RIVERBEND RESIDENTIAL DEVELOPMENT

ENCLOSURE H

TRANSPORT IMPACT ASSESSMENT

- East Cape Consulting Ltd

East Cape Consulting Limited

121 Lane Road

Havelock North

Hastings 4130

Karl Carew

Development Nous

PO Box 385

HASTINGS 4156

18 May 2021

Issued via email: s 9(2)(a)

Dear Karl

RE: TRANSPORTATION ASSESSMENT REPORT, RIVERBEND ROAD REZONING

East Cape Consulting (ECC) has been asked to prepare a Transportation Assessment Report (TAR) to assess the transportation effects arising from the residential development of currently rural land in Onekawa, Napier.

This TAR describes the existing transportation environment, assesses the existing performance of the network in terms of safety and capacity, estimates future transport demands, and assesses the ability of the network to accommodate those demands. A development of up to 700 new homes, as an upper development limit, and 2,000m^2 of complementary retail space has been assessed.

This assessment focusses on the external effects and the off-site transportation improvements that are needed to support the principle of developing the land. It is expected that if development of the land is approved, detailed staging, design and approval processes would follow, through which the internal roads and individual lot accesses would be detailed.

By way of summary, it has been concluded that with the following road improvements, the residential development of the subject land can be appropriately accommodated by the transport network.

- A new T-intersection on Waterworth Avenue;
- A new T-intersection with a southbound right turn bay on Riverbend Road;
- Relocation of the existing 50km/h speed zone further south on Riverbend Road;
- Footpaths between the site and the existing urban footpaths; and
- A review of further potential local area traffic management improvements on the network north of the site, to accommodate increased volumes.

1. SITE LOCATION

The site is located on the southern side of Napier. It sits approximately 3.5km south of the Napier central business district (CBD) to the south of Onekawa and west of Maraenui. The site location in the context of Napier and its surrounds is shown as Figure 1.

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

The land that is proposed to be rezoned is shown below as Figure 2. It is generally bounded by Riverbend Road to the east, Maraenui Park and Waterworth Avenue to the north, Beatson Drain to the west and the Napier Cross Country Drain to the south.

Figure 2 – Site Location (Local View) (Source: NCC GIS Maps)

The site has road frontage to Waterworth Avenue and Riverbend Road and occupies an area of approximately 20 hectares (ha) in total. It is currently primarily used for agricultural purposes.

The site is within the Main Rural zone of the Napier City Council (NCC) Operative District Plan (ODP). It is generally surrounded by urban activities to the north and rural activities to the south. There are also pockets of Suburban Commercial zone in the local area, as well as various schools, parks and reserves. A NCC drainage designation runs near the southern boundary of the site. The ODP zoning is shown as Figure 3.

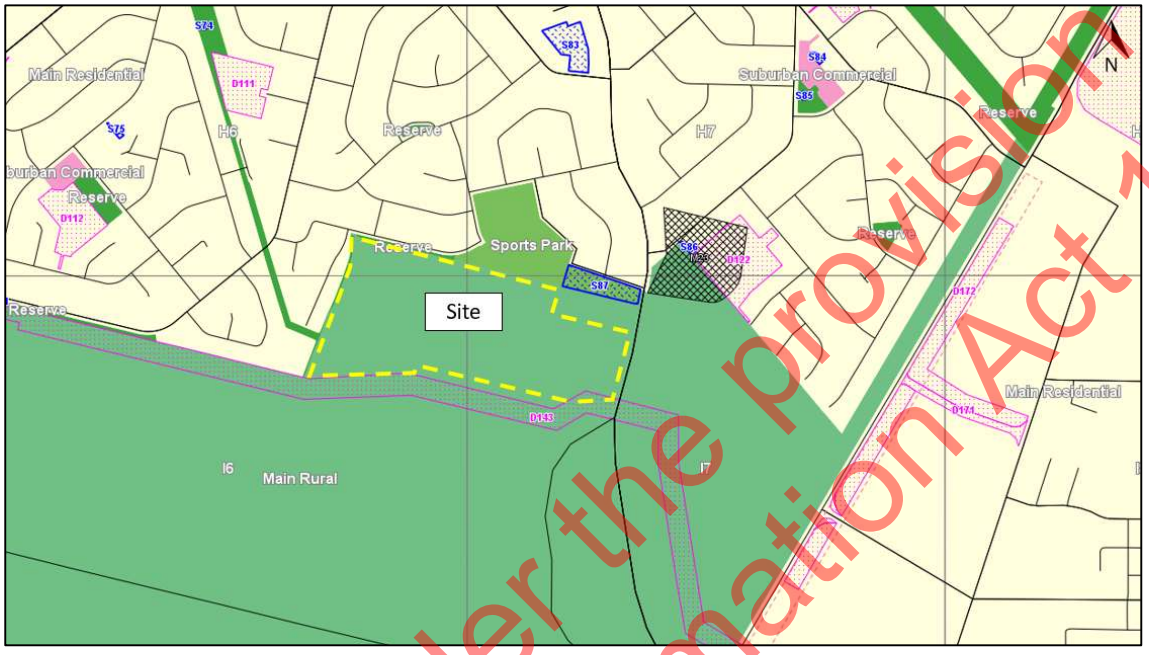


Figure 3 – ODP Zoning (Map Sourced from NCC GIS Maps), Site Boundary Approximate Only

The site is within the 'Riverbend/The Loop' greenfield development area identified in the Heretaunga Plains Urban Development Strategy (HPUDS), which was adopted by Council in 2017.

2. EXISTING TRANSPORT ENVIRONMENT

2.1 Road Hierarchy

Waterworth Avenue is classified as a local road in the NCC ODP road hierarchy. Riverbend Road is classified as a collector road along the site frontage. It changes to principal road classification once it reaches Bledisloe Road and changes again to arterial road status at Wycliffe Avenue.

On the western side of the site, the collector road network is formed by Harold Holt Avenue. This connects north to Wycliffe Street (an arterial road) and south to Ulyatt Street (which becomes Tannery Road) and Bill Hercock Street, which are also collector roads. The site location in the context of the road hierarchy is shown as Figure 4.

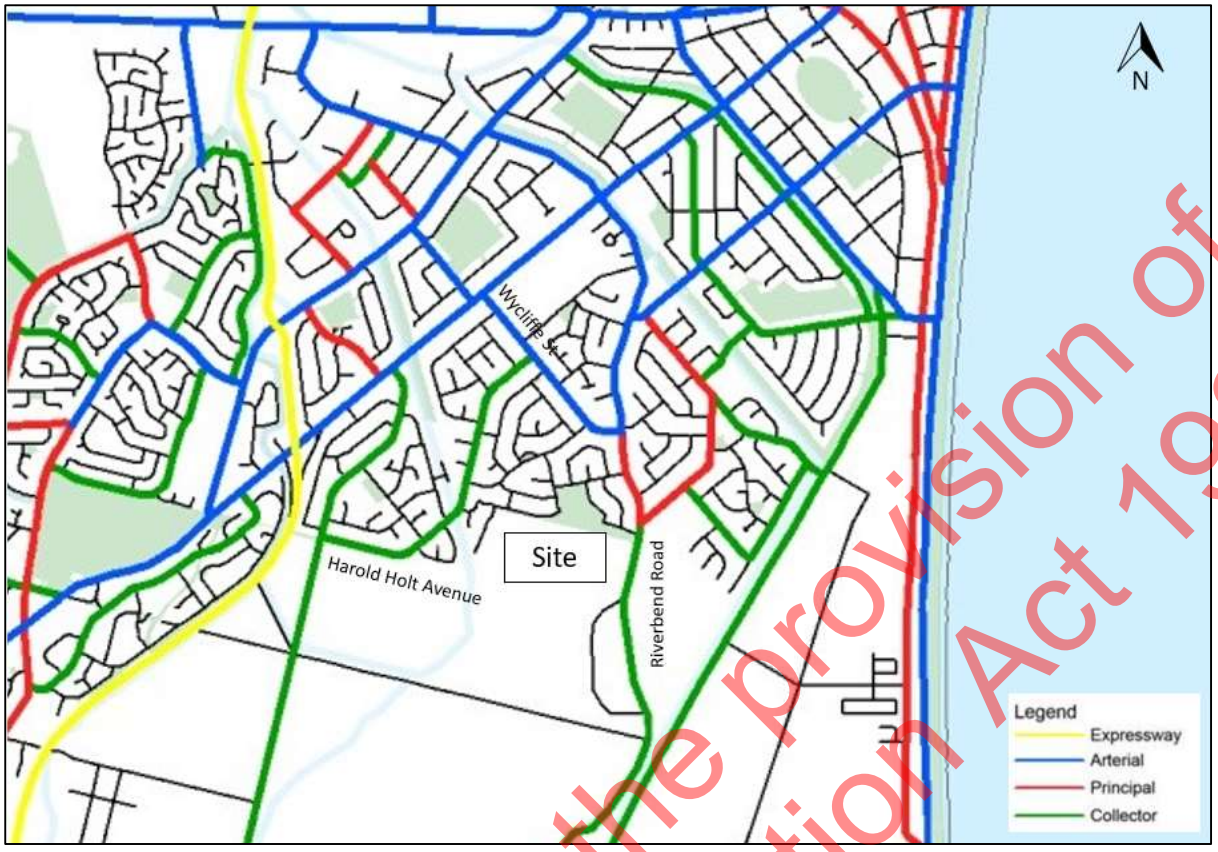


Figure 4 – Site and ODP Road Hierarchy

2.2 Existing Road Network

Riverbend Road provides one traffic lane in each direction. Along the site frontage it has a painted centreline, edge lines and sealed shoulders with an overall sealed width of approximately 12m. The posted speed limit changes from 50km/h to 70km/h in front of the site. There are gated speed signs and a central island treatment installed to reinforce this as shown in Figure 5.

Figure 5 – Riverbend Road Southbound Photo (speed limit threshold along site frontage)

Riverbend Road has footpaths on both sides of the road from approximately 50m north of the site's northern boundary. The existing form of Riverbend Road north of the site is shown in Figure 6.

Figure 6 – Riverbend Road Northbound Photo (footpaths north of site boundary)

Waterworth Avenue provides one traffic lane in each direction. It has an unmarked carriageway that is approximately 7.9m wide. In the vicinity of the site there is a footpath on the northern side of the road only, reflecting the currently rural use of land on the southern side. In the wider area there are footpaths on both sides of the road. The existing form of Waterworth Avenue is shown as Figure 7.

Figure 7 – Waterworth Avenue Eastbound Photo (footpath opposite and traffic calming along site frontage)

Some of Waterworth Avenue forms part of an area-wide traffic calming scheme. Accordingly, it incorporates speed management measures such as speed cushions, spaced along the site frontage, and a raised table at its intersection with Dinwiddie Avenue. The area-wide traffic calming also includes speed cushions spaced along the full lengths of Dinwiddie Avenue and Venables Avenue. Some of the traffic calming along Dinwiddie Avenue is shown as Figure 8.

Figure 8 – Dinwiddie Avenue Southbound Photo (speed cushion and raised table traffic calming)

2.3 Public Transport

The nearest bus service to the site is the 14 (Napier, Maraenui and Onekawa Loop) which travels from Riverbend Road (north) into Bledisloe Road and vice versa. The nearest stops are approximately 250m north of the site. This service runs 14 times daily on weekdays and four times on Saturday. It provides access to destinations around the CBD, Napier South, Maraenui and Onekawa.

2.4 Walking and Cycling

The site itself and the surrounding area are on the rural/residential boundary and consequently there are limited walking and cycling facilities in the vicinity of the site. Footpaths are provided as roads move into the urban area. There is a pedestrian zebra crossing just north of the Riverbend Road/Bledisloe Road intersection.

The Cross Country Drain pathway runs along the southern boundary of the site. This connects from the Harold Holt/Uylatt Road intersection in the west to Te Awa Avenue in the east. At the time of writing this report, a crossing point was under construction where this path meets Riverbend Road, near the south of the site.

There are also off-road walking and cycling paths through Maraenui Park and through the unformed corridor of Hislop Avenue, which runs along the eastern boundary of the park. Off-road cycling

connectivity is also provided along the Cross Country Drain corridor, starting from Harold Holt Avenue. This trail connects north to Taradale.

3. TRAFFIC VOLUMES

3.1 Daily Volumes

Daily traffic volumes have been sourced from the Mobileroad website, which draws data from the NCC road maintenance database. Daily volumes along roads surrounding the site are summarised in Table 1. Peak hour volumes, which typically equate to around 8-12% of the daily total, have also been estimated.

Table 1 – Daily and Peak Hour Volumes

Road	Location	Daily Volume (vpd)	Estimated Peak Hour (vph)
Riverbend Road	South of Bledisloe Road	2,101	168 – 252
Riverbend Road	South of Venables Avenue	6,523	522 – 783
Venables Avenue	West of Riverbend Road	2,488	199 – 299
Venables Avenue	East of Harold Holt Avenue	2,027	162 – 243
Dinwiddie Avenue	North of Waterworth Avenue	448	36 – 54
Waterworth Avenue	West of Dinwiddie Avenue	1,241	99 – 149
Harold Holt Avenue	North of Waterworth Avenue	2,610	209 – 313
Harold Holt Avenue	East of Ulyatt Road	1,771	142 – 213
Wycliffe Street	North-west of Riverbend Road	3,501	280 – 420
Bledisloe Road	North-east of Riverbend	2,965	237 - 356

3.2 Intersection Counts

ECC arranged classified intersection turning movement counts at the following intersections during November 2020:

- Riverbend Road/Bledisloe Road
- Riverbend Road/Venables Avenue; and
- Harold Holt Avenues/Waterworth Avenue.

The surveyed turning movements and link volumes for the observed peak hours are summarised below as Figure 9 and Figure 10.

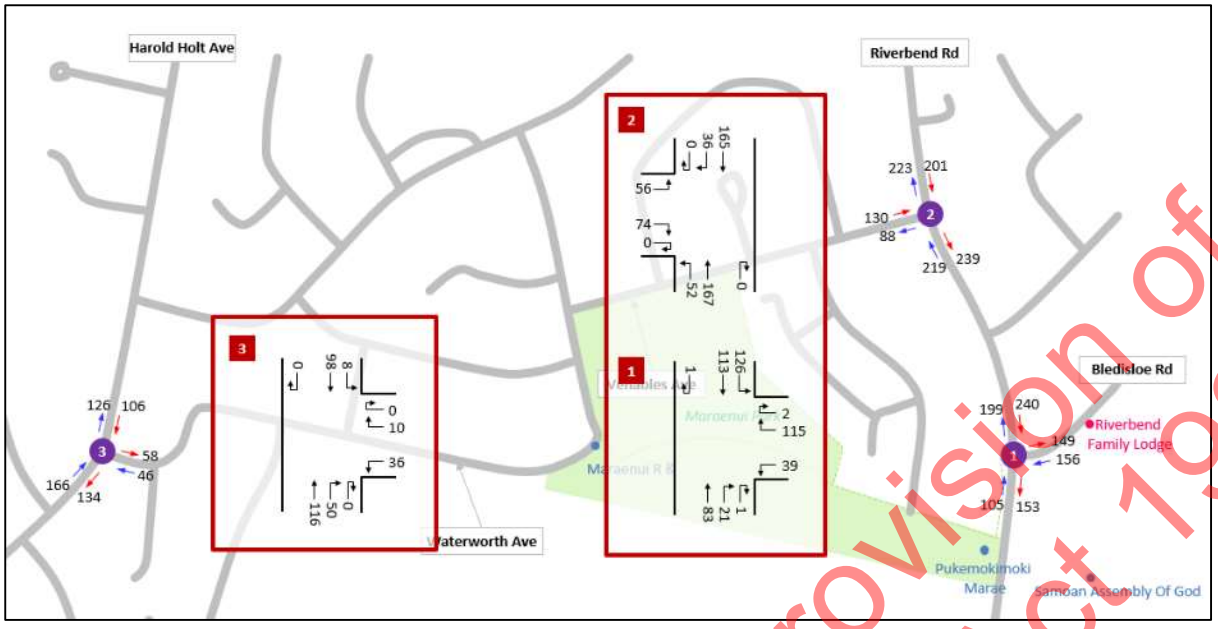


Figure 9 – AM Peak Hour Intersection Volumes

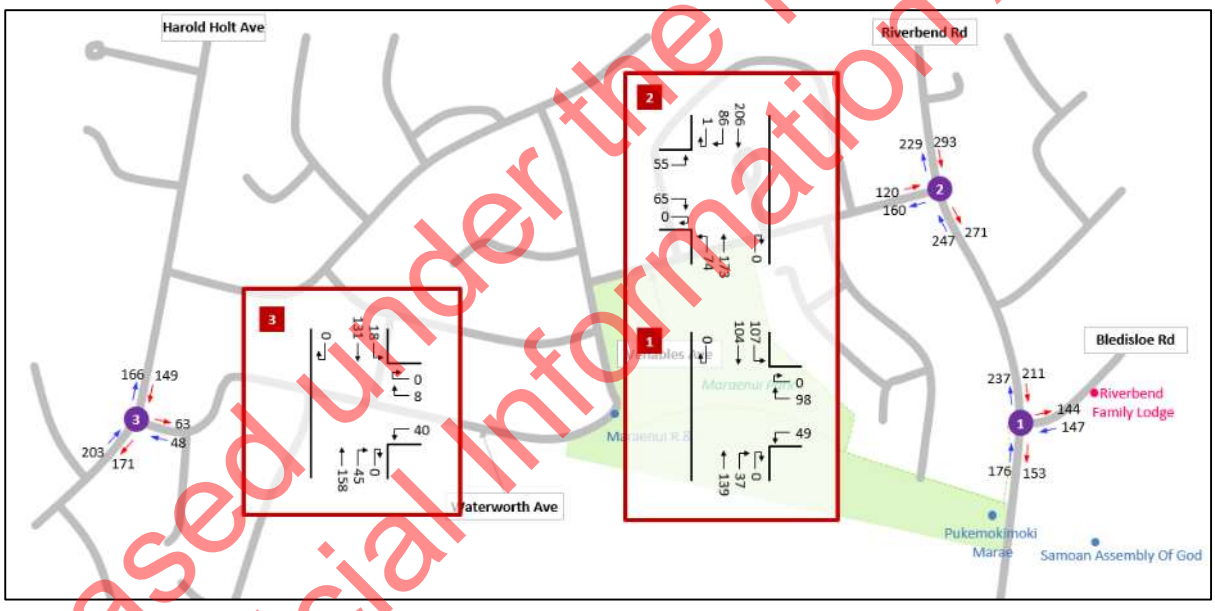


Figure 10 – PM Peak Hour Intersection Volumes

The observed volumes generally correlated well with estimated volumes from the Mobileroad database.

With the capacity of an urban traffic lane being typically upwards of 1,200 vph each way, it can be concluded that the road network in this area is operating well below its carrying capacity.

4. ROAD SAFETY

The Waka Kotahi Crash Analysis System (CAS) was used to review the road safety history of the area surrounding the site. The search area included:

- Riverbend Road, from the Riverbend Road/Venables Avenue intersection to the southern boundary of the site; and
- The Waterworth Avenue, Dinwiddie Avenue and Venables Avenue corridor from Harold Holt Avenue in the west to Riverbend Road in east, inclusive of intersections.

In total, the search covered approximately 1.8km of the existing road network. The search included the five-year period from 2016 to 2020 inclusive, as well as any available data from 2021. Table 2 summarises the reported crash history. Crash locations are also shown as Figure 11.

Table 2 – Reported Crash History

Location	Crashes	Severity				Type of Crashes
		Fatal	Severe	Minor	Non-Injury	
Intersections						
Riverbend/Bledisloe	2	0	0	0	2	Loss of control Side swipe
Venables/Cottrell	3	0	0	0	3	Loss of control Side swipe Failure to give way
Dinwiddie/Venables	2	0	0	0	2	Loss of control Missed end of road
Dinwiddie/Waterworth	1	0	0	0	1	Cutting corner
Venables/McLaren	2	0	0	0	2	Loss of control
Riverbend/Richmond	2	0	1	0	1	Loss of control Missed end of road
Riverbend/Venables	3	0	0	0	3	Loss of control Rear end
Waterworth/Bennett	1	0	0	0	1	Failure to give way
Mid Blocks						
Venables Avenue	5	0	0	2	3	Loss of control Too far right Overtaking
Waterworth Avenue	3	0	1	1	1	Swinging wide Loss of control Intentional rear end
Harold Holt Avenue	1	0	0	0	1	Loss of control
Riverbend Bend	2	0	0	1	1	Too far left Rear end
Dinwiddie Avenue	1	0	0	0	1	Loss of control

Figure 11 – Reported Crash Locations (Aerial Source: Google Earth Pro)

Of the 28 crashes reported, nine noted excessive speed as a contributing factor. Five noted the influence of alcohol and/or drugs, three noted driver inexperience and three noted reckless behaviour including evading police, intentional collision, or deliberate loss of control.

It is relevant to note that the traffic calming measures described above at Section 2.2 were installed in November 2019. Of the 22 crashes that were reported in the local area (excluding Riverbend Road) 19 occurred before November 2019. This means the rate of reported crashes was 5.0 crashes/year before the changes, and 2.6 crashes/year after. This suggests the works have had a positive effect on safety.

The existing crash history is considered later in this report in relation to infrastructure recommendations.

5. RESIDENTIAL DEVELOPMENT PROPOSAL

The residential development of the land has been considered on the basis of an upper development yield of 700 new homes and a local commercial node of approximately 2,000m^2. The general form of the proposed development is shown as Figure 12.

Figure 12 – Proposed Rezoning (Prepared by Development Nous)

The proposed access arrangements have been carefully considered. As shown in Figure 13, these are:

- A new collector road corridor connecting to Riverbend Road, approximately 300m south of the Bledisloe Road intersection;
- A new collector road corridor connecting to Waterworth Road, approximately 150m west of Dinwiddie Avenue; and
- A supporting network of local roads.

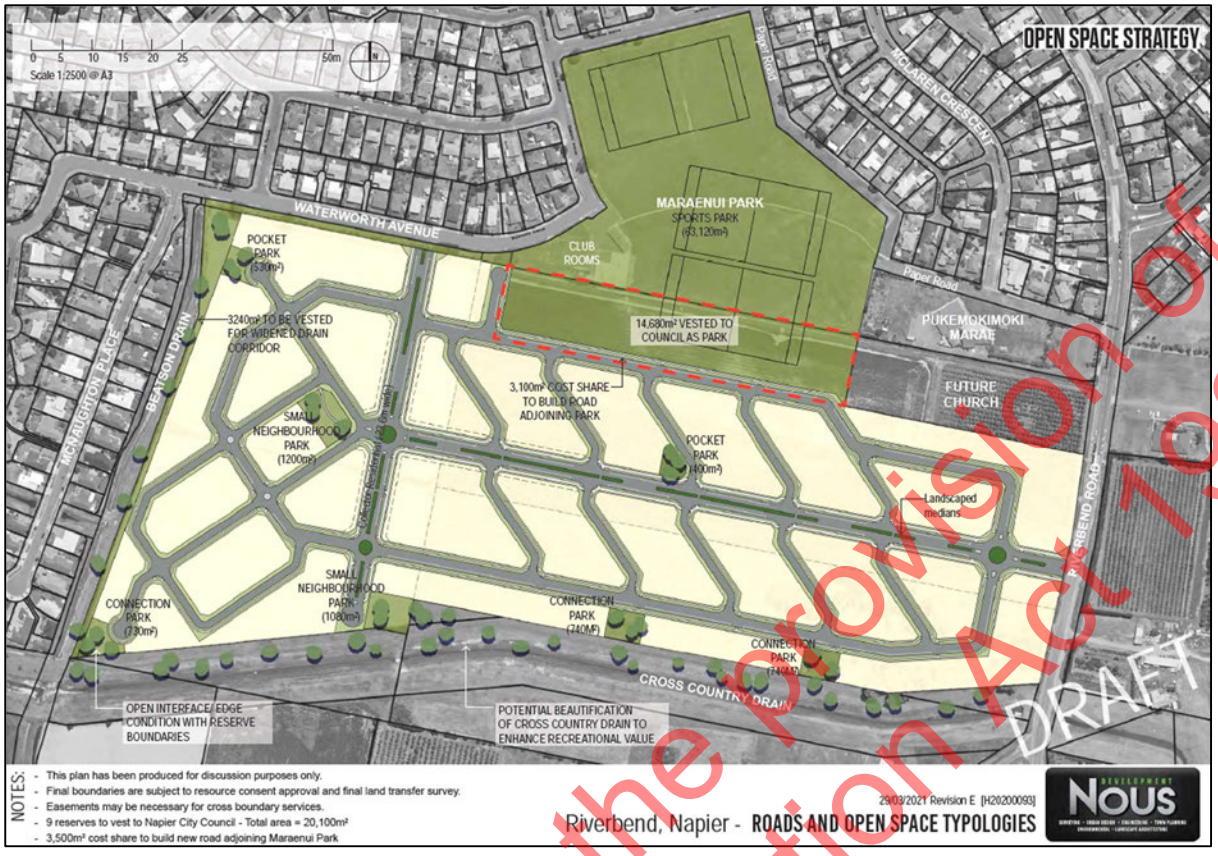


Figure 13 – Proposed Road Network (Prepared by Development Nous)

Collector roads (23.6m), major local roads (18m) and minor local roads (13.5m) all have corridor widths that align with the requirements of the NCC Code of Practice for Subdivision and Land Development (CoP), Table F-1 (Road Corridor Standards).

To minimise the number of potential conflict points and maximise road safety outcomes, the internal road network has been designed to maximise the use of T-intersections. Where there are cross-roads, they are intended to operate as either roundabouts or left-in, left-out intersections with solid central medians.

Along the collector road, all T-intersections are restricted to left-in and left-out manoeuvres. This removes right-turning vehicles from this corridor further enhancing the expected safety performance of the collector road.

The internal network utilises diagonal corridors however all intersections have been designed to be perpendicular which ensures optimal driver sightlines. This enables the preferred urban design outcome and street alignment, without compromising the safety performance of these intersections.

The proposed road hierarchy has also been carefully considered, as shown in Figures 14 and 15. The "collector residential" cross-section includes 2.5m wide shared paths on each side of the carriageway which segregates cyclists from traffic along the main development roads, allowing them to avoid the roundabouts, and links directly to the shared path alongside the Cross Country Drain.

Figure 14 – Proposed Road Hierarchy (Prepared by Development Nous)

Figure 15 – Proposed Road Hierarchy Cross-sections (Prepared by Development Nous)

6. TRAFFIC GENERATION

Reference has been made to Waka Kotahi Research Report 453 (RR453) 'Trips and parking related to land use'. The rates for 'outer suburban' dwellings at the 85th percentile level are:

- 8.2 vpd per household (hh) over the course of a typical day; and
- 0.9 vph/hh during peak hours of the day

Applying these rates to the potential yield of 700 dwellings gives expected totals of:

- 5,740 vpd (IN+OUT) over the course of the day; and
- 630 vph (IN+OUT) during peak hours of the day.

No specific allowance has been made for the commercial node, as it is likely to attract a high proportion of internal use without adding to the overall external trip generation.

7. TRAFFIC DISTRIBUTION

Traffic movements have been distributed to the network considering both the site location relative to potential origins and destinations for people living in the area, and existing traffic patterns.

Key assumptions include:

- During the AM peak hour, 70% of movements are outbound and 30% are inbound.
- During the PM peak hour, 35% of movements are outbound and 65% inbound.
- Over the day the distribution is even.
- 40% of all site traffic uses the Waterworth Avenue connection and the remaining 60% uses Riverbend Road.
- At the Waterworth Avenue connection, 70% of movements are to/from the west and 30% to/from the east.
- At the Riverbend Road connection, 75% of movements are to/from the north and 25% to/from the south.

The resulting distributions of new movements during the AM and PM peak hours, and over the course of the day are shown as Figures 16, 17 and 18 below.

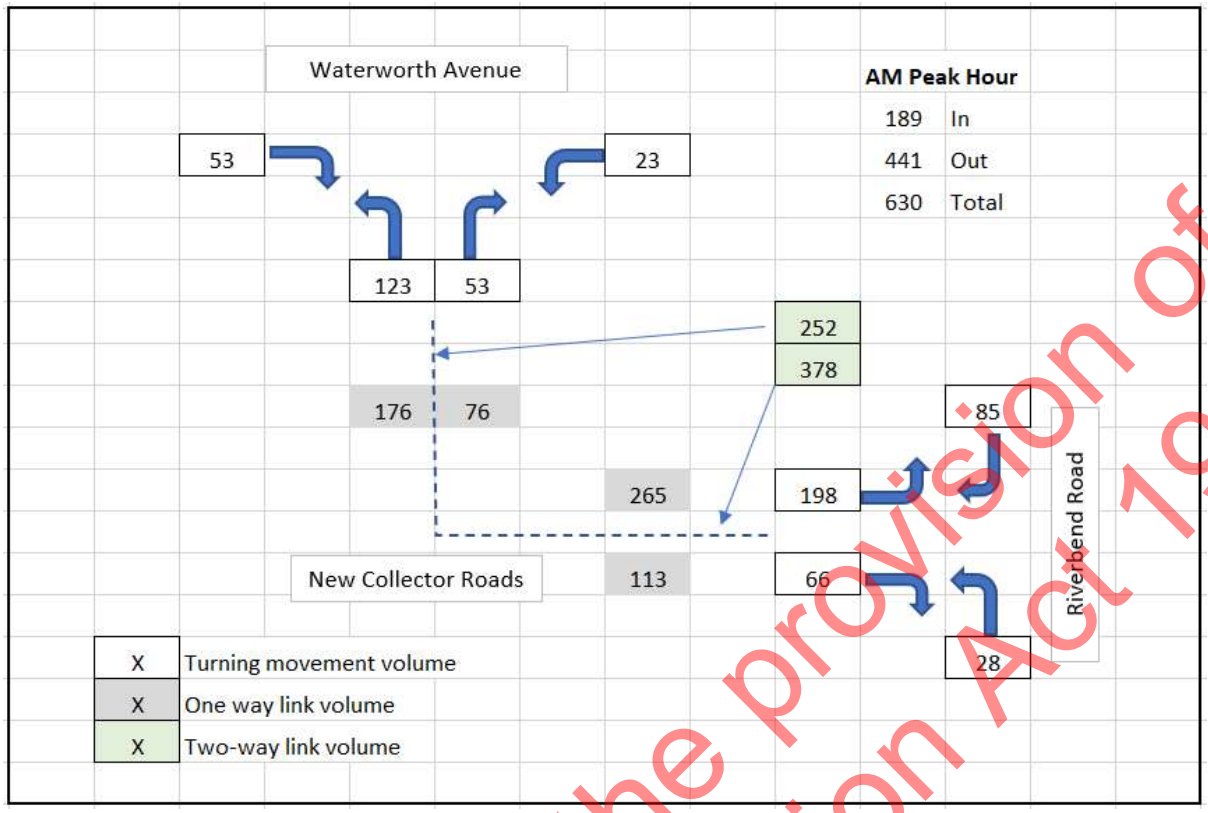


Figure 16 – Generated Traffic Movements (AM Peak Hour)

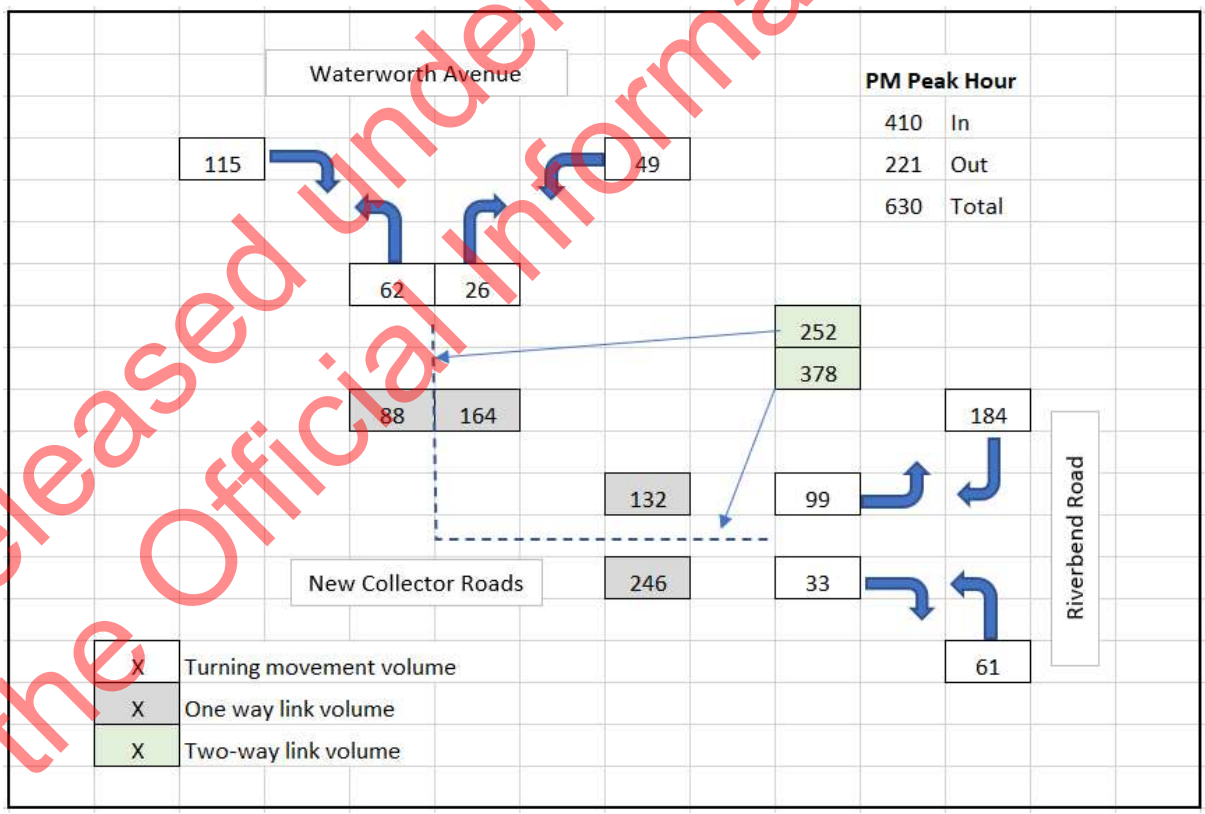


Figure 17 – Generated Traffic Movements (PM Peak Hour)

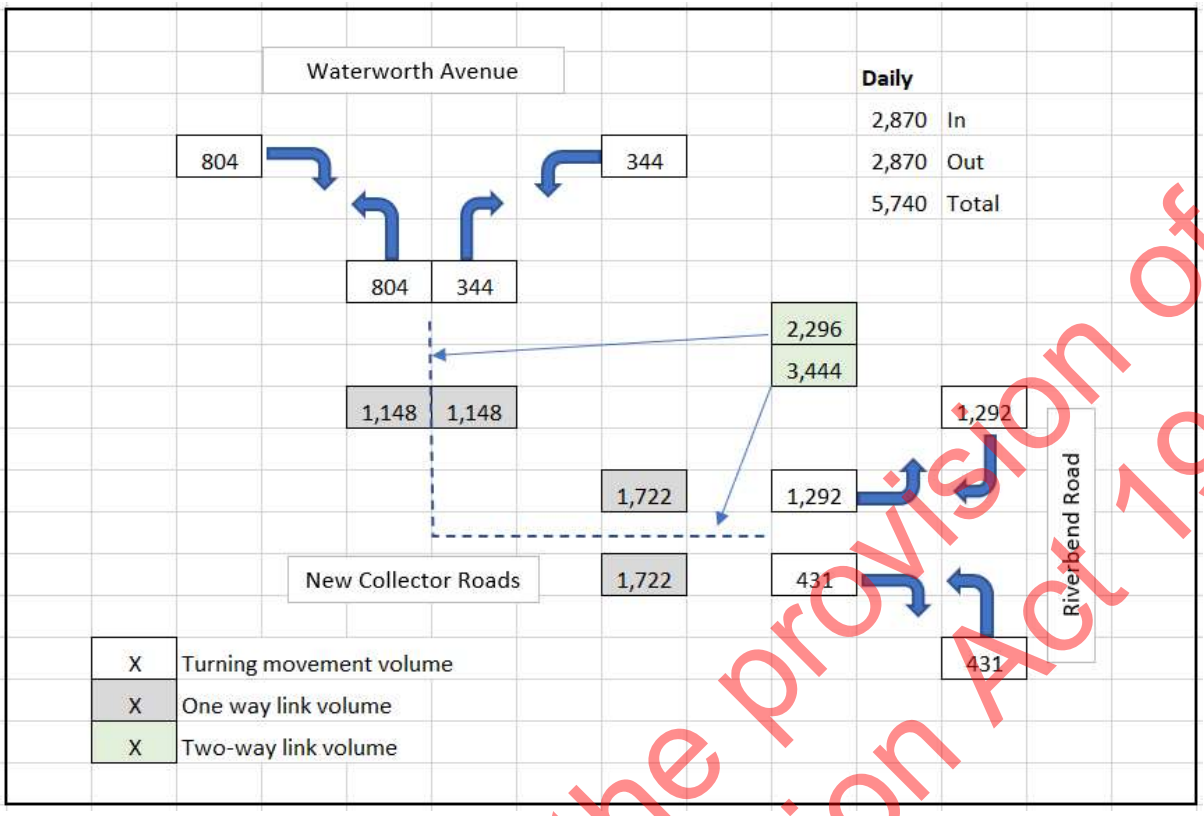


Figure 18 – Generated Traffic Movements (Daily)

8. TRAFFIC EFFECTS

8.1 Internal Network

The site is expected to generate a total of 5,740 vpd (IN+OUT) at the 85th percentile level. The estimated distribution of traffic movements results in the proposed collector road corridors carrying approximately 2,300 to 3,450 vpd each.

If the 50th percentile rates were applied, the estimated volumes would be 1,930 to 2,900 vpd. These volumes are within the typical 1,000 – 3,000 vpd range given in the NCC Code of Practice for Subdivision and Development (CoP) for residential collector roads in urban areas.

The upper limit of dwellings (700) is also appropriately served by two collector roads, given that the NCC CoP suggests a typical catchment of 125-375 dwelling units per collector road. It is therefore concluded that the overall form of the proposed transport network, with two collector road connections, is appropriate.

The network of internal transport corridors appropriately provides for pedestrians, cyclists and vehicles. The corridor widths comply with the NCC CoP requirements for collector (23.6m), major local (18m) and minor local (13.5m). Indicative cross-sections have been developed and will be subject to further approval processes through the staged development.

8.2 Intersection Effects

The traffic movements expected from the developed land have been distributed to the network and added to the volumes recorded at the three surveyed intersections. An allowance for other background growth of 3% per annum for ten years has also been added.

The intersections have been modelled in the isolated intersection analysis package SIDRA. Tables 3 to 8 below summarise the results for each intersection with and without the proposed development. Full results are included as Attachment 1.

Table 3 – Modelled Performance of Riverbend Road/Bledisloe Road (AM)

Approach	Movement	Existing		With Rezoning + 10 Years Growth	
		Average Delay (s/veh)	Level of Service	Average Delay (s/veh)	Level of Service
Riverbend Road (South)	T	0.0	A	0.0	A
	R	5.5	A	6.1	A
Bledisloe Avenue	L	5.8	A	6.1	A
	R	6.2	A	7.5	A
Riverbend Road (North)	L	4.6	A	4.6	A
	T	0.0	A	0.1	A

Table 4 – Modelled Performance of Riverbend Road/Bledisloe Road (PM)

Approach	Movement	Existing		With Rezoning + 10 Years Growth	
		Average Delay (s/veh)	Level of Service	Average Delay (s/veh)	Level of Service
Riverbend Road (South)	T	0.0	A	0.0	A
	R	5.2	A	6.2	A
Bledisloe Avenue	L	5.8	A	6.3	A
	R	6.3	A	7.6	A
Riverbend Road (North)	L	4.6	A	4.6	A
	T	0.0	A	0.1	A

Table 5 – Modelled Performance of Riverbend Road/Venables Avenue (AM)

Approach	Movement	Existing		With Rezoning + 10 Years Growth	
		Average Delay (s/veh)	Level of Service	Average Delay (s/veh)	Level of Service
Riverbend Road (South)	L	4.9	A	4.8	A
	T	0.2	A	0.2	A
Riverbend Road (North)	T	0.2	A	0.6	A
	R	6.3	A	7.8	A
Venables Avenues	L	6.0	A	6.7	A
	R	5.9	A	6.5	A

Table 6 – Modelled Performance of Riverbend Road/Venables Avenue (PM)

Approach	Movement	Existing		With Rezoning + 10 Years Growth	
		Average Delay (s/veh)	Level of Service	Average Delay (s/veh)	Level of Service
Riverbend Road (South)	L	4.9	A	4.8	A
	T	0.3	A	0.3	A
Riverbend Road (North)	T	0.5	A	0.8	A
	R	6.5	A	7.7	A
Venables Avenues	L	6.0	A	6.4	A
	R	6.1	A	6.8	A

Table 7 – Modelled Performance of Harold Holt Avenue/Waterworth Avenue (AM)

Approach	Movement	Existing		With Rezoning + 10 Years Growth	
		Average Delay (s/veh)	Level of Service	Average Delay (s/veh)	Level of Service
Harold Holt Avenue (South)	T	0.2	A	0.4	A
	R	5.0	A	5.2	A
Waterworth Avenue	L	5.8	A	5.9	A
	R	5.7	A	5.9	A
Harold Holt Avenue (North)	L	4.6	A	4.6	A
	T	0.0	A	0.1	A

Table 8 – Modelled Performance of Harold Holt Avenue/Waterworth Avenue (PM)

Approach	Movement	Existing		With Rezoning + 10 Years Growth	
		Average Delay (s/veh)	Level of Service	Average Delay (s/veh)	Level of Service
Harold Holt Avenue (South)	T	0.2	A	0.6	A
	R	5.1	A	5.6	A
Waterworth Avenue	L	5.8	A	6.0	A
	R	5.8	A	6.1	A
Harold Holt Avenue (North)	L	4.6	A	4.6	A
	T	0.0	A	0.0	A

The analysis shows that these intersections are operating well within their capacities at present. This continues to be the case with future growth and the traffic associated with the development added. On this basis it is concluded that capacity improvements are not required at these intersections to support the residential development of the site.

The busier of the two new intersections (Collector Road/Riverbend Road) has also been modelled in SIDRA. Its performance in the AM and PM peak hour scenarios is summarised in Table 9.

Table 9 – Modelled Performance of New Collector Road Intersection with Riverbend Road

Approach	Movement	AM Peak with Rezoning + 10 Years Growth		PM Peak with Rezoning + 10 Years Growth	
		Average Delay (s/veh)	Level of Service	Average Delay (s/veh)	Level of Service
Riverbend Road (South)	L	4.9	A	4.9	A
	T	0.2	A	0.2	A
Riverbend Road (North)	T	0.0	A	0.0	A
	R	6.0	A	6.6	A
New Collector	L	5.9	A	6.1	A
	R	6.0	A	7.3	A

All movements at this intersection are expected to operate at level of service (LOS) A, indicating no issues with capacity.

8.3 Access Effects

The proposed new intersections on Riverbend Road and Waterworth Avenue have been assessed against the Austroads warrants for right and left turning treatments. The Riverbend Road intersection warrants a right turn bay. The Waterworth Avenue intersection does not, because of the lower volume of through traffic.

It is recommended that right turn bay is formed at new intersection on Riverbend Road, to support movement into the site from the north.

8.4 Road Safety Effects

The 50km/h urban speed zone on Riverbend Road currently starts in front of the site. It is recommended that this (and the associated gateway treatment) be moved further south to a point beyond the proposed new intersection. This will require the support of NCC.

The proposed new intersections on Waterworth Avenue and Riverbend Road are both able to meet the Austroads minimum safe intersection sight distance (SISD) requirement of 90m for 50km/h speed environments.

The road safety history reviewed earlier in this report includes some crashes involving drivers swinging wide or being too far left or right on the carriageway, resulting in conflicts with parked vehicles and roadside features. Recent traffic calming works appear to have had an impact, reducing the reported crash rate by approximately half since November 2019.

With increased volumes of traffic expected to use the Waterworth Avenue, Venables Avenue and Dinwiddie Avenue corridors, it is recommended that a road safety audit and a signs and markings review be conducted. This review could identify further opportunities to provide features such as delineation (centrelines and edgelines where appropriate), improved channelisation at intersections (traffic islands and other traffic calming measures), and warning signage where necessary.

8.5 Walking, Cycling and Public Transport

The site is well located to connect with Napier's walking and cycle network, with direct access to the Cross Country Drain path. This path has been integrated with the proposed transport and green space network in the residential development layout.

To further support integration with the surrounding transport network and enable future residents to walk and cycle to and from the site it is recommended that footpaths be provided:

- On the south side of Waterworth Avenue from the new collector road intersection to the existing path at McNaughton Place, and from the new intersection to Maraenui sports park (approximately 360m length in total).
- On the western side of Riverbend Road from the new collector road intersection north to the existing path (a distance of about 160m).

9. SUMMARY AND CONCLUSIONS

The residential development of 20ha of land at Riverbend in Napier could yield up to 700 new dwellings and a supporting neighbourhood commercial centre. These new land uses are expected to generate up to 5,740 vehicle movements per day, distributed to the surrounding transport network.

Existing traffic volumes in the area are well below the practical carrying capacity of the network. Intersection modelling at what will be the three primary connection points between the site and broader existing transport network has confirmed that good levels of service can be maintained into the future. This assessment included the traffic movements generated by the rezoning and an allowance of 30% for other growth.

The proposed residential development layout includes new intersections on Riverbend Road and Waterworth Avenue. These are both able to meet relevant sight distance standards. On Riverbend Road, it is recommended that the 50km/h speed limit zone be moved further south and that a right turn bay be installed to support the southbound right turn into the site.

Internal roads have been designed to comply with relevant NCC CoP corridor standards. A multi-modal transport network has been planned, including integration with the off-road walking and cycling network in the area. This is recommended to be further supported by extensions to the off-road footpath, connecting the site to the existing urban footpath network.

Internal intersections have been designed as T-intersections where possible. Cross-roads have been treated as either roundabouts or left-in, left-out only intersections with solid central medians. This is intended to simplify network operations, reduce the number of conflict points and deliver an optimal safety outcome.

Overall, it is concluded that residential development of the subject land can be appropriately accommodated by the transport network with the following improvements:

- A new T-intersection on Waterworth Avenue;
- A new T-intersection with (southbound) right turn bay on Riverbend Road;
- Relocation of the existing 50km/h speed zone further south on Riverbend Road;
- Footpaths between the site and the existing urban footpaths (Waterworth Avenue and Riverbend Road); and
- A review of (additional) potential local area traffic management improvements on the network north of the site, to accommodate increased volumes.

We trust this assessment meets your requirements and would be pleased to discuss any aspects of it with you further.

Yours sincerely,

Anna Wilkins (CMEngNZ) Principal Engineer **East Cape Consulting Limited**	**George Eivers (CMEngNZ, CPEng, IntPE)** Principal Engineer / Director **East Cape Consulting Limited**

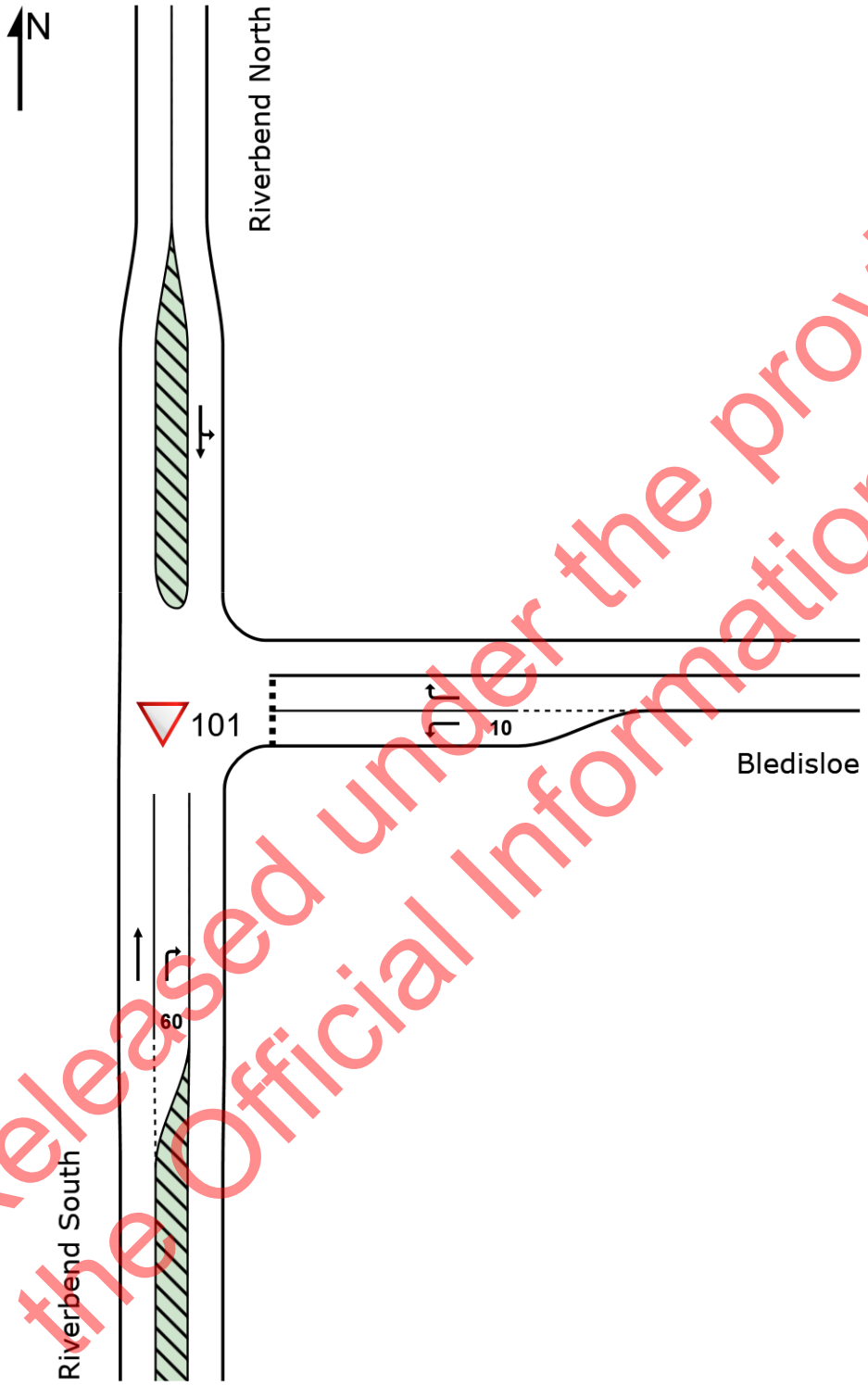
Attach: SIDRA Results

SITE LAYOUT

Site: 101 [Riverbend Bledisloe Ex AM (Site Folder: General)]

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

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



MOVEMENT SUMMARY

Site: 101 [Riverbend Bledisloe Ex AM (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Riverbend South														
2	T1	83	4	87	4.8	0.047	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
3	R2	21	2	22	9.5	0.016	5.5	LOS A	0.1	0.5	0.35	0.53	0.35	45.5
Approach		104	6	109	5.8	0.047	1.1	NA	0.1	0.5	0.07	0.11	0.07	49.0
East: Bledisloe														
4	L2	39	1	41	2.6	0.022	5.8	LOS A	0.1	0.7	0.21	0.53	0.21	49.3
6	R2	115	6	121	5.2	0.085	6.2	LOS A	0.3	2.3	0.31	0.61	0.31	48.6
Approach		154	7	162	4.5	0.085	6.1	LOS A	0.3	2.3	0.29	0.59	0.29	48.8
North: Riverbend North														
7	L2	126	2	133	1.6	0.134	4.6	LOS A	0.0	0.0	0.00	0.28	0.00	47.9
8	T1	113	3	119	2.7	0.134	0.0	LOS A	0.0	0.0	0.00	0.28	0.00	48.4
Approach		239	5	252	2.1	0.134	2.4	NA	0.0	0.0	0.00	0.28	0.00	48.1
All Vehicles		497	18	523	3.6	0.134	3.3	NA	0.3	2.3	0.10	0.34	0.10	48.5

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 [Riverbend Bledisloe Fu + SP AM (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Riverbend South														
2	T1	267	5	281	1.9	0.147	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	67	3	71	4.5	0.060	6.1	LOS A	0.3	1.9	0.45	0.61	0.45	45.3
Approach		334	8	352	2.4	0.147	1.3	NA	0.3	1.9	0.09	0.12	0.09	48.9
East: Bledisloe														
4	L2	68	1	72	1.5	0.041	6.1	LOS A	0.2	1.3	0.31	0.55	0.31	49.1
6	R2	150	8	158	5.3	0.150	7.5	LOS A	0.5	4.0	0.49	0.75	0.49	48.1
Approach		218	9	229	4.1	0.150	7.1	LOS A	0.5	4.0	0.43	0.69	0.43	48.4
North: Riverbend North														
7	L2	164	3	173	1.8	0.212	4.6	LOS A	0.0	0.0	0.00	0.23	0.00	48.1
8	T1	215	4	226	1.9	0.212	0.1	LOS A	0.0	0.0	0.00	0.23	0.00	48.6
Approach		379	7	399	1.8	0.212	2.0	NA	0.0	0.0	0.00	0.23	0.00	48.4
All Vehicles		931	24	980	2.6	0.212	2.9	NA	0.5	4.0	0.13	0.30	0.13	48.6

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.

MOVEMENT SUMMARY

Site: 101 [Riverbend Bledisloe Ex PM (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Riverbend South														
2	T1	139	1	146	0.7	0.076	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
3	R2	37	0	39	0.0	0.027	5.2	LOS A	0.1	0.8	0.32	0.53	0.32	45.7
Approach		176	1	185	0.6	0.076	1.1	NA	0.1	0.8	0.07	0.11	0.07	49.0
East: Bledisloe														
4	L2	49	0	52	0.0	0.027	5.8	LOS A	0.1	0.9	0.20	0.53	0.20	49.4
6	R2	98	2	103	2.0	0.074	6.3	LOS A	0.3	1.9	0.33	0.62	0.33	48.6
Approach		147	2	155	1.4	0.074	6.1	LOS A	0.3	1.9	0.29	0.59	0.29	48.9
North: Riverbend North														
7	L2	107	0	113	0.0	0.119	4.6	LOS A	0.0	0.0	0.00	0.27	0.00	47.9
8	T1	104	5	109	4.8	0.119	0.0	LOS A	0.0	0.0	0.00	0.27	0.00	48.4
Approach		211	5	222	2.4	0.119	2.3	NA	0.0	0.0	0.00	0.27	0.00	48.2
All Vehicles		534	8	562	1.5	0.119	3.0	NA	0.3	1.9	0.10	0.31	0.10	48.6

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.

MOVEMENT SUMMARY

Site: 101 [Riverbend Bledisloe Fu + SP PM (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Riverbend South														
2	T1	260	1	274	0.4	0.142	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	68	0	72	0.0	0.062	6.2	LOS A	0.3	1.8	0.48	0.63	0.48	45.4
Approach		328	1	345	0.3	0.142	1.3	NA	0.3	1.8	0.10	0.13	0.10	48.9
East: Bledisloe														
4	L2	101	0	106	0.0	0.064	6.3	LOS A	0.3	2.1	0.37	0.58	0.37	49.0
6	R2	127	3	134	2.4	0.130	7.6	LOS A	0.5	3.3	0.50	0.76	0.50	48.1
Approach		228	3	240	1.3	0.130	7.0	LOS A	0.5	3.3	0.44	0.68	0.44	48.5
North: Riverbend North														
7	L2	139	0	146	0.0	0.234	4.6	LOS A	0.0	0.0	0.00	0.18	0.00	48.4
8	T1	283	7	298	2.5	0.234	0.1	LOS A	0.0	0.0	0.00	0.18	0.00	48.9
Approach		422	7	444	1.7	0.234	1.6	NA	0.0	0.0	0.00	0.18	0.00	48.7
All Vehicles		978	11	1029	1.1	0.234	2.8	NA	0.5	3.3	0.14	0.28	0.14	48.7

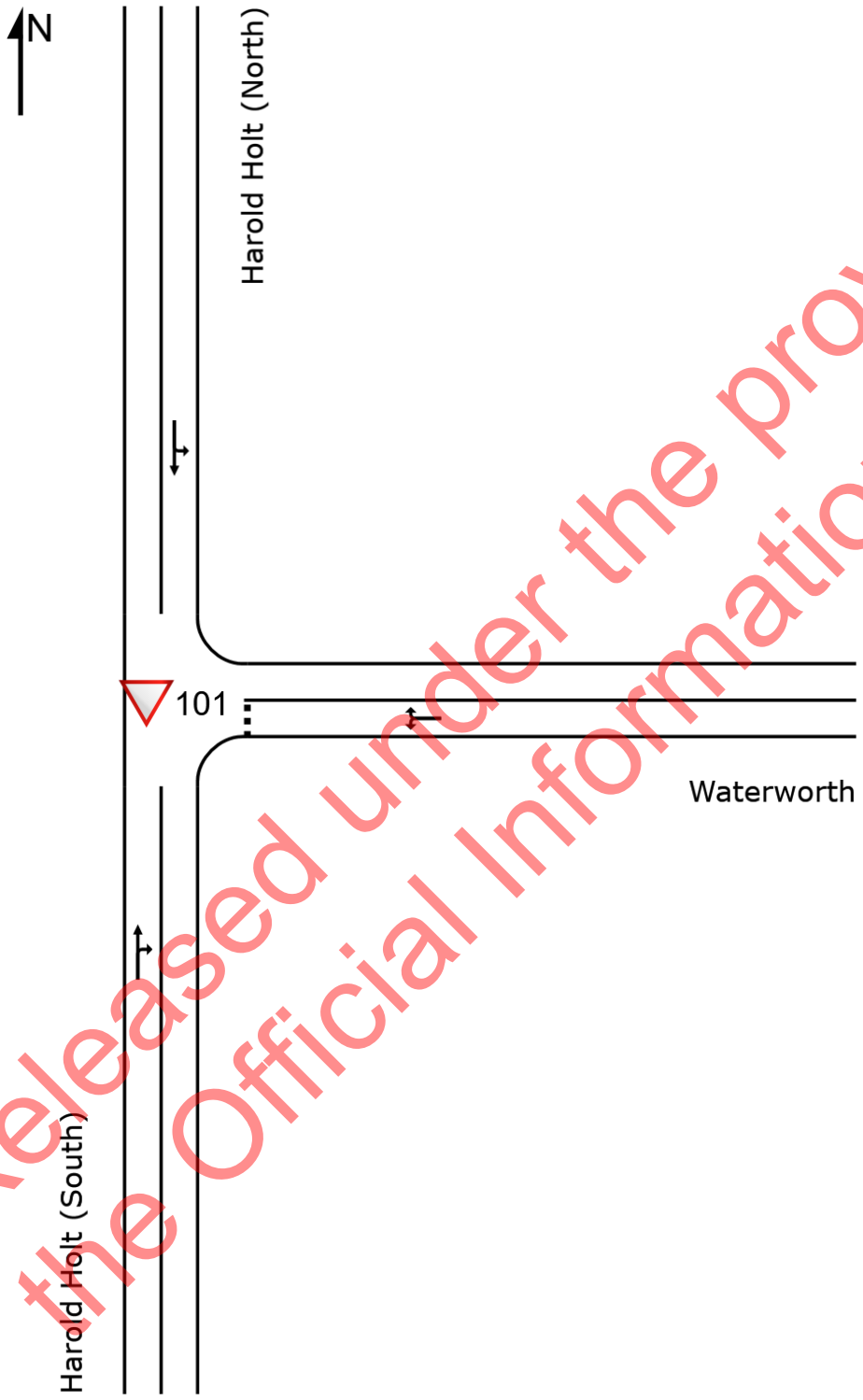
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and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

SITE LAYOUT

Site: 101 [Harold Holt Waterworth Ex AM (Site Folder: General)]

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

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



MOVEMENT SUMMARY

Site: 101 [Harold Holt Waterworth Ex AM (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Harold Holt (South)														
2	T1	116	3	122	2.6	0.098	0.2	LOS A	0.3	2.3	0.14	0.17	0.14	48.7
3	R2	50	2	53	4.0	0.098	5.0	LOS A	0.3	2.3	0.14	0.17	0.14	47.7
Approach		166	5	175	3.0	0.098	1.6	NA	0.3	2.3	0.14	0.17	0.14	48.4
East: Waterworth														
4	L2	36	0	38	0.0	0.025	5.8	LOS A	0.1	0.7	0.18	0.55	0.18	49.5
6	R2	10	0	11	0.0	0.025	5.7	LOS A	0.1	0.7	0.18	0.55	0.18	49.0
Approach		46	0	48	0.0	0.025	5.8	LOS A	0.1	0.7	0.18	0.55	0.18	49.4
North: Harold Holt (North)														
7	L2	8	0	8	0.0	0.058	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	49.3
8	T1	98	1	103	1.0	0.058	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.7
Approach		106	1	112	0.9	0.058	0.4	NA	0.0	0.0	0.00	0.04	0.00	49.7
All Vehicles		318	6	335	1.9	0.098	1.8	NA	0.3	2.3	0.10	0.18	0.10	49.0

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.
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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 [Harold Holt Waterworth Fu AM + SP (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Harold Holt (South)														
2	T1	151	4	159	2.6	0.148	0.4	LOS A	0.6	4.4	0.23	0.21	0.23	48.3
3	R2	91	3	96	3.3	0.148	5.2	LOS A	0.6	4.4	0.23	0.21	0.23	47.3
Approach		242	7	255	2.9	0.148	2.2	NA	0.6	4.4	0.23	0.21	0.23	47.9
East: Waterworth														
4	L2	109	0	115	0.0	0.107	5.9	LOS A	0.4	2.9	0.21	0.58	0.21	49.4
6	R2	75	0	79	0.0	0.107	5.9	LOS A	0.4	2.9	0.21	0.58	0.21	48.9
Approach		184	0	194	0.0	0.107	5.9	LOS A	0.4	2.9	0.21	0.58	0.21	49.2
North: Harold Holt (North)														
7	L2	37	0	39	0.0	0.090	4.6	LOS A	0.0	0.0	0.00	0.12	0.00	48.8
8	T1	127	1	134	0.8	0.090	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	49.3
Approach		164	1	173	0.6	0.090	1.1	NA	0.0	0.0	0.00	0.12	0.00	49.2
All Vehicles		590	8	621	1.4	0.148	3.0	NA	0.6	4.4	0.16	0.30	0.16	48.7

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.
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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 [Harold Holt Waterworth Ex PM (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Harold Holt (South)														
2	T1	158	2	166	1.3	0.117	0.2	LOS A	0.3	2.2	0.14	0.12	0.14	48.9
3	R2	45	0	47	0.0	0.117	5.1	LOS A	0.3	2.2	0.14	0.12	0.14	48.0
Approach		203	2	214	1.0	0.117	1.3	NA	0.3	2.2	0.14	0.12	0.14	48.7
East: Waterworth														
4	L2	40	0	42	0.0	0.027	5.8	LOS A	0.1	0.8	0.21	0.55	0.21	49.4
6	R2	8	0	8	0.0	0.027	5.8	LOS A	0.1	0.8	0.21	0.55	0.21	48.9
Approach		48	0	51	0.0	0.027	5.8	LOS A	0.1	0.8	0.21	0.55	0.21	49.3
North: Harold Holt (North)														
7	L2	18	0	19	0.0	0.082	4.6	LOS A	0.0	0.0	0.00	0.07	0.00	49.1
8	T1	131	3	138	2.3	0.082	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	49.6
Approach		149	3	157	2.0	0.082	0.6	NA	0.0	0.0	0.00	0.07	0.00	49.5
All Vehicles		400	5	421	1.3	0.117	1.6	NA	0.3	2.2	0.09	0.15	0.09	49.1

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 [Harold Holt Waterworth Fu PM + SP (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Harold Holt (South)														
2	T1	205	3	216	1.5	0.200	0.6	LOS A	0.9	6.2	0.29	0.22	0.29	48.1
3	R2	116	0	122	0.0	0.200	5.6	LOS A	0.9	6.2	0.29	0.22	0.29	47.2
Approach		321	3	338	0.9	0.200	2.4	NA	0.9	6.2	0.29	0.22	0.29	47.8
East: Waterworth														
4	L2	83	0	87	0.0	0.075	6.0	LOS A	0.3	2.1	0.25	0.58	0.25	49.3
6	R2	41	0	43	0.0	0.075	6.1	LOS A	0.3	2.1	0.25	0.58	0.25	48.8
Approach		124	0	131	0.0	0.075	6.0	LOS A	0.3	2.1	0.25	0.58	0.25	49.1
North: Harold Holt (North)														
7	L2	81	0	85	0.0	0.139	4.6	LOS A	0.0	0.0	0.00	0.18	0.00	48.5
8	T1	170	4	179	2.4	0.139	0.0	LOS A	0.0	0.0	0.00	0.18	0.00	48.9
Approach		251	4	264	1.6	0.139	1.5	NA	0.0	0.0	0.00	0.18	0.00	48.8
All Vehicles		696	7	733	1.0	0.200	2.7	NA	0.9	6.2	0.18	0.27	0.18	48.4

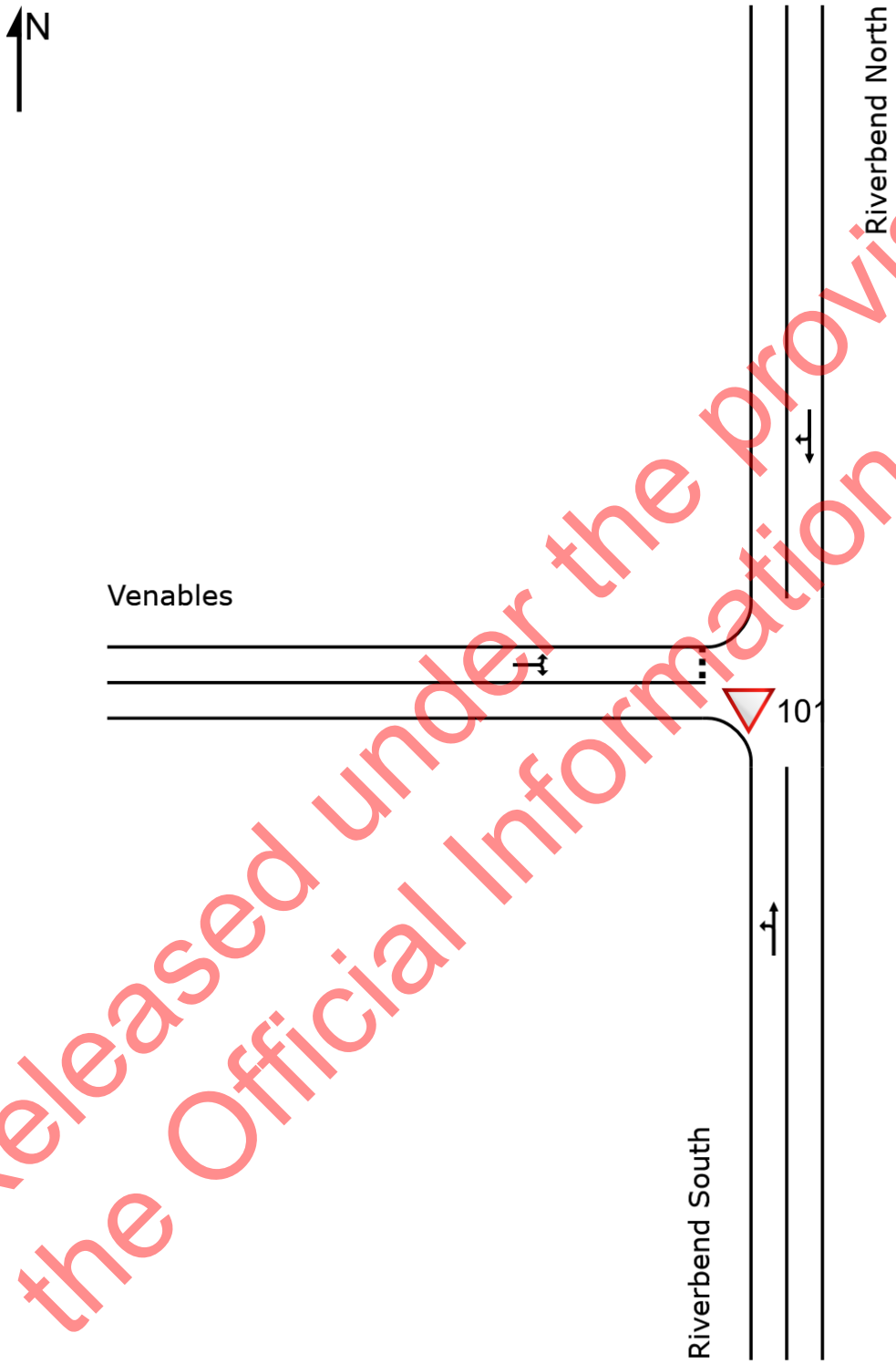
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and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

SITE LAYOUT

Site: 101 [Riverbend Venables Ex AM (Site Folder: General)]

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

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



MOVEMENT SUMMARY

Site: 101 [Riverbend Venables Ex AM (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Riverbend South														
1	L2	52	4	55	7.7	0.123	4.9	LOS A	0.0	0.0	0.00	0.17	0.00	50.3
2	T1	167	5	176	3.0	0.123	0.2	LOS A	0.0	0.0	0.00	0.17	0.00	51.6
Approach		219	9	231	4.1	0.123	1.3	NA	0.0	0.0	0.00	0.17	0.00	51.3
North: Riverbend North														
8	T1	165	2	174	1.2	0.117	0.2	LOS A	0.3	2.0	0.15	0.11	0.15	49.7
9	R2	36	1	38	2.8	0.117	6.3	LOS A	0.3	2.0	0.15	0.11	0.15	52.1
Approach		201	3	212	1.5	0.117	1.3	NA	0.3	2.0	0.15	0.11	0.15	50.1
West: Venables														
10	L2	56	0	59	0.0	0.079	6.0	LOS A	0.3	1.9	0.24	0.59	0.24	52.9
12	R2	74	1	78	1.4	0.079	5.9	LOS A	0.3	1.9	0.24	0.59	0.24	52.4
Approach		130	1	137	0.8	0.079	5.9	LOS A	0.3	1.9	0.24	0.59	0.24	52.6
All Vehicles		550	13	579	2.4	0.123	2.4	NA	0.3	2.0	0.11	0.25	0.11	51.1

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 [Riverbend Venables Fu AM + SP (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Riverbend South														
1	L2	68	6	72	8.8	0.246	4.8	LOS A	0.0	0.0	0.00	0.11	0.00	49.9
2	T1	376	7	396	1.9	0.246	0.2	LOS A	0.0	0.0	0.00	0.11	0.00	51.1
Approach		444	13	467	2.9	0.246	0.9	NA	0.0	0.0	0.00	0.11	0.00	50.9
North: Riverbend North														
8	T1	283	3	298	1.1	0.200	0.6	LOS A	0.5	3.8	0.20	0.09	0.20	49.5
9	R2	47	1	49	2.1	0.200	7.8	LOS A	0.5	3.8	0.20	0.09	0.20	52.0
Approach		330	4	347	1.2	0.200	1.6	NA	0.5	3.8	0.20	0.09	0.20	49.8
West: Venables														
10	L2	73	0	77	0.0	0.125	6.7	LOS A	0.4	3.0	0.39	0.68	0.39	52.5
12	R2	96	1	101	1.0	0.125	6.5	LOS A	0.4	3.0	0.39	0.68	0.39	52.0
Approach		169	1	178	0.6	0.125	6.6	LOS A	0.4	3.0	0.39	0.68	0.39	52.2
All Vehicles		943	18	993	1.9	0.246	2.2	NA	0.5	3.8	0.14	0.21	0.14	50.8

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 [Riverbend Venables Ex PM (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Riverbend South														
1	L2	74	0	78	0.0	0.136	4.9	LOS A	0.0	0.0	0.00	0.21	0.00	50.6
2	T1	173	3	182	1.7	0.136	0.3	LOS A	0.0	0.0	0.00	0.21	0.00	51.8
Approach		247	3	260	1.2	0.136	1.7	NA	0.0	0.0	0.00	0.21	0.00	51.5
North: Riverbend North														
8	T1	206	4	217	1.9	0.178	0.5	LOS A	0.7	4.7	0.25	0.18	0.25	49.5
9	R2	86	0	91	0.0	0.178	6.5	LOS A	0.7	4.7	0.25	0.18	0.25	52.0
Approach		292	4	307	1.4	0.178	2.2	NA	0.7	4.7	0.25	0.18	0.25	50.2
West: Venables														
10	L2	55	0	58	0.0	0.075	6.0	LOS A	0.3	1.8	0.25	0.60	0.25	52.9
12	R2	65	1	68	1.5	0.075	6.1	LOS A	0.3	1.8	0.25	0.60	0.25	52.3
Approach		120	1	126	0.8	0.075	6.0	LOS A	0.3	1.8	0.25	0.60	0.25	52.6
All Vehicles		659	8	694	1.2	0.178	2.7	NA	0.7	4.7	0.15	0.27	0.15	51.1

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 [Riverbend Venables Fu PM + SP (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Riverbend South														
1	L2	96	0	101	0.0	0.220	4.8	LOS A	0.0	0.0	0.00	0.17	0.00	50.4
2	T1	304	4	320	1.3	0.220	0.3	LOS A	0.0	0.0	0.00	0.17	0.00	51.5
Approach		400	4	421	1.0	0.220	1.4	NA	0.0	0.0	0.00	0.17	0.00	51.2
North: Riverbend North														
8	T1	415	5	437	1.2	0.327	0.8	LOS A	1.3	9.5	0.29	0.15	0.31	49.3
9	R2	112	0	118	0.0	0.327	7.7	LOS A	1.3	9.5	0.29	0.15	0.31	51.8
Approach		527	5	555	0.9	0.327	2.3	NA	1.3	9.5	0.29	0.15	0.31	49.8
West: Venables														
10	L2	72	0	76	0.0	0.119	6.4	LOS A	0.4	2.9	0.36	0.67	0.36	52.6
12	R2	85	1	89	1.2	0.119	6.8	LOS A	0.4	2.9	0.36	0.67	0.36	52.0
Approach		157	1	165	0.6	0.119	6.6	LOS A	0.4	2.9	0.36	0.67	0.36	52.3
All Vehicles		1084	10	1141	0.9	0.327	2.6	NA	1.3	9.5	0.19	0.23	0.20	50.7

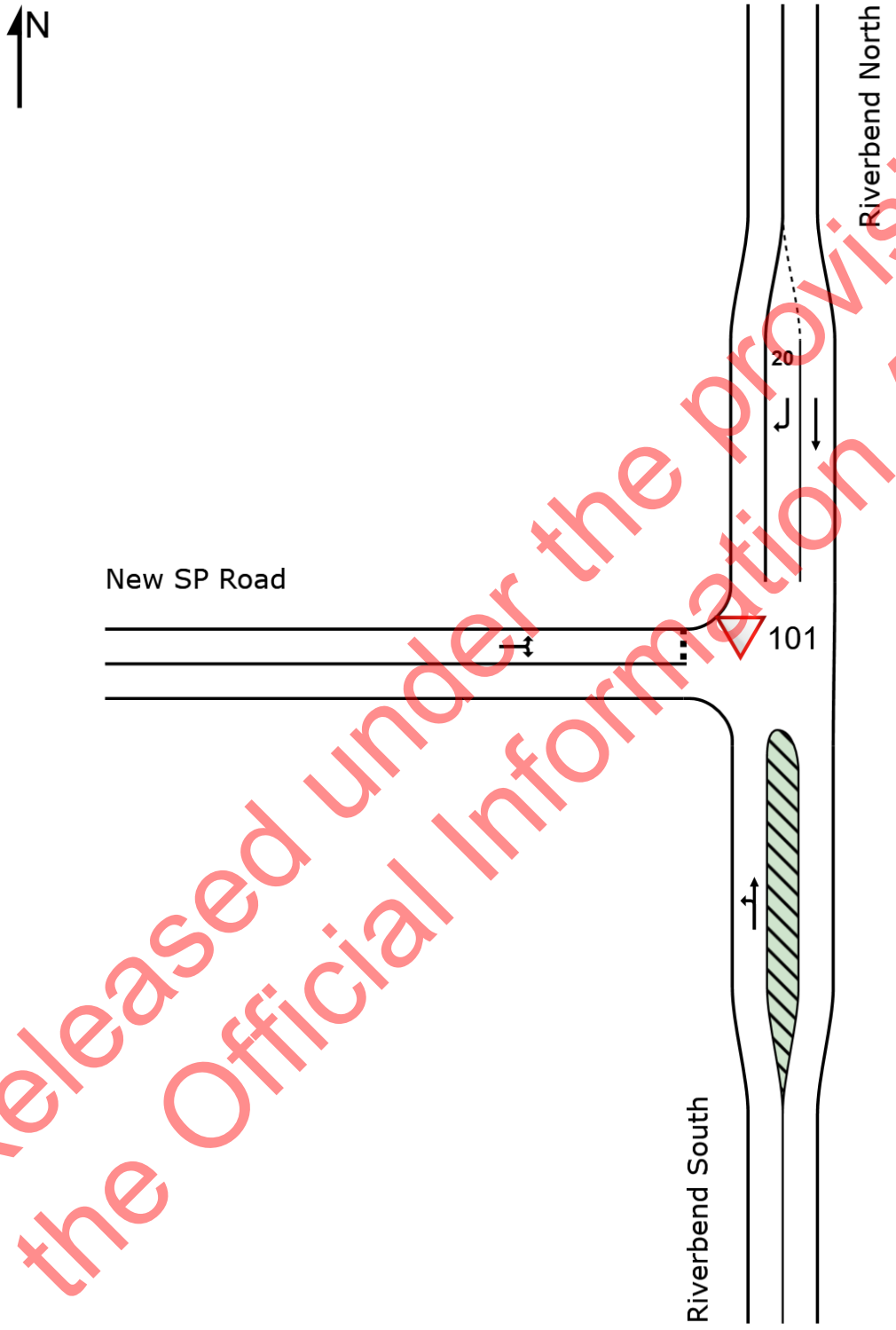
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and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

SITE LAYOUT

Site: 101 [Riverbend New SP AM Fu (Site Folder: General)]

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

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



MOVEMENT SUMMARY

Site: 101 [Riverbend New SP AM Fu (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Riverbend South														
1	L2	28	4	29	14.3	0.092	4.9	LOS A	0.0	0.0	0.00	0.12	0.00	49.9
2	T1	135	5	142	3.7	0.092	0.2	LOS A	0.0	0.0	0.00	0.12	0.00	51.3
Approach		163	9	172	5.5	0.092	1.0	NA	0.0	0.0	0.00	0.12	0.00	51.1
North: Riverbend North														
8	T1	198	2	208	1.0	0.108	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
9	R2	85	1	89	1.2	0.059	6.0	LOS A	0.3	1.9	0.29	0.57	0.29	52.3
Approach		283	3	298	1.1	0.108	1.8	NA	0.3	1.9	0.09	0.17	0.09	50.6
West: New SP Road														
10	L2	198	0	208	0.0	0.164	5.9	LOS A	0.8	5.4	0.26	0.57	0.26	52.8
12	R2	66	1	69	1.5	0.164	6.7	LOS A	0.8	5.4	0.26	0.57	0.26	52.3
Approach		264	1	278	0.4	0.164	6.1	LOS A	0.8	5.4	0.26	0.57	0.26	52.7
All Vehicles		710	13	747	1.8	0.164	3.2	NA	0.8	5.4	0.13	0.31	0.13	51.5

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 [Riverbend New SP PM Fu (Site Folder: General)]

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

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	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: Riverbend South														
1	L2	61	4	64	6.6	0.162	4.9	LOS A	0.0	0.0	0.00	0.15	0.00	50.2
2	T1	229	5	241	2.2	0.162	0.2	LOS A	0.0	0.0	0.00	0.15	0.00	51.4
Approach		290	9	305	3.1	0.162	1.2	NA	0.0	0.0	0.00	0.15	0.00	51.2
North: Riverbend North														
8	T1	199	2	209	1.0	0.109	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
9	R2	184	1	194	0.5	0.144	6.6	LOS A	0.7	4.7	0.41	0.64	0.41	52.0
Approach		383	3	403	0.8	0.144	3.2	NA	0.7	4.7	0.20	0.31	0.20	50.9
West: New SP Road														
10	L2	99	0	104	0.0	0.092	6.1	LOS A	0.4	2.8	0.34	0.60	0.34	52.6
12	R2	33	1	35	3.0	0.092	7.3	LOS A	0.4	2.8	0.34	0.60	0.34	52.0
Approach		132	1	139	0.8	0.092	6.4	LOS A	0.4	2.8	0.34	0.60	0.34	52.4
All Vehicles		805	13	847	1.6	0.162	3.0	NA	0.7	4.7	0.15	0.30	0.15	51.3

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.
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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.