Appendix R Wider economic benefits

Technical Note

Job Name:	Ashburton Second Bridge
Job No:	310205125
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Note Title:	**Wider Economic Benefits (WEBs) Assessment**

1 Introduction

Stantec has developed an economic impact model to assess the wider economic benefit (WEB) of the planned second bridge and new road in Ashburton/Tinwald. The new bridge and road will follow the route of the existing designation that connects the southern end of Chalmers Avenue in Ashburton to Grahams Road in Tinwald.

The model appraises Land Value Uplift (LVU), representing the **net private benefits of development.** This technical note provides an overview of the methodology utilised to appraise these benefits and presents the results of the applied approach.

1.1 Model Limitations

The methodology is heavily founded in the UK Government's Department for Levelling Up, Communities and Housing – *Land Value Estimates for Policy Appraisal 2017*[1]*.* This offers an alternative approach to the economic valuation of development, such as those detailed in the Monetised Benefit Cost Manual (MBCM). Alternative options to appraising development include the use of employment and GVA data, but such approaches rely on several assumptions rather than using observable market data.

In the Ashburton property market, investment appears to be constrained by substantial site development costs relating to access. Private investment in existing and new commercial and residential opportunities will only be secured where private organisations recognise development as financially sustainable, with good investment return. To do so, developers must be satisfied of sufficient market demand.

Market demand for commercial property largely depends on the perception of business owners about the likely level of market demand for particular uses, availability of a suitably qualified workforce and the transport connectivity for its workforce, suppliers and customers. For residential development (critical to this analysis), demand is significantly influenced by ease of access to amenities, facilities and public services, in addition to environmental and visual setting.

With limited connectivity between the north and south of the Hakatere, perceptions of restricted market demand will dampen developers' appetite for opportunities to invest in the local area. However, with capital funding used to complete this project, new physical connections between current and new businesses, suppliers and customers will be created, thus increasing business and residential catchment areas and improving access to the labour market for potential developers and future occupiers.

The following section of this technical note sets out the methodology for assessing LVU, followed by a presentation and explanation of the results when applied.

1.2 Study Area

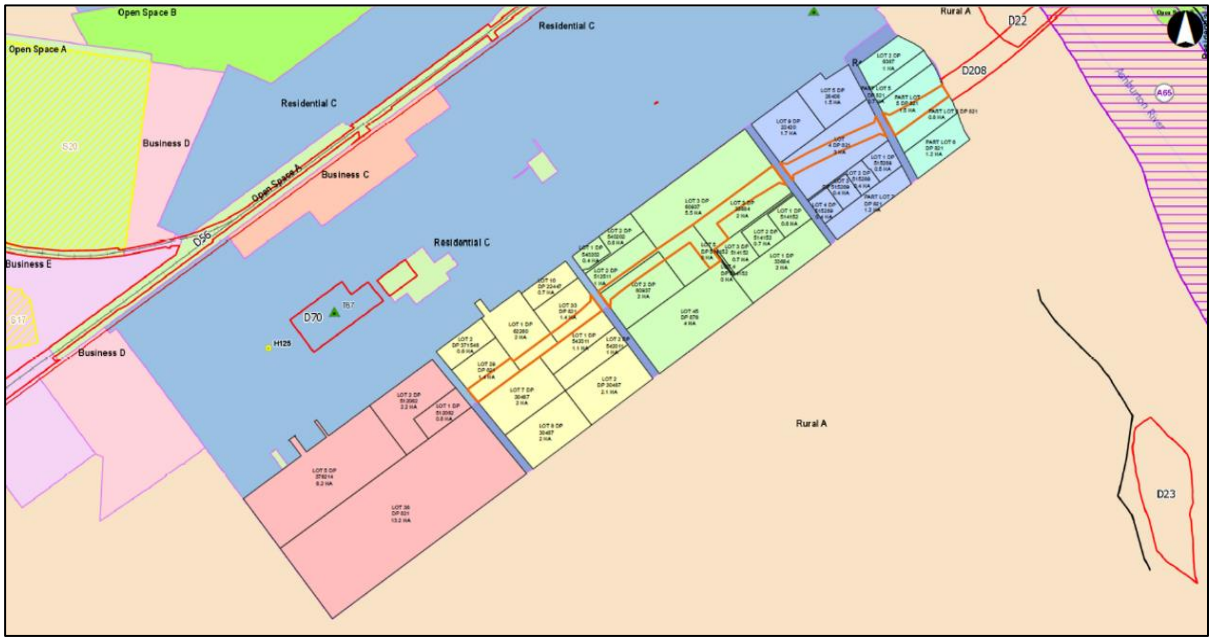
Whilst safety, journey time savings and resilience are core benefits associated with the second bridge, it is likely to stimulate much wider socio-economic, labour and property impacts for Ashburton and the wider region. To understand and appreciate the scale of potential benefits, an investment logic model (ILM) has been developed that graphically displays the link between the strategic need, inputs (planned intervention), outcomes and outputs (see Appendix B).

The ILM shows how investment in cross river infrastructure will improve the market catchment area for undeveloped and underused sites across Ashburton, extending to both sides of the Hakatere. As evidenced by the development concentrated around both entrances to the existing bridge, increased accessibility will accelerate the potential for growth and by consequence increase land values,

[1] Residential valuation assumptions are set out in *Land Value Estimates,* p.8. The VOA provided Stantec with the parameters used to appraise commercial development.

business opportunity and thereby economic growth. For example, the new bridge may unlock lower value agricultural and brownfield land for higher value residential and commercial use.

To demonstrate this, the LVU model developed for the assessment focuses on the land zoned for housing on the planed southern landing point of the second bridge Figure 1 contains an overview of the study area assessed. A more detailed map is provided in **Error! Reference source not found.**



Colour
Section 1
Section 2
Section 3
Section 4
Section 5

Figure 1: Ashburton Development Enabled

2 Land Value Uplift

2.1 Overview

The central assumption of land value uplift modelling is that changes in land values because of a change in land use reflect the economic efficiency benefits of converting land into more productive use.[2] Land value uplift, representing the private benefits of development, is the difference between new use value previous use value, given by the formula:

$$Land\ value\ uplift = Land\ value\ in\ new\ use - Land\ value\ in\ previous\ use \quad (1)$$

The value of land in its new use is derived from residual land valuation. This method provides values for land alone – less any buildings or property.

Residual land valuation is undertaken by subtracting the costs a developer will incur from developing land from the estimated maximum total revenue that could be obtained from that land i.e., the gross development value (GDV). This is expressed by the following formula:

$$Land\ value\ in\ new\ use = Gross\ Development\ Value - Development\ Costs, Fees, and\ Profit \quad (2)$$

The result of this calculation is the residual land value. The residual value is the upper limit of what a developer could offer for a site and still make a minimum desired level of profit.

The purpose of these valuations is solely to inform the economic appraisal of the second bridge investment. The appraisals are not a formal 'Red Book' (RICS Valuation – Global Standards 2020) valuations and should not be relied upon as such.

Applying this methodology to the planned second bridge investment in Ashburton opens the potential for exploring alternatives means of value capture in New Zealand. The key point is that the land value is derived demand and thus includes returns to all factors of production less economic costs - i.e., returns to capital, land and labour, less construction costs, fees and expected profit. Therefore, changes in land values because of a change in land-use enabled by the second bridge, reflect the economic efficiency benefits of converting land into a more productive use.

2.2 Additionality

The assessment considers the additionality of development. In other words, the additional development enabled by the second bridge, over and above the counterfactual scenario, inclusive of displacement. Therefore, the result below presents two scenarios. The Core Scenario that models the estimated effects of the planned intervention, and the Counterfactual Scenario that models the estimated effects of no intervention.

We have made a percentage adjustment to land value uplift for areas with new development to account for potential displacement from other town centre sites. This draws on an assessment of the existing residential property markets across Ashburton and is in accordance with the framework for assessing additionality set out in the appraisal guide[3].

The primary determinant of market displacement is the gap between supply and demand. Where these market forces are in equilibrium, displacement is likely to be higher. As demand is outstripping supply of housing in Ashburton and the town is required to support most of the district's housing need, the assessment assumes a low displacement of 10%.

2.3 Phasing

We have assumed that the land value uplift will be captured in line with development leading from Section 1 through to Section 5 sequentially. In the interim period existing and new use land values are uprated by 5% annually in accordance with the latest LVU guidance[4].

While this is a relatively crude assessment, it is based on the existing plot of land advertised in Tinwald and without engagement with prospective developers.

[2] Appraisal Guide. p.32.
[3] Appraisal Guide. p.42.
[4] *Appraisal Guide*. p.62.

This net land value uplift is then discounted to 2022 values using the MBCM rate of 4%.

2.4 Gross Development Value

The Gross Development Value (GDV) of project outputs has been estimated using a variety of sources, prioritising local market data. These estimations use observed averages and therefore do not represent a formal valuation of the proposed developments.

Investment in a second is expected to enable residential development in the immediate vicinity of the southern bridge landing point. Linked to the development sections above, the potential scale of residential development has been estimated by using the parameters identified in the Ashburton Grove – Tinwald development as advertised by Ray White.[5] The results of the estimation can be found in the table below.

Table 1: Housing Sections

	Section 1	Section 2	Section 3	Section 4	Section 5
Total Size (ha.)	22	15	20	9	5
Road Section (ha.)	-	1	2	1	1
Section Development Potential (ha.)	22	13	17	8	4
Less Roads & Amenities (ha.)	4.57	2.70	3.50	1.70	0.91
Net Development Potential (ha.)	17.89	10.56	13.72	6.67	3.56
Estimated no. Homes	**249**	**147**	**191**	**93**	**50**

The GDV of these sections has been estimated according to the formula:

$$GDV = Average\ House\ Price \times Number\ of\ Units \quad (3)$$

The average unit price of housing in the Ashburton District has increased by 3.1% over the three-month period from January to March 2022, with the average value now sitting at $523,004. This represents an annual growth rate of 21.4%[6].

Table 2 presents the total GDV of housing on these sections.

Table 2: Residential GDV

Site Name	Core	Counterfactual
Section 1	$130.4m	$32.6m
Section 2	$77.0m	$19.2m
Section 3	$100.0m	$25.0m
Section 4	$48.6m	$12.1m
Section 5	$25.9m	$6.5m
Total	$381.9m	$95.5m

The GDV used for housing development enabled by the investment is estimated to be $381.9 million.

2.5 Development Costs, Fees and Profit

A truncated residual valuation model has been used to estimate development costs, fees, and profit. The appraisals are high level and use the set of assumptions set out in the accompanying guidance to UK Government *Land Value Estimates for Policy Appraisal 2017*.[7] These are summarised by Table 3.

[5] Available at: https://raywhite.co.nz/canterbury/ashburton/tinwald/AHB23111/

[6] Available at: https://www.qv.co.nz/price-index/

[7] Residential valuation assumptions are set out in *Land Value Estimates,* p.8. The VOA provided Stantec with the parameters used to appraise commercial development.

Table 3: Common valuation assumptions[8]

Factor	Residential	Commercial
External Works	15% of base build costs	
Professional Fees	8% of build costs	11% of build costs
Marketing, sales, and legal	3% of GDV	3.75% of GDV
Finance costs	6% APR	6.5% APR
Profit	17% of GDV of market housing	15% on cost
Purchasers' Cost		5.8% of GDV

Table 4 shows the aggregate private sector investment and profit across both scenarios calculated using these parameters.

Table 4: Development costs, fees and profit (£m)

Factor	Core	Counterfactual
Build Costs	$219.0m	$54.7m
External Works	$32.8m	$8.2m
Professional Fees	$20.1m	$5.0m
Marketing, sales, and legal	$11.5m	$2.9m
Finance costs	$9.0m	$2.3m
Profit	$64.9m	$16.2m
Total	$357.4m	$89.3m

This appraisal therefore estimates follow-on development costs, fees and profit of $357.4 million for the Core Scenario. However, the constituent valuations are high-level and do not consider differences in the deliverability of each section or economies of scale. This approach is nonetheless proportionate for an economic appraisal and is in line with the latest LVU guidance.

[8] Source: MHCLG (2018). Land Value Estimates for Policy Appraisal; Stantec correspondence with VOA.

3 Land Values

3.1 New Use Value

Table 5 below shows the estimated new use value of each site.

Table 5: Estimated new use values (£m)

	GDV	Development Costs, Fees and Profit	New Use Value
Core	$381.9m	$357.4m	$24.5m
Counterfactual	$95.5m	$89.3m	$6.1m

Subtracting the estimated development costs, fees and profit ($357.4 million) from the estimated GDV ($381.9 million) yields a new use value of $24.5 million for the Core Scenario (see Equation 1).

3.2 Existing Use Value

The existing use value is the value of the land in its current state which has been taken from Ashburton District Council's Current Valuation Estimates[9]. These values do not change across the scenarios and have been summarised in Table 6.

Table 6: Existing Use Values (£m)

	Core	Counterfactual
Section 1	$2.7m	$0.7m
Section 2	$4.0m	$1.0m
Section 3	$2.3m	$0.6m
Section 4	$2.5m	$0.6m
Section 5	$1.3m	$0.3m
Total	**$12.9m**	**$3.2m**

3.3 Land Value Uplift

Table 7 presents both the gross land value uplift of dependent development calculated using Equation 1 and its net present value (NPV). The NPV is applied at 4% per annum as guided in the MCBM.

Table 7: Land value uplift (£m)

Site	Use Value		Land Value Uplift	
	New	Existing	Gross	NPV
(A) Core	$24.5m	$12.9m	$11.6m	$10.6m
(B) Counterfactual	$6.1m	$3.2m	$2.9m	$2.6m
Net LVU (A-B)			**$8.7m**	**$7.9m**

The core scenario yields $11.6 million in gross land value uplift and NPV uplift of $10.6 million. The NPV land value uplift is calculated by adjusting gross uplift for additionality, phasing it over time taking account of land value uprates, and discounting it to the appraisal year.

The Counterfactual Scenario is then deducted to take account of the deadweight (or additionality), yielding a net LVU of $7.9 million NPV.

[9] Example Lot 2 DP 60937 available at: https://eservices.adc.govt.nz/T1ePropertyPROD/P1/eRates/RatingInformation.aspx?r=ADC.WEBGUEST&f=%24P1.ERA.RATDETAL.VIW&PropertyNo=6485

3.4 Value for Money

Value for money has been assessed by calculating the net present value of land value uplift benefits, divided by the net present value of the investment.

The table below presents a summary of the resulting value for money.

Table 8: Appraisal Summary Table

LVU	$7.9m
Investment	$90.0m

Non-Monetised Benefits

Both options are anticipated to generate non-monetised benefits including increased connectivity, enhanced quality of life and community cohesion, greater footfall, and dwell times to support town centre businesses, and higher business birth and survival rates.

4 Sensitivity Analysis

This section provides an overview of the primary risks to benefits realisation and details sensitivity analysis undertaken to demonstrate the relationships between key model assumptions. A series of bespoke scenarios have been prepared to model the economic impacts of key project risks. The table below summarises the impact of these scenarios on the Central BCR.

Table 9: Sensitivity Testing: Central BCR

Scenario	Investment Option			Description
	LVU	Costs	BCR	
Accelerating Housing Prices	$47.7m	$90.0m	0.5	This scenario shows the impact of an increase in house prices of 20% representing recent market trends.
Increase in displacement	$6.2m	$90.0m	0.1	This scenario models a higher level of market displacement (30%) i.e., development enabled by the new bridge displaces housing that would have otherwise been built elsewhere.

The results show that the LVU, as a function of house prices, significantly increases as house prices increase. Note, that this does not consider a commensurate increase in build costs. On the other hand, an increase in the level of displacement cause by the new bridge, decreases the land value only slightly.

The following sensitivity testing indicates the scale of LVU as a result of staged development.

Table 10: Staged Development

Colour	South St. - Grahams Rd.	South St. - Wilkens Rd.	South St. - Carters St.
Section 1	**$7.9m**		
Section 2			
Section 3			
Section 4		**$0.7m**	
Section 5			**$0.3m**

As expected, the results show that the largest driver of LVU comes from Sections 2 and 3 where the largest number of homes is anticipated to be enabled.

Appendix A Logic Model