary, the HBA predicts that an additional ~9,900 homes (including a mandatory competitiveness margin) will be required in the district by 2054 to meet the demand for housing resulting from projected population growth. This equates to approximately 330 new dwellings per year, across a mix of greenfield, infill and rural/rural residential housing. This new housing is expected to be required over time in three periods:

- Short term – 983 dwellings (~10%)
- Medium term – 3,010 dwellings (~30%)
- Long term – 5,891 dwellings (~60%)

More detail is provided in Table 1.

¹ [Housing and Business Development Capacity Assessment 2023 \(pncc.govt.nz\)](https://pncc.govt.nz/housing-and-business-development-capacity-assessment-2023)

Table 1: Predicted demand for housing

	Short term 2023-2026	Medium term Between 2026 and 2036	Long term Between 2036 and 2053	30 year total
Housing location				
Greenfield	393	1,505	3,240	5,138
Infill	541	1,354	2,357	4,251
Rural/rural- residential	49	150	295	494
Housing Type				
Standalone dwelling	865	2,588	4,595	8,048
Attached dwelling	118	421	1,296	1,835

2 Relevant statutory context

Objective 6 of the NPS-UD requires that local authority decision-making on urban development is integrated with infrastructure planning and funding decisions.

Policy 2 of the NPS-UD requires the Council, as a tier 2 local authority, to *"at all times, provide at least sufficient development capacity to meet the expected demand for housing and for Business land over the short term, medium term, and long term."*

Development capacity is defined in the NPS-UD as:

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

- a) The zoning, objectives, policies, rules, and overlays that apply in the relevant proposed and operative RMA Planning documents; and*
- b) The provision of adequate development infrastructure to support the development of land for housing or business use."*

Development infrastructure is defined in the NPS-UD as:

"... to the extent they are controlled by a local authority or council controlled organisation (as defined in section 6 of the Local Government Act 2022):

- a) Network infrastructure for water supply, wastewater, or stormwater*
- b) Land transport (as defined in section 5 of the Land Transport Management Act 2003)"*

Clause 3.2 of the NPS-UD expands on the requirement to provide sufficient development capacity, stating that it should be in existing and new urban areas, encompass standalone and attached dwellings, and that demand needs to be met over the short, medium and long-term.

Sufficient development capacity for housing, under Clause 3.2(2), 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 authorities only, meet the expected demand plus the appropriate competitiveness margin (see clause 3.22)."*

These requirements are the focus of this report, and defined and discussed in the following sections.

3 Assessment of development capacity

3.1 Plan-enabled – Clause 3.4(1)

Development capacity is **plan-enabled** if it is:

- In the short-term (1-3 years), on land that is zoned for housing in the ODP;
- In the medium-term (3-10 years), on land zoned for housing in either the ODP or a proposed district plan; or
- In the long-term (10-30 years), on land zoning for housing in a proposed district plan or identified as a future growth or intensification in the Future Development Strategy (FDS).

At the time of writing this assessment, the housing supply enabled by PC:I meets the definition of plan-enabled for the medium-term, as it is on land zoned for housing in a proposed plan.

PC:I will result in the re-zoning of approximately 816ha of the Residential Zone to Medium Density Residential Zone (MRZ), which will remove minimum lot sizes and provide a permitted activity pathway for up to three residential units on a site (providing the permitted activity conditions are met). This will result in an increase in the potential housing yield in that part of the MRZ.

Residential intensification will require a resource consent (as a restricted discretionary activity) in some parts of the zone (identified as being within a Stormwater Overlay) to enable a site-specific assessment of potential flooding effects (including from stormwater overland flows). This is still 'plan-enabled' development capacity (Clause 3.4(2)).

3.2 Infrastructure-ready – Clause 3.4(3)

Development is **infrastructure-ready** if

- In the short-term (2023-2026), there is adequate existing development infrastructure to support development of land;
- In the medium term (2026-2036), either there is adequate existing development infrastructure or there is funding for adequate development infrastructure to support development of land identified in the Council's Long Term Plan (LTP); and
- In the long term (2036-2053) either there is LTP funding or there is the development infrastructure to support development capacity identified in PNCC's infrastructure strategy.

The technical assessments underpinning the s32 evaluation conclude that, in relation to development infrastructure, there is adequate existing Three Waters and land transport development infrastructure in medium term, or there is funding for this infrastructure identified in the LTP. As a result, the development capacity provided in the MRZ meets the definition of 'infrastructure-ready' in the medium term.

Table 2: Relevant technical assessment conclusions

Infrastructure	Assessment	Infrastructure ready?
Water supply	Section 6 of this assessment concludes that there are existing non-conformances with the Council's level of service in the Milson North/Airport area, which are expected to worsen with intensification. However, as confirmed in Section 5 of the assessment, the upgrades to address these issues are identified in the Council's 2024-2034 LTP as programmes 246, 2228 and 2299. Small, localised, upgrades required to address fire demand levels of service are expected to be included as part of the pipeline of renewal schedules, which are also identified in the LTP as programme 1873. Accordingly, there is funding identified in the LTP for adequate water supply infrastructure to support development of land within the MRZ in the medium term.	✓
Wastewater	Section 8.2 of this assessment concludes that residential intensification across the proposed MRZ extent would have a significant impact on the wastewater network. Existing capacity issues are expected to worsen and widespread downstream upgrades are required to prevent surcharging during wet weather. Whilst the full extent of required upgrades is yet to be confirmed, the LTP includes several city-wide wastewater network programmes which would be used to model and implement these upgrades. Accordingly, there is funding identified in the LTP for adequate wastewater infrastructure to support development of land within the MRZ in the medium term.	✓
Stormwater	Section 5 of this assessment concludes that network improvements are not required to enable development outside of the proposed Stormwater Overlay. The LTP includes funding for development of a city-wide Stormwater Strategy, implementation of which is anticipated to be funded through a combination of future LTP programmes and/or development contributions. In the interim, a site-specific evaluation of flooding effects is required to identify any required on-site mitigation, the	✓

Infrastructure	Assessment	Infrastructure ready?
	requirement for and suitability of which would be assessed via a Restricted Discretionary Activity resource consent process (as noted in Section 3.1 above). On the basis of this assessment, there is adequate existing stormwater infrastructure for those parts of the zone outside the proposed Stormwater Overlay. Within the Overlay, there is funding for development of the Stormwater Strategy, and a requirement for on-site mitigation to address short-medium term issues.	
Transport	The Transportation Assessment concludes (at Section 12 of the report) that upgrades are not required to the city's transport infrastructure. A small improvement in transport network performance is predicted as a result of residential intensification, because of the location of the zone in relation to the city centre and local amenities. Accordingly, there is adequate existing transport infrastructure to support land development in the medium term.	✓

3.3 Availability of additional infrastructure – Clause 3.5

Clause 3.5 of the NPS-UD requires that PNCC is satisfied that the additional infrastructure required to support delivering the identified development capacity is likely to be available. Additional infrastructure is defined in the NPS-UD as:

- a) "Public open space
- b) Community infrastructure as defined in section 197 of the Local Government Act 2002²
- c) land transport (as defined in the Land Transport Management Act 2003) that is not controlled by local authorities
- d) social infrastructure, such as schools and healthcare facilities
- e) a network operated for the purpose of telecommunications (as defined in section 5 of the Telecommunications Act 2001)
- f) a network operative for the purpose of transmission or distributing electricity or gas"

² Defined as land, or development assets on land, owned or controlled by the territorial authority for the purpose of providing public amenities (including land that will be acquired for that purpose).

The Council sought feedback from relevant infrastructure providers through the 2024 FDS process and as part of preparing PC:I. As a result, the Council is satisfied that the requirements of Clause 3.5 of the NPS-UD are met, as set out in Table 3.

Table 3: Status of available infrastructure

Additional Infrastructure	Provider	Status	Likely to be available?
Public open space	PNCC	The Parks Servicing Assessment concludes that Palmerston North city has good parks coverage for the existing intensity of residential development. However, residential intensification will increase demands on the existing public open space network. A 400m walking distance to public open space is the desired level of service in a medium density residential zone. The current level of services is between 400m and 500m. Achieving a 400m walking distance across the entire MRZ is impractical and costly. Council will monitor uptake and facilities at existing parks and reserves to determine whether additional facilities or upgrades to existing facilities are required. On this basis, Council considers it likely that additional public open space infrastructure would be available.	✓
Community infrastructure	PNCC	PNCC's libraries and other community facilities are subject to ongoing community needs reviews, which identify whether the Council needs to upgrade its existing facilities and when and where new facilities are required. This is then reflected in funding in the LTP.	✓
State highway network	New Zealand Transport Agency Waka Kotahi	The 2024-2027 National Land Transport Programme (NLTP) includes funding for state highway maintenance and targeted improvement activities in the Manawatu. With the exception of the Manawatu Regional Freight Ring Road, there are no significant upgrades identified in the Palmerston North Integrated Transport Initiative (PNITI), which are required to the state highway	✓

Additional Infrastructure	Provider	Status	Likely to be available?
		network to support residential intensification.	
Schools	Ministry of Education	As part of the FDS, the Ministry of Education confirmed that there is sufficient capacity within the existing school network and new schools are not required to support growth over the next 30 years.	✓
Healthcare facilities	Health New Zealand - Te Whatu Ora	As part of the FDS, Health New Zealand - Te Whatu Ora have signalled that, over time and to support growth, Palmerston North Regional Hospital will be upgraded and redeveloped within the existing site.	✓
Telecommunications network	Chorus	As part of the FDS, Chorus advised that the existing telephone exchanges are able to meet future demand from local communities. Chorus is upgrading fibre feeder capacity to support growth.	✓
The National Grid - electricity transmission network	Transpower	As part of the FDS, Transpower confirmed that it does not anticipate that any additional work on the National Grid will be required (over and above its existing plans) to address electricity supply constraints arising from growth planned under the FDS.	✓
Electricity Distribution Network	Powerco	The FDS identifies a number of upgrades over the next 10 years, which are required to support future demand for electricity – this includes demand associated with greenfield as well as residential intensification. As it relates to PC:I, from a capacity perspective, Powerco will review as development occurs and consider upgrades in response. As a result, any required additional electricity distribution capacity is likely to be available.	✓

Additional Infrastructure	Provider	Status	Likely to be available?
Flood protection infrastructure	Horizons Regional Council	Horizons' Infrastructure Strategy identifies planned minor works to increase the resilience of the network rather than increasing the current level of flood protection within Palmerston North city.	✓

3.4 Development Capacity – Clause 3.26

The NPS-UD does not specify how a Council should determine whether development capacity is feasible and reasonably able to be developed. Instead, Clause 3.26(3) provides an example of how a tier 2 authority such as PNCC could assess this:

- a) *"Assess the number of dwellings that can reasonably be expected to be developed (using building consents data on the number of sites and extent of allowed capacity that has been developed previously), for the short, medium and long term; and*
- b) *then seek advice from the development sector about what factors affect the feasibility of development"*.

Clause 3.26 also recognises that different methods may be appropriate in different circumstances, depending on whether it involves residential intensification of stand-alone versus attached dwellings.

As it relates to PC:I, the Council has undertaken the following methodology to determine firstly the feasible development capacity within the proposed MRZ and secondly the proportion of that feasible development capacity which is reasonably able to be developed.

3.4.1 Determine capital-value ratio

A capital-value ratio of 0.87-0.99 has been used to identify those properties which are feasible of being developed. This ratio is consistent with approach taken to calculate development capacity in the 2023 HBA.³ This method of determining commercial feasibility reflects the MfE Guidance 'Understanding and implementing intensification provisions for the National Policy Statement on Urban Development', September 2020.

This guidance states:⁴

"A high land value-to-capital value ratio can indicate the land is in a location of high demand and the land use is under-capitalised. This is likely to mean it is feasible to redevelop for greater intensification. For example, when the relative price of a land

³ See page 102 of the HBA 2023 for an explanation of why this land value to capital value ratio was chosen.

⁴ Section 6.5.3.

parcel rises, it is a signal people want to live and work in that location. Land with low capitalisation is easier and more profitable for development because most of the value is in the land (as shown in the cost-benefit analysis for the NPS-UD). Under-capitalisation might also be in relation to a disparity between the current and possible land use, such as what is there now and what could be provided if greater density was enabled. This indicates these places could be suitable for intensification".

3.4.2 Data set

The analysis relied on a data set exported from the Council's Geographic Information System (GIS) and a data set of historic residential building consents. The GIS data set included:

- the land area of each rateable residential lot within the existing urban environment of Palmerston North district;⁵
- the land and capital values of these properties as at 1 September 2021;⁶
- the land to capital value ratios of these properties derived by dividing the capital and land values as at 1 September 2021; and
- The SA2⁷ for each property.

The historic building consent data included:

- the number of residential building consents granted per year between 1999 to 2023;
- the number of standard detached residential granted building consents in the existing urban environment between 1999 to 2023; and
- the number of minor dwelling units and multi-unit developments granted residential building consents between 2014 to 31 April 2024.

The Council's building consent data does not provide a breakdown of the different housing typologies consented (e.g. apartment, terraced or semi-detached housing). For this reason, the broad categories of multi-unit residential developments and minor dwelling units were used as a proxy for developments that are higher density than 'infill housing'. These typologies are considered most likely to be similar in character to 'medium density' housing.

3.4.3 Data analysis

The methodology and results are set out in Table 4. The assumptions underpinning this approach and the limitations of the analysis are set out in **Appendix A** of this report.

⁵ Noting that the Palmerston North district includes Palmerston North City, and Ashhurst, Longburn, Linton, Bunnythorpe villages. However the proposed MRZ will not include the villages.

⁶ Council's most recent rating review.

⁷ Statistical Area 2 boundaries are defined by Stats NZ. They represent communities that interact together socially and economically. In larger urban areas they are often representative of a suburb.

Table 4: Calculating development capacity

Data analysis steps	Results
Step 1: Calculate total qualifying land area within each SA2	Using rating database information, all lots with a land area of 700m ² or more and a capital-value ratio of 0.87-1.0 were identified, and the total land area identified. A land area of 700m ² and a land to capital value ratio of 0.87 – 0.99 is consistent with the approach taken in the Housing and Business Development Capacity Assessment (Section 6.4.3). The additional supply enabled via development sites at Huia Street, 17 Summerhays Street and 216-218 Ferguson Street were subsequently added to the supply capacity.
Step 2: Calculate theoretical development capacity	From the qualifying land area within each SA2 (as calculated in step 1), 20% of the qualifying land area was subtracted to account for undevelopable land (i.e. roading, open space, etc). This figure was then divided by 150m ² (which was used as a proxy for a typical medium density unit site or lot size) ⁸ . Analysis of development capacity under varying assumptions of average lot size is included in the capacity assessment results.
Results: Theoretical development capacity	The output of Steps 1 and 2 results in a theoretical development capacity of 3,594 dwellings. The addition of 85 dwellings at Huia Street, 17 Summerhays Street and 216-218 Ferguson Street increases this to 3,679 dwellings. Table 5 sets out the theoretical development capacity by SA2, within and without the proposed Stormwater Overlay. The table is arranged from the highest to the lowest capacity.

⁸ 150m² was used based on a variety of factors including:

- The Council using this lot size in other yield analysis and development studies for Plan Change I;
- Review of historic building consent data showing that medium density housing, delivered through the operative multi-unit housing rule in the District Plan has primarily been standalone or semi-detached housing and on lots between 100m² to 400m²;
- Delivery of apartments has been a small portion of housing typologies built in recent times (5% (or 13) of 267 residential building consents granted between January 2023 – April 2024); and
- Trying to factor in different lot sizes was not achievable given the time constraints.

Data analysis steps	Results
Step 3: Determine 'feasible, reasonably expected to be realised' development capacity	The annual average of building consents granted in the existing urban environment was calculated based on the combined yearly average of consents granted for standard detached dwellings and multi-unit housing developments from 1999 to 2023. This was multiplied by 30 to estimate the number of homes that may be delivered over the next 30 years. The short-medium term figure (10 years) represents 33% of this total, whilst the potential long-term supply represents 66% of this total (20 years).

Table 5: Theoretical development capacity

SA2	Total
Esplanade	239
Papaioea North	308
Palmerston North Hospital	180
West End	183
Terrace End	138
Roslyn	151
Milson South	71
Milverton	172
Papaioea South	150
Hokowhitu Central	284
Palmerston North Central	16
Awapuni South	239
Milson North	4
Hokowhitu East	445
Awapuni North	253
Takaro North	230

SA2	Total
Hokowhitu South	178
Takaro South	125
Highbury East	92
Ruamahanga	73
Ruahine	45
Westbrook	18
Sub-total	3,594
Huia Street (Esplanade)	34
17 Summerhays Street (Papaoeia South)	40
216-218 Ferguson Street (Esplanade)	11
Sub total	3,679

3.5 Feasible, reasonably expected to be realised development capacity

The application of historic building consent numbers, as described in Step 2 in Table 4, results in a feasible development capacity of 1,427 (Table 6). The three sites proposed for rezoning, at Huia, Street, 17 Summerhays Street and 216-218 Ferguson Street contribute an assumed additional 85 dwellings, taking the feasible development capacity to 1,512 dwellings. This represents approximately 39.7% of the theoretical development capacity.

The application of the percentage of theoretical development capacity by SA2 to historical demand, as a means of estimating feasible development capacity by SA2 is a limitation of the model the Council has used to calculate the feasible development capacity. This approach assumes that future residential intensification will occur in the same SA2 areas and in the same proportions as the location of theoretical development capacity. In reality, the market will decide where residential intensification will occur, and to what extent. The introduction of the MRZ provides the conditions to enable this intensification across the zone.

The calculation of feasible development capacity is considered to be conservative, based as it is on OPD provisions where a resource consent is required for multi-unit housing and the implementation issues identified in Section 5.1.2 of the section 32 report. These constraints on residential intensification should be addressed by PC:I and the expectation is that this will result in increased numbers of building consents.

Table 6: Feasible development capacity

	MDZ total by SA2		
SA2	Short-medium term	Long-term	Total
Takaro North	31	61	92
Westbrook	2	5	7
Milson North	1	1	2
Milson South	9	19	28
Highbury East	12	24	37
Takaro South	17	33	50
Palmerston North Hospital	24	48	71
Roslyn (Palmerston North City)	20	40	60
Terrace End	18	36	55
Palmerston North Central	2	4	6
Papaioea North	41	82	122

	MDZ total by SA2		
SA2	Short-medium term	Long-term	Total
Awapuni North	34	67	101
Awapuni South	32	63	95
West End	24	48	73
Esplanade	32	63	95
Milverton	23	45	68
Hokowhitu Central	38	75	113
Ruahine	6	12	18
Papaioea South	20	40	60
Hokowhitu East	59	118	177
Ruamahanga	10	19	29
Hokowhitu South	24	47	71
Sub total	479	952	1,427

4 Comparison of supply and demand

As described in Table 1 of this report, the HBA predicts a demand for 4,251 infill dwellings to 2053. Neither the theoretical development capacity for the MRZ (3,679) nor the feasible development capacity (1,512) is sufficient to meet the demand over this 30 year period.

The development capacity enabled by the MRZ will not provide for total long-term demand for medium density housing in the city. Based on the calculation of feasible development capacity, the MRZ will contribute sufficient development capacity in the medium-term (1,427 feasible capacity versus 1,354 predicted demand from the HBA).

4.1 Limitations of the demand assessments

The demand assessments rely on conservative modelling assumptions that are likely to vary once PC: I is operative. These assumptions, and the related limitations, are set out in **Appendix A**.

The analysis is further limited by the absence of an assessment of the relative commercial feasibility of varying housing typologies. Work is currently underway by the Council to improve the understanding of the commercial feasibility of competing residential development typologies in Palmerston North, as a basis for future planning and the HBA.

The modelling also assumes that future demand for medium density housing will be consistent with demand over the period 1999-2023. Based on available information, there is a confirmed trend toward higher density residential development in the city. Table 7 illustrates the growing number of medium density dwellings consented in the city over the period 1999- 2023.

Because of the limitations of the model and the inherent difficulties of predicting medium density development trends, the Council has modelled a range of development scenarios, to understand the range of development patterns that could occur in the MRZ as a result of PC: I. The results of this sensitivity testing are included in **Appendix B**.

Table 7: Medium density development trends (1999-2023)

Year	Annual medium density dwelling consents	% of total development	Annual average long term demand (1999-2023)	Annual average medium density development (1999-2009)	Annual average medium density development (2010-2023)	Annual average medium density development (2018-2023)
1999	96	37%	115	102		
2000	58	26%	115	102		
2001	71	29%	115	102		
2002	84	28%	115	102		
2003	134	37%	115	102		
2004	119	29%	115	102		
2005	95	25%	115	102		
2006	144	32%	115	102		
2007	160	46%	115	102		
2008	107	46%	115	102		
2009	49	23%	115	102		
2010	73	35%	115		125	
2011	91	50%	115		125	
2012	85	50%	115		125	
2013	117	53%	115		125	
2014	68	42%	115		125	
2015	68	34%	115		125	
2016	87	33%	115		125	
2017	95	27%	115		125	
2018	201	42%	115		125	178
2019	181	41%	115		125	178
2020	247	47%	115		125	178

Year	Annual medium density dwelling consents	% of total development	Annual average long term demand (1999-2023)	Annual average medium density development (1999-2009)	Annual average medium density development (2010-2023)	Annual average medium density development (2018-2023)
2021	180	48%	115		125	178
2022	122	36%	115		125	178
2023	138	66%	115		125	178

5 Conclusion

The development capacity enabled by PC: meets the NPS-UD requirement for development capacity which is plan-enabled and infrastructure-ready.

The introduction of the MRZ via PC:I generates a theoretical development capacity of 3,679 dwellings within the zone. The feasible development capacity has been assessed as 1,427 based on the application of historic building consent data.

The 2023 HBA identified a demand for 4,251 additional infill dwellings, and the supply enabled by PC:I is not sufficient to meet this demand in its entirety. The development capacity enabled by PC:I will meet the predicted demand in the medium-term. However, as noted in Section XX and in **Appendix A**, the assumptions underlying the model are conservative. Without a minimum lot size, and with more permissive resource consents provisions as compared to the ODP, it is expected that supply will fall somewhere between the theoretical and the feasible development capacity. This will be monitored through the annual HBA updates. Given the conservative nature of the model assumption, Council undertook sensitivity testing to understand the potential range of additional dwellings that might be developed as a result of PC:I.

From analysis of the lower, medium and upper bounds of medium density housing provided for by PC: I, the addition of medium density housing is expected to be incremental. The performance standards of the zone will support the development of high quality urban environments alongside higher density housing that adds to market choice and delivers more affordable and quality housing options to households.

Appendix A. Model assumptions and limitations

A discussion of the assumptions and limitations of the capacity assessment is included below.

Assumption	Limitation	Comment
Lots equal to, or greater than 700m ² can theoretically be redeveloped	Assesses redevelopment potential as opposed to additional development. Conservative assessment of land available for development/redevelopment by assuming lots < 700m ² are inappropriate for redevelopment.	Conservative due to the difficulty of including the consideration of all factors that influence redevelopment decisions
Assumes average site area per additional dwelling will be 150m ²	PC: I does not propose a minimum lot size. The driver for lot size is compliance with the permitted activity standards. This could result in a greater number of smaller lot sizes, depending on the dwelling size and type.	While PC: I does not impose a minimum lot size, current city market demand continues to favour development of residential sites with parking and garaging. This may change.
Commercial feasibility of development assessed at a LCR of between 0.87 – 0.99	Conservative assumption used as a basis for assessing commercial feasibility may understate the area of land that will be considered commercially feasible to develop.	This is a common way of estimating commercial feasibility. Council is currently investigating options for assessing the cost of development versus the price, and return on investment for different typologies in the city, as a means of measuring commercial feasibility.
The model aggregates the areas of land => 700m ² and with a lv/cv ratio of between 0.87-0.99 as a basis for estimating the amount of land available for redevelopment.	Aggregation of land assumes redevelopment and does not consider opportunities for an extension of development on the site. As a basis for theoretical development capacity, it is reasonable.	Footprint analysis to understand areas of land available for further development on existing residential sites is currently being discussed as part of the review of the capacity assessment methodology for the 2027 HBA.

Assumption	Limitation	Comment
Assumes development volumes will continue as per the long term average	Ignores the trend toward greater medium density development over time	Development scenarios which seek to manage this limitation are included in the sensitivity modelling
Excludes the consideration of social return by area	The model does not consider areas where the benefits of enabling intensification may be greater, for example, in high deprivation areas or areas of interest to Rangitāne for future development.	There are areas of the MRZ where a resource consent will be required to intensify, because of potential for flooding or to cause flooding as a result of intensification. These areas include some areas of high deprivation such as Highbury East and Tremaine.

Appendix B. Sensitivity Modelling

The following information models the impact of differing growth scenarios in the MRZ. In order to understand limitations on development imposed by supply capacity, the Council undertook sensitivity testing to establish the bounds of total medium density development that could be provided for, within the MRZ based on varying assumptions of demand for medium residential development. Table B-1 summarises this analysis.

Table B-1: Testing the limits of development within the MRZ

	Dwellings per year			
Percentage of total medium density development tested	115	150	180	210
41%	258%	198%	165%	141%
45%	237%	182%	151%	130%
50%	213%	164%	136%	117%
55%	194%	149%	124%	106%
60%	178%	136%	114%	97%
65%	164%	126%	105%	90%
75%	142%	109%	91%	78%
100%	107%	82%	68%	58%

The information in Table B-1 indicates that if long term annual demand for medium density residential development remains at 115 per year, then the zone could theoretically sustain 100% of demand over the 30-year period. If the number of medium density dwellings increase to 150 per year, the MRZ could theoretically provide for 82% of total medium density development. At 180 medium density dwellings per year, the maximum uptake within the MRZ falls to 68% and at 210 dwellings per year, maximum provision in the MRZ falls to 58% of demand for medium density residential dwellings.

Based on the analysis of both limitations of supply within the MRZ and realistic demand scenarios, the sensitivity analysis includes the following growth testing scenarios:

- 1 Total medium density dwellings of 115 per year with demand in the MRZ tested at 41.4% (low growth), 55% (medium growth), 75% (high growth) of total uptake;
- 2 Total medium density dwellings of 150 per year with demand in the MRZ tested at 41.4%, 55% and 75%.

- 3 Total medium density dwellings of 180 per year with demand in the MRZ of 41.4% to 55% of total uptake; and,
- Total medium density dwellings of 210 per year with demand in the MRZ of 41.4% to 55% of total uptake.

The 100% uptake scenario within the MRZ, is also included for the status quo assumption of 115 medium density dwellings per year.

The purpose of this testing is to understand the impacts of varying uptake scenarios on the urban environment within the MRZ. The number of medium density dwellings per year developed under the different demand scenarios are included in Table B-2 below.

Table B-2: Annual dwelling demand under different demand scenarios

Percentage of total demand accommodated within the qualifying zone	Medium density dwellings per year			
	115	150	180	210
41.4%	48	62	74	87
55%	63	83	99	116
75%	86	113		
100%	115			

Due to the limitations on medium density development imposed by supply capacity, the upper bound of development is estimated at 116 dwellings per year. Table B-3 sets out four growth scenarios within the MRZ over the total 30-year planning timeframe.

In order to understand the impacts of enabling medium density development, scenarios around the pace of uptake have been considered further. The following tables provide results from the low development scenario which assumes equal annual average development over 30-years; a medium scenario which assumes 50% of the demand is taken up in the short-medium term (first 10 years) with the remaining uptake spread evenly across years 11-30; and a high growth scenario, which assumes that 75% of growth is taken up in the first 10-years, with the remainder of the growth taken up in years 11-20.

Tables B-3 – B-6 provide these outputs by growth and development scenario.

Table B-3: Medium density development in the qualifying zone by growth scenario

	Status quo - 41.4% of total development				55%				75%		100%
Total annual density demand	115	150	180	210	115	150	180	210	115	150	115
Total	1,427	1,862	2,234	2,607	1,898	2,475	2,970	3,465	2,588	3,375	3,450

Table B-4: Low growth scenario – annual dwellings by growth scenario based on even annual growth over 30-years

	Status quo - 41.4% of total development (low growth scenario)				55% (Medium growth)				75% (High growth)		100% comparator
Total annual medium density demand	115	150	180	210	115	150	180	210	115	150	115
Total	48	62	74	87	63	83	99	116	86	113	115

Table B-5: Medium growth scenario – annual dwellings by growth scenario based on the assumption of 50% growth in years 1-10 with the remainder of development spread evenly over years 11-30

	Per year (years 1-10)										
	Status quo – 41.4 % of total development (low growth scenario)				55% (medium growth scenario)				75% (high growth scenario)		100% comparator
Total annual medium density development	115	150	180	210	115	150	180		115	150	115
Total	71	93	112	130	95	124	149	173	129	169	173

	Per year (years 11-30)										
Total annual medium density development	115	150	180	210	115	150	180	210	115	150	115
Total	36	47	56	65	47	62	74	87	65	84	86

Table B-6: High growth scenario – annual dwellings and growth assumption based on 75% growth in years 1-10 with the remainder of growth spread over years 11-20

	Per year (years 1-10)										
	Status quo - 41.4% of total development (low growth scenario)				55% (medium growth scenario)				75% (high growth scenario)		100% comparator
Total annual medium density demand	115	150	180	210	115	150	180	210	115	150	115
Total	107	140	168	196	142	186	223	260	194	253	259
	Per year (years 11-20)										
Total annual medium density demand	115	150	180	210	115	150	180	210	115	150	115
Total	36	47	56	65	47	62	74	87	65	84	86

Table B-7 provides the range of potential medium density development across growth and development scenarios (from low to high). The 30-year total describes the total medium density development over the 30-year planning horizon.

Table B-7: Range of medium density development enabled in MRZ

Total annual medium density demand	Years 1-10		Years 11-20		Years 21-30		30-year total	
	low	high	Low	high	Low	high	Low	High
Total medium density development	48	253	47	84	46	0	1,427	3,375

The analysis of development scenarios within the MRZ indicates that annual growth would range from 48 dwellings per year with the high growth scenario suggesting an annual maximum of 253 dwellings per year in years 1-10. The low growth figures are based on the actual long term growth trend of 115 medium density dwellings per year and the assumption that development will be evenly spread over the 30-year planning timeframe. The high growth scenario is based on the assumption that 75% of demand for medium density dwellings will be taken up within the MRZ, and that 75% of total development will occur in the next 10-years with the remaining 25% occurring over years 11-20.

Based on the medium growth scenario and the assumptions that the average number of medium density dwellings will rise to 180 per year and that uptake in the MRZ will increase to 55% of total demand over time, a total of 149 medium density dwellings are estimated to be developed per year over the short term, with medium density development in the MRZ falling to 74 per year from year 11-30. Table B-8 provides this mid-range estimate of annual and total medium density development within the MRZ.

While there are substantial difficulties with predicting the path of future development, based on the limits to growth from available development capacity within the MRZ, alongside scenario analysis based on low to high growth assumptions, the scale of growth proposed within the MRZ is expected to be minor to moderate, with incremental substitution to higher density development over time.

Table B-8: Growth trend on the assumption of 55% demand taken up within the MRZ and 180 medium density dwellings per year

Total annual medium density demand	Years 1-10		Years 11-30	
	Annual	total	Annual	Total
Total	149	1,485	74	1,485

