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1 April 2022

Issued via email: rachels@hdc.govt.nz

Dear Rachel

RE: ESKDALE PARK TRAFFIC IMPACT ASSESSMENT

East Cape Consulting (ECC) has been engaged by Hastings District Council (HDC) to assess and describe the transportation effects of various proposals for the future use of Eskdale Park, north of Napier.

This assessment focusses on the traffic generation characteristics of the proposals and the effects these would have on the existing accesses to the park, and on State Highway 5 (SH5).

By way of summary, it is concluded that:

- The traffic generation from all activity combinations can be accommodated without adverse effects on the operation of SH5;
- The SH5/Shaw Road intersection has the capacity to accommodate all activities as a single point of access if required;
- The SH5/Shaw Road intersection does not currently provide the minimum safe intersection sight distance recommended by Austroads, to the east, for its speed environment;
- If SH5/Shaw Road is to accommodate increased turning movements, it is recommended that steps are taken to align its sight distances with the prevailing speed environment. Options to achieve this are outlined in the body of this report;
- If the SH5/Yule Road intersection is to be used for access for any new activities a right turn bay treatment would be required; and
- Forming a right turn bay at SH5/Yule Road is likely to require land outside the existing road reserve.

1. SITE LOCATION

Eskdale Park is located on the southern side of the Esk River approximately 15km north-west of Napier as shown on Figure 1 below.



Figure 1 – Site Location (Base Map Source: Open Street Maps)

The western portion of the park (7.8 hectares (ha) of its total 12.5 ha) is a public recreation reserve. Its facilities include a playground, picnic area with facilities, a cricket pitch and toilets. The reserve also provides access to the river for swimming. This part of the park is accessed via Shaw Road and its intersection with SH5.

The eastern portion of the park (4.6 ha) is leased for grazing. This part of the park is accessed via Yule Road and its intersection with SH5.

Shaw Road also provides access to Hukarere Girls College, Zealandt Brewery and a number of residential properties. Yule Road also provides access residential properties as well as Eskdale Holiday Park.

The Palmerston North-Gisborne railway line runs through the area, crossing both Shaw Road and Yule Road at level crossings.

2. EXISTING TRANSPORT ENVIRONMENT

2.1 State Highway 5 (SH5)

SH5 is the primary transport corridor through the area. It provides a inter regional connection between Taupo and Hawke's Bay. It also provides local connectivity within Eskdale, via side road

intersections and a limited number of direct property accesses. The posted speed limit on this part of SH5 is 100km/h¹.

2.2 SH5/Shaw Road Intersection

Shaw Road meets SH5 at a Stop controlled T-intersection. This intersection, which is shown below as Figure 2 has a right turn bay on the SH5 approach to assist traffic turning into Shaw Road from the south-east.



Figure 2 – SH5/Shaw Road Intersection (Aerial Source: HDC GIS Maps)

The right turn bay is approximately 30m long with a 120m taper. The railway line crosses Shaw Road approximately 130m from the intersection.

TomTom Speed data provided by Waka Kotahi indicates that the 85th percentile speed along SH5 within 1km of this intersection is 99km/h, for traffic travelling in both directions. On this basis, the Austroads safe intersection sight distance (SISD) requirement is 245m (using a reaction time of 2.0 seconds).

Appendix A presents a desktop assessment of the available sight distances at the intersection using two potential conflict points, one associated with a vehicle moving out of Shaw Road and another associated with a vehicle waiting to turn right into Shaw Road. Sight distances are also summarised in Table 1.

¹ This section of SH5 is not subject to reduction to 80km/h which took effect on 18 February 2022.

Table 1 – SH5/Shaw Road Sight Distances

Sightline	Available (m)	SISD Requirement (m)
Exiting Vehicle to West	>248	245
West to Entering Vehicle	>248	245
Exiting Vehicle to East	160	245
East to Entering Vehicle	190	245

This analysis shows that the intersection can achieve compliant sight distance to the west, on the basis that drivers can see across private land on the southern side of SH5.

To the east the available sight distance is 160-190m, short of the Austroads SISD standards for a 99km/h speed environment.

2.3 SH5/Yule Road Intersection

The Yule Road intersection is located approximately 990m to the east of Shaw Road. As shown on Figure 3, it is also Stop-controlled but does not have any auxiliary turning lanes.



Figure 3 – SH5/Yule Road Intersection (Aerial Source: HDC GIS Maps)

The seal width on this section of SH5 is approximately 12m, which effectively provides a basic right turn treatment (BAR) entry treatment for Yule Road. This seal width enables westbound traffic to undertake a vehicle that has slowed or stopped to turn right. A basic left treatment (BAL) is provided on the western approach, with the sealed shoulder able to be used by vehicles decelerating to turn left into Yule Road.

Speed data provided by Waka Kotahi indicates that the 85th percentile speed along SH5 within 1km of this intersection is 98km/h, for traffic travelling in both directions. On this basis, the Austroads SISD requirement is 241m (for a reaction time of 2.0 seconds).

Appendix A presents a desktop assessment of the available sight distances, which are also summarised in Table 2.

Table 2 – SH5/Yule Road Sight Distances

Sightline	Available (m)	SISD Requirement (m)
Exiting Vehicle to West	>248	241
West to Entering Vehicle	>248	241
Exiting Vehicle to East	>248	241
East to Entering Vehicle	>248	241

This analysis shows that the intersection can provide appropriate SISD in both directions. The view to and from the west relies on seeing over private land, to a small extent (approximately 4m).

3. TRAFFIC VOLUMES

3.1 SH5

The Waka Kotahi telemetry site (ID 00500259) is located approximately 1.7km to the east of Yule Road. Data from this site has been used as the basis of traffic volumes through the Yule Road and Shaw Road intersections.

This site had an average daily traffic volume (AADT) of 4,062 vehicles per day (vpd) in 2020. Historic traffic volumes at this site are summarised below as Figure 4.

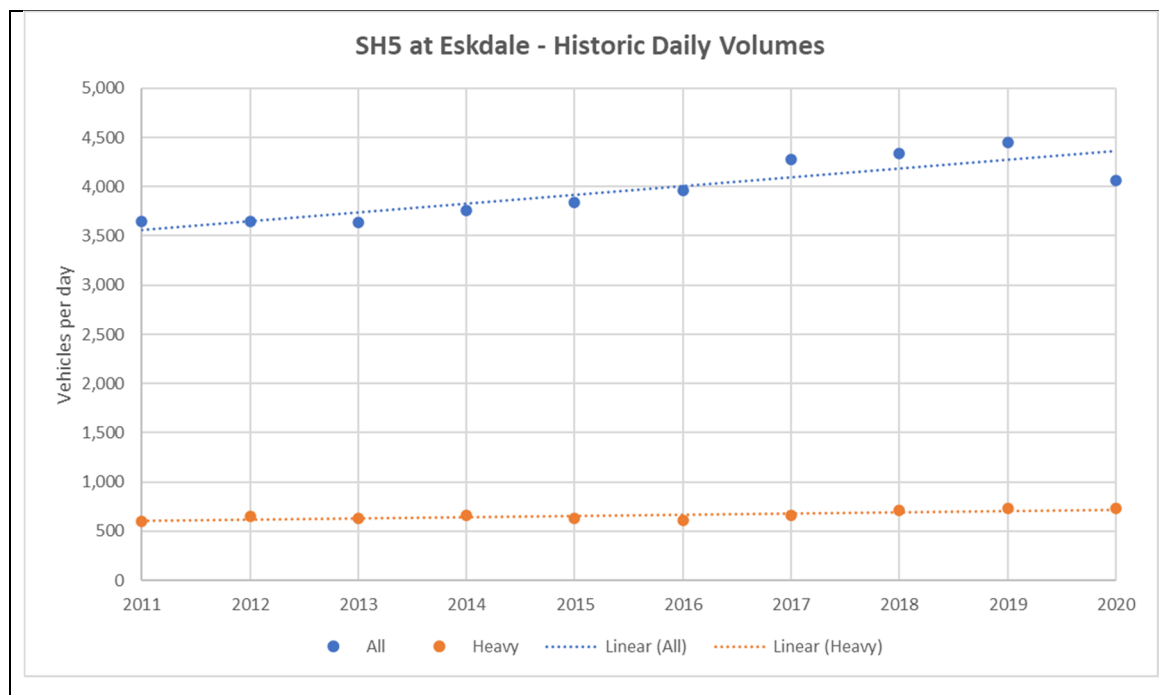


Figure 4 – Historic Traffic Counts (Source: Waka Kotahi)

Ignoring the drop in 2020 (which was likely due to Covid19 restrictions), the average daily volume at this site has been increasing at approximately 2.5% per annum. All scenarios tested in this

assessment have been considered at existing (2022) traffic levels and with ten years of growth at 2.5% per annum added to the SH5 movements to represent a 2032 future year.

Hourly traffic patterns over the week are summarised as Figure 5. This data is based on the fifth busiest week of 2021, which was the second week in January (8-14th).

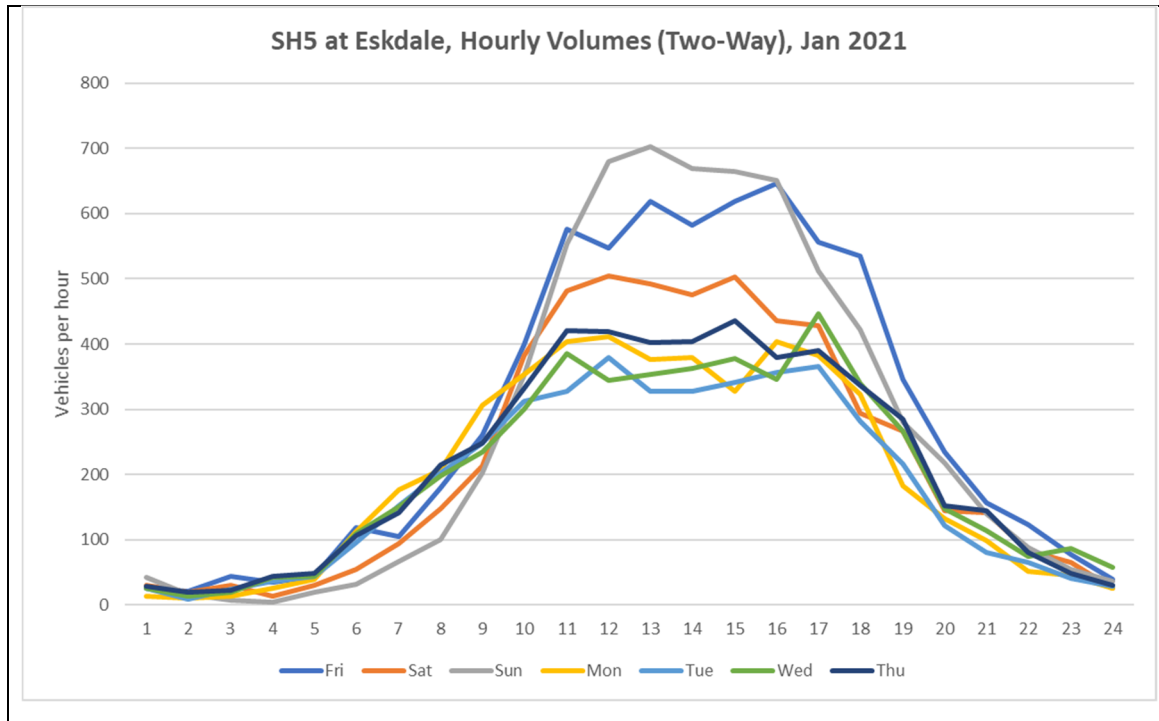


Figure 5 – SH5 Hourly Volumes, January 8-14, 2021 (Source: Waka Kotahi)

Friday and Sunday are the busiest days of the week. On Friday there is a morning peak of 580 vehicles per hour (vph) between 10-11am. This builds through the day to an evening peak of 650 vph between 3pm and 4pm.

On Sunday, there is a peak in the middle of the day, when the volume reaches 700 vph between 12pm and 1pm. Sunday has a similar evening peak to Friday, with 650 vph between 4pm and 5pm. Saturday has a similar pattern but on a smaller scale, with volumes reaching 500 vph during the middle of the day.

The directional pattern is similar across both Friday and Sunday, with westbound movement dominant in the morning and eastbound movement dominant in the afternoon and evening.

3.2 Yule Road

HDC arranged a week-long traffic count on Yule Road during December 2021. This count showed:

- Busiest day 163 vpd on Saturday
- Mon-Thu average 125 vpd
- Highest hour 21 vph (2-3pm on Saturday)

This pattern is summarised on Figure 6.

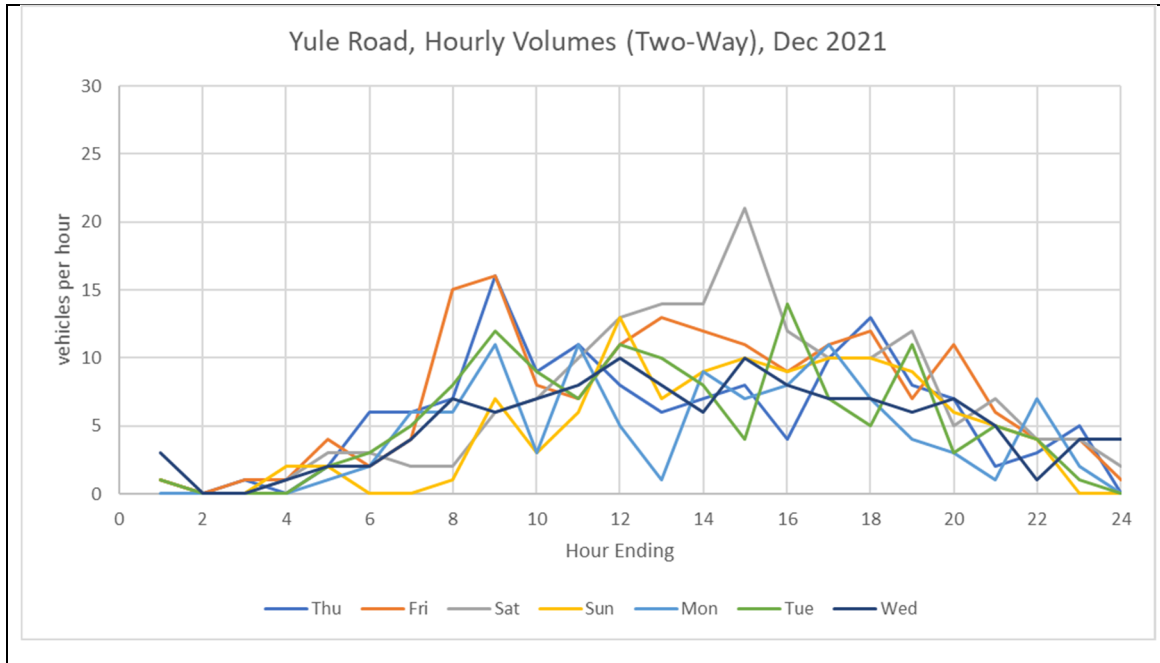


Figure 6 – Yule Road Hourly Volumes, December 9-15, 2021 (Source: HDC)

3.3 Shaw Road

HDC arranged a week-long traffic count on Shaw Road during December 2021. This count showed:

- Busiest day 380 vpd on Friday
- Mon-Thu average 232 vpd
- Highest hour 73 vph (3-4pm on Friday)

This pattern is summarised on Figure 7.

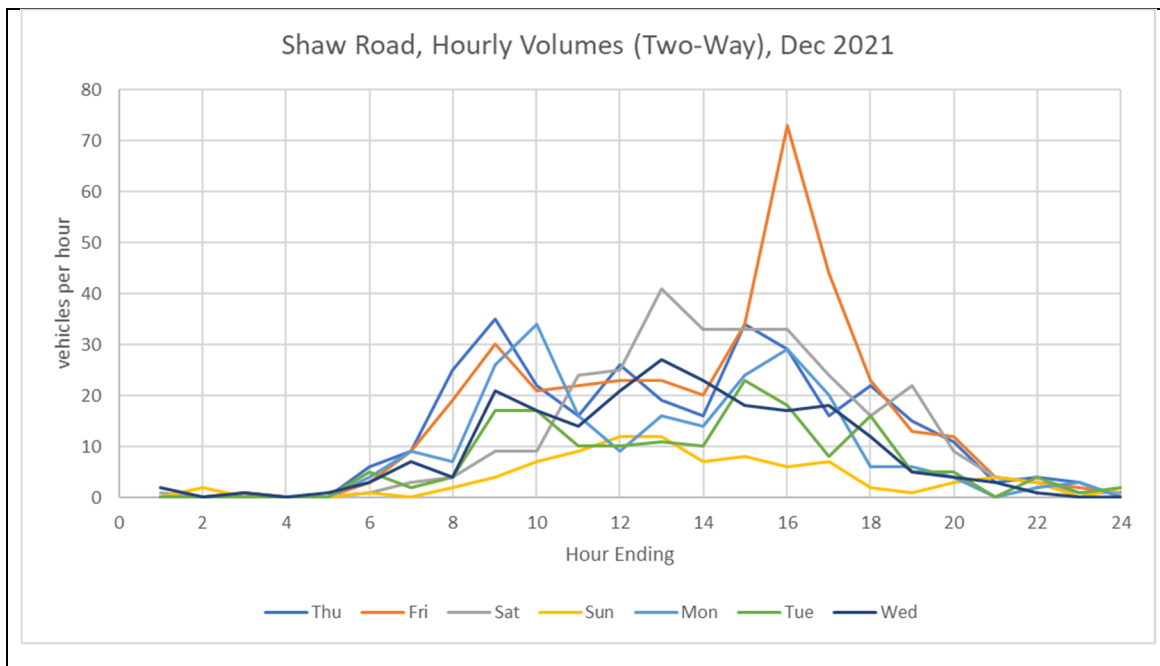


Figure 7 – Shaw Road Hourly Traffic Volumes, December 9-15, 2021 (Source: HDC)

3.4 Park Entrance

HDC arranged a week-long traffic count at the entrance to Eskdale Park during December 2021. This count showed:

- Busiest day 226 vpd on Saturday
- Mon-Thu average 68 vpd
- Highest hour 31 vph (3-4pm on Saturday)

This pattern is summarised on Figure 8.

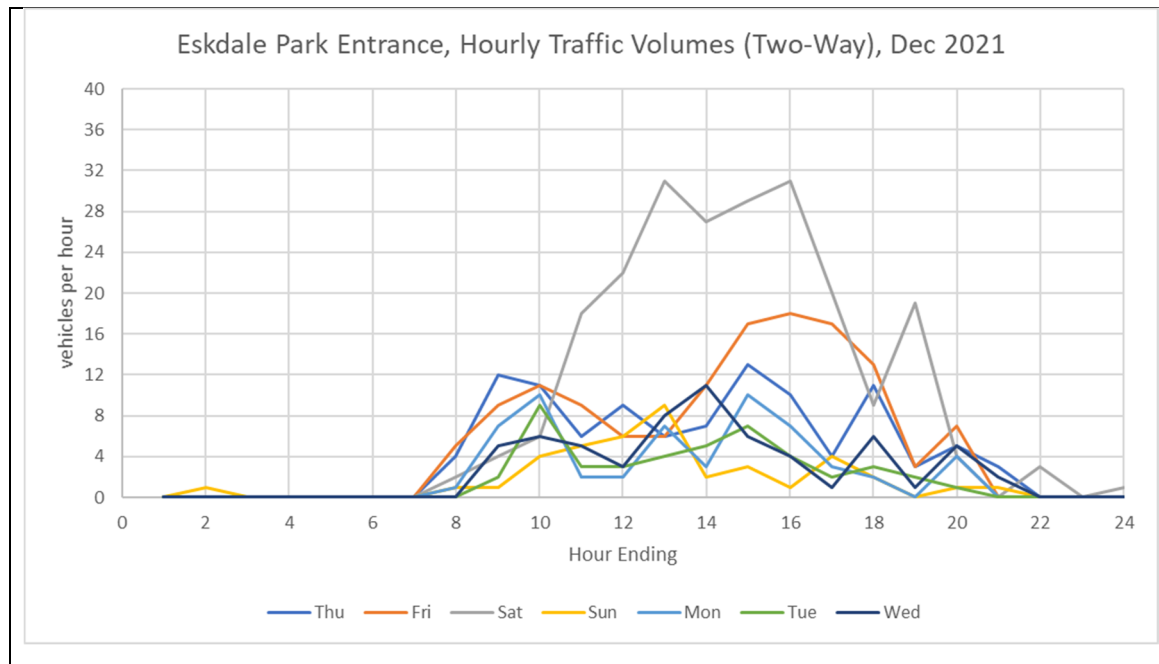


Figure 8 – Eskdale Park Hourly Volumes, December 9-15, 2021 (Source: HDC)

3.5 Base Case Intersection Volumes

Intersection turning movements have been developed for both intersections using the above counts. It has been assumed that at both intersections, 80% of movements are made to or from Napier and the remaining 20% are made to or from the west.

Base case turning movements for the scenarios analysed in this report are presented in Appendix B.

4. ROAD SAFETY

The Waka Kotahi Crash Analysis System (CAS) was used to review the safety performance of the area. The search covered the five-year period 2017-2021 inclusive as well as any available data from 2022. It included:

- The full length of Shaw Road and the SH5/Shaw Road intersection;
- The full length of Yule Road and the SH5/Yule Road intersection; and

- SH5 between Shaw Road and Yule Road.

The search revealed two crashes. There was a minor injury crash just to the north-west of the SH5/Shaw Road intersection (August 2020). This was a single vehicle loss of control incident involving a vehicle travelling towards Napier. The crash occurred around 4am in wet conditions.

A second single vehicle loss of control crashed occurred just west of the SH5/Yule Road intersection (March 2017). This crash did not result in injury. It also involved a vehicle travelling towards Napier losing control on a wet road at night.

Both crashes were attributed to driver fatigue, wet road conditions and in the case of the 2017 crash, inappropriate speed.

5. PARK USE SCENARIOS

ECC has been asked to assess the following scenarios:

- Shaw Road:
 - S1. Upgrade existing park facilities (playground, toilets, picnic provisions etc).
 - S2. Provide additional park facilities (walking tracks, more playground equipment).
 - S3. Allow for a weekly rural farmers market.
- Yule Road:
 - Y1. Enable public access to Eskdale Park for passive recreation (picnicking and river access for swimming) – with NO bridge access across the river to the Pan Pac Mountain Bike Park².
 - Y2. Enable public access to Eskdale Park for passive recreation (picnicking and river access for swimming) – with bridge access across the river to the Pan Pac Mountain Bike Park.

The analysis assumes that access from these roads would be separate and not linked as per the instruction from HDC.

The activities being considered are not typically found in published traffic generation guides. Their traffic generating characteristics have therefore been estimated using traffic surveys of relevant local examples for similar activities.

These data sources are discussed in the following sections and presented in Appendices C, D and E.

² The presence of a bridge will be subject to Hawkes Bay Mountain Bike Club (HBMBC) obtaining necessary consents from Hastings District Council and Hawkes Bay Regional Council, of which have not been applied for to date. This scenario is however included for feasibility due to an indication that should consents be granted, as this would result in a higher number of vehicle movements using the Yule Road access to the reserve.

6. SH5/SHAW ROAD INTERSECTION TESTS

6.1 Modelling Notes

The SH5/Shaw Road intersection had shoulder widening on the northern side that would permit an eastbound driver to overtake a vehicle in front of them that slows to turn left into Shaw Road. Conservatively, this approach to the intersection has been modelled as single shared through and left lane.

The modelled layout, along with SIDRA outputs for the scenarios presented in the following sections are included as Appendix F.

6.2 Upgraded/Additional Facilities (S1 and S2)

These scenarios have been tested by factoring up the existing Saturday traffic movements at Eskdale Park to different extents, as explained in Appendix C. Upgraded facilities (S1) has been assessed on the basis that it could increase activity by 30%. Additional facilities (S2) has been assessed on the basis it could increase activity by 100%.

The critical times periods based on consideration of the flow on SH5, and the park flows are Sunday 12:00pm to 1:00pm and Friday 3:00pm to 4:00pm.

Table 3 and 4 summarise the SIDRA intersection modelling results, using the standard intersection performance indicators of:

- Average delay for movement from the minor road (worst of either the right or left turn), measured in seconds/vehicle;
- Level of service (LOS) for the worst case movement from the minor road; and
- 95th percentile queue length in the right turn bay on SH5, measured in vehicles.

Table 3 – SH5/Shaw Road Intersection Modelling, Sunday 12-1pm

Scenario	Intersection Volume (vph)	Average Minor Road Delay (s/vehicle) & LOS	95 th Queue in SH5 Right Turn Bay (vehicles)
Existing 2022	701	11.7 (B)	0.0
Future 2032	874	12.9 (B)	0.0
Future 2032 + S1	884	13.0 (B)	0.0
Future 2032 + S2	905	13.1 (B)	0.1

Table 4 – SH5/Shaw Road Intersection Modelling, Friday 3-4pm

Scenario	Intersection Volume (vph)	Average Minor Road Delay (s/vehicle) & LOS	95 th Queue in SH5 Right Turn Bay (vehicles)
Existing 2022	656	11.5 (B)	0.1
Future 2032	802	12.3 (B)	0.1
Future 2032 + S1	808	12.3 (B)	0.1
Future 2032 + S2	820	12.4 (B)	0.1

The Tables show that this intersection is operating well within its capacity now, into the future and with up to a doubling of the existing peak (Saturday) level of activity at Eskdale Park. The 95th percentile queue in the right turn bay on SH5 does not exceed one vehicle in length.

6.3 Weekly Rural Farmers Market (S3)

This scenario has been tested by adopting the traffic generation characteristics of the Black Barn growers' market, which are detailed in Appendix D.

The critical time, considering both the hourly flow pattern on SH5 and the peak of the market is Saturday 10:00am to 11:00am. SIDRA results are summarised in Table 5.

Table 5 – SH5/Shaw Road Intersection Modelling, Saturday 10-11am

Scenario	Intersection Volume (vph)	Average Minor Road Delay (s/vehicle) & LOS	95 th Queue in SH5 Right Turn Bay (vehicles)
Existing 2022	481	10.5 (A)	0.0
Future 2032	595	11.0 (B)	0.0
Future 2032 + S3	685	11.4 (B)	0.2

The Table shows that this intersection is operating well within its capacity now, into the future and with 90 vph added by the market. The 95th percentile queue in the right turn bay on SH5 does not exceed one vehicle in length.

7. SH5/YULE ROAD INTERSECTION TESTS

7.1 Modelling Notes

The SH5/Yule Road intersection has shoulder widening on both sides that would permit westbound drivers to undertake a vehicle in front of them that slows to turn right into Yule Road. This is also possible to some extent for eastbound drivers following someone who slows to turn left into Yule Road. Conservatively, the intersection has been modelled with single shared lanes on all approaches.

The modelled layout, along with SIDRA outputs for the scenarios presented in the following sections are included as Appendix F.

Because this intersection does not have a formalised right turn bay, it has also been assessed against the Austroads warrants.

7.2 Passive Recreation Access without Mountain Bike Trail Access (Y1)

This scenario has been modelled using the traffic volumes estimated for scenario S3 (100% uplift of the existing Eskdale Park volume). The same time periods - Sunday 12:00pm to 1:00pm and Friday 3:00pm to 4:00pm have been assessed. Results are summarised in Table 6 and Table 7.

Table 6 – SH5/Yule Road Intersection Modelling, Sunday 12-1pm

Scenario	Intersection Volume (vph)	Average Minor Road Delay (s/vehicle) & LOS	95 th Queue on SH5 (East) (vehicles)
Existing 2022	704	10.7 (B)	0.0
Future 2032	879	10.9 (B)	0.0
Future 2032 + Y1	910	11.1 (B)	0.2

Table 7 – SH5/Yule Road Intersection Modelling, Friday 3-4pm

Scenario	Intersection Volume (vph)	Average Minor Road Delay (s/vehicle) & LOS	95 th Queue on SH5 (East) (vehicles)
Existing 2022	649	11.7 (B)	0.0
Future 2032	809	12.5 (B)	0.1
Future 2032 + Y1	827	12.6 (B)	0.1

The Tables show that this intersection is operating well within its capacity now, into the future and with the addition of turning movements equivalent to the existing level at Eskdale Park.

7.3 Passive Recreation Access with Mountain Bike Trail Access (Y2)

This scenario has been modelled using the traffic volumes estimated from a count at the Pan Pac mountain bike area near Whirinaki. This data and the adjustments made to it are summarised in Appendix E.

The same time periods, Sunday 12:00pm to 1:00pm and Friday 3:00pm to 4:00pm, have been assessed. Results are summarised in Table 8 and Table 9.

Table 8 – SH5/Yule Road Intersection Modelling, Sunday 12-1pm

Scenario	Intersection Volume (vph)	Average Minor Road Delay (s/vehicle) & LOS	95 th Queue on SH5 (East) (vehicles)
Existing 2022	704	10.7 (B)	0.0
Future 2032	879	10.9 (B)	0.0
Future 2032 + Y	950	11.2 (B)	0.4

Table 9 – SH5/Yule Road Intersection Modelling, Friday 3-4pm

Scenario	Intersection Volume (vph)	Average Minor Road Delay (s/vehicle) & LOS	95 th Queue on SH5 (East) (vehicles)
Existing 2022	649	11.7 (B)	0.0
Future 2032	809	12.5 (B)	0.1
Future 2032 + Y2	860	12.6 (B)	0.4

The Tables show that this intersection is operating well within its capacity now, into the future and with the addition of turning movements added by passive recreational use and the mountain bike trails.

7.4 Austroads Auxiliary Turn Lane Warrants

Figure 9 below shows the existing and forecast traffic volumes on SH5 through the Yule Road intersection, overlaid on the Austroads warrant graph (Austroads Guide to Traffic Management Part 6, Figure 3.25) for 100km/h speed environments.

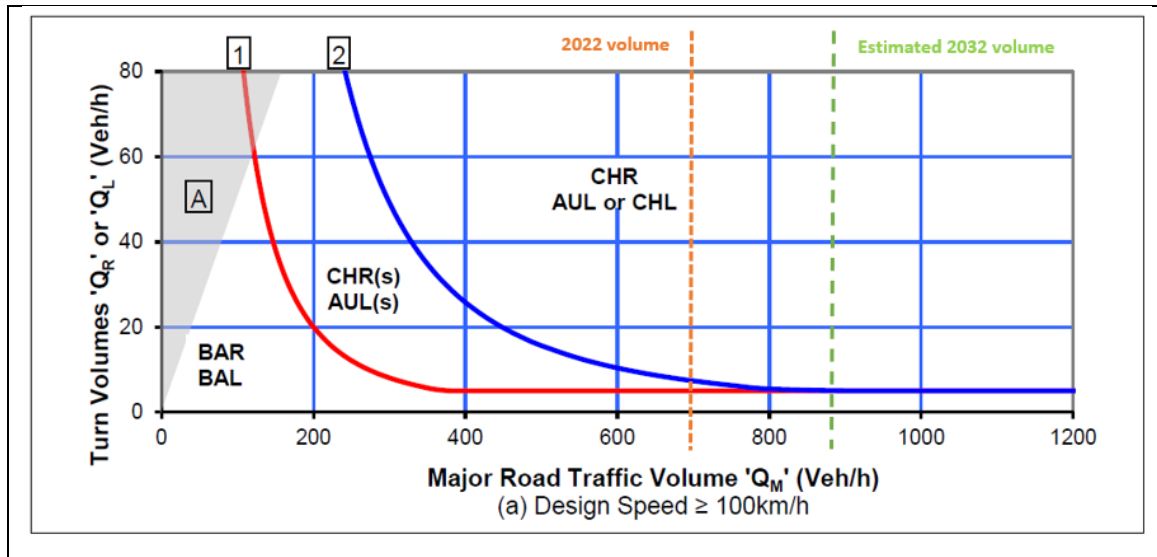


Figure 9 – Austroads Right Turn Bay Warrant

Figure 9 illustrates that the existing volume on SH5 (during the Sunday peak hour) is in the part of the graph where a right turn volume (Q_R) over approximately 5 vph would require a right turn lane treatment.

Currently, as shown on the diagrams in Appendix B, the right turn volume at this location is estimated as less than this, meaning a right turn treatment is not warranted now or with further traffic growth on SH5.

Because the existing volume is on this 5 vph threshold, use of the intersection in either the Y1 or Y2 scenarios (which are expected to add in the order of 16-18 vph to the right turn volume) would trigger the need for a right turn bay.

The left turn warrants were also checked. Given the lower level of use expected to and from the west, the need for a left turn treatment (at either Yule Road or Shaw Road) is likely to remain around the threshold level. The existing sealed shoulders are likely to adequately meet this need.

7.5 Right Turn Bay Design

Given the above finding, a concept design was prepared to enable an initial assessment of the potential to establish a right turn bay at SH5/Yule Road. This design is included as Appendix G.

As noted on the plan, forming a right turn bay that complies with the relevant design standards would require a small amount of third-party land on the southern side of SH5. Third-party land may also be required to establish appropriate sight lines with the new layout, and to maintain appropriate visibility for the private entrance on the opposite side of the road.

8. SENSITIVITY TESTS

In addition to the scenarios specified by HDC in Section 5, sensitivity tests were run to assess both intersections under the combined loading of all activities.

This analysis showed that both intersections could theoretically accommodate the combined demands from all scenarios at acceptable levels of service, if they were the only point of access for all activities. As with the original scenarios, the SH5/Yule Road intersection would meet the Austroads warrant for a right turn bay.

SIDRA results for these scenarios are included in Appendix F.

9. SUMMARY & CONCLUSIONS

9.1 Operation/Capacity of SH5

This assessment has reviewed four new land use scenarios for Eskdale Park. These activities and their estimated peak hour traffic volumes are summarised as follows:

■ Upgraded/additional park facilities (Shaw Road)	10 – 30 vph
■ Access to passive recreation areas (Yule Road)	30 vph
■ Weekly rural farmers market	90 vph
■ Access to mountain bike trail network	40 vph

In terms of effects on SH5, all activities except the farmers market represent changes of less than 5% compared to existing peak hour volumes at the relevant time. The market represents a change of 15% in the existing Saturday morning volume.

SH5 is operating well within its practical carrying capacity and none of these activities would be expected to impact the operation of SH5 beyond their immediate connection points.

9.2 Access Points

The SH5/Shaw Road intersection has a right bay treatment and modelling confirms that it can accommodate all scenarios, and future growth, whilst maintaining no worse than LOS B. The SH5/Yule Road intersection can also maintain LOS B but will warrant a right turn bay treatment if it is to accommodate increased demand from the east.

The modelling indicates that if an upgrade at this intersection was not a preferred outcome, the existing SH5/Shaw Road intersection would have adequate spare capacity to accommodate the additional demands associated with all activities.

SH5/Shaw Road has compliant sight distance to the west but is limited to 160-190m to the east. These sight distances align with Austroads SISD standards for environments of between 67km/h and 76km/h.

There is nothing in the recorded road safety history at this intersection that indicates problems with sight distance. However, it is recommended that if the use of this intersection is to be increased,

available sight distances should be reviewed and aligned with the prevailing speed environment. This could include:

- Corroborating actual 85th percentile speeds approaching from the east (as established by the TomTom data) with speed radar measurements at critical locations on site; and
- Considering changes to the speed limit either permanently or temporarily through a treatment such as an intelligent active warning sign³. This sign would temporarily display a lower limit when a vehicle is detected on the minor (Shaw Road) leg of an intersection.

The SH5/Yule Road intersection can meet Austroads minimum SISD standards for its 98km/h speed environment. It will however require a right turn bay, which is likely to require land outside the existing road reserve.



9.3 Connectivity

ECC is advised that no connectivity is currently proposed through Eskdale Park, effectively linking Yule Road and Shaw Road.

If this connectivity was provided it would likely increase the traffic loading on Yule Road and through the SH5/Yule Road intersection, because this is the closest turning opportunity to the east, which is expected to be the dominant travel direction.

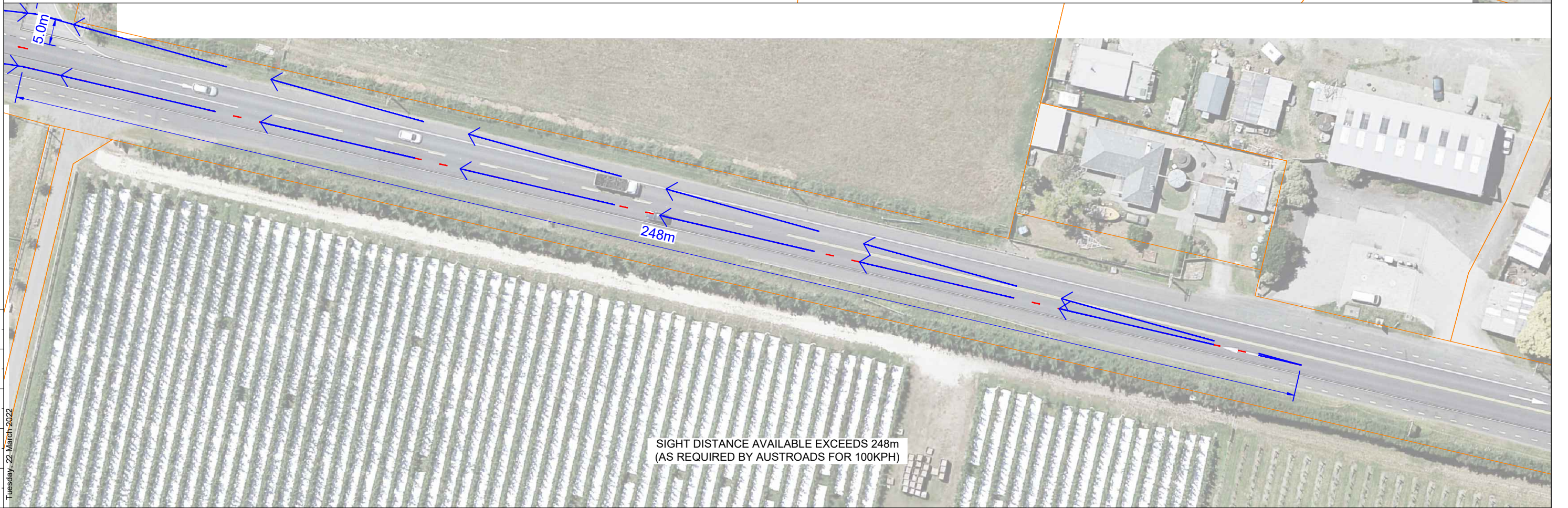
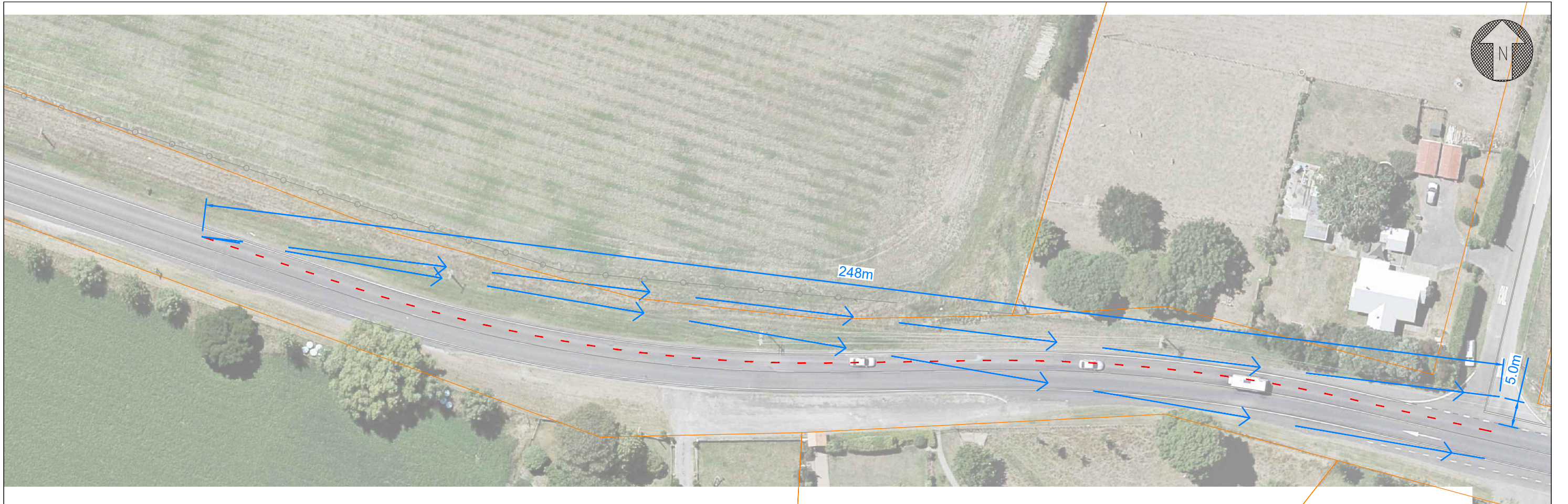
Providing this connection would not be recommended unless there was to be an upgrade (right turn bay) at the SH5/Yule Road intersection.

Yours sincerely,

<p>Anna Wilkins (CMEngNZ)</p>  <p>Principal Engineer East Cape Consulting Limited</p>	<p>George Eivers (CMEngNZ, CPEng, IntPE)</p>  <p>Principal Engineer / Director East Cape Consulting Limited</p>
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³ High-risk intersections guide, Waka Kotahi 2013

Appendix A – Sightline Plans



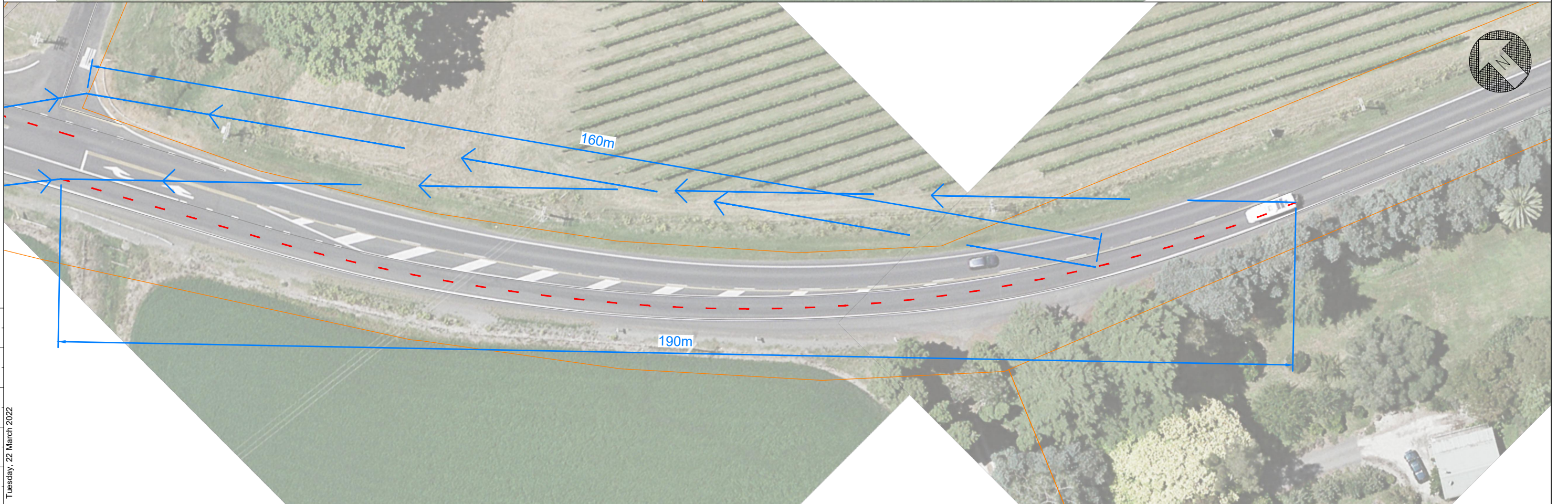
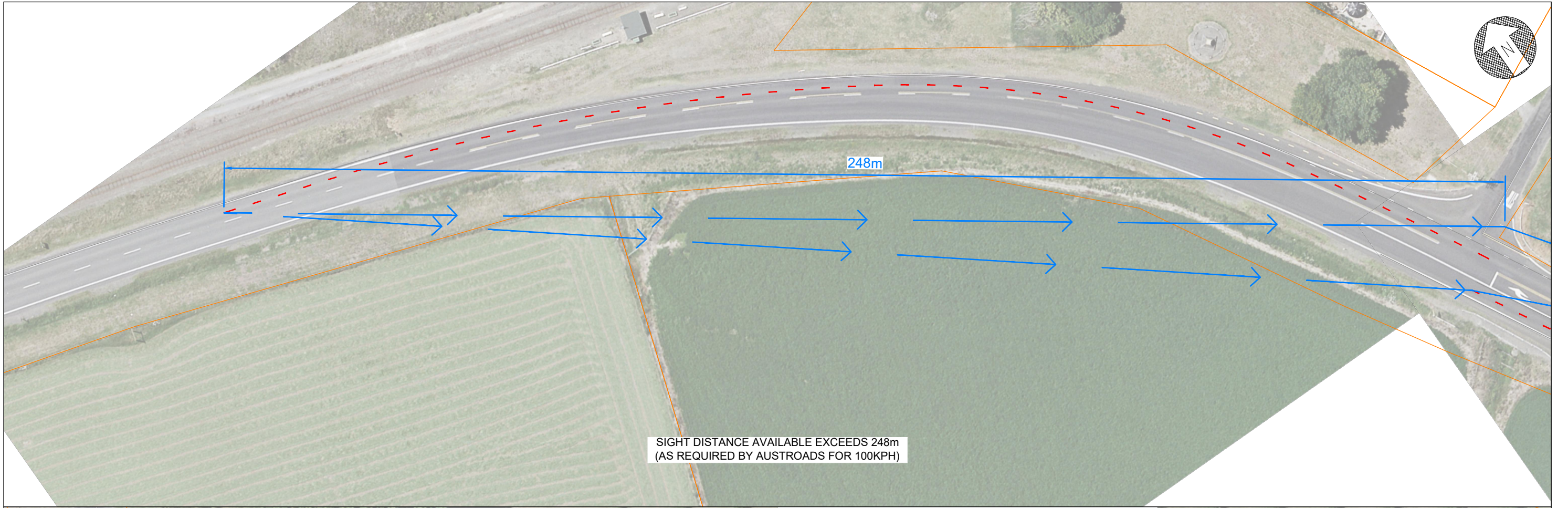
REV	DESCRIPTION	DRAWN	DATE
0	SET UP DRAWING BASED UPON LINZ DATA	G.Eivers	07/05/2021

HASTINGS DISTRICT COUNCIL
 SH5 / YULE ROAD INTERSECTION
 ACTUAL SIGHT LINES AVAILABLE



SHEET: 2 OF 2
 SCALE: 1:750 @ A3
 DWG NO: 21-008101A

REV:
A



REV	DESCRIPTION	DRAWN	DATE
A	SET UP DRAWING BASED UPON LINZ DATA	G.Eivers	07/03/2022

HASTINGS DISTRICT COUNCIL
SH5 / SHAW ROAD INTERSECTION
ACTUAL SIGHT LINES AVAILABLE



SHEET: 2 OF 2
SCALE: 1:750 & 1:600 @ A3
DWG NO: 21-008102A

REV:
A

East Cape Consulting Ltd; 121 Lane Road, Hastings 4130, New Zealand; +64 274 660 688

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Tuesday, 22 March 2022

Appendix B – Base Case Turning Movements

Appendix C – Traffic Generation Data for Park Facilities and Passive Recreation

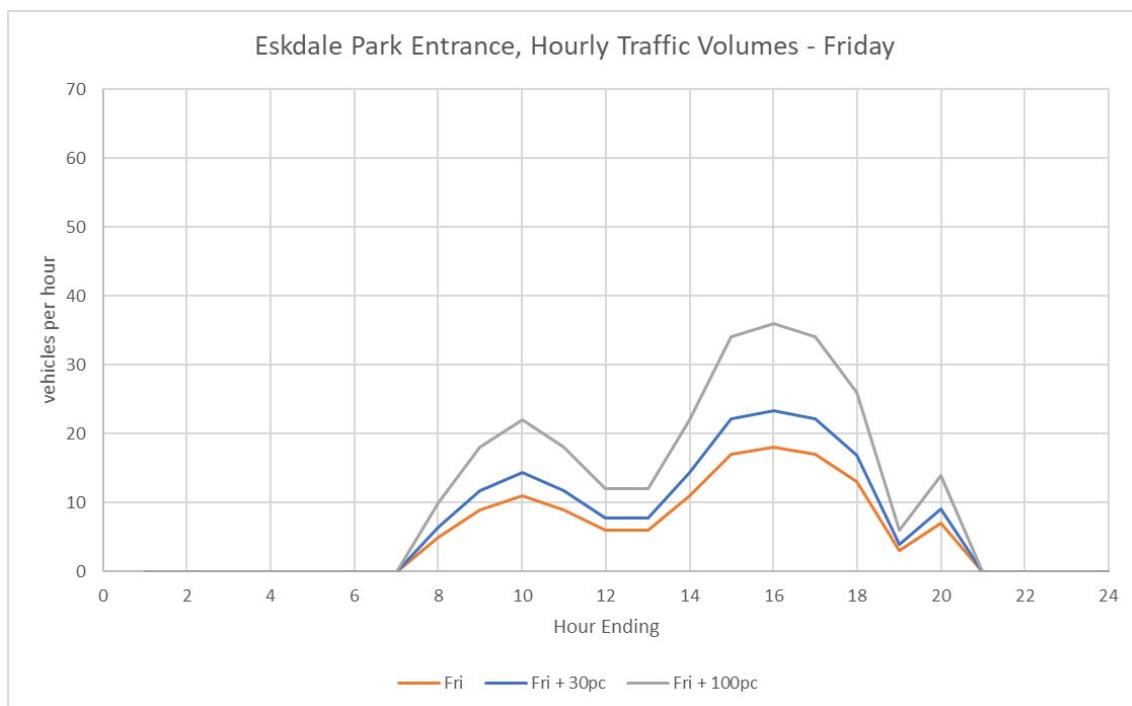
HDC provided seven-day traffic count data for Eskdale Park (summarised at Section 3.4 of this report) and Puketapu Park. Puketapu Park is located at 56 Dartmoor Road in Puketapu. It is approximately 17km from central Napier, which is similar to the distance between Eskdale Park and central Napier.

On its busiest day Puketapu Park recorded a two-way traffic volume of 59 vehicle movements including up to 11 vehicle movements in one hour.

This is lower than the level of vehicle movement at Eskdale Park which has a busiest day of 226 vpd including up to 31 vph).

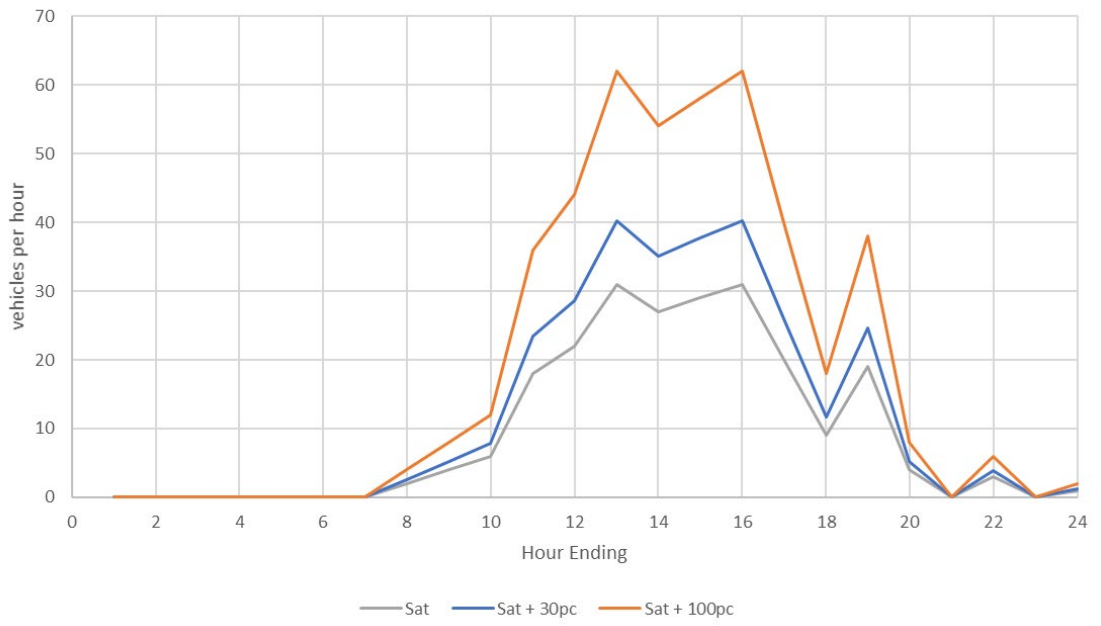
Factoring up of the Eskdale Park pattern on its two busiest days – Friday and Saturday, has therefore been used as the basis of this assessment.

The Friday and Saturday patterns are shown on the graphs below, with 30% and 100% increases.



SH5 sees its peak weekend traffic volume on Sunday so the Saturday activity estimated has been combined with Sunday volumes through the intersection.

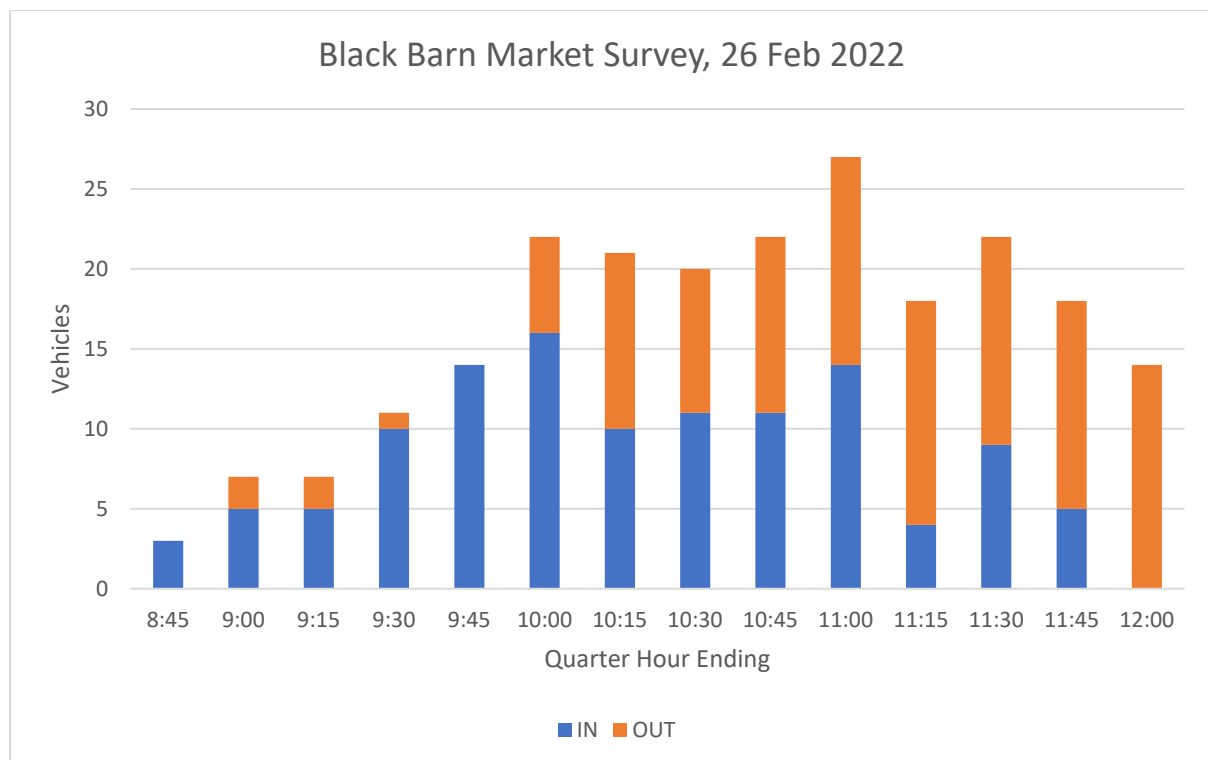
Eskdale Park Entrance, Hourly Traffic Volumes - Saturday



Appendix D – Traffic Generation Data for a Farmers Market

Traffic generation characteristics of a rural farmers market were estimated based on a survey of the weekly growers market at Black Barn, 12 Black Road, Havelock North.

On the survey day (26 February 2022) there were 22 market stalls. Vehicle movements were recorded across the period 8:30am to 12pm. The results are summarised below in 15-minute intervals.



The busiest 15-minute period was 10:45-11:00am when 14 vehicles arrived and 13 vehicles departed.

The busiest one-hour period was 10:00am-11:00am when 46 vehicles arrived and 44 vehicles departed, giving a total generation of 90 vehicles per hour (vph).

Appendix E – Traffic Generation Data for the Mountain Bike Park

HDC provided a seven-day tube count for the Pan Pac mountain bike carpark at Whirinaki. This counter collected data for the period Wednesday 9 February to Tuesday 15 February 2022.

The data was adjusted because the outbound count was 25% to 47% of the inbound count. The outbound counts were factored up to match the daily count recorded on the inbound side.

With this adjustment made, the activity at the park was estimated as being up to 98 vehicle movements per day including up to 19 vph in any one hour.

Information on the Hawke's Bay Mountain Bike Club website indicates that two of the four forestry blocks used for riding were closed. Conservatively therefore the estimated traffic generation of the future trail network has been assessed as 200 vpd including up to 40 vph at peak times.

Mountain bike parks typically peak around the middle of the day on a weekend, between 10am and 2pm. They can also see some activity in the late afternoon on weekdays, particularly during summer.

For these reasons, the 12:00-1:00pm Saturday and 3:00-4:00pm on Friday periods have also been used for assessment of access to the mountain bike trails.

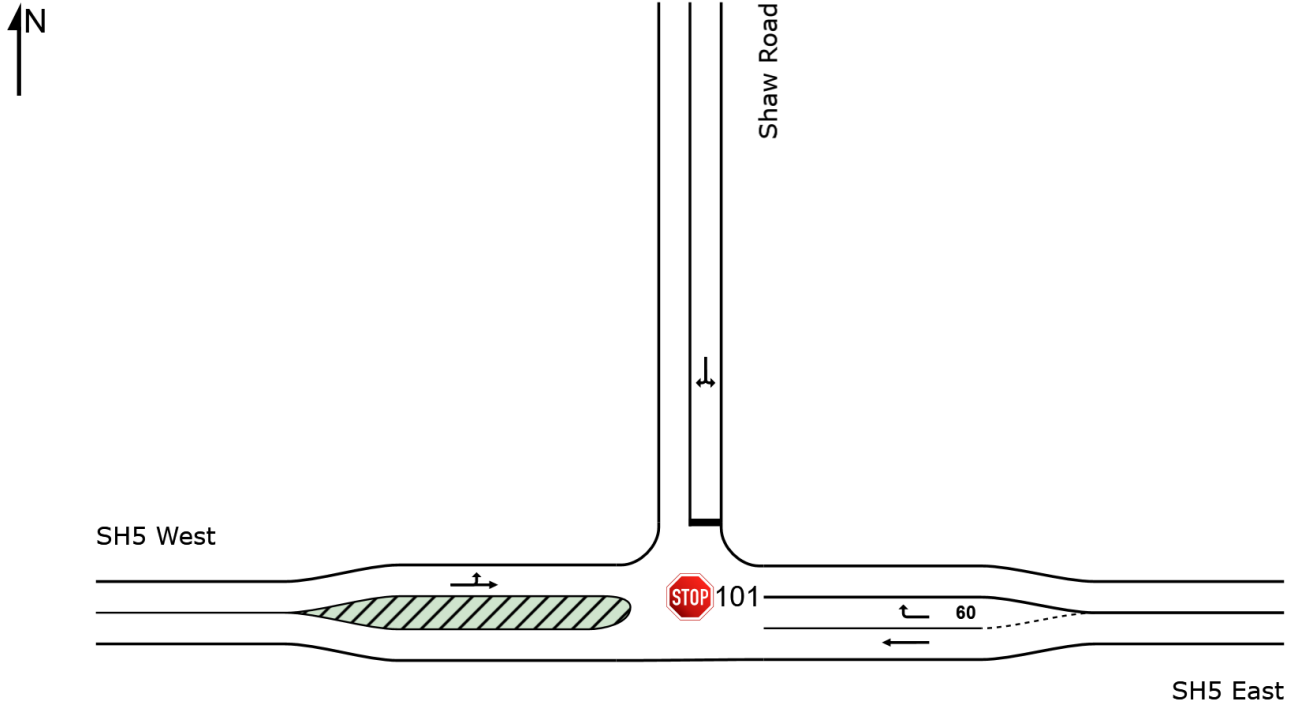
Appendix F – SIDRA Results

SITE LAYOUT

 Site: 101 [Shaw Rd Fri Hr End 16 Ex (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 Site: 101 [Shaw Rd Fri Hr End 16 Ex (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
East: SH5 East														
5	T1	202	5.0	213	5.0	0.113	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	26	2.0	27	2.0	0.023	8.9	LOS A	0.1	0.7	0.45	0.66	0.45	71.6
Approach		228	4.7	240	4.7	0.113	1.0	NA	0.1	0.7	0.05	0.08	0.05	95.6
North: Shaw Road														
7	L2	33	2.0	35	2.0	0.048	11.6	LOS B	0.2	1.3	0.46	0.89	0.46	70.0
9	R2	8	2.0	8	2.0	0.048	11.3	LOS B	0.2	1.3	0.46	0.89	0.46	69.6
Approach		41	2.0	43	2.0	0.048	11.5	LOS B	0.2	1.3	0.46	0.89	0.46	69.9
West: SH5 West														
10	L2	6	2.0	6	2.0	0.216	7.9	LOS A	0.0	0.0	0.00	0.01	0.00	87.2
11	T1	381	5.0	401	5.0	0.216	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.5
Approach		387	5.0	407	5.0	0.216	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.3
All Vehicles		656	4.7	691	4.7	0.216	1.2	NA	0.2	1.3	0.05	0.09	0.05	95.5

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: 101 [Shaw Rd Fri Hr End 16 Ex +10yr (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
East: SH5 East														
5	T1	253	5.0	266	5.0	0.142	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	26	2.0	27	2.0	0.026	9.5	LOS A	0.1	0.8	0.51	0.70	0.51	71.0
Approach		279	4.7	294	4.7	0.142	0.9	NA	0.1	0.8	0.05	0.06	0.05	96.3
North: Shaw Road														
7	L2	33	2.0	35	2.0	0.055	12.3	LOS B	0.2	1.4	0.51	0.92	0.51	69.1
9	R2	8	2.0	8	2.0	0.055	12.3	LOS B	0.2	1.4	0.51	0.92	0.51	68.7
Approach		41	2.0	43	2.0	0.055	12.3	LOS B	0.2	1.4	0.51	0.92	0.51	69.0
West: SH5 West														
10	L2	6	2.0	6	2.0	0.269	7.9	LOS A	0.0	0.0	0.00	0.01	0.00	87.3
11	T1	476	5.0	501	5.0	0.269	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.6
Approach		482	5.0	507	5.0	0.269	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.4
All Vehicles		802	4.7	844	4.7	0.269	1.0	NA	0.2	1.4	0.04	0.07	0.04	96.1

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: 101 [Shaw Rd Fri Hr End 16 Ex +10yr +30pc uplift (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: SH5 East														
5	T1	253	5.0	266	5.0	0.142	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	28	2.0	29	2.0	0.028	9.5	LOS A	0.1	0.8	0.51	0.70	0.51	71.0
Approach		281	4.7	296	4.7	0.142	1.0	NA	0.1	0.8	0.05	0.07	0.05	96.0
North: Shaw Road														
7	L2	35	2.0	37	2.0	0.059	12.4	LOS B	0.2	1.5	0.51	0.93	0.51	69.1
9	R2	9	2.0	9	2.0	0.059	12.3	LOS B	0.2	1.5	0.51	0.93	0.51	68.7
Approach		44	2.0	46	2.0	0.059	12.4	LOS B	0.2	1.5	0.51	0.93	0.51	69.0
West: SH5 West														
10	L2	7	2.0	7	2.0	0.269	7.9	LOS A	0.0	0.0	0.00	0.01	0.00	87.2
11	T1	476	5.0	501	5.0	0.269	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.5
Approach		483	5.0	508	5.0	0.269	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.3
All Vehicles		808	4.7	851	4.7	0.269	1.1	NA	0.2	1.5	0.05	0.08	0.05	95.9

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: 101 [Shaw Rd Fri Hr End 16 Ex +10yr +100pc uplift (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: SH5 East														
5	T1	253	5.0	266	5.0	0.142	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	33	2.0	35	2.0	0.034	9.5	LOS A	0.1	1.0	0.51	0.71	0.51	71.0
Approach		286	4.7	301	4.7	0.142	1.1	NA	0.1	1.0	0.06	0.08	0.06	95.4
North: Shaw Road														
7	L2	40	2.0	42	2.0	0.068	12.4	LOS B	0.2	1.7	0.52	0.93	0.52	69.0
9	R2	10	2.0	11	2.0	0.068	12.4	LOS B	0.2	1.7	0.52	0.93	0.52	68.7
Approach		50	2.0	53	2.0	0.068	12.4	LOS B	0.2	1.7	0.52	0.93	0.52	69.0
West: SH5 West														
10	L2	8	2.0	8	2.0	0.270	7.9	LOS A	0.0	0.0	0.00	0.01	0.00	87.2
11	T1	476	5.0	501	5.0	0.270	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.5
Approach		484	5.0	509	5.0	0.270	0.2	NA	0.0	0.0	0.00	0.01	0.00	99.3
All Vehicles		820	4.7	863	4.7	0.270	1.2	NA	0.2	1.7	0.05	0.09	0.05	95.4

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: 101 [Shaw Rd Sat Hr End 11 Ex (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
East: SH5 East														
5	T1	271	5.0	285	5.0	0.151	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	12	2.0	13	2.0	0.009	8.0	LOS A	0.0	0.3	0.30	0.60	0.30	72.3
Approach		283	4.9	298	4.9	0.151	0.4	NA	0.0	0.3	0.01	0.03	0.01	98.3
North: Shaw Road														
7	L2	7	2.0	7	2.0	0.008	10.4	LOS B	0.0	0.2	0.30	0.85	0.30	71.1
9	R2	2	2.0	2	2.0	0.008	10.5	LOS B	0.0	0.2	0.30	0.85	0.30	70.7
Approach		9	2.0	9	2.0	0.008	10.4	LOS B	0.0	0.2	0.30	0.85	0.30	71.0
West: SH5 West														
10	L2	3	2.0	3	2.0	0.105	7.9	LOS A	0.0	0.0	0.00	0.01	0.00	87.3
11	T1	186	5.0	196	5.0	0.105	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.6
Approach		189	5.0	199	5.0	0.105	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.4
All Vehicles		481	4.9	506	4.9	0.151	0.5	NA	0.0	0.3	0.01	0.04	0.01	98.0

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: 101 [Shaw Rd Sat Hr End 11 Ex + 10yr (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
East: SH5 East														
5	T1	339	5.0	357	5.0	0.189	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	12	2.0	13	2.0	0.009	8.2	LOS A	0.0	0.3	0.34	0.61	0.34	72.1
Approach		351	4.9	369	4.9	0.189	0.3	NA	0.0	0.3	0.01	0.02	0.01	98.6
North: Shaw Road														
7	L2	7	2.0	7	2.0	0.009	10.6	LOS B	0.0	0.2	0.35	0.85	0.35	70.8
9	R2	2	2.0	2	2.0	0.009	11.0	LOS B	0.0	0.2	0.35	0.85	0.35	70.5
Approach		9	2.0	9	2.0	0.009	10.7	LOS B	0.0	0.2	0.35	0.85	0.35	70.7
West: SH5 West														
10	L2	3	2.0	3	2.0	0.131	7.9	LOS A	0.0	0.0	0.00	0.01	0.00	87.3
11	T1	232	5.0	244	5.0	0.131	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.7
Approach		235	5.0	247	5.0	0.131	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.5
All Vehicles		595	4.9	626	4.9	0.189	0.4	NA	0.0	0.3	0.01	0.03	0.01	98.4

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: 101 [Shaw Rd Sat Hr End 11 Ex + 10yr + market (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
East: SH5 East														
5	T1	339	5.0	357	5.0	0.191	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	48	2.0	51	2.0	0.036	8.3	LOS A	0.2	1.1	0.35	0.63	0.35	72.1
Approach		387	4.6	407	4.6	0.191	1.0	NA	0.2	1.1	0.04	0.08	0.04	95.3
North: Shaw Road														
7	L2	43	2.0	45	2.0	0.054	10.7	LOS B	0.2	1.5	0.36	0.88	0.36	70.7
9	R2	11	2.0	12	2.0	0.054	11.4	LOS B	0.2	1.5	0.36	0.88	0.36	70.3
Approach		54	2.0	57	2.0	0.054	10.8	LOS B	0.2	1.5	0.36	0.88	0.36	70.6
West: SH5 West														
10	L2	12	2.0	13	2.0	0.136	7.9	LOS A	0.0	0.0	0.00	0.03	0.00	86.7
11	T1	232	5.0	244	5.0	0.136	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	98.9
Approach		244	4.9	257	4.9	0.136	0.4	NA	0.0	0.0	0.00	0.03	0.00	98.2
All Vehicles		685	4.5	721	4.5	0.191	1.6	NA	0.2	1.5	0.05	0.13	0.05	93.7

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.

MOVEMENT SUMMARY

 Site: 101 [Shaw Rd Sun Hr End 13 Ex (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
East: SH5 East														
5	T1	438	5.0	461	5.0	0.244	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	4	2.0	4	2.0	0.003	8.3	LOS A	0.0	0.1	0.35	0.59	0.35	72.1
Approach		442	5.0	465	5.0	0.244	0.1	NA	0.0	0.1	0.00	0.01	0.00	99.5
North: Shaw Road														
7	L2	6	2.0	6	2.0	0.007	10.7	LOS B	0.0	0.2	0.36	0.84	0.36	70.7
9	R2	1	2.0	1	2.0	0.007	11.7	LOS B	0.0	0.2	0.36	0.84	0.36	70.3
Approach		7	2.0	7	2.0	0.007	10.8	LOS B	0.0	0.2	0.36	0.84	0.36	70.6
West: SH5 West														
10	L2	1	2.0	1	2.0	0.140	7.9	LOS A	0.0	0.0	0.00	0.00	0.00	87.5
11	T1	251	5.0	264	5.0	0.140	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
Approach		252	5.0	265	5.0	0.140	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles		701	4.9	738	4.9	0.244	0.2	NA	0.0	0.2	0.01	0.01	0.01	99.2

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: 101 [Shaw Rd Sun Hr End 13 Ex + 10yr (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
East: SH5 East														
5	T1	548	5.0	577	5.0	0.305	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
6	R2	4	2.0	4	2.0	0.003	8.5	LOS A	0.0	0.1	0.40	0.60	0.40	71.8
Approach		552	5.0	581	5.0	0.305	0.1	NA	0.0	0.1	0.00	0.00	0.00	99.5
North: Shaw Road														
7	L2	6	2.0	6	2.0	0.008	11.0	LOS B	0.0	0.2	0.41	0.84	0.41	70.2
9	R2	1	2.0	1	2.0	0.008	12.9	LOS B	0.0	0.2	0.41	0.84	0.41	69.8
Approach		7	2.0	7	2.0	0.008	11.3	LOS B	0.0	0.2	0.41	0.84	0.41	70.1
West: SH5 West														
10	L2	1	2.0	1	2.0	0.176	7.9	LOS A	0.0	0.0	0.00	0.00	0.00	87.5
11	T1	314	5.0	331	5.0	0.176	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
Approach		315	5.0	332	5.0	0.176	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles		874	5.0	920	5.0	0.305	0.2	NA	0.0	0.2	0.01	0.01	0.01	99.3

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: 101 [Shaw Rd Sun Hr End 13 Ex + 10yr + 30pc uplift
(Site Folder: General)]**

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: SH5 East														
5	T1	548	5.0	577	5.0	0.305	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
6	R2	10	2.0	11	2.0	0.008	8.6	LOS A	0.0	0.2	0.40	0.62	0.40	71.8
Approach		558	4.9	587	4.9	0.305	0.2	NA	0.0	0.2	0.01	0.01	0.01	99.1
North: Shaw Road														
7	L2	8	2.0	8	2.0	0.012	11.1	LOS B	0.0	0.3	0.42	0.85	0.42	70.0
9	R2	2	2.0	2	2.0	0.012	13.0	LOS B	0.0	0.3	0.42	0.85	0.42	69.7
Approach		10	2.0	11	2.0	0.012	11.4	LOS B	0.0	0.3	0.42	0.85	0.42	69.9
West: SH5 West														
10	L2	2	2.0	2	2.0	0.176	7.9	LOS A	0.0	0.0	0.00	0.00	0.00	87.4
11	T1	314	5.0	331	5.0	0.176	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
Approach		316	5.0	333	5.0	0.176	0.1	NA	0.0	0.0	0.00	0.00	0.00	99.7
All Vehicles		884	4.9	931	4.9	0.305	0.3	NA	0.0	0.3	0.01	0.02	0.01	98.9

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.

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Project: C:\Users\annaj\OneDrive\AW Consulting\Projects\67 Eskdale for HDC\SH5 Intersections.sip9

MOVEMENT SUMMARY

**Site: 101 [Shaw Rd Sun Hr End 13 Ex + 10yr + 100pc uplift
(Site Folder: General)]**

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: SH5 East														
5	T1	548	5.0	577	5.0	0.308	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
6	R2	22	2.0	23	2.0	0.018	8.6	LOS A	0.1	0.5	0.41	0.64	0.41	71.8
Approach		570	4.9	600	4.9	0.308	0.4	NA	0.1	0.5	0.02	0.02	0.02	98.3
North: Shaw Road														
7	L2	12	2.0	13	2.0	0.018	11.1	LOS B	0.1	0.5	0.42	0.86	0.42	69.9
9	R2	3	2.0	3	2.0	0.018	13.1	LOS B	0.1	0.5	0.42	0.86	0.42	69.6
Approach		15	2.0	16	2.0	0.018	11.5	LOS B	0.1	0.5	0.42	0.86	0.42	69.9
West: SH5 West														
10	L2	6	2.0	6	2.0	0.178	7.9	LOS A	0.0	0.0	0.00	0.01	0.00	87.2
11	T1	314	5.0	331	5.0	0.178	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.5
Approach		320	4.9	337	4.9	0.178	0.2	NA	0.0	0.0	0.00	0.01	0.00	99.2
All Vehicles		905	4.9	953	4.9	0.308	0.5	NA	0.1	0.5	0.02	0.03	0.02	98.0

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: 101 [Shaw Rd Sun Hr End 13 Sensitivity Test (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: SH5 East														
5	T1	548	5.0	577	5.0	0.307	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
6	R2	74	2.0	78	2.0	0.062	8.7	LOS A	0.3	1.9	0.43	0.67	0.43	71.7
Approach		622	4.6	655	4.6	0.307	1.1	NA	0.3	1.9	0.05	0.08	0.05	95.4
North: Shaw Road														
7	L2	16	2.0	17	2.0	0.133	11.2	LOS B	0.5	3.3	0.57	0.97	0.57	67.6
9	R2	64	2.0	67	2.0	0.133	14.0	LOS B	0.5	3.3	0.57	0.97	0.57	67.3
Approach		80	2.0	84	2.0	0.133	13.4	LOS B	0.5	3.3	0.57	0.97	0.57	67.4
West: SH5 West														
10	L2	19	2.0	20	2.0	0.186	7.9	LOS A	0.0	0.0	0.00	0.04	0.00	86.6
11	T1	314	5.0	331	5.0	0.186	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	98.7
Approach		333	4.8	351	4.8	0.186	0.5	NA	0.0	0.0	0.00	0.04	0.00	97.9
All Vehicles		1035	4.5	1089	4.5	0.307	1.8	NA	0.5	3.3	0.07	0.14	0.07	93.1

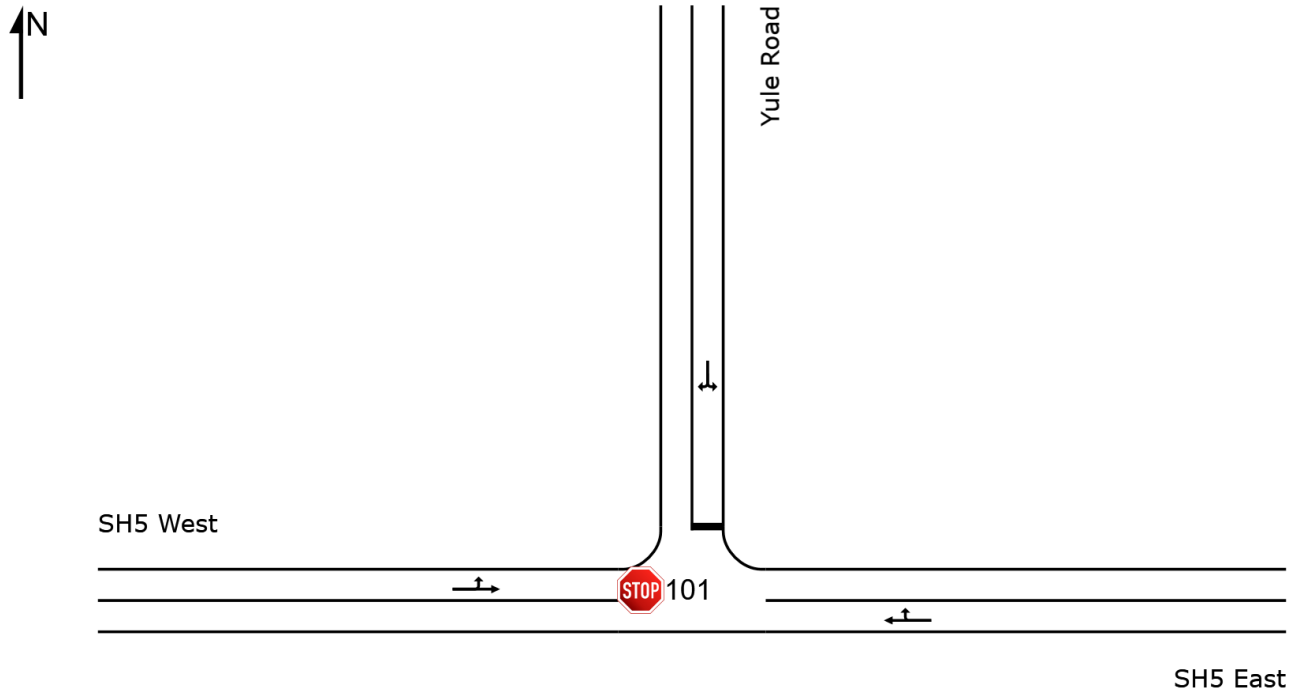
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS 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.

SITE LAYOUT

 Site: 101 [Yule Rd Fri Hr End 16 Ex (Site Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 Site: 101 [Yule Rd Fri Hr End 16 Ex (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
East: SH5 East														
5	T1	227	5.0	239	5.0	0.130	0.1	LOS A	0.0	0.3	0.02	0.01	0.02	99.3
6	R2	4	2.0	4	2.0	0.130	9.4	LOS A	0.0	0.3	0.02	0.01	0.02	86.5
Approach		231	4.9	243	4.9	0.130	0.2	NA	0.0	0.3	0.02	0.01	0.02	99.0
North: Yule Road														
7	L2	3	2.0	3	2.0	0.005	11.7	LOS B	0.0	0.1	0.44	0.84	0.44	70.3
9	R2	1	2.0	1	2.0	0.005	10.1	LOS B	0.0	0.1	0.44	0.84	0.44	69.9
Approach		4	2.0	4	2.0	0.005	11.3	LOS B	0.0	0.1	0.44	0.84	0.44	70.2
West: SH5 West														
10	L2	1	2.0	1	2.0	0.231	7.9	LOS A	0.0	0.0	0.00	0.00	0.00	87.5
11	T1	413	5.0	435	5.0	0.231	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
Approach		414	5.0	436	5.0	0.231	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles		649	5.0	683	5.0	0.231	0.2	NA	0.0	0.3	0.01	0.01	0.01	99.3

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.

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Project: C:\Users\annaj\OneDrive\AW Consulting\Projects\67 Eskdale for HDC\SH5 Intersections.sip9

MOVEMENT SUMMARY

Site: 101 [Yule Rd Fri Hr End 16 Ex + 10yr (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
East: SH5 East														
5	T1	284	5.0	299	5.0	0.163	0.1	LOS A	0.1	0.4	0.02	0.01	0.02	99.4
6	R2	4	2.0	4	2.0	0.163	10.3	LOS B	0.1	0.4	0.02	0.01	0.02	86.6
Approach		288	5.0	303	5.0	0.163	0.2	NA	0.1	0.4	0.02	0.01	0.02	99.2
North: Yule Road														
7	L2	3	2.0	3	2.0	0.005	12.5	LOS B	0.0	0.1	0.50	0.85	0.50	69.4
9	R2	1	2.0	1	2.0	0.005	10.6	LOS B	0.0	0.1	0.50	0.85	0.50	69.1
Approach		4	2.0	4	2.0	0.005	12.0	LOS B	0.0	0.1	0.50	0.85	0.50	69.3
West: SH5 West														
10	L2	1	2.0	1	2.0	0.288	7.9	LOS A	0.0	0.0	0.00	0.00	0.00	87.5
11	T1	516	5.0	543	5.0	0.288	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
Approach		517	5.0	544	5.0	0.288	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles		809	5.0	852	5.0	0.288	0.2	NA	0.1	0.4	0.01	0.01	0.01	99.3

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: 101 [Yule Rd Fri Hr End 16 Ex + 10yr + pass rec (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: SH5 East														
5	T1	284	5.0	299	5.0	0.170	0.2	LOS A	0.1	1.1	0.06	0.03	0.06	98.3
6	R2	11	2.0	12	2.0	0.170	10.3	LOS B	0.1	1.1	0.06	0.03	0.06	85.8
Approach		295	4.9	311	4.9	0.170	0.6	NA	0.1	1.1	0.06	0.03	0.06	97.8
North: Yule Road														
7	L2	7	2.0	7	2.0	0.012	12.5	LOS B	0.0	0.3	0.50	0.88	0.50	69.3
9	R2	2	2.0	2	2.0	0.012	10.7	LOS B	0.0	0.3	0.50	0.88	0.50	69.0
Approach		9	2.0	9	2.0	0.012	12.1	LOS B	0.0	0.3	0.50	0.88	0.50	69.2
West: SH5 West														
10	L2	3	2.0	3	2.0	0.289	7.9	LOS A	0.0	0.0	0.00	0.00	0.00	87.4
11	T1	516	5.0	543	5.0	0.289	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.7
Approach		519	5.0	546	5.0	0.289	0.1	NA	0.0	0.0	0.00	0.00	0.00	99.6
All Vehicles		823	4.9	866	4.9	0.289	0.4	NA	0.1	1.1	0.03	0.02	0.03	98.5

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: 101 [Yule Rd Sun Hr End 13 Ex (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
East: SH5 East														
5	T1	441	5.0	464	5.0	0.247	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	99.8
6	R2	2	2.0	2	2.0	0.247	8.7	LOS A	0.0	0.1	0.00	0.00	0.00	86.9
Approach		443	5.0	466	5.0	0.247	0.0	NA	0.0	0.1	0.00	0.00	0.00	99.8
North: Yule Road														
7	L2	4	2.0	4	2.0	0.005	10.7	LOS B	0.0	0.1	0.34	0.84	0.34	70.9
9	R2	1	2.0	1	2.0	0.005	10.3	LOS B	0.0	0.1	0.34	0.84	0.34	70.6
Approach		5	2.0	5	2.0	0.005	10.6	LOS B	0.0	0.1	0.34	0.84	0.34	70.8
West: SH5 West														
10	L2	1	2.0	1	2.0	0.143	7.9	LOS A	0.0	0.0	0.00	0.00	0.00	87.5
11	T1	256	5.0	269	5.0	0.143	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
Approach		257	5.0	271	5.0	0.143	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles		705	5.0	742	5.0	0.247	0.1	NA	0.0	0.1	0.01	0.01	0.01	99.5

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: 101 [Yule Rd Sun Hr End 13 Ex + 10 yr (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: SH5 East														
5	T1	552	5.0	581	5.0	0.309	0.0	LOS A	0.0	0.2	0.00	0.00	0.00	99.9
6	R2	2	2.0	2	2.0	0.309	9.3	LOS A	0.0	0.2	0.00	0.00	0.00	86.9
Approach		554	5.0	583	5.0	0.309	0.0	NA	0.0	0.2	0.00	0.00	0.00	99.8
North: Yule Road														
7	L2	4	2.0	4	2.0	0.005	11.1	LOS B	0.0	0.1	0.39	0.84	0.39	70.5
9	R2	1	2.0	1	2.0	0.005	10.9	LOS B	0.0	0.1	0.39	0.84	0.39	70.1
Approach		5	2.0	5	2.0	0.005	11.0	LOS B	0.0	0.1	0.39	0.84	0.39	70.4
West: SH5 West														
10	L2	1	2.0	1	2.0	0.179	7.9	LOS A	0.0	0.0	0.00	0.00	0.00	87.5
11	T1	320	5.0	337	5.0	0.179	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
Approach		321	5.0	338	5.0	0.179	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles		880	5.0	926	5.0	0.309	0.1	NA	0.0	0.2	0.01	0.01	0.01	99.6

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.

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Project: C:\Users\annaj\OneDrive\AW Consulting\Projects\67 Eskdale for HDC\SH5 Intersections.sip9

MOVEMENT SUMMARY

 **Site: 101 [Yule Rd Sun Hr End 13 Ex + 10 yr + pass rec (Site Folder: General)]**

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: SH5 East														
5	T1	552	5.0	581	5.0	0.325	0.1	LOS A	0.2	1.7	0.05	0.02	0.05	98.6
6	R2	20	2.0	21	2.0	0.325	9.3	LOS A	0.2	1.7	0.05	0.02	0.05	86.0
Approach		572	4.9	602	4.9	0.325	0.4	NA	0.2	1.7	0.05	0.02	0.05	98.1
North: Yule Road														
7	L2	9	2.0	9	2.0	0.012	11.1	LOS B	0.0	0.3	0.39	0.86	0.39	70.4
9	R2	2	2.0	2	2.0	0.012	11.0	LOS B	0.0	0.3	0.39	0.86	0.39	70.1
Approach		11	2.0	12	2.0	0.012	11.1	LOS B	0.0	0.3	0.39	0.86	0.39	70.4
West: SH5 West														
10	L2	5	2.0	5	2.0	0.181	7.9	LOS A	0.0	0.0	0.00	0.01	0.00	87.3
11	T1	320	5.0	337	5.0	0.181	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.6
Approach		325	5.0	342	5.0	0.181	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.4
All Vehicles		908	4.9	956	4.9	0.325	0.5	NA	0.2	1.7	0.03	0.03	0.03	98.1

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.

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Organisation: ENGINEERABLE | Licence: PLUS / 1PC | Processed: Wednesday, 2 March 2022 7:36:20 PM

Project: C:\Users\annaj\OneDrive\AW Consulting\Projects\67 Eskdale for HDC\SH5 Intersections.sip9

MOVEMENT SUMMARY

Site: 101 [Yule Rd Sun Hr End 13 Ex + 10 yr + pass rec + MTB (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: SH5 East														
5	T1	552	5.0	581	5.0	0.338	0.2	LOS A	0.4	3.2	0.08	0.04	0.09	97.6
6	R2	36	2.0	38	2.0	0.338	9.4	LOS A	0.4	3.2	0.08	0.04	0.09	85.2
Approach		588	4.8	619	4.8	0.338	0.8	NA	0.4	3.2	0.08	0.04	0.09	96.7
North: Yule Road														
7	L2	25	2.0	26	2.0	0.034	11.2	LOS B	0.1	0.8	0.40	0.89	0.40	70.3
9	R2	6	2.0	6	2.0	0.034	11.1	LOS B	0.1	0.8	0.40	0.89	0.40	70.0
Approach		31	2.0	33	2.0	0.034	11.2	LOS B	0.1	0.8	0.40	0.89	0.40	70.3
West: SH5 West														
10	L2	9	2.0	9	2.0	0.184	7.9	LOS A	0.0	0.0	0.00	0.02	0.00	87.0
11	T1	320	5.0	337	5.0	0.184	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	99.3
Approach		329	4.9	346	4.9	0.184	0.2	NA	0.0	0.0	0.00	0.02	0.00	98.9
All Vehicles		948	4.8	998	4.8	0.338	0.9	NA	0.4	3.2	0.07	0.06	0.07	96.3

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: 101 [Yule Rd Sun Hr End 13 Ex + Sensitivity Test (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: SH5 East														
5	T1	552	5.0	581	5.0	0.373	0.5	LOS A	1.0	7.5	0.17	0.09	0.19	95.3
6	R2	76	2.0	80	2.0	0.373	9.6	LOS A	1.0	7.5	0.17	0.09	0.19	83.4
Approach		628	4.6	661	4.6	0.373	1.6	NA	1.0	7.5	0.17	0.09	0.19	93.7
North: Yule Road														
7	L2	68	2.0	72	2.0	0.093	11.3	LOS B	0.3	2.4	0.41	0.92	0.41	70.2
9	R2	17	2.0	18	2.0	0.093	11.5	LOS B	0.3	2.4	0.41	0.92	0.41	69.8
Approach		85	2.0	89	2.0	0.093	11.3	LOS B	0.3	2.4	0.41	0.92	0.41	70.1
West: SH5 West														
10	L2	19	2.0	20	2.0	0.189	7.9	LOS A	0.0	0.0	0.00	0.04	0.00	86.6
11	T1	320	5.0	337	5.0	0.189	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	98.7
Approach		339	4.8	357	4.8	0.189	0.5	NA	0.0	0.0	0.00	0.04	0.00	97.9
All Vehicles		1052	4.5	1107	4.5	0.373	2.0	NA	1.0	7.5	0.13	0.14	0.14	92.4

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

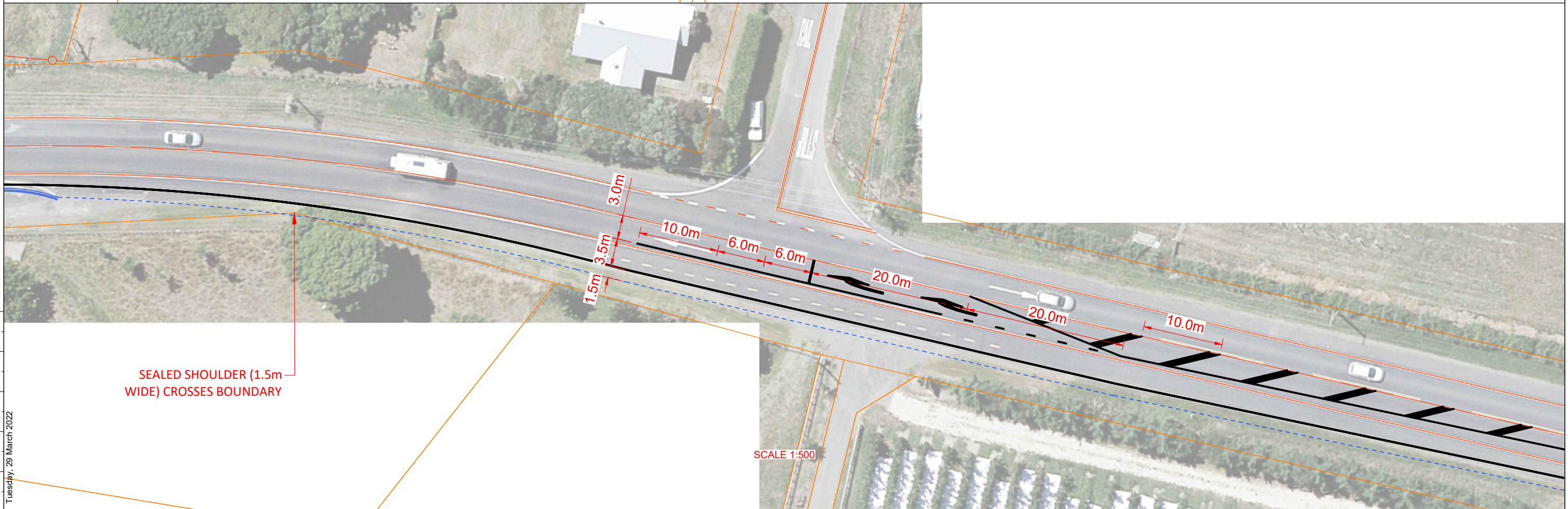
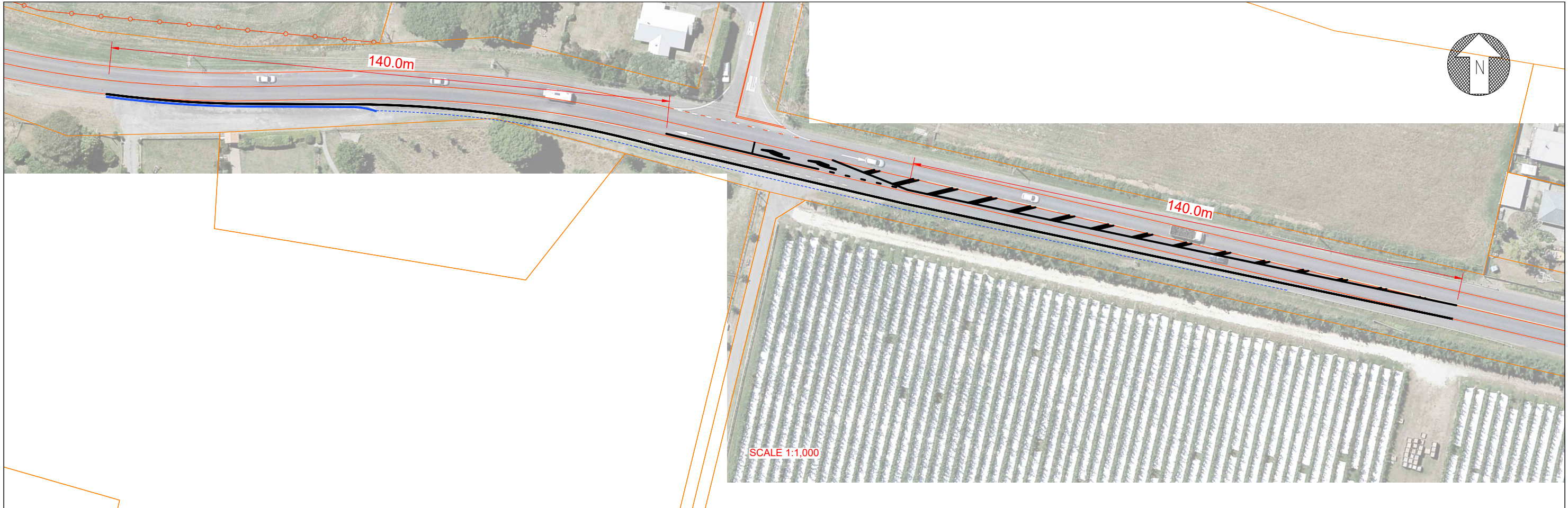
Site: 101 [Yule Rd Sun Hr End 13 Ex + Sensitivity Test w Right Turn Bay (Site Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: SH5 East														
5	T1	552	5.0	581	5.0	0.310	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
6	R2	76	2.0	80	2.0	0.064	8.8	LOS A	0.3	2.0	0.43	0.67	0.43	71.7
Approach		628	4.6	661	4.6	0.310	1.1	NA	0.3	2.0	0.05	0.08	0.05	95.3
North: Yule Road														
7	L2	68	2.0	72	2.0	0.103	11.3	LOS B	0.4	2.8	0.45	0.91	0.45	69.5
9	R2	17	2.0	18	2.0	0.103	14.2	LOS B	0.4	2.8	0.45	0.91	0.45	69.2
Approach		85	2.0	89	2.0	0.103	11.8	LOS B	0.4	2.8	0.45	0.91	0.45	69.5
West: SH5 West														
10	L2	19	2.0	20	2.0	0.189	7.9	LOS A	0.0	0.0	0.00	0.04	0.00	86.6
11	T1	320	5.0	337	5.0	0.189	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	98.7
Approach		339	4.8	357	4.8	0.189	0.5	NA	0.0	0.0	0.00	0.04	0.00	97.9
All Vehicles		1052	4.5	1107	4.5	0.310	1.8	NA	0.4	2.8	0.07	0.13	0.07	93.3

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.

Appendix G – Concept Design SH5/Yule Road Right Turn Bay



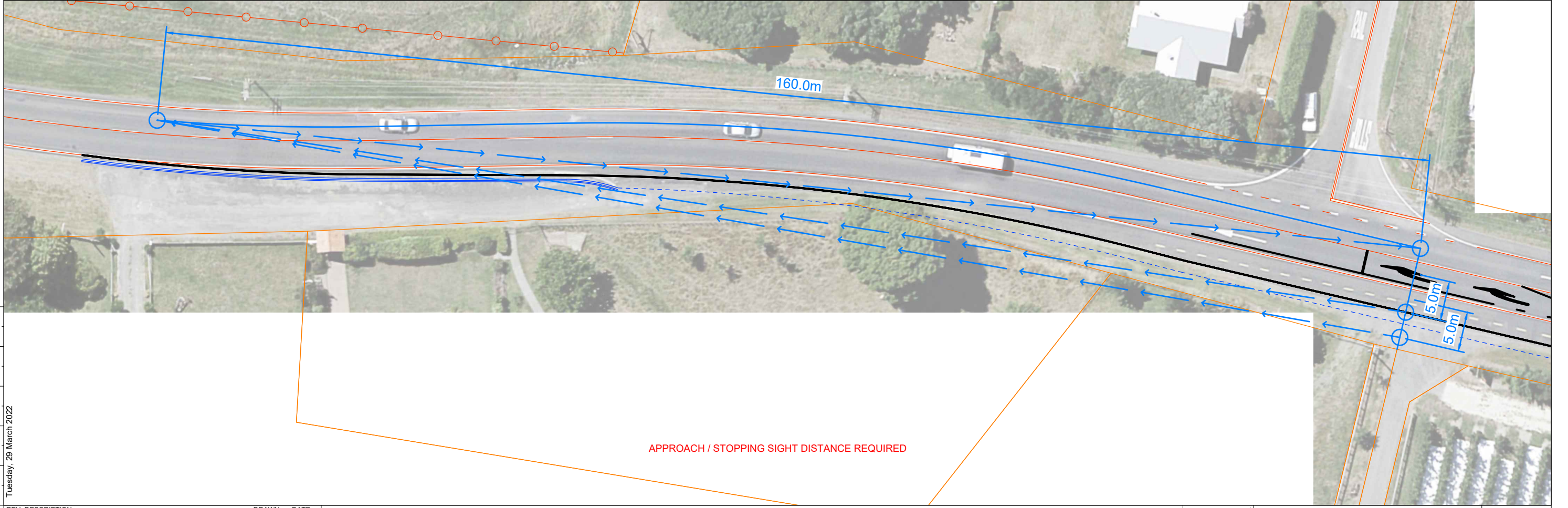
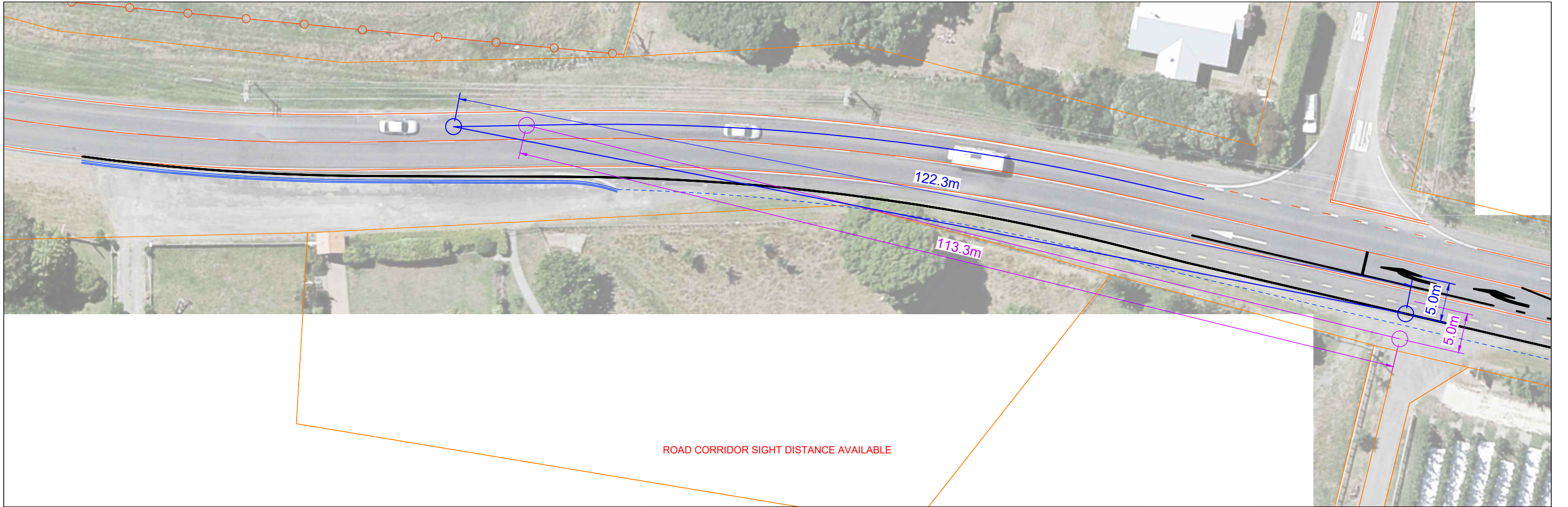
REV	DESCRIPTION	DRAWN	DATE
A	SET UP DRAWING BASED UPON LINZ DATA	G.Eivers	29/03/2022

HASTINGS DISTRICT COUNCIL
 SH5 / YULE ROAD INTERSECTION
 RIGHT TURN BAY CONCEPTUAL LAYOUT



SHEET: 1 OF 2
 SCALE: 1:1,000 & 1:500 @ A3
 DWG NO: 21-008103A

REV: A



50mm
Tuesday, 29 March 2022

REV	DESCRIPTION	DRAWN	DATE
A	SET UP DRAWING BASED UPON LINZ DATA	G.Eivers	29/03/2022

HASTINGS DISTRICT COUNCIL
 SH5 / YULE ROAD INTERSECTION
 SIGHTLINE FOR OPPOSITE DRIVEWAY (TO THREE PROPERTIES INCLUDING WINERY)



SHEET: 2 OF 2
 SCALE: 1:500 @ A3
 DWG NO: 21-008103A

REV:
A