BEFORE THE HEARING PANEL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of Proposed Plan Change 17 to the Waipā District Plan – Hautapu Industrial Zones

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STATEMENT OF EVIDENCE OF MICHAEL TURNER HALL

(TRANSPORT)

Dated 13 March 2023

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INTRODUCTION

1. My name is Michael Turner Hall. I have a Bachelor of Engineering with Honours from the University of Auckland and I am a Chartered Member of Engineering New Zealand. I have ten years' experience as a Professional Engineer and am currently employed at CKL NZ Limited (**CKL**) where I am a Senior Transportation Engineer.

2. My work experience includes undertaking transportation assessments and traffic modelling for over 500 commercial, residential and institutional developments throughout New Zealand. I have prepared traffic impact studies and Integrated Transportation Assessments, designed roads, parking areas and provided technical advice regarding access arrangements.

3. In early 2022, I was engaged by the Kama Trust, as potential developers of 326 Peake Road, to assess the transportation matters related to the potential further subdivision and industrial development within the land area described as Area 6. That assessment formed part of the evidential basis for what became Plan Change 17 (**PC 17**).

CODE OF CONDUCT

4. I am familiar with the Code of Conduct for Expert Witnesses (Environment Court Consolidated Practice Note 2023) and although I note this is a Council hearing, I agree to comply with this code. The evidence I will present is within my area of expertise, except where I state that I am relying on information provided by another party. I have not knowingly omitted facts or information that might alter or detract from opinions I express.

SCOPE OF EVIDENCE

5. My evidence addresses the original integrated transport assessment I prepared for the Kama Trust and focusses on the transport corridors and access issues arising in respect of PC 17.

6. Waipā District Council has proposed various plan provisions addressing transportation matters. My evidence responds to that drafting.

ANALYSIS

7. A copy of my original Integrated Transport Assessment (**ITA**) dated 11 August 2022 is set out at **Attachment A** to this evidence.

8. The critical conclusions in the ITA are:

   (a) A Plan Change is proposed to convert the underlying zoning of the site located at 326 & 342 Peake Road and 84, 86, 90, 102, & 108 Hautapu Road from Rural zone to Industrial to match the Hautapu Structure Plan. The exact activity and scale of future industrial development will be assessed as part of any future development or subdivision application.

   (b) The Plan Change area is expected to generate some 398 vehicle movements in the peak hour. No changes to the approved infrastructure upgrades associated with the Hautapu Structure Plan are considered necessary.

   (c) A new road branching off Hautapu Road is proposed to provide access to future development of the site. This has been designed in accordance with the District Plan requirements. The new road layout is not expected to result in any adverse effects on the safety and functionality of the existing roading network.

(d) The future internal accesses and parking for the future development are expected to be able to comply with the District Plan requirements.

(e) Overall, the future development within the Plan Change area is able to be fully compliant with the transportation rules of the District Plan, with there being a suitable degree of control in place already to support access for individual future developments from either the new access road or Hautapu Road. The Peake Road frontage is protected from industrial access by Rule 16.4.2.3. As such, no new transportation rules are considered necessary to support the Plan Change.

9. After preparing the ITA for the Kama Trust in August 2022, it was provided to Waipā District Council and was relied upon by Council to support its development of PC 17.

10. I note that the transportation related provisions within the notified version of PC 17 build on the ITA recommendations. Since notification, Council has produced evidence from Rhulani Mothelesi dated 22 February 2022 which recommends some further edits to the notified provisions. I have reviewed those proposed amendments.

11. Below is the current proposed edited text for the transportation provisions titled "Items To Give Effect To The Structure Plan – Roads and Access" with the text in blue representing the amendments as proposed by Council. I have converted the bullet points into lettering for ease of reference within my statement of evidence. Whether letters, numbers or bullets are used does not affect the practical interpretation. The provisions state:

~~a)~~ Hannon Road intersection to close following the opening of the Victoria Road / Hautapu Road roundabout to traffic in 2023-24 financial year ~~when 5ha of new development has occurred.~~

b) Stage 1 roundabout on Victoria Road to be constructed in the 2023-24 financial year and is required prior to Hannon Road closure.

~~c) Allwill Drive intersection to be upgraded with a link into Area 2. Further upgrade to signals with Area 3 development.~~

d) Hautapu Road, Hannon Road to Allwill Dr, including Allwill Drive signals, to be upgraded prior to Alwill Drive connection with Road 1 or development within Area 6 (whichever comes first).

e) Hautapu Road, Allwill Drive to Peake Road, including Peake Road intersection improvements, to be upgraded prior to development within Area 6.

f) A right-turn bay and pedestrian/cycle crossing to be established at the Hautapu Road / Road 4 intersection prior to development within Area 6.

g) No individual access to Peake Road.

12. For item a), I would suggest that the wording relating to the timeframes within which the roundabout is to be constructed can be removed. The roundabout is being designed and constructed by Council and the timing does not relate to development within the Structure Plan area. There are also no consequences if this timeframe is not met. My recommended wording for item a) is as follows:

a) Hannon Road intersection to close following the opening of the Victoria Road / Hautapu Road roundabout.

13. Item b) currently stipulates that the roundabout is required prior to the closure of the Hannon Road intersection. This is a repetition of item a) and in my opinion can be removed for simplicity given this is covered in item a).

14. Items c) and d) relate to when Allwill Drive and its signalised intersection with Hautapu Road are required. Allwill Drive provides access towards Areas 1-5 and does not have a direct effect on Area 6. It is my opinion that this item should be required at a certain development threshold within Areas 1-5 and should not relate to Area 6. I consider that the original text

within item c) is appropriate in the context of PC17 and that item d) can be removed.

15. Item e) includes infrastructure that should be provided prior to the completion of any development within Area 6. I agree that an item to this effect is appropriate. However, it is also my opinion that the upgrades required should be listed more clearly for the avoidance of doubt when future consents for development area lodged. Item f) includes the right turn bay and pedestrian/cycle crossing across the intersection to the site. However, there are other infrastructure upgrades listed that are less specific. My recommended wording for item e) is below and incorporates item f).

    e) The following infrastructure upgrades must be completed prior to development within Area 6:

        a) Provide a right-turn bay at the Hautapu Road / Road 4 intersection.

        b) Provide a pedestrian/cycle crossing across Road 4 at its intersection with Hautapu Road.

        c) Provide a kerb/channel and shared path along the northern side of Hautapu Road across the frontage of Area 6.

16. I agree with item g).

CONCLUSION

17. I have reviewed the wording of the Road and Access section of the items to give effect to the Structure Plan. It is my opinion that with my recommended alterations in place, these items will ensure that the

appropriate transport infrastructure is in place to support the anticipated future development within the Plan Change area.

Michael Turner Hall

13 March 2023

ATTACHMENT A

Planning | Surveying | Engineering | Environmental

Integrated Transportation Assessment

Kama Trust

Proposed Plan Change Land at Hautapu Road, Cambridge

DOCUMENT CONTROL

CKL REFERENCE	B20232
DOCUMENT STATUS	Approved
REVISION NO.	3
FILE NAME	Proposed Plan Change Land at Hautapu Road ITA v2
DATE	11Augusty 2022
AUTHOR	Ethan Yu Intermediate Transportation Engineer 
CHECKED BY	Michael Hall Senior Transportation Engineer 
AUTHORISED BY	Judith Makinson Transportation Engineering Manager 
OFFICE OF ORIGIN	Hamilton

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1.1.1 This Broad Integrated Transportation Assessment (ITA) considers the traffic and transportation effects of a proposed Plan Change of the site at 326 & 342 Peake Road, 84, 86, 90, 102, & 108 Hautapu Road, Cambridge which will be referred to as 'the site'. The site is opposite the Hautapu Structure Plan area which anticipates future industrial development within the block of land broadly defined as being within SH1, Hautapu Road, Peake Road and Victoria Road.

1.1.2 The proposed Plan Change seeks to rezone the site as Industrial as an extension of the Hautapu Structure Plan area.

1.1.3 The subject site is located within Waipa District Council's (WDC) jurisdiction and has been assessed against the relevant transportation criteria of the WDC District Plan (District Plan).

1.1.4 In summary, it has been concluded that the effects of the proposed Plan Change are less than minor. As such, it is considered that there are no transportation reasons why the Plan Change cannot be adopted.

2 Plan Change Area Location

2.1.1 The proposed Plan Change area is located on the northern periphery of the Waipa District and is zoned rural under the District Plan. It includes 326 & 342 Peake Road and 84, 86, 90, 102, & 108 Hautapu Road. It is rectangular in shape and has a total land area of 19.9 hectares in size. Existing activities within the proposed Plan Change area are rural based industry and cropping such as Boyds Asparagus Industries, established industrial activities such as Hautapu Welders and Camex, and residential dwellings. The proposed Plan Change area has frontage to Peake Road to the west and Hautapu Road to the south.

2.1.1 An overview of the proposed Plan Change area is provided in Figure 1, which shows its extent in relation to the surrounding environment.

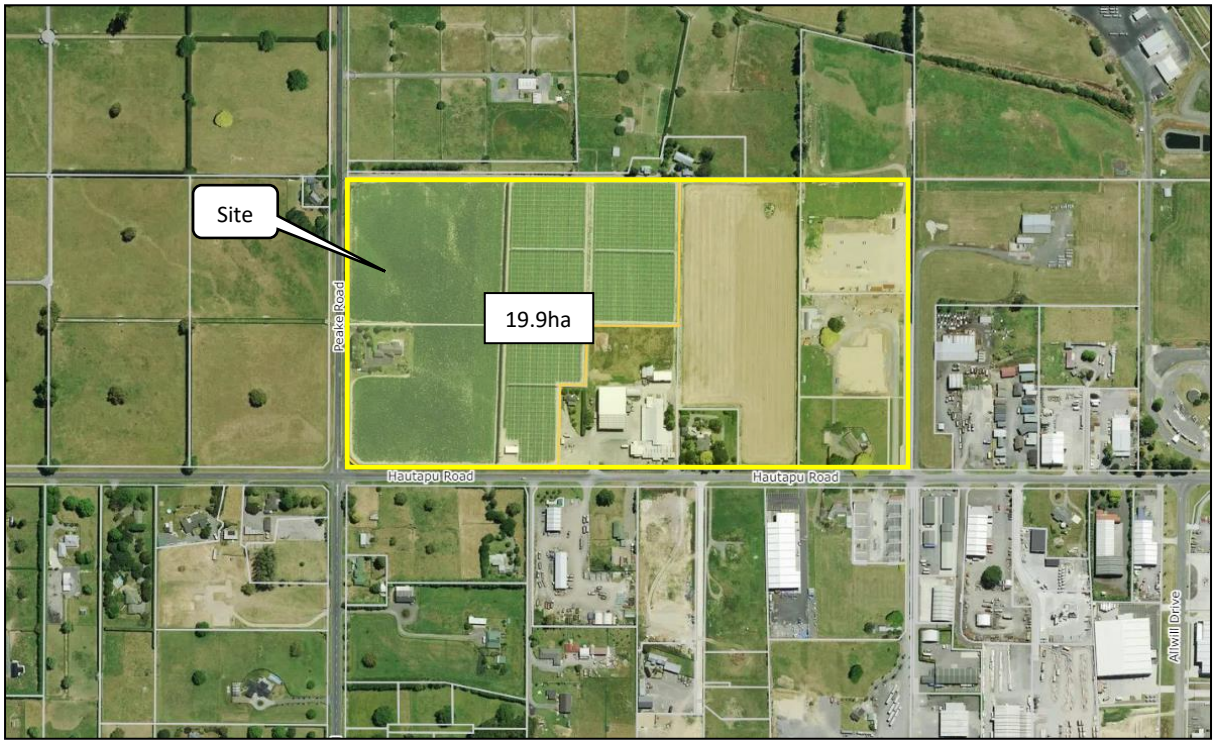

Figure 1: Proposed Plan Change Area Location (Base Map Source: Grip Maps)

2.1.2 The surrounding environment is zoned industrial and includes the Fonterra dairy factory. The surrounding environment to the south falls within the Hautapu Structure Plan. Figure 2 below shows that the proposed Plan Change area represents an extension of the Structure Plan area and is similar in size to Areas 2, 4, and 5.

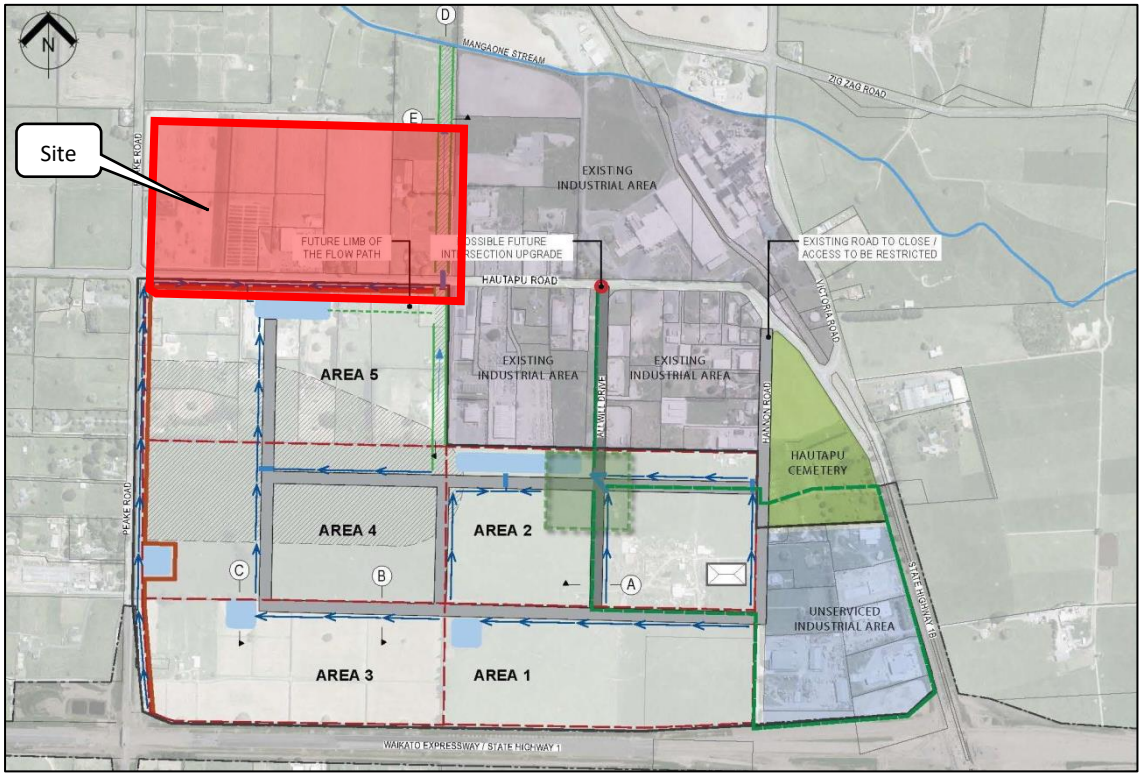

Figure 2: Hautapu Structure Plan Area

3 Existing Environment

3.1 Road Network

3.1.1 The existing road network surrounding the proposed Plan Change area is presented in Figure 3, together with the road hierarchy sourced from the District Plan. The proposed Plan Change area has frontage to both Hautapu Road and Peake Road, both of which have relatively straight and flat alignments.

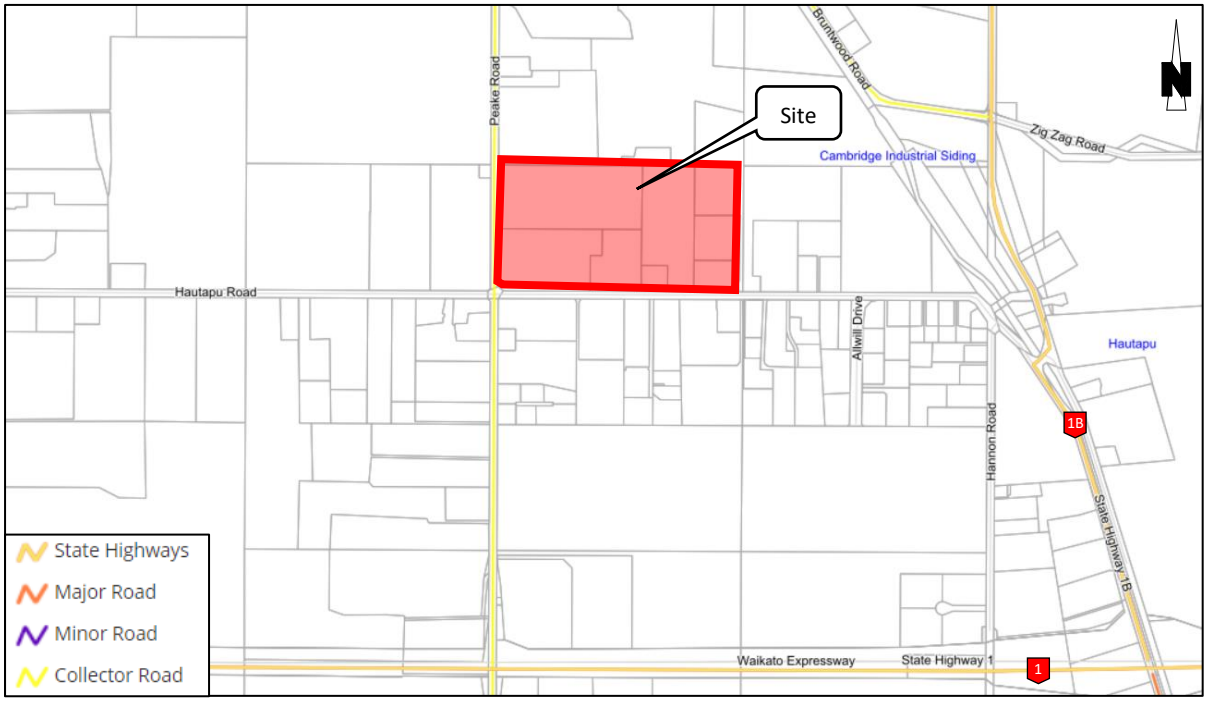

Figure 3: Surrounding Road Network

3.1.2 Hautapu Road is classified as a local road that runs along the southern boundary of the proposed Plan Change area. It is a two-lane, two-way road with a marked centreline. The road reserve width is approximately 20m with a 6.5m wide carriageway. The speed limit on Hautapu Road changes from 80km/h to 70km/h approximately halfway along the proposed Plan Change area's frontage with 70km/h applying to the east.

3.1.3 Peake Road is classified as a collector transport corridor with a posted speed limit of 80km/hr across the site frontage. It is a two-way, two-lane road with a marked centreline. The road reserve width is approximately 20m with a 6.5m carriageway.

3.1.4 The Peake Road / Hautapu Road intersection takes the form of a stop-controlled crossroads intersection where vehicles on Hautapu Road have priority. The Peake Road approaches have 12m long raised central islands. Visibility along all approaches to the intersection is in excess

of 300m, as is the visibility along Hautapu Road for vehicles stopping at the limit lines on Peake Road.

3.2 Traffic Volumes

3.2.1 Traffic volumes for Hautapu Road and Peake Road have been sourced from the Mobile Road website and are presented in Table 1. It is noted that Mobile Road only provides the Annual Average Daily Traffic (AADT) volumes information. Peak hour volumes have therefore been estimated as representing 10% of daily traffic flows.

Table 1: Existing Traffic Volumes

Road Name	Location	Daily (vpd)	Peak Hour (vph)
Hautapu Road	West of Peake Road	2,500	250
Peake Road	North of Hautapu Road	1,830	183

3.3 Road Safety

3.3.1 Crash data for the last five-year period (2017 to 2021), including available data for 2022, was sourced from the Waka Kotahi Crash Analysis System (CAS) and analysed to identify any that had been reported along Hautapu Road and Peake Road within 100m of the proposed Plan Change area. The search found that one crash had been reported within the study area which occurred at the Peake Road / Hautapu Road intersection and did not result in any injuries. The crash occurred when a driver travelled across the intersection, failing to notice a second vehicle traveling behind a turning vehicle.

3.3.2 No road geometry factors were included within the crash and as such, no existing road safety issues have been identified in the vicinity of the site.

4 Sustainable Travel Modes

4.1 Walking and Cycling

4.1.1 There are currently no pedestrian or dedicated cycling facilities within the vicinity of the site which is typical for rural environments.

4.2 Public Transport

4.2.1 There are no specific public transport services or infrastructure serving passengers within the vicinity of the site which is typical for rural environments.

5 Committed Environmental Changes

5.1.1 While the Hautapu Structure Plan has been approved and is included within the District Plan, there are no time constraints that limit when development must occur. The land is zoned deferred industrial with all development to date being undertaken via land use consenting processes. It is also understood that some landowners within the Structure Plan Area have no current desire to develop and are unlikely to do so in the near future.

5.1.2 It is understood that WDC is proposing an alteration to the Structure Plan that amends the roading system to reflect this likely development pattern. As part of the Structure Plan, a new single-lane roundabout at the intersection between Hautapu Road and Victoria Road is being also constructed and Hannon Road being realigned to create a fourth leg. In addition, the intersection between Allwill Drive and Hautapu Road will be upgraded into signals and also include an access to the Fonterra Dairy Factory as a fourth leg. While the timing for construction of the signals is yet to be confirmed, construction on the roundabout is expected to commence by 2024.

5.1.3 A shared path is proposed on both sides of Hautapu Road as part of the C8 and C9 Industrial Transport Connections which is expected to connect to the shared path on Victoria Road. Figure 4 and Figure 5 below show possible designs for the future shared path across the site and the Fonterra / Allwill Drive / Hautapu Road intersection.

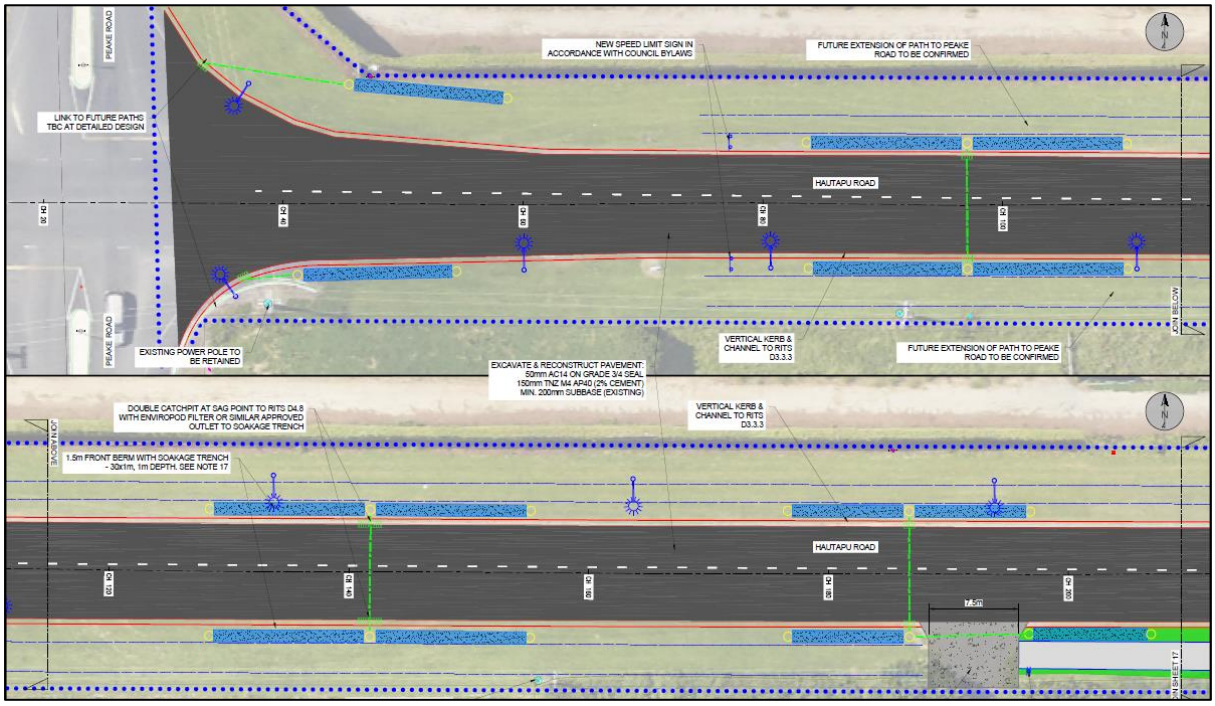

Figure 4: Future Shared Path Across Site Frontage

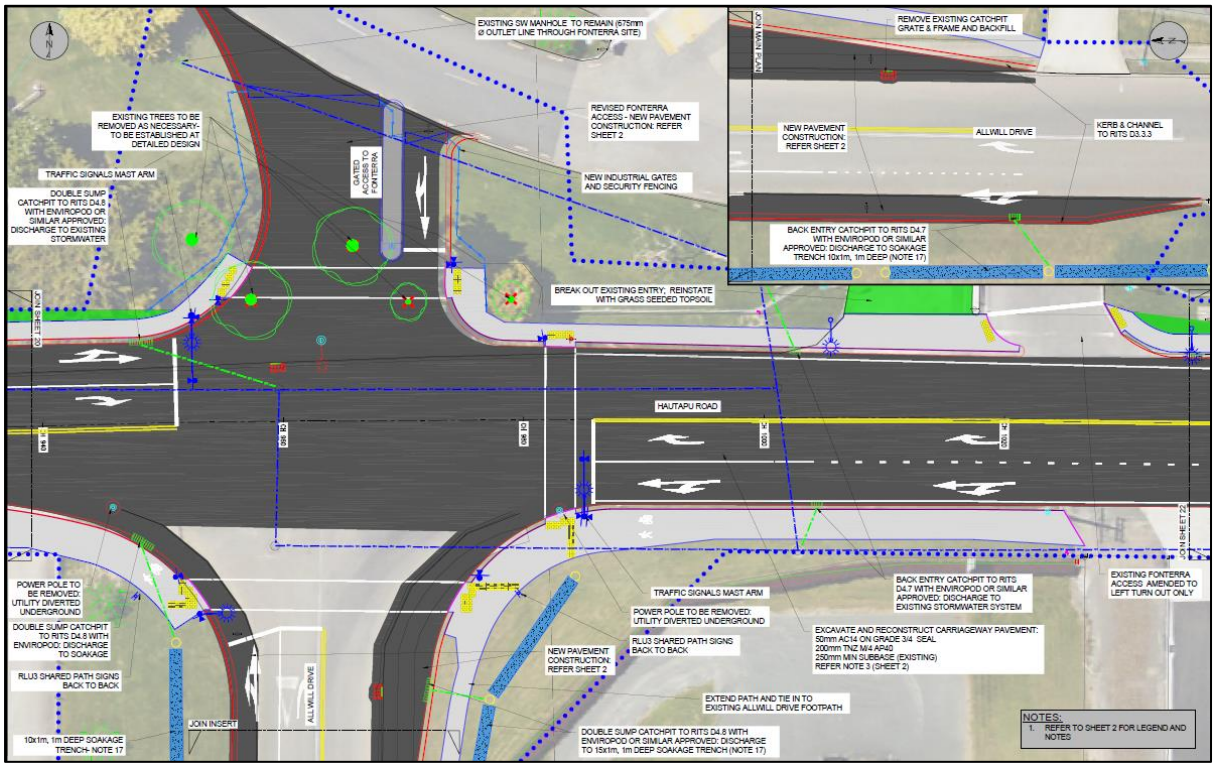

Figure 5: Future Shared Path Across Fonterra / Allwill Drive / Hautapu Road Intersection

5.1.4 No other developments are confirmed that are likely to affect transport patterns in the vicinity of the site.

6 Proposed Plan Change

6.1.1 A Plan Change is proposed to convert the underlying zoning of the land located at 326 & 342 Peake Road and 84, 86, 90, 102, & 108 Hautapu Road from Rural zone to Industrial to match the Hautapu Structure Plan. Although industrial activities are anticipated under the proposed zoning, the exact type and scale of future development is not known at this stage and will be subject to the industrial zone rules or individual consenting processes as appropriate.

6.1.2 The internal layout of the Plan Change area will be confirmed at a future development stage. However, it is expected that a new road will be provided that branches off Hautapu Road. No new access is likely to be proposed onto Peake Road. The alignment of the new road will be dependent on the future development within the site area. A right turn bay and associated widening of the Hautapu Road carriageway will be required to support the future intersection.

6.1.3 Figure 6 below shows the indicative layout of the Plan Change area.

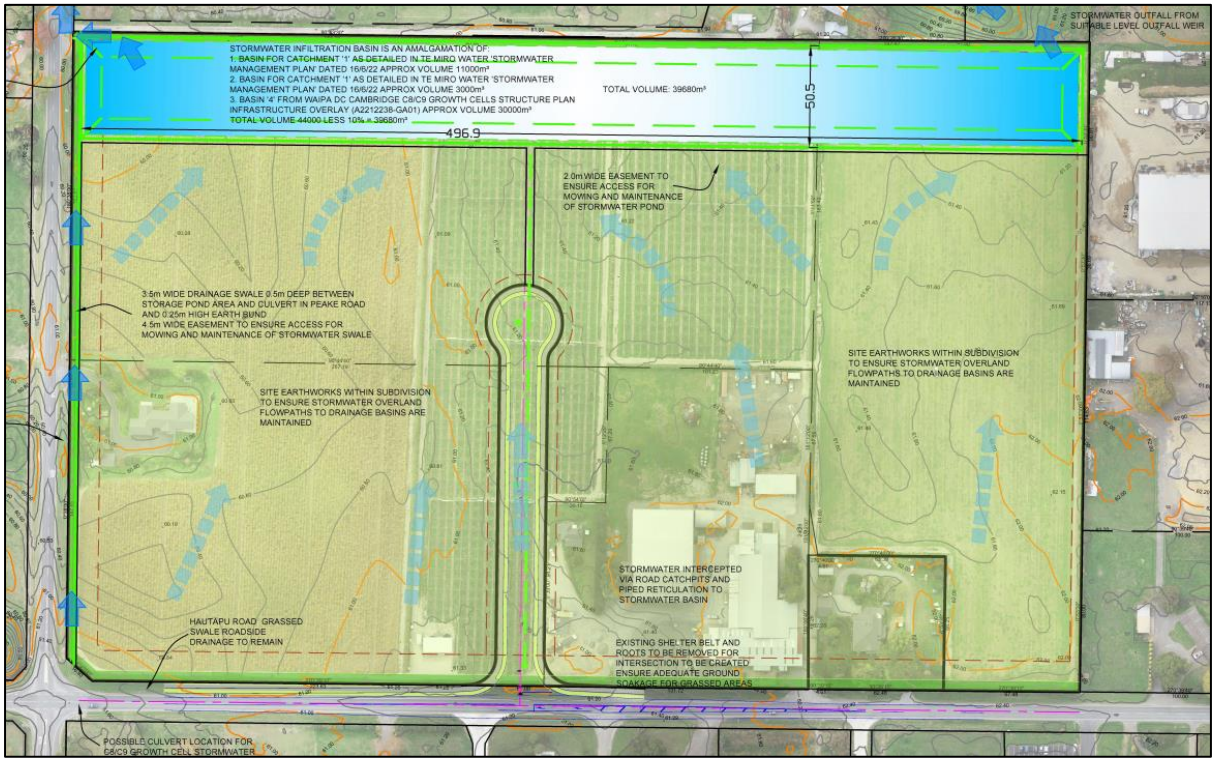

Figure 6: Proposed Layout

6.1.4 The Plan Change area will include stormwater basins covering. The exact location and size of these areas is assessed in detail by other experts. The road illustrated provides the main means of access to site. It is expected that additional on-site roads will provide access to individual future lots.

7 Trip Generation

7.1.1 Harrison Grierson (HG) prepared an ITA to assess the effects of the Hautapu Structure Plan. A gross peak hour trip generation rate of 20trips/hr/ha (land area) was adopted in this assessment and used in the subsequent analysis to identify the infrastructure upgrades to support the Structure Plan. Given the proposed Plan Change has a total land area of 19.9ha, it is expected that the site would generate some 398 trips in the peak hour.

7.1.2 The inbound/outbound distribution of traffic has been derived from the Institute of Transportation Engineers *Trip Generation Manual* (ITE Manual). The General Industry activity (Land Use 110) has been adopted where 87% of trip are inbound in the morning and 82% are outbound in the evening.

7.1.3 Table 2 below summarises the number of trips and the inbound / outbound distribution based on the above rates.

Table 2: Trip Generation

Peak Period	Trip Rate	Land Area (ha)	Total Trips	Inbound Trips	Outbound Trips
AM Peak	20 trips/hr/ha	19.9	398	346	52
PM Peak			398	72	326

7.1.4 For the purposes of this assessment, all trips are considered to head east along Hautapu Road as this is the shortest route to the State Highway network as well as the urban Cambridge area. Existing traffic volumes to the west of the site are generally lower than those to the east and therefore if in practice there are trips that head west, this would reduce the effects of traffic on the road network. It is also understood from initial consultation with WDC that there is a desire to limit industrial traffic using Peake Road in future.

7.1.5 As discussed in Section 5 of this report, two notable upgrades to the surrounding road network are proposed as part of the wider Hautapu Structure Plan. The first is that a new single-lane roundabout will be provided for the Hautapu Road / Victoria Road / Hannon Road intersection and that the Allwill Drive intersection onto Hautapu Road will be signalised. Along with the new intersection from the site onto Hautapu Road, these three intersections are likely to be the locations where any traffic effects associated with the proposed Plan Change would be noticeable.

8 Intersection Effects

8.1 Hannon Road Roundabout

8.1.1 The HG ITA prepared for the Hautapu Structure Plan included an assessment of modelling different design options for the future layout of how Hannon Road would connect to Hautapu Road and/or Victoria Road. From this assessment, it was recommended that a roundabout with two circulating lanes and additional left-turn slip lanes for the southern and eastern approaches would be appropriate to ensure that there was sufficient capacity to ensure the intersection would operate with high degrees of efficiency. Figure 7 below illustrates HG's modelled layout of the preferred roundabout design.

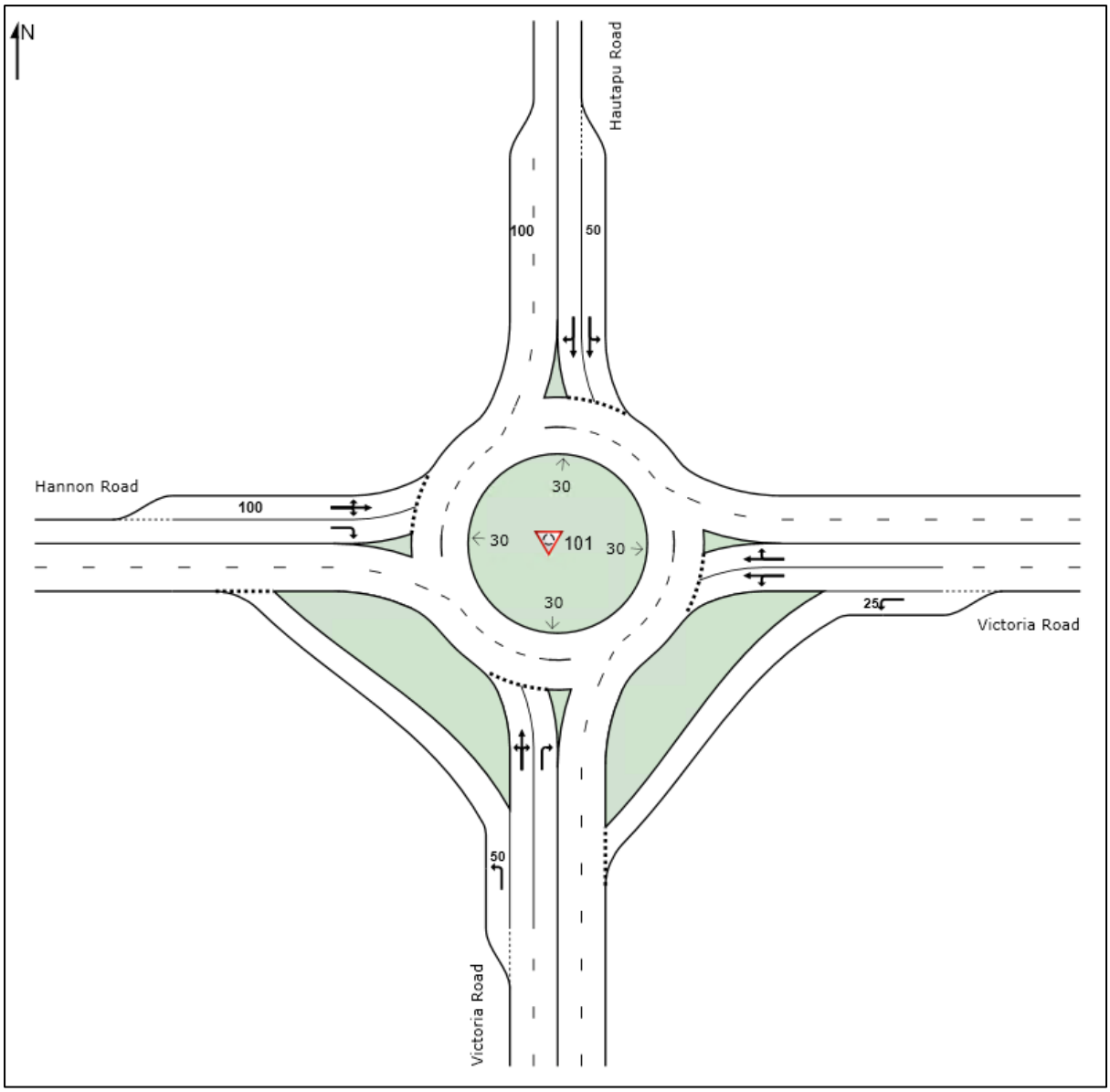

Figure 7: Recommended Roundabout Intersection Layout

8.1.2 However, through consultation with WDC, it has been confirmed that the intersection will take the form of a single lane roundabout with no additional approach or slip lanes. This particular layout was not modelled within the HG ITA. The design of this roundabout has been approved by WDC and is provided in Figure 8 below.

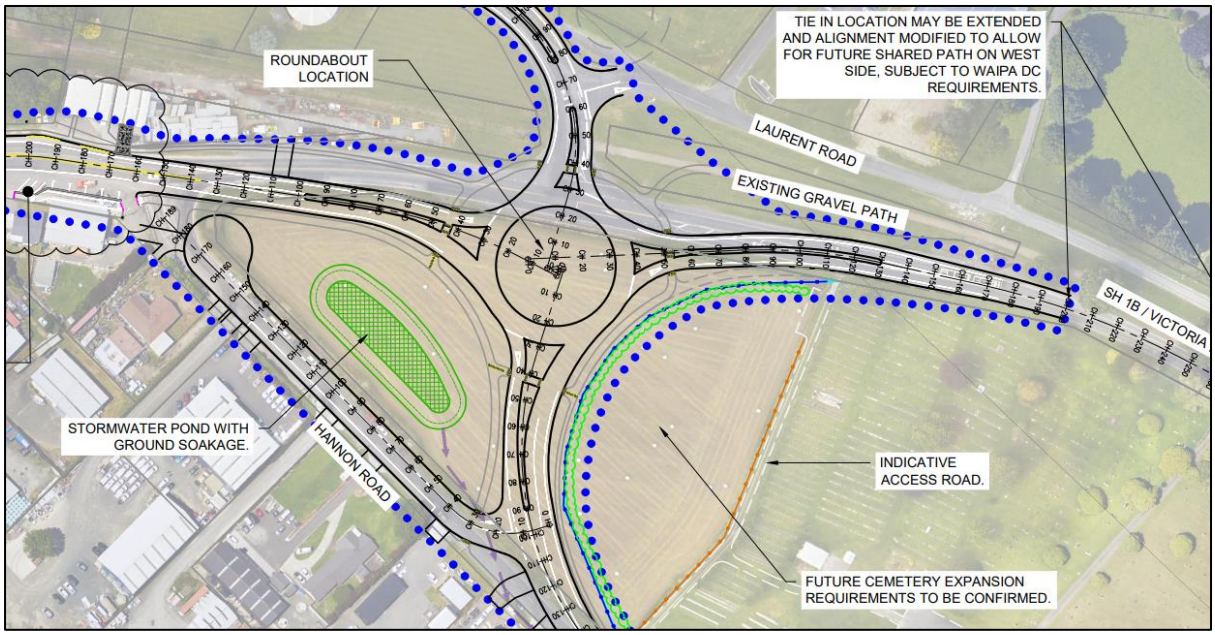

Figure 8: Hannon Road Roundabout Design

8.1.3 CKL has prepared a SIDRA Intersection model of the approved single lane roundabout using the same input volumes as used within the HG report. No additional traffic associated with the proposed Plan Change have been included in this baseline scenario. Table 3 below summarises the results from this modelling which can be considered as the base scenario.

Table 3: Hannon Road / Hautapu Road / Victoria Road Single Lane Roundabout Base Scenario

Approach	Movement	AM Peak			PM Peak		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Victoria Road (south)	Left	803.4	F	4,786.9	117.8	F	907.9
	Through	803.0	F	4,786.9	117.5	F	907.9
	Right	808.6	F	4,786.9	123.0	F	907.9
Victoria Road (east)	Left	436.7	F	1594.0	551.2	F	2110.1
	Through	436.4	F	1594.0	550.9	F	2110.1
	Right	441.9	F	1594.0	556.4	F	2110.1
Hautapu Road (north)	Left	217.3	F	664.1	56.4	E	193.2
	Through	217.0	F	664.1	56.0	E	193.2
	Right	222.5	F	664.1	61.6	E	193.2
Hannon Road (west)	Left	19.2	B	98..4	1,644.7	F	4,139.0
	Through	18.8	B	98..4	1,644.3	F	4,139.0
	Right	24.4	C	98..4	1,649.8	F	4,139.0
All Vehicles		**526.8**	**F**	-	**685.7**	**F**	-

8.1.4 The above results indicate that a single lane roundabout is likely to be significantly congested with delays on some approach exceeding 10 minutes. This is unrealistic and represents that people are likely to travel at different times, take alternative routes or use different modes. The effect of adding extra traffic associated with the Plan Change area is therefore unlikely to be noticed by road users given that the intersection is already modelled as being well over capacity.

8.1.5 Traditionally, there has been a 'predict and provide' approach to roading where the number of trips would be predicted and then the road network designed to ensure that those vehicle movements could be efficiently accommodated. This has resulted in a transport network that is predominantly dominated by private vehicle modes. Given the current overarching policy for transportation seeks to reduce reliance on private vehicles, the provision of single lane roundabout introduces network restraint to promote sustainable travel.

8.1.6 In order to align with the transportation policy, it is understood that WDC has decided to have the roundabout as a single lane only. A shared path is also proposed along Hautapu Road to provide walking and cycling infrastructure and promote non-motorised traffic. Given the policy direction and feedback provided by WDC, it is considered that no upgrades to this intersection are required as part of the proposed Plan Change.

8.2 Allwill Drive Signals

8.2.1 Similar to the Hannon Road roundabout, HG undertook an options assessment for the intersection at Allwill Drive. Roundabout options were considered however a signalised intersection was recommend due to the smaller land footprint required for signals. The main access into the Fonterra Dairy Factory is within 50m of Allwill Drive and it therefore proposed to have an access into the factory as part of the intersection with the existing access becoming a left turn out only. The signalised intersection design also enables pedestrian crossings to be signalised, providing a safe crossing point for pedestrians.

8.2.2 Figure 9 below is the conceptual design of the signalised intersection as approved by WDC.

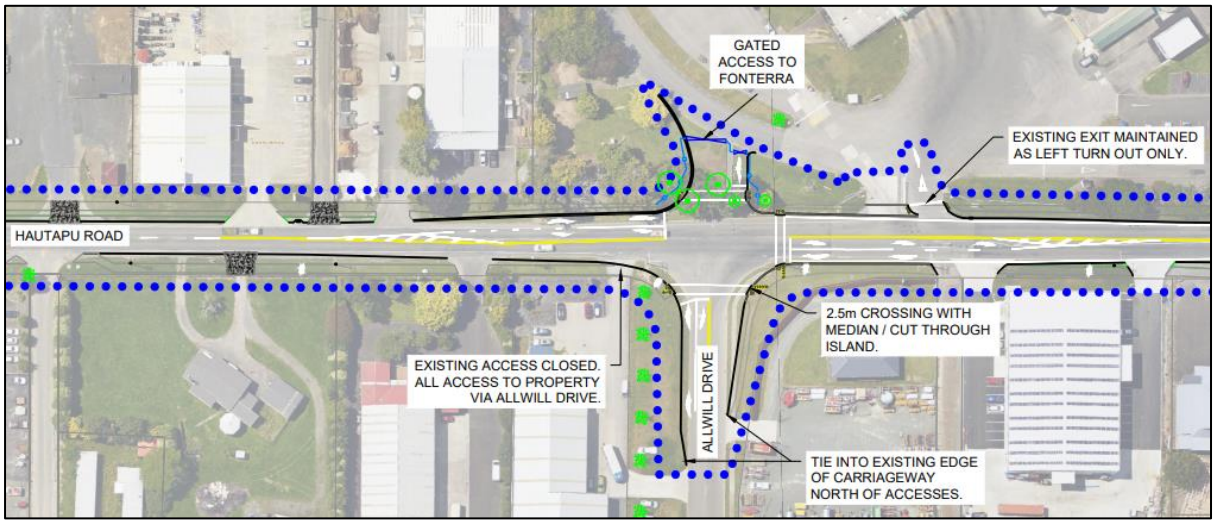

Figure 9: Allwill Drive Signalised Intersection Design

8.2.3 Table 4 and Table 5 below shows the SIDRA results of the morning and evening peak hour of the signalised intersection, providing a comparison between with and without the additional traffic associated with the proposed Plan Change.

Table 4: Hautapu Road / Allwill Drive / Fonterra Future AM Peak Hour

Approach	Movement	Future AM Peak without Development			Future AM Peak with Development		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Allwill Drive (south)	Left	36.1	D	0.5	63.9	E	0.9
	Through	31.5	C	0.5	59.3	E	0.9
	Right	40.7	D	31.0	73.6	E	57.8
Hautapu Road (east)	Left	24.0	C	95.9	23.9	C	273.5
	Through	19.3	B	95.9	19.3	B	273.5
	Right	40.8	D	21.8	60.3	E	35.6
Fonterra (north)	Left	29.3	C	50.6	49.6	D	91.8
	Through	24.7	C	50.6	45.0	D	91.8
	Right	29.4	C	50.6	49.6	D	91.8
Hautapu Road (west)	Left	21.4	C	49.3	24.2	C	87.9
	Through	16.8	B	49.3	19.5	B	87.9
	Right	37.2	D	0.3	70.5	E	0.5
All Vehicles		**25.8**	**C**	-	**30.8**	**C**	-

Table 5: Hautapu Road / Allwill Drive / Fonterra Future PM Peak Hour

Approach	Movement	Future PM Peak without Development			Future PM Peak with Development		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Allwill Drive (south)	Left	27.0	C	0.4	39.4	D	0.7
	Through	22.4	C	0.4	34.8	C	0.7
	Right	37.9	D	90.4	53.9	D	135.9
Hautapu Road (east)	Left	35.8	D	102.0	32.9	C	145.6
	Through	31.1	C	102.0	28.3	C	145.6
	Right	32.3	C	52.3	59.0	E	93.4
Fonterra (north)	Left	21.2	C	15.1	38.5	D	27.0
	Through	16.6	B	15.1	33.9	C	27.0
	Right	21.2	C	15.1	38.5	D	27.0
Hautapu Road (west)	Left	37.3	D	32.6	45.7	D	188.7
	Through	32.6	C	32.6	41.0	D	188.7
	Right	37.2	D	0.3	59.4	E	0.4
All Vehicles		**33.2**	**C**	-	**42.7**	**D**	-

8.2.4 The above results show that the intersection performs at Level of Service (LOS) C or D which is considered acceptable for a signalised intersection. As such, no changes are considered necessary for this intersection as part of the proposed Plan Change.

8.3 Plan Change Area Access

8.3.1 The intersection into the proposed Plan Change area from Hautapu Road has also been modelled to ensure that the proposed priority control is appropriate. Figure 10 below shows the intersection layout proposed to serve the site.

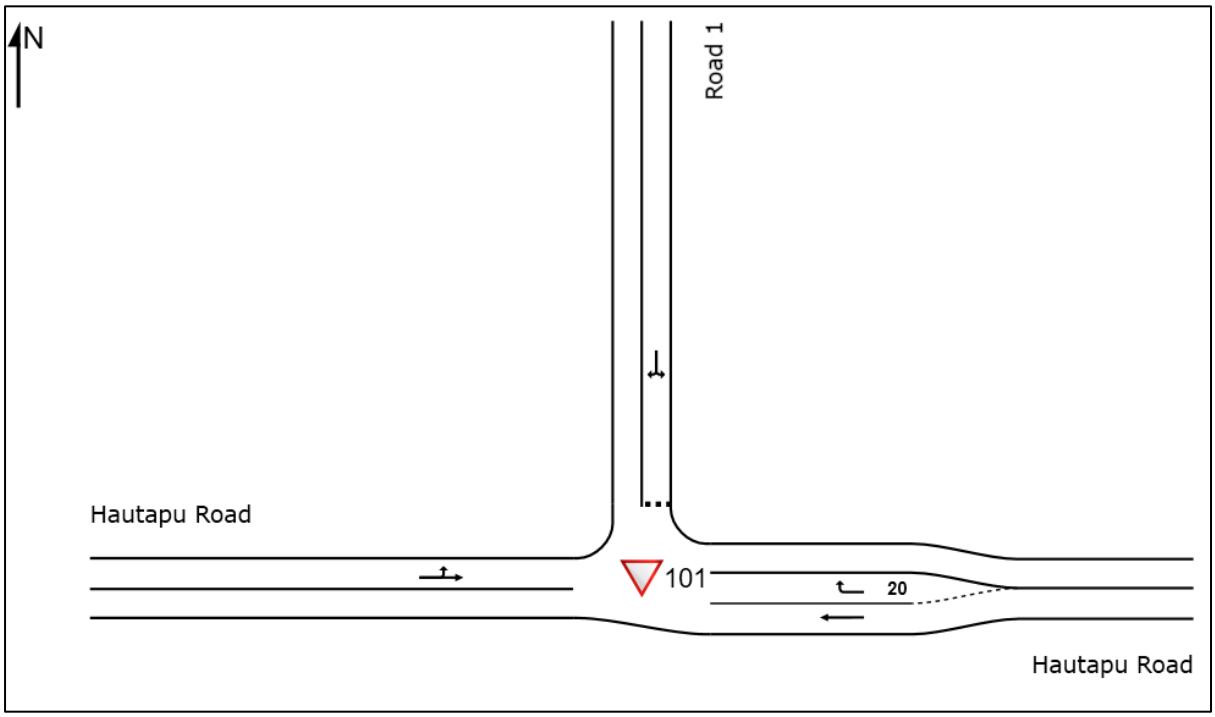

Figure 10: Hautapu Road / Road 1 Intersection Layout

8.3.2 Table 6 below shows the SIDRA results for the morning and evening peak hours for the new intersection.

Table 6: Hautapu Road / Road 1 Future Peak Hour

Approach	Movement	Future AM Peak			Future PM Peak		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Hautapu Road (east)	Through	0.0	A	0.0	0.0	A	0.0
	Right	5.9	A	11.0	5.1	A	1.7
Road 1 (north)	Left	5.6	A	1.4	5.2	A	9.1
	Right	12.3	B	1.4	9.4	A	9.1
Hautapu Road (west)	Left	4.7	A	0.0	4.7	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0
All Vehicles		**3.1**	**NA**	**-**	**2.7**	**NA**	**-**

8.3.3 The above results indicate that the intersection is expected to perform well with no notable congestion likely to be created. It is therefore assessed that a single priority-controlled intersection onto Hautapu Road is appropriate and sufficient for the proposed Plan Change site.

8.3.4 Overall, it is assessed that no changes are required to the approved upgrades to the Hautapu Road corridor are required as part of the proposed Plan Change.

9 External Access Effects

9.1 Location and Separation

9.1.1 A pre-application meeting was held with WDC to discuss the proposed Plan Change and road design. At this meeting WDC expressed a preference for the site to gain access via Hautapu Road rather than Peake Road. It is therefore proposed for the proposed Plan Change area to be served by a single intersection to Hautapu Road. This will take the form of a give-way T intersection and a right turn bay is proposed to assist vehicles turning into the site. Any individual sites wanting to gain access from Hautapu Road will be assessed at the subdivision consent stage.

9.1.2 Consideration has been given to where Road 1 will connect to Hautapu Road. It is proposed to be 230m east of Peake Road. Figure 11 below shows Road 1 in relation to Peake Road.

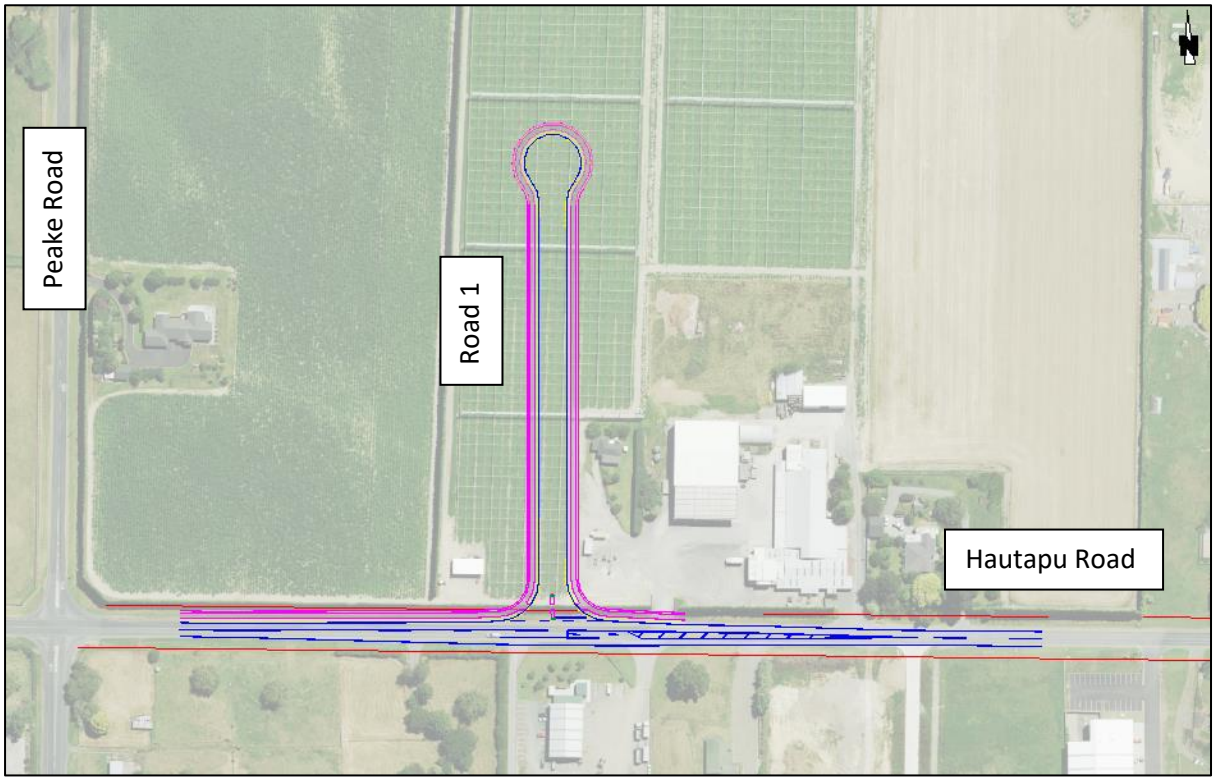

Figure 11: Road 1 Location

9.1.3 The Regional Infrastructure Technical Specification (RITS) has been used to assess the intersection separation as this is not available in the District Plan. RITS recommends a separation value of 200m between two intersections on the same side of the road. Road 1 is approximately 230m from Peake Road which aligns with RITS.

9.1.4 The District Plan requires 100m of separation between intersections and vehicle crossings. There are four vehicle crossings within 100m on the opposite side of the road. The vehicle crossings are on average approximately 50m apart from each other and there is no location along the proposed Plan Change area's frontage to Hautapu Road that is not within 100m of multiple vehicle crossings.

9.1.5 At the pre-application meeting, WDC stated they were satisfied with the location of the new road despite the proximity of the vehicle crossings opposite. An assessment has been undertaken as part of this Integrated Transportation Assessment and it is considered that the proposed intersection is an appropriate location which has appropriate sight distance to mitigate the lack of separation.

9.2 Sight Distance

9.2.1 Austroads Guide to Road Design Part 3: *Geometric Design* has been used to assess the sight distance available from Road 1 onto Hautapu Road. A speed environment of 90km/hr has been adopted to ensure a robust assessment is undertaken. This is 10km/hr above the higher posted speed limit of 80km/hr across the site's frontage. This equates to a sight distance requirement of 214m. There is over 300m of sight distance available from Road 1 to Hautapu Road which complies with this rule.

9.3 Width

9.3.1 The District Plan requires industrial cul-de-sac roads longer than 150m in length to have a road reserve width of 24m. Within this road reserve, the District Plan requires the cross-section to include a 13m carriageway with 2.5m wide footpaths, and 2.1m wide utilities corridors on both sides of the road. The proposed road is approximately 220m in length with a road reserve width of 24m which includes the elements specific within the District Plan. The proposed cross section for Road 1 can be seen in Figure 12 below.

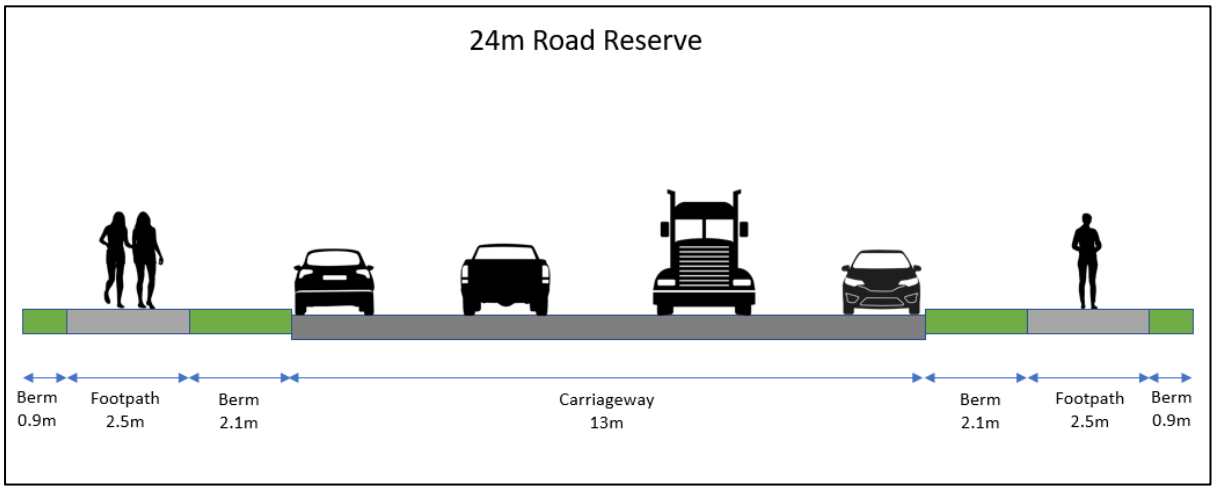

Figure 12: Proposed Cross Section

9.3.2 The proposed turning head at the end of the internal road has a diameter of 27m. A tracking assessment has been undertaken using the 17.9m design vehicles from RTS18 (a Waka Kotahi standard) and is provided in Figure 13 below. The tracking shows that a large truck is able to turn around within the turning head in an efficient manner without requiring any reverse manoeuvres.

Figure 13: Turning Head Tracking

9.4 Intersection Design

9.4.1 Austroads Guide to Road Design Part 4 *Intersections and Crossings* has been used to determine the need for a right-turn bay. Figure A10 from this design guide, provided as Figure 14 below for ease of reference, has been used to determine what type of turning treatment is required on Hautapu Road.

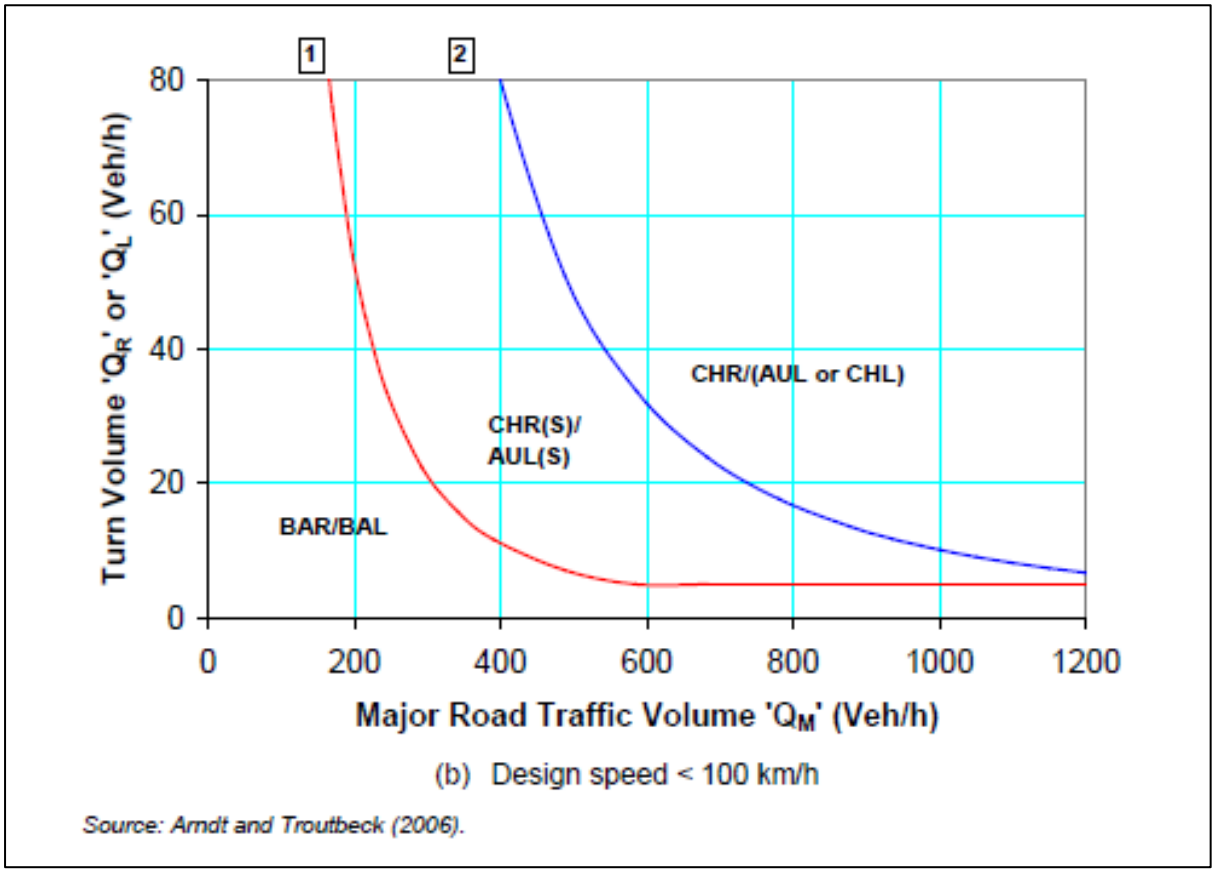

Figure 14: Warrants for Turn Treatments on the Major Road at Unsignalised Intersections

9.4.2 The morning peak hour is expected to be the critical case for the number of right turning volumes into the site. The expected right turning volume for the future morning peak hour is 346vph and the total volume of 463vph on Hautapu Road based on the expected volumes generated by the site. This situation is beyond the bounds of the figure but regardless is above the blue line. Therefore, a right turn bay is warranted for this intersection.

9.4.3 Figure 15 below shows the proposed T-intersection with the appropriate right turn bay treatment based on Austroads.

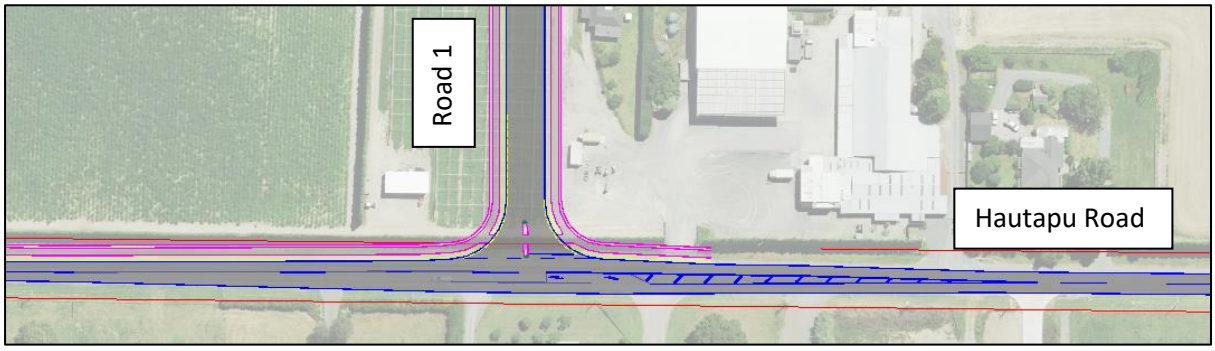

Figure 15: Proposed Intersection Treatment

9.4.4 The right turn bay is approximately 28m in length which is sufficient to accommodate large trucks. The taper length of the flush median was determined using the Manual of Traffic Signs and Markings (MOTSAM) – Part 2: markings. MOTSAM. This results in a 130m long taper towards the right turn bay.

9.4.5 The proposed new access intersection serving the Plan Change area would require widening of Hautapu Road. This can be accommodated within the existing road corridor and can also include the future pathway identified in Figure 4.

9.4.6 Overall, the proposed road is considered suitable for the proposed industrial area.

10 Parking Effects

10.1.1 It is noted that the overarching transportation policy is to reduce reliance on private transport modes. This is reflected in the District Plan rules by not including any minimum car parking provisional requirements. As such any future development is not required to provide on-site car parking. While the exact nature of future development within the Plan Change area is not confirmed, it is likely that future development would provide some on-site parking for their employees. Such an assessment would be undertaken as part of future resource consent applications. However, it is unlikely that there would be an oversupply of parking given that minimum parking requirements do not apply.

10.1.2 The proposed public road within the site includes a 13m wide carriageway. This includes allowing for parking on both sides of the carriageway while still providing two through traffic lanes.

11 Policy Setting

11.1 Regional Policy Statement (RPS)

11.1.1 The RPS became operative in May 2016. It is a long-term planning tool which identifies significant resource management issues and sets out objectives, policies and methods to address the same.

11.1.2 In relation to the proposed Plan Change, Policy 6.1 of the RPS states:

"Subdivision, use and development of the built environment, including transport, occurs in a planned and co-ordinated manner which:

a) Has regard to the principles in Section 6A

b) Recognises and addresses potential cumulative effects of subdivision, use and development;

c) Is based on sufficient information to allow assess of the potential long-term effects of subdivision, use and development; and

d) Has regard to the existing built environment."

11.1.3 Under the recommended implementation methods, Section 6.1.8 outlines the information needed to support new urban development and subdivision includes:

- The location, type, scale, funding and staging of infrastructure required to serve the area; and

- Multimodal 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 infrastructure will be protected.

11.1.4 The site will gain access via a local road to Hautapu Road. Pedestrian footpaths are proposed as part of the new road. Furthermore, a shared path is proposed along Hautapu Road which will connect to an existing shared path on Victoria Road. The proposed Plan Change is not considered to require changes to the approved design of the upgrade to the Hautapu Road corridor.

11.2 Regional Land Transport Plan (RLTP) 2021-2051

11.2.1 The RLTP sets the strategic direction for land transport within the region and is built around three key transport issues:

- Growth in the upper North Island is impacting on strategic corridors and hindering economic development;
- System failures and user behaviours expose people to risk, resulting in the unacceptable occurrence of deaths and serious injuries; and
- People need better, more equitable transport options to access social, health, economic and cultural opportunities.

11.2.2 The proposed Plan Change is in close proximity to the State Highway network and therefore enables to efficient movement of vehicles and freight throughout the upper North Island. The upgrades in recent years to the State Highway network within and around the Waipa District anticipate future industrial area proposed by the subject Plan Change.

11.2.3 The new road into the site includes footpaths on both sides of the road and the intersection has sufficient sight distance and suitable separation from other accesses. Shared paths on Hautapu Road are also proposed as part of infrastructure upgrades associated with the Hautapu Structure Plan. The shared path will connect to that provided on Victoria Road, promoting the active transport modes by providing a link from the existing urban area of Cambridge to the site.

11.2.4 Overall, it is considered that the proposed Plan Change is consistent the with the relevant transportation objectives and policies of the RLTP.

12 Planning Framework

12.1.1 The proposed Plan Change is located within the Waipa District and has been assessed against the Transportation Rule in Section 16 of the District Plan to identify whether any additional level of control or Rules specific to this site would be appropriate. Table 7 below summarises the relevant transportation rules and whether the proposed Plan Change area can comply with these criteria or not:

Table 7: District Plan Compliance Assessment

Rule	Requirement	Proposed	Compliance
Road Hierarchy			
16.4.2.1	All structure plans, Plan Changes, developments, and subdivision must be consistent with the road hierarchy, as contained in Appendix T5.	Proposed road does not change the road hierarchy.	Complies
16.4.2.2	To maintain the effectiveness of the road hierarchy, a road network must be designed so that a road connects to a road at the same level in the hierarchy, or directly above or below its place in the hierarchy	Proposed road is also a local road and is at the same level as Hautapu Road in terms of hierarchy.	Complies
16.4.2.3	To maintain the effectiveness of the road hierarchy, when a site has two road frontages, vehicle access and egress must be from the lesser road type	New road and Hautapu Road are both local roads. Peake Road is a collector and future access to frontages are controlled by this rule.	Complies
Vehicular Access to Sites in All Zones			
16.4.2.4	Every site shall be provided with vehicle access to a formed road that is constructed to a permanent standard. The vehicle access shall be designed to accommodate the demands of all traffic from the activity on that site, taking into account the form and function of the road.	New road provides access to Plan Change area. Right turn bay recommended and can be accommodated within the Hautapu Road reserve	Compliance expected
Vehicle Entrance Separation from Intersections and Other Vehicle Entrances			
16.4.2.5	The minimum distance of a vehicle entrance (accessway) from an intersection or other entrance shall be as follows. Values K, M and N are 30m, 20m and either less than 4m or greater than 11m.	The vehicle crossings expected to satisfy minimum separation requirements.	Compliance expected
Vehicle Entrance Separation from Railway Level Crossings			
16.4.2.6	New vehicle access ways shall be located a minimum of 30m from a railway level crossing.	No level crossings near the site.	Complies
Minimum Sight Distance Requirements for a Railway Level Crossing			
16.4.2.7	Any buildings, structure or land use shall be located to comply with the minimum rail level crossing sightline requirements within Appendix T2.	No level crossings near the site.	Complies
Vehicle Access to Compact Housing Development			
16.4.2.8	Compact housing development must only have one access point to a strategic road	Plan Change does not allow for compact housing	N/A
Vehicle Access to Sites in the Commercial Zone			
16.4.2.9	No new vehicle access is permitted across any 'pedestrian frontage' as identified on the Planning Maps	Site not in this zone	N/A
16.4.2.10	No direct vehicle access onto the State Highway is permitted from properties fronting State Highway 3.	Site not in this zone	N/A

16.4.2.11	Where a site has frontage to a road and a service lane, all vehicle access shall be from the service lane.	Site not in this zone	N/A
Vehicle Access to Sites in the Industrial Zone			
16.4.2.12	Where a site has a frontage greater than 50m to a road which is not a State Highway or a major arterial road, two vehicle crossings will be allowed from that road, subject to the requirements of Rule 16.4.2.5.	Appropriate number of vehicle crossings expected for each site	Compliance expected
Parking, Loading and Manoeuvring Area			
16.4.2.13	All activities that involve the erection, construction or substantial reconstruction, alteration or addition to a building on any site, or changes the use of any land or building, shall provide loading/unloading spaces for vehicles on the site as set out in Appendix T1. If parking is provided in the Residential Zone: (a) One of the car parks allocated to a single dwelling may be stacked (i.e. located in such a way that it cannot be accessed directly from the associated access or manoeuvring area) provided that the stacked car park does not: (i) Encroach on or interfere with any shared access on the site; or (ii) Encroach on any required building setback, side boundaries, or outdoor living area; or (iii) Compromise the ability for any vehicle to manoeuvre within the site	Loading spaces are expected to be provided at compliant rates.	Compliance expected
16.4.2.14	Vehicle parking (if provided), loading/unloading, and manoeuvring areas shall: (a) Not encroach on any setback, outdoor living area, or bicycle parking spaces; and loading/unloading areas and manoeuvring areas shall not encroach over vehicle parking spaces; and (b) Be designed, formed, and constructed to ensure that the surface of the required area provides a dust free environment; and (c) Provide for the safe and efficient disposal of surface stormwater clear of any adjoining access or road surface in a way that does not result in ponding or scouring; and (d) Be constructed to accommodate the anticipated use of the area by all traffic likely to access the site in the zone in which it is located, including construction traffic taking into account pavement, surfacing, demarcation of spaces, aisles and circulation roads; and (e) Be provided on the site on which the building, activity or proposal is located, except where the provisions of Rules 16.4.2.15 and 16.4.2.16 apply.	Parking spaces are expected to be suitably designed.	Compliance expected
Exemption for On-Site Vehicle Manoeuvring Areas in the Residential Zone			

16.4.2.15	On front or corner sites in the Residential Zone, on-site vehicle manoeuvring areas may be exempt from Rule 16.4.2.14(e) and shall not be required where: (a) The site contains a single, primary dwelling; and (b) The garage doors, or vehicle entrance to the carport faces the road where the vehicle will access (refer to diagram following Rule 16.4.2.16); and (c) The distance between the garage door, or vehicle entrance to the carport and the road boundary on the site is no more than 12m (refer to diagram following Rule 16.4.2.16); and (d) The driveway does not encroach on any minimum outdoor living area as required under Rule 2.4.2.19 or road boundary setback other than at the vehicle entrance.	Exemptions not required	N/A
16.4.2.16	On sites in the Residential Zone with access to a right of way, manoeuvring may occur in the right of way and sites may be exempt from Rule 16.4.2.14(e) where: (a) The site contains a single, primary dwelling; and (b) The garage doors, or vehicle entrance to the carport face the right of way where the vehicle will access; and (c) The distance between the garage door, or vehicle entrance to the carport and the site boundary with the right of way is no more than 12m; and (d) The driveway does not encroach on any minimum outdoor living area as required under Rule 2.4.2.19; and (e) Rights over the right of way shall be apportioned so as to provide legal access to all sites for the purposes of vehicle manoeuvring; and (f) The right of way shall be of sufficient dimension to provide for a vehicle manoeuvring area of a standard adequate to accommodate a 99.8 percentile car, in order to ensure that all vehicles have the ability to access the adjoining road in a forward direction after no more than a three point turning manoeuvre on the site.	Exemptions not required	N/A
16.4.2.17	The design and layout of sites shall ensure that access to each required loading and unloading space, or parking space if provided is directly from the required access or manoeuvring area.	Direct access to all parking spaces is expected to be available	Compliance expected
16.4.2.18	Vehicle manoeuvring areas loading and unloading spaces, and if provided, parking spaces, including those spaces located in a garage, shall be provided on a site, of a standard adequate to accommodate a 99.8 percentile car, or a 99 percentile truck, in order to ensure that all vehicles have the ability to access the adjoining road in a forward direction after no more than a three point turning	Parking dimensions can satisfy District Plan standards	Compliance expected

	manoeuvre on the site, except where Rule 16.4.2.16 applies.		
16.4.2.19	All car parks (if provided) shall be marked or delineated on site, except in the Residential Zone and in the St Peters School Zone.	Car parks can be suitably marked	Compliance expected
Car Park Landscaping and Lighting			
16.4.2.20	Other than in the St Peters School Zone, all car parks must: (a) Provide at least one tree planted for every 5 car parking spaces at a grade of no less than PB95. For the avoidance of doubt, PB95 is equivalent to a tree that is at least 1.5m tall at the time of planting; and (b) Ensure lighting is designed to avoid shading areas or isolating areas of public use.	Trees expected to be provided at compliant rates once car parking provision is confirmed on an individual lot basis.	Compliance expected
Provision of Bicycle Parking Facilities			
16.4.2.24	In areas other than the Rural Zone and Pedestrian Frontages, activities employing more than ten people must provide bicycle parking facilities at a rate of one bicycle park for every ten people employed	Site will be zoned Industrial and can be expected to provide cycle parking at suitable levels.	Compliance expected
Provision of an Integrated Transportation Assessment			
16.4.2.25	A Simple or Broad Integrated Transport Assessment (ITA) shall be prepared for activities as required by this rule. A Simple ITA is required for a development generating more than 250 'car equivalents' per day onto a Collector or Local Road	Broad ITA provided to assess Plan Change. ITAs for individual developments can be provided as appropriate	Complies

12.1.2 Overall, the future development within the Plan Change area is able to be fully compliant with the transportation rules of the District Plan, with there being a suitable degree of control in place already to support access for individual future developments from either the new access road or Hautapu Road. The Peake Road frontage is protected from industrial cess by Rule 16.4.2.3. As such, no new transportation Rules are considered necessary to support the Plan Change.

13 Conclusions

13.1.1 A Plan Change is proposed to convert the underlying zoning of the site located at 326 & 342 Peake Road and 84, 86, 90, 102, & 108 Hautapu Road from Rural zone to Industrial to match the Hautapu Structure Plan. The exact activity and scale of future industrial development will be assessed as part of any future development or subdivision application.

13.1.2 Based on the assessment undertaken it is concluded that:

- The Plan Change area is expected to generate some 398 vehicle movements in the peak hour. No changes to the approved infrastructure upgrades associated with the Hautapu Structure Plan are considered necessary.

- A new road branching off Hautapu Road is proposed to provide access to future development of the site. This has been designed in accordance with the District Plan requirements. The new road layout is not expected to result in any adverse effects on the safety and functionality of the existing roading network.

- The future internal accesses and parking for the future development are expected to be able to comply with the District Plan requirements.

13.1.3 Overall, the future development within the Plan Change area is able to be fully compliant with the transportation rules of the District Plan, with there being a suitable degree of control in place already to support access for individual future developments from either the new access road or Hautapu Road. The Peake Road frontage is protected from industrial access by Rule 16.4.2.3. As such, no new transportation Rules are considered necessary to support the Plan Change.

CKL