



FAST TRACK APPROVALS Act 2024 (FTAA 2024) TECHNICAL ADVICE

Carter Group Ōhoka Substantive Application
[FTAA-2606-1253]

File No	Final
Date	9 October 2026
Memo To	Expert Panel – Ōhoka Residential Subdivision
From	Andrew Murray, Beca Limited
Subject	Assessment of Greenhouse Gases for NPS-UD Policy Assessment

1. INTRODUCTION

Purpose of the Memorandum

- 1.1 This memorandum presents an assessment of the potential effect on Greenhouse Gas emissions of the Ōhoka development proposal and a subsequent assessment against the National Policy Statement on Urban Development (NPS-UD).
- 1.2 This assessment, on behalf of Waimakariri District Council (WDC), is specifically for Policy 1(e) of the NPS-UD, as highlighted below:

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

- (a) have or enable a variety of homes that:*
 - (i) meet the needs, in terms of type, price, and location, of different households; and*
 - (ii) enable Māori to express their cultural traditions and norms; and*
- (b) have or enable a variety of sites that are suitable for different business sectors in terms of location and site size; and*
- (c) have good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport; and*
- (d) support, and limit as much as possible adverse impacts on, the competitive operation of land and development markets; and*
- (e) support reductions in greenhouse gas emissions; and***
- (f) are resilient to the likely current and future effects of climate change.*

Qualifications and Code of Conduct

- 1.3 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 35 years experience in traffic engineering, transport modelling and transport planning and regularly lead the transport inputs to larger-scale transport infrastructure, policy or land use projects. Although I am not an environmental scientist or carbon specialist, I have been working with such specialists in estimating vehicle emissions for large-scale projects for more than 20 years. Such emission assessments are directly dependant on transport model outputs, and NZTA have developed standard procedures to estimate vehicle emissions directly from such model outputs (via the Vehicle Emissions Prediction Model (VEPM)). I have extensive experience in applying those procedures to estimate the change in vehicle emissions from different project or policy interventions that impact the transport system.
- 1.4 Additionally, over the last 5 years I have been advising the New Zealand Transport Agency (NZTA) on various aspects of enhancing the VEPM tool, including additional research, improved methods and authoring industry guidance on application of the VEPM procedures¹.
- 1.5 In 2024 Beca were engaged by the Waimakariri District Council to respond to the Ōhoka rezoning submissions to the Plan Review process, specifically as it relates to a policy assessment regarding Greenhouse Gas Emissions (GHG). I led the preparation of the Beca Report Ōhoka Greenhouse Gas Emissions Review, albeit with the review of agriculture and embodied emissions being undertaken by Beca colleagues with specialist carbon and sustainability expertise.
- 1.6 That previous review found that transport emissions were likely the dominant issue in regard to this assessment, which I address in this statement. In terms of agriculture and embodied emissions, I continue to rely on the previous Beca assessment by colleagues².
- 1.7 I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. This technical review has been prepared in accordance with that Code. In particular, unless stated otherwise, the opinions expressed are within my areas of expertise, and I have not omitted to consider material facts that might alter or detract from the opinions that I express.

Documents reviewed

- 1.8 As noted under qualifications, I led the Beca team that undertook a very similar review of the proposed Ōhoka development submitted to WDC as part of the Plan Review undertaken in 2024, for which I provided expert evidence. That proposed development is very similar to that described in the Substantive Application to the Fast Track process, so I have relied on much of that previous assessment in this

¹ This includes a current research project for NZTA related to considering refined congestion-related effects into the VEPM tool.

² Noting that the assessment of embodied GHG emissions is not instrumental in this assessment and the scale of agriculture emissions was adopted from Mr Farrelly's original evidence.

statement.

1.9 The documents I have reviewed for this assessment include statements from experts provided with the Substantive Application, including:

- Appendix 38: Greenhouse Gas emissions assessment by Mr **Paul Farrelly**
- Appendix 40: Proposed plan evidence of Mr **Carl Davidson**, describing market research undertaken to gauge the demand for the Ōhoka dwellings
- Appendix 15 - Integrated Transport Assessment – by Mr **Nick Fuller**
- Appendix 41(a) and (b) - Proposed plan evidence and supplementary evidence of **Chris Jones**, related to market demand for such properties
- Appendix 2 - Economics Benefits Assessment – by **Dr. Maggie Hong Mr Greg Akehurst** of Market Economics Ltd
- Appendix 39 - Economic costs assessment, by **Ms Natalie Hampson**

1.10 Additionally, I have reviewed documents from the previous, 2024 application to the WDC Plan Review process, including:

- The Greenhouse Gas emissions assessment by Mr Paul Farrelly
- The Integrated Transport Assessment by Mr Nick Fuller
- The Council's S42A Reply report
- The decision of the Independent Hearings Panel

Key areas discussed in this memo

1.11 The key areas discussed in this memo as related to Policy 1(e) include:

- The approach taken to the answering the policy question
- The counter-factual to the Ōhoka development, used to assess the policy
- The scale and local of potential substitution impact
- The key elements of GHG emissions relevant to this assessment
- How the GHG emissions for the proposed development compare to either the existing agricultural activity on the site or against an equivalent urban development located elsewhere in the region
- Conclusions of my GHG assessment and consequential assessment of the NPS-UD Policy 1(e)

2. APPLICANTS EVIDENCE

2.1 The GHG assessment for the applicant has been undertaken by Mr Farrelly, who concluded³ that:

³ Greenhouse Gas Emissions Overview for the Ohoka Residential Subdivision, by Lumen Ltd, page 5.

“..the proposed residential subdivision and development of a commercial area adjacent to the existing Ōhoka township and urban area will contribute to a reduction in greenhouse gas emissions and does not result in significant adverse effects in this context.”

2.2 Mr Farrelly has described the basis for his conclusion as follows:

I consider that the proposal supports a reduction in greenhouse gas (GHG) emissions for the following reasons:

- 1.1 The proposed layout of the subdivision supports transport emissions reduction by enabling active transport (walking and cycling) within the subdivision, and it is well located with respect to future district cycleways proposed for Waimakariri District.*
- 1.2 The proposed commercial area will provide essential goods and services, minimising travel distances for both new and existing Ōhoka residents, and thus effectively reducing transport emissions on a per resident basis.*
- 1.3 The compact and strategically planned nature of the proposed development is designed to satisfy demonstrated high residential demand for the Ōhoka area. This demand would otherwise be met via a proliferation of unmanaged rural lifestyle subdivision in the Ōhoka area and beyond, leading to greater dispersal of residents in locations further from activity centres, resulting in higher transport-related GHG emissions per resident.*
- 1.4 No reticulated LPG infrastructure will be provided for the site.*
- 1.5 Additionally, converting the site from dairy farming to residential use will result in a reduction in direct GHG emissions from the current land use. Dairy farming is a significant contributor to emissions in New Zealand, primarily due to methane produced by ruminant digestion and nitrous oxide from fertiliser use and effluent management. By removing dairy cattle and ceasing associated operations, this proposal directly eliminates an ongoing source of agricultural emissions.*

3. ASSESSMENT APPROACH

Policy Framework

3.1 In considering Policy 1(e) of the NPS-UD I consider the following to be important considerations:

- The policy relates to ‘*Planning decisions*’, which in this case I have assumed relates to the decision the FTAA Expert Panel regarding approval of the Ōhoka residential development and any associated consent conditions if approved
- The policy is framed as supporting a reduction in GHG emissions, which implies:
 - The assessment should be based on the direction of change
 - A baseline scenario (or counter-factual) to the development

- is required, against which the change can be measured
- The policy doesn't explicitly require consideration of the scale of change or effect, only the direction of change
- GHG emissions relate to a cumulative, global effect that is not particularly sensitive to the specific location of the emission source. This is relevant in regard to consideration of substitution effects between alternative development locations

Substitution Impact and Alternative Location Capacity

- 3.2 A key issue identified in my previous assessment was the potential scale and location of any 'substitution' impact from the Ōhoka development. That is, the extent to which the development replaces similar development from another location, rather than representing a net increase in urban housing, and conversely the extent to which the removal of agricultural activity is displaced to other locations, rather than being permanently lost. This issue is relevant to the discussion on baseline scenarios in the next section.
- 3.3 The issue of the capacity for growth in other locations and the potential substitution effect was explored in detail in the previous (2024) application including by the S42a Reply Report prepared by Mr Andrew Wilson for WDC⁴, which noted at paragraph 65:

"Given the LLRZ and SETZ / GRZ substitutability available, I do not consider that urban residential capacity needs to be provided at Ōhoka under the NPS-UD to respond to an identified demand that cannot be provided for elsewhere"

and at paragraph 72:

"Given the above, the SETZ / GRZ lot sizes proposed as part of the submitters' proposal are not rare or unusual in the district, but rather represent almost 30% of the developed lots since January 2016 and are readily available in the District's main towns. As such, this evidence does not support an argument that there are no or insufficient comparable section sizes available elsewhere in the District."

- 3.4 I note that the Independent Hearings Panel agreed with this assessment, specifically noting the following in paragraph 26 of their Decision:

"Taking into account the evidence produced in the s42A report authors' Reply Reports and overarching Reply Report, we find that the Council has clearly demonstrated that sufficient development capacity is provided in the short, medium and long term, and there is no shortfall arising that would provide a strong impetus for this requested rezoning to be considered more favourably. In addition, the Panel is also mindful that we and the PDP Hearings Panel have, as a result of the other

⁴ [Statement of supplementary planning evidence - Torrey McDonnell - Hearing Stream 1](#)

rezoning hearings, recommended a substantial amount of additional land be rezoned, which will provide even further capacity.”

- 3.5 I have relied on that previous S42A assessment in my comparative assessment of vehicle emissions at alternative locations.

Baseline Scenario (Counter-factual to the development)

- 3.6 In my previous assessment of the Ōhoka development (for the WDC Plan Review), I identified three potential baseline scenarios (counter-factuals), against which to assess the Ōhoka application:
- **Baseline 1:** The existing agricultural activity on the proposed site
 - **Baseline 2:** An alternative layout for the Ōhoka development, but without certain proposed design features
 - **Baseline 3:** A similar scale of development in an alternative location
- 3.7 Baseline 1 implies no substitution impact, with the dairy activity currently occurring on this site being lost forever and thereby resulting in a net reduction in global dairy emissions. For this to be a valid baseline, there would need to be clear evidence that there is no viable alternative capacity for that agricultural activity to occur elsewhere. Given the possibility of such activity transferring to other (global) locations, I consider this to be a very unlikely baseline. Similarly, this baseline implies that the development would induce a net increase in population due to urban development constraints elsewhere, rather than substitute development from other areas, which I also don't consider to be plausible. However, if such a baseline were to be used, the assessment would need to account for the full change in emissions, namely both the removed agricultural activity and the replacement urban activity.
- 3.8 Baseline 2 compares the proposed development layout (with cycleways, tree planting and banning reticulated gas supply), against the same development but an alternative layout without these design features. I note that such a proposal (without such features) is not before the expert panel, so I don't consider this to be a suitable approach to the policy assessment for a planning decision between accepting or rejecting the development. However, those design features could be considered suitable for a planning decision related to consent conditions if the application is approved. I discuss this later in my evidence.
- 3.9 I consider Baseline 3 to be the most appropriate for this policy assessment as it better captures likely substitution impact and reflects the planning decision being considered. As noted above, the independent hearings panel for the previous Ōhoka application for a plan variation in 2024 agreed with the Council officer's assessment that there was sufficient capacity provided elsewhere for substitutable development.
- 3.10 I have reviewed Mr Farrelly's reasoning for this conclusion to identify the implied baseline in the following Table:

Farrelly Rationale	Implied Baseline
1.1 (the proposed layout enables walking and cycling in the development)	This reasoning appears to be based on my Baseline 2, namely a comparison of the proposed layout against the same development with an alternative layout. As noted above, this assessment relies on a development proposal that is not before the expert panel, so may be suitable for planning decisions related to potential consent Conditions.
1.2 (the proposed commercial area will minimise travel distances for both new and existing Ōhoka residents).	This reason could arguably use Baseline 2 or 3. Using Baseline 3 (which I consider most suitable), this implies that: • <u>Existing</u> Ōhoka Residents would have reduced need to travel because of the new commercial area. This is possible, but the scale is speculative and likely to be low given the existing Ōhoka residents already have a local commercial area • For <u>new</u> Ōhoka Residents (in the development), this implies that the closer access to local services is less than it would be if the same development was located elsewhere. This does not seem likely given that WDC have explicitly planned for most of their new urban development closer to the existing centres of Kaipoi, Rangiora and Woodend
1.3 (the distance to activity centres would be less for Ōhoka than in other growth locations)	This reason is using what I have described as Baseline 3, and speculates that the counter-factual development would be in areas even more remote from activity centres than Ōhoka. This is a key issue that I previously considered and discuss further later in this statement.
1.4 (no reticulated LPG infrastructure for the site)	This appears to use Baseline 2 (a comparison against the same development in Ōhoka but that did provide reticulated gas), which I do not consider appropriate. I don't consider that it would be possible to reach this conclusion under a Baseline 3 comparison, as it would require knowledge of LPG provision for alternative (not yet developed) locations. Similar such restrictions could be applied elsewhere, negating any net reduction.
1.5 (removing agriculture emissions)	This uses what I described as Baseline 1, which I do not consider to be a valid conclusion because: • I do not consider Baseline 1 to be a valid approach to the policy assessment for reasons described above; and • Even if considered a valid approach, the assessment is incomplete as it has only claimed the reduced agriculture emissions, and has not accounted for the replacement emissions from the urban development

- 3.11 From the above assessment I concluded that Mr Farrelly has assumed a range of baseline-scenarios to reach his conclusions, each with differing implied assumptions on the scale of substitution impact. The same issue about relevant baseline scenarios arose in my previous review of the Ōhoka development undertaken for the WDC Plan Review, which I discuss in the next section.

4. PREVIOUS BECA ASSESSMENT

- 4.1 The following paragraphs provide a summary of the previous assessment Beca undertook of the Ōhoka development, submitted to WDC in 2024⁵. Although some details of the proposal may have been refined, I consider that the key issues and analysis identified in that work remains relevant and useful to this assessment.
- 4.2 Based on the submitters' evidence the Beca review considered:
- a) The likely operational 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
- 4.3 The Beca review agreed with the submitters evidence that the existing agricultural use generated approximately 1,230 tonnes of CO₂-equivalent⁶ (CO₂-e) per year
- 4.4 The submitters' evidence implied that embedded GHG in the proposed low-density development would be lower on a per m² 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 m², for which the evidence suggested lower carbon efficiency for the low-density urban form likely developed on the site

⁵ [STREAM-12D-SUMMARY-STATEMENT-ANDREW-MURRAY-TRANSPORT.pdf](#)

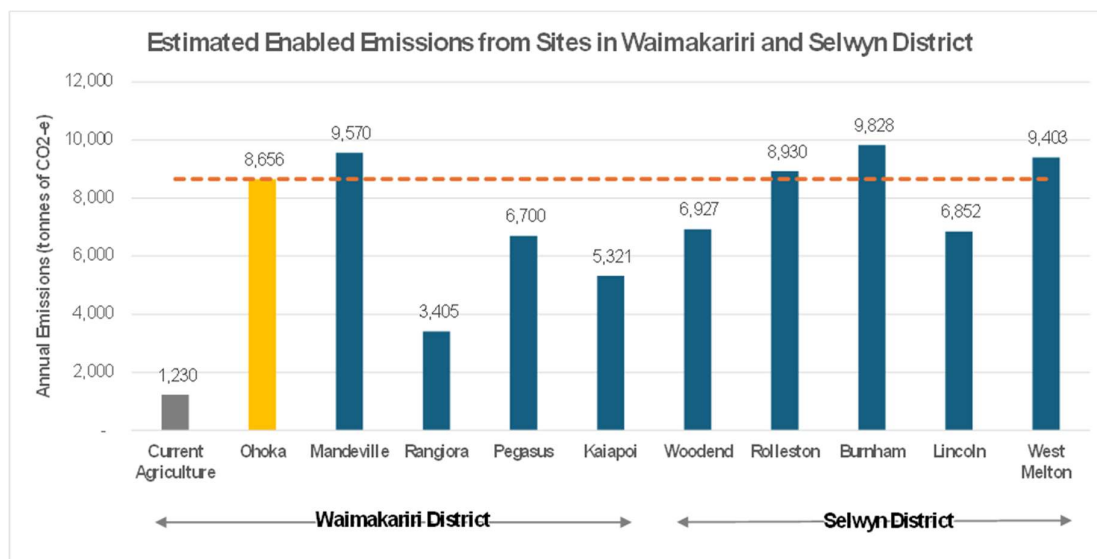
⁶ CO₂-equivalent includes other GHG gases (such as methane), converted to an equivalent quantity of CO₂

4.5 Although the submitters evidence did not present calculated total values, 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 CO₂-e 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 Ōhoka area from the same regional transport model used by the submitters' experts to estimate the distribution of development traffic; and
- c) Adopting the same per-km rate of vehicle emissions used by the submitters' expert

4.6 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 Ōhoka site could have better GHG outcomes than similar development in Rangiora or Ravenswood/Pegasus.⁷

4.7 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.



⁷ Although not available for the 2024 analysis, the 2023 census indicates that only some 3% of existing commuters from Ohoka travel to the Christchurch CBD, as indicated in the NZTA Commuter Waka analysis tool.

Figure 1 2024 Comparison of Vehicle GHG Emissions for the Same Urban Development

- 4.8 This comparison indicated 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.
- 4.9 For reference I note that within the Waimakariri District Council area, new greenfield urban growth areas are planned in Rangiora and Kaiapoi, both of which are estimated to generate significantly lower rates of vehicle emissions.
- 4.10 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 with planned residential capacity; 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

5. UPDATED ASSESSMENT

- 5.1 Based on the updated evidence from Mr Farrelly, I have based my updated assessment on the following assumptions:
- a) I have adopted the previously agreed estimate of some 1,230 tonnes of CO₂-equivalent per year for the existing agriculture activity⁸
 - b) That the previous and current development proposals are very sufficiently similar to retain the same methodology as used previously, with both proposals included some 875-890 residential units, a 220-250-unit retirement village and a local commercial area
 - c) The Beca review identified limited data on the embodied emissions within the urban form itself, with different values on a per m² and per-unit basis. The limited evidence indicated between 13 and 21 kg CO₂-e/m²/year but the Beca review found insufficient certainty on the rates for different urban forms and the need to

⁸ This assessment of agricultural emissions was undertaken by colleagues at Beca and is not within my expertise. The Beca review agreed with the original assessment by Mr Farrelly

speculate on the urban form and context of the alternative locations. Due to that finding I have not included differences in embedded carbon in my assessment, instead focussing on enabled emissions from vehicles.

- d) I have adopted the same methodology as I used previously to estimate enabled emissions from vehicle use, namely, to use the average trip length for different locations as indicated in the Christchurch regional Transportation model. I have updated that analysis based on the lower daily vehicle trip generation rate adopted in the transport assessment undertaken by Mr Fuller for the updated proposal⁹.

5.2 The updated assessment also identified that the estimated level of vehicle emissions (for the same development proposal) varied by location, with those closer to existing centres having lower emissions than areas more remote. This meant that the direction of change in GHG was dependant on the specific location of the counter-factual development. This is shown in the following figure, which is the annual GHG emissions from vehicle use (or agriculture), from the same amount of vehicle travel. That is, the only variable that is assumed to change between locations is the average daily vehicle trip length.

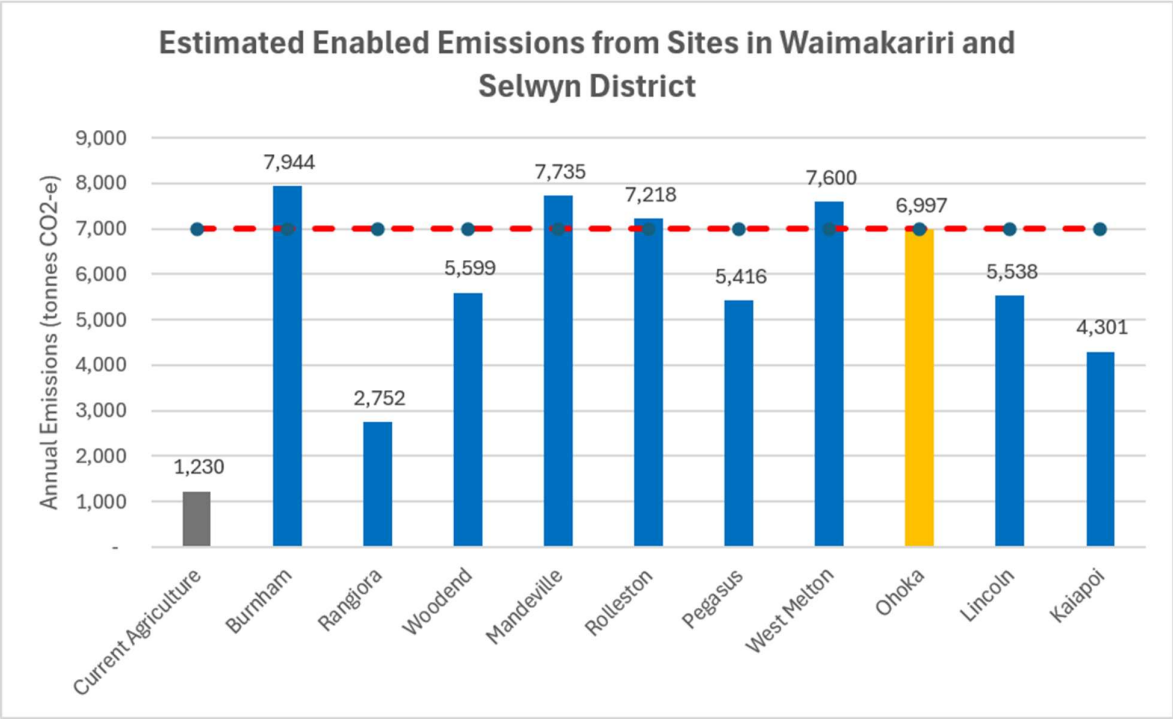


Figure 2 Updated Assessment of Vehicle Emissions for Ōhoka Development and Alternative Locations

⁹ I have adopted Mr Fuller’s updated daily trip rate for the purpose of this comparative assessment and have not formed an opinion of the suitability of the revised rate.

5.3 This updated assessment did not alter my previous conclusions (albeit noting that the scale of emissions was less due to the reduced vehicle trip rate), namely that:

- The vehicle emissions from all urban development scenarios were significantly higher than the existing agricultural emissions
- The vehicle emissions for an equivalent development would be lower than that in Ōhoka for all locations closer to existing centres (such as Rangiora, Woodend, Pegasus, Lincoln and Kaipoi, and only lower than those from the proposed Ōhoka site if located in more remote locations such as Burnham, Mandeville, West Melton and Rolleston

Baseline 3 Distribution of Development to Alternative Locations

5.4 I have considered further the potential distribution of the Ōhoka residential demand to other locations, as this is important to the Baseline 3 comparison. I am not an expert in demographic projections such as estimating the potential alternative locations for such growth.

5.5 Without definitive estimates of the distribution to other sites, I have instead estimated the sensitivity of the relative vehicle emissions to a range of potential distributions. These tests scenarios do not represent actual predictions but are rather sensitivity tests of what I consider could be plausible scenarios. These sensitivity tests were based on the following assumptions:

- There would be a fairly wide distribution rather than a single, alternative location. This was based on the constrained capacity in Ōhoka (as noted by the applicants expert Mr Jones¹⁰), and other rural locations
- The majority would be within the Waimakariri District, with a lower proportion in Selwyn
- A low proportion in Burnham, given the limited scale of urban area there

5.6 Three initial tests (Tests 1, 2 and 3), explored scenarios with reducing allocation of demand to nearby centres and increasing allocation to more remote villages. Test 4 was a more extreme scenario that deliberately allocated the majority (85%) to more remote areas with higher vehicle emissions, with very low allocations to nearby planned growth areas. Test 4 was effectively reverse engineered to test the level of allocation required to exceed the emission from the Ōhoka site. The assumed distribution of Ōhoka demand to alternative locations is shown in the following table:

¹⁰ Including at paragraph 19 where he notes that: “Despite Ōhoka being the most popular lifestyle and residential location in North Canterbury by far, there has been a real lack of growth, and in particular master plan supply.”

Alternative Location	Test 1	Test 2	Test 3	Test 4
Burnham	2%	2%	5%	5%
Rangiora	20%	15%	10%	3%
Woodend	15%	15%	15%	3%
Mandeville	10%	15%	20%	25%
Rolleston	2%	2%	2%	5%
Pegasus	20%	15%	10%	3%
West Melton	10%	15%	20%	25%
Ohoka Existing	3%	3%	5%	25%
Lincoln	3%	3%	3%	3%
Kaiapoi	15%	15%	10%	3%
	100%	100%	100%	100%

Figure 3 Sensitivity Tests of Distribution of Ōhoka Demand to Alternative Locations

5.7 The annual GHG emissions for the 4 sensitivity tests are shown in Figure 4 below.

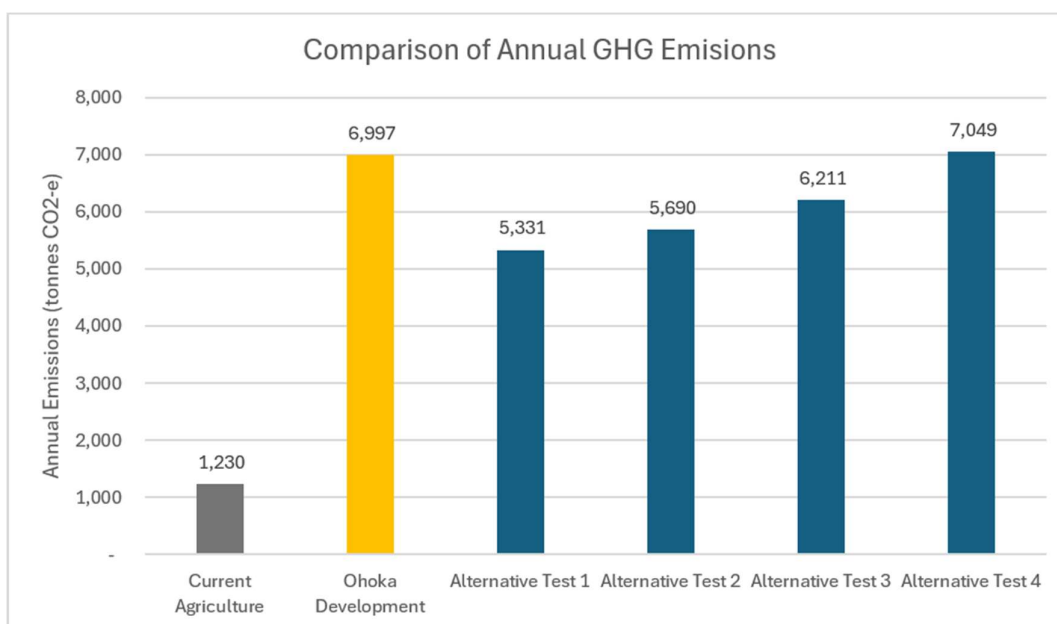


Figure 4 Annual Vehicle Emissions

5.8 Tests 1-3 all showed vehicle emissions lower than those from the Ōhoka location. Test 4 had marginally higher emissions than Ōhoka by design, but had what I would consider very unlikely allocation to alternative locations. I base this statement on the constrained residential capacity in the more remote village areas noted by the applicants experts and the proximity and capacity of the areas explicitly identified for growth in the WDC district plan (based on the capacity analysis by WDC for the 2024 plan variation Ōhoka application).

5.9 This sensitivity testing indicated that vehicle emissions enabled at the Ōhoka

development would be between 13% and 31% higher than those in tests 1-3, representing a similar scale of development in other locations.

5.10 My updated assessment confirmed my previous conclusions, namely that the proposed Ōhoka Development:

- 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;
- c) Would only generate less enabled emissions than equivalent development located elsewhere under an assumption where at least 85% of the Ōhoka residential demand would otherwise go to remote, capacity-constrained rural villages, with less than 15% in nearby areas explicitly planned for growth such as Pegasus, Kaipoi, Rangiora and Woodend. I consider this to be a very unlikely scenario.

Baseline 2 Assessment of Proposal Design Features

5.11 As I noted earlier, Mr Farrelly as suggested that certain design features would reduce GHG emissions, including that they enable active mode transport in the development, include a local commercial area that would reduce the need to travel and that no reticulated LPG infrastructure would be provided. To the extent that such items could be suitable to inform potential consent conditions, I note the following:

- a) Although the site includes facilities for active modes within the site, no dedicated, safe facilities are provided for cycling to nearby employment locations such as Kaipoi and Rangiora. As such, a significant reduction in vehicle travel seems unlikely from just internal active mode facilities. Mr Farrelly also notes that the site is “*..well located in respect to future district cycleways..*”. I understand this is based on a desired cycle network plan developed for the WDC area. Because no indication is provided of any imminent commitment by WDC to the construction of those rural cycleways I do not consider that their presence can be relied upon for the purposes of this policy assessment
- b) The current mode share for commuters from Ōhoka¹¹ is estimated at some 71% by vehicle and only 3% by active modes. Even if that mode share were to double to 6%, this would only reduce travel by car by 3%. Given that my sensitivity testing indicates that the Ōhoka site could have between 13%-31% more vehicle

¹¹ Based on 2023 Census data as presented in NZTA commuter waka app: <https://commuter.waka.app/#>

emissions than the same demand located elsewhere, this increased active mode share would not offset the overall increase in emissions.

- c) To my knowledge, there is no reticulated LPG network in the Ōhoka area, with residents relying on bottled supply. Subsequently, any condition that prevented reticulated infrastructure would not appear to offer any GHG reductions; and
- d) I agree that the local commercial area would be likely to reduce the need to travel further to access some services and would be an important element of the proposal if it were to be approved. However, I do not agree that this itself would result in an overall reduction in GHG emissions, given that alternative locations for such development would have similar local services, which is already allowed for in my comparative assessment of vehicle emissions.

5.12 I Based on the above conclusions I return to Mr Farrelly's rationale for his overall conclusion in the following table:

Farrelly Rationale	My Conclusion
1.1 (the proposed layout enables walking and cycling in the development)	In my opinion such design features relate only to potential consent conditions rather than being suitable for assessment of the overall outcomes for the development. My assessment found that while such features may reduce the need to travel for residents of the new development, the impact would be very small and would be highly unlikely to offset the increased vehicle emissions enabled by development in this location (relative to other locations).
1.2 (the proposed commercial area will minimise travel distances for both new and existing Ōhoka residents).	No evidence is provided of the scale of this effect, while my assessment shows it would have only marginal effect on aggregate vehicle emissions for this location. The average vehicle trip rates from the regional transport model used for my assessment already reflect this effect to some degree.
1.3 (the distance to activity centres would be less for Ōhoka than in other growth locations)	My assessment of vehicle emissions does not support this conclusion, other than for more remote, capacity constrained locations.
1.4 (no reticulated LPG infrastructure for the site)	I don't consider that it would be possible to reach this conclusion under a Baseline 3 comparison, as it would require knowledge of LPG provision for alternative (not yet developed) locations. The impact of this item does not seem material, especially given that

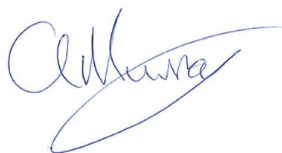
	there does not appear to be any reticulated gas supply to this area anyway.
1.5 (removing agriculture emissions)	My assessment does not support this conclusion when the enabled emissions for the replacement urban development is appropriately accounted for (6,997 tonnes CO ₂ -e per annum of vehicle emissions for the Ōhoka development versus 1,230 for the existing agricultural activity).

6. CONCLUSION

6.1 My assessment of the GHG emissions for this proposal indicates that the proposed Ōhoka Development would:

- a) generate more enabled emissions than the current agricultural activity;
- b) generate more enabled emissions than equivalent development located in areas closer to existing centres;
- c) only generate less enabled emissions than equivalent development located elsewhere under an assumption that at least 85% of the Ōhoka residential demand would otherwise go to remote, capacity-constrained rural villages, with less than 15% in nearby areas explicitly planned for growth such as Pegasus, Kaipoi, Rangiora and Woodend. I consider this to be a very unlikely scenario.

6.2 Based on these findings, I don't consider that a planning decision to enable the proposed Ōhoka development would result in a reduction in GHG. As such it is my opinion that the proposal is inconsistent with Policy 1(e) of the NPS-UD.



Andrew Murray

7 October 2026