

**Before the Hearings Panel  
At Waimakariri District Council**

**Under** Schedule 1 of the Resource Management Act 1991

**In the matter of** the Proposed Waimakariri District Plan

**Between** **Various**

**Submitters**

**And** **Waimakariri District Council**

**Respondent**

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**Summary Statement by Andrew Murray on the Ohoka rezoning submissions  
(Hearing Stream 12 D) on behalf of the Waimakariri District Council  
Date: 1 July 2024**

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## **Introduction**

1. My name is Andrew Murray. I have a civil engineering degree and am employed as a Technical Director in Transport Planning by Beca New Zealand. I have over 30 years experience in traffic engineering, transport modelling and transport planning and regularly lead larger-scale transport infrastructure, policy or land use projects. Although I am not an environmental scientist, I have been working with such specialists in estimating vehicle emissions for large-scale projects for more than 20 years. This has involved providing the forecasts of changes in travel for specific interventions that are critical to estimating the subsequent impact on emissions. Over the last 3 years I have been advising the New Zealand Transport Agency (NZTA) on various aspects of vehicle emissions analysis, including helping author their industry guidance on assessing vehicle emissions for transport projects.
2. Beca were engaged by the Waimakariri District Council to respond to the Ohoka rezoning submissions, specifically as it relates to a policy assessment regarding Greenhouse Gas Emissions (GHG). I led the preparation of the Beca Report Ohoka Greenhouse Gas Emissions Review, albeit with the review of agriculture and embodied emissions being undertaken by colleagues with specialist carbon and sustainability expertise.
3. This summary provides an overview of the Beca review and its key conclusions. This summary does not address the supplementary evidence provided by submitters in regard to GHG analysis.

## **Summary of Beca Review**

4. The primary purpose of the Beca report was to review the evidence provided on GHG emissions as relevant for policy assessment against the National Policy Statement on Urban Development (NPS-UD), and specifically Policy 1(e):

*Policy 1: Planning decisions contribute to well-functioning urban environments, which are urban environments that, as a minimum:*

..

*(e) support reductions in greenhouse gas emissions*

5. The reference to ‘reductions’ requires a reference point (or baseline), against which the proposed decision can be assessed. Mr Farrelly’s evidence for the submitter concludes:

*“I consider that the rezoning request development contributes to a well-functioning urban environment that ‘supports a reduction in GHG emissions’ (as per NPS-UD Policy 1(e)) due to both the removal of dairying activity from the land, and the practical steps being undertaken by the submitters to support a reduction in emissions arising from the development, ...”*

6. Although not explicitly framed as ‘baselines’, my assessment of this statement is that he has used the following baselines:
  - a) **Baseline 1:** A comparison against continuation of the existing agricultural activity
  - b) **Baseline 2:** A Comparison against the same location and type of development, but without the proposed design features (‘practical steps’) that would support reduction in GHG emissions, such as provision of cycling facilities, tree planting, provision of electric vehicle charging and banning gas appliances.
  
7. Although not reflected in his conclusion, his evidence also considers a third baseline, namely:
  - a) **Baseline 3:** A comparison against the same type and scale of urban development at an alternative location in the Canterbury region
  
8. The Beca report considers these three baselines and concluded:
  - a) Baseline 1 implies that the dairy activity currently occurring on this site would be lost forever, resulting in a net reduction in global dairy emissions. Given the possibility of such activity transferring to other locations, I do not consider this a suitable baseline. For this to be true, there would need to be clear evidence that there is no viable alternative capacity for that agricultural activity to occur elsewhere
  - b) Similarly, baseline 1 assumes that the proposed urban development will result in a net increase in global population. I do not consider this to be a plausible scenario.
  - c) Baseline 2 assumes that the same development would occur, but without suitable mitigating design features. While I consider those mitigation measures to be useful, in my opinion they could (and should) be added to developments in any location and therefore I do not consider this to be a valid baseline when making planning decisions on the location of urban development itself.
  - d) Given the global impact of GHG, I consider that Baseline 3 is the most useful reference point for such urban location decisions. That is, the location of urban

development at this location should be compared against the similar type and scale of development at other locations. This approach assumes no net change in total global population or agricultural activities.

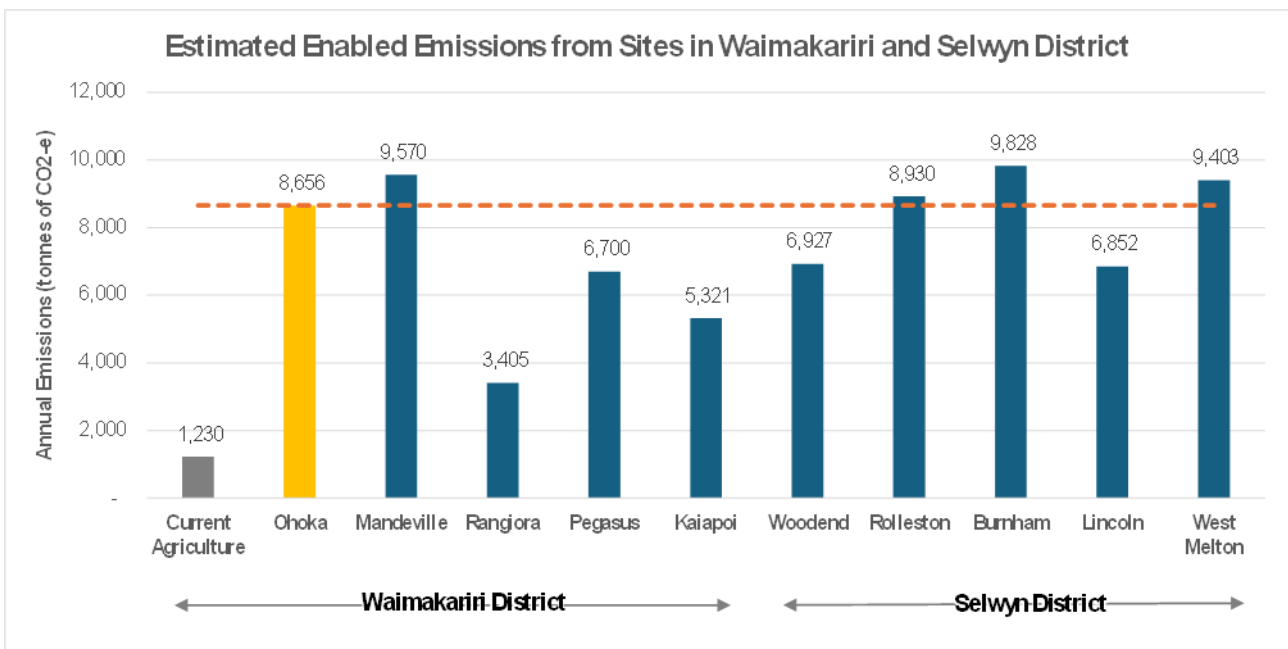
9. The Beca review sought to adopt as many of the inputs and assumptions as possible from the submitter's evidence, to focus on the relative change compared to the baseline scenarios required for the policy assessment. That is, rather than attempt a detailed accounting of all potential GHG emissions involved in the construction and operation of the new urban environment, it reviewed the approach taken by the submitters evidence in reaching their conclusion regarding the NPS-UD policy.
10. As per the submitters' evidence the Beca review considered:
  - a) The likely GHG emissions from the existing agricultural use (to reflect Baseline 1)
  - b) The potential embedded GHG in the urban form itself. These were compared to embedded carbon for urban developments of different types or locations (i.e. these were used in the baseline 3 comparisons)
  - c) The potential enabled GHG emissions from vehicle emissions associated with the new urban environment
11. The Beca review agreed with the submitters evidence that the existing agricultural use generated approximately 1,230 tonnes of CO<sub>2</sub>-e per year
12. The submitters' evidence implied that embedded GHG in the proposed low-density development would be lower on a per m<sup>2</sup> level than other forms of urban development. The Beca review found that:
  - a) The evidence for such comparisons was very limited and such comparisons are highly sensitive to the location and type of urban form being used as a comparator; and
  - b) Any such comparison would be more appropriately done on a per unit basis than per m<sup>2</sup>, for which the evidence suggested lower carbon efficiency for the low-density urban form likely developed on the site
13. Although the submitters evidence did not undertake any calculations, it implied that the transport emissions for the urban development would be lower than the existing agricultural emissions. The Beca review found that this was not plausible on the basis of

the evidence provided, with estimated vehicle emissions of some 8,656 tonnes per annum, which is notably higher than the estimated 1,230 tonnes per annum for the existing agricultural use. This estimate was based on:

- a) Adopting the same vehicle trip rates for the proposed development as considered suitable by the submitters transport expert
- b) Using trip lengths for activities in the Ohoka area from the same regional transport model used by the submitters' experts to estimate the distribution of traffic; and
- c) Adopting the same per-km rate of vehicle emissions used by the submitters' expert

14. The submitters' evidence suggested that the proposed development would be similarly distant from the Christchurch CBD as other potential locations for such low-density development, and therefore would have similar vehicle emissions as other locations. It suggested that based on distance from the CBD, the Ohoka site could have better GHG outcomes than similar development in Rangiora or Ravenswood/Pegasus.

15. To verify these suggestions the Beca review used the regional transport model to estimate trip lengths from a range of locations across the region to estimate vehicle emissions for an equivalent scale of traffic activity. These comparisons are shown in the following figure.



16. This comparison indicates that a similar scale of development at other locations would generate more vehicle emissions than areas closer to centres such as Rangiora, Pegasus, Kaiapoi and Lincoln. It would only generate lower vehicle emissions than areas even more

remote from the central area, such as Mandeville, Burnham, Rolleston and West Melton.

17. For reference I note that within the Waimakariri District Council area, new urban growth areas are planned in Rangiora and Kaiapoi, both of which are estimated to generate significantly lower rates of vehicle emissions.

18. Based on effectively the same inputs and assumptions as relied on by the submitters' experts, the Beca review found that the proposal:

- a) Would generate more enabled emissions than the current agricultural activity;
- b) Would generate more enabled emissions than equivalent development located in areas closer to existing centres; and
- c) It therefore found that there was insufficient evidence to support the conclusion that a decision on this proposal would *"support a reduction in greenhouse gases"*, as required in Policy 1(e) of the NPS-UD