

Hautapu Wastewater Treatment Facility

Integrated Transport Assessment

PREPARED FOR FONTERRA LIMITED | APRIL 2021

We design with community in mind

Revision Schedule

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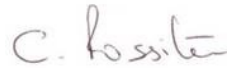
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Abbreviations

AEE	Assessment of Environmental Effects
AM peak	The busiest hour of the road network between 7am and 9am
CTMP	Construction Traffic Management Plan
Design speed	Generally represented by the 85th percentile operating speed
District Plan	Waipa District Plan
ecm	Equivalent car movements (as calculated by the Waipa District Plan - refer also to VPD)
Heavy vehicle	A vehicle generally greater than 3.5 Tonne gross weight
Light vehicle	A vehicle smaller than a heavy vehicle
LOS	Level of Service, a qualitative measure of performance, with a range LOS A (free flow) to LOS F (congested)
NZTA	Waka Kotahi NZ Transport Agency
ONRC	One Network Road Classification
PM peak	The busiest hour of the road network between 4pm and 6pm
RITS	Regional Infrastructure Technical Specifications, Waikato Local Authority Shared Services
RPS	Waikato Regional Policy Statement
SH1	State Highway 1
SH1B	State Highway 1B
s/veh	Seconds per vehicle
vmpd	Vehicle movements per day (an individual vehicle movement in terms of traffic generation)
vpd	Vehicles per day (an individual vehicle unit)
VPD	Waipa District Plan calculation of equivalent car movements, where a heavy vehicle is treated as 10 equivalent car movements
vph	Vehicles per hour (an individual vehicle unit)
WWTF	Waste Water Treatment Facility



1.0 INTRODUCTION

Fonterra is proposing to develop a Wastewater Treatment Facility (WWTF) to support its operations at the Hautapu Dairy Factory. The construction and operation of the WWTF at the location proposed will require changes to the traffic generation characteristics of the Hautapu Dairy Manufacturing Site ("Hautapu Site").

Fonterra has commissioned Stantec to prepare an Integrated Transport Assessment of the proposed WWTF. The assessment firstly investigates the surrounding transport network, its function, and use by all modes of travel. It then considers the site in the context of potential changes in the transport network. An assessment of the construction and operational traffic generation is undertaken, and recommendations made.

The assessment methodology is in accordance with that referenced by the NZTA Integrated Transport Assessment guidelines. A Simple to Moderate assessment has been prepared, with a focus on access, local intersections, and the transport routes from the arterial network. Consideration is given to all of the transport modes using the roads in the area and considers the site in the wider context of current and future land use. Given the long term nature of the WWTF activity to compliment the Hautapu Site, a conservative approach has been taken to considering the need for and form of mitigation.

Assessment of the existing access and transport network design and mitigation firstly considers the provisions of the District Plan, and the Regional Infrastructure Technical Specifications which are the locally applicable provisions. This is supported by assessment against industry standard guidance including NZTA provisions (including published research and design requirements), and high-level transport engineering design guidance from Austroads which incorporates industry best practice considerations.

By way of an overall summary, it is concluded that:

- A standard access at 82 Hautapu Road and no change to access at the existing Fonterra main access on Hautapu Road could readily accommodate the expected traffic volumes with negligible effect on the road network;
- It is recommended that a Construction Traffic Management Plan (CTMP) be prepared to enable the planned management of transport effects relating to construction activity, subject to Council approval, prior to the commencement of construction. This is to include the requirements for temporary traffic management in accordance with the Code of Practice for Temporary Traffic Management (COPTTM), which are also subject to Council approval prior to commencement on-site.

On the basis of these assessments, and as is further set out in the assessment, it is concluded the transport effects associated with the proposal will be negligible.

2.0 SITE LOCATION

Figure 2-1 shows the proposed site strategically located near SH1B and SH1 at Hautapu north of Cambridge.

Figure 2-2 provides further detail of the site location on the northern side of Hautapu Road, within the wider site extent of the existing Fonterra Hautapu Site adjacent to SH1B. The drawing also shows the Road Hierarchy as defined by the Waipa District Plan ("District Plan").



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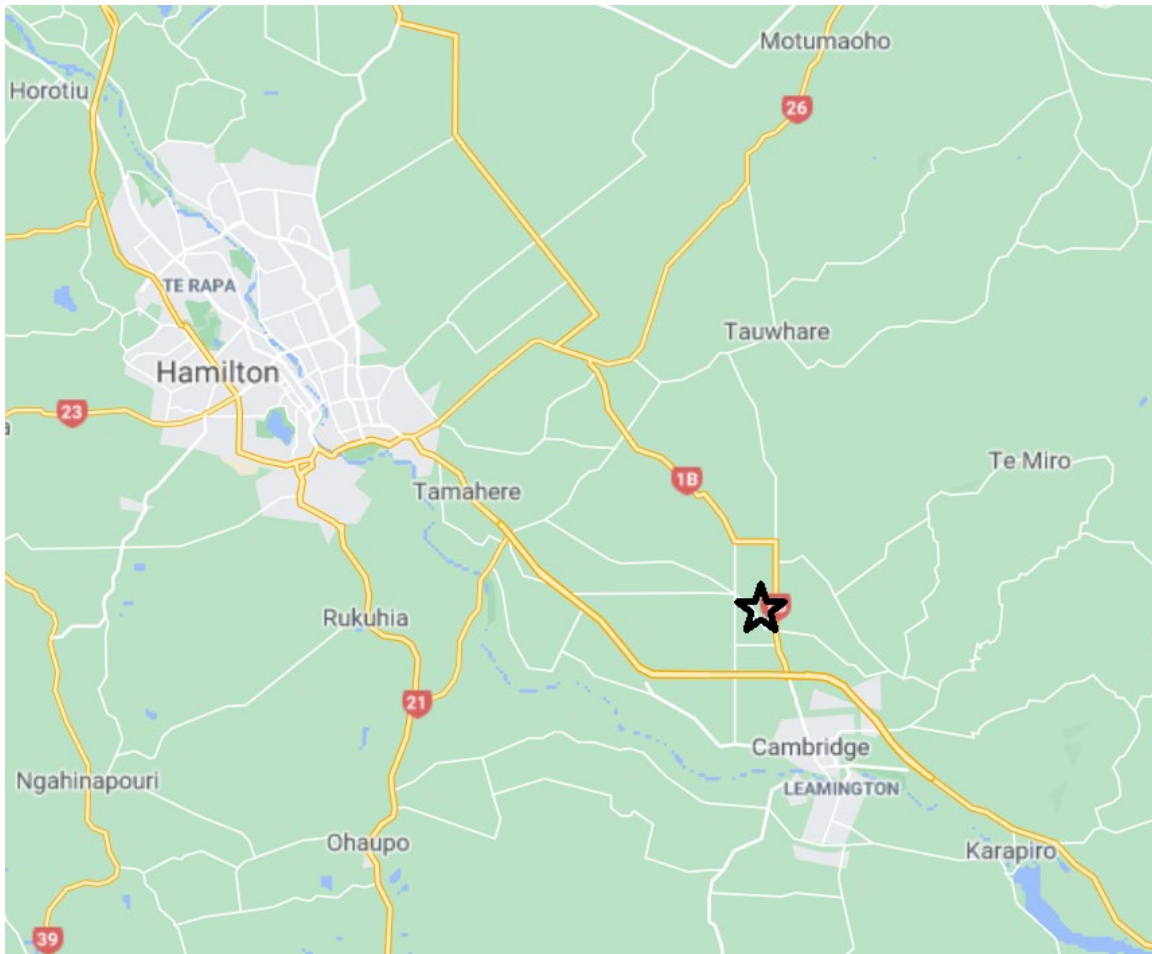


Figure 2-1: Strategic Location



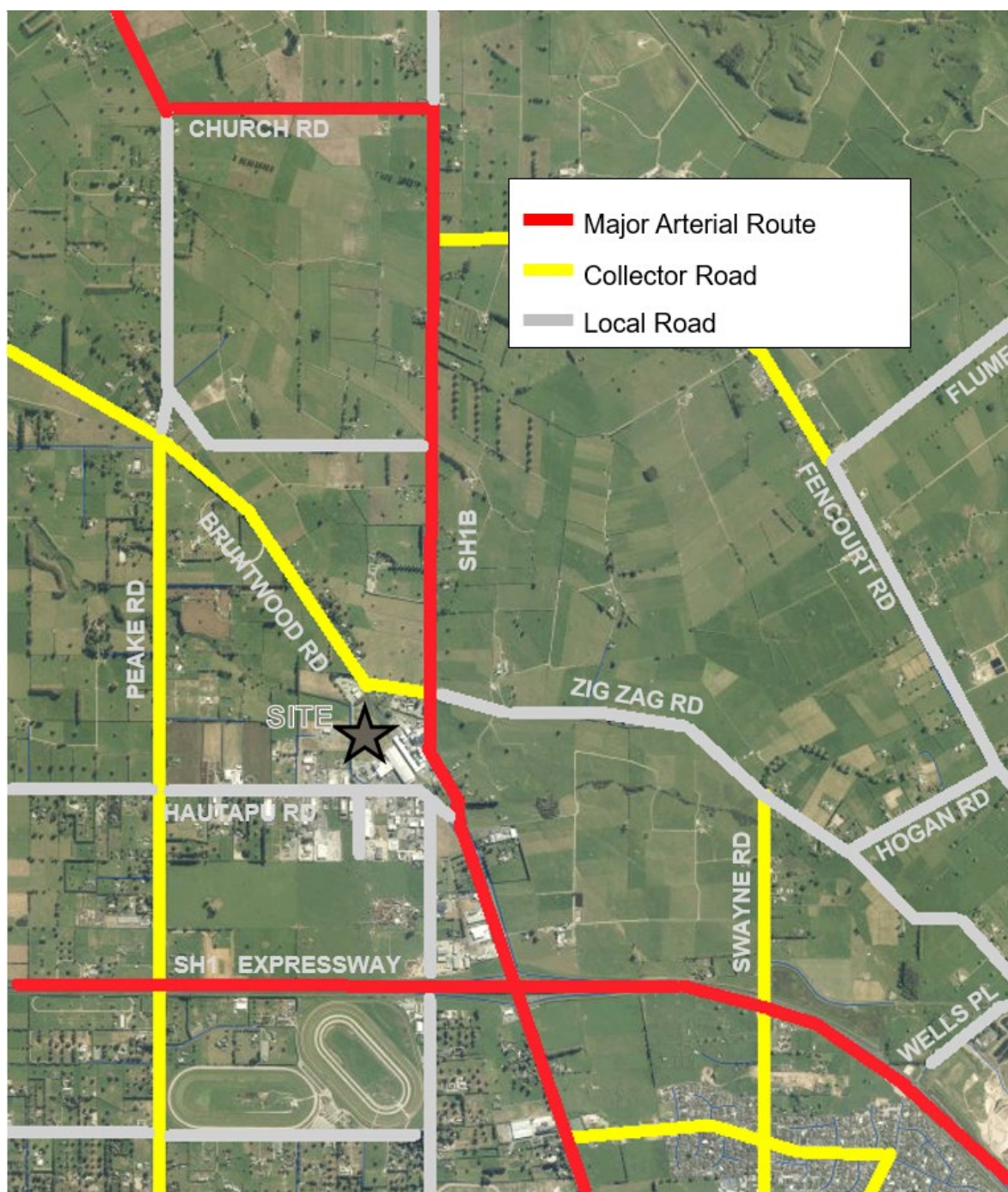


Figure 2-2: Road Hierarchy

The SH1 Waikato Expressway is the dominant road in the area, linking Hamilton to Cambridge and areas further south. SH1B is defined as a Major Arterial Route and provides a connection from Cambridge to the northwest. The Waipa District Council local road of Hautapu Road is the particular road of interest to the WWTF assessment.

NZTA has developed a system of road classification that has been applied to the road network throughout NZ. The One Network Road Classification (ONRC) classifies Hautapu Road as a Primary Collector Road¹ rather than

¹ These are locally important roads that provide a primary distributor/collector function, linking significant local economic areas or population areas.



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the “local road” classification in the District Plan. This indicates the use and function of this road is potentially greater than anticipated by the District Plan.

Figure 2-3 shows an aerial photo of the site within the surrounding environment subject to this assessment. The WWTF will be west of the existing Fonterra Hautapu manufacturing plant. There are also a range of industrial and residential activities not associated with Fonterra that straddle Hautapu Road. Local roads of Allwill Drive and Hannon Road connect to Hautapu Road in the vicinity of the site. The aerial photo has the main “Gate 1” position shown for access to the Hautapu Site, as well as the Fonterra owned 82 Hautapu Road access location.

The Hautapu industrial area has recently been subject to rapid growth, with vacant sites regularly being developed in the area. In that respect some additional development has occurred since the 2019 Google image included in Figure 2-3.



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Figure 2-3: Hautapu Road Contextual Image (Source Google: Image September 2019)



3.0 EXISTING TRANSPORT NETWORK AND INFRASTRUCTURE

3.1 HAUTAPU ROAD

Hautapu Road past the Hautapu Site is an urban two-lane road, with a 7.5m wide carriageway operating with a 70km/h speed limit. It generally has a marked centreline and edgeline, with localised kerb and channel in front of the Fonterra factory site. There are wide berms but there are no footpaths on either side of the road.

3.2 FONTERRA ACCESS AND ALLWILL DRIVE

The main access for Fonterra's Hautapu Site for truck and trailer movements associated with delivery, product dispatch, chemical and inwards goods service requirements and staff vehicles is, on Hautapu Road just east of Allwill Drive. This gate is referred to as "Gate 1" in the District Plan provisions for the Hautapu Site.

Figure 3-1 shows that the Gate 1 access has a right turn bay into it, and a splitter island to separate inbound and outbound traffic at the gate. The overall width of the Gate 1 access at the boundary is approximately 22.5m wide, comprising 10m wide entry and exit lanes, and a 2.5m wide island. The gates are set back from the road edgeline by approximately 9m, although due to the operating conditions of the site, gates are almost always open with security stations internal to the site. Sightlines from the access meet intersection standard requirements for the 70km/h speed limit.

At Gate 1, milk tankers turn towards the left when entering the site for milk delivery, whilst product trucks turn to the right.



Figure 3-1: Fonterra Hautapu Road Gate



Figure 3-2: Hautapu Rad Main Gate Entrance (east approach)



Figure 3-3: Fonterra Access on Hautapu Road – Looking East

Allwill Drive is an industrial road with a 10.1m wide road carriageway, and 50km/h speed limit. It forms a 'Give Way' controlled intersection with Hautapu Road, and there is a pedestrian footpath on the eastern side of the road.



Figure 3-4: Allwill Drive / Hautapu Road Intersection

3.3 SH1B / HAUTAPU ROAD INTERSECTION

The SH1B / Hautapu Road intersection has Hautapu Road and SH1B south as the major priority road, with SH1B north forming a T-intersection with give way control. It sits at the speed limit change between 70km/h and 80km/h (south of the intersection). A pedestrian / cycle path is located alongside the eastern side of SH1B south of the intersection.

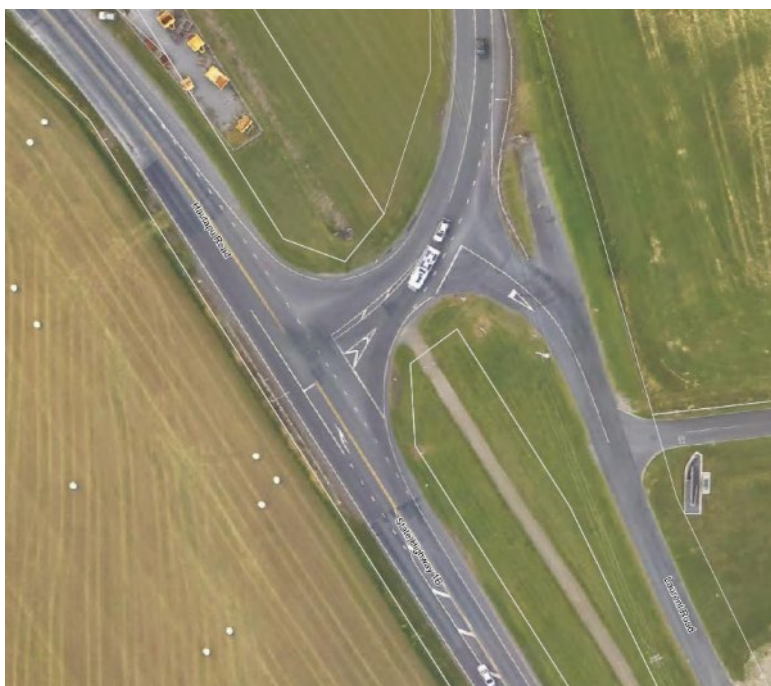


Figure 3-5: SH1B / Hautapu Road Intersection



Figure 3-6: SH1B / Hautapu Road Intersection from the South

3.4 82 HAUTAPU ROAD

Fonterra owns land at 82 Hautapu Road, which is currently used for some workshop and storage activities. It is accessed via a basic vehicle crossing which is also shared with the driveway into 84 Hautapu Road. The location within the context of the Hautapu Site was also shown in Figure 2-3.



Figure 3-7: Aerial Photo of 82 Hautapu Road Access



Figure 3-8: 82 Hautapu Road Access (near right side of the road)



Figure 3-9: Gravelled Access Track into 82 Hautapu Road

3.5 CYCLE AND WALKING INFRASTRUCTURE

As indicated by the photos describing the surrounding roads, Hautapu Road does not provide dedicated walking or cycling infrastructure. The closest infrastructure is along the eastern side of Allwill Drive, and on Victoria Road south of the SH1B / Hautapu Road intersection.

The road network surrounding Cambridge is well utilised by both recreational and sport cyclists, and Cambridge is recognised as the “Home of Cycling” for New Zealand representative cycling. Hautapu Road is not included in the major road cycling routes.

3.6 PUBLIC TRANSPORT

The closest public transport service is the Hamilton – Cambridge route which utilises Victoria Road / Hamilton Road. A limited route linking to the Cambridge High School is at its closest at Victoria Street / Taylor Street. This is at least 2.5km from the site, beyond an accessible walking distance to bus stops.

4.0 TRANSPORT ENVIRONMENT

4.1 DAILY TRAFFIC PATTERNS

Traffic data has been collected from existing NZTA and Waipa District Council traffic counts, together with recent surveys undertaken by Fonterra for the WWTF project.

The daily traffic patterns are shown diagrammatically in **Figure 4-1**. As can be seen, the dominant road in the area is the Waikato Expressway, carrying 24,000 vehicles per day (vpd) west of Cambridge Road, and 16,400 vpd east of Victoria Road.

In the local area, SH1B carries 10,000vpd south of Hautapu Road, reducing to 6,500vpd north of Hautapu.

Recent Waipa DC counts from March 2020 show that Hautapu Road carries 3,700vpd to the east of the Fonterra access gate, and 2,950vpd west of Allwill Drive. Hautapu Road carries 1,130vpd west of Peake Road (2018 count), and Peake Road carries 1,650vpd north of Hautapu Road (2018 count).

This is generally consistent with the existing road hierarchy and function of the roads described earlier.



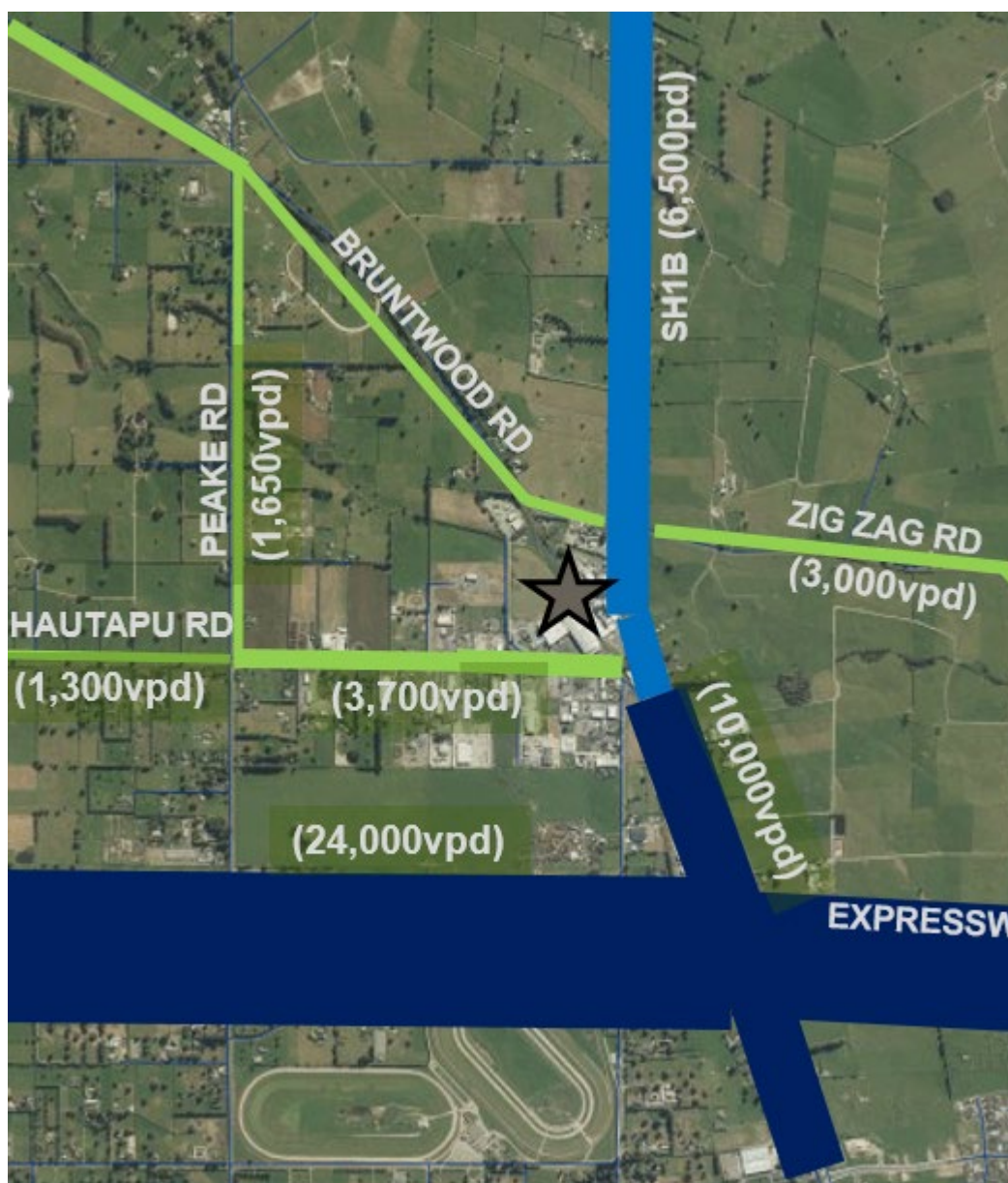


Figure 4-1: Daily Traffic Patterns

The speeds recorded by the traffic counters indicate an 85th percentile operating speed of approximately 68km/h on Hautapu Road east of the Fonterra access (outside 31 Hautapu Road), with a 58km/h mean speed. On Hautapu Road west of Allwill Drive (outside 62 Hautapu Road) the 85th percentile speed is 75km/h west with mean speed 62km/h.

The percentage of heavy vehicles classified by the traffic counters is in the order of 885vpd (24% of all traffic) east of the Fonterra access, and 485vpd (16% of all traffic) west of Allwill Drive. Heavy vehicle volumes reduce to approximately 7% west of Peake Road.

4.2 HOURLY TRAFFIC PATTERNS

In order to understand the hourly traffic patterns, detailed analysis of the local road traffic counts has been carried out. Graphs in **Figure 4-2** show the hourly traffic patterns on Hautapu Road east of Allwill Drive, as recorded by traffic counts in March 2020.

Hautapu Road East of Allwill Drive (Two-Way)

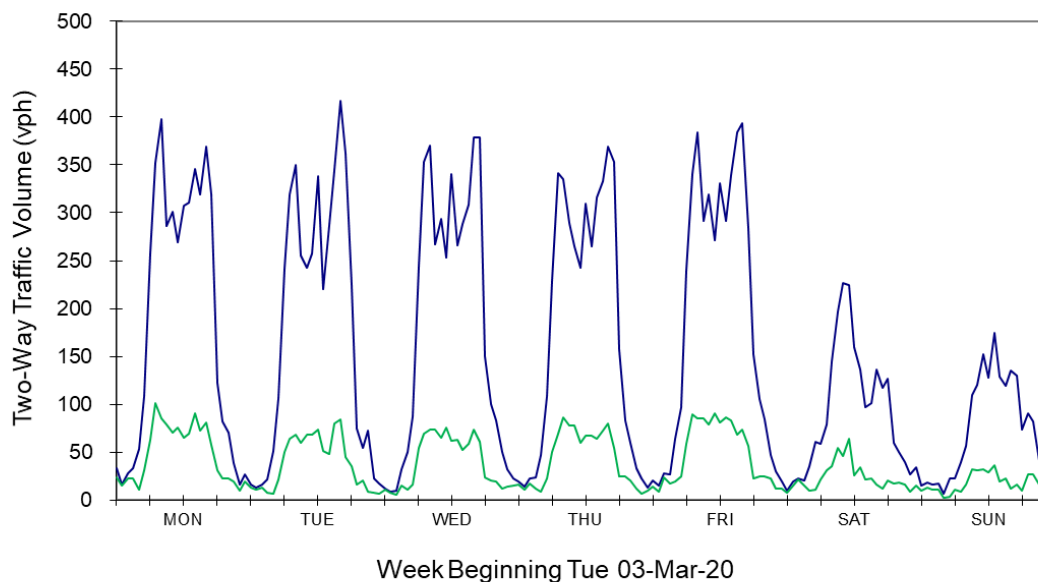


Figure 4-2: Local Road Hourly Traffic Patterns (Green Line is Heavy Vehicles)

The traffic counts show a peak in the morning peak period, and also at the afternoon peak period of approximately 350-400 vehicles per hour two way.

4.3 INTERSECTION TURN MOVEMENTS

Peak period intersection and access turning counts have been collected on Thursday 4 February 2021 in the vicinity of the Hautapu site. These indicate that the peak traffic occurs at approximately 7.45am-8.45am, and 4.30pm-5.30pm. The peak hour traffic counts are summarised in the turning movement diagrams below.



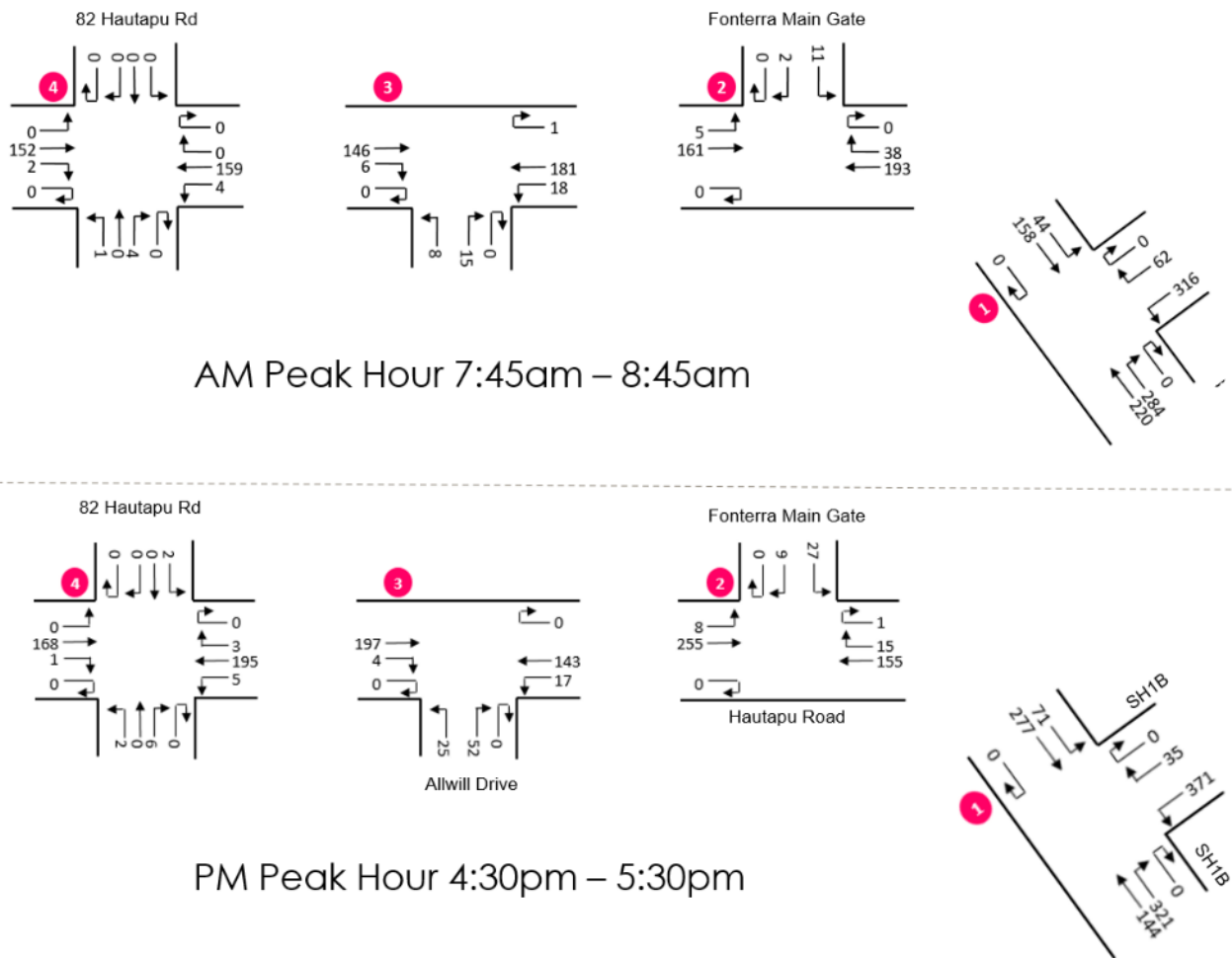


Figure 4-3: Peak Hour Traffic Turning Movements

The Fonterra Gate 1 was recorded as carrying 56vph (including 10 heavy) in the morning peak hour, and 45vph in the evening peak hour (including 9 heavy). Due to operational procedures requiring visitors to check in at Gate 1 for a temperature check associated with Covid-19 response, this will be higher than typical traffic generation where visitors have been able to go direct to other gates. The District Plan anticipates the access carrying up to 1,102 vehicles per day of which 672 are heavy vehicles. This would broadly be equivalent to approximately 110 vehicles per hour. It is clear that the access is currently operating well below the thresholds, and as the check-in requirements are relaxed further additional capacity will become available.

Analysis of turning movement patterns indicates that in total across all surveyed periods at the Fonterra access and the Allwill Drive intersection, 80% of light vehicle movements are to and from the east, and 76% of medium and heavy vehicles are to and from the west.

Vehicle type were recorded as follows to the east of the Fonterra access:

Time	Light	Medium	Heavy	Bus	Total	Cyclists
7:45am-8:45am	349	35	13	1	398	5
	87.7%	8.8%	3.2%	0.3%		
4:30pm-5:30pm	392	39	15	0	446	2
	87.9%	8.7%	3.4%	0.0%		

Table 4-1: Peak Hour Vehicle Composition Hautapu Road east of Fonterra Access

The heavy vehicle percentage (vehicles other than light vehicles) are approximately 12% in the peak hours, or close to one heavy vehicle every 1.1 minutes.

4.4 CYCLING, WALKING, AND SCHOOL BUS ACTIVITY

Hautapu Road as an industrial area has many workplaces, and as such some pedestrian and cycle activity can be anticipated. Observations and the intersection survey records indicate that there are only a small number of pedestrians and cyclists using Hautapu Road, also noting there is no specific infrastructure available.

The Hautapu School (full primary school) is located almost 2km west of the site on Hautapu Road. The Cambridge High School is located in the northern part of the Cambridge urban area, south of the expressway. Current school bus routes have been provided by the Regional Transport Advisor for School Transport, and Hautapu Road past the site forms part of the route including the following movements:

- Outbound from Cambridge shortly after 7am past the site into the Bruntwood area for drop off at Hautapu Primary school about 7.30am. The route then continues on along various roads in the area for drop-off at the schools in Cambridge and Goodwood School;
- Outbound from Cambridge at 2.30pm past the site on Hautapu Road to pick up at Hautapu School, dropping off in the Bruntwood area before returning via Hautapu Road past the site to pick up at Cambridge Middle School and Cambridge High School, and Goodwood School. The return route from the Bruntwood area again travels along Hautapu Road past the site.

This equates to approximately three school bus movements passing the site, of which three movements are at the start or end of the route.

4.5 EXISTING INTERSECTION PERFORMANCE

An assessment of intersection performance has been carried out using SIDRA Intersection software. Based on the surveyed traffic volumes in the busiest morning peak period, the performance is summarised as follows:

Intersection	Side Road Delay (s/veh)	Side Road Queue (veh)	Side Road Level of Service
SH1B / Hautapu Road	11 s/veh	4 veh	LOS B
Hautapu Road / Fonterra Main Gate	3 sec/veh	0 veh	LOS A
Hautapu Road / Allwill Drive	7 sec/veh	0 veh	LOS A

Table 4-2: Existing AM Peak Intersection Performance



Intersection	Side Road Delay (s/veh)	Side Road Queue (veh)	Side Road Level of Service
SH1B / Hautapu Road	12 s/veh	4 veh	LOS B
Hautapu Road / Fonterra Main Gate	3 sec/veh	0 veh	LOS A
Hautapu Road / Allwill Drive	6 sec/veh	1 veh	LOS A

Table 4-3: Existing PM Peak Intersection Performance

It can be seen that all of the intersections operate at a high level of service A or B, which represents uncongested conditions (where level of service ranges from LOS A (free flow), through to LOS F (congested)). In that respect, it is concluded the road network is operating efficiently.

5.0 ROAD SAFETY ASSESSMENT

5.1 CRASH ANALYSIS

The NZTA Crash Analysis System has been investigated for the local roading network surrounding the site, to identify any crashes that have occurred. As per standard practice, the crash search covers the most recent full five year period, 2016 to 2020. The area covered by the investigation included Hautapu Road from SH1B to Peake Road.

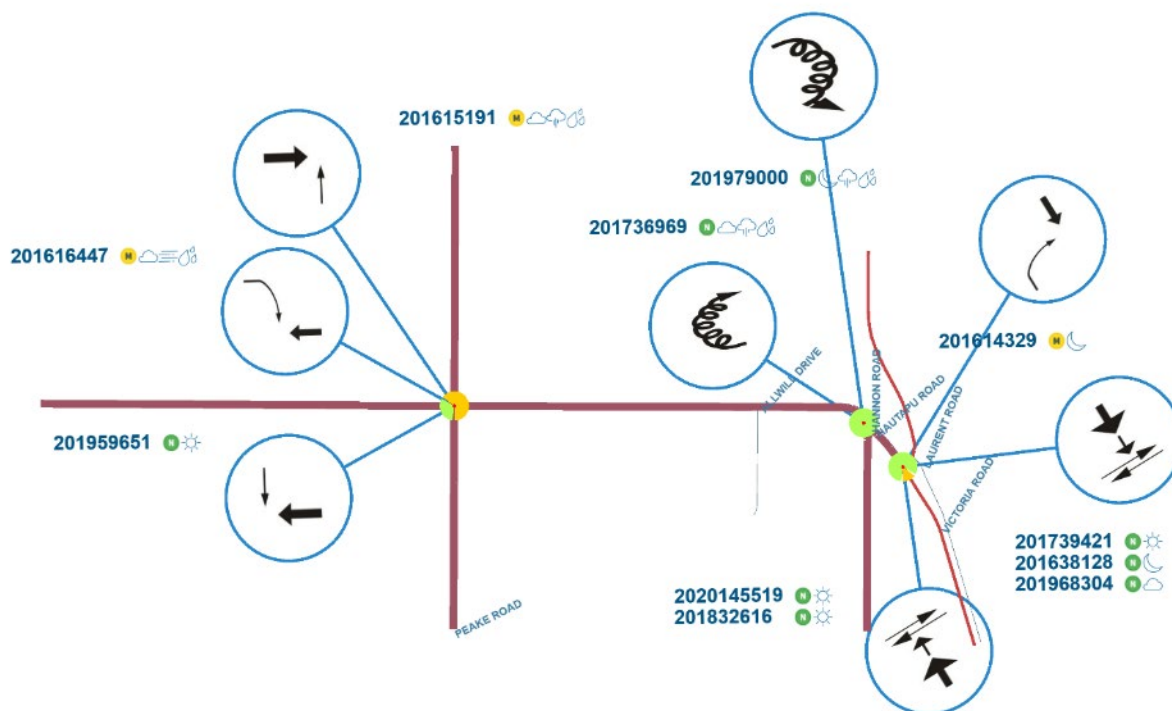


Figure 5-1: Hautapu Road Collision Diagram (Peak Road to SH1B)



The road mid-block crashes can broadly be summarised as follows:

- Two single vehicle, non-injury, loss of control crashes on the bend west of the SH1B intersection. Both crashes occurred in wet weather and involved the driver travelling too fast for the conditions and sliding out of control. One led to the vehicle sliding into a parked milk tanker.

Intersection crashes can be summarised as follows:

- Six crashes at the SH1B / Hautapu Road intersection, of which 1 resulted in minor injury, and 5 were non-injury. This latter group comprised rear end type crashes where a vehicle hit the vehicle in front that was slowed or stopped at the intersection. The other minor injury crash involved a right turn from the south being hit by a through vehicle.
- Three crashes at the Hautapu Road / Peake Road intersection, of which two were minor injury and one was non-injury. All of the crashes involved turning or crossing collisions.

No crashes have involved cyclists, pedestrians, buses, horses or trucks (aside from the loss of control where the vehicle slid into the parked truck).

In addition, no crashes have occurred at accesses or at the minor road intersections of Hannon Road or Allwill Drive.

6.0 FUTURE CHANGES TO TRANSPORT NETWORK

6.1 GROWTH STRATEGY

The Waipa 2050 Growth Strategy for Cambridge which was updated in 2017 includes a map showing expected growth areas north of Cambridge. A District Plan Change (Plan Change 5-Waipā 2050 Growth Strategy) established future development areas consistent with the strategy. Urban industrial growth is shown southwest and east of the Fonterra factory site (to the north of the expressway), with part of the area having already undergone development.



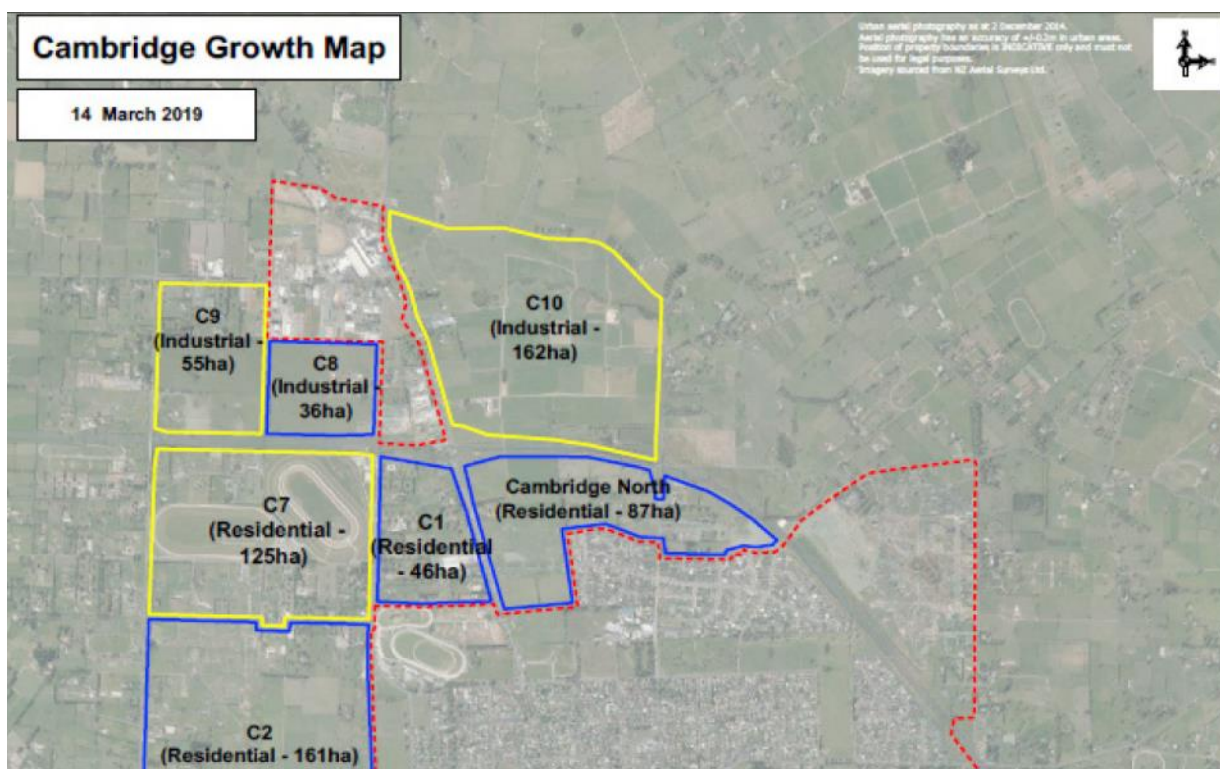
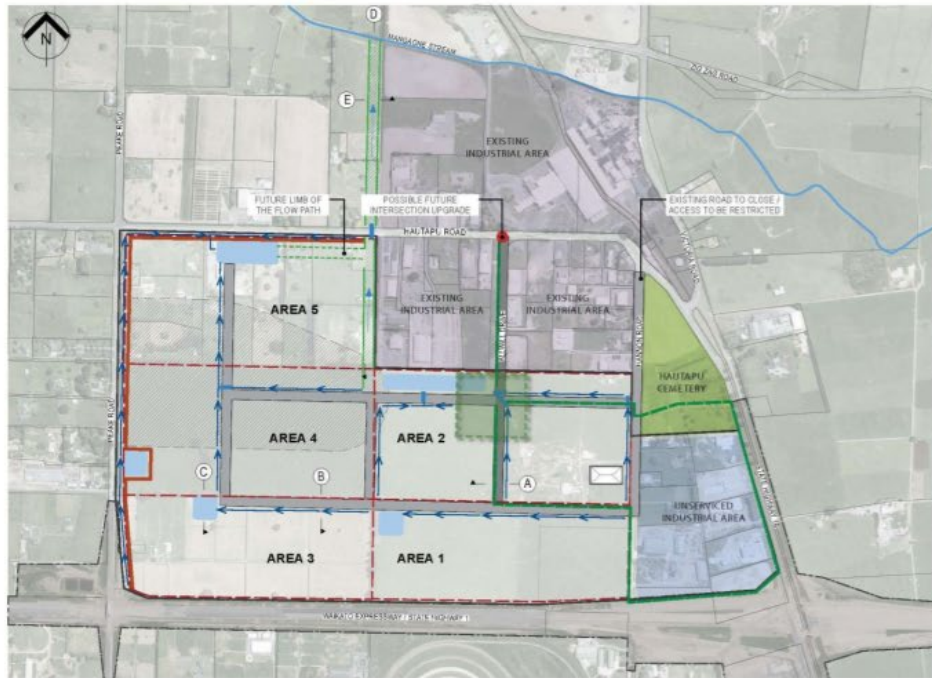


Figure 6-1: Waipa District Plan - Appendix S1 Future Growth Cells (Map Extract)

A Structure Plan included in the District Plan as a result of Plan Change 6 (Hautapu Industrial Structure Plan) has been developed for the C8 and C9 areas which sets out future road network developments to support the traffic growth. This is indicated in the figure below, and shows potential upgrade of Hautapu Road / Allwill Drive, closure of Hannon Road at Hautapu Road, and possibly a new intersection onto Hautapu Road west of the existing industrial area (this is not clear from the Plan).

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KEY			
STRUCTURE PLAN AREA	CENTRAL FOCAL AREA (INDICATIVE SITE)	INDICATIVE SOAKAGE AREA	SECONDARY FLOW CHANNEL
POST & RAIL FENCE	HANNON HOMESTEAD	SWALE	ZONE OF SOILS POTENTIALLY UNSUITABLE FOR SOAKAGE
AREAS	COLLECTOR ROAD (ALLWILL DRIVE)	CULVERT	POSSIBLE FUTURE INTERSECTION UPGRADE
EXISTING INDUSTRIAL AREA	INDICATIVE LOCAL ROAD		
UNSERVICED INDUSTRIAL AREA	CYCLE / PEDESTRIAN PATH		
CEMETERY	REFER TO CROSS SECTIONS		

- ITEMS TO GIVE EFFECT TO THE STRUCTURE PLAN:**
- ROADS & ACCESS**
- THE EXISTING HANNON ROAD INTERSECTION TO CLOSE OR BE RESTRICTED TO EXISTING DEVELOPMENT ONLY BEYOND THE DEVELOPMENT OF:
 - THE UNSERVICED INDUSTRIAL AREA
 - SHA OF ADDITIONAL LAND.
 - THE HANNON ROAD NORTH EASTERN ACCESS WILL BE TO A NEW INTERSECTION POTENTIALLY IN THE LAND SET ASIDE FOR THE EXTENSION OF HAUTAPU CEMETERY. ONCE COMPLETED AND OPENED, THE RESTRICTION ABOVE CAN BE LIFTED.
 - ALL ROADS TO BE DESIGNED IN ACCORDANCE WITH THE ATTACHED CROSS SECTIONS.
 - NO INDIVIDUAL ACCESS TO PEAKE ROAD
 - AN UPGRADE TO THE INTERSECTION OF ALLWILL DRIVE / HAUTAPU ROAD MAYBE REQUIRED IN THE FUTURE DEPENDING ON THE NATURE AND LEVEL OF TRAFFIC GENERATED FROM THE DEVELOPMENT. THIS MAY INCLUDE THE NEED FOR A ROUNDABOUT.
- STORMWATER**
- SOAKAGE DISPOSAL OF ALL OF THE 2YR ARI STORM (UP TO 72HRS)
 - TREATMENT OF RUNOFF IN ACCORDANCE WITH TP10.
 - PRIMARY DRAINAGE CAPACITY FOR A 10YR ARI STORM
 - NO INCREASE IN VOLUME DISCHARGED IN THE 10YR ARI STORM.
 - SECONDARY FLOW PATHS ALONG ROAD CORRIDORS FOR A 100YR ARI STORM
 - PEAK FLOW ATTENUATION IN A 100YR ARI STORM (TO 80% OF EXISTING).
 - ON-LOT MANAGEMENT OF STORMWATER SEPARATE TO THE ROAD CORRIDOR.
- WATER SUPPLY**
- RETICULATED NETWORK TO BE PROVIDED.
 - INSTALLATION OF A 375MM MAIN FROM WATKINS ROAD RESERVOIR.
 - NZFS FIRE FIGHTING DEMANDS OF WS OR LESS TO BE MET BY RETICULATED SYSTEM
 - ON-SITE STORAGE REQUIREMENTS OF 1M6 OR MORE.
- WASTEWATER**
- RETICULATED NETWORK TO BE PROVIDED VIA A SERIES OF PUMPING STATIONS.
 - CONNECTION REQUIRED TO THE MANHOLE AT VICTORIA/TAYLOR STREET INTERSECTION.
- LANDSCAPING AMENITY**
- POST & RAIL FENCE TO BE PROVIDED ON STRUCTURE PLAN AREA PERIMETER SITES.
 - LANDSCAPING TO BE AS PER SECTION 6 OF THE DESIGN GUIDELINES.
 - OFF-ROAD CYCLING PATH TO BE PROVIDED TO CONNECT VICTORIA ROAD TO THE CENTRAL FOCAL AREA.
 - DEVELOPMENT WITHIN AREA 2 SHALL PROVIDE A RESERVE OF APPROXIMATELY 2500m² WITH THE RESERVE TO BE ON THE CORNER OF THE ALLWILL DRIVE EXTENSION AND ONE OTHER INTERNAL HAUTAPU ROAD TO BE DEVELOPED.
 - HANNON HOMESTEAD TO BE RETAINED.
- CENTRAL FOCAL AREA, BUILDING AND SITE LAYOUT**
- CENTRAL FOCAL AREA, CAR PARKING, BUILDING LAYOUT AND DESIGN TO BE DESIGNED IN ACCORDANCE WITH THE DESIGN GUIDELINES.



Figure 6-2: Waipa District Plan Structure Plan Appendix S5



6.2 FUTURE INFRASTRUCTURE AND CYCLE NETWORK PLANS

The Waipa District Council Long Term Plan includes provision of approximately \$6.45 million for roading related work associated with the Hautapu Structure Plan Rooding, and Cycleway connection from Victoria Road to Hannon Road over the period 2018/19 – 2022/23. The project (T3) is intended to include existing road upgrades to make the area suitable for increased volumes and turning traffic. Funding is primarily from development contributions.

The Waipa District Council Walking and Cycling Strategy 2008 included discussion of how walking and cycling infrastructure would be provided for on rural roads, as follows (extract from the Strategy):

Provisions for Cyclists in Rural Areas

Many sports or leisure cyclists undertake daily, weekly, occasional or seasonal training, and racing or recreational rides on rural roads in the District (see Map 2). It will be difficult to justify on economic grounds any significant upgrading of rural roads in order to improve cyclists' safety. Nevertheless, the Strategy includes a number of measures aimed at enhancing the safety of cyclists on rural roads. Specifically, it provides for:

- Installing warning signs at selected sites in order to remind motorists to expect cyclists on these routes.
- Maintaining selected routes to a higher standard, with particular attention being given to addressing edge-break and pot-holes.

The Map included in the strategy does not identify Hautapu Road has a cycle route, with parallel routes alongside the expressway indicated. The map is reproduced below for the northern area of Cambridge:



Figure 6-3: Waipa District Walking and Cycling Strategy (extract of Cambridge Cycle Routes)

The Waipa District Cycle Network Strategic Framework 2016 provided a framework for development of a District Wide network of cycle trails. No trails (which would predominantly be off road) were proposed in the Hautapu Road area. The document also discusses the future road cycling network but does not include a route in the vicinity of the site.

Overall, it is apparent that long term provision for cycling does not anticipate an increase of cycle activity or infrastructure on Hautapu Road past the site.

The Waipa District Integrated Transport Strategy 2010 provided for consideration of freight transport (Focus Area 4) at a district and regional level, with reference to future freight nodes. It included the presence of the Hautapu industrial growth areas and notes the structure plans that have since been prepared.

7.0 PROPOSED WASTEWATER TREATMENT FACILITY

Fonterra has set out the detail of the project proposal within the Assessment of Environmental Effects and supporting documentation. Broadly, a WWTF is proposed to be constructed and operated on Fonterra land immediately west of the Hautapu Site. The WWTF will utilise existing accesses at 82 Hautapu Road and the main Hautapu Road access to the Hautapu Site. The WWTF will treat wastewater from the Hautapu dairy manufacturing activities but not including sanitary wastewater.

The WWTF will be a tank based treatment system, comprising a multi-stage reactor with a large partitioned concrete tank, waste activated sludge, clarifier and treated wastewater tanks. Supporting buildings would be provided. Wastewater activated sludge will be removed from the site and transported to other farms as a natural fertiliser.

The treated wastewater is to be discharged to the Waikato River or spray irrigated onto Fonterra's wastewater irrigation farms (including Bardowie, Bruntwood, Buxton and Buxton Extension Farms), with the land harvested for pasture/crop feed such as silage. That feed would be sold on the general market, and as such would be transported throughout the district / region. Harvest rates from the irrigated farms are expected to be similar to the current untreated wastewater irrigation harvest rates. For that reason, traffic effects of the irrigation activity are not considered further in this assessment.

From a traffic effects perspective, there are two primary stages to consider being during construction, and during operation. This assessment covers the traffic generation and effects for each phase separately.

8.0 CONSTRUCTION MANAGEMENT

8.1 METHODOLOGY

The details of the WWTF construction methodology will be fully developed following detailed design and discussion with construction contractors. A Construction Management Plan approach is proposed to enable construction related effects to be managed.

It is understood that the primary construction stages will likely involve the following:

- Mobilisation of equipment to site;
- Access route enhancements, which will involve, if necessary, improvements to the access to Hautapu Road, the site access driveway, and building parking areas, which may be staged throughout construction;
- Bulk earthworks on-site to establish building platforms. That will primarily be a cut to fill operation contained within the site, although building platforms may require some imported hard fill;
- Construction of the structures, including in-situ concrete tanks;
- Mechanical and electrical fit out;
- Commissioning and demobilisation; and
- The process is anticipated to take at least one year and up to approximately one and a half years.

8.2 TRAFFIC FORECASTS

Pattle Delamore Partners have provided a scenario of expected traffic volumes. The vehicle movements per day have been set out in the table and show that the construction stages indicated are sequential. It is based on a one-year construction, and as noted above it is considered by Fonterra that allowance for up to a one and a half



year construction would be appropriate. That would be expected to reduce average traffic movements compared to those set out below.

All vehicle movements represent an actual vehicle movement either entering the site or exiting the site. That is, where a vehicle enters the site that represents one vehicle movement. Where the vehicle exits the site, that is an additional vehicle movement.

Phase	Week													
	0	4	8	12	16	20	24	28	32	36	40	44	48	52
	Setup		Civil Works			Construction (concrete structures)				Mechanical / Electrical			Commissioning	
Setup	4 weeks													
Civil Works			12 weeks											
Construction (Concrete Structures)						16 weeks								
Mechanical / Electrical										12 weeks				
Commissioning													6 weeks	
Activity														
People on site	5		20			30				50			20	
Traffic Generation (vmpd)														
<u>Light Vehicle movements</u>														
Average	10		20			30				50			20	
Peak	20		40			60				100			40	
<u>Heavy Vehicle Movements</u>														
Average	2		10			30				2			4	
Peak	10		60 (6 occurrences)			100 (4 occurrences)				10 (2 occurrences)			40 (5 occurrences)	
Vehicle Type														

Figure 8-1: Indicative Programme and Traffic Forecasts

It is noted that nearly 50% of the days the number of vehicle movements will be lower than the average reported above, and the peak activity is likely to occur intermittently. For example, when a major in-situ concrete pour is required, the peak volume of concrete trucks would be required. The above table allows for a worst case of up to four days where such a peak pour will be required, generating 50 heavy vehicle movements into the site, and 50 heavy vehicle movements from the site on the peak day, or at an average of approximately one movement each way every 5-10 minutes on that busiest day.

Whilst the detailed design and construction methodology will be confirmed later, the above forecasts provide a basis for assessment of traffic related effects. It is understood that the assessment is considered suitably conservative given the early stage of design and construction planning and is based on experience drawn from similar construction activities by Fonterra elsewhere.

8.3 TRANSPORT ROUTES

8.3.1 Light Vehicles

Light vehicle routes to and from the site would not need to be specifically managed, as all of the roads in the area comfortably carry the existing levels of traffic. Even during the peak days of construction activity, light vehicle movements are forecast to be less than 100 vpd. The generated traffic will be spread onto different routes, with the existing traffic counts at Allwill Drive and the Fonterra access indicating approximately 80% will be to and from the west on Hautapu Road. The following traffic estimates could be expected:

- Hautapu Road west of site 80vpd (2% of existing traffic volume)
- Hautapu Road east of site 20vpd (<1% of existing traffic volume)



The light traffic generated at the peak of construction would be up to approximately 2% of existing traffic volumes on Hautapu Road. When spread across the various transport routes, the peak light vehicle movements represent a low percentage increase on existing volumes that will barely be perceptible.

8.3.2 Heavy Vehicles

Heavy vehicle routes will be responsive to the source location of the material required for construction which would be comparable to many new developments in the industrial area. The material can be accessed via established routes including SH1B, Victoria Road and Hautapu Road. Existing traffic counts indicate approximately 76% of heavy vehicles are to and from the west.

The following heavy traffic volumes have been assessed as potentially needing to be accommodated on each of the surrounding roads based on the existing traffic distribution.

Average day of the busiest period of construction:

- Hautapu Road east of site 23 heavy vehicle movements per day
(3% increase on existing heavy traffic volume)
- Hautapu Road west of site 7 heavy vehicle movements per day
(1% increase on existing heavy traffic volume)

Busiest Day of the busiest period of construction:

- Hautapu Road east of site 76 heavy vehicle movements per day
(9% increase on existing heavy traffic volume)
- Hautapu Road west of site 24 heavy vehicle movements per day
(5% increase on existing heavy traffic volume)

It is reiterated that these volumes occur over a short period of the busiest time of construction. The changes in heavy traffic are less than 10% compared to existing heavy traffic volumes on the infrequent peak/worst case construction days, and at a low 1-3% of existing heavy traffic volumes on a typical day during the busiest period of construction. Even if there is a greater weighting of movement to the east associated with construction, increases on existing traffic levels will still be of level that would be difficult for casual observers to notice given there will already be day to day variations in existing traffic volumes and existing heavy vehicle frequency is approximately 1 vehicle every 1.1 minutes in the peak hours.

8.4 CONSTRUCTION TRAFFIC EFFECTS ASSESSMENT

8.4.1 Traffic Efficiency

The peak time of traffic generation for light vehicles and heavy vehicles is unlikely to coincide with each other, or even with the peak hours of the road network. However as a worst case it is assumed that the busiest hour of combined traffic generation at time of the peak hour of the road network comprises 25% of daily light traffic generation, and 15% of heavy vehicle generation. On Hautapu Road east of the site that would involve an hourly generation of approximately 12 light vehicle movements and 12 heavy vehicle movements. This represents approximately one additional vehicle every 2.5 minutes (or one heavy vehicle every 5 minutes and 1 light vehicle every 5 minutes).

During the busiest hour period on Hautapu Road past the site, existing traffic counts recorded that there are approximately 400 vehicles per hour past the site, representing one vehicle every 9 seconds. The additional heavy traffic generated by the construction phase will not impact the efficiency of the road network, being only a 6% increase on existing LOS A operating environments if the busiest hour of the busiest day coincides with the busiest hour of the road network.

On most construction days, the heavy vehicles will comprise only a 1-2% increase on existing traffic volumes. These changes fall within the day-to-day variation of the road network (daily weekday heavy vehicle volumes vary by approximately 230 vehicles per day within a week) and will have negligible change in travel efficiency.



8.4.2 Increase in Heavy Vehicles

As indicated by the site observations and traffic counts, a range of heavy vehicles regularly utilise the road network, and the site is in an established industrial area.

The road safety records have not indicated heavy vehicle related road crashes on the surrounding road network.

Carriageway widths of key roads to access the site are all in the range where two-way heavy vehicle movement can be comfortably accommodated. Car drivers already have a high probability of encountering opposing heavy vehicles on any journey in the vicinity of the site. The change in heavy vehicle movements will barely be perceptible and will not present as a material operational change effect on the current operating environment.

On this basis, the existing local road and carriageway environments are assessed as suitable to accommodate the anticipated construction generated movements. The site access will already be located within an urban speed limit area, such that a standard heavy vehicle crossing can be installed and be in context with the existing level of access along Hautapu Road. Specific traffic management measures which are implemented when the normal operating characteristics of the road are altered would only need to be considered during construction of the access. A temporary traffic management plan is required to be approved by Council prior to establishment of construction access and a recommendation to this effect has been included as part of the Construction Traffic Management Plan (CTMP) described below.

8.4.3 Effects on Schools

The primary heavy vehicle traffic routes that could be expected for construction are most likely to be to and from SH1B and Victoria Road. These are established heavy vehicle routes and the site is located in an industrial zone. Effects on schools in the wider area would not be perceptible within the existing level of traffic.

8.4.4 Site Access Provisions

The site will be under construction for a sufficiently long time that it is considered a full standard of access will be required, and that will then allow for an ongoing high standard of access during operation.

The specific construction methodology has not yet been developed, although there are two options for access, the first is to utilise the existing main Hautapu Road access for the Hautapu Site, and the second is to utilise the access at 82 Hautapu Road. Both access options are considered acceptable from a transportation perspective, with some improvements required to the 82 Hautapu Road access.

The use of the existing main gate requires interactions between on-site operational vehicles moving to and from the milk delivery area, whereas the 82 Hautapu Road access enables construction vehicles to be separated from on-site operational traffic. The existing traffic counts at both the main gate and the 82 Hautapu Road access show that there are no efficiency concerns, such that the primary transportation matter relates to access formation and safety.

Main Gate Assessment (Gate #1)

The existing main gate already carries a mixture of large heavy vehicles and light vehicles on a daily basis and no existing safety concerns have been identified. Right turning vehicles from Hautapu Road are provided with a separate right turn bay to minimise potential for conflict with through traffic. There is also very good visibility at the access. For the purpose of construction access, it is considered physical changes would not be necessary to the access and in that respect temporary traffic management measures would only relate to directional instructions for contractors to the site. Within the Fonterra site, the construction traffic could utilise the same road that is used for access to and from the truck depot, which is sealed and can accommodate two-way heavy vehicle movement.

82 Hautapu Road Assessment

The 82 Hautapu Road access is formed to a basic standard, and as described earlier in Section 3.4 does not include sealing to the edge of seal on Hautapu Road, or within the site.

Turning to and from the site access involves entering / leaving an urban road speed traffic environment on Hautapu Road. It is considered that improvements would be necessary to:



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- Ensure turning movements can be carried out safely and efficiently by heavy vehicles, and facilitating two-way movement, to minimise the likelihood of damage to the road;
- Provide sufficient on-site sealing of the access to ensure debris are not carried onto the road;
- Minimise the potential for conflicts between following or passing traffic.

If suitable access formation can be provided consistent with the urban environment and other nearby accesses, then the need for additional temporary traffic management during the construction period would be limited.

As all of the adjacent road sections have access involving trucks turning, it is considered that there is no need for additional warning signs on Hautapu Road.

The District Plan provides rules for the form of access to sites for operational activities. The access design rule 16.4.2.4 requires that “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”.

Whilst Hautapu Road is an urban local road in the District Plan, it is operating with a Primary Collector Road function (as per the ONRC). The Waikato Local Authority Shared Services which Waipa District Council is a part of, has a document “Regional Infrastructure Technical Specifications” (RITS) which includes a specification for Commercial and Industrial Vehicle Crossings at Clause 3.3.19.3. It requires the following, as also indicated in the extract below from drawing D3.3.1:

- Cutdown width at the boundary of between 5.0m and 7.5m (in this situation the road does not have kerb and channel, but general dimension provisions would apply);
- Splay at the edge of seal of a further 0.5m each side, and transition in levels, resulting in an additional 1m crossing width to be utilised;
- Specific requirements for crossing a footpath, although currently there are no footpaths on Hautapu Road.
- Noting the absence of kerb and channel, the design of the vehicle crossing shall not obstruct drainage within the berm (as applies to rural vehicle crossings).

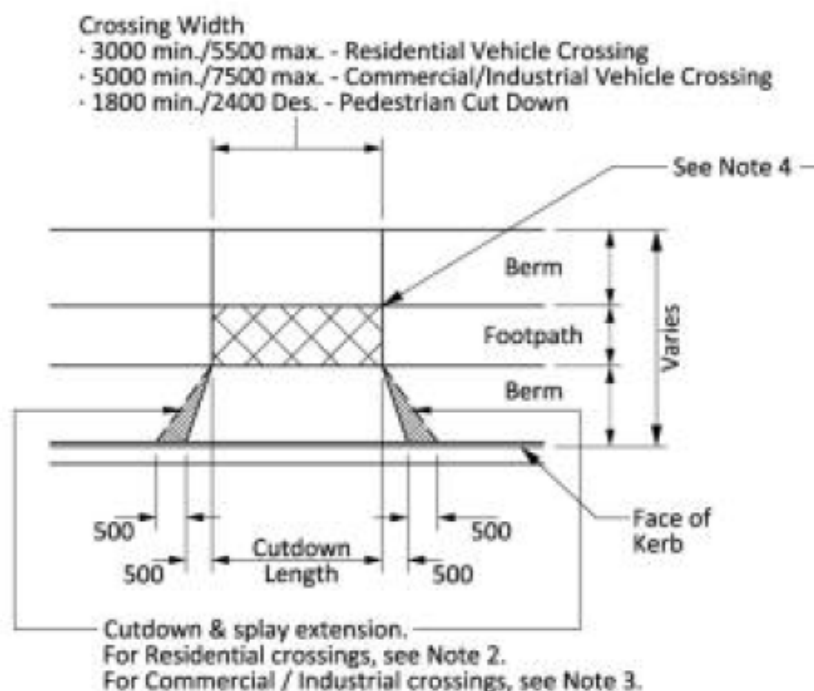


Figure 8-2: Extract from RITS D3.3.1

Having considered the various provisions, and expected directionality of traffic, it is recommended that the 82 Hautapu Road access is designed to provide for the above RITS standards for Commercial and Industrial Vehicle Crossings where practical, noting there is no footpath or kerb and channel.



Vehicle tracking analysis has been carried out, and the proposed vehicle crossing design to satisfy rule 16.4.2.4 is included in Figure 8-3. A maximum width access at the boundary of 7.5m is recommended to enable a truck and trailer to turn from or into Hautapu Road without crossing the centreline of Hautapu Road.

The access shares a vehicle crossing with the adjacent site. As part of the design of the access, some improvement may also be necessary within the road reserve to the adjacent access to ensure it integrates well. It is understood that existing consent conditions for the adjacent site will enable a comparable upgrade standard to be provided. Whilst the multiple adjacent accesses results in a wider than standard overall vehicle crossing length, it would best achieve the requirement of the District Plan rule to take into account the form and function of the road.

Within the site, the access driveway should be fully formed and sealed to a minimum 30m within the site boundary to accommodate the full length of a truck and trailer wholly within the formed section of the access prior to its movement to Hautapu Road. Any gates should also be located at least 30m from the road edgeline to ensure that vehicles do not straddle onto Hautapu Road if the gate is closed. A departure from this requirement could be considered only if a suitable operational process was in place to manage the potential straddling onto the road (e.g. no heavy vehicles to enter the site when the gate is closed).

The provision of a standard industrial access provides for a standard consistent with (and in many cases exceeding) the provision at nearby accesses. This will also meet the requirements of the operational site and provide an efficient and safe outcome for all road users.

8.5 CONSTRUCTION TRAFFIC MANAGEMENT PLAN

The AEE has proposed that a, to be incorporated in the Construction Management Plan. To further address any matters of uncertainty through the construction process, it is recommended that a project of this scale include a Construction Traffic Management Plan (CTMP). The CTMP would be subject of ongoing review during the construction process. It is recommended the CTMP be subject to Council certification prior to the commencement of works on the road. For example, whilst indicative route assessments have been carried out in this report, the routes and operating conditions for major suppliers such as concrete can be considered further based on the transport conditions and source of materials confirmed at the time.

Having reviewed the potential road safety related matters it is recommended that the CTMP includes the following objective:

The objective of the CTMP is to ensure that traffic generated during the construction phase of the project is effectively managed so that increases in traffic volume are safely accommodated within the existing road network. This will include refining the transportation routes and the traffic safety mitigation measures once the material source locations are known and the construction program has been refined.

While the CTMP shall be principally focused on managing the actual and potential effects of increased heavy traffic on the local road network, the actual and potential effects of other site generated traffic on the local road network is also to be addressed.

It is recommended that the CTMP shall then include the following content:

- a. Set out general traffic management procedures and methodologies to be implemented for the duration of the construction work / activities associated with the Proposal.
- b. Set out the major source locations for fill material, concrete, and any other high trip generator source materials, with the timing and expected volume of associated traffic movements. Identify routes to the site via Hautapu Road to the east of the site in preference to routes west of the site.
- c. If the access at 82 Hautapu Road is utilised, set out the nature and timing of physical improvement works adjacent to the site to be undertaken on the road network at the consent holder's cost, to accommodate access to the Proposal, as set out in Section 8.4.4 of this report. This shall also include appropriate signage of the access points to the construction site in



accordance with NZTA Code of Practice for Temporary Traffic Management if necessary due to a change in the normal operating conditions of the road network.

- d. Arrangements for safe car parking at the construction site to ensure the roading network is not obstructed.
- e. Set out protocols for informing all persons driving to and from the site of the relevant content of the CTMP, and road safety related driver behaviour requirements, and traffic incident reporting processes.
- f. A summary of reported traffic related incidents and complaints, plus actions taken, is to be maintained within the CTMP.

It is considered that a thorough CTMP addressing these matters will ensure that the construction related traffic effects are appropriately managed so that the transport network operates safely and efficiently.

9.0 OPERATIONAL MANAGEMENT

9.1 TRAFFIC GENERATION

The operational traffic generation anticipated by Fonterra for the WWTF is set out below in vehicle movements (where a vehicle entering the site, then exiting the site is equal to two vehicle movements).

Vehicle Type	WWTF Vehicles per Day
People on site each day	5 people
Light vehicle movements: Average	20vmpd
Heavy vehicle movements: Average	10vmd (single unit truck)
Peak	20vmd (single unit truck)

Table 9-1: Indicative Operational Traffic Generation

The operational traffic generation is expected to continue to be in the order of 20 light vehicles per day, and 10-20 heavy vehicle movements per day on average.

The light vehicle movements are low, equivalent to a change in staffing levels of 5 people at the Fonterra site which employs approximately 300 people. As set out earlier, the surrounding roads carry approximately 400 vehicles per hour at times of the day. It is considered the change in light vehicle volumes is negligible when compared to existing activities, and further effects assessment is not necessary.

The heavy vehicle movements assessment is based on single unit trucks transporting waste sludge material from the WWTF to sites further afield. The heavy vehicle movement traffic generation of the WWTF could be lower again if truck and trailers are used to transport the waste sludge material. Due to the overall transport efficiency, it is intended that truck and trailers are retained as a commercial option for transport. Truck and trailers service the wider industrial area and the Fonterra factory site, and the assessment of the existing road network does not indicate any additional issues from a safety or efficiency perspective in terms of effects on the wider transport network.



9.2 ACCESS

9.2.1 Existing Fonterra Access

If the main site access on Hautapu Road is utilised it will readily accommodate the small increases in operational traffic generation. The access is a primary access to the Hautapu Site and is identified in District Plan rules as suitable for carrying approximately 1,000 vehicles per day without further assessment. It is provided with a right turn bay on Hautapu Road for turning into the site, and there are good driver sightlines available suitable for the speed environment. With the very small change in volume as a result of the development, no change in access standard is considered necessary.

9.2.2 82 Hautapu Road

If the access from 82 Hautapu Road is utilised and upgraded during construction, it could also provide for long term access to the WWTF. The access layout proposed for the construction stage will readily accommodate the long-term traffic generation of the operational site. As described earlier, it is proposed that the access is appropriately sized to the maximum permitted by the District Plan to readily accommodate two way movement. By providing a high standard for construction and operation, the potential for additional road maintenance at the access will be reduced. Excellent visibility is available along Hautapu Road at the access.

The access is not located close to existing or future intersections such that the layout of the access would not be influenced by possible changes in the road network associated with intersections. It is however located close to other accesses on both sides of the road, such that the access requirement included in the District Plan (and implemented through the specific consideration of the RITS standards) will enable new access to be well integrated with other access. If in time Hautapu Road is upgraded with kerb and channel and footpath, the standard access design will readily accommodate that change.

The access shares a vehicle crossing with the adjacent site. As part the design of the access, some improvement may also be necessary within the road reserve to the adjacent access to the west to ensure it integrates well. It is noted that the adjacent property has consent to improve the access, such that a consistent form of access vehicle crossing can be achieved. As noted with the construction assessment, this will best meet the District Plan rule to take into account the form and function of the road. At the access, there are low fences either side so suitable visibility is achieved when entering and exiting the road.

Access alternatives have been considered such as via the other Fonterra site accesses. Overall, it is considered that the use of Hautapu Road provides the most direct means of access. If other accesses are used, they would be subject to assessment of the relevant District Plan usage rules (discussed later in this report).

9.3 TRANSPORT MANAGEMENT

The anticipated level of operational traffic has been assessed to be sufficiently low that specific operational management processes will not be required. The only matter considered relevant is that if a gate is used on the 82 Hautapu Road access requiring heavy vehicles to stop, the gate should be suitably set back 30m from the road edgeline from Hautapu Road to allow a truck and trailer to be stopped clear of the gates without interfering with the Hautapu Road carriageway. This would require adjustments to the existing gate position.

9.4 IMPACT ON WALKING AND CYCLING

There are currently no footpaths on Hautapu Road. The change in traffic volumes generated by the operational development will be negligible compared to existing traffic levels such that there would be no perceptible change in the local traffic environment.

Pedestrian activity generated by the development would also be very small, noting the virtual absence of pedestrian generation at the existing Fonterra site with hundreds of staff compared to the 5 additional staff proposed. If the footpath network is extended in the future as the wider industrial area develops further, the site access proposed can readily be integrated with Hautapu Road with a treatment comparable to other accesses that would need to be modified.



9.5 IMPACT ON ROAD INFRASTRUCTURE

The change in traffic volumes is assessed as minimal when compared to existing and future growth in traffic activity of the transport network servicing the Hautapu structure plan area.

The proposal will include use of either the existing high standard access, or a suitably designed new access at 82 Hautapu Road. These will provide for a high standard of safety, efficiency and maintenance minimisation to ensure a long-term appropriate outcome.

10.0 DISTRICT PLAN

Under the District Plan, the proposed WWTP is provided for as a permitted activity within the Industrial Zone “Specialised Dairy Industrial Area” overlay covering the site, however the need for resource consent is also determined by assessment of the transport related rules in Section 16 (Transportation) and Appendix T8 (Hautapu Dairy Manufacturing Site) of the District Plan. For that reason, a detailed assessment of rule compliance has been carried out, described further as follows.

Some District Plan rules require assessment of the traffic generation following adjustment of heavy vehicles to a car equivalent (where 1 heavy vehicle movement is 10 equivalent car movements) represented as VPD. The calculation for the operational site is provided below.

Average	
Light	20VPD
Heavy	10vpd x 10 = 100VPD
Total	120VPD
Peak	
Light	20VPD
Heavy	20vpd x 10 = 200VPD
Total	220VPD

Table 10-1: WWTF Traffic Generation – District Plan VPD

It is noted this method of assessment multiplying heavy vehicles by a factor of 10 relates to a threshold for activity status/assessment only, and it is considered does not reflect actual effects on performance of the transport network.

10.1 PERFORMANCE STANDARDS

10.1.1 Transport Rule 16.4.1 Activity Status Table

In terms of the District-wide rules in Section 16 (Transportation) of the District Plan, Section 16.4.1 (Activity Status Table) applies.

Rule 16.4.1.1(a) requires any activities classified as permitted, controlled or restricted discretionary under Rules 16.4.1.1(b)-(j) to comply with the performance standards of 16.4.2, otherwise a discretionary activity resource consent is triggered (or as specified in 16.4.2). An analysis of Rules 16.4.1.1(b)-(j) follows, prior to an assessment of compliance with the performance standards of 16.4.2 in Section 10.1.2 below.

Rule 16.4.1.1(b) requires activities to comply with the car parking and loading requirements of Appendix T1. There are no parking or loading requirements in Appendix T1 for a WWTF. Nevertheless, there is adequate space of the site to provide for as much parking, loading and manoeuvring space as is required for the activity. This would be addressed during design of the WWTF within the envelope area.

Rule 16.4.1.1(c) does not apply to the Industrial Zone so is not relevant.



Rules 16.4.1.1(d) and (e) relate specifically to vehicle movements and vehicle entrances on State Highways or Major Arterial Roads. Whilst the wider Fonterra site has access to SH1B, the WWTF would only access Hautapu Road (classified as a “Local Road”) so as a result, Rules 16.4.1.1(d) and (e) do not apply.

Rule 16.4.1.1(f) provides for “Activities generating less than 100 vehicles per day that do not require a new vehicle entrance onto any State Highway or major arterial road” as a permitted activity. As discussed in Sections 8.2 and 9.1 of this report, both construction traffic and operational traffic will exceed 100 vehicles per day, so therefore Rule 16.4.1.1(f) does not apply. There is no alternative Rule within Activity Status Table 16.4.1 for an activity generating more than 100 vehicle movements.

In terms of Rule 16.4.1.1(g) the proposal complies because the site provides a vehicle entrance and adequate area for parking, loading and manoeuvring.

Rules 16.4.1.1(h) and (i) do not apply because access to Hautapu Road does not necessitate crossing a railway line.

Rule 16.4.1.1(j) is not relevant to the proposal because it relates to providing 25 or more carparks on a site (which is not proposed as part of the WWTF).

The above analysis demonstrates that the proposed WWTF does not trigger resource consent under Rules 16.4.1.1(b)-(j), so is permitted in this regard. However, as noted previously, Rule 16.4.1.1(a) requires any activities classified as permitted, controlled or restricted discretionary under Rules 16.4.1.1(b)-(j) to comply with the performance standards of Section 16.4.2 of the Waipa District Plan, otherwise a discretionary activity resource consent is triggered (or as specified in Section 16.4.2). This assessment is provided in the following section.

10.1.2 Transport Rule 16.4.2 – Performance Standards

A range of performance standards are provided for in the Transport chapter. Given the proposed activity will be removed from the road, where operational parking can readily be provided for, the focus of assessment against the rule provisions is related to access.

It is noted that the activity would be within the much larger factory site, and generated traffic can utilise existing accesses as one option. Access traffic generation at the Hautapu Site is addressed through provisions of Appendix T8 of the Waipa District Plan. On that basis, if compliance is achieved with respect to the traffic generation, it is considered that further evaluation of most of the access related rules (16.4.2.4 to 16.4.2.12 where relevant) would not be required. For completeness and taking a conservative approach to assessment, and noting that access could be via 82 Hautapu Road the rules have been considered further.

Access Rules

Rule 16.4.2.3 requires access via Hautapu Road (as a local road) to allow an activity to be permitted. This is achievable if access is via the main access on Hautapu Road, or the additional access on 82 Hautapu Road at the western end of the Fonterra landholdings. It is noted other entrances to the Hautapu manufacturing site are available off Bruntwood Road and SH1B however access to the WWTF is not proposed from these, in particular because vehicular movements would then have to cross an operational railway line.

Rule 16.4.2.4 requires 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. The existing Fonterra access readily meets this requirement, and the potential 82 Hautapu Road access would be developed to the normal industrial standard as generally set out in the RITS provisions, and modified for the road frontage conditions. That will suitably accommodate the relatively low volume of heavy vehicles with a level of efficiency comparable to other accesses on Hautapu Road.

With Hautapu Road having a posted speed limit of 70 km/h, Rule 16.4.2.5 requires the following minimum distance of a vehicle entrance (accessway) from an intersection or other adjacent entrance for the 82 Hautapu Road access:

- Separation from Hautapu Road / Allwill Drive intersection – 100m required (distance K), currently 300m – Complies.



FONTERRA LIMITED HAUTAPU WASTEWATER TREATMENT FACILITY

- Separation from other adjacent accesses – 40m required to accesses on same side of road (distance N). Currently 8m from access to the west, 44m from access to the east – Does not comply to the west.

The access to the west services commercial activity, and is currently formed with a combined vehicle crossing with 82 Hautapu Road. With a suitably designed vehicle crossing within the road reserve to accommodate the joint access arrangements, the access would operate at a similar or higher level than many other accesses that are not formed to the full standard.

There is no history of road safety issues with any of the existing access Hautapu Road in the industrial area where most accesses do not meet the separation rule. It is also noted that over time speed limits are reviewed by road controlling authorities in response to the level of access, and the proposed development access would not change the number of access, only the use and formation.

Accordingly, the access location proposed, with the design responses recommended, is assessed as being able to appropriately accommodate the proposed activity.

For the Gate 1 main access, the following separation provisions apply.

- Separation from Hautapu Road / Allwill Drive intersection – 100m required (distance K), 55m existing – Does not Comply.
- Separation from other accesses – 40m required to accesses on same side of road (distance N). 140m existing to the west. Complies.

Whilst the existing Gate 1 access separation from Allwill Drive does not comply, its usage is covered by other rules in Appendix T8. Given the high standard of access, and absence of road safety issues reported, it is considered the small change in traffic movements will have a negligible effect on the safety and efficiency of the road network. The Structure Plan identifies the potential for traffic signals at the access and Allwill Drive to manage movements associated with development of the wider industrial area. It is considered that the additional development traffic generated by the WWTF will be inconsequential in terms of the need for or timing of the project.

In summary, the existing accesses at 82 Hautapu Road and the Gate 1 main access do not comply with the separation requirements, which triggers a Discretionary Activity resource consent.

Parking Rules

It is intended that parking is provided for on site, and in accordance with the dimensional requirements of the District Plan to ensure a practical and convenient parking and manoeuvring area suitable for accommodating day to day parking demands at the site for staff and contractors. Further consideration against rules 16.4.2.13 to 16.4.2.15, 16.4.2.18, 16.4.2.19, 16.4.2.23 would be necessary to confirm detailed compliance although it is considered there should be no reason that compliance cannot be achieved.

As the site will include five staff members, it is considered a minimum parking provision of seven parking spaces will be appropriate to accommodate day to day practical demand of staff and any contractors. This would generally require approximately 210m² of land based on an average of 30m² per parking space which will be readily achievable. Additionally, loading and servicing arrangements are recommended to meet the site layout and operational needs. Bicycle parking would not be required for the operational activity as it doesn't have 10 or more people employed.

Provision of an integrated transportation assessment

Rule 16.4.2.25 requires provision of an Integrated Transportation Assessment in certain circumstances. However, the Rule includes an exception in relation to activities in accordance with Appendix T8 - Hautapu Dairy Manufacturing Site which is relevant to the main access (referred to as "Gate 1" in Appendix T8).

The exemptions also include "Events and temporary activities where a Traffic Management Plan is required, and has been approved by the road controlling authority". It is understood that there is no definition in the Waipa District Plan for "temporary activities". From a transportation perspective, a temporary activity subject to a Traffic Management Plan would be a temporary change to the normal operating conditions of a road. As the construction related transport activity of a WWTF would be over a period of up to 18 months, and could be



managed through a Construction Traffic Management Plan (if it changes the normal operating conditions of a road), it is considered construction activity could be considered a temporary activity.

In terms of the 82 Hautapu Road access, the additional operational traffic generation would have a VPD of 120 to 220 on any particular day. Under Rule 16.4.2.25, an activity generating less than 250 vpd Annual Average Daily Traffic on a local road does not require an Integrated Transport Assessment. Allowing for an Annual Average Daily Traffic volume of the site being a lot less than the assessed VPD, an Integrated Transport Assessment would not be required. Nevertheless, applying a conservative assessment methodology, this Integrated Transport Assessment provides a full assessment of transport effects in the format required.

10.1.3 Appendix T8 – Hautapu Dairy Manufacturing Site

Under Appendix T8 Hautapu Dairy Manufacturing Site, an Integrated Transportation Assessment is required under Rule 16.4.2.25 if the daily trip generation based on a seven day average trip generation exceeds limits in T8.2.1 (total generation), or T8.2.2 (generation at individual gates). As noted above, a conservative approach has been carried out and a full Integrated Transport Assessment has been prepared regardless of the outcomes of the Appendix T8 assessment. A review of the need for the Integrated Transport Assessment in the context of Appendix T8 requirements is set out below.

The scope of the Application is focused on Gate 1, being the only individual gate that could exhibit a small change in travel pattern, and 82 Hautapu Road which is not captured by the individual gate rule.

As the Integrated Transport Assessment has been prepared, the analysis sets out the primary trip generating activities at the site to confirm the traffic generation in respect of the thresholds set out.

Rule T8.2.1 Total Traffic Generation

An Integrated Transport Assessment in accordance with Rule 16.4.2.25 shall be required if the daily trip generation based on the seven day average trip generation of all gates at the Hautapu Dairy Factory exceeds:

- (a) 910 light vehicle movements per day; or
- (b) 442 Heavy Commercial Vehicle movements per day.

For the purpose of the following assessment, the above traffic volumes are treated as an actual vehicle movement (either to the site, or from the site). The heavy vehicle movements do not have a car equivalence applied (as some other rules require).

Existing Total Generation

Light vehicle movements at the site are expected to be dominated by staff movement to and from the workplace. Data has been collated by the Fonterra human resources team. The following summary of the data is provided for staff journey to and from work.

Employment Category	People Employed	Daily Traffic Movements (vehicle per day)		
		Monday - Friday	Weekend	7 Day Average
Mon-Friday Staff	135	270	0	193
Shift (4 x 4)	159	159	159	159
Total		429	159	352

Table 10-2: Staff Journey to and From Work Traffic Generation

Heavy vehicle movements are 402 vehicle movements per day on a weekday. Conservatively allowing all those movements on a weekend as well, the 7 day average would be up to 402 heavy vehicles per day.

The limits in T8.2.1 are 910 light vehicle movements per day, or 442 heavy commercial vehicles per day. The existing calculated peak generation is at 39% and 91% of the threshold respectively. Even allowing for some additional staff related movements to and from the site during the day, the light vehicle trip generation is not at all close to the threshold, but heavy vehicle trip generation is reasonably close.



WWTF Operational Traffic Generation

With the addition of the WWTF traffic generation of 20 light vehicle movements per day, and 14 heavy commercial vehicle movements per day (assuming the peak day could occur say three times in a seven day period, with the average the other days), the total would increase to 372 light vehicles and 416 heavy vehicles per day. These represent 41% of the light vehicle limit, and 94% of the heavy vehicle limit.

Again, this indicates light vehicle trip generation is not at all close to the threshold, but heavy vehicle trip generation is close. Nonetheless traffic associated with the proposed activity is still within the permitted thresholds and the change in use is still below the threshold for an ITA under Rule 16.4.2.25. Nevertheless, this ITA provides the relevant assessment in any case.

WWTF Construction Traffic Generation

As discussed earlier, construction is treated as a temporary activity and is not subject to the rule assessment.

T8.2.2 Gate Movement Thresholds

Based on the information provided by Fonterra with respect to staff and heavy vehicle movement, an analysis has been carried out of movement at Gate 1. It is acknowledged that this is an initial analysis based on staff numbers. However, the analysis will point to whether there is a potential to breach the gate thresholds.

Even with the operational WWTF it can be seen in the table below that the gates operate with plenty of spare capacity for light vehicle movements. In practice, it is likely that there will be a range of light vehicle movements coming to and from the site, although staff movement would be expected to dominate.

	1
Existing	
Admin	
MPC/CP	
Cheese	96
Protein	
Maintenance	
Enviro/Irr	24
Visitors	
Dairy fert	20
Existing total	140
WWTF	20
Total with WWTF	160
<i>District Plan threshold</i>	<i>430</i>
<i>% of District Plan Threshold</i>	<i>37%</i>
<i>Capacity Remaining</i>	<i>270</i>

Table 10-3: Light Vehicle Traffic Generation Analysis (Gate 1)

The heavy vehicle analysis also shows that on a gate-by-gate basis the total² traffic generation at each gate sits well below the available threshold.

² It is understood that only a small number of lower volume gates would be influenced by directional movement, and as such the additional level of detail associated with directional usage has not been carried out at this stage.



	1
Existing	
Milk deliveries	320
Dairy Fert	20
Coolstore	8
Drystore	16
Existing Total	364
WWTF	20
Total with WWTF	384
<i>District Plan Threshold</i>	672
<i>% of District Plan Threshold</i>	57%
<i>Capacity Remaining</i>	288

Table 10-4: Heavy Vehicle Traffic Generation Analysis (Gate 1)

Overall, it is considered that the WWTF traffic could be added to the existing gate 1 traffic and remain within the District Plan gate thresholds set out in Rule T8.2.2.

T8.3.1 Permitted Network Thresholds

The total generation of the Hautapu site is calculated to be approximately 50% of the combined total of the limits set in Table 2 of the rule. As traffic patterns have not changed significantly since the rule was set, and the WWTF generates a small additional level of traffic, it is considered there will not be a compliance issue.

Summary of Activity Status relating to Integrated Transport Assessment

It is considered that the site, and including the proposed changes in traffic likely for the construction and operation of the WWTF, does not trigger the requirement for an Integrated Transport Assessment either under Rule 16.4.2.25, or Appendix T8 provisions. Regardless, an Integrated Transport Assessment focused on access and effect of the nearby road network has been undertaken.

10.2 ASSESSMENT MATTERS

At Chapter 21, the District Plan provides assessment considerations with respect to traffic (for Discretionary Activities). Broadly, those matters have been addressed where relevant in this Transport Assessment.

11.0 SUMMARY AND RECOMMENDATIONS

This Integrated Transport Assessment has considered in detail the existing transport network form and function in the surrounding area. The site is well served by a local road network with good connections to the arterial road network. It is generally operating safely and well within its traffic carrying capacity. The Hautapu Road urban area is not yet fully developed to typical urban standards, with a range of access standards applied.

The proposed WWTF will generate an increased level of light and heavy vehicle traffic. Compared to existing traffic volumes, the level of additional traffic will have only a minor effect on peak period traffic. Assessment has resulted in the following recommendations to ensure that construction activity is safely and efficiently accommodated by the transport network:

- If 82 Hautapu Road is utilised, an upgrade as shown by Figure 8-3 and to typical RITS standards (recognising the specific road frontage characteristics) for an industrial activity, as required by the District Plan, is recommended. This will include some integration with the adjacent access to the west which shares the same vehicle crossing;
- Develop and implement a Construction Traffic Management Plan addressing traffic generation and transport routes, temporary traffic management measures (in accordance with the National Code of Practice) including Council pre-certification requirements. The particular objectives and outcomes of a CTMP are described at section 8.6.



With these measures in place, it is concluded the construction of the WWTF can occur whilst retaining appropriately safe and efficient movement on the transport network for all of the transport modes using the roads.

The WWTF operation is expected to involve comparably low levels of traffic generation. The use of either the upgraded 82 Hautapu Road access, or the existing Fonterra main access on Hautapu Road has negligible effects on other accesses.

The site will need to provide parking on site, commensurate with the expected day to day parking demand. It is considered seven spaces will provide for this, noting any peak demand can readily be accommodated within the envelope area well removed from the road network. Additionally, the loading and servicing needs of the site are to be established and aligned to the site layout and operation.

The change in traffic volumes on the surrounding road network during operation is concluded as being negligible, and will not impact the timing of key Structure Plan provisions such as traffic signals at the Fonterra access and Allwill Drive.

Hautapu Road does not form part of the primary cycling network. The change in traffic volumes in the urban industrial area as a result of the development represent only a small change to existing demand levels. In that respect, no further changes are necessary.

It is concluded the site operation can be safely and efficiently accommodated.

12.0 CONCLUSION

This Integrated Transport Assessment has assessed the proposed WWTF and identified that with implementation of the transport related recommendations described, the generated traffic demands during both construction and operation of the WWTF can be safely and efficiently accommodated. The transport effects of additional traffic generation will be negligible with suitable access provision.



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