Appendix 10: Transport Peer Review

Ohinewai Rezoning Requests
Transportation Review of Submissions
Waikato District Council

FINAL, 9 MARCH 2020

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Transportation Review of Submissions
Waikato District Council

Prepared by: Naomi McMinn

Reviewed by: Alastair Black

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2 Alfred Street
Hamilton, 3214
PO Box 14178
Hamilton, 3252
Tel: 07 853 8997

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Summary of Submissions

Ambury Properties Limited (APL) has submitted on the Proposed District Plan (PDP) requesting rezoning of land in Ohinewai on the eastern side of the Waikato Expressway. The submission seeks industrial, business and residential rezoning in a rural area bounded by Lumsden Road (west), Tahuna Road (south) and Balemi Road (north). A key proposal of the industrial land is the inclusion of a rail siding to transport freight by rail. The APL proposal included an ITA and we have reviewed the technical aspects of the proposal.

The submission from Ohinewai Lands Limited (OLL) sought inclusion of a future growth area in Ohinewai to the south of Tahuna Road.

A number of other submitters sought rezoning of land on the western side of the Expressway, including:

- Amend the zoning of a number of properties on Ohinewai South Road from Rural Zone and Country Living Zone to Industrial Zone (Planning Focus Limited, submission #383). This submission also included amending the zoning of the land subject to the APL submission from Rural Zone to Industrial Zone.
- Amend the zoning of four existing residential properties in Ohinewai Village from Commercial Zone to Residential Zone (Ohinewai Area Committee, submission #793).
- Amend the zoning of approximately 61ha of land on Ohinewai North Road from Rural Zone to Country Living Zone (Shand Properties Limited (SPL), submission #738).
- Amend the zoning of land on Ohinewai South Road from Rural Zone to Country Living Zone (Ribbonwood Family Trust, submission #863).

Conclusions

Ohinewai is not identified as a growth area and urbanisation and employment in this area does not support the Future Proof Strategy (as identified in the further submissions by NZTA and Future Proof). It is not located conveniently to existing services (schools, health, supermarket etc) being more than 7km to Huntly and the lack of alternatives for travel is likely to result in a high proportion of travel by private vehicle. The lack of services in Ohinewai and the limited public transport is likely to result in reliance on private vehicles which is contrary to RPS Policy 6.1 Planned and co-ordinated subdivision, use and development.

In summary, the APL proposal does not align with the policies of the RPS relating to transport (e.g. Policies 6.1, 6.3, 6.14, 6.15 and 6.16) as Ohinewai is not identified as a growth area by Future Proof, the proposal is not coordinated with other submission and triggers for infrastructure upgrades are not included in the planning provisions.

However, if there is considered to be merit in developing a new urban area in Ohinewai then comprehensive structure planning considering all the submissions would be needed to ensure appropriate infrastructure responses are allowed for. There is a lack of co-ordination and tensions between the wider Ohinewai rezoning submissions and the development of a comprehensive structure plan would guide land use and infrastructure responses within the wider Ohinewai area. The proposals are not consistent with RPS Policy 6.3 relating to coordination of growth and infrastructure as the proposed planning provisions do not set out the triggers and timing for infrastructure upgrades. There is insufficient information to understand the potential cumulative transport effects of the rezoning requests.

The plan provisions proposed by APL are not sufficient in their current form. If the APL rezoning is accepted, further information and agreement between the parties (including Kiwirail, Council and NZTA) is needed to confirm the appropriate infrastructure responses. A staging plan or schedule of land

release and required infrastructure upgrades should be developed. While the ITA includes recommendations these are not reflected in planning provisions. We consider that the potential trip generation could be significantly more than the APL assessment as the rezoning would allow a range of land uses in the industrial and business zones. Additional traffic is likely to result in the need for infrastructure upgrades earlier than the ITA expects.

The industrial zone sought on the western side of SH1 by Planning Focus does not support the Future Proof Strategy and is inconsistent with the PDP Policy 6.4.4 as it introduces traffic to an existing rural and residential environment (and the Ohinewai School frontage) with no infrastructure upgrades. . We do not support industrial zoning on the western side of SH1, rather broadly support country living and rural land uses subject to appropriate infrastructure upgrades. These upgrades are likely to include urbanisation of Ohinewai North and South Roads, provision of walking and cycling connections and upgrade of the Tahuna Road/Ohinewai South/Ohinewai North Road intersection to a roundabout. 100vpd is the threshold for permitted subdivision in Country Living Zone under Rule 14.12.1.4 of the PDP (10 dwellings) and is expected to be triggered by the subdivision in the SPL site. If development occurs in stages (up to 10 dwellings) as permitted activity, there is a risk of cumulative effects and intersection upgrades not being triggered.

1. INTRODUCTION

1.1. Background

Ambury Properties Limited (APL) and Ohinewai Land Limited (OLL) submitted on the Proposed District Plan (PDP) requesting rezoning of land in Ohinewai on the eastern side of the Waikato Expressway. Waikato District Council (WDC) has engaged Gray Matter Ltd to peer review the traffic and transportation aspects of the requests. We have previously assisted WDC with peer review of a separate resource consent application for earthworks sought by APL to enable development of the land should the rezoning be approved.

Stage 1 of the PDP was notified in July 2018 and submissions closed on the 9 October 2018. The period for further submissions closed on the 7 November 2019.

The APL submission (#764) sought:

- Amending Rural Zone land bounded by Lumsden, Tahuna and Balemi Roads to a mix of Industrial, Business and Residential Zones;
- Inclusion of a new Structure Plan within Appendix 13 of the PDP; and
- Amending and/or adding Objectives and Policies in the PDP.

The OLL submission (#428) sought inclusion of a future growth area in Ohinewai to the south of Tahuna Road.

A number of other submitters sought rezoning of land on the western side of the Expressway, including:

- Amend the zoning of a number of properties on Ohinewai South Road from Rural Zone and Country Living Zone to Industrial Zone (Planning Focus Limited, submission #383). This submission also included amending the zoning of the land subject to the APL submission from Rural Zone to Industrial Zone.
- Amend the zoning of four existing residential properties in Ohinewai Village from Commercial Zone to Residential Zone (Ohinewai Area Committee, submission #793).
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1.2. Purpose of our review

This letter presents our review of the submissions and technical information relating to transport the submitters, including:

- The Masterplan and Structure Plan (submitted by APL);
- The requested changes to the Structure Plan (submitted by OLL);
- The Integrated Transport Assessment (ITA) supporting APL's submission;
- The transportation aspects of the OLL submission;
- The proposed plan provisions (APL and OLL submission); and
- Review of the further submissions received.

This purpose of this report is to present our review, including:

- Review technical information provided by APL,
- Review of other submissions;

- Review of planning policy relating to transport;
- Request for further information; and
- Conclusions.

2. THE APL AND OLL SUBMISSIONS

2.1. Requested Zoning

The APL request includes amending the zoning for an area of land bounded by Lumsden, Tahuna and Balemi Roads in Ohinewai on the eastern side of the Waikato Expressway. The rezoning is sought primarily to enable Sleepyhead to relocate their factory from South Auckland and includes provision of residential land to develop housing for their employees.

The OLL request relates to land on the south side of Tahuna Road (opposite the APL site). The OLL site area is 39ha and anticipates future use to be 23ha of residential and 16ha of open space with 235 dwellings. Figure 1 shows the Zone map proposed by APL on which we have annotated the OLL site. The OLL submission is discussed in more detail later in this review.

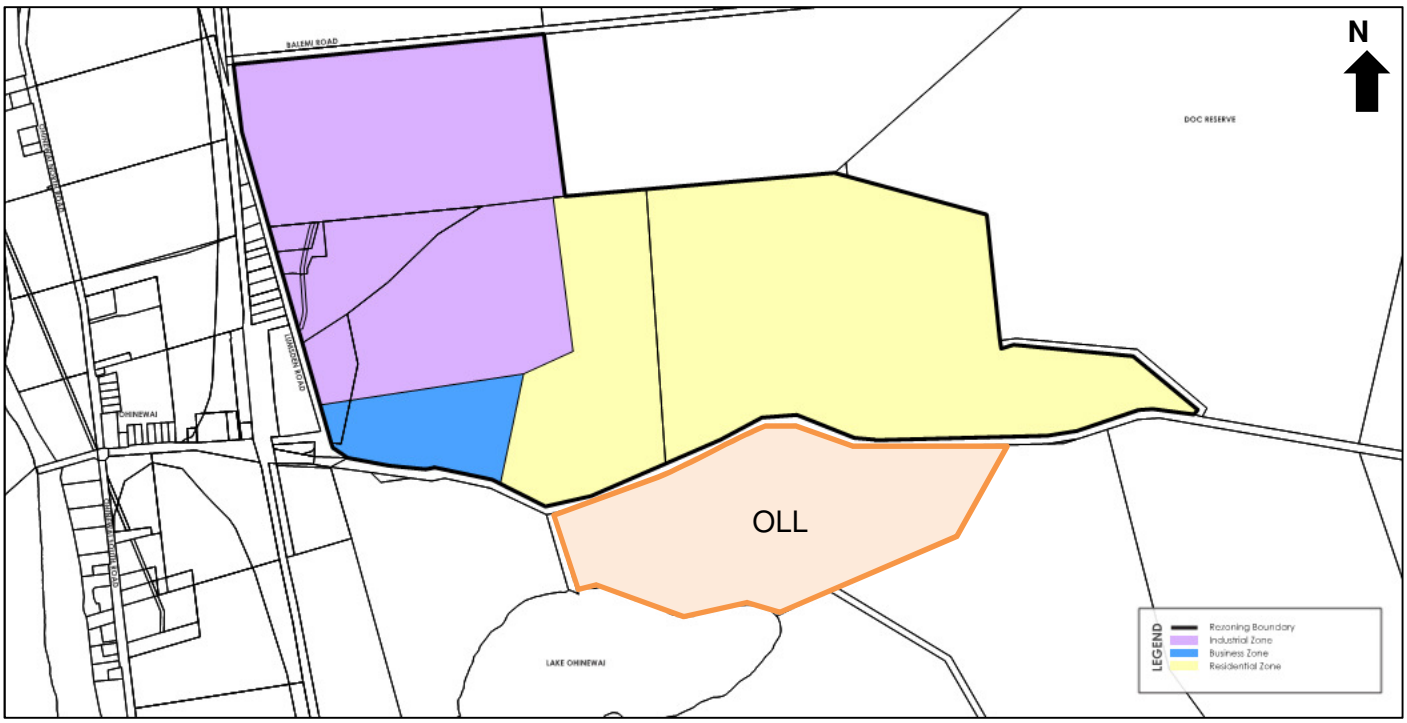

Figure 1: Proposed Zone Plan (APL) and includes indicative extent of the OLL site on the opposite side of Tahuna Road (shaded orange)

The total APL site is 178 ha and we have summarised the APL submission[1] as:

- 63ha of Industrial Zone with the Sleepyhead factory (100,000m^2 GFA) as the anchor tenant and being developed over the next 7-10 years. The factory is expected to employ 1,500 people.
- 8.7ha of Business Zone, expecting to include a service station, local convenience stores and factory outlet stores.
- 900-1,100 residential dwellings over the next 7-10 years.
- 55ha of open space, community facilities and ecological enhancement.

[1] AEE and S32AA Evaluation, December 2019, prepared by BBO, Section 5 The Proposal, page 30

The APL submission does not definitively state the total Residential Zone area. It is referred to as 52ha in the ITA. We understand that public open space areas are included within all three zones, with the majority of the 55ha of open space being in the Residential Zone.

2.2. Structure Plan and Masterplan

The APL submission includes a proposed Structure Plan. It provides for three new intersections on Tahuna Road and two intersections on Lumsden Road.

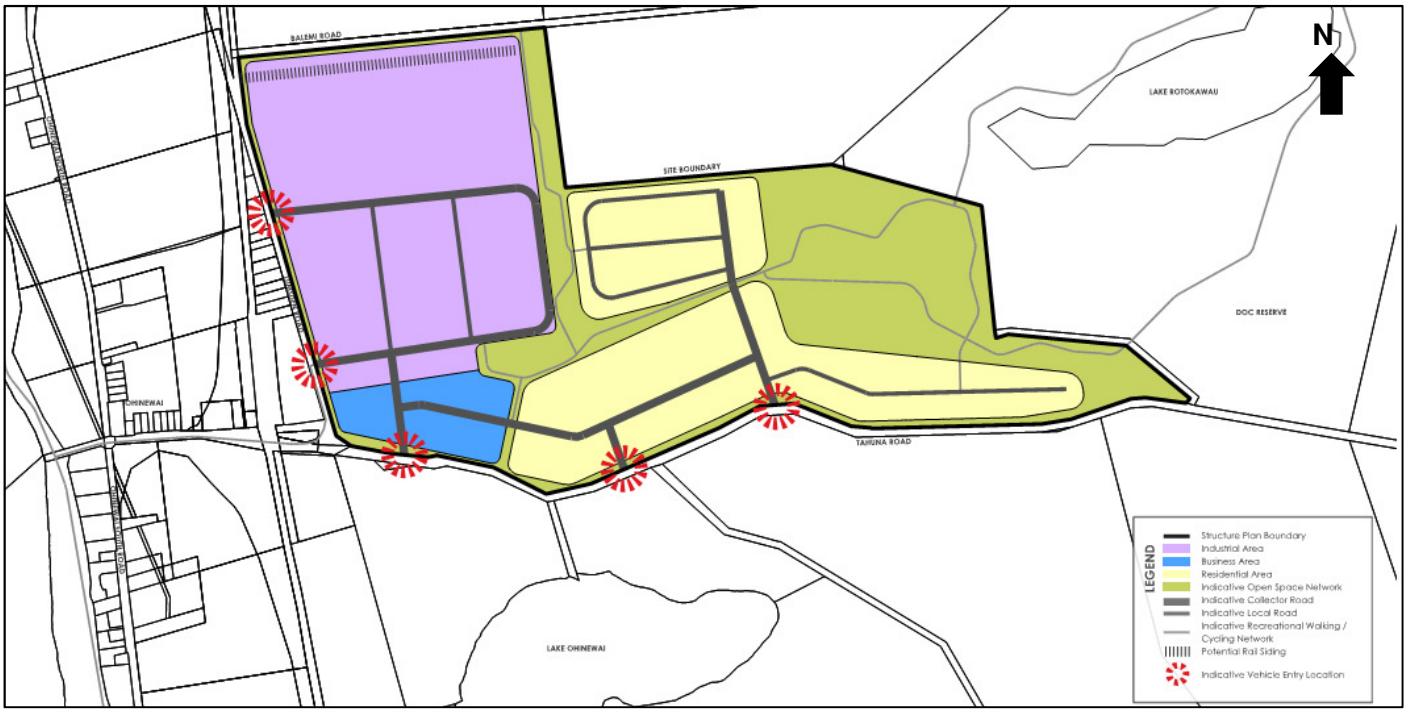

Figure 2: Proposed Structure Plan (APL)

The OLL submission requests that the Structure Plan include the OLL potential future growth area and the Ohinewai Reserve, and an alteration to the extent of APL's residential area so that it aligns with the eastern extent of the OLL area.

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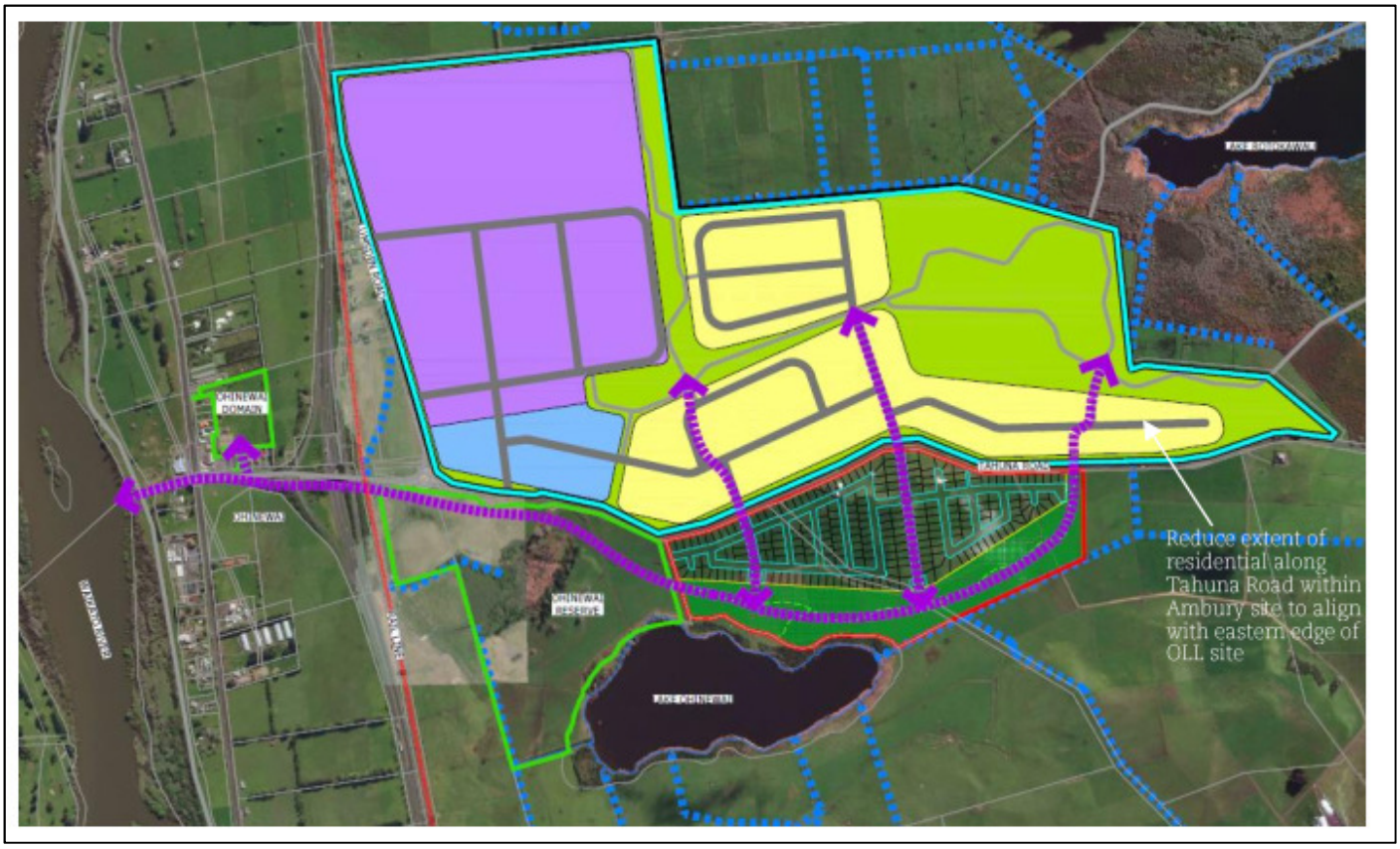

Figure 3: OLL submission (Figure 3 Ohinewai Proposed Urban Form)

We note that while the Structure Plan layout includes a road network not all of the road connections indicated on the Illustrative Masterplan are included in the Structure Plan. This is common where the detailed layout of the local and access roads is not fixed through the structure plan, but left for a future consenting process.

Figure 4: APL Illustrative Masterplan

3. PROPOSED TRIP GENERATION (APL SUBMISSION ITA)

3.1. APL Trip Generation

The ITA (Section 6.3) expects trip generation of the full development to be 1,100vph during the AM peak and 1,700vph in the PM peak with 5-6% heavy vehicles. Their assessment of the peak hour traffic expects 80% of all truck trips will be removed from the network (transported by freight rail) and allows for trip adjustment factors (mixed use development adjustments and shift work adjustment) as well as public transport, walking and cycling trips. There is no information to support such a high proportion of freight trips by rail and this may not be applicable if other industrial activities establish at the site.

The ITA discusses and presents trip generation adjustment factors in Section 6.2 but does not clearly show how these are applied. Table 6-7 of the ITA presents the trip generation for the land use areas by mode (light vehicle, heavy vehicle, walking/cycling and %HCV) for northbound and southbound trips during the AM and PM peaks after the trip adjustment factors have been applied. The total HCVs is presented as 1-3% in this table, which is inconsistent with the statement in the paragraph prior (5-6% HCVs).

Additional information has been provided by BBO (email dated 26/02/20) in the form of a table that sets out the total trip generation, inbound/outbound splits and the reduced trips due to adjustments and trips made by walking and public transport. Although no further rationale for the trip adjustments has been provided, the table clearly sets out how the adjustment factors have been applied.

Table 5-1 of the ITA sets out the development areas and yields for the land uses proposed. We note that there is a discrepancy in areas stated for the Sleepyhead Factory between the AEE (Section 1.4) which states 37ha and the ITA (Section 1.4 and Table 5-1) which both state 23ha. We understand this is because the ITA excludes the rail siding area. The total land use area for industrial presented in Table 5-1 is 54ha and for residential is 32 ha. Based on the land use area and the number of dwellings presented in the Table 5-1 we note that the lots will be between 255 and 360sq.m per dwelling unit. The ITA uses the estimated yields from the Table 5-1 to inform their trip generation.

We understand there are differences in proposed zone areas and the submitter's basis for trip generation because the ITA has excluded the areas that are not being proposed for industrial land use (realignment of Lumsden Road and existing properties).

3.2. Industrial

3.2.1. Submitter's Assessment

The submitter's ITA (Section 6.1.1) presents published peak hour trip generation rates from various references for industrial activity. We understand their assessment of trip generation for the proposed Sleepyhead factory and the remainder of the industrial activity (manufacturing) is based on likely employee numbers. The ITA presents trip generation rates and distributions but does not present the total trip generation for the proposed industrial land use. This has been provided as a separate table and is summarised for the total trip generation in the table below.

Reference	Activity	GFA	Trip generation rate	Employees	Trip Generation
ITE 8th Edition	Manufacturing	100,000 m^2	AM: 0.4 vph /employee	1500 staff	600 vph
			PM: 0.36 vph/employee		541 vph
	General Light Industrial	133,000 m^2	AM: 0.44 vph/employee	650 staff[2]	287 vph
			PM: 0.42 vph/employee		275 vph

Table 1: Industrial Trip Generation (APL ITA trip generation rates)

[2] The ITA expects 1 employee per 200 m^2 GFA based on 133,000 m^2 is 665 staff.

Based on the rates presented in the table above, the peak hour trip generation of the industrial land use would be around 890 vph (AM) and 815 vph (PM). However, Table 6-7 of the submitter's ITA summarises the trips from the industrial land use as 289 vph including 22 HVs during the AM peak and 268 vph including 20 HVs during the PM peak. A reduction of around 65% has been applied to the industrial trips.

The total daily trip generation is 5,160 vpd and 2,314 vpd (after adjustments).

Based on the stated GFAs in the ITA, the density of staff expected by the submitter is 1 employee per 67 m^2 for the manufacturing activity and 1 employee per 200m^2 GFA for the light industrial activity.

3.2.2. Discussion

Given that the submission is for a rezoning rather than a consent application for the specific activity proposed, we consider that trip generation based on typical rates for the proposed land use should be applied. We generally agree with the ITA discussion (Section 6.1.1) of published trip generation rates. However, we consider that the application of reduction factors is reliant on all of the land uses as proposed by APL going ahead. There is a risk of more external trips than the ITA expects if the activities are different, development is slower or coordination between land use is different (e.g. residential and employment) to what the ITA expects.

. The PDP Chapter 20 Industrial Zone rules does not specify a maximum for building coverage in the Industrial Zone, so there is the potential for 100% site coverage. However, given the rural location 100% site coverage is unlikely. We would typically expect around 35% site coverage for industrial use Based on 63ha, allowing around 20% for roads and infrastructure, and 35-50% of site coverage, industrial development could be 177,000 m^2 GFA (35% site coverage) to 252,000m^2 GFA (50% site coverage). This is total for all of the land proposed to be rezoned to industrial. Applying NZ published trip generation rates[3], a warehousing industrial land use activity could generate 1,770-2,520 vph during the peak hour and 4,250-6,050 vpd.

We refer to the 'Upper North Island Industrial Land Demand' report (UNIILD) produced in 2015 by BERL. Its purpose was to identify and recommend a consistent approach that UNISA members could adopt to determine the demand for industrial land. It contains metrics and analysis of employment densities for different industrial land uses in New Zealand. Typical floor areas for manufacturing activities of 60-90 m^2 per employee are provided in Table 2.5 of the UNIILD report. The submitters assumption of 1 employee per 200 m^2 for light industrial land use underestimates the number of employees based on the UNIILD report.

Applying the typical employee density of Table 2.5 of the UNIILD report to 35-50% site coverage, the industrial land use could employ between 2,000 and 4,200 employees. Based on ITE trip generation rates, the industrial activity could generate between 700 and 2,100vph[4]. There is the potential for 14% of the peak hour trips (98 to 294 HV/hr) to be in trucks[5].

Based on our review of the ITA and understanding of the proposed zoning, it appears that the ITA underestimates the potential trip generation of the proposed industrial land.

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[3] NZTA Research Report 453 Land Use 4.1 Warehousing (1vph and 2.4 vpd) per 100 m^2 GFA and Land use 4.4 Manufacture (2.7 vph and 30 vpd) per 100 m^2 GFA.

[4] Institute of Transportation Engineers, Trip Generation Manual, 10th Edition (September 2017), Land Use 110 General Light Industrial 3.05 vpd/employee; 0.52 vph (AM) per employee; 0.49 vph (PM) per employee and Land Use 140 Manufacturing 2.47 vpd per employee; 0.37 vph (AM) per employee; 0.33 vph (PM) per employee

[5] Section 6.2.3 of the Submitter's ITA.

3.3. Business

3.3.1. Submitter's Assessment

The submitter's ITA presents a range of published peak hour trip generation rates for retail outlet centres, service station with convenience store and community corner shop and uses NZ and USA references (Section 6.1.2). The ITA does not present the total estimated trip generation for the retail activities prior to the application of trip generation adjustment factors. This has been provided as a separate table. The assessment is based on service station, 28,100 m^2 GFA retail outlet centre and 315m^2 GFA corner shop. The trip generation is 722 vph (AM) and 970 vph (PM).

Table 6-7 of the ITA summarises the AM and PM peak traffic on the external road network as 270vph (AM) and 731 vph (PM). The daily trip generation for the business land use is 9,660vpd (total trips) and 8,172 vpd (after reduction factors).

3.3.2. Discussion

The proposed Business Zone is 8.7ha. Allowing around 20% for roads and infrastructure, we would typically expect site coverage of around 40% (or 28,000sq.m GFA). The PDP does not restrict site coverage (although car parking on-site is needed) and permits a range of business activities including Public Transport activity, medical centre and traveller's accommodation. Based on published trip generation rates, for retail activity[6] 28,000 vpd with 4,800 vph during the peak hour would be generated. A mix of office and retail activities (say 50/50) would generate fewer trips, around 18,000 vpd with 3,000 vph during the peak hour.

We understand the APL proposal includes very little office and includes for discount outlet retail of around 43,000 m^2 and up to 2,500m^2 of convenience retail. Based on published rates[7], these activities could generate 28,000- 46,000vpd and 2,250-6,880 vph during the peak hour. A high proportion of the trip generation of discount retail of this size and nature would be expected from the wider area and therefore along SH1.

The APL submission expects a service station. Service stations generally attract around 15-20% new trips with 80-85% being passing traffic diverting. Typically, service stations attract around 1-5% of the adjacent traffic volume and on the Auckland Motorway, service centres attract around 10% of the passing traffic. Given the close proximity to the Waikato Expressway (WEx) and the existing contours, service station signage located on the corner of Tahuna and Lumsden Roads is likely to be visible for southbound traffic on the Waikato Expressway. There is the potential for up to 10% of the southbound passing traffic, or 1,200vpd, to visit the service station.

Based on our review of the ITA and understanding of the proposed zoning, it appears that the ITA underestimates the trip generation of the proposed business land. The ITA has not specifically assessed the potential trip generation of the proposed discount retail outlet.

3.4. Residential

3.4.1. Submitter's Assessment

The proposal includes 900-1,100 dwelling units of which 375 units would be general density and 725 would be medium density.

Table 6-7 of the ITA uses ITE trip generation rates and summarises the AM and PM peak traffic on the external road network as 538vph and 196 walking/cycling trips during the AM peak and 681 vph and 196 walking/cycling trips during the PM peak.

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[6] NZTA RR453 Land Use 8.2.1 (Medium Shopping Centre) (101 vpd/100m^2 GFA; 17.2 vph/ 100m^2 GFA).
[7] NZTA RR453 Land Use 8.4 Discount (100 vpd/100m^2 GFA; 15.3 vph/100m^2 GFA) and Table 8.10 for US rates (61 vpd/100 m^2 GFA and 5.3 vph/100m2 GFA)

3.4.2. Discussion

The NZ Transport Agency Research Report 453 (RR453)[8] includes trip generation rates for dwellings in rural, suburban and inner-city locations. We consider that New Zealand rates are more applicable to the proposed development. For rural dwellings (Land Use 7.3) the 85th percentile trip generation rates are 10.1 vpd/dwelling with 1.4 vph/dwelling during the peak hour. The rates are similar for suburban dwellings. Based on the published rates, the residential development would generate 9,000vpd to 11,110vpd with 1,260-1,820vph during the peak hour (but some trips will be internal to employment).

The ITA does not discuss external trips, but given the lack of services (secondary schools, medical, supermarket etc) in Ohinewai, travel to other locations will be required by residential use. The APL proposal anticipates employment for residents, however we expect there will also be trips to surrounding areas for other employment (i.e. partners of APL employees). These trips will be via SH1.

3.5. Trip Generation Adjustment Factors

The ITA includes trip generation adjustment factors which were applied to the trip rates to exclude any internal trips (i.e. trips that will originate and terminate within the development). The total trip generation before the trip adjustment rates were applied is not clearly presented in the ITA.

A table has been provided (email dated 26/02/20) separate to the ITA that breaks down the application of the trip adjustment factors and clarifies how these have been applied. The ITA discusses trip adjustment factors for:

- mixed use developments (Section 6.2.1 and Table 6-6). 50% reduction is applied to all industrial trips, 10-20% for retail except the community shop (100% are expected as internal) and 40% reduction to residential. The ITA expects a significant proportion of trips to be on the internal roads.
- shift work adjustment (Section 6.2.2). The ITA states that based on data collected from existing APL sites only 60% of the expected trips associated with the industrial land use will occur during the normal AM and PM peak on the network. This has been applied to the Sleepyhead factory peak hour trips.
- freight trips adjustment (Section 6.2.3). The proposal includes a rail siding and the ITA expects typically 14% of the peak hour industrial traffic would be freight vehicles (trucks) but the proposal expects 80% of the truck traffic to be removed from the road network (transported by rail).
- walking, cycling and public transport (Section 6.2.4). The ITA expects pedestrians and cyclists to make up no more than 2.5% of the total mode share during the peak periods. This assumption does not seem unreasonable at full development but we consider is unlikely to be realised until after the residential dwellings are occupied.

[8] NZTA Research Report 453, NZ Trips and Parking Related to Land Use, November 2011, Appendix C, 85th percentile generation rates

Table 6-6: Adjustment Factors - Mixed-use Development

Land Use	Mixed-use Adjustment Factor (Internal trips %)
Manufacturing Facility	50%
Light Industrial/ Industrial Park	50%
Retail Outlet Centre	10%
Service Station with Convenience Store	20%
Community Corner Shop	100%
General Density Residential	50%
Medium Density Residential	50%

Figure 5: Trip adjustment factors for mixed-use developments presented in the ITA

3.6. Summary of Trip Generation

The ITA (Table 6-7) expects 1,100 vph during the AM peak and 1,700vph during the PM peak with around 5-6% heavy vehicles, after trip adjustment factors have been applied.

As discussed above, we consider that the actual trip generation is likely to be significantly more than the submitter's assessment, especially as the proposed zoning allows for a wide range of industrial and business activities. The effects of the external trips at origins (e.g. Huntly/Hamilton/Auckland etc) and whether the wider network has capacity to accommodate them has not been considered. The proposed discount outlet store proposed has not fully been assessed by the ITA. The ITA is based on 28,000m^2 of retail outlet. It is possible that internal traffic may use the external network (Tahuna Road) to access internal services and that the ITA does not adequately assess the potential impacts of this traffic.

The ITA expects 50% of the factory's employees to live within the proposal and applies the shift work adjustment to the trips on the external network. The ITA expects the Sleepyhead factory to generate 163 vph to the external network. The trip generation to the external network could be higher if the development is not coordinated as anticipated by the ITA.

The total AM peak trip generation presented in the additional Table is 2,136vph (AM) and 2,899 vph in the PM peak. Note this is not stated in the ITA. The ITA assessment relies on the adjustment factors and is based on 1,100vph and 1,700vph, around half of the total trip generation.

4. TRAFFIC MODELING (APL SUBMISSION ITA)

The ITA includes Sidra modelling of the SH1 Ohinewai interchange (eastern and western) and the Tahuna Road/Lumsden Road intersections for four scenarios:

- Scenario 1: 2019 baseline with no development traffic. Based on traffic count data that the submitter completed in August 2019.
- Scenario 2: 2019 baseline with development traffic. Development traffic of 1,100 vph (AM) and 1,700 vph (PM), turning movements based on turning counts data collected in August 2019. We understand this scenario was used to identify network improvements required and then the improvements were modelled for the same traffic. To avoid confusion we refer to scenario 2.1 and 2.2:
    - Scenario 2.1: 2019 baseline with development traffic, upgrade to the Lumsden/Tahuna roundabout (additional lanes on Lumsden and Tahuna east approaches) and layout 1

recognising that walking and cycling facilities are required as a separate structure over the NIMT and SH1.

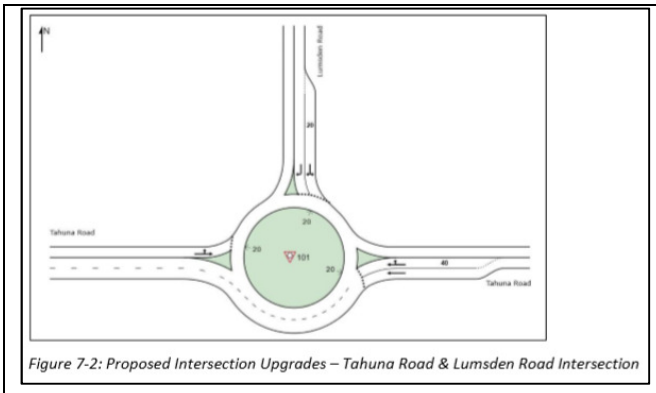


Figure 7-2: Proposed Intersection Upgrades – Tahuna Road & Lumsden Road Intersection

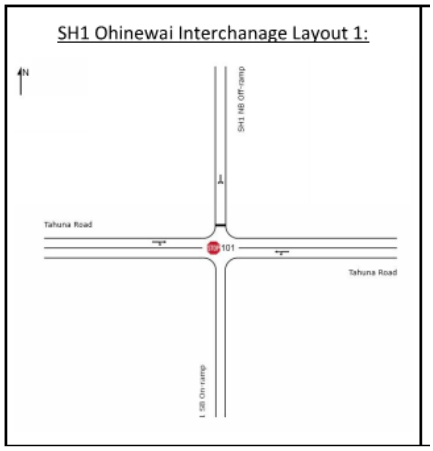
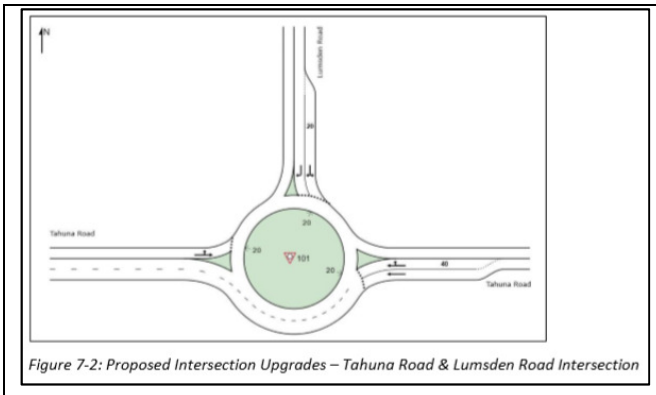


Figure 7-1: Proposed Intersection Upgrades - SH:

Figure 6: Sidra layout diagrams for layout 1 improvements (Scenario 2.1) (snipped from the ITA Figures 7-1 and 7-2). The Ohinewai interchange is the eastern intersection.

- Scenario 2.2: 2019 baseline with development traffic, upgrade to the Lumsden/Tahuna roundabout (additional lanes on Lumsden and Tahuna east approaches) and layout 2 widening of the southbound off-ramp and Tahuna Road (NIMT overbridge) to facilitate additional lanes and signalised pedestrian crossing of the interchange ramps.



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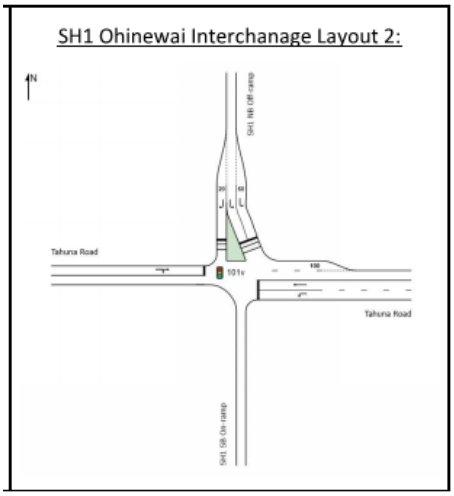

Figure 7: Sidra layout diagrams for layout 2 improvements (Scenario 2.2 and 4.2) (snipped from the ITA Figures 7-1 and 7-2). The Ohinewai interchange layout is the eastern intersection.

- Scenario 3: 2031 without the development. Based on 2019 baseline traffic extrapolated with 3% per annum traffic growth. The ITA uses baseline traffic and growth to forecast year 2031 because the Waikato Regional Transportation Model (WRTM0 2031 and 2041 models are not validated.
- Scenario 4: 2031 traffic (as per Scenario 3) with the development traffic and the improvements identified in Scenario 2. To avoid confusion, we refer to Scenario 4.1 and 4.2:
  - Scenario 4.1: 2031 with development traffic and improvements as per layout 1 (Figure 6 above).
  - Scenario 4.2: 2031 baseline with development traffic and improvements as per layout 2 (Figure 7 above).

4.1. Traffic volumes and distributions

4.1.1. Existing network traffic volumes

The baseline 2019 traffic is based on traffic counts (including turning movements) that the submitter completed in August 2019, presented in Table 2-2 of the ITA and displayed in the schematic diagrams (Figures 2-7 and 2-8).

4.1.2. Forecast traffic

2031 traffic is based on 2019 traffic extrapolated with 3% per annum traffic growth. The ITA recognises the Waikato Regional Transportation Model (WRTM), however uses baseline traffic and growth to forecast year 2031 because the WRTM 2031 and 2041 models are not validated. The ITA expects the WRTM update is to be completed in early 2020, however we understand this has been delayed.

Scenarios 3, 4.1 and 4.2 do not take into consideration any planned network or land use changes that are included in the WRTM models. The ITA states that when the validated WRTM models are available the ITA's estimate future traffic volumes will be updated and sensitivity testing will be updated. We consider that this should be completed as soon as possible.

The submitter considers that the forecasts included in the ITA are conservative compared to the WRTM because the opening of the WEx will divert trips from Tahuna Road (east towards Tauranga) and because the planned Auckland-Hamilton passenger rail service may reduce private vehicle commuters along the corridor. The proposal does not include a rail stop at Ohinewai. We understand that a stop is planned for Huntly.

The ITA (Section 7.1.3) states that the forecast queues on the off ramps do not extend down the ramp to a point that causes vehicles exiting the Expressway at 110 km/hr to not be able to stop safely before the back of the queue. For the southbound off-ramp, the ITA considers that the 95th percentile queue length should not exceed 127m[9] to avoid crashes.

The ITA states that the right turn movement on the SH1 southbound off-ramp is expected to operate with LOS F (average delay of 50s) during the PM peak in Scenario 4.1 (2031 with development and layout 1 in Figure 6 above). It considers that a short right turn bay is desirable to mitigate the increased delay and potential for waiting drivers to attempt a shorter gap leading to an increase in crashes at the intersection. We note that the average queue length is only 21.6m (four cars) and the 95th percentile queue length is not stated.

[9] The ITA states that the off ramp is 312m long and allowing 185m for a vehicle to decelerate to a stop (based on Austroads Part 4a Table 5.2: Deceleration distances required for cars on a level grade there is 127m available for a queue.

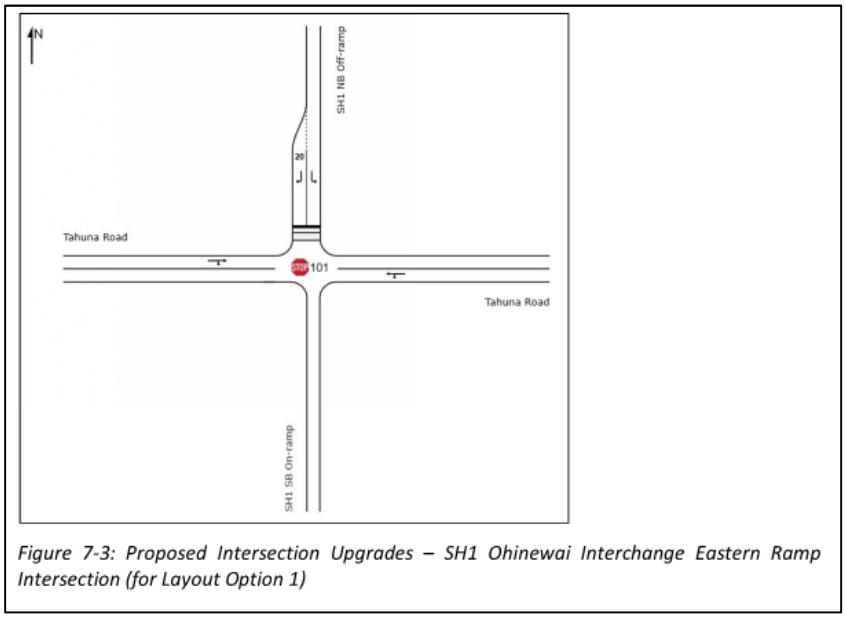

Figure 7-3: Proposed Intersection Upgrades – SH1 Ohinewai Interchange Eastern Ramp Intersection (for Layout Option 1)

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Figure 8: Sidra layout diagram for proposed upgrade as result of Scenario 4.1 sidra modeling.

There is a history of loss of control and failing to notice control/missed intersection crashes at the southbound off-ramp Stop control intersection. During our site visit, we noticed that the Stop signs have been installed on yellow backing boards, presumably to improve visibility of the signs and the limit line and reduce the crashes. No further mitigation is proposed in the ITA.

4.1.3. Development traffic distribution

The ITA states that the proposed development will form part of the larger Huntly community and that a large proportion of the trips will be to Huntly. The ITA refers to existing travel survey data that found 65% of existing traffic through the Ohinewai interchange travels north. The ITA states that based on future population and employment based growth projections, 80% of the overall growth in the Waikato District is expected along the southern population centres such as Huntly and Hamilton City. Hamilton City is not part of the Waikato District, but we agree that there is growth in Hamilton city and given that it is closer than Auckland to the site and with improved connections (Huntly Section of the WEx), it's likely that a significant proportion of trips generated by the proposal will be to the south.

The ITA trip distribution assumes:

- 35% to the north via SH1
- 60% to the south via the SH1
- 5% to the east via Tahuna Road

The modelling distributions do not appear to consider trips from the development to Ohinewai School that may be made by car. A dedicated walking and cycling facility connecting the proposal area to the school is likely to reduce trips by vehicle, however we would still expect a small proportion of trips in this direction. The distance between the development and Ohinewai school is around 1.5km along the existing roads, around a 20-30 minute walk[10].

Both Huntly and Te Kauwhata are within around a 10 minute drive of the site. Whilst there are currently few services in Te Kauwhata, it may be an alternative to Huntly for secondary schooling and some local services (e.g. medical clinic).

[10] Walking speed varies between 0.8 m/s and 1.8 m/s. Average adult walking speed is around 1.5 m/s and 1.2 m/s for impaired/older pedestrians. We presume school children would walk no faster than an average adult.

We understand the modelling is based on the submitter's assessment of development traffic on the external network (1,100vph AM and 1,700 vph PM). A schematic diagram of movement volumes for 2019 (similar to Figures 2-7 to 2-10 of the ITA) is desirable to clearly show turning volumes with the development traffic. The email provided (dated 26/2/20) included schematic diagrams for the AM and PM peak in 2031.

4.2. Sensitivity testing

Five sensitivity testing scenarios are presented in the ITA based on the submitter's assessment of trip generation. The tests are a combination of reduction factors for mixed use development, freight trips via road and allowance for shift workers trips to be outside of peak hours, combined with trip distribution split scenarios (as per baseline, or 60% N/35% S/ 5% E or 20% N/ 80% S).

The worst case appears to be Test 5 "lower adjustment for mixed use development" which distributes traffic as per the base scenarios (35% N/60% S/5% E) but expects more of the development trips to travel on the external network, including freight by truck (80% compared to the baseline of 20%).

4.3. Discussion

We consider that the trip generation of the proposed re-zoning could be significantly more than the submitter's assessment. Given the potential for significantly more traffic, sensitivity testing of additional development traffic should be completed in order to fully understand the potential efficiency impacts and confirm the proposed upgrades are appropriate. The modelling should be updated to reflect the WRTM validated 2031 and 2041 models.. It would be preferable for the submitter to update the modelling with the validated WRTM (2031) inputs including revising and checking the Tahuna Road (west), northbound on-ramp and southbound off-ramp volumes.

We note that the ITA (Section 13.1) states that consultation with NZTA was undertaken as part of the development of the ITA and that the NZTA advised that the effects of the proposal on the wider transportation network should be considered (not limited to Ohinewai- inclusion of Te Kauwhata and Huntly). The ITA states that the wider transportation network effects will be assessed once the projected WRTM demands are available.

There are a couple of minor discrepancies in the ITA relating to sidra modelling. The sidra output tables (Figure E-3 and E-4) presented in Appendix E of the ITA for the Ohinewai interchange eastern intersection appear to be a duplicate of the western intersection and do not match with the results including within the report (Table 7-1). We also notice that the movement summaries in Appendix E include both for networks and for routes and not all summaries show the 95th percentile queue lengths. The sidra layout (Figure 7-2) of the Tahuna-Lumsden Road roundabout should be corrected as it appears to be incorrect (shows single circulating lane between Lumsden and Tahuna east). However, these minor discrepancies do not affect our conclusions.

The ITA included a lot of modelling scenarios and sensitivity testing and we have been provided additional sidra reports and outputs in order to fully understand the modelling. Given that the ITA found that the worst case of the sensitivity testing scenarios was one with more of the development traffic expected to travel on external roads, we consider there is a risk that the modelling provided does not accurately reflect the potential traffic or capacity effects of the proposed rezoning. The ITA summarises that layout option 1 (stop control on the southbound off-ramp) is preferred for capacity, provided that a separate pedestrian and cyclist bridge is provided elsewhere. We are concerned that upgrades may be triggered earlier than the ITA expects.

5. CONSIDERATION OF OTHER SUBMISSIONS (APL SUBMISSION ITA)

The ITA includes consideration of the Ohinewai Lands Limited (OLL) submission and the Shand Properties (SPL) submission. The SPL submission seeks Country Living Zone on the western side of the SH1 (on Ohinewai North Road). The submission includes a Traffic Impact Assessment (TIA) based on

100 residential lots and traffic generation of 1,000vpd. The ITA includes modelling at year 2031 including the APL and SPL traffic based on trip assignment consistent with the ITA assumptions (35% N, 60% S, 5% E) and 20% inbound/80% outbound during the AM peak consistent with the SPL TIA.

The ITA states that with the SPL traffic, no further capacity upgrades are anticipated for the interchange.

The ITA discusses sensitivity testing with the introduction of the SPL traffic in the model and for layout 2 (Figure 7 above), the modelling results in unacceptable levels of service at the western interchange intersection (roundabout) for some of the sensitivity testing scenarios. The ITA states that additional capacity required could be improved with an exclusive left turn lane at the southern approach and could be addressed by SPL at the time of their development.

Given our expectation that the trip generation of the APL submission to be higher than what is anticipated by the ITA, it is uncertain at this preliminary stage if an upgrade at the western intersection would be solely triggered by the SPL traffic (i.e. APL traffic may be a contributing factor).

The ITA states that given the OLL are not seeking a Zone change and development timeframes are unknown at this stage, it is recommended that OLL provide their own transportation assessment in the future. Refer 10.1 below.

6. PROPOSED CHANGES TO THE NETWORK

6.1. Proposed upgrades and triggers

The submitter's ITA[11] states that the following transport infrastructure is included as part of the submitter's proposal:

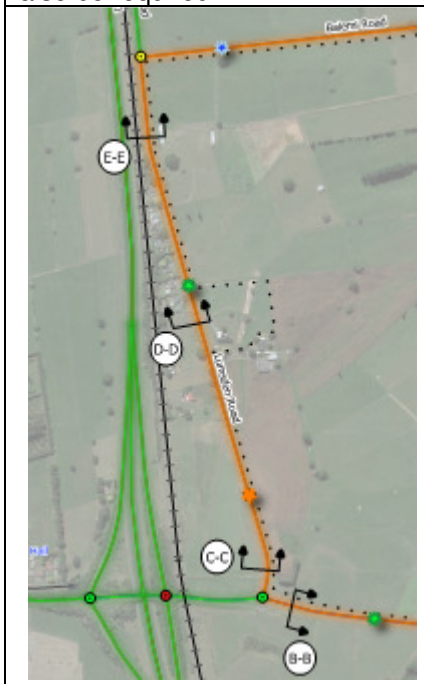
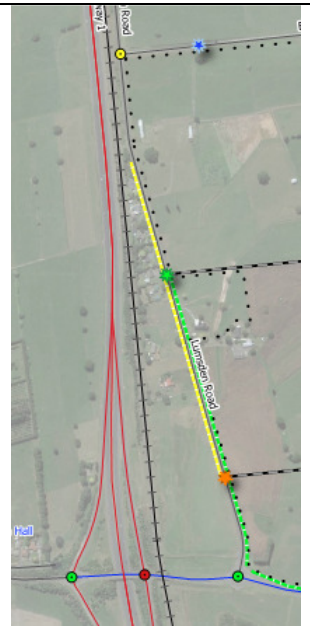
- Implementation of a new rail siding to connect the development to the NIMT;
- Realigning Lumsden Road and Balemi Road so that the rail siding crosses at a safe angle with low vehicle speeds;
- Five new intersections (and private accesses) on the external network to connect to the internal road network; and
- Provision of walking and cycling links to Ohinewai Village and School and enabling safe and convenient active mode access to Huntly via future proposed linkages.

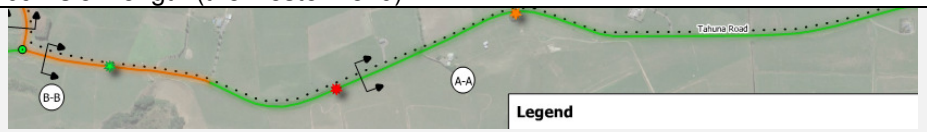
The ITA states that the triggers associated with the improvements are related to one or both of the following:

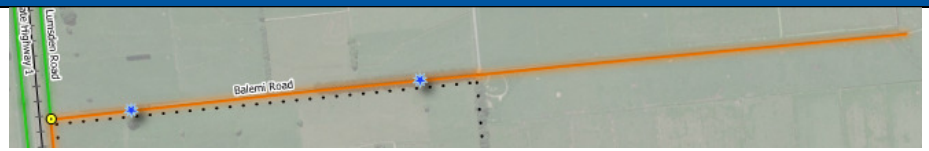
- Safety improvements associated with the subdivision and/or development of specific land use areas.
- Capacity and safety improvements associated with the advancement of the proposed development stages of the plan change. These improvements relate to the associated number of trips that are expected to be generated and distributed on the local road network as the site is successively developed.

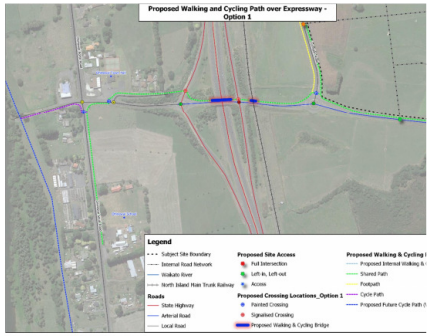
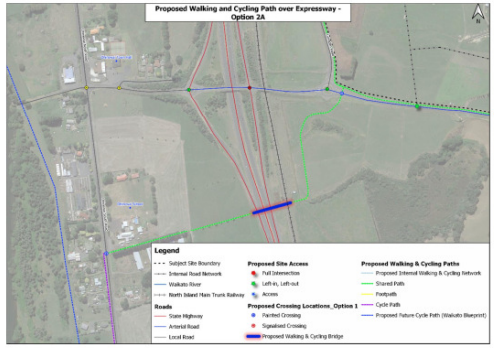
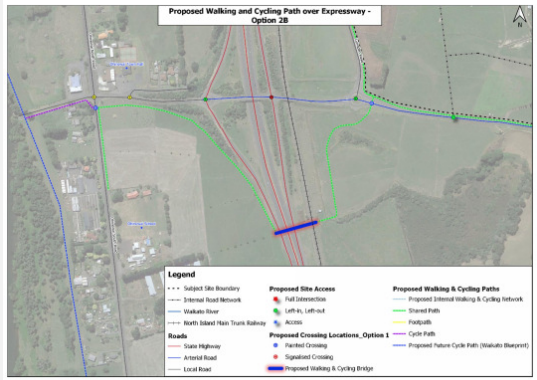
Table 11-1 of the ITA summarises our understanding of the proposed transportation infrastructure upgrades and the staging associated with the submitter's rezoning request. We have presented the contents of Table 11-1 and added a column with our comments and images inserted from the appendices where these are available. In our experience, relying on trip generation triggers for infrastructure improvements can be challenging. It may be desirable to rely on staging or area of development to allow easier monitoring.

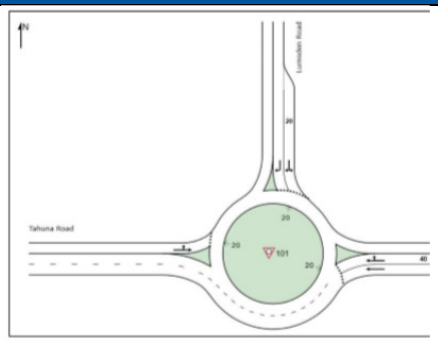
[11] Ambury Properties Limited Sleepyhead Estate Ohinewai Proposed Re-Zoning & Structure Plan ITA, BBO (Executive Summary page 1)

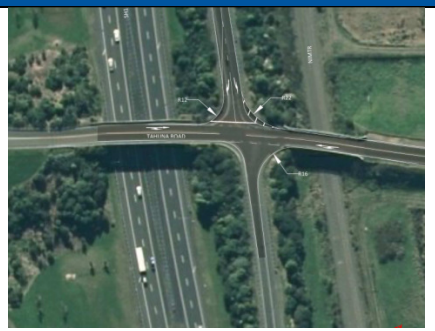
No.	Proposed Intervention	Indicative Timing	Development stage trigger	ITA commentary	Gray Matter Comments
1	Upgrading of Lumsden Road to urbanised industrial formation	Short-term Years 1-3	To coincide with the subdivision of the general industrial lots (after the development of the Stage 1 NZCG Factory but prior to development of Stage 2).	The environment along Lumsden Road is expected to change from the existing rural environment to a peri-urban industrial environment with the subdivision and subsequent development of the industrial lots. A recommendation of this ITA is that the speed limit is reduced from the existing 100km/h to 70km/h. Works involve upgrading Lumsden Road in line with the proposed road cross-section to match the changed road environment, and includes walking and cycling provisions. The upgrade may include the construction of the proposed site accesses/intersections on Lumsden Road (dependant on development extents).	We support upgrade of Lumsden Road to industrial road cross-section in accordance with Figure 5-1 which shows the extents for the different cross-sections. Three cross-sections are proposed in the ITA. The extent of footpath (western side frontage of existing houses) and shared path (eastern side from Tahuna Road to the industrial area) shown on Figure 5-7 appears to be appropriate to facilitate walking and cycling. Crossing facilities will also be required.  Figure 5-1 shows proposed speed and cross-sections  Figure 5-7 shows proposed footpath (yellow) and shared path (green)

No.	Proposed Intervention	Indicative Timing	Development stage trigger	ITA commentary	Gray Matter Comments
2	Upgrading of Tahuna Road to peri-urban formation	Short-term Years 1-3	To coincide with the subdivision of the commercial/ business and residential zones.	The environment along Tahuna Road is expected to change from the existing rural environment to a semi-rural environment as part of the subdivision and subsequent development of the first commercial and residential lots bordering Tahuna Road. A recommendation of this ITA is that the speed limit is reduced from the existing 100km/h to 70km/h. Works involve upgrading Tahuna Road in line with the proposed road cross-section section to match the changed road environment, and includes walking and cycling provisions. The upgrade also includes the construction of proposed site accesses/intersections on Tahuna Road.	We support upgrade of Tahuna Road, however clarity is sought to confirm the extent and applicable cross-sections for the proposed upgrade. We note that the AEE/s32AA (page 31) refers to the upgrade as being to an "urban industrial" cross section and includes geometric improvements. Figure 5-1: "Proposed Speed Environment" and Figure 5-7: "Proposed walking and cycling paths" of the ITA indicate different cross-sections along the length of Tahuna Road and shared path along Tahuna Road for around half of the subdivision length (the western end).  Figure 5-1 shows proposed speed and cross-sections (yellow = 70 km/h, green = 100 km/h)  Figure 5-7 shows proposed shared path (green) does not extend along the whole development
3	Upgrading of Balemi Road	Short-term Years 1-3	To coincide with the construction of Stage 1 of the NZCG Factory.	Widening (to a minimum of 6m) and sealing of the road carriageway will be required to enable access to the factory.	There does not appear to be a cross-section proposed for Balemi Road. In order to protect for future development, an appropriate road reserve width should be protected. Given the potential increase in traffic on Balemi Road (including potential HCVs), we consider it should be upgraded to an industrial road standard, with a trafficable width of 9m consistent with the PDP for the length between Lumsden Road and the proposed second factory access. The realignment of Lumsden/Balemi Road may need an alteration to the road corridor boundary and agreement with the land owner (although this is the subject site so should not delay the process).

No.	Proposed Intervention	Indicative Timing	Development stage trigger	ITA commentary	Gray Matter Comments
					 Figure 5-1 shows proposed speed (70 km/h).
4	Pedestrian and cyclist bridge over SH1 Expressway, connecting to Ohinewai South Road.	Short-term Years 1-3	To coincide with the development of the first residential lots and provision of shared paths along Tahuna Road and Lumsden Road.	Walking and cycling linkages over SH1 will be necessitated with the development of the first residential lots. These paths will link the development with Ohinewai Village and Primary School and Huntly. Two options are proposed for consideration: Option 1: A pedestrian & cyclist route through at the Ohinewai Interchange. This will require signalisation of	It's not clear which option is proposed and when it would be implemented. Compared to Option 1 which has a number of road crossing points, Options 2A and 2B have one road crossing at Tahuna Road. Option 2A appears to provide the shortest route between the development and Ohinewai School. However Option 2B would better connect to the existing WRC bus service which stops at the Ohinewai Hall. The existing cross section of Tahuna Road across the NIMT and SH1 does not safely provide for pedestrians or cyclists. The provision of adequate, safe and attractive paths between the bus stop and school on the west and the site is necessary to avoid potential safety risks for these users. The ITA does not state the details for the local road crossings that would be necessary for the options presented.

No.	Proposed Intervention	Indicative Timing	Development stage trigger	ITA commentary	Gray Matter Comments
				the eastern ramp intersection, widening of the NIMT overbridge, widening of the southbound ramp embankment, and providing a signalised pedestrian crossing along the northbound on-ramp. Option 2: A pedestrian & cyclist overbridge approximately 300m to the south of the Ohinewai Interchange. This will require providing pedestrian & cyclist paths through private owned land to the south of Tahuna Road. No further intersection upgrades will be required.	 Figure 7-4: Proposed Walking and Cycling Connection over Expressway - Option 1  Figure 7-5: Proposed Walking and Cycling Connection over Expressway - Option 2A  Figure 7-6: Proposed Walking and Cycling Connection over Expressway – Option 2B
5	Upgrading of the Tahuna Rd & Lumsden Rd intersection, if required	Long-term Years 8-10	±1,400 peak hour trips generated by the development (to coincide with full development of the NZCG factory, light industrial	Capacity modelling indicates that an additional right-turn lane will be required on the northern approach (Lumsden Road) to support the proposed land-uses along Lumsden Road.	In our experience, roundabouts with both dual and single lanes can be confusing for drivers due to lane assignment. . Addition of lanes to an existing roundabout can be challenging to retrofit and meet design criteria (e.g. maintaining curves (fastest entry paths)). Criterion 2 sightlines should be shown on concept layouts in order to adequately protect land needed for the future upgrade. To be conservative these should be for a dual lane roundabout. Alterations to boundaries and land agreements with the landowners on the eastern and southern sides are likely to be needed.

No.	Proposed Intervention	Indicative Timing	Development stage trigger	ITA commentary	Gray Matter Comments
			and commercial/retail lots based on the assumed trip generation and distribution figures).		 Figure 7-2: Proposed Intersection Upgrades – Tahuna Road &  Snipped from Appendix F of ITA.
6	Upgrading of the eastern ramp intersection (only required if the intersection is not signalised as described in Intervention 4. above).	Long-term Years 8-10	±1,700 peak hour trips generated by the development (to coincide with full development of the site, including all residential lots, based on the assumed trip generation and	Capacity modelling indicates that an exclusive right-turn lane will be required on the southbound off-ramp, to allow more capacity for left turn movements. This will likely require widening of the ramp embankment.	There is a risk that the peak hour traffic of 1700 vph will be realised at an earlier stage of the development than the ITA anticipates (because we consider that the trip generation to the external network is likely to be higher particularly if the land use development (employment and residential) is not appropriately coordinated). There appears to be an existing safety issue at the southbound off-ramp and the intersection needs to be upgraded to improve safety and provide adequate visibility. Introducing additional traffic increases the safety risk. We consider that further investigation to confirm the most appropriate and safest intersection form. . Widening of the ramp embankment will need considerable design input given the constraints and proximity to the SH1 and the NIMT. Input from NZTA and Kiwirail would be needed.

No.	Proposed Intervention	Indicative Timing	Development stage trigger	ITA commentary	Gray Matter Comments
			distribution figures)		 Option 1 snipped from Appendix F of ITA
7	Signalisation of the Tahuna Rd & Lumsden Rd intersection	-	Based on sensitivity testing – triggered when the factory, light industrial lots and commercial/ retail hub all generate over 20% more peak trips that what this ITA estimates.	Capacity modelling indicates that additional capacity will be required on the northern approach. This upgrade could potentially involve implementing metering signals at the roundabout. Separate ITA reports will be required for each stage of the proposed development to assess whether this upgrade will be warranted, the timing for it, and design details.	We consider that 20% additional (compared to the trips expected by the ITA) 20% peak trips are likely to be realised earlier than the ITA anticipates. We consider that further investigation to confirm the most appropriate and safest intersection upgrade is required. We would prefer the roundabout is a full dual lane roundabout. The ITA expects that separate ITA reports will be required for each stage of the proposed development. This needs to be included in the planning provisions and linked to a staging plan.

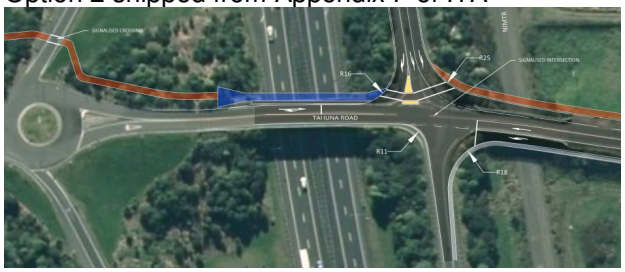
No.	Proposed Intervention	Indicative Timing	Development stage trigger	ITA commentary	Gray Matter Comments
8	Signalisation (& further upgrading) of the eastern ramp intersection.	-		Capacity modelling indicates that additional capacity will be required at the eastern ramp intersection to cater for the increased vehicle volumes. For this volume of traffic, the intersection will likely need to be signalised and four-lanes provided between the intersection and Lumsden Road roundabout. As a minimum, this will entail replacing the bridge over the NIMT (to a new four lane structure) and at worst, also widening the Tahuna Road overbridge (from two lanes to at least three lanes). Separate ITA's will be required for each stage of the proposed development to assess whether this upgrade will be warranted, and the timing and specific design details.	We consider that the 30% additional (compared to the trips expected by the ITA) peak trips are likely to be realised earlier than the ITA anticipates. Given there is an existing safety issue at the southbound off-ramp (eastern intersection) the intersection should be upgraded to safely accommodate the additional development traffic. This layout provides an east-west walking and cycling connection that would provide access to the existing WRC bus stop. However, the path crosses the SH1interchange ramps. At-grade crossings of the SH1 interchange ramps are undesirable given the speed environment and vehicle mix. It would be safer to provide a separate grade-separated pedestrian and cyclist facility. The ITA presents options including inter-dependency between different upgrades. The detail and timing of what is proposed at this intersection needs to be confirmed. Option 2 snipped from Appendix F of ITA 

Table 2: Table 11-1 of the ITA proposed improvements and triggers and our initial comments.

The ITA[12] also includes the following recommendations for:

- Huntly walking and cycling:
  - Option 1: Utilising the ample space on the Ohinewai South Road (old SH 1) and current SH1 corridor. Both corridors could be transformed to provide a segregated walking and cycling path in addition to narrowed traffic lanes and redeveloped berms
  - Option 2: A shared walking and cycling path be constructed on top of the eastern stopbank of the Waikato River, from Ohinewai to Huntly. This is already shown in the Waikato Blueprint as a future ambition for the district.
- Lumsden Road realignment to accommodate rail siding including realigning Balemi Road/Lumsden Road intersection (Years 1-3):
  - Realignment and upgrade of the Lumsden/Balemi Road rural intersection to meet requirements of District Plan and RITS.
  - New rail siding and realigning Lumsden Road.
- Public Transport Infrastructure:
  - Bus stop facility within the development
  - An interim bus stop on Tahuna Road between the interchange and Lumsden Road is discussed, as is a park-and-ride service (from the proposed bus stop inside the development) to the future Huntly rail station. However, when, who and how this will be implemented is not clear.

Figure 9: Balemi Road/Lumsden Road realignment and rail siding. Snipped from Appendix G of ITA (Conceptual layout)

6.2. Rail siding and Balemi Road/Lumsden Road intersection

The submission includes a rail siding and consequential realignment of Lumsden Road to ensure the rail siding and road crossing meet KiwiRail's requirements. Introducing a level rail crossing introduces an

[12] Ambury Properties Limited Sleepyhead Estate Ohinewai Proposed Re-Zoning & Structure Plan ITA, BBO (Executive summary page 5)

additional safety risk. It would be desirable for the crossing to be grade separated but this is unlikely to be feasible. The conceptual layout included in Appendix G of the ITA includes the introduction of a new 'S bend' on Lumsden Road (refer Figure 9 above). The ITA states that the conceptual design is a based on RITS, Austroads and NZTA's SHGDM. We note that the design speed varies between 40 km/h and 70 km/h and notes that the speed environment is 80 km/h. The different design speeds is likely to result in out of context curves. The design speed should be reviewed to ensure that it is appropriate and should be consistent for the design and allow drivers to read the speed environment. The ITA states that a 6% superelevation on bends is to encourage lower speeds. Encouraging lower speeds is not usually achieved through superelevation. Flashing lights and bells (FLBs), half arm barriers (HABs) and a number of signs and pavement markings on the approaches to the rail crossing are proposed. Introducing inconsistent speed curves and potential need for additional signs to inform drivers of lower speed curves could lead to driver confusion.

We note that ITA includes preliminary comments from WDC staff (Section 13.3 of the ITA) including that the curvature on the Lumsden Road needs to match the existing speed environment and not be out of context. As noted above, we consider that more work is required to ensure a consistent speed environment and the design is self-explaining.

The ITA is based on the provision of a rail siding, to reduce truck trips due to freight transport by rail. Table 11-1 of the ITA does not include the rail siding or timing. Without the rail siding there will be more trucks since the ITA is based on an 80% reduction in trucks from the industrial activity. The ITA has considered the impact of additional trucks on the efficiency of the intersections, if rail were not provided and does not change the proposed upgrades. The effect of not providing the rail siding is additional trucks being introduced to the network and poses an increased safety risk. There is an existing safety deficiency at the SH1 southbound off-ramp.

The ITA states that consultation has been undertaken with KiwiRail and that they have indicated support in principle of a suitable approved level crossing on Lumsden Road. The rail siding is expected to be a significant cost and it is not clear how it would be funded. The proposed realignment of Lumsden Road is solely to accommodate the level crossing and would need to go through applicable planning processes (road stopping and designation) and due process for the rail crossing the road. Given the rail siding is a critical part of the proposal it's desirable that formal KiwiRail approval is obtained. We recommend that a safety audit of the level crossing and Lumsden Road realignment is completed at this early stage. Prior to the safety audit, we suggest the design is revised to ensure appropriate and consistent design speeds and speed environment can be achieved (potentially without the need for a realignment). This is likely to involve review of appropriate design speeds, measures for encouraging lower speeds, signs, markings and level crossing details. Proposed Access Arrangements

The submission includes seven new access points to the site area via five new intersections and two private vehicle accesses.

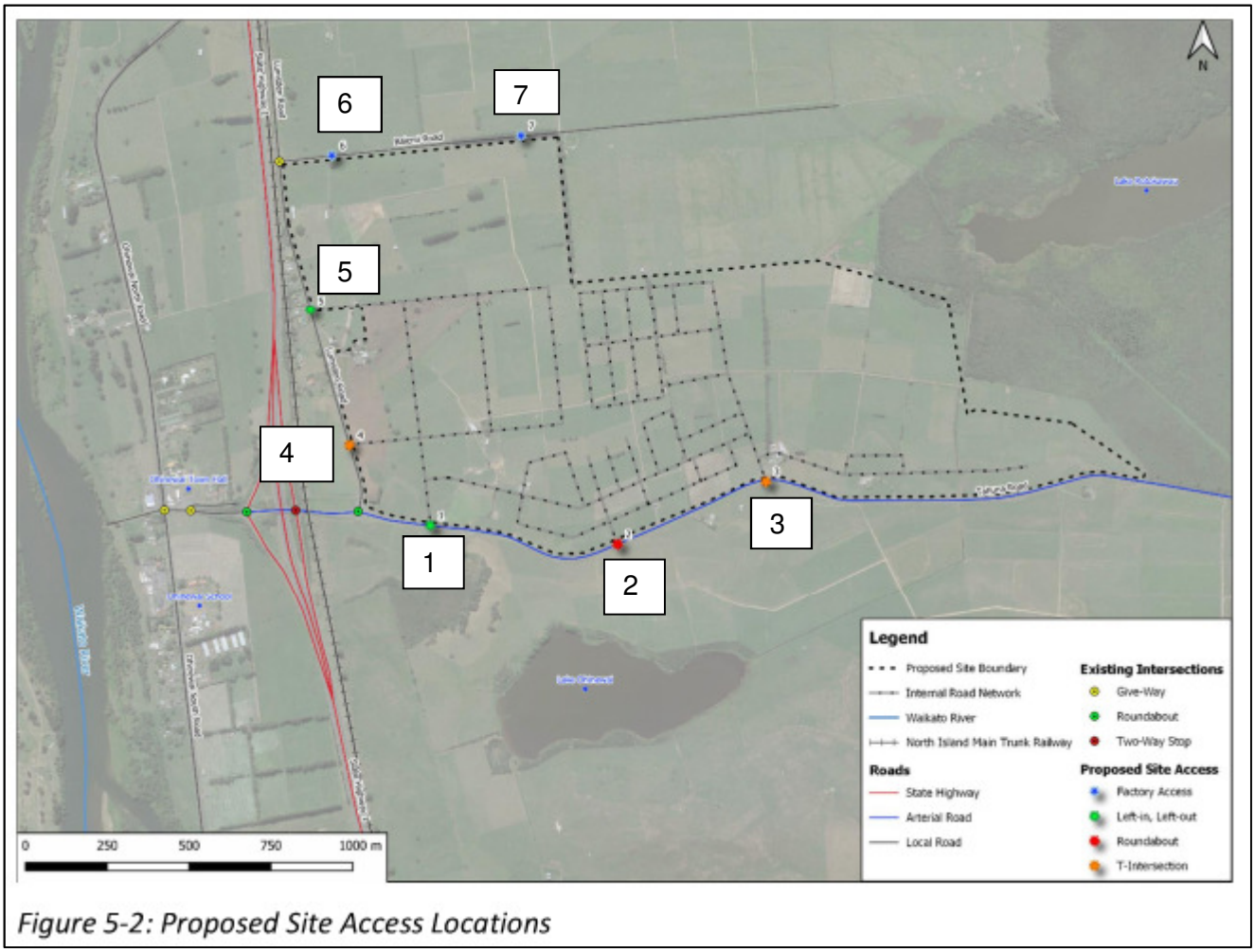


Figure 10: Proposed access points (ITA Figure 5-2)

The ITA includes concept layouts for some of the proposed access points. We have made comments in the table below. There are no triggers or rules proposed in the planning provisions, so it is unclear how the recommended access improvements would be implemented. We consider roundabouts beneficial particularly in relation to safety because:

- there are fewer conflict points than priority or traffic signalised intersections;
- speeds are managed through the roundabout and along the corridor;
- accommodate all movements at intersections and avoid the need for U-turns

Access	Proposed location and arrangement	Image	Our comments
1	Tahuna Road (west): Left in, left out Includes a raised median to prevent right turns out.	 Snipped from Appendix D of ITA	We understand this intersection provides access to the business centre and along with Access 4, it appears that left in (at Access 2) from Tahuna Road and left out (at Access 4) to Lumsden Road are anticipated for circulation. Based on the proposed land use (including a service station and discount outlet stores) there's likely to be significant traffic from outside of the area using the intersection (unfamiliar drivers) and there is a risk of vehicles usingAccess 1 wanting to right turn out. A roundabout would better facilitate all manouevres and assist in managing speeds along Tahuna Road. In the proposed layout, there is the risk of U-

Access	Proposed location and arrangement	Image	Our comments
			turns around the median since there is no provision for right turn out. Alternatively traffic would need to travel to the roundabout further along Tahuna Road to u-turn. Intersection spacing appears to be <200m from the existing Lumsden/Tahuna roundabout which does not meet design standards. There is a risk of shadowing of vehicles from the left turn lane. Detailed design should consider: -confirming this is the safest and most appropriate intersection form. -square the T up with the Tahuna Road. -radius should be designed for vehicle tracking.
2	Tahuna Road (mid): Single lane roundabout	 Snipped from Appendix D of ITA	Includes realignment of the curve on Tahuna Road to achieve visibility. Realignment likely to require relocation of overhead services. Confirm and show Criterion 2 sightlines for the roundabout. Splitter islands appear to be short on Tahuna Road approaches. Desirable to provide pedestrian/cyclist crossing of Tahuna Road particularly to link to OLL (if that goes ahead).
3	Tahuna Road (east): T-intersection (give way control) with a right turn treatment and a left turn lane for the western approach	 Snipped from Appendix D of ITA	We do not support priority T-intersection. Access to residential area so right turn out/left turn in demand is expected to be dominant. Turning volumes provided for 2031 indicate more right turning out movements (4 vehicles every minute during the AM peak) than at the roundabout (Access 2) on Tahuna Road. Introducing a conflict point increases risk and in a 100 km/hr speed envinronement, the risk of a death or serivous injuryis high. Rural T-intersections have a higher crash risk than signals or roundabout. [13]
4	Lumsden Road (south) T-intersection (give way control) with a right turn treatment	 Snipped from Appendix D of ITA	We understand this intersection provides access to the business centre (right turn in) and it appears that the majority of traffic associated with the business centre is expected to use this intersection to exit since Access 2 does not allow right turns out to Tahuna Road. A roundabout would better facilitate all manouevres and assist in managing speeds along Lumsden Road. Turning volumes provided for 2031 indicate 188 right truns in during the AM peak (one every 20 seconds). The low through volume on Lumsden Road is likely to mean sufficent gaps for vehicles to turn, but the risk of a crash resulting in a serious injury is higher than if the intersection were a roundabout. a

[13] NZTA High Risk Intersections Guide, July 2013. Figure 3.4 average severity ratios (0.37 DSI/injury crash for T-intersection; 0.09 DSI/injury crash at signals and 0.22 DSI/ injury crash at roundabout)

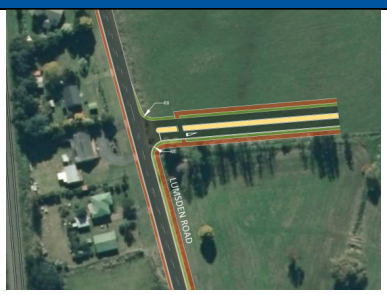
Access	Proposed location and arrangement	Image	Our comments
5	Lumsden Road (north): Left in left out T intersection	 Snipped from Appendix D of ITA	It is unclear how left in, left out would be enforced. Cross-section of new road should be consistent with proposed industrial standards.Left in, left out would mean that associated industrial traffic would need to use Balemi Road and travel through the site. We note that on the masterplan there are two "access to rail siding and factory site" shown along this road frontage so it is unclear how these are expected to be used. Access 4 and the internal roads provide a possible alternative for access to the rail siding and industrial factory.
6 and 7	Balemi Road: 2x private commercial vehicle access	No layout provided in the ITA	Subject to detailed design and in accordance with RITS and District Plan vehicle crossing requirements.

Table 3: Proposed access and our initial comments

We are concerned that the proposed intersection forms (Accesses 1 and 3-5) have not adequately considered the safety effects. We do not support the proposed priority T intersection (Access 4) in the rural environment.

Side impact crashes are the most likely types at intersections. In a 100km/hr the risk of death or serious injury is 80% compared to 10% at 50 km/hr[14] . The risk of a crash resulting in a DSI (death or serious injury) at a priority T-intersection is four times higher than if it were a signalised intersection or 1.7 times higher than if it were a roundabout. Roundabouts also assist with managing speeds. Safe crossing facilities for pedestrian and cyclists need to be considered during detailed design. Modelling is needed to confirm that the proposed intersection forms are appropriate to accommodate the proposed traffic which we consider will be more than the submitter expects.

In order to meet design criteria we expect that additional land will be required for the roundabout at Access 2. This is likely to be in the APL site but should be confirmed to determine if there are any potential land impacts on the OLL property to the south.

Protecting the land required for an appropriately design roundabout layout is needed and should be reflected in planning provisions. It is desirable that the design consider a possible 4th leg to access the OLL in the future (as per the OLL submission). The proposed access layouts on Tahuna Road appear to include footpath on both sides. This is inconsistent with the proposed cross-sections.

6.3. Walking, Cycling and Public Transport

The ITA considers options for walking and cycling links to the western side of the SH1 and Ohinewai village, notably the Ohinewai School. We agree that the provision of adequate, safe paths will encourage short journeys by walking and cycling.

WRC currently operates a bus service between Hamilton and Te Kauwhata that stops twice daily (AM outbound and PM inbound) at the Ohinewai Hall on the west side of the SH1. The submission includes a bus stop within the development which appears to be appropriately located within the commercial area and on a loop road. The ITA states that in the interim a bus stop could be provided on Tahuna Road between the NIMT and the Lumsden Road roundabout which would allow bus to circulate around the

[14] NZTA High Risk Intersections Guide (Figure 2-2)

roundabout and re-enter the SH1. Footpaths would need to be provided to access the bus stop including adequate road crossings. We support the submitter's proposal to include and protect for public transport in the future by considering the appropriate location for a bus stop. Adequate space in the road reserve should be protected for the bus stop.

However, until the WRC extend the current service to include a stop on the eastern side, which we understand they do not currently have plans for, a footpath is needed for pedestrians from the APL submission area to access the bus stop on the western side of SH1. Based on a conversation with WRC, any additional bus stops would only be considered located on the SH1 on and off ramps, the service is very unlikely to travel further into the development.

The submission also considers rail transport as a future option given the Hamilton to Auckland passenger rail link that is expected in 2020. We note that the rail project has no plans to stop in Ohinewai.

6.4. Discussion

The recommendations relating to transport have not been incorporated into the planning provisions. While some of the road upgrades are captured by the proposed cross-sections, the timing and responsibility for the intersection and interchange upgrades has not been clearly identified in the planning provisions. We consider that certainty of what is proposed is needed in the form of additional planning provisions so that the triggers for infrastructure upgrades are clearly linked to development staging.

Further information is required to understand how the recommendations of the ITA will be implemented (by whom and when).

7. PROPOSED CROSS-SECTIONS (APL SUBMISSION ITA)

The proposal includes cross-sections for various road types and hierarchy. We have compared these to the most relevant cross-sections of NZS4404[15] (Table 3.2) and the Proposed Waikato District Plan (PDP) (Table 14.12.5.14 and Table 14.12.5.15).

7.1. Industrial Road Cross-Section

The ITA (Figure 5-4 and Table 5-2) includes description of primary and secondary industrial roads. We note that both have the same cross-section and it is unclear how they will reinforce the proposed speed environment (e.g. 40km/h vs 50km/h) and road hierarchy. It would be helpful if this was clarified.

We have compared the proposed cross-section to a local industrial road with 'suburban, make and move' land use. The proposed industrial local road cross-section generally complies with the PDP standard and NZS4404. The only non-compliance is a very small difference in the traffic lane widths. The overall width is wider than the PDP standard as wider shared paths are provided along with a swale.

While flush medians are not required by the PDP or NZS4404, there are advantages from including flush medians on industrial collector roads to better facilitate property access and minimise delays to following vehicles.

We note that vehicle crossing treatments (e.g. culverts/bridges) will be required to provide property access across the proposed swale.

[15] NZS4404:2010 Land Development and Subdivision

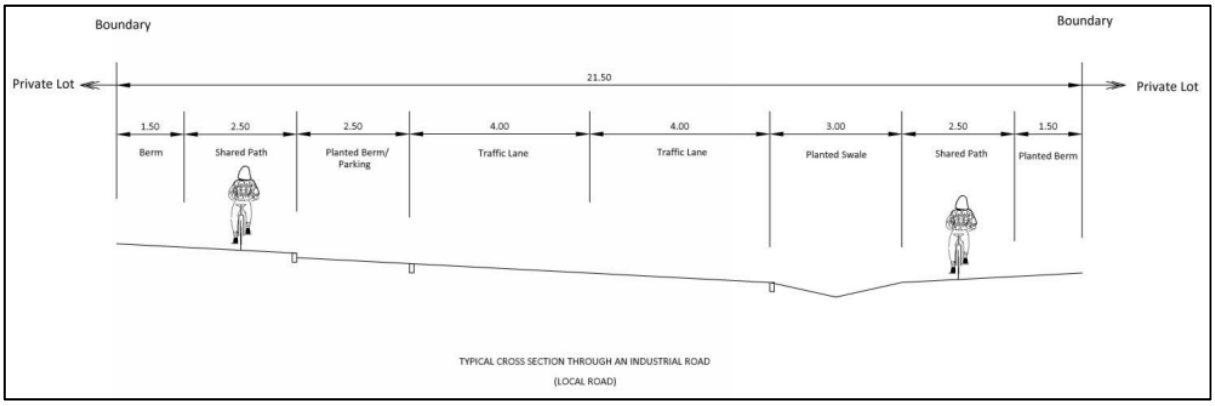


Figure 11: Proposed Industrial Road Cross-Section (both primary and secondary roads)

Road	Road Aspect	Proposed District Plan	NZS4404	Proposed	Complies with District Plan
Industrial Road	Reserve Width	20.0m	20.0m	21.5m	Yes
	Carriageway	9.0m	8.4m (2 x 4.2m lanes)	8m (2 x 4.0m lanes)	No – lanes up to 0.5m too narrow
	Planted Berm/Parking	Optional	Parking within movement lane or recessed	2.5m berm/parking (one side) 3m planted swale (one side)	Yes
	Pedestrians/ Cyclists	1.8m each side	1.5m each side	2.5m shared path both sides	Yes
	Berm	Subject to Specific Design	-	1.5m both sides	Yes

Table 4: Proposed Industrial Road Cross-Section Comparison

There are inconsistencies between the cross-sections provided in Appendix L and the Table 5-2, for example the cross-section shows planted berm/parking and the Table 5-2 states there is no parking provision. The ITA also states that the primary and secondary industrial roads do not comply with the parking provisions set out in Appendix A of the District Plan which states that parking should be provided on both sides of the road. The ITA proposes a rule that requires sufficient off-street parking to be provided in the adjacent industrial lots, however these are not reflected in the proposed planning provisions so it is unclear how this will be implemented.

7.2. Tahuna Road Cross-Sections

We have compared the proposed cross-section to a local industrial road with 'suburban, make and move' land use. Two cross-sections are proposed "rural" and "semi-rural" but the extents are not clearly defined in the ITA. We have assumed that the rural cross-section is where the ITA indicates a 100km/h speed limit.

We have compared the proposed "rural" cross-section to a road serving 'rural, make and move' land use, noting that this section is likely to remain an arterial (while NZS4404 only provides guidance for local and collector roads). For the proposed semi-rural road we have used the Arterial Road (Business and Industrial).

We note the proposed cross-sections for Tahuna Road are not included in the proposed planning provisions, so it is unclear how these will be implemented. If they are not included in the planning provisions, then the district -wide cross-sections would be relevant for Tahuna and Lumsden Roads.

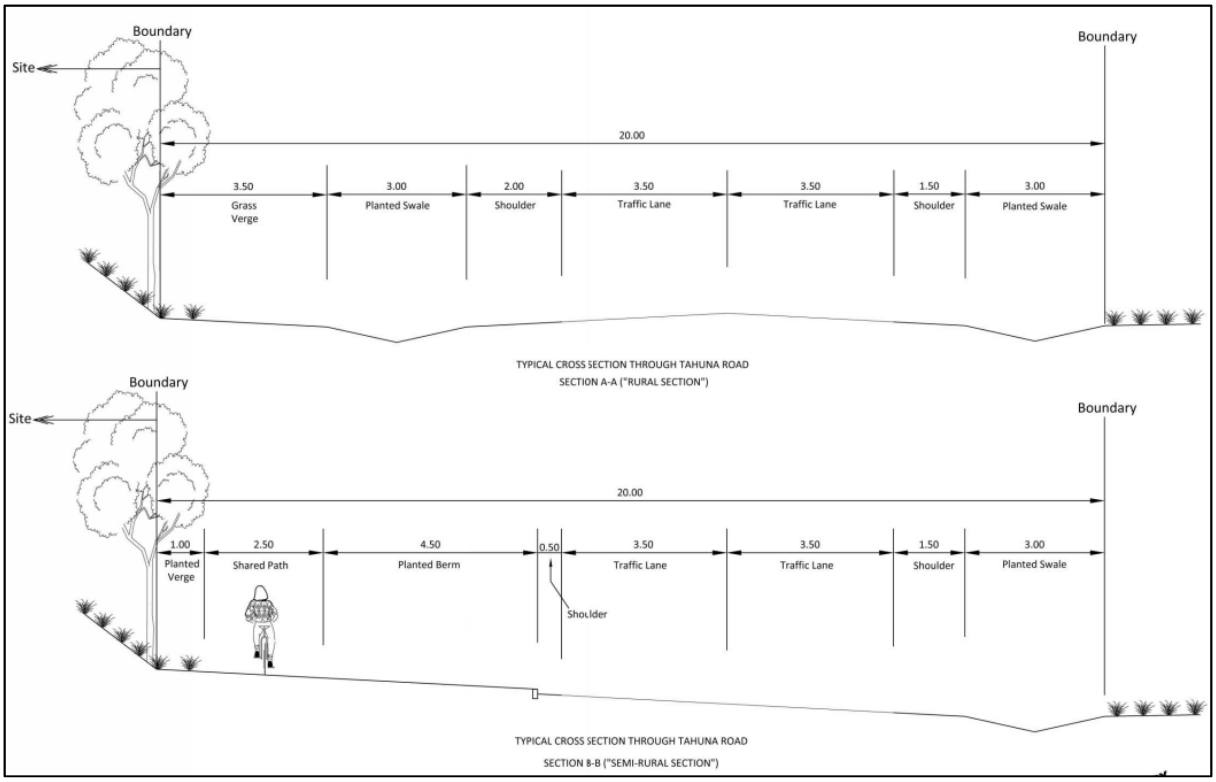


Figure 12: Proposed Tahuna Road Cross-Sections

Road	Road Aspect	Proposed District Plan	NZS4404	Proposed	Complies with District Plan
Tahuna Road - Rural	Reserve Width	20m	20.0m	20.0m	Yes
	Carriageway	7m	5.5m-5.7m movement lane	7.0m (2 x 3.5m lanes)	Yes
	Shoulder	1.5m sealed shoulders	1.5m total shoulder (1m sealed)	1.5m one side 2.0m one side	Yes
	Planted Swale	-	-	3.0m both sides	-
	Pedestrians/ Cyclists	Subject to Specific Design	1.5m each side	None	-
	Berm	Subject to Specific Design	-	3.5m one side	-

Table 5: Proposed Tahuna Road "Rural" Cross-Section Comparison

Road	Road Aspect	Proposed District Plan	NZS4404	Proposed	Complies with District Plan
Tahuna Road – Semi-Rural	Reserve Width	20m	20.0m	20.0m	Yes
	Carriageway	7m	5.5m-5.7m movement lane	7.0m (2 x 3.5m lanes)	Yes
	Shoulder	1.5m sealed shoulders	1.5m total shoulder (1m sealed)	1.5m one side 0.5m one side	No
	Planted Swale	-	-	3.0m one side	-
	Pedestrians/ Cyclists	Subject to Specific Design	1.5m each side	2.5m shared path one side	Semi-rural = Yes
	Berm	Subject to Specific Design	-	5.5m one side	-

Table 6: Proposed Tahuna Road "Semi-Rural" Cross-Section Comparison

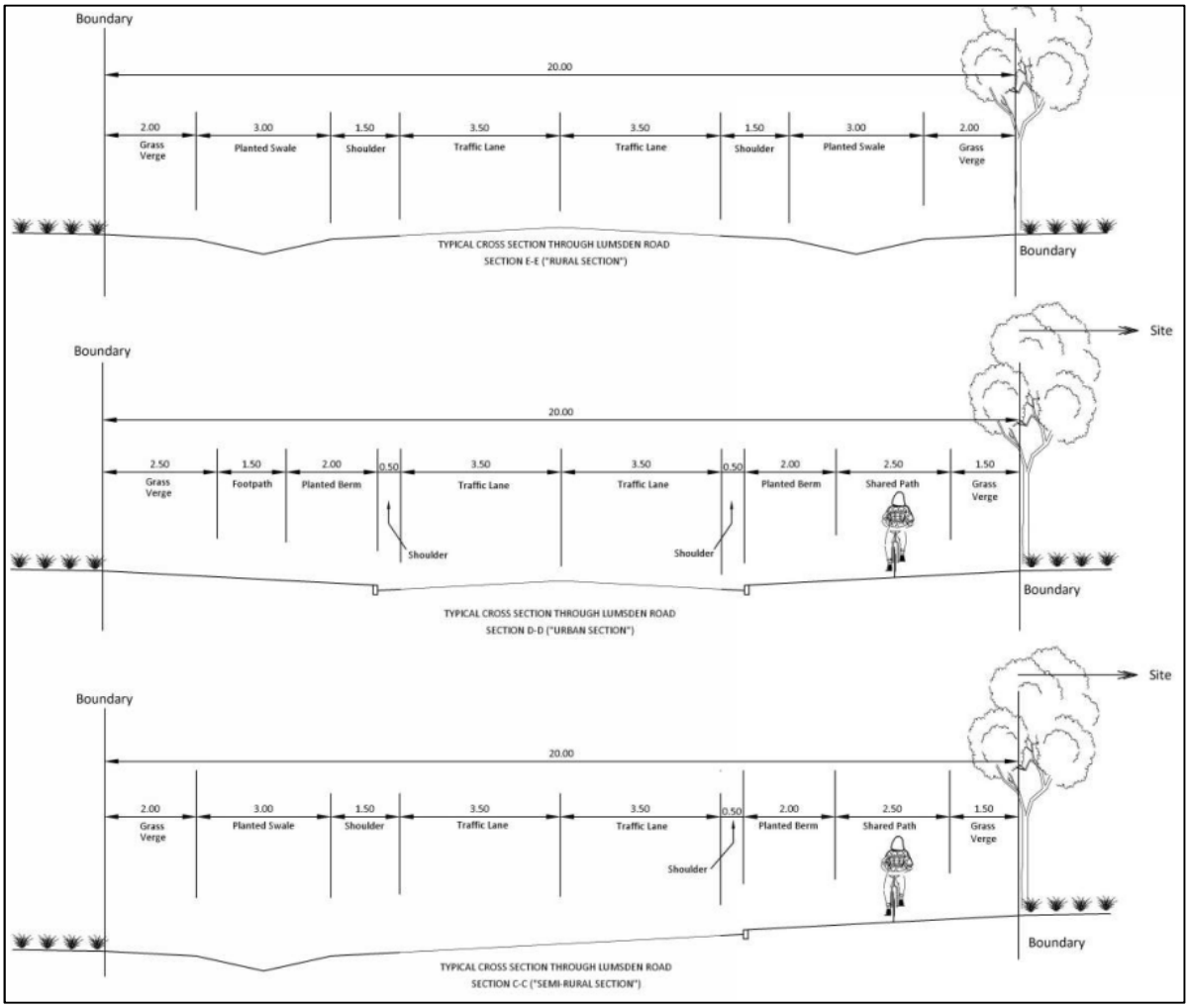
The rural cross-section complies with the PDP standard. We consider that this cross-section is only appropriate where there is no demand for walking or cycling. We consider that the semi-rural cross-section is more appropriate where there is residential land use leading to demand for walking or cycling.

The semi-rural cross-section generally complies with the PDP standard for a rural road. The urban arterial standard requires a 30m reserve width with 10m carriageway. The non-compliance is the reduced shoulder width, provided that the wide planted berm is retained, this appears acceptable.

If the OLL submission seeking that Policy 4.1.19 “an attractive interface to Tahuna Road with properties fronting the road” is accepted, these cross-sections should be reviewed and an appropriate urban arterial standard applied. For example, Tahuna Road would then look and feel like an urban arterial with direct property access for which the PDP requires a 30m reserve width and 10m carriageway plus on-street parking and footpaths. The revisions would need to specifically incorporate walking and cycling on both side of the roads and speed management.

7.3. Lumsden Road Cross-Sections

We note the proposed cross-sections for Lumsden Road are not included in the proposed planning provisions and that the extents are not clearly defined in the ITA.



Proposed Lumsden Road Cross-Sections

Road	Road Aspect	Proposed District Plan	NZS4404	Proposed	Complies with District Plan
Lumsden Road (Rural)	Reserve Width	20m	15m	20m	Yes
	Carriageway	6m	5.5m-5.7m movement lane	7m (2 x 3.5m lanes)	Yes
	Shoulder	-	1m total shoulder	1.5m both sides	Yes
	Planted Swale	-	-	3.0m both sides	Yes
	Shared Path	-	-	-	Yes
	Berm	Subject to Specific Design	-	2.0m grass verge both sides	Yes
Lumsden Road (Urban)	Reserve Width	20m	9m	20m	Yes
	Carriageway	6.0m	Industrial = 8m (2 x 4m) Housing = 5.5m-5.7m movement lane	7.0m (2 x 3.5m lanes)	Yes
	Shoulder/ Parking	1m each side (local) 2.5m each side (collector)	Parking and loading recessed or within movement lane	0.5m shoulder each side	No
	Planted Berm	-	-	2.0m both sides	Yes
	Pedestrians/ Cyclists	1.8m each side	1.5m each side	2.5m shared path 1.5m footpath	No – footpath 0.3m too narrow
	Berm	Subject to Specific Design	-	2.5m grass verge 1.5m grass verge	Yes
Lumsden Road (Semi-Rural)	Reserve Width	20m	20m	20m	Yes
	Carriageway	7m	5.5m-5.7m movement lane	7.0m (2 x 3.5m lanes)	Yes
	Shoulder	1.5m sealed shoulders	1.5m total shoulder (1m sealed)	0.5m shoulder and 1.5m shoulder	No – one side too narrow
	Planted Swale	-	-	3.0m one side	Yes
	Pedestrians/ Cyclists	Subject to Specific Design	1.5m each side	2.5m shared path one side	Yes
	Berm	Subject to Specific Design	-	2.0m berm 3.5m berm	-

Table 7: Proposed Lumsden Road Cross-Sections Comparison

The rural cross-section complies with the PDP standard. We consider that this cross-section is only appropriate where there is no demand for walking or cycling.

The urban cross-section generally complies with the PDP standard except for the lack of on-street parking. There is no provision for on-street parking. Based on our understanding of the proposal, no direct property access is proposed to Lumsden Road. This should reduce the demand for on-street parking from the proposed activities and demand for on-street parking from the existing residential activities should be low. There is a risk that no-stopping may need to be implemented if undesirable parking behaviour takes place in the future.

The semi-rural cross-section generally complies with the PDP standard for a rural road. The main non-compliance is the reduced shoulder width. Provided that the wide planted berm is retained, this appears acceptable. We note that some form of crossing facility, e.g. pedestrian cutdowns or refuge island will be required to provide connectivity between the shared path and the footpath on the western side of Lumsden Road.

7.4. Primary Residential (Collector) Road Cross-Sections

Two residential collector cross-sections are proposed – the only difference being the inclusion of a 3m wide central planted swale which reduces the berm from 2m to 1.5m. The proposed residential collector cross-sections comply with the PDP standard.

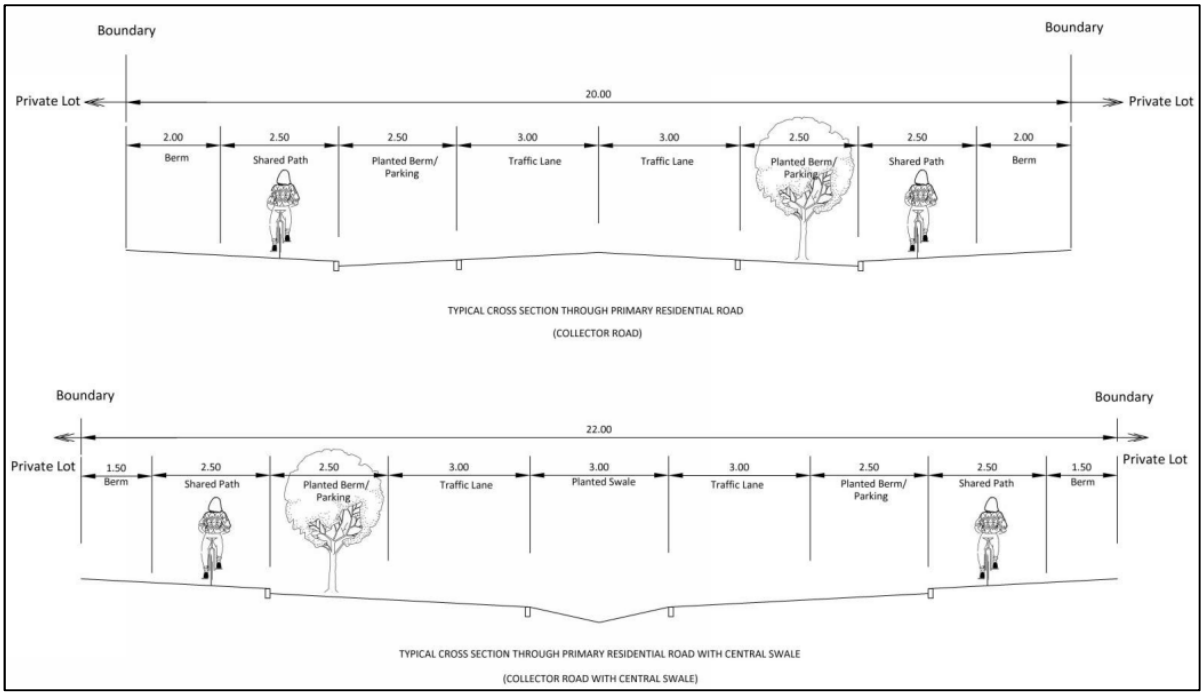


Figure 13: Proposed Primary Residential Road Cross-Sections

Road	Road Aspect	Proposed District Plan	NZS4404	Proposed	Complies with District Plan
Residential Collector Road	Reserve Width	22m	15m	20-22m	No – only where there is no swale
	Carriageway	6m	5.5m-5.7m movement lane	6m (2 x 3m lanes)	Yes
	Shoulder/ Parking	2.5m both sides	-	2.5m both sides	Yes
	Pedestrians/ Cyclists	1.8m both sides	-	2.5m both sides	Yes
	Berm	Subject to Specific Design	-	Without swale = 2m both sides With swale = 1.5m both sides	Yes

Table 8: Proposed Primary Residential Road Cross-Sections Comparison

7.5. Residential Cross-Sections – Secondary and Low Volume

We understand that these two cross-sections are intended to provide slow speed environments that serve residential properties. The current masterplan and road hierarchy (ITA, Figure 5-4) indicate that the low volume cross-section would be used for two cul-de-sacs each serving 22 stand-alone townhouses plus a number of apartments/ terrace units.

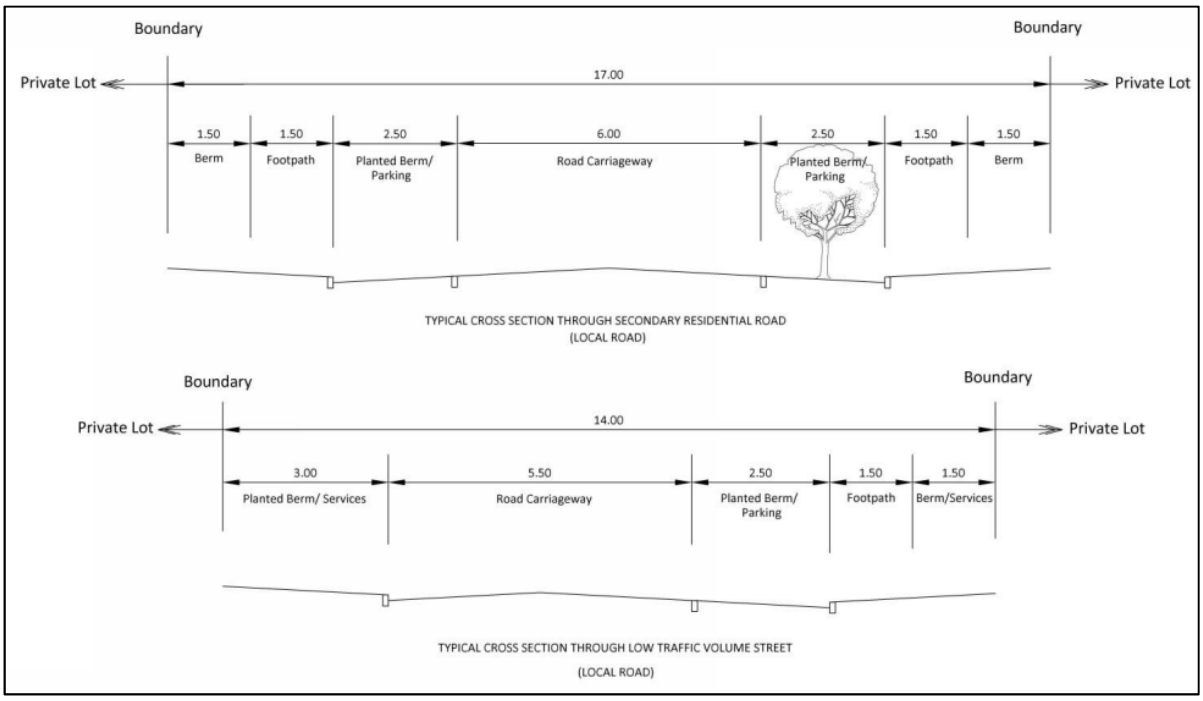


Figure 14: Proposed Residential Cross-Sections

Road	Road Aspect	Proposed District Plan	NZS4404	Proposed	Complies with District Plan
Residential Local Road	Reserve Width	20m	15m	17m	No
	Carriageway	6m	5.5m lane	6m	Yes
	Shoulder/ Parking	1m both sides (2.5m both sides where >100 lots)	Parking within movement lane or recessed	2.5m both sides	Yes
	Pedestrians/ Cyclists	1.8m both sides	1.5m both sides where >20 dwellings	1.5m both sides	No – 0.3m too narrow
	Berm	Subject to Specific Design	-	1.5m both sides	Yes
Residential Local Road Low Traffic	Reserve Width	20m	15m	14m	No
	Carriageway	6m	5.5m	5.5m	No – but meets NZS4404
	Shoulder/ Parking	1m both sides (2.5m both sides where >100 lots)	-	2.5m one side	No – parking required on both sides
	Pedestrians/ Cyclists	1.8m both sides	-	1.5m footpath one side	No – 0.3m too narrow
	Berm	Subject to Specific Design	-	3m one side 1.5m one side	Yes

Table 9: Proposed Residential Cross-Sections Comparison

The local residential road standard generally meets the PDP standard, but that the PDP implies that collector roads are required where there are more than 100 lots. However, the reduced road reserve width (17m vs 20m) results in narrower berms than anticipated by the PDP. However, recessed parking and footpaths are provided on both sides of the road. From recent work we have completed for Hamilton City Council (HCC), we understand that 1.5m berms are generally adequate to provide for the necessary underground services (water, power, telecommunications, etc).

The PDP (Table 4.12.5.14) provides a range of road widths for private access and access allotments serving up to 8 lots, with a single public road standard applying where there is >8 lots. This approach is different to NZS4404 which provides for:

- Private lanes serving up to 1 to 3 lots or 1 to 6 lots;
- Side or rear access lanes serving up to 20 lots;
- Lanes serving up to 20 lots; and
- Roads serving 1-200 lots.

The ITA states that the low volume cross-sections would serve up to 50 dwellings, but this not clearly stated in the proposed planning provisions and this threshold is inconsistent with NZS4404. We recommend that the proposed planning provisions are explicit in defining 'low volume' based on a maximum number of dwelling units to avoid uncertainty in the assessment of future subdivision applications. In our view, 20 lots is the preferred maximum number of lots on the low volume residential lane. This is consistent with NZS 4404.

We recommend that proposed cross-sections are revised to better align with NZS4404 as shown below. We also support the approach that Hamilton City Council (HCC) has taken in development of Plan Change 6 which provides two alternative arrangements for property access to 8-20 lots. HCC has concerns about the access for large vehicles (e.g. rubbish trucks), access to underground services and parking on narrow accesses and therefore prefers that public roads provide for parking and service berms on both sides. Where the access is private (e.g. through a unit title arrangement) maintenance and parking management are the responsibility of the body corporate.

Road Aspect	Low Volume: 8-20 lots (where access is to form common property under a unit title arrangement)	Low Volume: 8-20 lots (where access is to vest as road as part of a fee simple subdivision)	Local Road (>20 lots)	Primary Residential (Collector)
Operating Speed	10km/h	20-30km/h	30-40km/h	50km/h
Reserve Width	6m	15.5m	20m	With swale = 22m Without swale = 20m
Carriageway	5.5m	5.5m	5.5m	6m (2 x 3m lanes)
Shoulder/ Parking	None	2m recessed parking on both sides	2.5m recessed parking on both sides	2.5m both sides
Pedestrians	Shared zone	1.5m footpath both sides	1.5m footpath both sides	2.5m both sides
Cyclists	Shared zone	On-road within movement lane	On-road within movement lane	Shared path provided
Services Berm	Within carriageway	1.5m both sides	1.5m both sides	Without swale = 2m both sides With swale = 1.5m both sides

Table 10: Recommended Local and Low Volume Cross-Sections (with collector for completeness)

In summary, we are concerned that the proposed low volume cross-section is not directly linked to a maximum number of lots in the planning provisions and that the indicated maximum of 50 lots is too high. We are concerned that only providing parking on one-side of the road will lead to inappropriate parking behaviour resulting in damage to the berms or parked cars that prevent access for rubbish trucks or emergency vehicles. We recommend that proposed cross-sections are modified as indicated in the table above.

8. SPEED ENVIRONMENT (APL SUBMISSION ITA)

The ITA refers to the NZTA Speed Management Guide (2016) to identify future speed limits. We agree that this is the relevant reference for determining safe and appropriate speed limits. However, the Submitter (refer figure below) proposes 70km/h and 100km/h speed limits for Tahuna Road and 70km/h on Lumsden Road and Balemi Road. The Guide states that 70km/h and 90km/h speed limits are interim interventions, with 60km/h and 80km/h the preferred permanent speed limits.

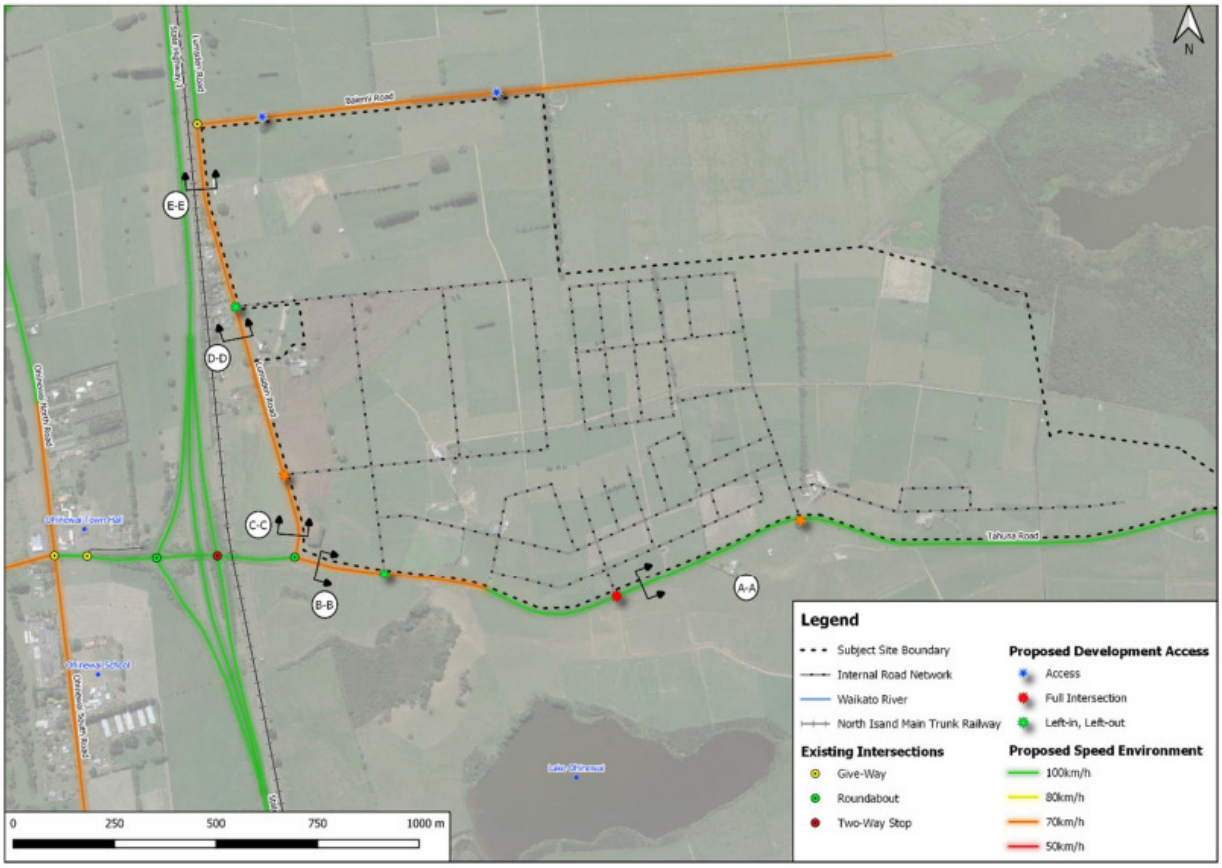


Figure 15: Submitter's Proposed Speed Environment

The NZTA Safer Journeys Risk Assessment Tool (also known as Megamaps) identifies the Safe and Appropriate Speed (SAAS) for the network, based on the existing land use as 80km/h on Tahuna Road and Lumsden Road, with 60km/h on Balemi Road.

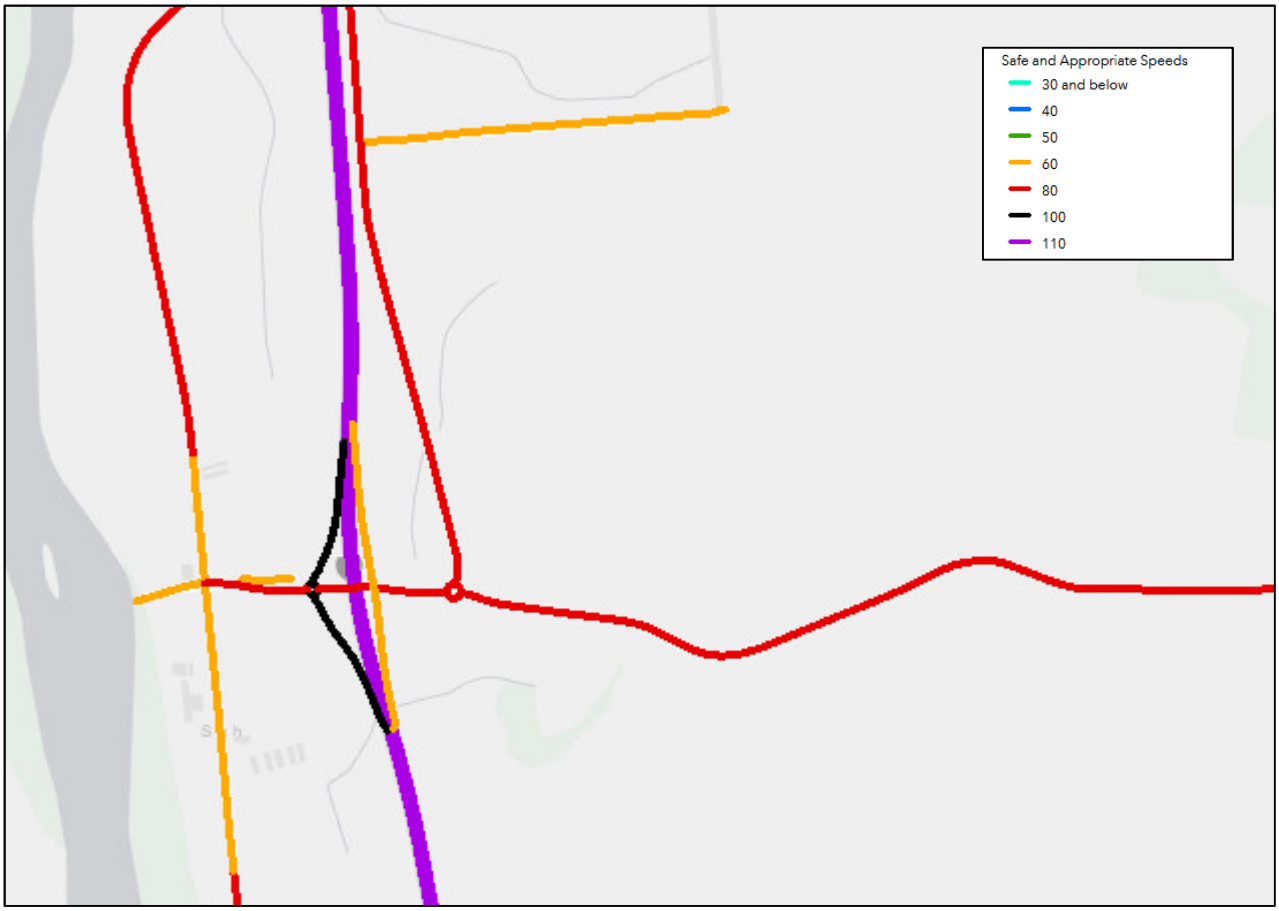


Figure 16: NZTA Safe and Appropriate Speeds (based on current land use)

We note that setting of speed limits currently requires Council to change the speed limits bylaw through a Local Government Act (LGA) process (not through a plan change or other RMA process). The future speed limit will be influenced by the proposed road cross-sections.

We recommend that all residential roads are designed for a 30km/h or 40km/h speed limit. Higher speed limits of 50km/h or 60km/h may be appropriate on the industrial collector roads. Design speeds are consistent with road function/hierarchy and supported by the proposed cross sections.

9. REVIEW OF PROPOSED PLAN PROVISIONS (APL SUBMISSION)

Apart from introduction of the Structure Plan and new typical cross-sections, no new transport provisions are proposed by APL. The ITA includes a number of recommendations relating to transport which have not be incorporated into the planning provisions. The recommendations broadly include:

- Road upgrades and speed limits;
- Intersection upgrades;
- Ohinewai interchange upgrades;
- Lumsden Road and rail siding;
- Walking and cycling infrastructure;
- Public transport; and
- Modelling reassessment.

While some of the road upgrades are captured by the proposed cross-sections, the timing and responsibility for the intersection and interchange upgrades has not been clearly identified in the planning provisions. We consider that additional planning provisions are required so that the triggers for infrastructure upgrades are clearly linked to development staging.

The proposal will alter the function of Lumsden Road within the structure plan area to a collector function rather than its current local road status. As noted in Section 6.6.3 above, we understand that direct property access is not proposed to Tahuna Road. Planning provisions need to cover this.

As discussed above, implementation of speed limits is through an LGA process, not an RMA process.

10. OTHER SUBMISSIONS

10.1. Submission 428: Ohinewai Lands Limited (OLL)

We have reviewed the original submission, further submission and AEE/s32AA Planning Report[16] provided by OLL. We understand that the submitter is not seeking rezoning of the land through this process, rather they are seeking that any changes do not preclude future development of their site. The site is approximately 39ha and could accommodate approximately 235 dwellings and approximately 16ha of open space.

We understand that the submitter is seeking the following changes:

- Changes to Objective 4.1.2, Policy 4.1.3 and a new Policy 4.1.19;
- Inclusion of the Structure Plan for Ohinewai; and
- Reference to the OLL site as a potential future growth area, addition of the Ohinewai Reserve and changes to the extent of APL's proposed residential area shown on their structure plan to align with OLL site and remove the buffer to Tahuna Road.

[16] Section 32AA Planning Report Proposed Waikato District Plan – Ohinewai (5 December 2019) prepared by Harrison Grierson

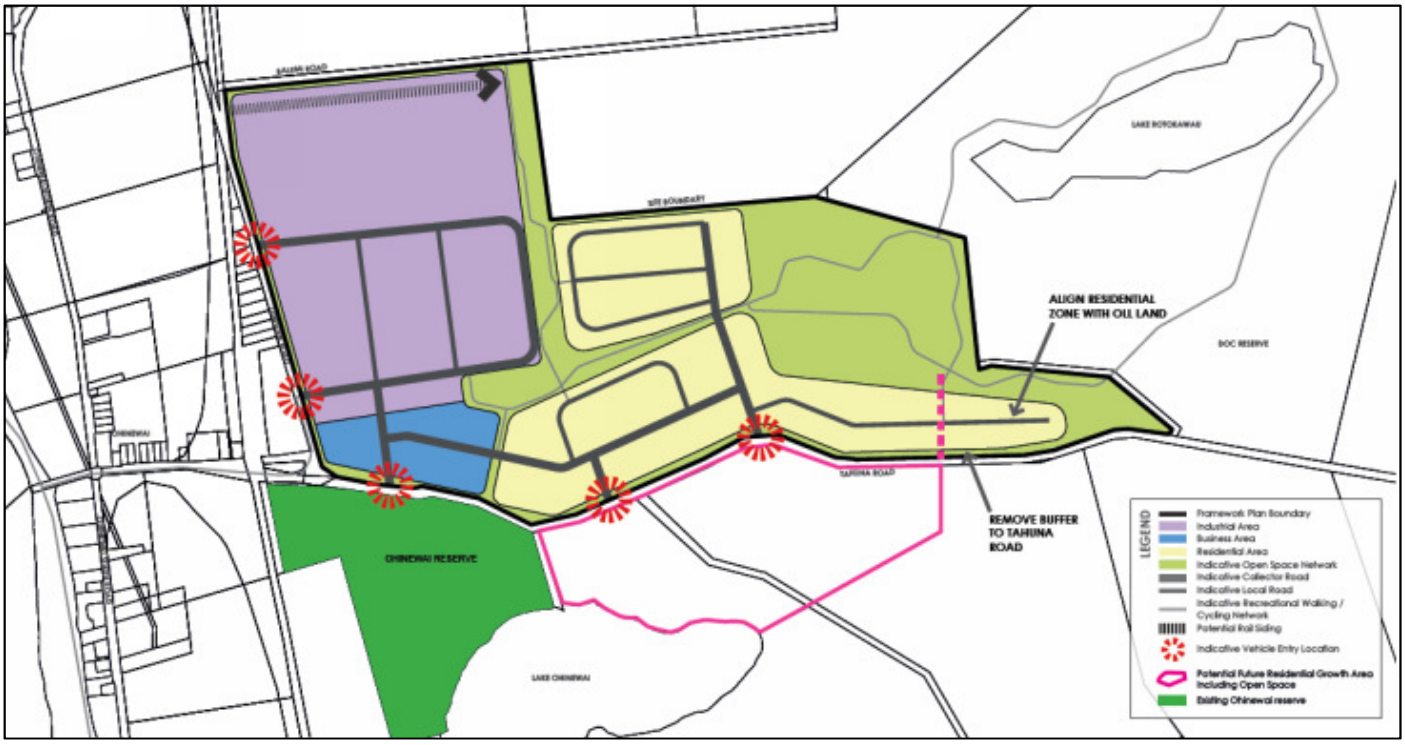


Figure 17: OLL's Proposed Changes to the Structure Plan

No transportation assessment has been provided. The s32AA Planning Report states that changes to the transportation infrastructure will be required including:

- Upgrades to provide safe pedestrian and cycle access across the Expressway and railway; and
- Upgrades of Tahuna Road to provide access for vehicles, pedestrians and cyclists to development on both side of Tahuna Road.

Further information is required to assess the transportation impact of identifying the site for future residential growth. Future residential development could generate 2,350veh/day (assuming 10veh/day/dwelling) which could result in adverse transportation safety and efficiency effects at the Waikato Expressway interchange and proposed intersections on Tahuna Road.

The typical cross-sections for Tahuna Road provided by APL identify it as "semi-rural" with walking and cycling only provided on the northern side of Tahuna Road.

While the APL submission seeks rear-facing lots with no direct property access to Tahuna Road, this submission seeks to remove the Tahuna Road buffer and appears to seek that residential lots along Tahuna Road have direct access to Tahuna Road. We are concerned about the relative timing of two developments and the potential for unsafe speeds and lack of appropriate transport infrastructure. There is no certainty that the OLL development will occur.

Without integrated land use and transport planning for this site, there is a risk that future development is not consistent with RPS Policy 6.15 which states *"…seek to achieve compact urban environments that support existing commercial centres, multi-modal transport options, and allow people to live, work and play within their local area."* The lack of employment opportunities is likely to increase travel by private vehicle increasing the use of the Waikato Expressway for short local trips, which is inconsistent with its function as a nationally significant transport corridor (refer RPS, Map 6-1 and RLTP 2018 Update, Map 1).

We understand that the submission does not seek rezoning of the site at this time, but are concerned that providing an overlay or other indicator of future development in the District Plan without understanding the effects on the transport network could lead to unexpected outcomes in the future. In

summary, there is insufficient information to understand the potential transport effects of residential activity at the OLL site.

10.2. Submissions relating to zoning of land west of SH1

Four submissions were received relating to the zoning of land primarily to the west of State Highway 1 (SH1) and not related to the proposed Ambury Properties Limited (APL) development. The sections below outline each submission and the potential adverse effects related to transport.

10.2.1. Submission 383: Planning Focus

This submission requests Industrial zoning of the identified properties, which includes the site of the APL proposal. No transport assessment was provided with the submission. Allowing this submission would result in fragmented industrial zoning making management of the transport effects more challenging.

Other than the proposed APL site, the properties include the southern half of the block between Tahuna Road and the end of Ohinewai South Road, which we estimate to be approximately 39ha. Approximately 11ha of the subject site is currently zoned Rural with the balance Country Living.

The potential trip generation from 39ha of industrial development will be significantly higher than the trip generation from rural or country living development occupying the same area. The PDP Chapter 20 Industrial Zone rules does not specify a maximum for building coverage in the Industrial Zone, so there is the potential for 100% site coverage.

As explained in Section 3.2.2 we expect about 20% of the site area to be used for roads and infrastructure, with 35-50% of the remaining site area to be occupied by GFA. Based on 39ha, we would expect GFA of 110,000-156,000m^2. Applying NZ published trip generation rates[17] a warehousing industrial land use activity could generate 1,600 vph during the peak hour and 3,700 vpd. Applying the typical employee density of Table 2.5 of the UNIILD report, the industrial land use could employ between 390 and 1,950 employees and generate between 140 and 1,000vph[18].

The subject site is located on Ohinewai South Road with access via Tahuna Road and the SH1 interchange ramps. This results in all industrial traffic passing through the adjacent Country Living zone, residential activities and past the Ohinewai School to access SH1. There is potential for adverse safety effects from mixing heavy traffic in an area with walking and cycling, especially school children. Mitigation would likely require extensive separated walking and cycling facilities, intersection treatments, low speed zones, and pedestrian and cycling crossing facilities. Upgrading Ohinewai South Road to an industrial road cross-section would be out of context with the adjacent rural and residential land uses.

We consider the existing Country Living/Rural zoning to be more compatible with the surrounding land zone due to the low adverse effects related to transport.

More information is required to understand the potential transport effects and infrastructure improvements required to manage traffic from the proposed industrial zoning. We are concerned that the potential effects on surrounding transport infrastructure from the rezoning have not been addressed.

10.2.2. Submission 738: Shand Properties Limited (SPL)

Shand Properties Limited owns approximately 141ha of land fronting Ohinewai North Road. Their submission requests the rezoning of 61ha from Rural Zone to Country Living Zone. The submission

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[17] NZTA Research Report 453 Land Use 4.1 Warehousing (1vph and 2.4 vpd) per 100 m^2 GFA and Land use 4.4 Manufacture (2.7 vph and 30 vpd) per 100 m^2 GFA.

[18] Institute of Transportation Engineers, Trip Generation Manual, 10th Edition (September 2017); Land Use 110 General Light Industrial 3.05 vpd/employee, 0.52 vph (AM) per employee, 0.49 vph (PM) per employee and Land Use 140 Manufacturing 2.47 vpd per employee, 0.37 vph (AM) per employee, 0.33 vph (PM) per employee

states: “the increase in traffic volumes would be modest and the level of service is not expected to deteriorate noticeably on the surrounding roads. The increase in risk is likely to be insignificant.”

A transport impact assessment (TIA) for the requested rezoning (Tonkin and Taylor, October 2018) is appended to the submission. The TIA is based on an estimated 100 dwellings, with daily trip generation estimated to be 1,000 vehicles, with 80 peak hour trips. The traffic assumptions in the TIA are reasonable for the early stage of the proposal.

The current traffic on Ohinewai North Road is 49 vpd[19] and the estimated change in trips on Ohinewai North Road is significant. However, the estimated increase in traffic is within the capacity of the existing road network. We have concerns about the lack of walking and cycling facilities and consider that these would need to be provided to support any development.

We note that the site is not located close to existing employment centres, secondary schools, medical services or public transport facilities. The development encourages car-centric lifestyle by requiring residents to travel at least 8km on the state highway network to access basic services. This is inconsistent with good transport planning and developing compact urban environments where people can “live, work, and play” as discussed above in our review of Submission 428. The proximity of SH1 means that effects on the local road network are minimised.

The TIA recognised the existing crash problem at the intersection of Tahuna Road and the SH1 southbound offramp. However, there was no suggestion that improvements may be necessary - the TIA suggested that the residents’ familiarity with the intersection would reduce the likelihood of crashes.

The TIA did not discuss potential safety issues at the intersection of Ohinewai North Road, Tahuna Road and Ohinewai South Road. We consider that an upgrade to a roundabout may be required to improve the safety for turning traffic and people walking and cycling. This is important as any assessment need to consider the cumulative effects from all submissions seeking rezoning of land west of SH1.

Most of the land on Ohinewai South Road is currently Country Living Zone and rezoning the subject site is consistent with that land use and would create a distinct enclave of country living.

Overall, we consider that adverse transport effects from the requested rezoning and development of a Country Living Zone are likely to be minor and would be able to be mitigated with appropriate infrastructure changes including facilities for walking and cycling. However, more information is required, including an assessment of the proposal against the relevant transport policy and an assessment to understand potential adverse transport effects. Trip generation of more than 100 vpd would trigger restricted discretionary consent (PDP Rule 14.12.1.4). The western interchange with the additional traffic would need to be considered at that time to confirm if upgrades are necessary. Based on the modelling that the APL ITA has completed, if the SPL subdivision occurs after the APL, it’s likely that upgrades would be required. Submission 793: Ohinewai Area Committee

The Ohinewai Area Committee’s submission requests the land at 10-18 Ohinewai North Road be rezoned from Business Zone to Residential Zone. The existing land use activity is residential. The committee explain the history of the block that these properties were originally part of prior to being subdivided.

The trip generation from a residential dwelling is lower than for a typical commercial development. Changing the zoning of these properties would not alter the existing traffic. There are unlikely to be any potential adverse effects relating to transport from the rezoning of these properties.

[19] mobileroad.org Estimate as at 23/01/2020

10.2.3. Submission 863: Ribbonwood Family Trust

This submission requests changing the zoning of 53 Ohinewai Road from Rural zone to Country Living zone.

Development of the subject site as Country Living would result in an increase in trips on Ohinewai South Road, Tahuna Road and the SH1 Ohinewai interchange ramps. We estimate the subject site to be approximately 3ha which could accommodate a maximum of 6 lots (at 5,000m^2 minimum lot size). The trip generation from an additional 6 dwellings is not considered significant and well within the capacity of the existing road network.

10.3. Summary of Assessment of Other Submissions

These submissions request changes to the land zoning that have the potential to significantly change the character of the Ohinewai area to the west of SH1. The various land zonings requested have differing transportation needs and transportation effects and more information is required to better understand the potential transport effects and infrastructure responses.

We consider the transportation effects of industrial zoning to be incompatible with most of the existing land zoning which is primarily Rural and Country Living along the Ohinewai School and a number of residential properties. Allowing industrial activities within the area has the potential for significant adverse transport safety effects on existing residents, school children and future residents of the Country Living zones.

If the entire area was Country Living zone all traffic would need to use the state highway for “local” trips to access basic services in Huntly or Te Kauwhata which is inconsistent with good transport planning and developing compact urban environments where people can “live, work, and play”. This is the most notable departure from the Policy direction of the District Plan and Regional Policy Statement. The potential adverse effects are likely to be limited to minor delays for vehicles using the ramps during peak traffic periods. Other potential adverse effects are likely to be minor and able to be mitigated with appropriate transport infrastructure changes.

It is likely that the cumulative effects of the wider area being zoned Country Living will require urbanisation of the Ohinewai North and South Roads, and an intersection upgrade (possibly a roundabout) at Tahuna Road. The transport effects of increased residential development need mitigation to safely provide for walking and cycling at intersections and provide walking and cycling connections across the state highway.

There is a lack overall coordination between the proposals (including between the western side proposals and the APL/OLL on the eastern side). The development of a comprehensive structure plan for the wider Ohinewai area would enable the effects to be better understood, and a comprehensive infrastructure and land use response developed. We recommend any rezoning of the Ohinewai area west of SH1, accessed from Ohinewai North and Ohinewai South Roads, be considered as a whole and that a Structure Plan (or similar planning mechanism) be developed to guide land use and development. The Structure Plan would need to identify the appropriate transport infrastructure to service the proposed land use.

11. PLANNING POLICY PROVISIONS IN RELATION TO TRANSPORT

The APL site is within land that has not been identified for development other than rural use. Ohinewai is not identified as a growth area and urbanisation and employment in this area does not support the Future Proof Strategy. From a transportation planning perspective, the site is not located conveniently to existing services, being more than 7km from Huntly, the nearest service town. The site is located with direct access to an arterial corridor (Tahuna Road) and good connections to the SH1 via the Ohinewai interchange. However, the lack of alternatives for travel is likely to result in a high proportion of travel by private vehicle. Ohinewai School is located on the western side of the SH1, opposite to the site and there are no existing walking and cycling links between the eastern and western sides. The submission includes a residential zone and APL expects to develop the residential area within years 1-3.

The proposed internal layout of the development is generally consistent with the PDP objectives and standards. However, the proposal is not located within an identified future growth area and the challenges relate to connections to the existing Ohinewai village across the SH1 and the NIMT. The proposal falls short with regard to supporting multi-modal connections to the wider area beyond the APL structure plan area. Providing a level crossing on Lumsden Road is not consistent with PDP Policy 6.4.4 and Policy 6.5.2.

Ohinewai is not identified as a growth area and urbanisation and employment in this area does not support the Future Proof Strategy (as identified in the further submissions by NZTA and Future Proof).

The proposal does not align with RPS Policy 6.14 Adopting Future Proof land use pattern because industrial and commercial development is not anticipated by Future Proof. The lack of services in Ohinewai and the limited public transport is likely to result in reliance on private vehicles which is contrary to Policy 6.1 Planned and co-ordinated subdivision, use and development. There is also a lack of coordination between the wider Ohinewai rezoning requests. The proposals are not consistent with RPS Policy 6.3 relating to co-ordination of growth and infrastructure are the proposed planning provisions do not set out the triggers and timing for infrastructure upgrades. If there is considered to be merit in developing a new urban area in Ohinewai then comprehensive structure planning relating to all submissions would be needed to ensure appropriate transport infrastructure responses are allowed for.

In summary, the APL proposal does not align with the policies of the RPS relating to transport (e.g. Policies 6.1.6.3, 6.14, 6.15 and 6.16) as Ohinewai is not identified as a growth area by Future Proof, the proposal is not coordinated with other submission and triggers for infrastructure upgrades are not included in the planning provisions.

However if the rezoning were accepted, the plan provisions that have been proposed by APL are not sufficient in their current form. A staging plan or schedule of land release and required infrastructure upgrades is needed. Further information and agreement between the parties (including Kiwirail, Council and NZTA) is needed.

The industrial zone sought on the western side of SH1 by Planning Focus does not support the Future Proof Strategy and is inconsistent with the PDP Policy 6.4.4 as it introduces traffic to an existing rural and residential environment (and the Ohinewai School frontage) with no infrastructure upgrades.

Attachment 1 includes a more detailed assessment of the proposal against transport policy provisions, including:

- National – Government Policy Statement;
- Regional – Regional Policy Statement, Passenger Transport Plan; and
- Local – Proposed District Plan.

12. CONCLUSIONS

12.1. Overall Conclusion

Ohinewai is not identified as a growth area and urbanisation and employment in this area does not support the Future Proof Strategy (as identified in the further submissions by NZTA and Future Proof). It is not located conveniently to existing services (schools, health, supermarket etc) being more than 7km to Huntly and the lack of alternatives for travel is likely to result in a high proportion of travel by private vehicle The lack of services in Ohinewai and the limited public transport is likely to result in reliance on private vehicles which is contrary to Policy 6.1 Planned and co-ordinated subdivision, use and development. There is also a lack of coordination between the wider Ohinewai rezoning requests.

However, if it is considered to be merit in developing a new urban area in Ohinewai then comprehensive structure planning would be needed to ensure appropriate infrastructure responses are allowed for. There is a lack of co-ordination and tensions between the land use submissions and the development of a comprehensive structure plan would guide land use and infrastructure responses within the wider Ohinewai area. There is insufficient information to properly understand the potential cumulative effects of the rezoning requests.

The plan provisions proposed are not sufficient in their current form. If the APL rezoning is accepted, further information and agreement between the parties is needed to confirm the appropriate infrastructure responses. A staging plan or land use schedule and corresponding infrastructure requirements/upgrades should be developed. While the ITA includes recommendations these are not reflected in planning provisions. We consider that the potential trip generation could be significantly more than the APL assessment as the rezoning would allow a range of land uses in the industrial and business zones. The consequence of additional traffic is the likely to result in the need for infrastructure upgrades earlier than the ITA expects.

The industrial zone sought on the western side of SH1 by Planning Focus does not support the Future Proof Strategy and is inconsistent with the PDP Policy 6.4.4 as it introduces traffic to an existing rural and residential environment (and the Ohinewai School frontage) with no infrastructure upgrades. . We do not support industrial zoning on the western side of SH1, rather broadly support country living and rural land uses subject to appropriate infrastructure upgrades. These upgrades are likely to include urbanisation of Ohinewai North and South Roads, provision of walking and cycling connections and upgrade of the Tahuna Road/Ohinewai South/Ohinewai North Road intersection. 100vpd is the threshold for permitted subdivision in CLZ under Rule 14.12.1.4 of the PDP (10 dwellings) and is expected to be triggered by the subdivision in the SPL site. Industrial land use of up to 250 vpd is a permitted activity in the PDP (Rule 14.12.1.4).

12.2. APL Submission

In general, the proposed internal layout of the APL proposal is generally consistent with local policy and design guidelines as it provides connected neighbourhoods with multi-modal links. However, the APL proposal appears contrary to the objectives of consolidation (RPS Policies 6.14, 6.16). We are concerned that providing a level crossing on Lumsden Road is not consistent with PDP Policies 6.4.4 and 6.5.2.

12.3. Trip Generation

The ITA expects 1,100 vph during the AM peak and 1,700 vph during the PM peak on the external network, after trip adjustment factors have been applied. The total trip generation before the trip adjustment factors are applied is 2,136 vph (AM) and 2,899 vph (PM). The assessment (1,100 vph AM and 1,700 vph PM) is around half of the total trip generation. We are concerned this underestimates the number of trips on the external network. The ITA assumes 80% of freight trips from the industrial area will removed from the road network, traveling by rail. There is no evidence to support this assumption.

We consider that the potential trip generation of the rezoning request is likely to be significantly more than the submitter's assessment since the proposed zoning allows for a wide range of industrial and business activities and due to the location, there will be the need for car trips to access services (e.g. in Huntly, Te Kauwhata and further). If the proposed rail siding does not go ahead, or other industrial activities are established, there is the potential for more truck trips than the ITA expects.

12.4. Traffic Modelling

The ITA presents a number of scenarios including sensitivity testing scenarios and Sidra modelling outputs. The modelled scenarios are based on combinations of infrastructure upgrades for current (2019) and future (2031) without and with the proposed development trips. External trip assignment is assumed to be 35% north, 60% south, 5% east.

The sensitivity tests are combinations of trip adjustment factors (to alter the number of trips on the external network) and different trip distribution assignments.

The Waikato Regional Transportation Model (WRTM) has not been used because the WRTM 2031 and 2041 models are still being validated. To fully understand the implications from the modelling and the triggers for infrastructure upgrades, further information is required. It is recommended that the WRTM is used for the future traffic scenarios.

Consultation with NZTA is required to ensure they are comfortable with the basis of the assessment and potential for adverse effects on the SH1 Waikato Expressway.

12.5. Proposed Changes to the Network

The ITA discusses a range of upgrades to the network. Rules and triggers for the proposed upgrades are not included in the planning provisions so it is unclear how these would be implemented. In general, we consider that the potential safety impacts of the proposed changes have not adequately been assessed and additional information is required.

There is an existing safety deficiency due to restricted visibility at the Waikato Expressway (SH1) southbound off-ramp Stop intersection. The proposal increases traffic using this intersection but the ITA does not propose mitigation addressing this visibility issue. Due to the constraints (embankment, proximity of bridges) and land ownership this is a complex issue likely to require structural and geotechnical design. We are not aware of NZTA's preferred solution.

More information is required on triggers, timing of infrastructure upgrades and funding to support the increase in traffic. Approval from Kiwirail of the proposed conceptual design of the level crossing is needed given that this a key feature of the proposal. We recommend that a safety audit of the proposed level crossing and realignment of Lumsden Road is completed now to confirm the design is safe and acceptable to Kiwirail and Council.

Broadly, the proposed upgrades to the existing network include:

- upgrading Tahuna and Lumsden Road cross-sections including provision of footpath and shared path for pedestrians and cyclists. Speed limit changes are expected. A number of cross-sections (rural, semi-rural, urban) are provided in the ITA but these are not included in the proposed planning provisions nor is the timing or triggers for when the improvements would occur.
- a key feature of the proposal is freight travelling by rail and a level crossing on Lumsden Road is required to accommodate a rail siding. The proposal includes a realignment of Lumsden Road introducing an S-bend curve . We are concerned that the design introduces out of context curves. Approval of the level crossing from Kiwirail is needed.
- additional lanes on two approaches to the existing Tahuna Road/Lumsden Road roundabout. This results in dual circulating lanes for part of the roundabout. In our experience, lane

assignment in roundabouts with both single and dual lane approaches can be challenging to design and can be confusing for drivers. Further consideration of the capacity, safety and appropriateness of the additional lanes is needed.

- improvements at the SH1 southbound off-ramp intersection with Tahuna Road. The current intersection has stop control on the off-ramp and there is an apparent safety issue with a number of crashes involving vehicles not stopping or not seeing the end of the off-ramp. The safety of the proposed improvements has not been adequately considered.
- provision of walking and cycling connections. The ITA discusses options for connections to Ohinewai School and Huntly but lacks certainty and details of what is proposed and when it will be implemented.

The surrounding area is rural in nature and the location of the proposal means that travel outside of the development area will rely on private vehicle. The provision of walking and cycling facilities connecting to the wider network (Ohinewai west and Ohinewai School) and service centres (e.g. Huntly) is needed to reduce reliance on cars.

12.6. Proposed Access to the APL Development Area

Proposed access is:

- Three new intersections with Tahuna Road;
- Two new intersections with Lumsden Road; and
- Two new commercial vehicle crossings to Balemi Road.

Conceptual layouts have been provided for one roundabout and four T-intersections. Two of the T-intersections (Lumsden Road, Access 5 and Tahuna Road Access 1) are described as left in, left out only. Only the conceptual layout for Access 1 (Tahuna Road) includes a solid median so it is unclear how left in, left out would be enforced at Access 5.

Roundabout intersections are safer than priority T-intersections and also assist in managing speeds. We are concerned that the intersection forms have not adequately been assessed for safety. We do not support the proposed rural T intersection (access 3) and consider that further assessment of Accesses 1 and 4 is needed to understand how circulation inside the development is anticipated and confirm that the intersection forms can safely accommodate the traffic. More information is required to understand the suitability of the proposed intersection forms, staging of the development and timing of when the intersections will be constructed including trip assignment The triggers for infrastructure improvements should be reflected in the planning provisions.

12.7. Internal Layout

The proposed layout includes a road hierarchy with connections for walking and cycling within the internal development between employment, residential and recreational (open space) areas. The planning provisions include a number of road cross-sections depending on function of internal road. In broad terms, we consider that the internal layout is appropriate. However minor modifications to some of the details of the cross-sections and inclusion of a rule in the planning provisions providing maximum lot numbers for the residential road cross-sections is needed.

No direct property access is proposed to Tahuna or Lumsden Roads. We support this approach. A rule in the planning provisions should be included to cover this. This would be appropriate to apply to the OLL site if it were to be rezoned (i.e. property access from within the development).

12.8. Walking, Cycling and Public Transport

The internal layout provides a network of walking and cycling paths. Shared paths are included as part of the proposed upgrades of Lumsden and Tahuna Roads.

The proposal recognises bus travel and the internal layout includes for a bus stop. We support this and consider that adequate space in the road reserve should be protected. The current WRC bus stop is on the western side of SH1. The WRC has no plans to extend their current service to include a stop on the eastern side. There are no existing facilities for pedestrians or cyclists along Tahuna Road and due to the overbridges (NIMT and SH1) there is no berm space.

A range of options for walking and cycling connections to the wider area are proposed in the ITA, but it is unclear which option will be developed and there is nothing required by the planning provisions or identified on the structure plan. Without adequate provision and connection to Ohinewai west and south to Huntly, the proposal is likely to result in a high proportion of private vehicle travel outside of the immediate development.

12.9. Other Submissions

Overall, we consider that a comprehensive structure plan is needed to cover the wider Ohinewai area so that the transport effects of the rezoning is considered in an integrated way. We are concerned there is no comprehensive plan that identifies the transport infrastructure upgrades and staging or mechanism for triggering the infrastructure upgrades. There is a lack of co-ordination between the six submissions for different land uses. In general, we do not support industrial zoning on the western side of SH1 and consider that country living is more consistent with the existing land use activities and most of the rezoning requests.

Further information is sought on the OLL submission to understand the potential transport effects of residential activity. There is no certainty that OLL development will occur. We are concerned about the relative timing of the APL and OLL developments and the potential for unsafe speeds and lack of appropriate transport infrastructure, especially facilities for walking and cycling

APPENDICES

Appendix A: Transport Planning Policy Assessment

National

There is no National Policy Statement on Transport. The Government Policy Statement on Land Transport (GPS) 2018/2019 has the following key strategic policies related to safety and access:

- safe system free of death and serious injury
- provides increased access to economic and social opportunities
- enables transport choice and access
- is resilient

Supporting policies relate to the environment and value for money.
Apart from being within an area that has not previously been identified as a growth area, the proposed APL plan change is generally consistent with the GPS, as it:

- Provides access to key strategic corridors (WEx – SH1 and Tahuna Road).
- Provides a rail connection to the NIMT to allow freight travel by rail.
- Includes provision for walking, cycling and public transport within the development area, although more detail and certainty is required on facilities linking to Ohinewai east, including road crossings. However, there is no detail on the walking and cycling connection to Huntly which is likely to result in a high proportion of private vehicle travel to/from Huntly.
- Includes a mix of employment, business and residential areas, including community and recreational facilities, providing opportunity for non-car transport. We note that secondary schooling is provided at Huntly and Te Kauwhata.
- Provides more than one link to the network, supporting resilience.

The draft GPS 2021/24 is expected to be released for consultation by the Ministry of Transport in mid-March 2020.

Regional

The Waikato Regional Policy Statement has a strong focus on integrated management, including the integrated relationship between land use and development, and the transport infrastructure network[20].
Overall there is a lack of co-ordination between the six submissions for different land uses. We are concerned there is no comprehensive structure plan that identifies the transport infrastructure upgrades and staging. The proposed rezoning is inconsistent with the Future Proof Strategy and there is an increased risk that travel to service centres will rely on private vehicles.

Objective/Policy	Extract	Comment/relevance

[20] Issue 1.4 (i)

Objective/Policy	Extract	Comment/relevance
Policy 3.12 Objectives for development of the built environment	3.12 c) integrating land use and infrastructure planning, including by ensuring that development of the built environment does not compromise the safe, efficient and effective operation of infrastructure corridors; e) include recognising and protecting the value and long-term benefits of regionally significant infrastructure.	Provides internal road layout and hierarchy of cross section standards including access to Tahuna Road which links to strategically significant corridors (State Highway 1 – WEx). Tahuna Road is a significant road corridor in the WRPS.

Objective/Policy	Extract	Comment/relevance
Policy 6.1 Planned and co-ordinated subdivision, use and development	Information requirement: 6.1.8 (b) the location, type, scale, funding and staging of infrastructure required to service the area (c) multi-modal transport links and connectivity, both within the area of new urban development, and to neighbouring areas and existing transport infrastructure; and how the safe and efficient functioning of existing and planned transport and other regionally significant infrastructure will be protected and enhanced.	Overall there is a lack of co-ordination between the six submissions for different land uses. We are concerned there is no comprehensive structure plan that identifies the transport infrastructure upgrades and staging. b) Provides some of these details relating to transport infrastructure, further information including triggers, funding responsibility, are required to support increase in traffic. c) Provides walking / cycling infrastructure within the development area, but lacks external connectivity to Huntly. Surrounding area is still relatively rural in nature and therefore development unlikely to support multi-modal links to external areas – therefore reliance on private car in the short-medium term (potentially long-term). Proposal considers public transport and provides for bus stop within the development area. However WRC have no plans to extend the service, increasing the risk that travel will rely on private vehicles. Walking and cycling link needed across the WEx and NIMT to Ohinewai where the school is located. The preferred option is not confirmed. Link should accommodate pedestrians accessing the current WRC bus stop on the western side.

Objective/Policy	Extract	Comment/relevance
Policy 6.3 Co-ordinating growth and infrastructure	Management of the built environment ensures: a) the nature, timing and sequencing of new development is co-ordinated with the development, funding, implementation and operation of transport and other infrastructure, in order to: i) optimise the efficient and affordable provision of both the development and the infrastructure; ii) maintain or enhance the operational effectiveness, viability and safety of existing and planned infrastructure; iii) protect investment in existing infrastructure; and iv) ensure new development does not occur until provision for appropriate infrastructure necessary to service the development is in place;	Overall there is a lack of co-ordination between the six submissions for different land uses. We are concerned there is no comprehensive structure plan that identifies the transport infrastructure upgrades and staging. (iv) the APL ITA suggests that infrastructure should be in place to service the development but not anchored in planning provisions. The proposal supports changes to the road infrastructure and allows for walking and passenger transport facilities, however other modes are not currently well serviced in the area. More information required on triggers, timing of infrastructure upgrades and funding to support increase in traffic. Desirable for wider structure plan considering all submissions.

Objective/Policy	Extract	Comment/relevance
6.3.1 Plan provisions	Regional and district plans shall include provisions that provide for a long-term strategic approach to the integration of land use and infrastructure and that give effect to Policy 6.3, including by ensuring as appropriate that: a) roading patterns and design support the use of public transport; b) walking and cycling facilities are integrated with developments; c) the different transport modes are well connected; d) industry is located where there is good access to strategic transport networks and road, rail or freight hubs; e) development maintains and enhances the safe efficient and effective use of existing infrastructure and can be integrated with future infrastructure needs where these can be determined; f) development does not add to existing road safety risks and where possible should reduce such risks; g) development does not unnecessarily prevent likely network infrastructure improvements and upgrades; h) development patterns support the use of rail or sea for freight movement; provisions support the travel demand management components of the Regional land Transport Plan; j) development recognises the transport hierarchy and manages effects on the function of transport infrastructure.	Contrary to policy as the recommendations from the APL ITA are not anchored in the proposed planning provisions. Industrial activity includes a direct connection for rail freight to the NIMT and the location has good access to WEx, however multi-modal networks are not well connected to other areas, and rural nature of surrounding land may limit attractiveness of walking and cycling. Certainty of the connection for walking and cycling between the existing Ohinewai village on the west and the proposal on the east of the WEx is necessary. There appears to be an existing safety issue at the southbound off-ramp intersection (stop control) and further consideration is needed to ensure the intersection can safely accommodate the increase in traffic.
Policy 6.6 Significant infrastructure and energy resources	Management of the built environment ensures particular regard is given to: a) that the effectiveness and efficiency of existing and planned regionally significant infrastructure is protected	Potential risk to effectiveness and efficiency of SH1 interchange as the APL assessment may underestimate the trip generation.

Objective/Policy	Extract	Comment/relevance
6.6.1 Plan provisions	Regional and district plans shall include provisions that give effect to Policy 6.6, and in particular, that management of the built environment: a) avoids, as far as practicable, adverse effects on the function of significant transport corridors as defined in Maps 6.1 and 6.1A (section 6B), and otherwise remedies or mitigates any adverse effects that cannot be practicably be avoided; b) avoids, as far as practicable, the adverse effects of ribbon development along the defined significant transport corridors, and otherwise remedies or mitigates any adverse effects that cannot practicably be avoided; c) avoids as far as practicable, the need for additional access points onto the defined significant transport corridors, and otherwise remedies or mitigates the adverse effects of any additional access points that cannot practicably be avoided; d) avoids as far as is practicable, the exacerbation of community severance caused by defined significant transport corridors, and otherwise remedies or mitigates the adverse effects of any exacerbated community severance that cannot practicably be avoided;	Industrial development is not anticipated in Ohinewai by Future Proof. Infrastructure upgrades are required to accommodate the increase in traffic proposed but not included in planning provisions. Additional information is required.
Policy 6.14 Adopting Future Proof land use pattern	Within the Future Proof area: f) new industrial development outside the strategic industrial nodes must avoid, remedy or mitigate adverse effects on the arterial function of the road network, and on other infrastructure	Industrial development is not anticipated in Ohinewai by Future Proof. Infrastructure upgrades are required to accommodate the increase in traffic proposed but not included in planning provisions. Additional information is required.

Objective/Policy	Extract	Comment/relevance
6.14.3 Criteria for alternative land release	District plans and structure plans can only consider an alternative residential or industrial land release, or an alternative timing of that land release, than that indicated in Tables 6-1 and 6-2 in section 6D provided that: a) to do so will maintain or enhance the safe and efficient function of existing or planned infrastructure when compared to the release provided for within Tables 6-1 and 6-2; b) the total allocation identified in Table 6-2 for any one strategic industrial node should generally not be exceeded or an alternative timing of industrial land release allowed, unless justified through robust and comprehensive evidence (including but not limited to, planning, economic and infrastructural/servicing evidence); c) sufficient zoned land within the greenfield area or industrial node is available or could be made available in a timely and affordable manner; and making the land available will maintain the benefits of regionally significant committed infrastructure investments made to support other greenfield areas or industrial nodes; and d) the effects of the change are consistent with the development principles set out in Section 6A.	More information required on triggers, details and timing of infrastructure upgrades to support additional traffic and ensure the safe and efficient function of transport infrastructure.

Objective/Policy	Extract	Comment/relevance
6A Development principles	General development principles New development should: d) not compromise the safe, efficient and effective operation and use of existing and planned infrastructure, including transport infrastructure, and should allow for future infrastructure needs, including maintenance and upgrading, where these can be anticipated; e) connect well with existing and planned development and infrastructure; i) promote compact urban form, design and location to: i) minimise energy and carbon use; ii) minimise the need for private motor vehicle use; iii) maximise opportunities to support and take advantage of public transport in particular by encouraging employment activities in locations that are or can in the future be served efficiently by public transport; iv) encourage walking, cycling and multi-modal transport connections; …	d) More information required on triggers, timing of infrastructure upgrades to support additional traffic and ensure safe facilities. e) located with direct links to arterial network i) the internal layout provides well for multi-modal transport with shared paths and provides for a bus stop within the development area. However WRC have no plans to extend the service, increasing the risk that travel will rely on private vehicles. iv) The development will mean increased traffic on the network to access services provided in the surrounding centres (Huntly and Te Kauwhata).The location in Ohinewai East is not well connected to the Ohinewai West community due to the NIMT and WEx overbridges. Link needed across the WEx and NIMT to Ohinewai East where the school is located.Link should accommodate pedestrians accessing the current WRC bus stop on the western side of SH1.
Policy 6.15 Density targets for Future Proof area	…" seek to achieve compact urban environments that support existing commercial centres, multi-modal transport options, and allow people to live, work and play within their local area." Greenfield development in Waikato District rural villages where sewerage is reticulated targets 8 – 10 households per hectare	Inconsistent as the location is not recognised by Future Proof or other strategies as a growth area. New residential, industrial and commercial area may reduce demand in other growth areas that are expected by Future Proof. Residential development proposed is much denser than 8-10 households per hectare.

Objective/Policy	Extract	Comment/relevance
Policy 6.16 Commercial development in the Future Proof area	b) support and sustain existing physical resources, and ensure the continuing ability to make efficient use of, and undertake long-term planning and management for the transport network, and other public and private infrastructure resources including community facilities;	Commercial development in this area is not anticipated by Future Proof. Te Kauwhata and Huntly are recognised as town centres. The development will mean increased traffic on the network to access services provided in the surrounding centres (eg. Secondary school).
6A Development principles	New development should: a) support existing urban areas in preference to creating new ones; b) occur in a manner that provides clear delineation between urban areas and rural areas; c) make use of opportunities for urban intensification and redevelopment to minimise the need for urban development in greenfield areas; d) not compromise the safe, efficient and effective operation and use of existing and planned infrastructure, including transport infrastructure, and should allow for future infrastructure needs, including maintenance and upgrading, where these can be anticipated; e) connect well with existing and planned development and infrastructure;	These suggest that intensification or infill development would be preferable to developing this greenfields site, and the area is not recognised as future growth area. The connection between Ohinewai east and Ohinewai west is a constraint, due to the NIMT and WEx overbridges. However the site has good access to the arterial network.

The Regional Passenger Transport Plan (2018-2028) includes a number of relevant policies (section 3.1.3 Regional network). These include:

Objective/Policy		Comment/relevance
P10	Progressively develop a network of scheduled public transport services, connecting regional towns and enabling access to education, employment, healthcare and social opportunities.	Proposal supports some aspects by including a bus stop within the development area but WRC have no plans to extend services. The existing bus servicing Ohinewai stops on the western side of the WEx. There are no existing facilities on Tahuna Road for pedestrians and cyclists to safely cross over the NIMT and WEx Masterplan includes reinstatement of the existing train station at Ohinewai and there may be opportunities consistent with the anticipated phasing of the passenger rail (Table 3.4 of WRPTP) .
P11	Partner with others to develop and/or deliver demand-responsive services that provide coverage where scheduled services are not feasible.	
P12	Partner with public and private entities which have shared objectives to better coordinate the funding and delivery of transport solutions.	
P13	Design and deliver public transport in partnership with communities and stakeholders, while prioritising investment to benefit people of greatest need.(2).	
P40	Develop passenger rail links between Hamilton and Auckland in general accordance with table 3.4 subject to the approval of the business case and availability of funding.	
P45	Ensure the existing rail network and station infrastructure is protected and preserved for future passenger rail use.	

Local

The proposal is not consistent with the relevant transport related policies and objectives of the Waikato District Proposed District Plan (summarised in the table below) although it supports some aspects.

Objective/Policy relevant to transport		Comment
Chapter 4: Urban Environment		
4.1.3 Policy-Location of development	(a) Subdivision and development of a residential, commercial and industrial nature is to occur within towns and villages where infrastructure and services can be efficiently and economically provided. (b) Locate urban growth areas only where they are consistent with the Future Proof Strategy Planning for Growth 2017.	Not consistent. Not located within Future Proof growth areas.
4.1.4 Policy – Staging of development	(a) Ensure that subdivision, use and development in new urban areas is: (i) located, designed and staged to adequately support existing or planned infrastructure, community facilities, open space networks and local services; and (ii) efficiently and effectively integrated and staged to support infrastructure, stormwater management networks, parks, and open space networks.	Not consistent. Staging, timing, triggers, funding of infrastructure upgrades is not certain.
4.1.8 Policy – Integration and connectivity	(a) Ensure effective integration within and between new developments and existing areas, including in relation to public open space networks and infrastructure by; (i) Providing good access to facilities and services by a range of transport modes through the provision of integrated networks of roads, public transport, cycle, and pedestrian routes; (ii) Providing a range of supporting local community facilities and services for residents' daily needs; (iii) Setting aside land for neighbourhood centres and parks identified in town specific Master Plans or Structure Plans, to enable their future development; and (iv) Applying the following design guidelines and town centre character statements to influence the manner in which development occurs; A. Residential Subdivision Guidelines (Appendix 3.1); B. Multi Unit Development Guide (Appendix 3.4); C. Town Centre Guidelines (Appendix 3.3	Not consistent. Ohinewai village on the west and the proposal on the east are not well connected and need to cross over the NIMT and WEx. A comprehensive structure plan covering all submissions is recommended
4.5.26 Policy – Landscaping of onsite parking areas – Business Zone	(a) Provide a degree of amenity for onsite parking areas within the Business Zone by ensuring a planting strip is established and maintained.	Could be included in detailed design

Objective/Policy relevant to transport		Comment
Chapter 4: Urban Environment		
4.7.3 Policy – Residential subdivision	(a) Development responds to the outcomes of Waikato District Council's Urban Design Guidelines Residential Subdivision (Appendix 3.1), section 4 (Connectivity and Movement Networks), section 5 (Neighbourhood Character), section 6 (Residential Block and Street Layout), section 7 (Open Space and Landscape Treatment), and section 8 (Low Impact Urban Design), in particular by: (i) Designs that promote walkability and pedestrian safety; (ii) Promoting accessibility and connectivity of public spaces, employment areas, services, facilities, and amenities, both within the subdivision and wider context; (iii) Integrating staging to ensure multi-modal connectivity; (iv) Limiting the number and length of cul-de-sacs; (v) Ensuring connection to existing and future public transport nodes; (vi) Promoting connectivity and permeability by ensuring new connections to existing and future development, including green linkages. (vii) Promoting the street layout to reflect the underlying topography; (viii) Ensuring pedestrian access is consistent with the Crime Prevention through Environmental Design (CPTED); (ix) Discouraging the creation of rear lots; …	The internal layout of the proposal outlined on the masterplan is consistent with the policy and provides for internal multi-modal trips. Connections to existing external networks (for pedestrians, cyclists and public transport) needs further consideration. Further development of a Structure Plan that encompasses wider Ohinewai area is desirable to protect future connections between areas including the school.

Objective/Policy relevant to transport		Comment
Chapter 4: Urban Environment		
4.7.5 Policy – Servicing requirements	(a) Require urban subdivision and development to be serviced to a level that will provide for the anticipated activities approved in a structure plan, or otherwise anticipated within the zone, including through the provision of: (i) Reserves for community, active and passive recreation; (ii) Pedestrian and cycle connections; (iii) Roads; (iv) Public transport infrastructure, e.g. bus stops; (v) Telecommunications; (vi) Electricity; (vii) Stormwater collection, treatment and disposal; (viii) Wastewater treatment and reticulation, water provision for domestic and fire fighting purposes; and (ix) Connections to identified adjacent future growth areas.	The internal layout is generally consistent except for: ix) More information on the OLL proposal is needed to assess the OL submission.
f4.7.9 Policy – Connected neighbourhoods		
Require subdivision to provide street and block patterns that support the concepts of a liveable, walkable and connected neighbourhood including: (i) A road network that achieves all of the following: A. Easy and safe to use for pedestrians and cyclists; B. Connected with a variety of routes within the immediate neighbourhood and between adjacent land areas; and C. Connected to public transport, shops, schools, employment, open spaces and other amenities; and (ii) Vehicle crossings and associated access designed and located to provide for safe and efficient movement to and from sites and minimising potential conflict between vehicles, pedestrians, and cyclists on the adjacent road network.	The internal layout is broadly consistent except: C. the proposal is not well connected to public transport or schools which are both on the western side of the WEx. Certainty and details of walking and cycling connections across the WEx and NIMT are needed.	
4.7.10 Policy – Recreation and access	(a) Subdivision provides for the recreation and amenity needs of residents by: (i) Encouraging open spaces which are prominent and accessible by pedestrians; (ii) Requiring the number and size of open spaces in proportion to the future density of the neighbourhood; and (iii) Enabling for pedestrian and/or cycle linkages.	Broadly consistent, but focuses on internal connections. Lack of connectivity to reserve on southern side of Tahuna Road and lacks of links to Huntly.

Chapter 6.4: Infrastructure, Subdivision and Development		Comment
6.4.1 Objective – Integration of infrastructure with subdivision, land use and development	(a) Infrastructure is provided for, and integrated with, subdivision, use and development.	
6.4.2 Policy – Provide adequate infrastructure	(a) Ensure adequate provision of infrastructure, including land transport networks, where land is subdivided or its use intensified.	Insufficient information to assess OLL submission.
6.4.4 Policy – Road and rail network	(a) Discourage subdivision, use and development that would compromise: (i) The road function, as specified in the road hierarchy, or the safety and efficiency of the roading network; and (ii) The safety and efficiency of the railway network.	Planning Focus submission seeking industrial development west of SH1 is inconsistent as it introduces industrial traffic in to a rural and residential environment with no infrastructure upgrades. Changes to Country Living zoning need to be supported by infrastructure upgrade which are not included in the proposed planning provisions. We are concerned about the safety of the proposed level crossing on Lumsden Road.
6.4.5 Policy – Roading infrastructure	(a) Ensure that roading infrastructure is developed so that: (i) The design, location, alignment and dimensions of new roads provide safe vehicle, pedestrian and cycling access and manoeuvring to every site; (ii) The roading pattern provides good connectivity to the site and integrates with adjacent land identified as future growth areas including public transport such as bus stops; (iii) There is adequate provision of on-site parking and manoeuvring for land use activities; and (iv) Contaminants generated are appropriately mitigated.	The APL submission considers internal connectivity. However, lack of alternative for travel to Huntly and other external destinations increases risk of travel by private vehicle.

Chapter 6.5: Transport		
6.5.1 Objective – Land transport network	(a) An integrated land transport network where: (i) All transport modes are accessible, safe and efficient; and (ii) Adverse effects from the construction, maintenance and operation of the transport network are managed.	The APL submission considers internal connectivity. However, lack of alternative for travel to Huntly and other external destinations increases risk of travel by private vehicle.
6.5.2 Policy – Construction and operation of the land transport network	(a) Promote the construction and operation of an efficient, effective, integrated, safe, resilient and sustainable land transport network through: (i) Corridor, carriageway and intersection design which is appropriate to the road function as specified in the road hierarchy and in accordance with relevant guidelines; (ii) The appropriate design and location of sites accesses; (iii) Traffic signage, road marking, lighting, rest areas and parking as appropriate; (iv) Provision for pedestrians and cyclists that addresses accessibility, including off-road facilities and connections; (v) Corridor and carriageway design which is sufficient to enable provision of public transport; (vi) Provision for other infrastructure, including where suitable low impact design stormwater facilities; (vii) Provision for stock underpasses where suitable access is not readily available; (viii) Discouraging the installation of new at grade road and pedestrian rail level crossings: A. Controlling the location of buildings and other visual obstructions within the sightline areas of rail level crossings; and B. Railway crossing design in accordance with the requirements of the rail operator.	Further clarity is required on the proposed cross-sections. As discussed above, we have safety concerns with the form of some proposed intersections and proposed upgrades. There are no planning provisions that anchor the recommended upgrades into the District Plan or Structure Plan. The proposal includes a new level crossing which is inconsistent with the policy. It is unclear if Kiwirail support the proposed design of the level crossing.
6.5.3 Policy – Road hierarchy and function	(a) Provide a hierarchy of roads for different functions and modes of land transport while recognising the nature of the surrounding land use within the district.	In general, the proposed road hierarchy is satisfactory.
6.5.4 Policy – Road standards	(a) Ensure that the construction and operation of roads is consistent with their function in the road hierarchy.	Refer discussion above – some concerns about details of the cross-sections, .e.g. lack of differentiation between primary and secondary industrial collectors

6.5.5 Policy - Road safety	(a) Ensure that structures, lighting, signage and vegetation are located and designed so as to not compromise the safe and efficient operation of the land transport network, or obscure RAPID numbers.	Can be considered at detailed design
6.5.6 Policy – Network utility location	(a) Encourage the location of network utility infrastructure within transport corridors where the function, safety and efficiency of the transport network will not be compromised.	Consistent – typical cross-sections provide service berms
6.5.7 Policy – Vehicle access	(a) Control the location of new vehicle accesses to sites adjacent to other accesses and rail level crossings to improve the safety and efficiency of the land transport network.	