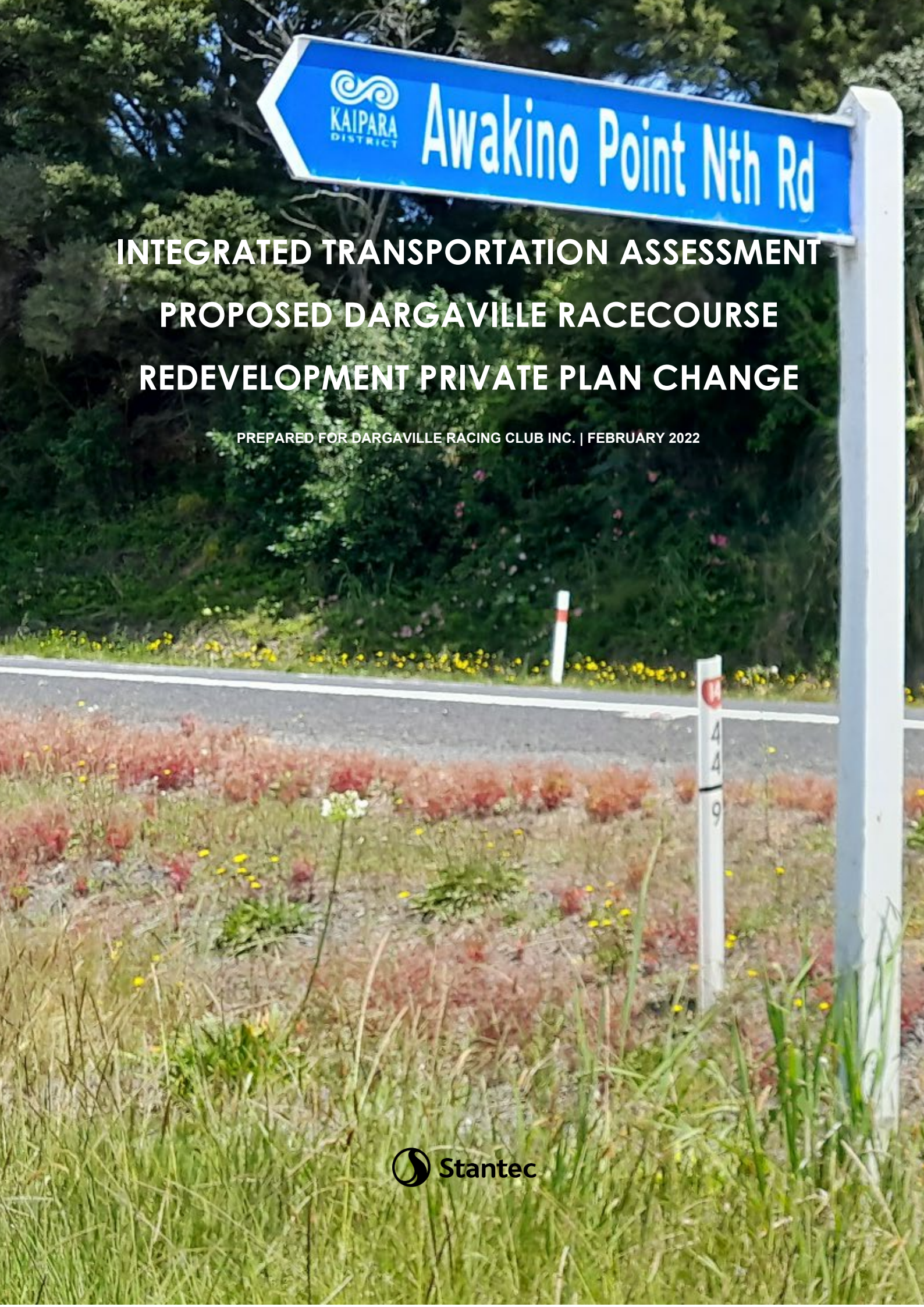

INTEGRATED TRANSPORTATION ASSESSMENT
PROPOSED DARGAVILLE RACECOURSE REDEVELOPMENT PRIVATE PLAN CHANGE

PREPARED FOR DARGAVILLE RACING CLUB INC. | FEBRUARY 2022

Stantec

Revision Schedule

Rev No	Date	Description	Signature of Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
1	01/12/2021	Draft for review	EM			
2	03/12/2021	Draft for client review	EM	GvdW	DJM	DJM
3	25/01/2022	Final	EM	GvdW	DJM	DJM
4	15/02/2022	Final	EM	GvdW	DJM	DJM

Quality Statement

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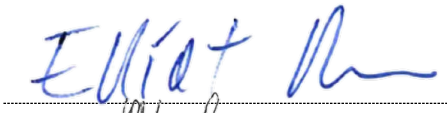
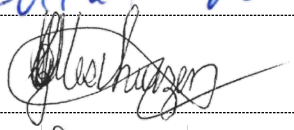
PROJECT MANAGER	PROJECT TECHNICAL LEAD
Don McKenzie	**Gerhard van der Westhuizen**

PREPARED BY Elliot Martin		15 / 02 / 2022
CHECKED BY Gerhard van der Westhuizen		15 / 02 / 2022
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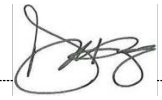
APPROVED FOR ISSUE BY Don McKenzie		15 / 02 / 2022

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1 Introduction

An application is being made by Dargaville Racing Club Inc. (**the Applicant**) for a Private Plan Change (**PPC**) to the Kaipara District Plan seeking rezone the former Dargaville Racecourse site to facilitate future residential, light industrial and associated urban development. The site is located approximately 3km northeast of the Dargaville Town Centre, directly north of the State Highway 14 (**SH14**) / Awakino Point North Road intersection.

The PPC proposes the following areas:

- Light Industrial;
- General Residential;
- Large Lot Residential;
- Hauora Hub – Mix of General Residential, Open Space and Neighbourhood Centre
- Natural open spaces and road reserves

The Applicant is seeking to rezone the subject land from Rural to a mix of Development Areas (**DA**), as defined in the Kaipara District Council (**KDC**) Operative District Plan 2013 (**District Plan**).

The proposed PPC will enable a total lot yield of approximately 460 lots over an area of 45.4 ha.

This Integrated Transport Assessment (**ITA**) has been prepared by Stantec New Zealand on behalf of the Applicant to examine and assess the traffic engineering and transport planning-related matters associated with the PPC. The key transportation matters relevant to this proposal include:

- Existing and foreseeable future transport context;
- An assessment on safety and suitability of the proposed site access arrangements from the existing road network;
- An assessment on traffic impacts of the development allowed by the PPC on the surrounding road network, including identification of any proposed mitigation measures; and
- Ability of the PPC to align with key national and regional transport policies.

The above points and other matters are discussed in detail within this report.

2 Existing Transport Context

2.1 Site Location

The subject land is located directly north of the SH14 / Awakino Point North intersection, approximately 3km northeast of Dargaville Town Centre, and is shown in the context of the surrounding parts of Dargaville and the primary transport network in **Figure 2-1**.

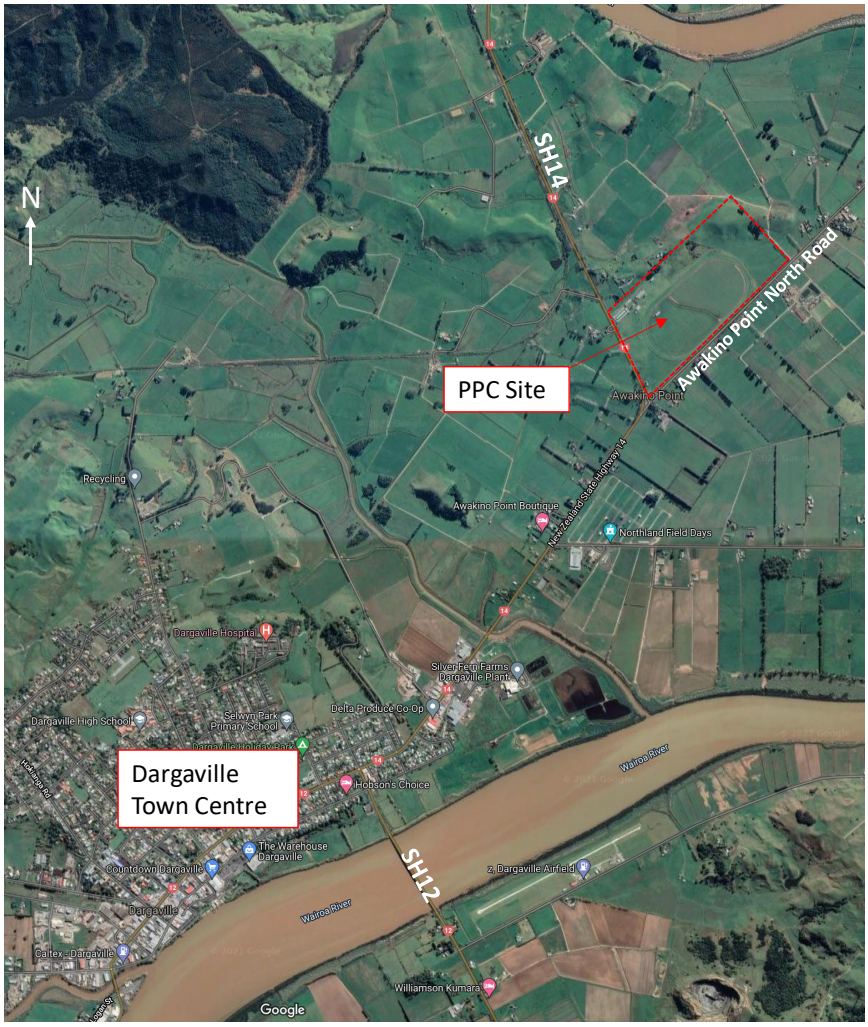

Figure 2-1: Site Location (Source: Google Maps, Google)

The site is currently zoned as Rural within the KDC District Plan, shown in **Figure 2-2**.

As can be seen, the area surrounding the subject land in this north-eastern sector of the Dargaville district is zoned Rural.

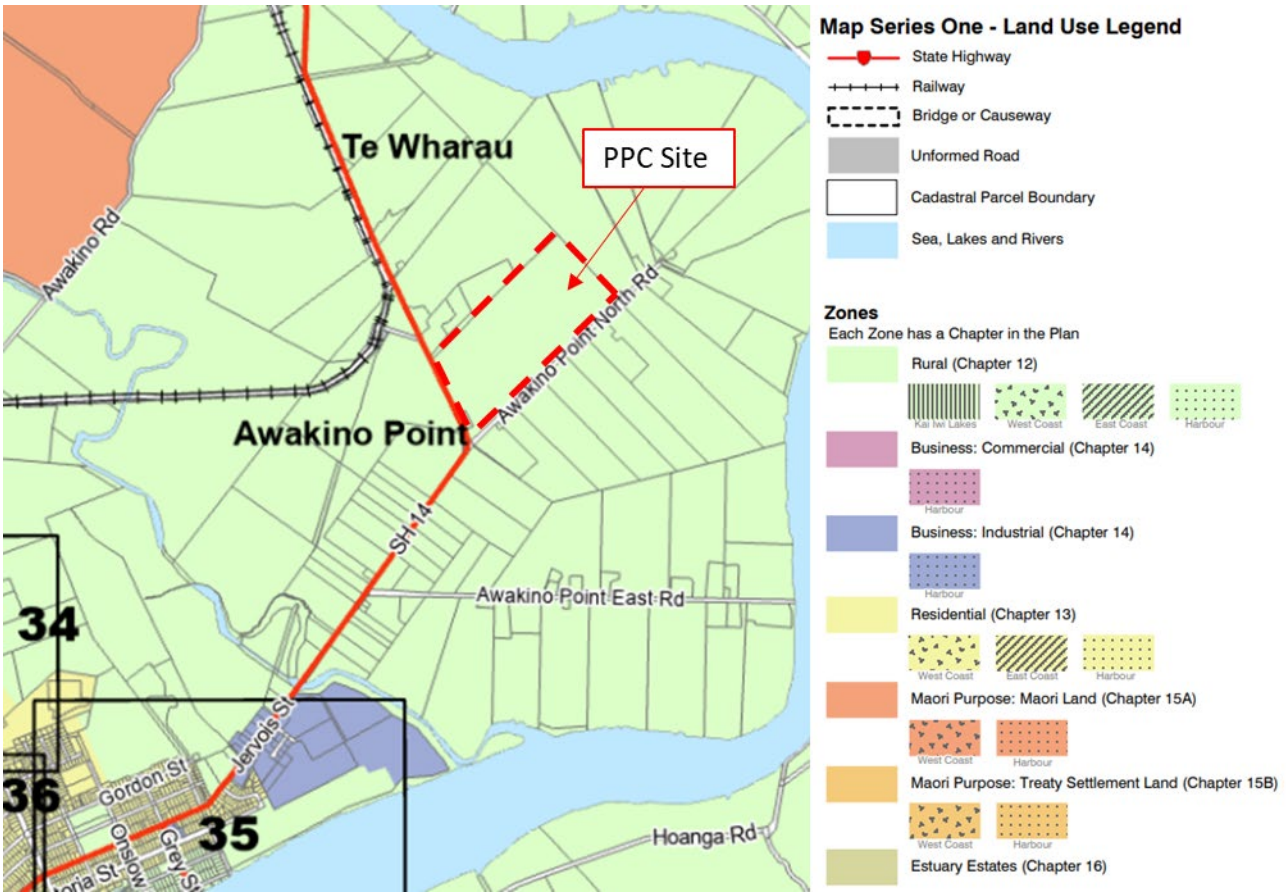

Figure 2-2: District Plan Zoning [Source: Kaipara District Plan – Operative November 2013 Map Series One, KDC)

2.2 Existing Road Network

The site has road frontages with SH14 along its southwestern boundary and Awakino Point North Road along its southeastern boundary. These roads are defined and described in the following sections.

2.2.1 State Highway Routes

SH14 forms part of the Waka Kotahi | New Zealand Transport Agency (Waka Kotahi) State Highway network which serves as the primary road connection between Whangarei and Dargaville in Northland. Beyond the immediate area of the PPC, SH14 provides a connection from the Awakino Point area to

- SH12 to the south at Dargaville – it provides a strategic route from Dargaville to the southeast, over the Wairoa River. It continues west through the Dargaville town centre from the SH14 intersection, providing a connection to the northwest;
- SH15 extends to the north of SH14 at Maungatapere – provides the regional connection through to Kaikohe, and
- SH1 connects with SH14 from Whangarei and provides the primary State Highway connection through Northland as far north as Cape Reigna and then southward through to Aucklan..

Awakino Point North Road intersects with SH14 along the southwestern boundary of the subject land. The SH14 / Awakino Point North Road intersection can be described as a “complex” T-intersection with two separate intersecting points at each end of the curve along SH14. The legs of the two “smaller” intersection connects at a third intersection, forming the Y-shaped road layout. The intersection is currently a Give Way-controlled priority intersection at both intersecting points with SH14.

Both SH14 and SH12 are classified as primary collector roads under the One Network Road Classification (**ONRC**) in which role they provide a "distributor/collector function, linking significant local economic areas or areas of population". In this case, SH14 and SH12 provides an important connection between Dargaville and the wider Northland area.

The posted speed limit applying to SH14 near the site is 100km/h and continues for approximately 1.3km southwest of the SH14 / Awakino Point North Road intersection towards the Dargaville Town Centre, where the speed limit reduces to 70km/h. The posted speed limit of SH12 is 100km/h.

The speed limits applying in the vicinity of the site are illustrated in **Figure 2-3**.

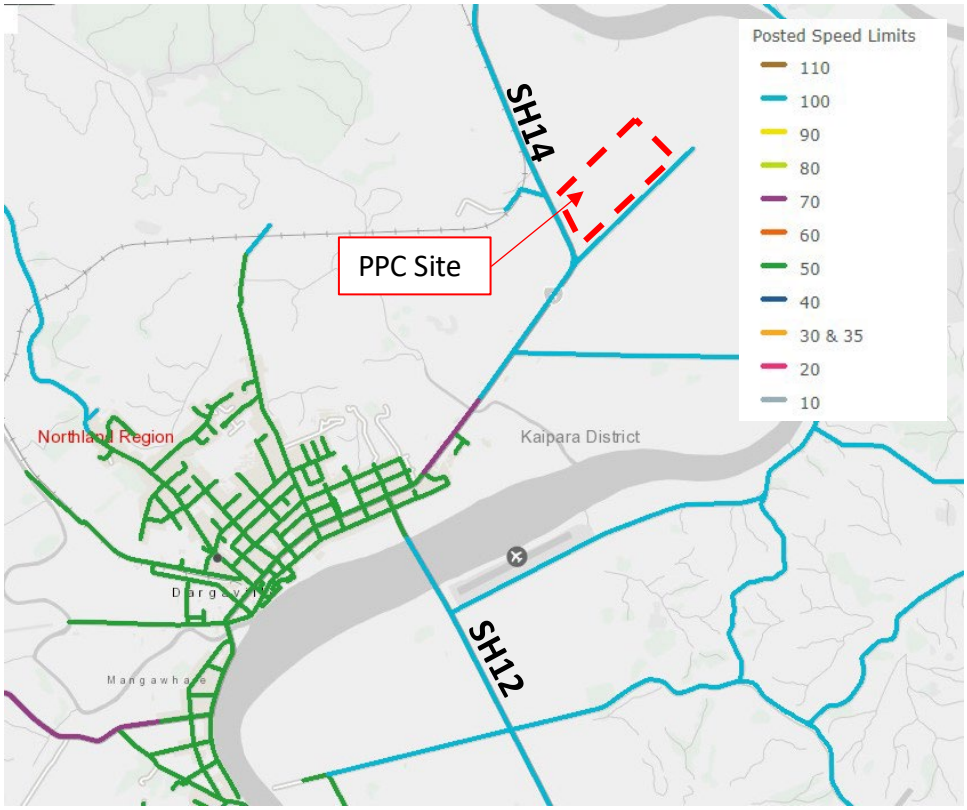

Figure 2-3: Speed Limits in the site vicinity (Source: MegaMaps, NZTA)

The existing SH14 configuration along the southwestern site frontage when travelling southbound and northbound is shown in **Figure 2-4** and **Figure 2-5**, respectively.

As shown, SH14 is somewhat superelevated (outer edge of the curve is elevated above the level of the inside of the curve to assist in vehicles negotiating the curve at speed) around the curve where it meets Awakino Point North Road, with the approach roads being relatively flat and level in directions in advance of the intersection.

Figure 2-4: Existing SH14 configuration along site boundary travelling southbound approaching Awakino Point North Road

Figure 2-5: Existing SH14 configuration along site boundary travelling northbound after Awakino Point North Road (Source: Roadrunner, Argonaut)

2.2.2 Awakino Point North Road

Along the southern boundary of the subject land, Awakino Point North Road is classified as a low volume road under the ONRC.

It is a two-way unsealed road with no road markings. The posted speed limit of Awakino Point North Road is 100km/h, although given the unsealed status of the road, it is expected to operate at a lower speed.

Views from Awakino Point North Road to SH14 southwest and northwest are shown in **Figure 2-6** and **Figure 2-7**, respectively. As shown, the gradient of both approaches increases slightly to meet the super-elevated curve on SH14.

Figure 2-6: SH14 / Awakino Point North Road Intersection looking southwest

Figure 2-7: SH14 / Awakino Point North Road Intersection looking northwest

2.3 Accessibility

2.3.1 Private Vehicles

Private vehicles are the primary mode of transport expected to access the site to and from the Dargaville Town Centre and surrounding parts of the district. Journey times from Dargaville Town Centre to Awakino Point North Road are between five and seven minutes during all periods with little variation during the course of each typical day.

Whangārei is around 50 minutes (off-peak) to 1 hour (morning / afternoon / evening peak) drive from the site.

2.3.2 Public Transport

There are no existing Public Transport services within Dargaville, except for timetabled regional bus services connecting Dargaville with Whangārei.

2.3.3 Walking and Cycling

No walking or cycling provisions exist between Dargaville and Awakino Point North Road along SH14, nor along Awakino Point North Road. The closest formed footpath infrastructure within the Dargaville Town Centre is located from the SH14 / Tuna Street intersection. To the southwest of this intersection, the footpath connects to the pedestrian network within the Dargaville Town Centre.

2.3.4 Future Accessibility

As referenced in the Kaipara District Council Spatial Plan, KDC has identified infrastructure to support the planned further growth in Dargaville forecasted to 2050, including future and proposed upgrades to the collector road network and pedestrian / cyclist facilities. The following diagrams outline the planned and potential upgrades summarised in the Dargaville Spatial Plan, for the road network (**Figure 2-8**) and pedestrian / cycling connections (**Figure 2-9**).

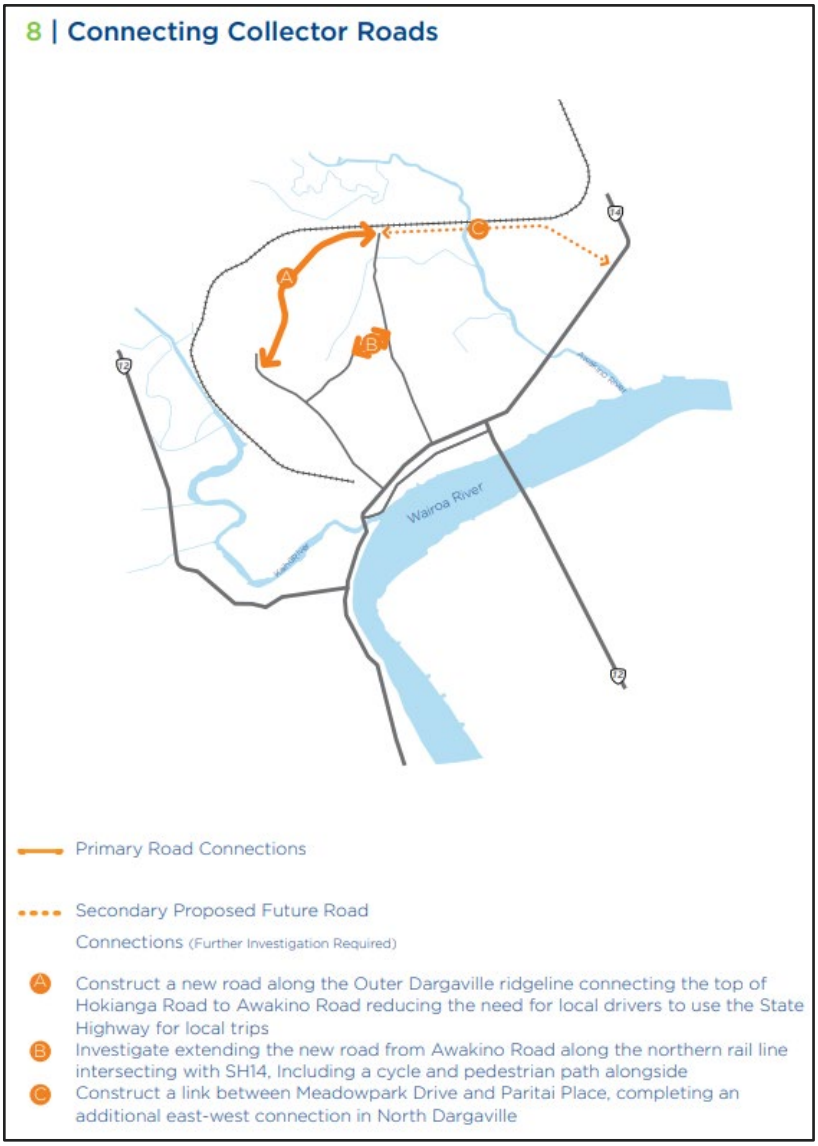

Figure 2-8: Improvements to the road network in Dargaville, Spatial Plan (KDC)

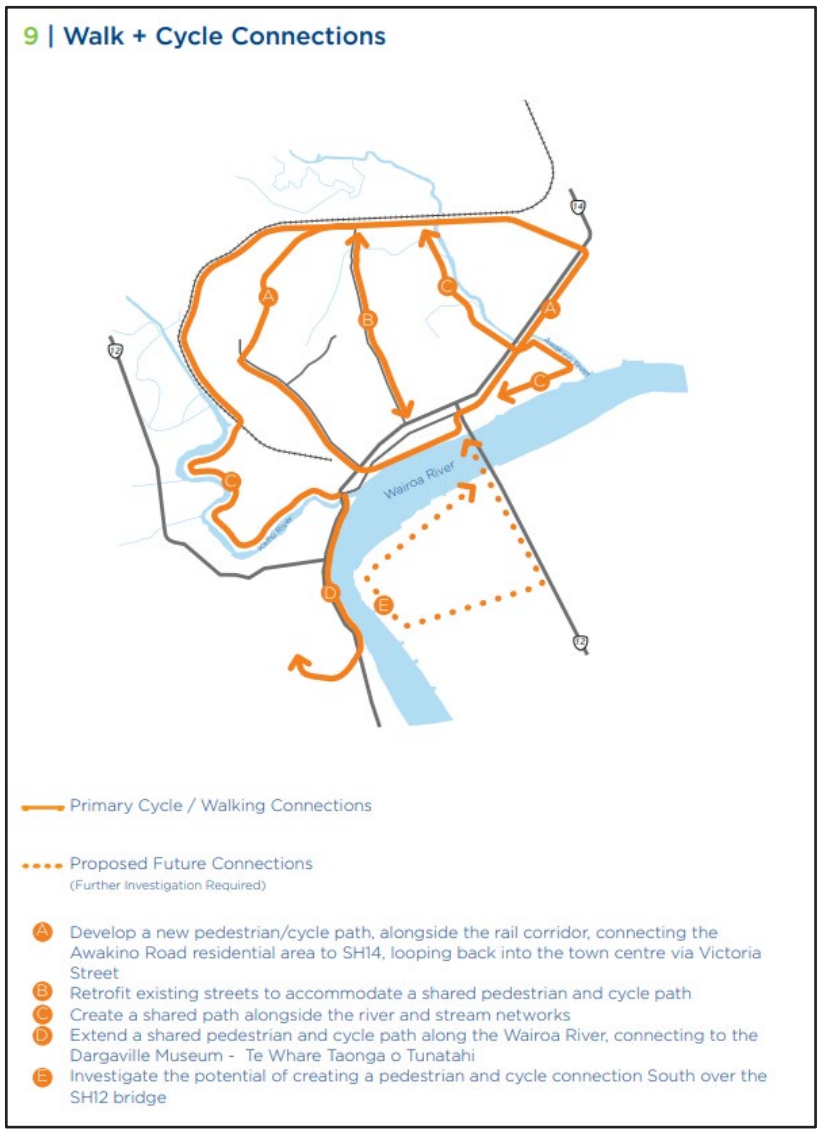

Figure 2-9: Improvements to walking and cycling connections, Spatial Plan (KDC)

As will be discussed later in this report, the PPC is expected to align with some of the aspirations outlined in the Spatial Plan and does not limit or compromise any of these future plans.

3 Travel Patterns

3.1 Existing Traffic Volumes

The most recent traffic volumes available from Waka Kotahi were obtained from a regular count site on SH14 north of Awakino Point North Road. Daily traffic volumes recorded at this site are outlined in **Table 3-1** below. It is noted that traffic volumes were obtained for a five-year period prior to 2020, as COVID-19 may have skewed traffic volumes over the last two years.

Table 3-1: Annual ADT - Traffic counts SH14, TMS, 2014-2019

Year	2014	2015	2016	2017	2018	2019
Traffic Count	2,386	2,386	2,404	2,699	2,752	2,681
% Increase	-	0%	1%	12%	2%	-3%

As can be seen there has been an overall increase in daily traffic volumes over this five-year period (at an average annual increase of 2.5% pa).

The latest[1] peak hour volumes at this location suggested a two-way morning peak flow of 260 vph and afternoon peak of 292 vph.

As a means of further refining and quantifying the current traffic flow patterns near the subject site, the inbound and outbound traffic distributions of current flows using Awakino Point North Road were surveyed at the intersection with SH14 on a regular weekday[2]. The results of this survey are summarised in **Figure 3-1**.

Figure 3-1: Existing Traffic Volumes – AM and PM peak hour

As shown, the through volumes along SH14 during the AM peak were larger in the southbound direction (representing movements towards the Dargaville Town Centre), while the through PM volumes were the same. The number of vehicles turning in and out of Awakino Point North Road were low in both morning and afternoon peaks.

The 2021 traffic volumes represent total vehicle turning movements at the intersection including 8% heavy vehicles.

From a transportation perspective the existing traffic volume in the vicinity of the site are considered typical for the rural environment along SH14.

3.2 Road Safety

A search was made using the Waka Kotahi Crash Analysis System for all reported crashes in the vicinity of the proposed site. The crash search area included:

- SH14 between Te Wharau Road and Awakino Point East Road; and

1 April 2021 – a typical week, average peak hour
2 Thursday 29 July 2021

- The full length of Awakino Point North Road.

The crash search was undertaken for a full five-year period between 2016 to 2020 along with all reported crashes in 2021[3]. The crash search area and resulting crash locations are indicated in **Figure 3-2**.

The detailed CAS outputs are attached at **Appendix A.**

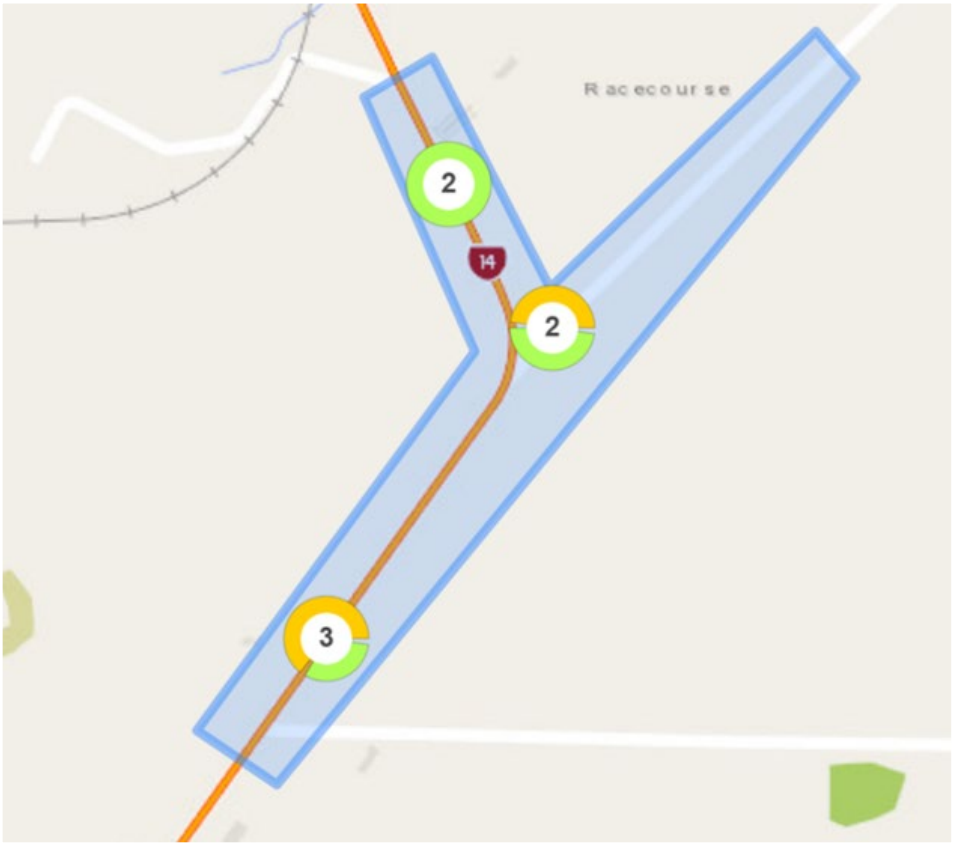

Figure 3-2: Crash Search Area

A total of seven crashes have been recorded in the defined study area. One occurred at the SH14 / Awakino Point North Road intersection, one occurred on Awakino Point North Road, and five occurred on SH14. Of these crashes, three resulted in minor injuries, while the remaining four were classed as non-injury crashes. No cyclist or pedestrians were involved in any of the crashes recorded.

The seven crashes are summarised below, per crash ID:

- Crash ID: 201812341 (Minor injury)
  A driver travelling northbound on SH14 swerved to avoid an animal on the road, leading to a loss of control. The vehicle was travelling 10km/h below the speed limit, at 90km/h.
- Crash ID: 2020171710 (Minor injury)
  A vehicle turning right into their address collided with a vehicle that was travelling northbound on SH14. The driver turning right did not check properly for oncoming traffic.
- Crash ID: 201618711 (Minor injury)
  Two vehicles were travelling southbound on SH14. When the leading driver slowed down to turn into their place of residence, the following driver did not react in time, resulting in collision. Driver distraction was attributed to this crash in which the driver was checking their speedometer.
- Crash ID: 201841544 (Non-injury):
  A vehicle travelling northbound on SH14 collided into four cows on the road near the Dargaville Racecourse. Rain and poor visibility were attributed as contributing to the crash.
- Crash ID: 201964084 (Non-injury):

[3] As of December 2021

A van travelling northbound was turning right into Dargaville Racecourse when the driver of a log truck behind the van misinterpreted the situation. The log truck proceeded to overtake the van whilst the van attempted the turning movement, causing a collision.

- Crash ID: 201968844 (Non-injury):
  A vehicle travelling from SH14 to Awakino Point North Road lost control. Driver inexperience, change in road seal to gravel, and a pothole contributed to the crash.
- Crash ID: 201632478 (Non-injury)
  A vehicle travelling southbound at a speed of 100km/h lost control and came to a standstill in an embankment. The attributing factor for the cause of this crash was the position of the vehicle being too far to the right.

The existing crash history does not indicate presence of any inherent safety issues with the road network. The proposed development trips are not anticipated to impact on general road safety within and on the local roading network.

There was no pattern of repeated crash occurrence at the SH14 / Awakino Point North Road intersection and the only crash reported at this intersection was due to driver inexperience and lack of judgement. The quality of road will be upgraded with the anticipated progressive sealing of Awakino Point North Road and intersection upgrading as parts of the PPC development are delivered, thus addressing and improving the overall safety of the intersection as development proceeds within the site.

4 Requested Rezoning

The requested PPC seeks to rezone the subject land from Rural to a mix of Development Areas. The proposed rezoning will facilitate a total lot yield of approximately 460 lots over an area of 45.4 hectares. The total lots proposed by the DA Plan accompanying the PPC request would comprise of approximately 24 light industrial lots, 435 residential lots, and one Neighbourhood Centre Area.

The anticipated average lot sizes (by type) are outlined below in **Table 4-1**.

Table 4-1: Average area of the proposed PPC land uses

Proposed Land Use	No. of Lots	Average Area (m^2)
Light Industry		
Small	14	476
Large	10	8,863
Total	**24**	**95,301**
Residential		
Medium Density Residential	156	318
General Residential	80	619
Low Density Residential	36	1,570
Lifestyle Lot Residential	7	4,919
Retirement	156	299
Total	**435**	**236,742**
Neighbourhood (e.g. Community Hall)	1	1,431
Total	**1**	**2,862**
Open Space	**n/a**	**57,559**
Road reserve	**n/a**	**61,883**
Grand Total	**460**	**454,347**

The Draft Concept plan within the subject land is shown in **Figure 4-1**.

Figure 4-1: Draft Concept Plan (Source: The Urban Advisory)

4.1 Proposed Internal Roads

The proposed internal roads intended to serve the development are outlined in the subsequent subsections of this report. Indicative layouts of these roads are presented in **Figure 4-1**.

The proposed cross-sections of the roads have been assessed against the Whangārei Engineering Standards 2018 – *Issue 0.3 (May 2019),* based on the trip generation or number of residential dwellings served by each of the development activities.

4.1.1 Industrial Road

The Light Industrial activity of the development site will be serviced by a 21m wide Industrial Road. It will be accessed from Awakino Point North Road via a new Give Way-controlled T-intersection located approximately 100m east of the SH14 intersection.

The indicative cross-section of the proposed Industrial Road, shown in **Figure 4-2**, comprises of a parking lane on each side, footpaths on both sides, landscaping/services berms, and a flush median between the two moving traffic lanes.

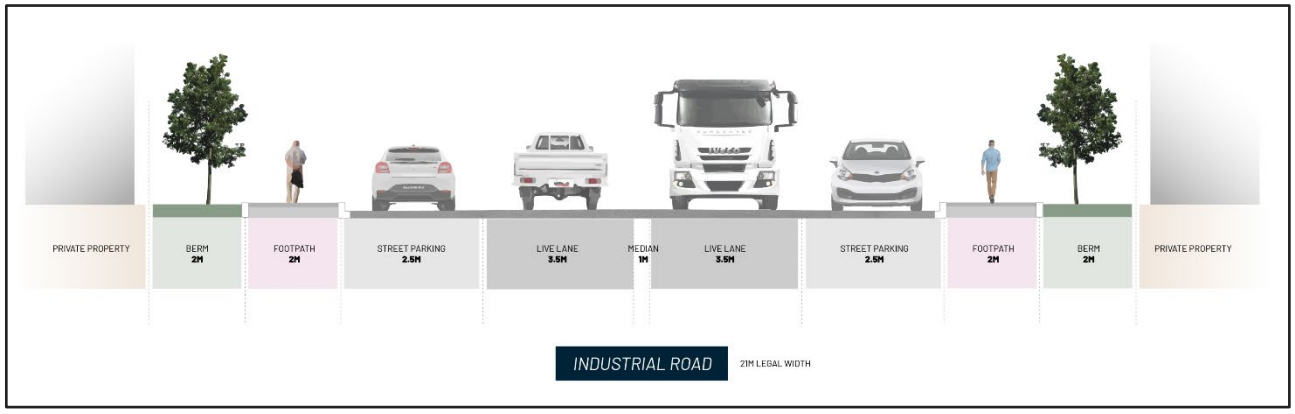

Figure 4-2: Industrial Road Cross-Section

The total width of the Industrial Road, at 21m, satisfies the minimum Whangārei Engineering Standard requirement of 21m for an Industrial Road in an urban setting. The proposed 13m carriageway (inclusive of parking lanes) also exceeds the minimum requirement of 12m, which is deemed suitable for its operational use in support of the industrial activity. The proposed footpath widths also exceed the minimum Whangārei Engineering Standard of 1.5m on each side.

4.1.2 Primary Access Road

The residential area of the development will be accessed via the Primary Access Road, also 21m wide. The cross-section of the road, shown in **Figure 4-3**, comprises on-street parking, berms, and shared pedestrian/cycling paths on both sides of the road, and two live lanes. Like the Industrial Road, the Primary Access Road will be accessed from Awakino Point North Road via Give Way-controlled T-intersections.

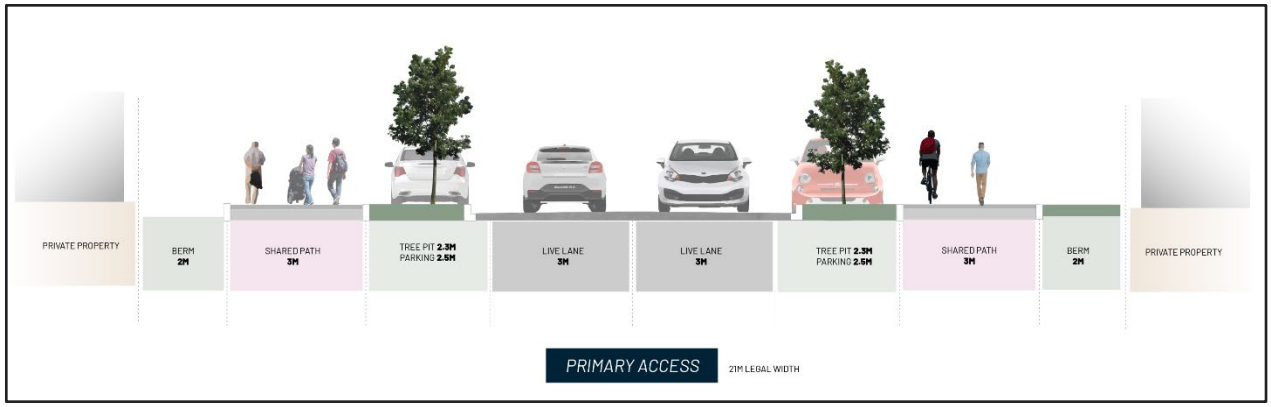

Figure 4-3: Primary Access Road Cross-Section

The indicative traffic lane widths for the Primary Access Road meet the 3m minimum set out in the Whangārei Engineering Standards for an Access Road in an urban setting. The 11m carriageway width requirement is also met (inclusive of parking lanes), along with parking lane widths at 2.5m, and footpath widths exceeding 1.5m.

4.1.3 Low Volume Access Road

The 18m wide Low Volume Access Road will serve more of the residential lots by means of a secondary access from the Primary Access Road. The cross-section of the road, shown in **Figure 4-4**, comprises two moving traffic lanes, and parking, footpaths, and berms on both sides of the carriageway.

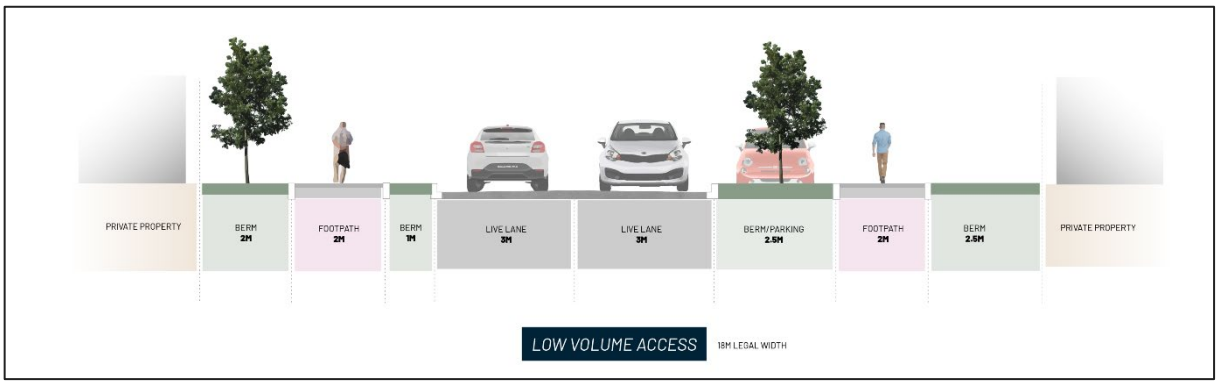

Figure 4-4: Low Volume Access Road Cross-Section

The Low Volume Access Road meets the minimum requirements for a Low Volume Access Road in an urban setting, as set out by the Whangārei Engineering Standards. The Standards require two 3m wide live lanes with an overall carriageway width of 8.5m, with two 1.5m footpaths and one 2.5m parking lane – of which all requirements are met by the indicative layout shown above.

4.1.4 Private way

The private accesses, with a minimum width of 6m, will provide access to the residential lots on the northwestern frontage of the site via the Low Volume Access Road. The road width will meet the minimum requirement for a private accessway serving between 5-8 lots, set out in the Whangārei Engineering Standards for Private Accessways.

All new roads and vehicle crossings will be designed in accordance with Whangārei Engineering Standards and / or the Transport Design Manual. Visibility at the vehicle crossing will also comply with the Austroads Safe Intersection Sight Distance requirements.

4.2 Proposed Connections to External Road Network

4.2.1 Awakino Point North Road Connections

The development will be served by an ultimate total of three new access roads connecting to Awakino Point North Road (albeit that for the purposes of this assessment the proposed layout of roads and lots is still indicative).

These include the Industrial Road, which provide primary access to the industrial area, and two Primary Residential Roads serving the remainder of the site. It is considered that Give Way controlled T-intersections will provide sufficient capacity for connection onto Awakino Point Road; however, details of the intersection layouts will be addressed at the time of future subdivision and subsequent resource consent applications.

Both the SH14 / Awakino Point North Road intersection and Awakino Point North Road are proposed to be progressively upgraded as discussed below.

4.2.1.1 Awakino Point North Road upgrade

The length of Awakino Point North Road along the southeastern boundary of the proposed PPC area (up to the point of the third proposed intersection with Awakino Point North Road) is ultimately proposed to be upgraded in support of the completed development within the subject site. Awakino Point North Road will be sealed as part of the development programme, mitigating the likelihood of dust generation and any safety/operational issues associated with the increased trip generation associated with the development likely to be facilitated by the PPC and its use of the current unsealed form of Awakino Point North Road.

4.2.1.2 SH14 / Awakino Point North Road intersection upgrade

The SH14 / Awakino Point North Road intersection is proposed to be upgraded to cater for the full development of the PPC area. The intersection will continue to operate as a priority-controlled intersection and has been found to be appropriate to support the development facilitated by the PPC.

The upgrade may create extended sight distance for road users leaving the Awakino Point North Road approach in both directions along SH14, as the new point of intersection for departing traffic will be closer to the centre of the curve on SH14 and position drivers leaving Awakino Point North Road at a more elevated position due to the super-elevated shape of this curve in SH14, leading to expectations for a safer overall traffic environment. The removal of the high angle intersection "merge" between the left turn out of Awakino Point North Road and the southbound through-movement along SH14 will also help to mitigate potential safety risks associated with this movement under the current intersection arrangement.

The upgraded intersection layout was explored as part of the PPC traffic modelling that was undertaken, as outlined and addressed further in Section 6.3.

4.3 Pedestrians and Cyclists

Neither SH14 nor Awakino Point North Road have any current dedicated pedestrian or cycling facilities, however it is expected that a link between the PPC site and Dargaville Town Centre will be introduced as part of the PPC.

It is noted following consultation between the PPC proponents and Waka Kotahi in the preparation of the PPC, that Waka Kotahi has agreed in principle[4] to the inclusion of such a shared pedestrian and cyclist path between the PPC site and Dargaville Town Centre. The concrete/asphalt path would run alongside SH14, separated from the road, and cross over the Awakino River Bridge (pictured below in **Figure 2-10**) which is currently not wide enough to accommodate such a shared path.

As such, a separate bridge connection is considered to accommodate the shared path over the Awakino River.

Figure 4-5: Awakino River Bridge

Taking into consideration the rural nature of the site, it is not expected to generate a significant number of cycle or pedestrian journeys, however the provision of the section to the town centre is considered to be a contribution to the overall connection of the PPC area with the wider Dargville community and urban area (and consistent with Waka Kotahi's expectations for enhanced walking and cycling connections within the Dargaville area)

When designed and constructed, a shared path should be a minimum of 3m width in accordance with the Cycle Path Guidelines in the Whangārei Engineering Standards 2018 – *Issue 0.3* (*May 2019*), with a legal width 1m wider than the formed width.

[4] Letter dated 18 November 2021

4.4 Effect of Other Developments

At this stage there are no existing consented developments in the vicinity of the site, but it is understood that the potential for other developments in the area exists; however, the surrounding land is rural and limited development opportunity exists.

The implementation of the Spatial Plan in the Proposed District Plan will result in more light industrial area land along SH14.

To enable any future developments to be taken into consideration within the analysis a growth factor of 2.5% (as per calculated annual growth rate) per annum has been applied to existing traffic volumes.

5 Assessment of Road Connection

5.1 Sight Distance Requirements

Sight distances have been assessed based on the Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections (**Austroads Guide**). The Austroads Guide includes recommendations for three particular forms of sight distances in respect of intersections and accesses:

- Approach Sight Distance (**ASD**);
- Safe Intersection Sight Distance (**SISD**); and
- Minimum Gap Sight Distance (**MGSD**)

ASD is the minimum sight distance that should be available on minor road approaches to all intersections to ensure approaching drivers are aware of the presence of an intersection they are about to encounter. SISD is the distance required for drivers on major roads of an intersection, based on the operating speed of the road, and represents the time (and distance) taken to observe and react to vehicles turning in or out of the side road to avoid conflict. MGSD is the distance corresponding to the critical acceptance gap that drivers are prepared to accept when turning into or out of an intersection (and selecting the appropriate and safe movement to turn into or across the main road traffic stream).

SH14 and Awakino Point North Road currently have a 100km/h posted speed limit (110km/h design speed). Sight distance requirements for the SH14 access and the SH14 / Awakino Point North Road intersection, based on Austroads are summarised below:

- SH14 (northwestern corner access point) (110km/h design speed):
    - ASD – 209m;
    - SISD – 300m; and
    - MGSD – 153m
- SH14 / Awakino Point North Road intersection (110km/h design speed):
    - ASD – 209m;
    - SISD – 300m; and
    - MGSD – 153m

Illustrated in **Figure 5-1** below, the ASD and MGSD requirements are met for both southwest and northwest directions. The SISD falls short of the 300m requirement for both directions.

Figure 5-1: Available sight distance towards the southwest and northwest

The design of the SH14 / Awakino Point North Road intersection upgrade will be addressed at the time of any future subdivision. It is expected that the removal of the aforementioned gradient of Awakino Point North to reach SH14 and the placement of the intersection point would increase the sight distance in both the northwest and southwest directions along SH14 to satisfy these design standards to ensure a safe and effective intersection.

6 Traffic Effects

The proposed PPC trip generation and distribution assessments have been assessed based on current zoning and development that would be facilitated. The key data and parameters relevant in assessing the development trips and potential impact on the road network are also outlined based on the information provided by the Applicant.

6.1 Trip Generation

Development traffic peak hour rates from the Waka Kotahi Research Report 453 – Trips and parking related to land use (**RR453**) were used to derive the trip generation rates for the proposed PPC. The trip generation rates are presented in **Table 6-1** below, by land use.

For the purposes of trip generation calculations (given the indicative nature of the DA) it was assumed that the industrial activity has coverage of 50% of land, while the neighbourhood commercial activity would have a 75% coverage.

These assumptions were then developed to a gross floor area estimation and the RR453 generation rates applied to derive an estimation of the future trip generation of the PPC area.

Table 6-1: Expected Trip generation

Land Use	Number of lots	Research Report 453 Description	Trip Rate (average)	Coverage	Trip Generation
Small Commercial / Light Industry	14	Manufacturing	1.4	0.5	47
Large Commercial / Light Industry	10	Warehousing	0.9	0.5	399
Medium Density Residential	156	Dwellings	1.1		172
General Residential	80	Dwellings	1.1		88
Low Density Residential	36	Dwellings	1.1		40
Lifestyle Lot Residential	7	Dwellings	1.1		8
Retirement	156	Retirement Units	1.1		172
Neighbourhood Commercial	1		1	0.75	11
				Total	**935**

Based on the calculations above, it is anticipated that the proposed PPC would facilitate up to around 935 vehicles per hour (**vph**) two-way during the morning and afternoon peaks (vph).

6.2 Trip Distribution

The inbound and outbound traffic distributions, based on typical residential development of 20:80 during the AM peak hour and 65:35 for the evening peak hour, have been applied for the anticipated future development of the PPC land.

For the light industrial areas, the inbound and outbound traffic distributions were applied at 90:10 (inbound/outbound) during the AM peak hour, and 20:80 during the evening peak hour. Based on the existing direction flow proportions on SH14 the proportion of traffic travelling to and from the south / to and from the north on SH14 is 70 / 30 in the morning and evening peak period (illustrated in **Figure 6-1**).

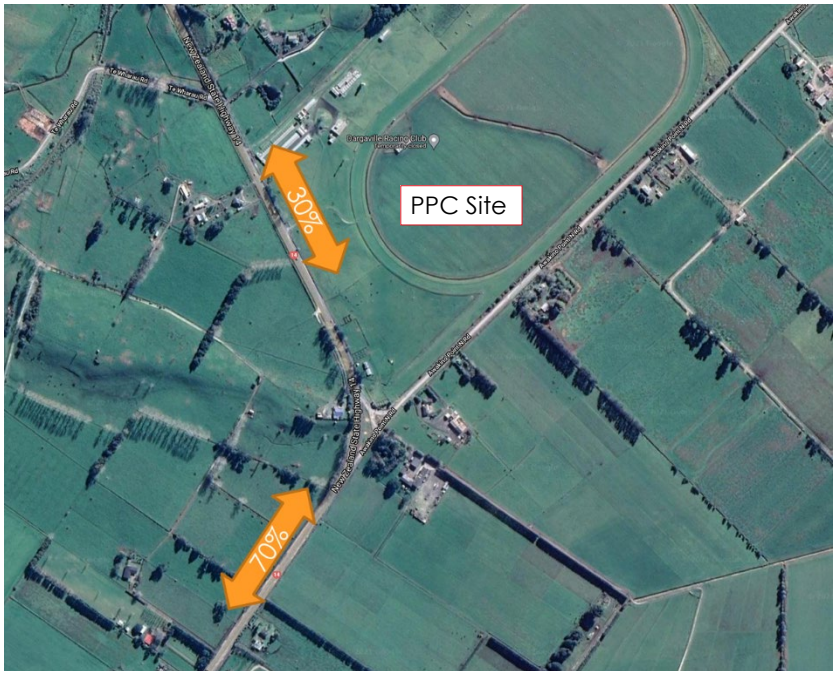

Figure 6-1: PPC Traffic Distribution - SH14 (AM and PM Peak period)

Applying the above percentages, the development trip distributions at the SH14 / Awakino Point North Road intersection considered in the assessment have been calculated and are summarised in **Table 6-2.**

Table 6-2: Trip distribution at the SH14 / Awakino Point North intersection

Peak	Direction	% Peak Hour Trip Generation	Traffic Volume (vph)
AM	Inbound (left-in to Awakino Point North Road from SH14 southbound)	30% of inbound	152
	Inbound (right-in to Awakino Point North Road from SH14 northbound)	70% of inbound	354
	Outbound (left-out to SH14 South from Awakino Point North Road)	70% of outbound	300
	Outbound (right-out to SH14 North from Awakino Point North Road)	30% of outbound	129
		Total	935
PM	Inbound (left-in to Awakino Point North Road from SH14 southbound)	30% of inbound	121
	Inbound (right-in to Awakino Point North Road from SH14 northbound)	70% of inbound	281
	Outbound (left-out to SH14 South from Awakino Point North Road)	70% of outbound	373
	Outbound (right-out to SH14 North from Awakino Point North Road)	30% of outbound	160
		Total	935

A five-year future horizon (2026) has been adopted at this time to determine the effect of the future development on the road network incorporating a 2.5% pa background growth in traffic on SH14.

The 2026 traffic volumes associated with the SH14 / Awakino Point North Road intersection with development traffic added are illustrated in **Figure 6-2**.

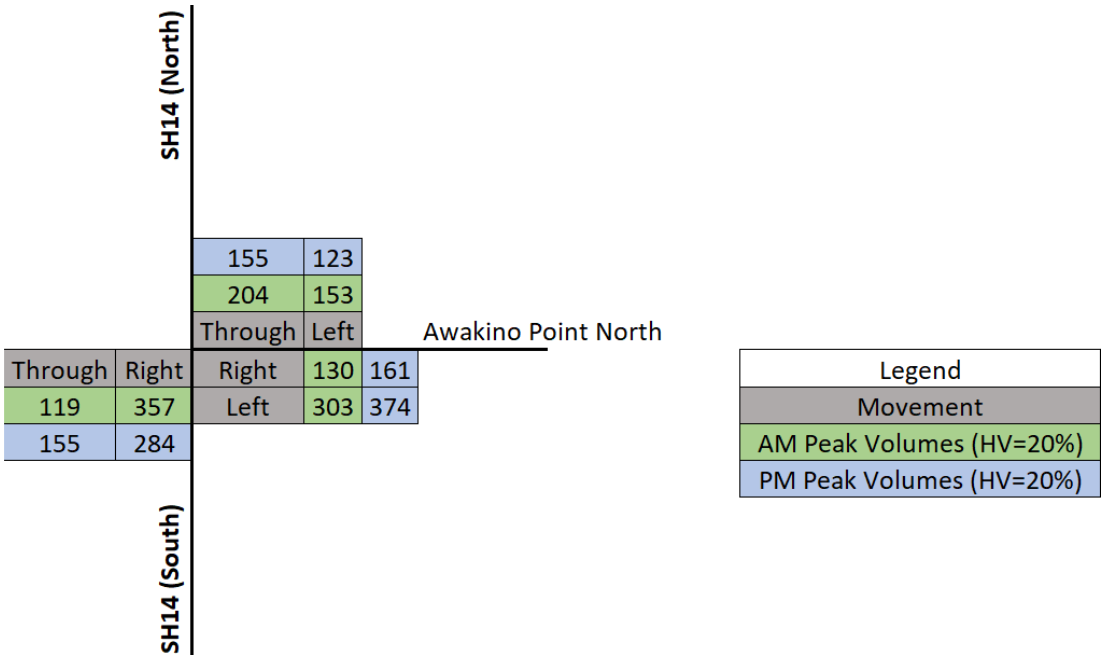

Figure 6-2: 2026 traffic volumes + development traffic volumes

Heavy vehicles were assumed to be 20% at this intersection, given the industrial nature of the proposed PPC.

6.3 Capacity Analysis

6.3.1 Traffic Impact

The results of the analyses undertaken demonstrate that overall additional traffic arising from the development during the peak hours would have minimal impact. The two-way development trip total (935 vph) is calculated as being equivalent to around 74% of the 2026 forecasted (non-development) SH14 traffic volumes through the intersection at Awakino Point North Road. This equates to an average of 16 additional vehicles per minute during the peak hour.

Modelling has been undertaken using SIDRA software[5] to assess the impacts arising from the increase in trips travelling to / from the SH14 / Awakino Point North Road intersection..

A key output from the SIDRA analysis is the Level of Service (**LOS**) for each approach of the tested SH14 / Awakino Point North Road intersection. As defined by the SIDRA package and consistent with the industry standard defintions, LOS is 'an index of the operational performance of traffic on an approach and intersection based on measures such as delay, degree of saturation, density, speed, congestion coefficient, speed efficiency or travel time index during a given flow period.'. The LOS provides a broad, quantitative scale of traffic facility performance from A through F and is used as a key parameter in the below SIDRA performance assessment.

The results of this modelling, comparing the existing base operation in 2021 with the future base operation in 2026 with additional development traffic added, as well as the upgraded T-intersection in 2026, are summarised in **Table 6-3** through **Table 6-6** below.

Table 6-3: SIDRA Modelling Results of the SH14 / Awakino Point North Road Intersection – Existing Layout, Existing Scenario (2021)

Approach	Movement	AM Peak			PM Peak		
		Ave Delay (s)	LOS	Ave Q (m)	Ave Delay (s)	LOS	Ave Q (m)
SH14 (North)	Left	9.9	A	0.0	9.5	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0
Awakino Point North Road	Left	5.3	A	0.0	5.2	A	0.0
	Right	5.2	A	0.0	5.0	A	0.0
SH14 (South)	Through	7.1	A	0.0	7.1	A	0.0
	Right	8.3	A	0.0	8.3	A	0.0

Table 6-4: SIDRA Modelling Results of the SH14 / Awakino Point North Road Intersection – Existing Layout (2026)

Approach	Movement	AM Peak			PM Peak		
		Ave Delay (s)	LOS	Ave Q (m)	Ave Delay (s)	LOS	Ave Q (m)
SH14 (North)	Left	9.9	A	0.0	9.5	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0
Awakino Point North Road	Left	5.4	A	0.0	5.3	A	0.0
	Right	5.5	A	0.0	5.4	A	0.0
SH14 (South)	Through	7.1	A	0.0	7.1	A	0.0
	Right	8.3	A	0.0	8.3	A	0.0

[5] SIDRA is an industry standard tool for assessing the capacity and delay at priority and traffic signal controlled intersections

Table 6-5: SIDRA Modelling Results of the SH14 / Awakino Point North Road Intersection – Existing Layout + Development Traffic (2026)

Approach	Movement	AM Peak			PM Peak		
		Ave Delay (s)	LOS	Ave Q (m)	Ave Delay (s)	LOS	Ave Q (m)
SH14 (North)	Left	9.2	A	0.0	9.2	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0
Awakino Point North Road	Left	5.7	A	4.2	5.4	A	5.2
	Right	6.1	A	2.3	5.9	A	2.9
SH14 (South)	Through	7.1	A	0.0	7.1	A	0.0
	Right	8.0	A	0.0	8.0	A	0.0

Table 6-6: SIDRA Modelling Results of the SH14 / Awakino Point North Road Intersection – Upgraded Layout + Development Traffic (2026)

Approach	Movement	AM Peak			PM Peak		
		Ave Delay (s)	LOS	Ave Q (m)	Ave Delay (s)	LOS	Ave Q (m)
SH14 (North)	Left	8.4	A	0.0	8.4	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0
Awakino Point North Road	Left	5.9	A	10.4	5.7	A	12.9
	Right	17.1	A	10.9	15.3	A	12.9
SH14 (South)	Through	3.9	A	0.0	3.9	A	0.0
	Right	4.8	A	0.0	4.8	A	0.0

As can be seen from the detail of the above tabulated results, the operation of the intersection will continue to operate at entirely acceptable LOS performance levels in 2026 with development traffic included. The upgraded T-intersection also performs at a high LOS with 2026 traffic and development traffic added.

The maximum delays of 17.1 seconds per vehicle are associated with vehicles turning left from Awakino Point North Road during the morning peak hour. When compared to the existing scenario, there is no material impact to the delay at the intersection.

The SIDRA outputs are attached at **Appendix B**.

Overall, it is considered that the PPC will have a negligible impact on the capacity and operational performance of the surrounding road network in the vicinity of the site. Although all options explored show a negligible impact on the performance of the SH14 / Awakino Point North intersection, safety of the intersection must also (and has been) considered. The upgrade of the intersection to a Give Way-controlled T-intersection form (subject to subsequent detailed design and engineering design approval by Waka Kotahi through future resource consent phases) is expected to increase the safety of the intersection as well as mitigating the operational effects of the increased number of trips associated with the development that could be facilitated by the PPC request. This safety assessment is outlined in the following.

7 Mitigation measures

The effects of the additional trips associated with the proposed rezoning sought by the PPC will need to be mitigated to ensure an acceptable future transport outcome for the site and surrounding parts of the Dargaville transport network.

7.1 Awakino Point North Road Intersection Upgrade

The SH14 / Awakino Point North Road intersection is proposed to be upgraded to a standard Give Way T-intersection format. The upgraded intersection layout will improve visibility and overall safety for movements through this intersection and addressing the operational performance effect associated with the trips expected to be generated by the future development. It is recommended that the intersection be upgraded (and operational in its upgraded form) by the time the first dwelling within the General Residential Area is occupied or prior to any of the Light Industrial activities are operational.

The safety issue for the increase in heavy vehicles turning in and out of the SH14 / Awakino Point North Road intersection, due to the light industrial activity associated with the development, would be mitigated with the T-intersection upgrade. The upgraded layout provides greater sight distance in both directions along SH14, resulting in safer movements in and out of Awakino Point North Road. This would also benefit older and other less able drivers using this intersection.

7.2 Awakino Point North Road Sealing

It is proposed that Awakino Point North Road be sealed up to the most northern indicative access point to the PPC area. The same threshold trigger that applies to the Awakino Point North Road intersection upgrade applies to the sealing of Awakino Point North Road.

7.3 Pedestrian / Cyclist Dargaville Link

There are currently no dedicated or separated facilities for pedestrians or cyclists to travel between the PPC site and Dargaville Town Centre. As a means of providing enhanced connection and safety for any future active mode (walking and cycling) movements within this wider part of the Dargaville urban area, it is considered important for the development to contribute to the effective active mode facility provision along SH14 and connecting into the established urban area of Dargaville especially in respect of employment and community purposes.

A possible future pedestrian/cycle link is being considered by the Applicant between the site and Tuna Street, across the Awakino River bridge. It is understood that an additional bridge structure may also be required to cross the Awakino River, as well as a separated lane from SH14, to provide for this linkage to cater safely and effectively for these active modes of transportation likely to be generated by the future development.

The appropriate threshold for the establishment and operation of a pedestrian / cyclist link between the site and Dargaville Town Centre is the occupation of the first property within the General Residential area. The link will not be required before industrial activities are established.

Consultation with Waka Kotahi as part of the PPC process has provided high-level feedback in the form of a letter (dated 18 November 2021) regarding the pedestrian / cyclist link between the site and Dargaville. Waka Kotahi supports a safe walking and cycling link in principle, with preference for the shared path to cross over the nearby fields running alongside the state highway corridor. Should the shared path run adjacent to the state highway, the path would require a width of 2.75 – 3m protected from the roadway by a kerbline and 0.6m – 1m front verge. Waka Kotahi also states the preference to terminate the link at a quiet street or appealing destination.

It is recommended that provisions be included within the PPC provisions to recognise the need for and contribution towards delivery of this facility in a shared manner with other stakeholders including the District Council and Waka Kotahi.

7.4 Additional Upgrades

If there is a change in average lot size, then additional upgrades may be required and/or upgrades may occur at a different stage in time. Reassessment may be required, and the upgrades proposed may become a discretionary activity.

8 Transport Planning and Policy

The key documents relevant to the transport outcomes for the PPC are the Government Policy Statement on Land Transport 2021 (**GPS 2021**), National Policy Statement on Urban Development 2020 (**NPS-UD**), and the Dargaville Spatial Plan. The ways in which the PPC meets key policies and strategic outcomes within these documents are outlined in the following subsections.

An initial compliance assessment against the Kaipara District Plan was also undertaken for the PPC development.

8.1 GPS 2021/22 – 2030/31

The Government Policy Statement on Land Transport 2021/22 – 2030/31 outlines the four strategic policies: Safety, Better Travel Options, Climate Change, and Improving Freight Connections. The PPC development's alignment with these policies is summarised as follows:

- **Safety** – outlined in Section 3.2, the four non-injury and three minor-injury crashes that occurred in the vicinity of the site in the past five years does not present an inherent road safety issue. Outlined in Section 5, the sight lines in both the northwest and southwest direction along SH14 from Awakino Point North Road are ample to view oncoming traffic, with the SISD requirement likely to be met when the intersection is upgraded. The development will therefore not have any negative impact on the safety of SH14 nor Awakino Point North Road.
- **Better Travel Options** – A pedestrian and cyclist link will be provided for between the development and Dargaville, allowing for a variety of travel options to reach the town centre.
- **Climate Change** – the connected pedestrian and cyclist link between the PPC site and Dargaville Town Centre mentioned previously facilitates more sustainable travel
- **Improving Freight Connections** – 20% of traffic generated by the PPC will be heavy vehicles. The current road infrastructure along SH14 is currently used by similar percentages of freight (20% in the AM peak and 11% in the PM peak) and is considered adequate for any residential and light industrial freight connections/deliveries to and from the wider transport network.

8.2 NPS-UD 2020

The alignment of the PPC development with key National Policy Statement on Urban Development objectives and policies is outlined below in **Table 8-1**.

Table 8-1: NPS-UD 2020 Objective and Policy Alignment

Objective / Policy	Explanation
Objective 3: Regional policy statements and district plans enable more people to live in, and more businesses and community services to be located in, areas of an urban environment in which one or more of the following apply: • the area is in or near a centre zone or other area with many employment opportunities • the area is well-serviced by existing or planned public transport • there is high demand for housing or for business land in the area, relative to other areas within the urban environment.	The PPC is located near Dargaville Town Centre. While there is no public transport that will service the site, the pedestrian/cycle link along the SH14 road corridor would provide an important connection for people to reach employment within Dargaville as well as within the site.

Policy 1: Planning decisions contribute to well-functioning urban environments, which are urban environments that, as a minimum:
• have or enable a variety of homes that:
  ○ meet the needs, in terms of type, price, and location, of different households; and
  ○ enable Māori to express their cultural traditions and norms; and
• have or enable a variety of sites that are suitable for different business sectors in terms of location and site size; and
• have good accessibility for all people between housing, jobs, community services, natural
	As outlined in Section 4, the PPC development incorporates the establishment of numerous residential and industrial lots, including the allowance for community facilities. The PPC enables a range of affordability of the households as there are smaller and larger residential lots.
	
	The pedestrian/cyclist link, and pedestrian/cycling paths within the site, will provide accessibility to Dargaville and employment. These links will also encourage more sustainable travel, leading to a decrease in greenhouse gas emission.

Objective / Policy	Explanation
spaces, and open spaces, including by way of public or active transport; and • support, and limit as much as possible adverse impacts on, the competitive operation of land and development markets; and • support reductions in greenhouse gas emissions; and • are resilient to the likely current and future effects of climate change.	
Policy 5: Regional policy statements and district plans applying to tier 2 and 3 urban environments enable heights and density of urban form commensurate with the greater of: • the level of accessibility by existing or planned active or public transport to a range of commercial activities and community services; or • relative demand for housing and business use in that location.	Active mode accessibility to the site and within the site including a pedestrian/cyclist link. Provision for a range of commercial and community activities is allowed for in the PPC, including light commercial and community facilities.

8.3 Dargaville Spatial Plan

The Dargaville Spatial Plan identifies the PPC site within the 'Awakino Point' neighbourhood, to be used for Industrial land uses. The PPC aims to rezone the site from Rural to a mix of land uses, with the rezoned land use incorporating Industrial activity.

Safe and easy accessibility to services, employment, and education will be supported by the pedestrian/cyclist link between the PPC development and Dargaville Town Centre. This is in line with the Spatial Plan Part 2: Dargaville Key Moves and the GPS 2021/22 – 2030/31.

8.4 Kaipara District Plan

The development's compliance with the Kaipara Operative District Plan 2013 (**District Plan**), in terms of transportation effects, is outlined below in **Table 8-2**.

Table 8-2: Kaipara District Plan Compliance

Rule	Explanation
11.10.2 **Road Construction and works in or on a road not undertaken by the Council or NZ Transport Agency**	
Works in or on the road are a Permitted Activity if: a) Written approval from the Council has been obtained to undertake any works within the road reserve; and b) Written approval from the NZ Transport Agency has been obtained, if the works are to be undertaken within the State Highway Network; and c) On completion of the works any part of the road reserve that has been disturbed will be restored in compliance with the Kaipara District Council Engineering Standards 2011[6] or with the equivalent standards of the NZ Transport Agency	Should this rule not be satisfied, the development would become a Restricted Discretionary Activity.

[6] Note: Whangārei Engineering Standards will be followed, as advised by the planner.

Rule	Explanation
Activities considered Permitted Activities must also comply with the relevant standards of the zone in which the activity is located.	The development will comply with the New Zone standards in the District Plan.
Restricted Discretionary Activity Rules	
Where an activity doesn't meet 1(a)-(c) inclusive then the following matters will be considered: i. Whether the works adversely affect sight distances or road safety; ii. Whether the works prevent a previously possible turning movement to or from a vehicle crossing, frontage of an underdeveloped site with no alternative access or intersection; iii. Whether the works will result in a change in the number of through lanes within a road; iv. Whether the works will involve altering the level of the road by more than 150mm; v. Whether the works will involve earthworks of 1000m³ or more; vi. Whether the works will involve reductions in the capacity of storm water systems present within the road or road reserve; and vii. Whether the works comply with all other provisions relating to activities within the Transport Network and the Kaipara District Council Engineering Standards 2011[7].	The development that would be facilitated by the PPC and mechanisms to require the upgrading to the SH14 / Awakino Point North Road intersection would increase the sight distance along SH14 in both northwest and southwest directions, leading to a safer road environment. The same movements will be possible with the upgraded SH14 / Awakino Point North Road intersection as in the current situation. Awakino Point North Road will be sealed as part of the development, with one through lane in each direction The upgrade of the SH14 / Awakino Point North Road may involve the flattening out of the Awakino Point North Road approaches. The works associated with the SH14 / Awakino Point North Road intersection upgrade and the Awakino Point North Road upgrade will comply with District Plan rules.

By way of summary, the PPC development will comply with transportation related rules set out in the District Plan.

[7] Note: Whangārei Engineering Standards will be followed, as advised by the planner.

9 Summary and Conclusions

This Integrated Transportation Assessment report describes and assesses the transportation aspects of a proposed Private Plan Change within the Operative Kaipara District Plan relating to rezoning of land formerly occupied by the Dargaville Racing Club. The proposal seeks zoning as a mix of land uses. The general nature and scale of the development that would be facilitated by the rezoning would include light industrial, residential, neighbourhood centre, and open space.

It was determined from traffic generation assessment of the rezoning proposal that future development in accordance with the New Zone provisions would ultimately require the SH14 / Awakino Point North Road to be upgraded to a more standard form of Give Way-controlled T-intersection, to accommodate the additional trips in the current transport network to ensure future safety and effectiveness of the generated trips. Awakino Point North Road will also need to be sealed to allow for these additional trips.

Assessment of the current road safety record of the surrounding transport records show that there are no specific issues that would adversely affect or be affected by the development facilitated by the requested rezoning. The required upgrading of the SH14 intersection would contribute to an overall improvement in future safety performance to the benefit of all users of this intersection.

Future pedestrian and cyclist movements to and from the PPC area ultimately require enhanced provision by way of a potential shared walk/cycle path alongside SH14 and into the Dargaville Town Centre. Consultation with Waka Kotahi and the Northland Transportation Alliance has indicated that provision of this link would form part of future development stages within the Plan Change area. It is recommended that provisions be included within the PPC provisions to recognise the need for and contribution towards delivery of this facility in a shared manner with other stakeholders including the District Council and Waka Kotahi.

Mitigation measures and associated Plan Change controls have been proposed to address the future impact of generated trips associated with the future development of the PPC area. These measures and controls include both infrastructure provisions (and associated trigger mechanisms relating to development levels) and future assessment requirements via Plan Change provisions and activity status. It is considered that the combination of both infrastructure and planning controls will effectively address and mitigate the transportation effects associated with the rezoning and future development that will be facilitated by it.

The PPC aligns with the relevant national and regional transport policies, namely the Government Policy Statement on Land Transport 2021 (GPS 2021), National Policy Statement on Urban Development 2020 (NPS-UD), and the Dargaville Spatial Plan. In summary, the mixed land use development provides a range of residential and employment prospects, which will be accessible by people using active modes in the future along the shared path between the site and Dargaville, and within the site. Also, the PPC development will comply with Kaipara District Plan rules.

In summary, there are no traffic engineering or transport planning reasons to preclude acceptance of the PPC. The full extent of development that would be enabled by the rezoning requested and can be appropriately supported by the future local network upgrades and future transport assessments proposed within the PPC provisions.

Stantec New Zealand

Appendices

Appendix A Crash History

Dargaville Racecourse

Crash year

2016 — 2021

Saved sites

Dargaville Racecourse

Plain English report

7 results from your query.

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Crash road	Side road	Feature	Distance from side road/feature	Direction	Reference station	Route position	Easting	Northing	Longitude	Latitude	ID	Date	Day of week	Time	Description of events	Crash factors	Surface condition	Natural light	Weather	Junction	Control	Casualty count fatal	Casualty count serious	Casualty count minor	Social cost $(m)
014-0044	TE WHARAU ROAD		271m	S			1680903	6025238	173.896667	-35.913826	201964084	10/04/2019	Wed	07:55	Car/Wagon1 NDB on SH 14 overtaking hit Truck HPMV2 NDB on SH 14 turning right	CAR/WAGON1, alcohol test above limit or test refused, overseas/migrant driver fail to adjust to nz roads TRUCK HPMV2, alcohol test above limit or test refused, misjudged intentions of another party, overtaking vehicle signalling right turn	Dry	Overcast	Fine	Driveway	Nil	0	0	0	0.04
AWAKINO POINT NTH ROAD	SH 14		250m	N			1681178	6025053	173.899734	-35.915470	201968844	27/05/2019	Mon	19:50	Car/Wagon1 EDB on AWAKINO POINT NORTH ROAD lost control; went off road to left, Car/Wagon1 hit fence	CAR/WAGON1, alcohol test below limit, inappropriate speed for road conditions, lost control - road conditions, ENV: road surface potholed	Dry	Dark	Fine	Nil (Default)	Unknown	0	0	0	0.04
SH 14	AWAKINO POINT EAST ROAD		340m	N			1680711	6024450	173.894623	-35.920948	201632478	13/02/2016	Sat	23:50	SUV1 SDB on SH 14 lost control; went off road to right, SUV1 hit non specific ditch	SUV1, too far right	Dry	Dark	Fine	Nil (Default)	Unknown	0	0	0	0.04
SH 14	AWAKINO POINT EAST ROAD		230m	N			1680647	6024360	173.893921	-35.921764	201618711	21/12/2016	Wed	17:30	Car/Wagon1 SDB on SH14 hit rear of left turning Car/Wagon2 SDB on SH14	CAR/WAGON1, failed to notice car slowing, stopping/stationary	Dry	Bright sun	Fine	Driveway	Nil	0	0	1	0.11
SH 14	AWAKINO POINT EAST ROAD		80m	N			1680558	6024237	173.892944	-35.922878	2020171710	03/12/2020	Thu	12:50	Car/Wagon2 turning right hit by oncoming Ute1 NDB on SH 14, AWAKINO POINT, KAIPARA	UTE1, alcohol test below limit CAR/WAGON2, alcohol test below limit, did not check/notice another party from other dirn, failed to give way turning to non-turning traffic	Wet	Overcast	Mist or Fog	Driveway	Nil	0	0	4	
SH 14	AWAKINO POINT NORTH ROAD		30m	N			1681014	6024907	173.897934	-35.916801	201812341	28/03/2018	Wed	21:23	Car/Wagon1 NDB on State Highway 14 lost control turning left, Car/Wagon1 hit non specific ditch	CAR/WAGON1, alcohol test below limit, other inexperience, too far left	Wet	Dark	Fine	Nil (Default)	Unknown	0	0	1	0.11
SH 14	TE WHARAU ROAD		200m	S			1680874	6025304	173.896332	-35.913235	201841544	06/06/2018	Wed	18:15	Car/Wagon1 NDB on Sh12 hit obstruction, Car/Wagon1 hit non specific animal	CAR/WAGON1, alcohol test below limit, did not check/notice another party from other dirn, new driver/under instruction, ENV: farm animal straying	Wet	Dark	Light rain	Nil (Default)	Unknown	0	0	0	0.04

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Appendix B SIDRA Results

MOVEMENT SUMMARY

Site: 1_AM_1 [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd AM (Site Folder: Scen 1 AM - Existing Layout + 2021 vols)]

Network: N101 [Scen 1: AM (Network Folder: EM)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	111	20.0	111	20.0	0.064	3.6	LOS A	0.0	0.0	0.00	0.60	0.00	63.0
Approach		111	20.0	111	20.0	0.064	3.6	NA	0.0	0.0	0.00	0.60	0.00	63.0
East: Awakino Point North Rd														
6	R2	2	50.0	2	50.0	0.003	5.2	LOS A	0.0	0.0	0.39	0.57	0.39	46.4
Approach		2	50.0	2	50.0	0.003	5.2	LOS A	0.0	0.0	0.39	0.57	0.39	46.4
North: SH14 N														
7	L2	2	50.0	2	50.0	0.111	9.9	LOS A	0.0	0.0	0.00	0.01	0.00	99.6
8	T1	189	20.0	189	20.0	0.111	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.6
Approach		192	20.3	192	20.3	0.111	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.6
All Vehicles		304	20.4	304	20.4	0.111	1.4	NA	0.0	0.0	0.00	0.23	0.00	80.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1_AM_2 [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd S AM (Site Folder: Scen 1 AM - Existing Layout + 2021 vols)]

Network: N101 [Scen 1: AM (Network Folder: EM)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd S AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	111	20.0	111	20.0	0.066	7.1	LOS A	0.0	0.0	0.00	0.65	0.00	73.4
3	R2	3	33.3	3	33.3	0.066	8.3	LOS A	0.0	0.0	0.00	0.65	0.00	73.4
Approach		114	20.4	114	20.4	0.066	7.1	NA	0.0	0.0	0.00	0.65	0.00	73.4
East: Awakino Point North Rd														
4	L2	3	33.3	3	33.3	0.003	5.3	LOS A	0.0	0.0	0.31	0.53	0.31	54.9
Approach		3	33.3	3	33.3	0.003	5.3	LOS A	0.0	0.0	0.31	0.53	0.31	54.9
North: SH14 N														
8	T1	189	20.0	189	20.0	0.110	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach		189	20.0	189	20.0	0.110	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.9
All Vehicles		306	20.3	306	20.3	0.110	2.7	NA	0.0	0.0	0.00	0.25	0.00	88.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1_PM_1 [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd N PM (Site Folder: Scen 1 PM - Existing Layout + 2021 vols)]

Network: N101 [Scen 1: PM (Network Folder: EM)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd N PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	144	19.7	144	19.7	0.083	3.6	LOS A	0.0	0.0	0.00	0.60	0.00	63.1
Approach		144	19.7	144	19.7	0.083	3.6	NA	0.0	0.0	0.00	0.60	0.00	63.1
East: Awakino Point North Rd														
6	R2	2	50.0	2	50.0	0.003	5.0	LOS A	0.0	0.0	0.38	0.57	0.38	46.5
Approach		2	50.0	2	50.0	0.003	5.0	LOS A	0.0	0.0	0.38	0.57	0.38	46.5
North: SH14 N														
7	L2	3	33.3	3	33.3	0.086	9.5	LOS A	0.0	0.0	0.00	0.01	0.00	99.1
8	T1	144	19.7	144	19.7	0.086	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.1
Approach		147	20.0	147	20.0	0.086	0.2	NA	0.0	0.0	0.00	0.01	0.00	99.1
All Vehicles		294	20.1	294	20.1	0.086	1.9	NA	0.0	0.0	0.00	0.31	0.00	75.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1_PM_2 [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd S PM (Site Folder: Scen 1 PM - Existing Layout + 2021 vols)]

Network: N101 [Scen 1: PM (Network Folder: EM)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd S PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	144	19.7	144	19.7	0.086	7.1	LOS A	0.0	0.0	0.00	0.65	0.00	73.4
3	R2	3	33.3	3	33.3	0.086	8.3	LOS A	0.0	0.0	0.00	0.65	0.00	73.4
Approach		147	20.0	147	20.0	0.086	7.1	NA	0.0	0.0	0.00	0.65	0.00	73.4
East: Awakino Point North Rd														
4	L2	2	50.0	2	50.0	0.002	5.2	LOS A	0.0	0.0	0.27	0.51	0.27	50.0
Approach		2	50.0	2	50.0	0.002	5.2	LOS A	0.0	0.0	0.27	0.51	0.27	50.0
North: SH14 N														
8	T1	144	19.7	144	19.7	0.083	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		144	19.7	144	19.7	0.083	0.0	NA	0.0	0.0	0.00	0.00	0.00	100.0
All Vehicles		294	20.1	294	20.1	0.086	3.6	NA	0.0	0.0	0.00	0.33	0.00	85.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2_AM_1 [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd AM (Site Folder: Scen 2 AM - Existing Layout + 2026 vols)]

Network: N103 [Scen 2: AM (Network Folder: EM)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	125	20.2	125	20.2	0.073	3.6	LOS A	0.0	0.0	0.00	0.60	0.00	62.9
Approach		125	20.2	125	20.2	0.073	3.6	NA	0.0	0.0	0.00	0.60	0.00	62.9
East: Awakino Point North Rd														
6	R2	2	50.0	2	50.0	0.003	5.5	LOS A	0.0	0.0	0.42	0.59	0.42	46.0
Approach		2	50.0	2	50.0	0.003	5.5	LOS A	0.0	0.0	0.42	0.59	0.42	46.0
North: SH14 N														
7	L2	2	50.0	2	50.0	0.126	9.9	LOS A	0.0	0.0	0.00	0.01	0.00	99.6
8	T1	215	20.1	215	20.1	0.126	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.6
Approach		217	20.4	217	20.4	0.126	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.6
All Vehicles		344	20.5	344	20.5	0.126	1.4	NA	0.0	0.0	0.00	0.23	0.00	80.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2_AM_2 [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd S AM (Site Folder: Scen 2 AM - Existing Layout + 2026 vols)]

Network: N103 [Scen 2: AM (Network Folder: EM)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd S AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	125	20.2	125	20.2	0.075	7.1	LOS A	0.0	0.0	0.00	0.65	0.00	73.4
3	R2	3	33.3	3	33.3	0.075	8.3	LOS A	0.0	0.0	0.00	0.65	0.00	73.4
Approach		128	20.5	128	20.5	0.075	7.1	NA	0.0	0.0	0.00	0.65	0.00	73.4
East: Awakino Point North Rd														
4	L2	4	25.0	4	25.0	0.004	5.4	LOS A	0.0	0.0	0.32	0.54	0.32	57.7
Approach		4	25.0	4	25.0	0.004	5.4	LOS A	0.0	0.0	0.32	0.54	0.32	57.7
North: SH14 N														
8	T1	215	20.1	215	20.1	0.125	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach		215	20.1	215	20.1	0.125	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.9
All Vehicles		347	20.3	347	20.3	0.125	2.7	NA	0.0	0.0	0.00	0.25	0.00	88.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2_PM_1 [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd PM (Site Folder: Scen 2 PM- Existing Layout + 2026 vols)]

Network: N103 [Scen 2: PM (Network Folder: EM)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	163	20.0	163	20.0	0.095	3.6	LOS A	0.0	0.0	0.00	0.60	0.00	63.0
Approach		163	20.0	163	20.0	0.095	3.6	NA	0.0	0.0	0.00	0.60	0.00	63.0
East: Awakino Point North Rd														
6	R2	2	50.0	2	50.0	0.003	5.4	LOS A	0.0	0.0	0.41	0.58	0.41	46.2
Approach		2	50.0	2	50.0	0.003	5.4	LOS A	0.0	0.0	0.41	0.58	0.41	46.2
North: SH14 N														
7	L2	3	33.3	3	33.3	0.097	9.5	LOS A	0.0	0.0	0.00	0.01	0.00	99.2
8	T1	163	20.0	163	20.0	0.097	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.2
Approach		166	20.3	166	20.3	0.097	0.2	NA	0.0	0.0	0.00	0.01	0.00	99.2
All Vehicles		332	20.3	332	20.3	0.097	1.9	NA	0.0	0.0	0.00	0.31	0.00	75.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2_PM_2 [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd S PM (Site Folder: Scen 2 PM- Existing Layout + 2026 vols)]

Network: N103 [Scen 2: PM (Network Folder: EM)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd S PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	163	20.0	163	20.0	0.097	7.1	LOS A	0.0	0.0	0.00	0.65	0.00	73.4
3	R2	3	33.3	3	33.3	0.097	8.3	LOS A	0.0	0.0	0.00	0.65	0.00	73.4
Approach		166	20.3	166	20.3	0.097	7.1	NA	0.0	0.0	0.00	0.65	0.00	73.4
East: Awakino Point North Rd														
4	L2	2	50.0	2	50.0	0.002	5.3	LOS A	0.0	0.0	0.29	0.51	0.29	50.0
Approach		2	50.0	2	50.0	0.002	5.3	LOS A	0.0	0.0	0.29	0.51	0.29	50.0
North: SH14 N														
8	T1	163	20.0	163	20.0	0.095	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		163	20.0	163	20.0	0.095	0.0	NA	0.0	0.0	0.00	0.00	0.00	100.0
All Vehicles		332	20.3	332	20.3	0.097	3.6	NA	0.0	0.0	0.00	0.33	0.00	85.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 3_AM_1 [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd AM (Site Folder: Scen 3 AM - Existing Layout + 2026 vols + Dev)]

Network: N103 [Scen 3: AM (Network Folder: EM)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	125	20.2	125	20.2	0.073	3.6	LOS A	0.0	0.0	0.00	0.60	0.00	62.9
Approach		125	20.2	125	20.2	0.073	3.6	NA	0.0	0.0	0.00	0.60	0.00	62.9
East: Awakino Point North Rd														
6	R2	137	20.0	137	20.0	0.201	6.1	LOS A	0.3	2.3	0.49	0.76	0.49	55.3
Approach		137	20.0	137	20.0	0.201	6.1	LOS A	0.3	2.3	0.49	0.76	0.49	55.3
North: SH14 N														
7	L2	161	20.3	161	20.3	0.224	9.2	LOS A	0.0	0.0	0.00	0.28	0.00	83.3
8	T1	215	20.1	215	20.1	0.224	0.0	LOS A	0.0	0.0	0.00	0.28	0.00	83.3
Approach		376	20.2	376	20.2	0.224	4.0	NA	0.0	0.0	0.00	0.28	0.00	83.3
All Vehicles		638	20.1	638	20.1	0.224	4.3	NA	0.3	2.3	0.11	0.45	0.11	70.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 3_AM_2 [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd S AM (Site Folder: Scen 3 AM - Existing Layout + 2026 vols + Dev)]

Network: N103 [Scen 3: AM (Network Folder: EM)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd S AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	125	20.2	125	20.2	0.303	7.1	LOS A	0.0	0.0	0.00	0.67	0.00	71.7
3	R2	375	19.9	375	19.9	0.303	8.0	LOS A	0.0	0.0	0.00	0.67	0.00	71.7
Approach		500	20.0	500	20.0	0.303	7.8	NA	0.0	0.0	0.00	0.67	0.00	71.7
East: Awakino Point North Rd														
4	L2	320	20.1	320	20.1	0.271	5.7	LOS A	0.5	4.2	0.39	0.63	0.39	59.2
Approach		320	20.1	320	20.1	0.271	5.7	LOS A	0.5	4.2	0.39	0.63	0.39	59.2
North: SH14 N														
8	T1	215	20.1	215	20.1	0.125	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach		215	20.1	215	20.1	0.125	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.9
All Vehicles		1035	20.0	1035	20.0	0.303	5.5	NA	0.5	4.2	0.12	0.52	0.12	71.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 3_PM_1 [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd PM (Site Folder: Scen 3 PM - Existing Layout + 2026 vols + Dev)]

Network: N103 [Scen 3: PM (Network Folder: EM)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	163	20.0	163	20.0	0.095	3.6	LOS A	0.0	0.0	0.00	0.60	0.00	63.0
Approach		163	20.0	163	20.0	0.095	3.6	NA	0.0	0.0	0.00	0.60	0.00	63.0
East: Awakino Point North Rd														
6	R2	169	19.9	169	19.9	0.237	5.9	LOS A	0.3	2.9	0.49	0.75	0.49	55.7
Approach		169	19.9	169	19.9	0.237	5.9	LOS A	0.3	2.9	0.49	0.75	0.49	55.7
North: SH14 N														
7	L2	129	20.3	129	20.3	0.174	9.2	LOS A	0.0	0.0	0.00	0.29	0.00	82.9
8	T1	163	20.0	163	20.0	0.174	0.0	LOS A	0.0	0.0	0.00	0.29	0.00	82.9
Approach		293	20.1	293	20.1	0.174	4.1	NA	0.0	0.0	0.00	0.29	0.00	82.9
All Vehicles		625	20.0	625	20.0	0.237	4.4	NA	0.3	2.9	0.13	0.50	0.13	67.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 3_PM_2 [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd S PM (Site Folder: Scen 3 PM - Existing Layout + 2026 vols + Dev)]

Network: N103 [Scen 3: PM (Network Folder: EM)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd S PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	163	20.0	163	20.0	0.279	7.1	LOS A	0.0	0.0	0.00	0.67	0.00	72.0
3	R2	299	20.1	299	20.1	0.279	8.0	LOS A	0.0	0.0	0.00	0.67	0.00	72.0
Approach		462	20.0	462	20.0	0.279	7.7	NA	0.0	0.0	0.00	0.67	0.00	72.0
East: Awakino Point North Rd														
4	L2	394	20.1	394	20.1	0.314	5.4	LOS A	0.6	5.2	0.35	0.60	0.35	59.4
Approach		394	20.1	394	20.1	0.314	5.4	LOS A	0.6	5.2	0.35	0.60	0.35	59.4
North: SH14 N														
8	T1	163	20.0	163	20.0	0.095	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		163	20.0	163	20.0	0.095	0.0	NA	0.0	0.0	0.00	0.00	0.00	100.0
All Vehicles		1019	20.0	1019	20.0	0.314	5.6	NA	0.6	5.2	0.14	0.54	0.14	69.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 4_AM [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd AM (Site Folder: Scen 4 - New Layout + Dev + 2026 vols)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	119	20.2	125	20.2	0.073	3.9	LOS A	0.0	0.0	0.00	0.58	0.00	62.6
3	R2	356	19.9	375	19.9	0.230	4.8	LOS A	0.0	0.0	0.00	0.54	0.00	43.8
Approach		475	20.0	500	20.0	0.230	4.5	NA	0.0	0.0	0.00	0.55	0.00	47.4
East: Awakino Point North Rd														
4	L2	304	20.1	320	20.1	0.271	5.9	LOS A	1.3	10.4	0.39	0.59	0.39	42.4
6	R2	130	20.0	137	20.0	0.338	17.1	LOS C	1.3	10.9	0.73	0.95	0.91	57.9
Approach		434	20.0	457	20.0	0.338	9.3	LOS A	1.3	10.9	0.49	0.70	0.55	47.7
North: SH14 N														
7	L2	153	20.3	161	20.3	0.099	8.4	LOS A	0.0	0.0	0.00	0.66	0.00	67.5
8	T1	204	20.1	215	20.1	0.125	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach		357	20.2	376	20.2	0.125	3.6	NA	0.0	0.0	0.00	0.28	0.00	78.9
All Vehicles		1266	20.1	1333	20.1	0.338	5.9	NA	1.3	10.9	0.17	0.53	0.19	54.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 4_PM [ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd PM (Site Folder: Scen 4 - New Layout + Dev + 2026 vols)]

ScenarioA : 30Nov 2021 - SH14/Awakino Point North Rd PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: SH14 S														
2	T1	155	20.0	163	20.0	0.095	3.9	LOS A	0.0	0.0	0.00	0.58	0.00	62.7
3	R2	284	20.1	299	20.1	0.184	4.8	LOS A	0.0	0.0	0.00	0.54	0.00	43.8
Approach		439	20.0	462	20.0	0.184	4.5	NA	0.0	0.0	0.00	0.55	0.00	49.1
East: Awakino Point North Rd														
4	L2	374	20.1	394	20.1	0.314	5.7	LOS A	1.6	12.9	0.35	0.56	0.35	42.6
6	R2	161	19.9	169	19.9	0.351	15.3	LOS C	1.5	12.0	0.67	0.93	0.85	59.6
Approach		535	20.0	563	20.0	0.351	8.6	LOS A	1.6	12.9	0.45	0.67	0.50	48.3
North: SH14 N														
7	L2	123	20.3	129	20.3	0.080	8.4	LOS A	0.0	0.0	0.00	0.66	0.00	67.5
8	T1	155	20.0	163	20.0	0.095	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		278	20.1	293	20.1	0.095	3.7	NA	0.0	0.0	0.00	0.29	0.00	78.5
All Vehicles		1252	20.0	1318	20.0	0.351	6.0	NA	1.6	12.9	0.19	0.55	0.22	53.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

CREATING COMMUNITIES

Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of belonging. That's why at Stantec, we always **design with community in mind**.

We care about the communities we serve—because they're our communities too. We're designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe.

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