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Economic Assessment Against the National Policy Statement for Highly Productive Land

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1. Executive Summary

Context and Purpose

Plan Change 81 (PC81) seeks to rezone the Dargaville racecourse from rural to urban to enable a mix of activities to gradually establish there over time, primarily residential and industrial. The hearing for PC81 recently adjourned, with a direction from the Panel seeking further assessment of the proposal against the National Policy Statement for Highly Productive Land (**NPS HPL**). This report was commissioned in response to that direction.

While the Panel's direction instructs us to assess both the residential *and* non-residential elements of PC81, this report provides more detail on residential than industrial because the site is already earmarked for industrial development under the recently released Dargaville Spatial Plan.

Need for Residential Capacity – NPS HPL 3.6(4)(a)

The first NPS HPL test is whether PC81 is required to provide sufficient development capacity to meet expected demand for housing or business land. Our analysis shows that this is the case for both the residential and industrial elements of the plan. Specifically, our analysis estimated the need for an additional 360 dwellings over the next 10 years, including NPS UD competitiveness margins, versus feasible and realisable capacity of less than 50 dwellings in the existing urban area. This results in a capacity shortfall of more than 300 dwellings over the next 10 years, which confirms the need for PC81 over the short-medium term. The same conclusion is reached for industrial land.

No Other Options – NPS HPL 3.6(4)(b)

Having determined a short-medium term need for PC81, the second NPS HPL test is that there are no other reasonably practicable and feasible ways to provide the same capacity. Given the recency of the Dargaville Spatial Plan, we limit those options to the various new neighbourhoods identified in the that document.

We visited and inspected each of the new neighbourhoods in the Spatial Plan and found that only one of these (Awakino River) was suitable for development. Coincidentally, its urbanisation is currently being pursued via PC82.

While the PC82 site is another way to provide the same capacity as PC81, it won't provide enough capacity in the next 10 years to supplant it, with both plan change areas needed to meet demand for residential and industrial land over the short-medium term. In addition, the PC82 site is held by multiple/fragmented owners, none of whom appear to be developers, while PC81 is held in single ownership (which greatly bolsters the likelihood of its capacity being realised sooner than later). Accordingly, there are no other reasonably practicable or feasible ways to provide the required development capacity elsewhere in a timely manner.

Costs & Benefits – NPS HPL 3.6(4)(c)

The final task is to show that the overall benefits of the proposal outweigh costs, including all tangible and intangible effects. This is not limited to economic considerations, however, and includes social, cultural, and environmental effects. Here, we assess the likely *economic* costs and benefits of the proposal relative to potential rural production using the total economic value (TEV) framework, as recommended in the implementation guidance.

The TEV of PC81 includes the GDP, jobs, and wages provided by the construction of new dwellings, industrial buildings, plus the neighbourhood centre. These are highly significant and are estimated to boost national GDP by $190 million, including flow on effects, generate employment for over 1,400 FTE-years, and generate $95 million in household incomes. Further, PC81's non-residential elements enable ongoing economic activity that will provide a permanent stream of economic benefits.

These were compared to the likely GDP, jobs, and wages provided by two types of rural production – kumara growing or sheep/beef grazing. These estimates were then scaled up to reflect other tangible and intangible benefits of horticulture or agriculture (using values contained in a seminal New Zealand study on the economic effects of competing land uses).

The table below compares the overall costs and benefits of the two options over a 30-year period. Clearly, PC81 represents a significant use of the land from a TEV perspective.

Table 1: Comparison of Total Economic Values over 30 years

Proposed Development	**GDP $m**	**FTE-Years**	**Wages $m**
One-Off Construction Impacts **PLUS**	$190	1,410	$95
Industrial Employment Impacts (20 years)	$330	2,600	$180
PC81 Total	**$520**	**$4,010**	**$275**
Rural Production on WHOLE SITE	**GDP $m**	**FTE-Years**	**Wages $m**
Kumara Production (30 years) **OR**	$13.5	168	$9.9
Beef and Sheep Production (30 years)	$2.4	12	$0.4

Summary and Conclusion

Overall, we consider that PC81 meets the tests in clause 3.6(4) of the NPS HPL from an economic perspective because:

- PC81 is required to provide short-medium term capacity under the NPSUD; and
- There are no other reasonably practicable and feasible ways to provide the required development capacity elsewhere in Dargaville; and
- The economic costs and benefits of PC81 far outweigh those of any foregone rural production undertaken on the site.

Accordingly, we support the proposal on economic grounds and see no reason to deny it on that basis.

2. Introduction

2.1 Context & Purpose of Report

Plan Change 81 (PC81) seeks to rezone the Dargaville racecourse from rural to urban to enable a mix of activities to gradually establish there over time, primarily residential and industrial. The hearing for PC81 recently adjourned, with a direction from the Panel seeking further assessment of the proposal against the National Policy Statement for Highly Productive Land (**NPS HPL**). This report was commissioned in response to that direction.

2.2 Relevant Clauses of the NPS HPL

Different parts of the NPS HPL apply to different territorial authorities depending on their classification under the National Policy Statement for Urban Development (**NPS UD**). Because Kaipara District is not a tier 1 or 2 area under the NPS UD, PC81 must satisfy the three tests contained in clause 3.6(4) of the NPS HPL. These enable proposals like PC81 to be granted – from an NPS HPL perspective – if:

a) the urban zoning is required to provide sufficient development capacity to meet expected demand for housing or business land in the district; and

b) there are no other reasonably practicable and feasible options for providing the required development capacity; and

c) the environmental, social, cultural, and economic benefits of rezoning outweigh the environmental, social, cultural, and economic costs associated with the loss of highly productive land for land-based primary production, including tangible and intangible values.

This report assesses PC81 against these criteria from an economic perspective.

2.3 Specific Focus of this Analysis

While this analysis addresses all three limbs of the NPS HPL test, as set out above, it focuses on quantifying residential capacity within the existing urban area to reflect the Panel's direction.[1] The outputs of that exercise were then combined with other work already carried out for the plan change to provide the overall NPS HPL assessment set out herein.

In addition, while the Panel's direction directs us to assess the residential *and* non-residential elements of PC81 against the NPS HPL, our report provides more detail on residential than industrial because the site is already earmarked for industrial development under the recently released Dargaville spatial plan.

[1] https://www.kaipara.govt.nz/uploads/districtplan_operative/planchanges/PPC81%20Dargaville%20Racecourse/PPC81%20Dargaville%20Racecourse%20Third%20Direction%20from%20%20Commissioners.pdf

2.4 Structure of Report

The remainder of this report is structured as follows:

- **Section 3** sets out the methodology used in this report.
- **Section 4** estimates the **demand** for additional dwellings over the next 10 years.
- **Section 5** quantifies the capacity for additional dwellings on **vacant** sites.
- **Section 6** quantifies the capacity for additional dwellings via **subdivision**.
- **Section 7** quantifies the capacity for additional dwellings via **redevelopment**.
- **Section 8** summarises future supply and demand for industrial land.
- **Section 9** assesses the proposal against clause 3.6(4)(a) of the NPS HPL.
- **Section 10** assesses the proposal against clause 3.6(4)(b) of the NPS HPL.
- **Section 11** assesses the proposal against clause 3.6(4)(c) of the NPS HPL.
- **Section 12** provides a summary and conclusion.

3. Methodology

This section describes the methodology used to assess PC81 against the NPS HPL.

3.1 Steps in the Analysis

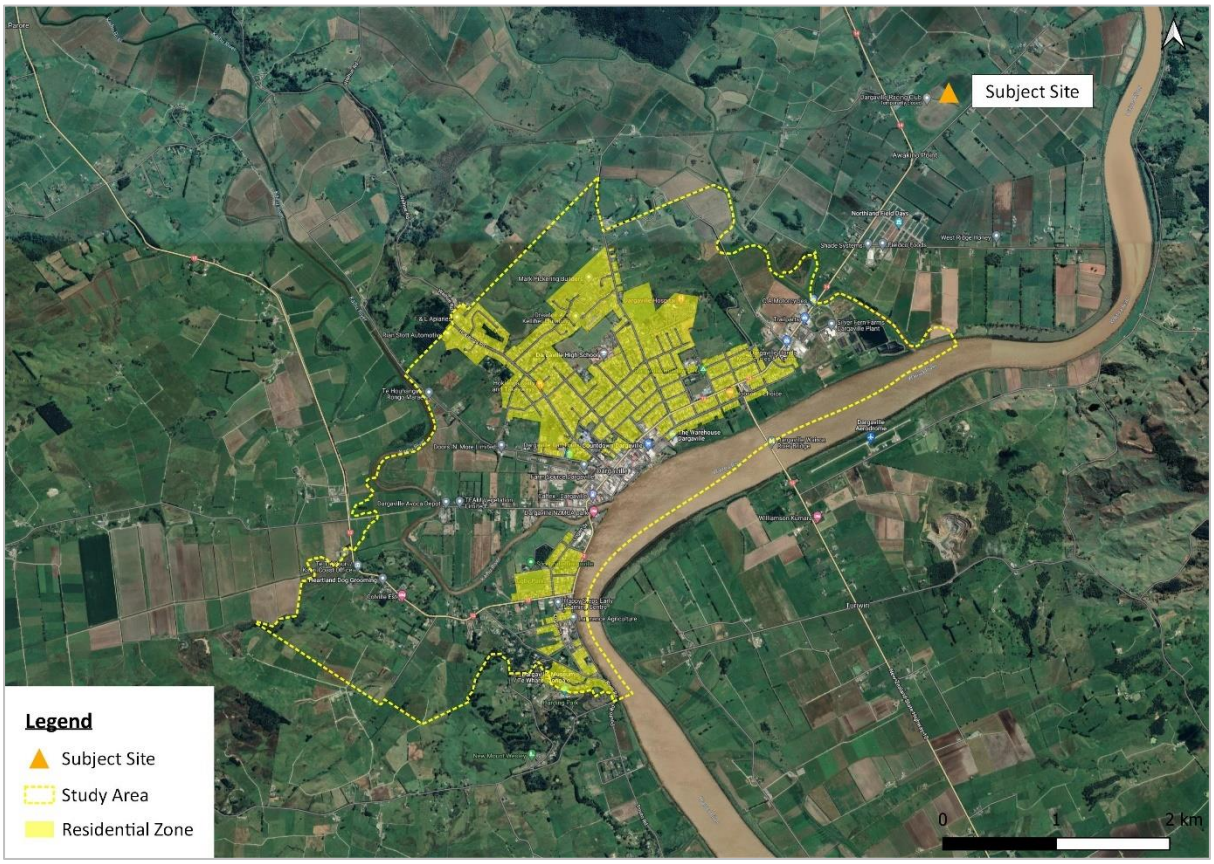
Following are the key steps in our analysis:

1. Delineate a study area and identity the relevant time period for the assessment;
2. Identify relevant District Plan rules (particularly for residential development);
3. Estimate study area demand for residential and industrial;
4. Quantify capacity in the existing urban area for residential and industrial;
5. Incorporate the information above to assess PC81 against clause 3.6(4) of the NPS HPL; and
6. Summarise and conclude.

3.2 Study Area

Clause 3.6(4)(a) of the NPS HPL requires a district-wide focus to be adopted. However, we were asked to focus on Dargaville because the district's broader property market is skewed by Mangawhai, which is quite far away and thus operates independently. Specifically, we adopted the Dargaville Statistical Area 2 (SA2) unit as our study area, which neatly encapsulates the existing urban area (while also enabling the use of publicly available data at that resolution). The resulting study area is defined by the yellow dotted line in the map below, while residential-zoned properties are shaded in yellow. The subject site is identified by an orange triangle for reference.

Figure 1: Map of Study Area



3.3 Time Period

Although the NPS HPL does not stipulate a specific period for assessing proposed rezonings against clause 3.6(4), the implementation guidance for other clauses requires the need for additional capacity to be considered over the short-medium term of 10 years. Consequently, we focus on the need for PC81 over the 10-year period from 2023 to 2033 inclusive.

3.4 District Plan Residential Rules

We reviewed the Kaipara District Council Operative District Plan (ODP) to identify rules affecting the development capacity of residential sections. The relevant rules are summarised in the table below.

Table 2: Planning Rules Factored into Residential Capacity Analysis

Category	**Description**
Site Occupancy	Dwelling must be either only one on site or an additional dwelling on a site with a net area of at least 600m² associated with each additional dwelling
Separation Distance	Minimum 3m from other detached dwellings
Private open space	Where there is a private open space between dwellings, separation must be at least 6m.
Recession Plane	Does not exceed 3m in height plus shortest horizontal distance from building part to adjacent residential zone/reserve boundary
Setback Distance	Front: 5m, Sides: 1.5m and 3m, Rear: 3m (or 1.5m on rear sites)
Permeable Surfaces	Buildings and other impermeable surfaces < 40% of the net site area
Building Coverage	Building coverage < 35% of the net site area
Vehicle Access & Driveways	Adequate access for emergency and on-site vehicle activity must be provided and maintained

3.5 Estimating Demand

A significant body of work has already been completed for PC81, including estimates of demand for additional residential and industrial properties. We rely on that earlier work to the greatest extent possible to avoid duplication and ensure consistency with other information already before the Panel. However, we also perform our own bottom-up assessment of residential demand to ensure that a robust analysis of the need for PC81 is provided.

3.6 Types of Plan-Enabled Residential Capacity

Plan-enabled capacity for additional residential dwellings may be provided via three sources:

1. Vacant capacity – new dwellings provided on empty sections.
2. Infill capacity – new dwellings provided via the subdivision of occupied sections.
3. Redevelopment capacity - new dwellings provided via redevelopment of occupied sections.

The chart below shows how these types of plan-enabled capacity were defined in our analysis.

Figure 2: Types of Residential Plan-Enabled Capacity

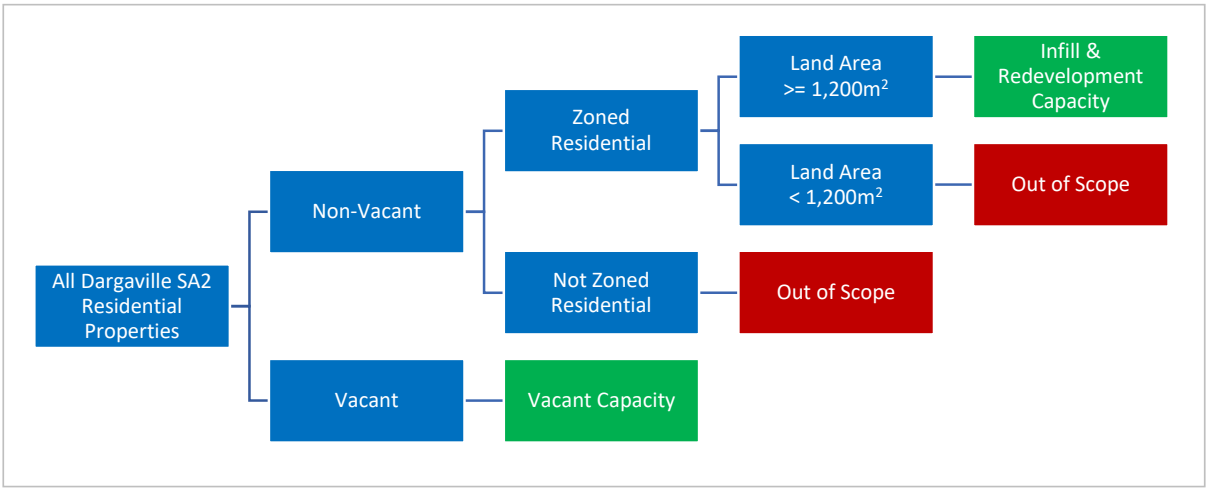


Figure 2 shows that vacant capacity includes all vacant residential sections in the study area, regardless of zoning, while infill and redevelopment capacity relate only to residential zoned parcels. In addition, our analysis of infill and redevelopment capacity is limited to only parcels that are at least 1,200m^2 because new residential sections must be at least 600m^2. Accordingly, only occupied residential parcels at least 1,200m^2 are capable of being subdivided or redeveloped to accommodate extra dwellings over time.

3.7 Converting Plan-Enabled to Technically/Financially Feasible

Given the limited time available for this assessment, and acknowledging the deep complexity of accurately quantifying residential capacity on a parcel-by-parcel basis, we took a pragmatic approach to translating plan-enabled capacity to feasible.

For vacant parcels, we assumed that all were technically and financially feasible for development over the next 10 years.

For parcels with possible infill or redevelopment capacity, a two-step process was used to assess their technical and financial feasibility. The first step used desktop analyses and site visits to consider whether infill (i.e subdivision) is technically feasible for each parcel given:

1. The District Plan rules for residential properties, as summarised above; and
2. The size, shape, value, and location of existing dwellings, sheds, driveways, second dwellings, and so on.

80% of parcels that passed this test were assumed to be financially viable for subdivision.

Parcels not technically feasible for subdivision – as per the process above – were then subjected to a second assessment of their redevelopment potential. This entailed estimating the costs of redeveloping each site and comparing them to the likely sales price to determine the implied developer margin. Redevelopments that were estimated to earn at least a 20% margin were deemed

feasible, and vice versa. However, as explained further below, no redevelopment potential was identified because of the very low sales prices of Dargaville dwellings.[2]

3.8 Converting Feasible Capacity to Likely to be Realised

Just as not all parcels with plan-enabled capacity will be feasible to develop, not all parcels with feasible capacity will be realised and therefore contribute to market supply, particularly over the short to medium term. There are several factors that limit the realisation of feasible capacity, namely:

- **Landowner intentions** – most Dargaville landowners are not developers and are therefore unlikely to subdivide or redevelop their sections over the short- to medium-term, nor to sell their properties to others who may wish to develop them. This factor significantly curtails the likely capacity residing in the existing urban area over the next 10 years.

- **Landowner capability and risk appetite** – similarly, many landowners that may be contemplating subdividing will lack the skills required to execute the plan successfully and/or may not be willing to bear the associated risk. This, too, will significantly limit the realisation of capacity within the existing urban area.

- **Land banking** – other landowners may have the motivation and skills to subdivide their land but are currently abstaining to capitalise on potential land price inflation (which is sometimes referred to as land-banking).

- **Unforeseen site constraints** – while our analysis accounts for a wide range of likely site constraints, there may be others that we have not been able to properly incorporate. They include, for example, a lack of infrastructure availability or undetected site contamination.

- **Financing** – finally, some landowners may face capital and/or financing constraints that hamper their ability to subdivide regardless of intention, skill, and appetite for risk.

Given these various factors, it follows that actual market supply will only ever be a modest proportion of feasible capacity. Accordingly, and based on our experience elsewhere, we apply the following realisation rates to feasible capacity to determine likely future market supply (over the next 10 years).

Table 3: Likely to be Realised Capacity Assumptions

Capacity Type	% of Feasible Capacity
Vacant	50%
Subdivision	25%
Redevelopment	10%

[2] For example, according to data published pursuant to the NPS UD, the average dwelling sales price in Dargaville in the last quarter of 2022 was only $543,000 compared to a district average of $749,000. See here for further information https://huddashboards.shinyapps.io/urban-development/

4. Residential Demand

This section estimates the demand for additional dwellings in the study area over the next 10 years.

4.1 Types of Housing Demand

The demand for additional dwellings includes the need for more "market" homes, plus social homes provided by the "non-market" sector. Each is considered separately below.

4.2 Market Housing Demand

The demand for market homes was derived by converting the latest official population estimates for the study area into the number of extra households over the next 10 years. To that end, Figure 3 first plots the latest official population estimates and projections for Dargaville according to Statistics New Zealand.

Figure 3: Official Population Estimates & Projections for Dargaville SA2

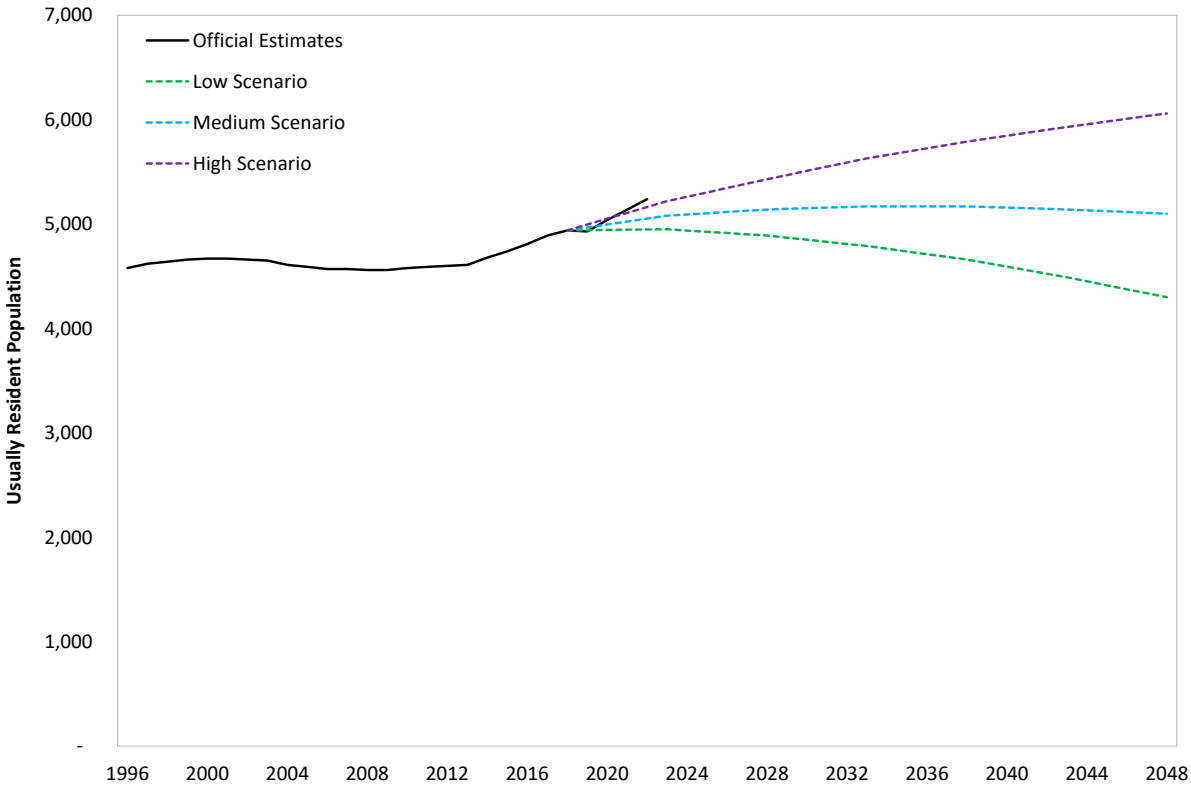


Figure 3 shows that Dargaville's usually resident population remained relatively constant from 1996 to 2013, after which it started to rise. Following a short plateau in 2018, the township's population has since started to grow again. Over the last three years it grew more than 6%, with the official estimate in June 2022 exceeding all three official projections. In fact, the official estimate of 5,240 people in 2022 was 1.5% above the corresponding high projection of 5,165.

We expect the recent population spike to continue subject to there being enough capacity to absorb it and therefore select the official high projection as the most appropriate basis for planning here. According to that, the resident population will grow by more than 400 people over the next 10 years. Overlaying projected ongoing declines in household size, this translates to an additional 206

households in Dargaville by 2033. This is our 'raw' estimate of market demand. i.e. excluding NPS UD competitiveness margins.

4.3 Social Housing Demand

The demand for social housing does not readily lend itself to quantification via publicly available data like market housing. However, we were provided with an anonymised summary of people on the Ministry of Social Development's (**MSD**'s) housing register that selected Dargaville, or Northland, as their preferred location. According to that list, dated 25 April 2023, there were 128 families actively seeking – but still yet to receive – social housing in Dargaville. A further 135 families were seeking a social home anywhere in Northland, potentially including Dargaville. To keep our analysis conservative, we consider only the 128 families seeking a social house exclusively in Dargaville. That said, we acknowledge that this may understate the true extent of social housing demand because not all families may have yet registered with MSD.

4.4 Total Housing Demand

Above, we estimated market demand for 206 additional dwellings by 2033, with a further 128 families seeking a social house in the township. This results in total housing demand, prior to application of the NPS UD competitiveness margin, of 334 additional homes over the next 10 years.

However, we consider it highly likely that these two sets of demand overlap, with some of our population-driven estimates of market demand also reflecting families on the social housing register. Thus, to avoid double-counting, we reduce both estimates by 10%. The table below shows the resulting total demand for 360 extra houses in Dargaville by 2033, including NPS UD margins.

Table 4: Summary of Short-medium Term Demand for Additional Housing in Dargaville

Demand Calculations	**Market Housing**	**Social Housing**	**Total Housing**
Initial estimate	206	128	334
Reduction for double counting	-21	-13	-34
Adjusted estimate	185	115	300
NPS UD competitiveness margin	20%	20%	20%
Final estimate (including NPS UD margin)	**222**	**138**	**360**

5. Residential Vacant Capacity

This section assesses residential vacant capacity within Dargaville over the next 10 years.

5.1 Plan-Enabled

According to Core Logic's Property Guru tool, there are currently 33 vacant residential sites in our study area, most of which are in the residential zone. The blue dots in the map below identify them, while the yellow shaded area represents the residential zone itself.

Figure 4: Location of Vacant Residential Parcels (blue dots)

22 of the 33 sites can accommodate one dwelling, while the other 11 can accommodate more. Overall, these vacant sites have plan-enabled capacity for an additional 64 dwellings.

5.2 Feasible & Likely to Be Realised

As per the methodology outlined above, we assumed that all vacant parcels are technically and financially feasible to develop, but that only 50% will be realised over the next 10 years. Thus, we estimate realisable capacity on vacant sites for an extra 32 dwellings to 2033.

6. Residential Subdivision Capacity

This section assesses the potential for subdivision on occupied residential zoned sites at least 1,200m^2 (because the minimum lot size is 600m^2).

6.1 Plan-Enabled & Technically Feasible

Property Guru identified approximately 300 residentially zoned, non-vacant properties that were at least 1,200m^2. To determine the technical feasibility of subdivision for each, we first undertook extensive analyses of aerial photographs via Property Guru, Google Maps, and GRIP. This involved dissecting each plot into potential subdivisions and calculating the area available using measurement tools within each mapping platform. When evaluating each site, specific attention was paid to:

1. The District Plan rules for residential properties, such as setbacks and recession planes; and

2. The size, shape, value, and location of existing dwellings, sheds, driveways, and so on.

This desktop analysis identified 180 properties as not being capable of subdivision, mainly due to the location of the primary dwelling and/or access difficulties to the back of the site. As a result, there were about 120 properties left for further assessment.

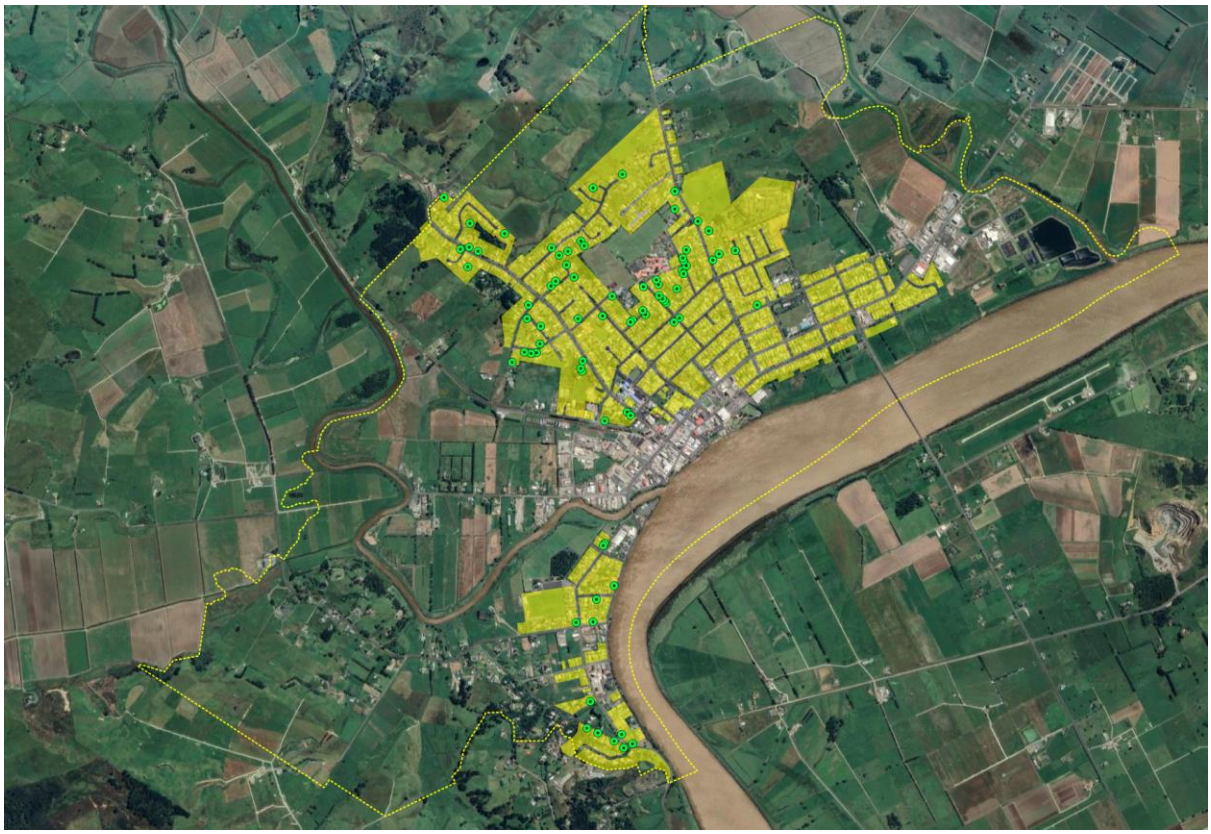
On Friday 12 May, we spent the day driving around Dargaville with Venessa Anich, who is the planner for PC81. One of our key tasks was to visually inspect each of these 120 properties to confirm their capability of being subdivided. This was an enlightening process, which emphasised the limitations of relying solely on desktop analyses. In short, approximately half of the 120 properties that passed our aerial desktop analysis were quickly struck out either because:

- They were in low-lying, flood-prone areas with challenging geotechnical conditions that would significantly complicate any attempts to subdivide; and/or

- The front half of the section, which contained an existing dwelling, was relatively flat while the back half dropped away quickly down or up a bank.

Consequently, we identified plan-enabled and technically feasible capacity to subdivide 64 properties, which could yield an estimated 82 extra dwellings. The green dots in the map below reveal the locations of these sites, while the yellow shaded area again represents the residential zone.

Figure 5: Location of Parcels that are Technically Feasible to Subdivide (green dots)



6.2 Feasible and Likely to Be Realised

As per our methodology, we assumed that 80% of parcels that are technically feasible for subdivision will also be financially viable, and that 25% of those will be realised over the next 10 years. Thus, we estimate realisable infill capacity on non-vacant sites for an extra 16 dwellings to 2033.

7. Residential Redevelopment Capacity

This section assesses potential redevelopment capacity within Dargaville's existing residential zone.

7.1 Introduction

As noted earlier, residential-zoned parcels spanning at least 1,200m^2 were subjected to a two-step evaluation process. In the first step, we considered the technical feasibility of subdivision. Parcels that failed this test were then re-examined via a second test to consider the potential for redevelopment. In short, redevelopment means demolishing all existing structures, levelling the land, subdividing it into smaller lots, constructing new dwellings on each, and selling them down (hopefully for a profit). Projects that earn at least a 20% margin are deemed financially feasible.

While redevelopment is slowly becoming more common in highly urbanised areas where land and property prices are high, the economics are challenging in less expensive areas like Dargaville. Consequently, we were unable to find any redevelopment potential within the existing urban area. To illustrate this issue, we set out a worked example below.

7.2 Worked Example – 62 Parore Street

Below are the property details for 62 Parore Street. The site itself spans more than 1,800m^2 and is theoretically able to accommodate three new dwellings (after removal of the existing dwelling). It contains a 150m^2 home that was constructed approximately 100 years ago. Its current valuation is $500,000, almost 30% of which is land value, and just over 70% of which is improved value. The site was deemed unsuitable for subdivision due to the central location of the dwelling, so it was then evaluated for redevelopment.

Figure 6: Property Details for 62 Parore Street (from Property Guru)

Property Summary

Last Official Sale Price:	$85,000
Last Official Sale Date:	21-Oct-1992
Last Official Sale Type:	Whole. One property involved
Sale Tenure:	Freehold
Purchase Relationship:	Market Level - Bonafide
Net Sale Price:	$79,500
Chattels:	$5,500
Rating Valuations:	$500,000
Land Value:	$143,000
Improvements Value:	$357,000
Valuation Date:	01-Sep-2020
Valuation Address:	62 PARORE STREET DARGAVILLE
Valuation Reference:	950/45900
Legal Description:	LOTS 4 5 DP 12387
TA Name:	Kaipara District
Tenure:	Not Leased (Owner is Occupier)
Floor Area:	150 m^2
Land Area:	1836 m^2
Bedrooms:	4
Building Age:	1920 - 1929
Category:	Residential, Dwelling, average (RD)
Wall Material:	Weatherboard / AVERAGE
Roof Material:	Steel / G-Iron / AVERAGE
Contour:	Easy to moderate rise
Deck:	N
Parking Freestanding:	2 cars
Parking Main Roof:	0

For the purposes of this exercise, we assumed that the site would be redeveloped to create three new dwellings on freehold titles of 612m^2 each. Each dwelling is assumed to be 150m^2, like the existing one, at an average construction cost of $2,500 per square metre. To keep the analysis simple, we adopt demolition and professional fee costs from Core Logic's Cordell calculator. Further, we assume that the cost of creating the titles (including development contributions etc) is $20,000 per lot. Finally, we assume a 10% cost contingency and 2% sales/marketing cost. Interest costs are ignored for simplicity but will be significant at current rates.

The table below sets out the costs and revenues of the exercise using an expected sales price of $600,000 (which is just above the current median for Dargaville).

Table 5: Worked Example for 62 Parore Street

Costs and Revenues	**Values**
Acquisition Cost[3]	$735,000
Demolition	$35,700
Subdivision	$60,000
Construction	$1,125,000
Contingency	$122,070
Total Costs	**$2,077,770**
Sales Price	$1,800,000
less realty fees	$36,000
Net Revenue	**$1,764,000**
Profit/Loss	-$313,770
Developer Margin	**-15%**

Table 5 shows that this hypothetical redevelopment would fail to cover its costs, with an estimated loss of nearly $315,000 (and a negative developer margin of -15%). Once interest costs are factored in, this loss would be even greater and the project even less viable than as portrayed here.

While this is just one worked example, it represents one of the most "profitable" redevelopments that we modelled (across all sites greater than 1,200m^2 that cannot easily be subdivided). Accordingly, we conclude that there is currently no feasible redevelopment capacity in Dargaville's existing township.

[3] This equals the Capital value of $500,000 (as at 30 September 2020) adjusted for changes in the Dargaville median sales price since that date.

8. Industrial Demand and Capacity

This section assesses the supply and demand of industrial land in the study area.

8.1 Industrial Demand

Section 5 of The Urban Advisory's (TUA) Market Demand Analysis[4] assesses the demand for commercial and industrial units in Dargaville. It found that:

- A lot of Dargaville's commercial and Industrial land is subject to Coastal Flood Hazards and other constraints that limit their future development potential. Consequently, there is highly likely to be demand for new industrial areas that have fewer constraints, such as PC81.

- There is demand from existing local businesses seeking to relocate from older premises to modern light industrial units that are fit-for-purpose. They include, for example, spare parts shops, storage units, mechanics, plumbers, electricians and light manufacturing activities like a joinery factory, kitchen manufacturer, boat builder, smaller scale prefabrication activities, and a brewery or distillery.

Their analysis confirmed a demand for light industrial activities on the PC81 site, and identified the following table of hypothetical future tenants, including their likely land and building needs.

Table 6: Prospective PC81 Industrial Tenants & Their Requirements (Table 9 of Market Demand Analysis)

Business Activity	**Site Area**	**GFA**
Small Mixed Light Industrial	60-300m^2 (100% developed area)	60- 300m^2
Medium Mixed Light Industrial / Business and Commercial	500-5,000m^2 (60-100% building coverage)	500-3000m^2
Business / Community Hub	Large Lot - Variable	500-3000m^2
Horticulture / nursery / greenhouses / botanicals (like Ngawha).	Variable (depends on tenant)	Not applicable
Construction Innovation and Training	Variable (depends on tenant)	Variable (depends on tenant)

We accept this analysis and conclude that there is a demand for light industrial activities at the site.

8.2 Industrial Capacity

The PC81 applicants engaged Spatialize (GIS consultants) to determine the quantum of developed and undeveloped industrial land in the existing urban area. Their findings are summarised in the table and map below, where there are 14 vacant lots, totalling less than one hectare of land.[5]

Table 7: Development Status of Industrial Lots in Dargaville

Status	**Number of Lots**	**Average Size (m^2)**	**Total Land (ha)**
Developed	201	642	12.9
Undeveloped	14	665	0.9
Total	**215**	**643**	**13.8**

[4] Prepared in late 2021 for the original PC81 submission.

[5] Prepared recently to inform this assessment.

This lack of existing industrial capacity is reflected in the Dargaville Spatial Plan, which identifies the need to both intensify existing industrial areas, plus rezone new ones. These key industrial moves which take in the PC81 site, are illustrated in the map below from page 42 of the Spatial Plan.

Figure 7: New & intensified Business Areas in the Spatial Plan (Key Moves, Map 6, p42)

8.3 Summary and Conclusion

Various background reports, including the recent Spatial Plan, have identified the need for additional industrial land and recognised the area in and around the racecourse as a suitable location. Accordingly, we conclude that there is a need for the industrial elements of PC81 over the next 10 years (and beyond).

9. Need for Proposal – NPS HPL 3.6(4)(a)

This section assesses the short-medium term need for the proposal under the NPS-UD as per clause 3.6(4)(a) of the NPS HPL. It draws on and synthesises the analyses of demand and capacity in previous sections to reach a conclusion.

9.1 Need for Residential Capacity

Our analysis above identified the need for an additional 360 dwellings over the next 10 years, including NPS UD competitiveness margins. The table below reconciles this with our estimates of capacity residing in the existing urban area. It reveals a shortfall of more than 300 dwellings over the next 10 years. Consequently, we conclude that there is indeed a need for additional residential capacity to meet short-medium demand.

Table 8: Reconciliation of Residential Demand and Capacity

Dwelling Demand	**Values**
Market Housing	222
Social Housing	138
Total	**360**
Feasible & Realisable Capacity	
Vacant	32
Subdivision/Infill	16
Redevelopment	0
Total	**48**
Capacity Shortfall	**312**

9.2 Need for Industrial Capacity

The analysis summarised in the previous section confirmed that there is a demand for additional industrial capacity on the PC81 site to meet demand, so we conclude that this limb of the test is satisfied.

9.3 Summary and Conclusion

The residential and industrial capacity provided by PC81 are required to keep pace with growth in demand over the next 10 years in Dargaville, so the first test in clause 3.6(4) of the NPS HPL is met.

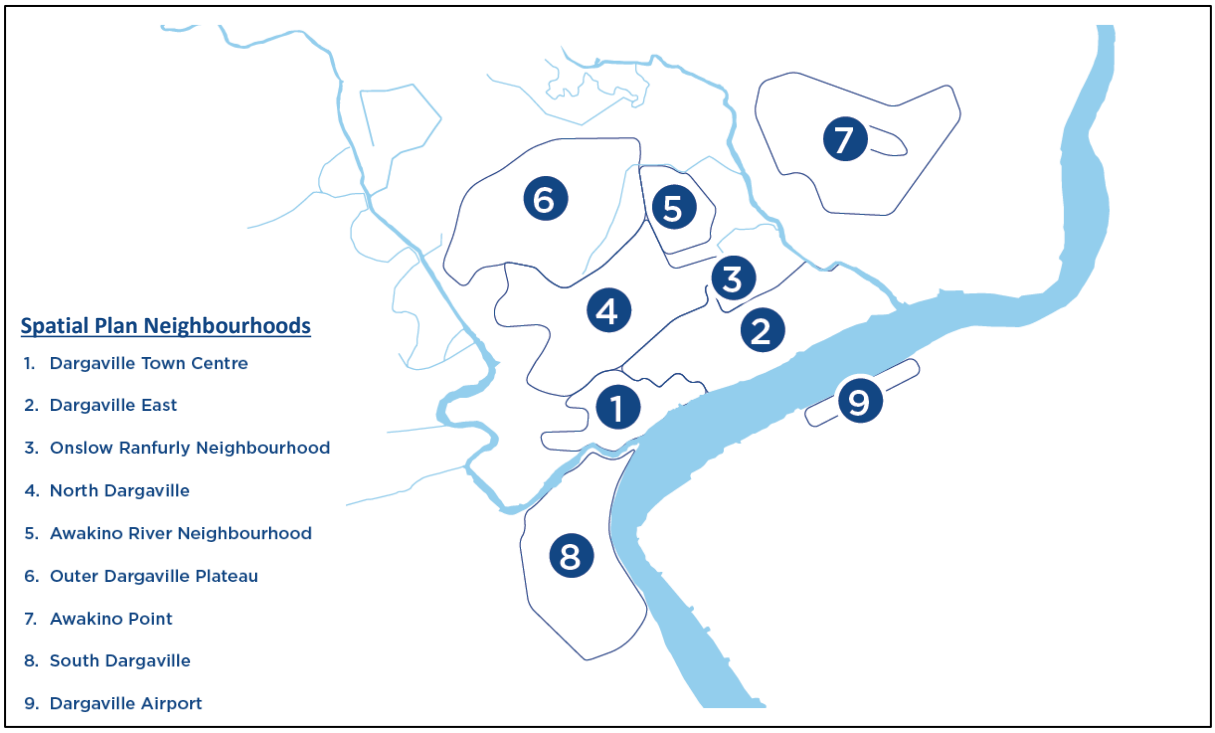
10. No Other Options – NPS HPL 3.6(4)(b)

This section considers other options for providing the same residential capacity as PC81.

10.1 Context

Having determined a short-medium term need for PC81, the second NPS HPL test is that there are no other reasonably practicable and feasible ways to provide the same capacity. Here, given the recency of the Dargaville Spatial Plan, we limit those options to the various neighbourhoods identified in the that document, as per the map below.

Figure 8: Dargaville Spatial Plan Neighbourhoods



However, since some of these neighbourhoods fall within the existing urban area, which were already analysed above, the assessment of other options in this section is limited to:

- Onslow Ranfurly Neighbourhood (map ref. 3)
- Awakino River Neighbourhood (map ref. 5)
- Outer Dargaville Plateau (map ref. 6)
- South Dargaville (map ref. 8)

10.2 Onslow Ranfurly Neighbourhood

This area is immediately east of the existing township and is bound by Gordon Street to the south and the Hospital to the north. According to the Spatial Plan, it "has been identified as a suitable site for retirement house expansion within the context of a 'High Density Housing' environment." However, we walked over (the edge of) this site during our recent visit and found that it was very low-lying,

flood-prone, and bisected by the electricity transmission network corridor. In our view, these natural and physical features preclude any large-scale development of the site. Accordingly, we place little to no weight on the realisation of urban capacity there, at least over the next 10 years.

10.3 Awakino River Neighbourhood

This area is less than a kilometre north of the Onslow Ranfurly neighbourhood but is not quite as low-lying and is otherwise relatively free of constraints. According to the Spatial Plan, it is earmarked for "mixed-density 450-750m² site sizes, with one or more dwellings per site. Buildings can be stand-alone or terraced leading to efficient use of land for residential purposes."

Although the electricity network corridor appears to run up the edge of this neighbourhood, it should be possible to develop the balance of it. This is reflected in the recent public notification of PC82, which seeks to urbanise this land. However, like the PC81 site, it also contains a small amount of HPL.

In addition, the hypothetical maximum yield of this site, according to the plan change documentation, is 348 houses if all sections are the minimum size. In our experience, greenfield developments like this provide a range of sections sizes to meet differing housing needs and preferences. Consequently, the likely true yield will be lower, and most likely less than 300.

10.4 Outer Dargaville Plateau

This neighbourhood spans a large area immediately north of the existing township and includes steep, rolling hills interspersed with low-lying, flood-prone areas and slivers of HPL. According to the Spatial Plan, it "consists of rural landscape with rolling topography and well defined ridgeline suitable for high and medium density housing opportunities. This new residential housing area is well connected to other neighbourhoods through proposed cycle and walking paths, also being in direct alignment with the town centre via Hokianga Road – a future mainstreet expansion area."

We respectfully disagree and consider future urbanisation of this area to be highly unlikely for several reasons. First, the topography is challenging, with steep hills plunging into water-prone gullies. Second, the ridgeline is exposed to the wind and therefore not ideal for residential dwellings. Third, extending roading and water/wastewater networks to reach this location will be prohibitively expensive. Fourth, the land is fragmented, with more than a dozen owners, none of which appear to be developers.

We are not aware of any experienced developers that would attempt to urbanise such challenging land, so the probability of non-developer landowners taking it on is very low. Accordingly, we place no weight on the realisation of this capacity over the next 10 years.

10.5 South Dargaville

The final neighbourhood is south Dargaville, specifically the area immediately west of the Museum. Like the previous neighbourhood, outer Dargaville plateau, this area does not seem suitable for urbanisation. The land is hilly, covered in trees and the area is somewhat disconnected from the rest of the township. In addition, it is also held by multiple landowners, none of whom appear to be developers. Overall, we consider this a relatively poor place to accommodate growth.

10.6 Summary and Conclusion

Our desktop analysis and follow-up site visit revealed that only one of the spatial plan neighbourhoods (Awakino River) appears suitable for development. The rest are not. However, just because one neighbourhood looks suitable for development, that doesn't mean that it will be developed in a quick enough fashion to meet demand. That site also does not meet the definition of plan enabled capacity under the NPS UD (due to its zoning), and it contains HPL, just like the racecourse. Accordingly, there is no *a priori* reason to prefer the PC82 site over the PC81 one.

In fact, because PC81 is held in single ownership and is further along the rezoning process than PC82, it arguably should carry more weight when assessing the likelihood and merits of development occurring there.

Moreover, even if PC82 is successful in rezoning its site in the near future, there will still be very long lead times before new dwellings are built and occupied there, particularly with so many fragmented landowners involved. That dispersed ownership pattern creates inherent difficulties in agreeing a coherent and unified plan that meets (often-conflicting) goals and aspirations while also being a financially viable development outcome. For example, landowners will often disagree over the proposed staging of the land, plus the location of infrastructure like reserves and stormwater management areas. These are critical to the overall development, but no landowner wants their land consumed for such purposes.

Because of these complex and time-consuming processes, we expect only a fraction of PC82's theoretical capacity to be realised over the next 10 years (if at all). Accordingly, PC82 is not a reasonably practicable and feasible option for providing the required development capacity in the short-medium term.

For the reasons above, we conclude that there are no other reasonably practicable or feasible options to provide the required development capacity over the next 10 years, so PC81 remains necessary to meet demand over that period.

11. Costs & Benefits – NPS HPL 3.6(4)(c)

11.1 Introduction

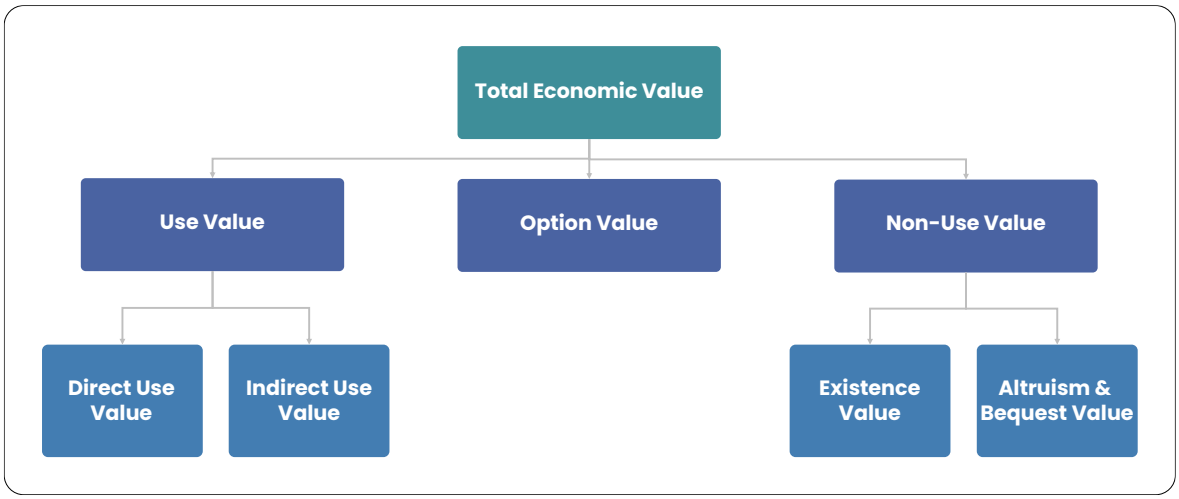
The final task is to show that the overall benefits of the proposal outweigh costs, including all tangible and intangible effects. This is not limited to economic considerations, however, and includes social, cultural, and environmental effects. Below, we assess the likely *economic* costs and benefits of the proposal relative to potential rural production to inform the broader analysis under this clause. First, however, we summarise the literature relied upon to help structure the analysis.

11.2 TEV Framework

We briefly reviewed the New Zealand literature on the economic analysis of competing land uses and were quickly led to 2013 paper titled "Total Economic Value of New Zealand's land-based ecosystems and their services" (Patterson 2013)[6]. It is widely cited by other studies and appears to be the most authoritative, current work of its kind. Accordingly, we rely on it here.

The paper adopts the total economic value (TEV) framework, which has been widely used in environmental economics since the 1980s to help capture the full spectrum of economic effects, not just those that are readily quantifiable. While the exact structure of the TEV framework often differs from one study to the next, the figure below shows its key components.

Figure 9: Total Economic Value (TEV) Framework



In the TEV framework, economic value is divided into values arising from both the use and non-use of resources, including possible future use (known as option value).

Use values are subdivided into those that flow directly from use, such as food production, and those that flow indirectly, such as changes in air or water quality due to agricultural practices (for example).

[6] https://www.landcareresearch.co.nz/assets/Publications/Ecosystem-services-in-New-Zealand/3_2_Patterson.pdf

Non-use values include the benefit that people receive from knowing that something exists, even if they never plan to visit it (existence), plus the benefit of preserving things for the benefit of others both now (altruism), and in future (bequest).

Patterson 2013 apply this framework to 12 land-based ecosystems to quantify the economic value that each provides. They split use values into the following four parts to reflect the delivery of different ecosystem services:

- **Provisioning services** – such as the growing of arable/horticultural crops, plus the rearing of animals for meat and/or milk production.
- **Regulation services** – which refers to the regulation of biophysical and ecological processes to support life and provide a suitable habitat for human existence.
- **Cultural services** – which includes spiritual fulfilment, aesthetics, education, scientific knowledge, and cultural wellbeing.
- **Support services** – which support provisioning and regulating services nutrient cycling, soil formation, and the provision of habitat. However, these are usually excluded from the calculation of TEV because they are already included elsewhere and cause double-counting.

The table below summarises the TEV's estimated by Patterson 2013 using this approach.

Figure 10: TEV of Land-Based Ecosystems from Patterson 2013

Ecosystem type	Use value				Passive value	Gross value[7]	Net value[8]
	Supporting value	Regulating value	Provisioning & cultural value	Total			
Standard ecosystems							
Horticulture & cropping	23	3	2,265	2,291	*n/a*	2,291	2,268
Agriculture	7,751	3,345	9,075	20,171	*n/a*	20,171	12,420
Intermediate agric-scrub	1,897	1,630	1,112	4,639	*n/a*	4,639	2,742
Scrub	609	531	5	1,144	*n/a*	1,144	535
Intermediate agric-forest	402	352	218	973	*n/a*	973	571
Forest-scrub	704	614	129	1,447	*n/a*	1,447	743
Forest	3,495	3,056	7,631	14,182	*n/a*	14,182	10,687
Wetlands	3,599	4,103	1,020	8,722	350	9,072	5,473
Estuaries	1,026	314	109	1,449	211	1,659	634
Mangroves	0	103	0	103	41	144	144
Lakes	1,735	544	4,671	6,950	885	7,836	6,101
Rivers	1,289	404	3,470	5,164	1,434	6,597	5,309
Heritage ecosystems							
National parks	*n/a*	*n/a*	*n/a*	*n/a*	7,164	7,164	7,164
Forest parks	*n/a*	*n/a*	*n/a*	*n/a*	743	743	743
Land reserves	*n/a*	*n/a*	*n/a*	*n/a*	1,218	1,218	1,218
Total	**22,530**	**15,000**	**29,705**	**67,235**	**12,045**	**79,280**	**56,749**

[7] Gross value = use value + passive value

[8] Net value = use value + passive value − supporting value

We now use this framework to compare the likely economic costs and benefits of the proposal to potential rural production. We begin with the TEV of the proposal.

11.3 TEV of Proposal

11.3.1 Economic Impacts of Construction

Constructing the new homes, retirement village, industrial lots, and neighbourhood centre enabled by the proposal will generate significant one-off economic impacts, which count as direct use benefits in the TEV framework. We quantified these using a technique called multiplier analysis, which is based on detailed matrices called input-output tables. These tables describe the various supply chains that comprise an economy, and therefore enable the wider economic impacts of a change in one sector (or sectors) to be traced through to estimate the overall impacts.

These impacts include:

- **Direct effects** – which capture onsite and offsite activities directly enabled by the proposal; plus

- **Indirect effects** – which arise when businesses working directly on the project source goods and services from their suppliers, who in turn may need to source good/services from their own suppliers, and so on.

These economic effects are usually measured in terms of:

- **Contributions to value-added (or GDP).** GDP measures the difference between a firm's outputs and the value of its inputs (excluding wages/salaries). It captures the value that a business adds to its inputs to produce its own outputs.

- **The number of people employed** – this is measured in terms of employment counts, which include both part-time and full-time workers, because Statistics New Zealand does not provide data on full-time equivalent employees (FTEs).

- **Total wages and salaries** paid to workers, which are often labelled 'household incomes.'

TUA was commissioned to prepare a Development Feasibility Study to support the Economic Impact Assessment for PC81. The purpose of the study was to assess the financial viability of the proposed development. For the analysis that follows, we rely on the development cost assumptions presented in the Feasibility Summary, located on pages 99-102 of Appendix 6: Economic Impact Assessment.

The key construction cost assumptions relied upon are tabulated below.

Table 9: Key Assumptions Adopted from TUA Feasibility Study

Development Area	Net Developable Area (ha)	Yield (dwellings / lots)	Average GFA (m2)	Construction Cost per m²
Residential				
Residential: medium density	5.0	156	80	$2,390
Residential: general density	5.0	80	100	$2,750
Residential: low density	5.7	36	120	$2,750
Residential: large lot	3.4	7	150	$3,000
Retirement Units	5.3	156	90	$3,042
Total Residential	**24.3**	**435**	**92**	**$2,747**
Industrial				
Small industrial - workshop	0.6	10	180	$1,525
Large industrial - warehouse	9.0	10		$1,250
Large industrial - office				$2,465
Total Industrial	**9.5**	**20**	**965**	**$1,659**
Neighbourhood Centre	**0.1**	**4**	**128**	**$1,425**
Total	**33.9**	**459**	**130**	**$2,384**

In addition, we adopted the planning/design/consent and land development costs estimated by The Urban Advisory. However, these are not disclosed here for commercial sensitivity reasons on the basis that they are not publicly available like construction costs are in building consent data.

Having defined our methodology and set our assumptions, the following table shows the estimated economic impacts of construction activity enabled by the proposal.

Table 10: One-Off National Economic Impacts of Construction ($ millions)

Planning / Design / Consent	Direct	Indirect	Total
FTEs – 6 months	70	30	100
GDP $m	$4	$2	$7
Wages/Salaries $m	$3	$1	$4
Site Preparation / Infrastructure			
FTEs – 1 year	90	110	200
GDP $m	$15	$16	$30
Wages/Salaries $m	$7	$8	$15
Construction			
FTEs – 4 years	65	210	275
GDP $m	$37	$109	$146
Wages/Salaries $m	$17	$55	$73
Sell Down			
FTEs – 4 years	8	6	15
GDP $m	$5	$4	$10
Wages/Salaries $m	$2	$2	$4
Project Totals			
FTEs -years	420	990	1,410
GDP $m	$60	$130	$190
Wages/Salaries $m	$29	$66	$95

In summary, future construction activity enabled by the proposal could boost national GDP by $190 million, including flow on effects, generate employment for over 1,400 FTE-years, and generate $95 million in household incomes. Assuming (say) a 6-year construction period, these translate to annual impacts of $32 million in GDP, employment for 235 people, and $16 million in household incomes.

11.3.2 Ongoing Employment

The primary source of ongoing onsite employment is in the proposed light industrial area. In addition, a small number of jobs are expected within the proposed neighbourhood centre and retirement village. As these are minor, we do not quantify them here.

To estimate onsite employment in the proposed light industrial area, we assumed an average floorspace per industrial employee of 150m^2. On that basis, the 19,300m^2 of proposed industrial floorspace[9] could sustain ongoing employment for approximately 130 people.

To estimate the corresponding wages/salaries and annual GDP, we reviewed Statistics New Zealand's latest input output tables, which summarise the national economy's overall structure and reveal the employment and GDP per dollar of output. The table below summarises the key information for a handful of industries that we consider to be the most likely future uses of the land under the proposal.

Table 4: Average Annual Industrial Output, GDP, and Wages per Employee from National IO Tables

Industrial Sectors	**Output $**	**GDP $**	**Wages $**
Construction	405,400	124,000	67,000
Manufacturing	462,300	124,300	69,400
Transport, Postal and Warehousing	294,100	133,500	73,000
Wholesale Trade	262,800	124,000	69,700
Industrial Average	**356,150**	**126,450**	**69,775**

The corresponding annual economic impacts generated by the 130 potential future industrial employees are tabulated below.

Table 4: Estimated Annual Onsite Industrial Output, GDP, and Wages (185 employees)

Industrial Sectors	**Output $**	**GDP $**	**FTEs**	**Wages $**
Construction	52,702,000	16,120,000	130	8,710,000
Manufacturing	60,099,000	16,159,000	130	9,022,000
Transport, Postal and Warehousing	38,233,000	17,355,000	130	9,490,000
Wholesale Trade	34,164,000	16,120,000	130	9,061,000
Industrial Average	**46,300,000**	**16,439,000**	**130**	**9,071,000**

Taking the average across the industrial sectors assessed, the future onsite industrial activity enabled by the proposal could generate:

- Full time employment for around 130 people;
- Annual output of more than $46 million;

[9] As per TUA Feasibility Study. This excludes yard floorspace and is thus a conservative estimate.

- Annual GDP of $16.4 million; and
- Over $9 million in salaries / wages.

11.3.3 Wider Economic Benefits

In addition, the proposal will generate other significant and enduring economic benefits that will not be realised via rural production. These are likely to be classified as indirect use values in the TEV framework.

Increasing Local Housing Supply

The proposal provides a substantial, direct boost in local housing supply. A significant increase in housing supply might lower or stabilise average house prices in Dargaville and bring economic gains to local residents.

To quantify this impact, Castalia modelled the effects of a shift along the supply curve to the local housing market and calculated consumer surplus and producer surplus. The difference in land value caused by the shift in the supply curve is 'captured' as benefits to consumers and producers. The Net Present Value (NPV) of this was estimated at **$3,534,000**.[10]

Housing for Mana Whenua

The proposed development supports the provision of papakāinga-style housing for Māori, including the provision of shared amenities and culturally appropriate housing and whānau-centred development.

Castalia quantified this impact by considering the value of investment iwi might make towards providing housing, including the investment required to support a shared equity housing model where iwi provide, and own, up to 30% of the value of the home. The NPV of this was estimated at **$8,003,000**. However, we understand this to be a transfer of funds and not an efficiency gain. As such, we exclude it from our TEV calculation.

Environmental Features

The proposed development includes environmental amenity and enhancement to the subject site. This includes minimum landscape requirements for residential areas, impervious coverage controls, planting of street trees, open space areas and the blue-green network for stormwater management and recreational amenity. These provisions will create habitat for fauna, native flora, public green space amenity, and less impervious areas.

Critical Mass to Support Greater Local Retail / Service Provision

As the dwellings enabled by the proposal are developed and fill up with residents, they will help create critical mass for a range of local services. To put this in context, we estimated likely future spending originating on the subject site at full build-out by applying regional average spending from the latest Household Economic Survey[11]. To be conservative, these estimates ignore ongoing growth in annual

[10] See Castalia report for inputs and assumptions.

[11] For the North Island, outside of Auckland

household income over time. In addition, we have reduced spend by one third for future residents of the retirement village to reflect smaller than average anticipated household sizes.

The results are tabulated below and reflect total annual spending by 279 new general residential households and 156 new retirement units.

Table 11: Projected Future Spending Originating Onsite

Expenditure Group	Annual Spend per General Residential Household	Annual Spend per RV Unit	Total Annual Spend ($ millions)
Food	$10,700	$7,130	$4.1
Alcoholic beverages, tobacco, and illicit drugs	$1,520	$1,020	$0.6
Clothing and footwear	$1,520	$1,010	$0.6
Housing and household utilities	$14,890	$9,930	$5.7
Household contents and services	$2,690	$1,800	$1.0
Health	$2,070	$1,380	$0.8
Transport	$10,430	$6,950	$4.0
Communication	$1,760	$1,170	$0.7
Recreation and culture	$6,710	$4,480	$2.6
Education	$770	$520	$0.3
Miscellaneous goods and services	$5,360	$3,570	$2.1
Other expenditure	$5,520	$3,680	$2.1
Total Household Expenditure	**$63,940**	**$42,640**	**$24.5**

Table 5 shows that future residents of the subject site will spend $24.5 million per annum on a wide range of household goods and services. Accordingly, future development of the land will provide significant commercial support for Dargaville businesses.

Highest and Best Use of Land

Finally, the proposal provides the highest and best use of the subject land. It is imminently suitable for residential and industrial development due its large size, single ownership, flat topography, and elevation. Crucially, it is not subject to flood and contour constraints, which are common within the existing Dargaville urban area.

11.4 TEV of Rural Production

11.4.1 Direct Use Value

Next, we considered the types of rural production that might occur on the site (absent the proposal) to determine the direct use value of foregone rural production. To begin, we used Landcare's GIS tool to identify the soil classes present within the subject site. This is summarised in the map and table below.

Figure 11: Location of Highly Productive Land Within Subject Site

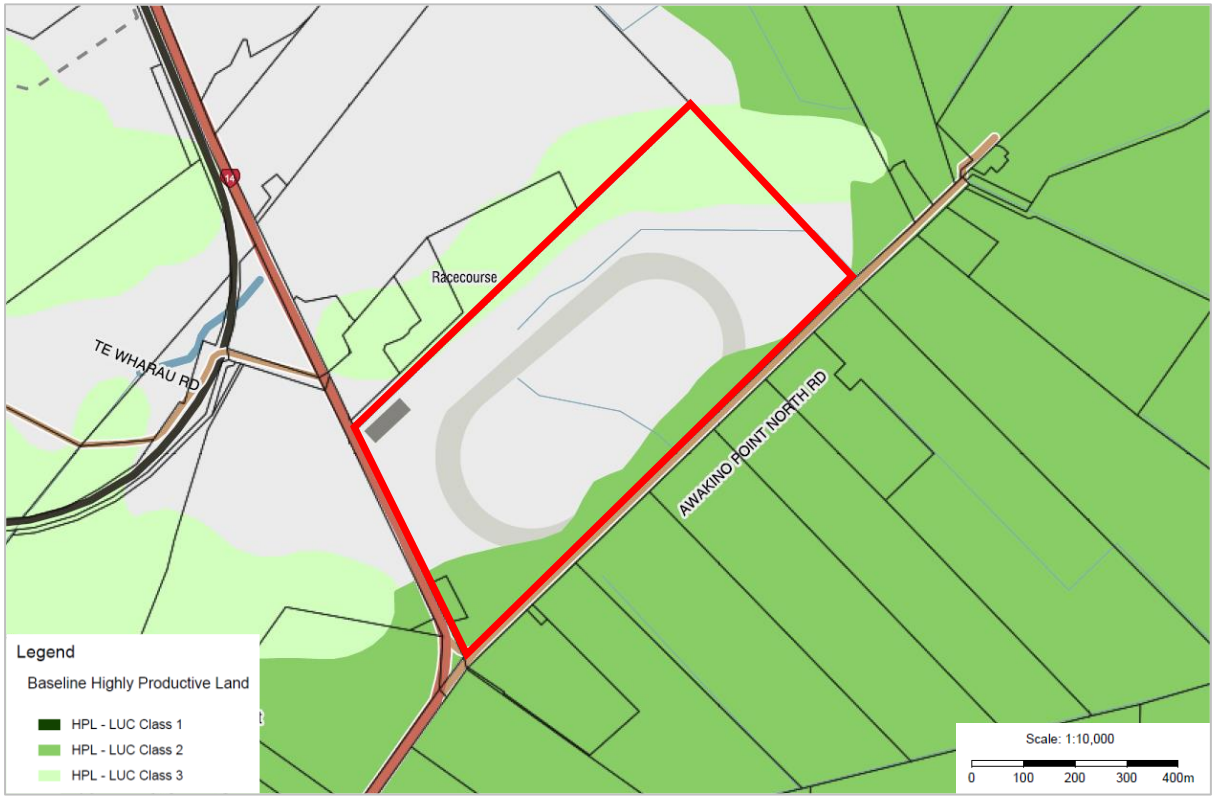


Table 12: Land Use Capability of Subject Site

Land Use Capability	Area (ha)	Share
LUC Class 2	6	13%
LUC Class 3	5	10%
LUC Class 4	35	77%
Total	**45**	**100%**

In total, approximately 11 hectares (23%) of the subject land is mapped as highly productive. This consists of two discrete areas of highly productive soil, as indicated in Figure 11:

1. A narrow strip of LUC Class 2 land spanning approximately 6 hectares, situated along the southern site boundary (adjacent to Awakino Point North Road); and

2. A triangular area of approximately 5 hectares of LUC Class 3 land located in the northern corner of the site.

The remaining land is classified as LUC Class 4, and is thus not considered highly productive under the NPS-HPL.

The following factors will naturally limit the productive potential of the site's HPL:

- The **separation** of the HPL within the site. Two (relatively small) discrete tracts of land are less viable than one contiguous parcel.

- The **form** of the HPL is not conducive to farming / irrigation, particularly the narrow tract of LUC Class 2 land.

As such, we expect the site's HPL to have only marginal rural productive value. The land is currently used for a low value activity (stock grazing), which supports this hypothesis.

Indeed, rural production varies markedly by land use. Here, we estimate it for the following two activities, which we understand are the most likely to occur on the site absent the proposal:

- Kumara production; and
- Sheep & beef farming.

National-level metrics of production per hectare for Kumara were sourced from Fresh Facts,[12] while region-specific data for sheep and beef farming were sourced from Beef+LambNZ[13]. The table below shows the resulting estimates of rural production per hectare.

Table 13: Production Metrics per Hectare (for Subject Site)

Productive Use	Output $	GDP $	FTES	Wages $
Kumara	21,880	9,370	0.115	6,900
Sheep & Beef	2,540	1,080	0.006	160
Average	**12,210**	**5,230**	**0.060**	**3,530**

Table 14 shows the estimated activity foregone if the site's full 45 hectares (of HPL & non HPL) were used exclusively for rural production (notwithstanding the limitations outlined above).

Table 14: Estimated Annual Rural Production for Subject Site (45 hectares)

Productive Use	Output $	GDP $	FTES	Wages $
Kumara	1,048,000	448,000	5.60	330,000
Sheep & Beef	122,000	52,000	0.40	9,000
Average	**585,000**	**250,000**	**3.00**	**170,000**

Taking the average, the entire subject site could theoretically sustain the following annual economic activity if used solely for rural production:

- Output/revenue of $585,000;
- GDP of $250,000;
- Employment for 3 FTEs; and
- Wages and salaries of $170,000.

These values are negligible, not even providing full time employment for more than a handful of people. By comparison, the proposed development would provide a substantial boost in employment during construction of approximately 235 people for six years.

[12] https://www.freshfacts.co.nz/files/freshfacts-2020.pdf

[13] https://beeflambnz.com/sites/default/files/data/files/wni%20class%205%20finishing.xlsx

11.4.2 Indirect Use & Non-Use Values

Patterson 2013 provide estimates of indirect and non-use (passive) values for each of the 12 ecosystems in their study (as reproduced above). Of those 12 ecosystems, only the first two – horticulture/cropping and agriculture – are relevant here. According to Patterson 2013, the indirect and non-use values of these ecosystems are not particularly significant. This is conveyed in the two tables below.

Table 15: Use Value of Ecosystem Services Derived from **Horticulture-Cropping** Ecosystems ($2012 million)

Ecosystem service	Supporting value	Regulating value	Provisioning & cultural value	Provisioning & cultural excl GDP	Gross value	Net value
Water provisioning			2	2	2	2
Food production			2,263		2,263	2,263
Climate regulation		3		3	3	3
Erosion control	12			12	12	
Pollination	11			11	11	
Total	**23**	**3**	**2,265**	**28**	**2,291**	**2,268**

Table 16: Use Value of Ecosystem Services Derived from **Agriculture** Ecosystems ($2012 million)

Ecosystem service	Supporting value	Regulating value	Provisioning & cultural value	Provisioning & cultural excl. GDP	Gross value	Net value
Water provisioning			85	68	85	85
Food production			8,363		8,363	8,363
Raw materials			514		514	514
Recreation			57	57	57	57
Cultural			57	57	57	57
Gas regulation		200		200	200	200
Waste treatment		2,488		2,488	2,488	2,488
Biological control		657		657	657	657
Soil formation	28			28	28	0
Erosion control	7,008			7,008	7,008	0
Pollination	715			715	715	0
Total	**7,751**	**3,345**	**9,076**	**11,278**	**20,172**	**12,421**

As revealed above, provisioning services (which we have estimated just above) equal 99.8% of TEV for horticulture/cropping[14], and 67% for agriculture.[15] As a result, our estimates of the GDP, jobs, and incomes estimated for kumara growing will account for virtually all (99.8%) of the TEV of that type of rural production. However, our corresponding estimates of GDP, jobs, and incomes for sheep and beef grazing will account for only two-thirds of TEV. Thus, to derive the TEV of sheep and beef grazing, we need to scale-up our estimates of food production benefits by nearly 50% to capture the other elements of TEV.[16]

[14] Calculated as 2,263 net value of food production divided by 2,268 total net value.

[15] Calculated as 8,363 net value of food production divided by 12,421 total net value.

[16] The 50% scalar equals the total net value of 12,421 for agriculture divided by the net value of food production of 8,363. This results in a scalar of 48.5% to capture the other elements of TEV over and above our estimates of food production.

11.5 Comparison of Long-Term TEV

To complete our assessment, we compared the TEV of the proposal with the TEV of rural production over a period of 30 years. We adopt the conservative assumption that ongoing employment does not commence onsite until year 11, and ignore employment in the both the neighbourhood centre and retirement village. We have also excluded the indirect values of the wider economic effects of the proposal outlined in Section 11.3.3. Conversely, we assume that rural production occurs immediately on the whole site and is sustained for the full 30-year period. The results are tabulated below.

Table 17: Comparison of Total Economic Values over 30 years

Proposed Development	**GDP $m**	**FTE-Years**	**Wages $m**
One-Off Construction Impacts **PLUS**	$190	1,410	$95
Industrial Employment Impacts (20 years)	$330	2,600	$180
PC81 Total	**$520**	**$4,010**	**$275**
Rural Production on WHOLE SITE	**GDP $m**	**FTE-Years**	**Wages $m**
Kumara Production (30 years) **OR**	$13.5	168	$9.9
Beef and Sheep Production (30 years)	$2.4	12	$0.4

The table above confirms that the proposal will generate vastly higher GDP, employment, and wages than either rural production scenario, even when the latter are considered over a long period, such as 30 years.

11.6 TEV Summary and Conclusion

The analysis above shows that the proposal will generate far higher impacts on GDP and employment than rural production undertaken on the site. Thus, overall, we consider the proposal to satisfy the requirements of clause 3.6(4)(c) of the NPS HPL from an economic perspective.

12. Summary & Conclusion

This report has assessed the proposal against clause 3.6(4) of the NPS HPL from an economic perspective and concluded that:

- The proposal is required to provide short-medium term capacity under the NPSUD; and
- There are no other reasonably practicable and feasible ways to provide the required development capacity elsewhere in Dargaville in a timely manner; and
- The economic costs and benefits of PC81 far outweigh those of any foregone rural production undertaken on the site.