

# Briefing paper

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**From:** Walter Clarke  
**Date:** 8 September 2017  
**Subject** Assessment of Proposed Rezoning

## 1 Introduction

The objective of this paper is to help Clutha District Council (CDC) understand the costs and benefits of rezoning rural land around Milton, Balclutha and Stirling. The project provides a cost benefit analysis tool that meets the requirements of s32 of the Resource Management Act.

## 2 Method

A cost-benefit analysis model has been developed to understand the economic costs and benefits of changing the underlying land use of a parcel of land.

The economic benefits have focussed primarily on the impact to Gross Domestic Product (GDP) in the district. Ministry of Business, Innovation and Employment (MBIE) regional GDP estimates have been used to understand the distribution of existing GDP across land use categories in the district.

Residential GDP is not provided in the MBIE GDP estimates. To understand the potential economic benefits of residential land, the initial construction and subsequent maintenance impacts to GDP are included as a benefit.<sup>1</sup>

The rezoning and land development costs have been assessed. These costs have been estimated by Terramark (TBC). Non-economic costs such as environment and social have not been included in the analysis.

The costs and benefits are assumed to be equal across the district and have been measured on a per hectare basis. This enables the analysis to consider the land area as the final step to quantify the benefits. CDC's rates database has been used to assess the district's land areas by land use category.

The analysis considers the rezoning of land from either farmland or dairy to industrial or residential.

The economic costs and benefits have been discounted using a discount rate of 3%. This is lower than treasury's guidance because there is no public expenditure involved and therefore the opportunity cost of alternative uses of that money should not be considered. The discount rate should therefore be considered the social rate of time preference.

A 30-year timeframe has been used when forecasting the costs and benefits. This is consistent with treasury's guidance.

Demand for land under the alternative non-rural land use categories has been considered to ensure that supply will not exceed demand post-rezoning. The Clutha District growth projections have been used to understand demand.

The report also includes estimates of additional jobs created by land use change. Statistic New Zealand employment data from the growth projections work has been used. This is split by rating unit category, including non-residential and rural industry. For this exercise, the non-residential employment data has been further broken down into the industrial rating unit category. There has been no attempt to quantify the number of FTEs per hectare of residential land.

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<sup>1</sup> THE ECONOMIC VALUE OF ALTERNATIVE USES OF VERSATILE SOILS IN NORTHLAND

### 3 Results

The GDP and land area for each land use are shown in the following table. The Dairy and Industrial sub-categories are broken out from their respective main categories – Rural industry and Non-residential. These are based on 2016 figures however there is limited variation across recent years.

**Table 1 : Annual GDP by land use**

| Land Use        | Annual GDP per Ha |
|-----------------|-------------------|
| Rural Industry  | \$351m            |
| Dairy           | \$137m            |
| Non-residential | \$325m            |
| Industrial      | \$67m             |
| Other           | \$218m            |
| <b>TOTAL</b>    | <b>\$894m</b>     |

To enable comparisons of different sized parcels of land being considered for re-zoning, the annual GDP has been converted to a per hectare figure. This is shown in the following table. Note the residential GDP cannot be shown on an annual basis as it changes over time.

**Table 2 : Annual GDP by land use**

| Land Use        | Land Area (Ha) | GDP per Ha  |
|-----------------|----------------|-------------|
| Rural Industry  | 490,670        | \$700/Ha    |
| Dairy           | 44,600         | \$3,000/Ha  |
| Non-residential | 40,490         | \$8,000/Ha  |
| Industrial      | 1,020          | \$66,000/Ha |
| Other           | 132,850        |             |
| Residential     | 4,200          |             |
| <b>TOTAL</b>    | <b>668,199</b> |             |

Residential GDP is not provided in the MBIE GDP estimates. Therefore the following assumptions have been used to quantify the economic benefit of residential development over the 30 year period.

- Initial economic impact = value of residential development (comprising of section development and dwelling construction costs) x 0.72
- Ongoing economic impact = 1% of initial development costs

The present value of GDP per hectare over 30 years is shown in the following table.

**Table 3 : Present value of GDP per hectare**

| Land Use        | GDP Impact per Ha |
|-----------------|-------------------|
| Rural Industry  | \$14k             |
| Dairy           | \$60k             |
| Non-residential | \$158k            |
| Industrial      | \$1,300k          |
| Residential     | \$1,700k          |

The upfront development and rezoning costs by land use are summarised in the following table. These are based on the recent Plantation Heights residential development, with allowance for add-ons to cover other development costs, e.g. development and financial contributions.

**Table 4 : Initial development and rezoning costs**

| Land Use    | Cost (\$/ha) |
|-------------|--------------|
| Industrial  | \$297,000    |
| Residential | \$223,000    |

Finally the economic up-lift and the initial costs has been combined to define the net present value of rezoning each parcel of land. The per hectare value is summarised in the following table. To put these 30 year figures in perspective, the GDP for the Clutha district is around \$900m.

**Table 5 : Net present value of rezoning per hectare**

| Land Use                | Net Present Value (\$m/Ha) |
|-------------------------|----------------------------|
| Farmland to industrial  | \$0.98m                    |
| Farmland to residential | \$1.45m                    |
| Dairy to industrial     | \$0.94m                    |
| Dairy to residential    | \$1.41m                    |

Based on the findings above, the benefits of rezoning the land from farmland to either residential or industrial, outweigh the costs. As the economy of the Clutha district is under pinned by the rural sector, the land use changes should be limited to areas better suited to other land uses, e.g. near to existing urban areas. In reality both the industrial and residential developments will provide support for the economic activity created by the rural sector. The level of rezoning should also be limited to an amount that does not significantly reduce the overall economic output from the rural sector.

## 4 Employment

The conversion of land from one land use to another has the potential to affect employment in the district. To assess this potential impact to employment, the rates database and growth projections have been used to estimate the number of full-time equivalent (FTE) employees per hectare.

The result of the employment analysis is shown in the table below.

**Table 6 : Employment per hectare**

|                | FTE per Ha |
|----------------|------------|
| Industrial     | 1.481      |
| Rural industry | 0.005      |

There is potential for an increase in employment of 1.476 FTEs per hectare of land converted to industrial. Conversely, a change in land use to residential has the potential to reduce employment by 0.005 FTEs per hectare converted.

## 5 Industrial Land Demand

Industrial land demand has been estimated based on the *Clutha District Growth Projections to 2048*. These growth projections provide rating unit projections for a range of categories including non-residential. Industrial rating units are a subset of the non-residential category but are not explicitly forecasted in the projections.

Some assumptions have been used to convert the number of non-residential rating units into industrial land demand. Using CDC's rates database, the portion of non-residential rating units considered industrial has been estimated at around 20%. Similarly, the average area of an industrial rating unit of 4.5 ha is based on CDC's rates database.

Combining the growth projections with the assumptions above gives the following industrial land demand between 2018 and 2048.

**Table 7 : Industrial land demand (ha) to 2048**

| Census Area Unit     | 2018         | 2028         | 2038         | 2048         | Projected 30 year demand (2018 - 2048) |                            |                         |
|----------------------|--------------|--------------|--------------|--------------|--|----------------------------|-------------------------|
|                      |              |              |              |              | Total Demand (ha)                      | Average Annual Demand (ha) | Average Annual Demand % |
| <b>District</b>      | <b>1,030</b> | <b>1,087</b> | <b>1,143</b> | <b>1,200</b> | <b>170</b>                             | <b>6</b>                   | <b>0.5%</b>             |
| Balclutha            | 227          | 236          | 244          | 252          | 25                                     | 1                          | 0.3%                    |
| Benhar               | 2            | 2            | 2            | 2            | 0                                      | 0                          | 0.3%                    |
| Bruce                | 111          | 125          | 139          | 153          | 42                                     | 1                          | 1.1%                    |
| Clinton              | 28           | 29           | 30           | 31           | 3                                      | 0                          | 0.3%                    |
| Clutha               | 212          | 221          | 229          | 238          | 26                                     | 1                          | 0.4%                    |
| Kaitangata           | 27           | 28           | 30           | 31           | 5                                      | 0                          | 0.6%                    |
| Kaka Point           | 11           | 11           | 11           | 11           | 1                                      | 0                          | 0.3%                    |
| Lawrence             | 67           | 72           | 76           | 80           | 13                                     | 0                          | 0.6%                    |
| Milton               | 108          | 115          | 123          | 130          | 22                                     | 1                          | 0.6%                    |
| Owaka                | 43           | 45           | 46           | 48           | 4                                      | 0                          | 0.3%                    |
| Stirling             | 9            | 9            | 10           | 10           | 2                                      | 0                          | 0.6%                    |
| Tapanui              | 48           | 50           | 51           | 52           | 4                                      | 0                          | 0.3%                    |
| Tuapeka              | 94           | 97           | 99           | 102          | 8                                      | 0                          | 0.3%                    |
| Taieri Mouth - North | 5            | 6            | 7            | 7            | 2                                      | 0                          | 1.0%                    |
| Taieri Mouth - South | 13           | 14           | 15           | 17           | 4                                      | 0                          | 1.0%                    |
| Waihola              | 25           | 28           | 32           | 35           | 10                                     | 0                          | 1.1%                    |

In addition to the above land required there may also be some relocated demand from existing industrial type business is currently situated in less suitable or desirable locations.

## 6 Analysis of specific sites

### Milton – industrial developments

Figure 1: Proposed Industrial land in Milton



The proposed sites to be rezoned is circled in the above map. This includes approximately 290 ha of land in and bordering Milton (the six orange parcels). Some of this land is already being used for industrial use, therefore it is likely that some existing properties will not be re-developed.

The development is within both the Milton and the Bruce census area unit. Around one-third of the districts non-residential demand is forecast to be in these areas. However, it should be noted that the accuracy of the exact location of non-residential growth is not as well defined as the residential aspects of the growth projections.

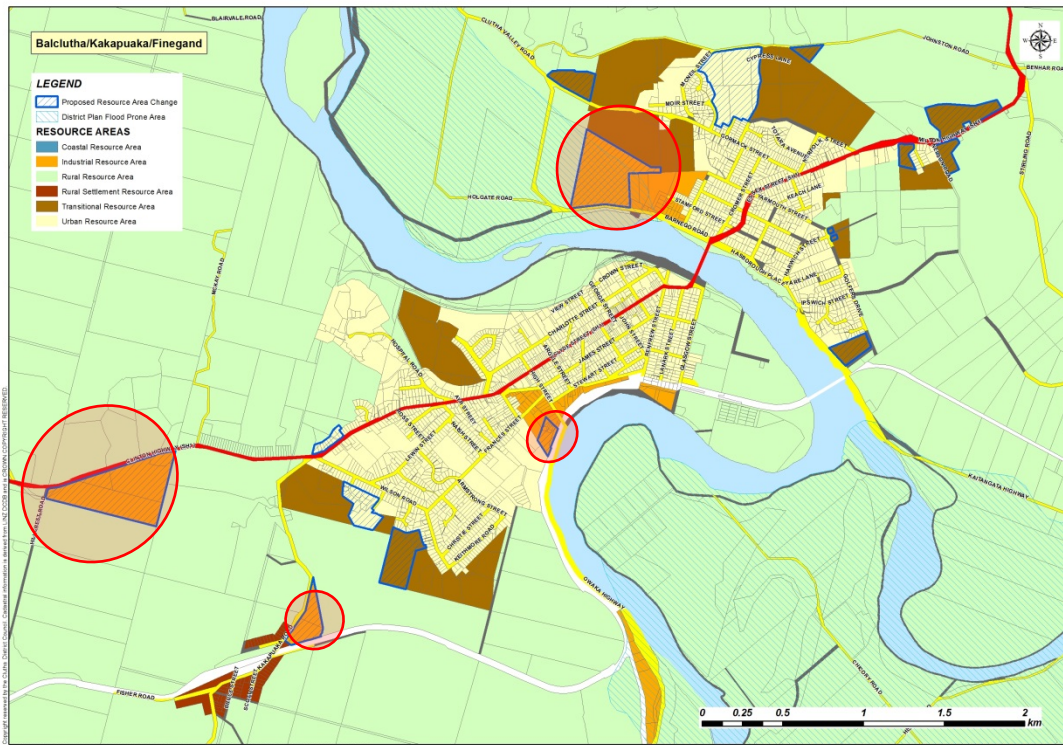
Based on the assumptions detailed in section 4 and allowing for the fact that not all the land is likely to be converted to industrial land use, this land has potential to provide for over 20 years of the district's industrial land demand. There is also likely to be some capacity to accommodate industrial businesses currently situated in less suitable areas, e.g. away from urban areas. Rezoning this land enables these businesses to relocate to a more suitable location.

While the development may be staged, the findings of this report show that the benefits to the district of changing the land use will outweigh the costs to re-develop the land. There is likely to be demand for industrial land, and staging can be used to provide the land to meet the market's needs.

To put into perspective the additional employment opportunities, conversion of around half the above land equates to over 200 additional jobs.

## Balclutha – industrial developments

Figure 2: Proposed Industrial land in Balclutha



The proposed sites to be rezoned is circled in the above map. This includes approximately 37 ha of land in and around Balclutha. Some of this land is already being used for industrial use, therefore it is likely that some existing properties will not be re-developed.

The development is within both the Balclutha and the Clutha census area unit. Over a quarter of the districts non-residential demand is forecast to be in these areas.

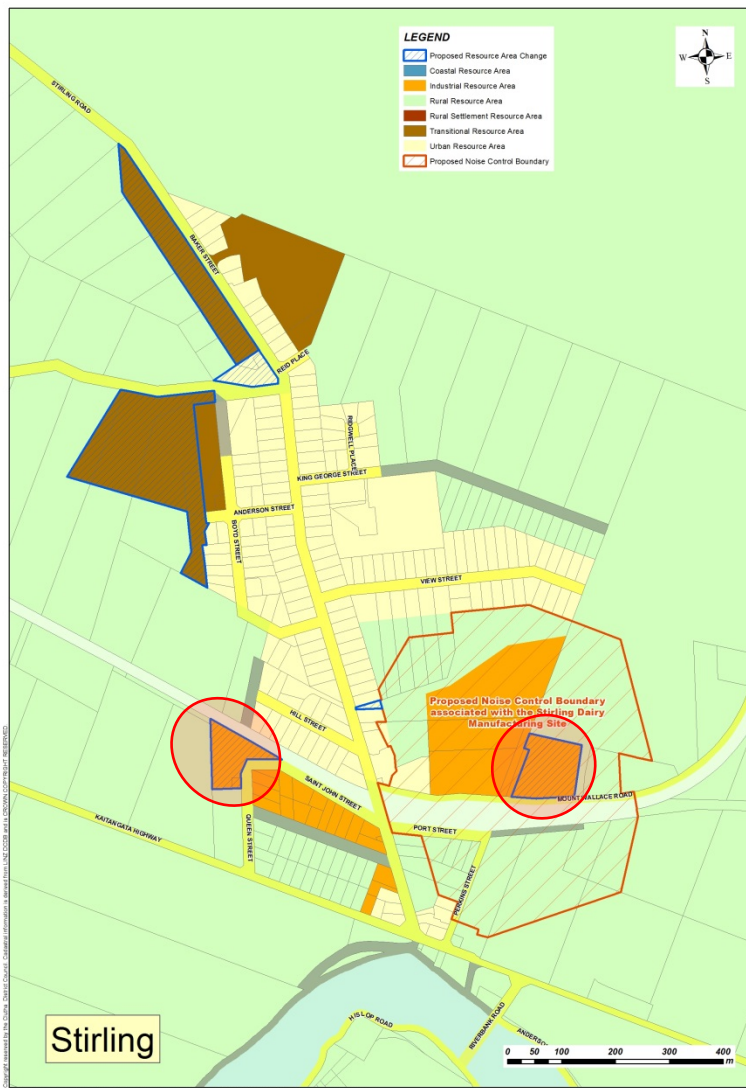
Based on the assumptions detailed in section 4 and allowing for the fact that not all the land is likely to be converted to industrial land use, this land has potential to provide for over 30 years of Balclutha’s industrial land demand. There is also likely to be some capacity to accommodate industrial businesses currently situated in less suitable areas, e.g. away from urban areas.

The findings of this report show that the benefits to the district of changing the land use will outweigh the costs to re-develop the land. There is likely to be demand for industrial land, and staging can be used to provide the land to meet the market’s needs.

To put into perspective the additional employment opportunities, conversion of around half the above land equates to around 30 additional jobs.

## Stirling – industrial developments

Figure 3 : Proposed Industrial land in Stirling



The proposed sites to be rezoned are circled in the above map. This includes approximately 2 ha of land in Stirling, most of which is already utilised for industrial activity. Additional areas for rezoning industrial have not been identified in Stirling.



## 7 Appendix A - Detailed Costs and Benefits

*Table 8 : Dairy to industrial (\$000s)*

| Year                             | 0           | 1         | 2         | 3         | 4         | 5         | 6         | 7         | 8         | 9         | 10        | 11 - 20    | 21 - 30    | Total        |
|----------------------------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|--------------|
| Development costs                | 297         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0          | 0          | <b>300</b>   |
| GDP                              | 0           | 63        | 63        | 63        | 63        | 63        | 63        | 63        | 63        | 63        | 63        | 629        | 629        | <b>1,890</b> |
| <b>Net benefit</b>               | <b>-297</b> | <b>63</b> | <b>63</b> | <b>63</b> | <b>63</b> | <b>63</b> | <b>63</b> | <b>63</b> | <b>63</b> | <b>63</b> | <b>63</b> | <b>629</b> | <b>629</b> | <b>1,590</b> |
| <b>Present value net benefit</b> | <b>-297</b> | <b>61</b> | <b>59</b> | <b>58</b> | <b>56</b> | <b>54</b> | <b>53</b> | <b>51</b> | <b>50</b> | <b>48</b> | <b>47</b> | <b>399</b> | <b>297</b> | <b>940</b>   |

*Table 9 : Dairy to residential (\$000s)*

| Year                             | 0           | 1            | 2         | 3         | 4         | 5         | 6         | 7         | 8         | 9         | 10        | 11 - 20    | 21 - 30    | Total        |
|----------------------------------|-------------|--------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|--------------|
| Development costs                | 223         | 0            | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0          | 0          | <b>220</b>   |
| GDP                              | 0           | 1,456        | 12        | 12        | 12        | 12        | 12        | 12        | 12        | 12        | 12        | 115        | 115        | <b>1,790</b> |
| <b>Net benefit</b>               | <b>-223</b> | <b>1,456</b> | <b>12</b> | <b>12</b> | <b>12</b> | <b>12</b> | <b>12</b> | <b>12</b> | <b>12</b> | <b>12</b> | <b>12</b> | <b>115</b> | <b>115</b> | <b>1,570</b> |
| <b>Present value net benefit</b> | <b>-223</b> | <b>1,414</b> | <b>11</b> | <b>11</b> | <b>10</b> | <b>10</b> | <b>10</b> | <b>9</b>  | <b>9</b>  | <b>9</b>  | <b>9</b>  | <b>73</b>  | <b>54</b>  | <b>1,410</b> |