



**Pegasus Golf Resort Rezoning
Integrated Transportation Assessment
Sports and Education Limited**



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Quality Assurance Information

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1. Introduction

Sports & Education Corporation Limited (SAECL) wishes to rezone the existing Pegasus Golf and Sports Club as a Resort zone within the Waimakariri District Plan (WDP) to include hotel/ apartments visitor accommodation, hot pools/spa tourism, conference and event centre, residential apartments, commercial units and other ancillary uses. The plan change area is approximately 14ha within land mainly occupied by the golf course and club house.

SAECL commissioned Abley Limited (Abley) to prepare an Integrated Transport Assessment (ITA) to accompany the plan change application. The proposed plan change will be referred to as the Pegasus Resort in this document.

The purpose of this ITA is to evaluate the potential transportation related effects of the rezoning on the future transport network. The ITA has been prepared using the guidance specified in the 'Integrated Transport Assessment Guidelines' published by the New Zealand Transport Agency¹.

^[1] <https://www.nzta.govt.nz/assets/resources/research/reports/422/docs/422.pdf>

2. Background

A consent was granted in 2005 to development a community containing an 18-hole golf course, main and arterial access roads, a village green including clubhouse, gym, restaurant, café and service buildings and 98 residential lots on the Mapleham block and the Special Purpose Area adjacent to Pegasus Town. These resource consents (RC055641 and RC055642) were issued, with a further consent for the Mapleham subdivision (RC075633). There have been a number of variations following the granting of these consents. The Mapleham residential lots and the golf course covers the area on both the north and south sides of Pegasus Boulevard, the main access road to Pegasus Town.

The Pegasus Resort site currently falls within both the Pegasus Outline Development Plan (Map 142 of the WDP) and the Mapleham Outline Development Plan (Map 147 of the WDP).

A previous ITA prepared for the Pegasus Town Limited Mapleham Residential Development and Golf Course (dated September 2005) is used to inform this ITA where applicable.

In 2019, Pegasus Golf Ltd (owned by Sports and Education Corporation Limited) applied to the Waimakariri District Council for resource consent (RC195127) to construct and operate a three-storey hotel comprising of fifty rooms, a restaurant and conference centre and associated carparking. The proposal is a Discretionary Activity and has a split zoning, being Mapleham Rural 4B and Pegasus Rural in the WDP. The development would be located on three vacant lots on Taerutu Lane, to the northwest of the golf club buildings.

3. Existing Land Use and Transport Environment

3.1 Locality

The Pegasus Resort is located near the entrance to the Pegasus Town subdivision, which is located just north of Woodend and opposite Ravenswood, a new commercial and residential subdivision located on the western side of State Highway 1. The site encompasses 8 Mapleham Drive (Lot 204) and is abutted by Pegasus Boulevard.

Pegasus Boulevard is a Local Road under the roading hierarchy set out in the WDP and is subject to a 70km/h speed limit. It intersects with State Highway 1 to the north west of the subject site. East of the State Highway, the surrounding land use is primarily residential and rural.

The location of the site in the context of the wider area is shown in **Figure 3.1**.



Figure 3.1 Pegasus Resort Location (sourced: Canterbury Maps 2019)

3.2 Zoning

The Pegasus Golf and Sports Course, under the WDP, is subject to two separate zonings, as shown in **Figure 3.2**. The Mapleham Rural 4B Zone covers approximately 44 hectares and provides for the subdivision with a maximum of 35 allotments with a minimum area of 1 hectare. The area zoned Rural Pegasus covers approximately 36 hectares and

provides for subdivision allotments with a minimum area of 4 hectares. The current use of the golf club conforms with the current permissible uses of both zones under the WDP.

The area immediately east of the site is zoned a combination of Residential, Business and Rural Pegasus zones. The remainder of the surrounding area primarily comprises Residential, Business and Rural zones.

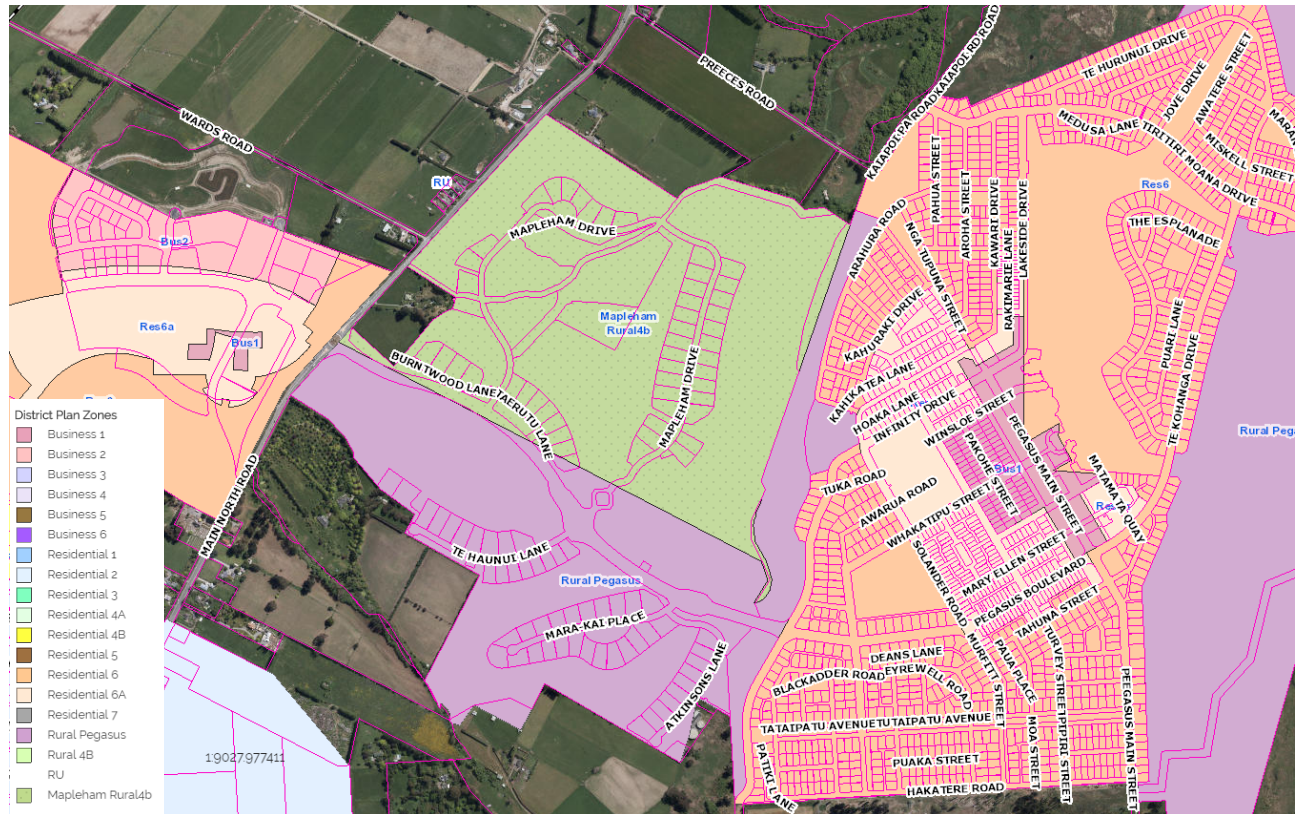


Figure 3.2 WDP Zoning Map

3.3 Existing Land Use

The Pegasus Golf and Sports Course is primarily used as a Golf and Sports Club which includes a 18 hole golf course, a driving range, practice greens, a retail shop, a restaurant, tennis courts and a gym. 57 car parking spaces are provided on site however during the site visit on the 24 November 2019 12 -3pm, it was observed that all spaces were occupied where overflow demand parked on grass.

3.4 Surrounding Roads

The site has frontage to Pegasus Boulevard along its southern boundary and Mapleham Drive along its eastern boundary. The intersection of Pegasus Boulevard, Mapleham Drive and Te Haunui Lane is a roundabout with four approaches. Pegasus Boulevard intersects with State Highway 1 (Main North Road) to the north west of the subject site.

Pegasus Boulevard

Pegasus Boulevard runs in a south western orientation between Main North Road to the north (approximately 0.7km north of the site) and Infinity Drive (approximately 0.5km south of the site). Pegasus Boulevard acts as the main conduit of traffic to and from Main North Road and Pegasus Town.

The segment of Pegasus Boulevard between Main North Road and Infinity Drive, to which the site abuts, is a single carriageway with one traffic lane in each direction. On approach to the Main North Road intersection, Pegasus Boulevard widens to provide a left turn lane and a combined through movement/right turn lane. The carriageway is divided by a

centreline. Edge lines and shoulders (approximately 0.6m-1m wide) are located on both sides of the carriageway. Footpaths are located along both sides of Pegasus Boulevard between Mapleham Drive and Infinity Drive and along the westbound traffic lane between Mapleham Drive and Main North Road.

The WDP classifies Pegasus Boulevard as a Local road. The posted speed limit is 70km/h.

Within the NZ Transport Agency, One Network Road Classification (ONRC) system, Pegasus Boulevard is classified as a Primary Collector. According to the ONRC classification “*These are locally important roads that provide a primary distributor/collector function, linking significant local economic areas or population areas*”.

Main North Road (State Highway 1)

As State Highway 1, Main North Road is controlled by the NZ Transport Agency. The road has a posted speed limit of 70km/h in the vicinity of the site and forms part of the NZ strategic road network. In the vicinity of the site, Main North Road runs north-south with a single carriageway with one traffic lane in each direction. On approach to the Pegasus Boulevard roundabout intersection, Main North Road widens to provide two combined through movement/turning lanes.

Main North Road is classified as a Strategic road in the WDP. The NZ Transport Agency ONRC classifies Main North Road as a National State Highway.

Mapleham Drive

Mapleham Drive borders the eastern edge of the site, intersects Pegasus Boulevard and Te Haunui Lane in a roundabout, forms a loop, and intersects Pegasus Boulevard again further north.

Mapleham Drive is classified as a Local road. The ONRC classifies Mapleham Drive as a Low Volume Access Road.

3.5 Existing Traffic Volumes

Traffic flow data for four WDC count stations along Pegasus Boulevard that were last surveyed in 2018 were provided by WDC. **Figure 3.3** shows that the Average Annual Daily Traffic (AADT) of Pegasus Boulevard (just east of SH1) is 6,000-6,500 vehicles per day (vpd) during the week and 5,200 vpd on a weekend as shown below. The peak hour volume was quite similar across the week.

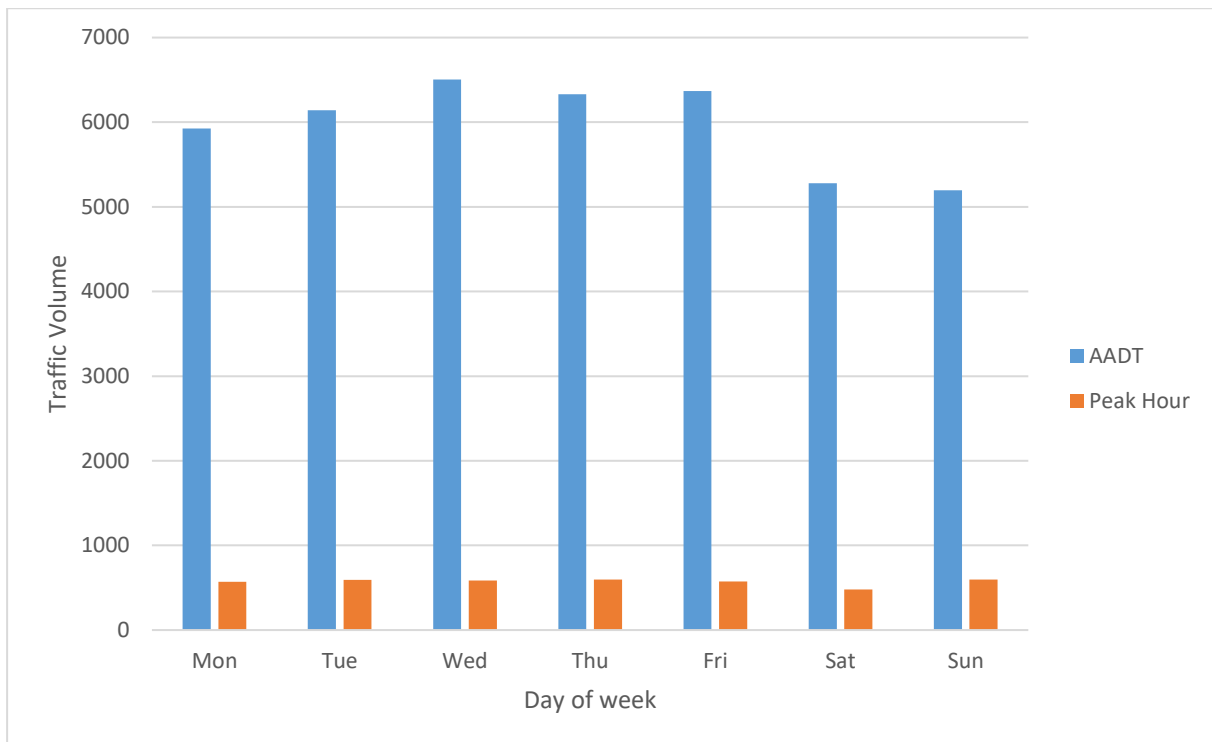


Figure 3.3 Daily Traffic Flow – Pegasus Boulevard

Based on the above traffic flow information, it was decided that a weekday evening 4-6pm and Sunday 12-3pm were the most appropriate time periods for assessment. Therefore, to inform the existing baseline, traffic surveys were undertaken at the Main North Road/Pegasus Boulevard intersection and the Mapleham Drive/Pegasus Boulevard intersection in the afternoon peak (4-6pm) on 21 November 2019 and the Sunday peak (12-3pm) on 24 November 2019.

The traffic volumes counted for each intersection are summarised in **Table 3.1** to **Table 3.4**. The weekday evening peak hour was 5-6pm whereas the Sunday peak hour was 12-1pm. These columns are shown shaded and added up to a peak hour total in the right hand columns.. During the site visit/ survey, it was observed that Pegasus Boulevard between Main North Road and Infinity Drive operated in almost free flowing conditions with minimal delays and queues. Some minor queuing was observed on the north approach of the SH1 roundabout (maximum 4-5 vehicles queueing).

Table 3.1 Traffic counts - Main North Road and Pegasus Boulevard intersection (Thursday)

Approach	Movement	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	Peak Hour Total
North	Left	6	10	6	6	5	10	8	5	28
	Through	45	115	122	136	128	142	117	107	494
	Right	0	0	2	5	4	4	5	8	21
East	Left	22	47	41	41	53	46	39	29	167
	Through	0	1	3	0	4	5	3	5	17
	Right	2	5	6	14	11	7	13	10	41
South	Left	13	11	29	23	40	22	25	24	111

Approach	Movement	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	Peak Hour Total
	Through	91	63	96	122	129	117	85	78	409
	Right	33	45	72	98	70	127	91	54	342
West	Left	2	13	9	10	7	11	8	8	34
	Through	0	5	1	8	6	6	4	6	22
	Right	3	12	11	13	17	11	11	5	44
Total		217	327	398	476	474	508	409	339	1730

Table 3.2 Traffic counts - Main North Road and Pegasus Boulevard intersection (Sunday)

Approach	Movement	12:00	12:15	12:30	12:45	1:00	1:15	1:30	1:45	2:00	2:15	2:30	2:45	Peak Hour Total
North	Left	19	8	10	13	17	8	10	5	4	6	11	8	50
	Through	87	110	141	124	132	142	145	174	117	138	123	148	462
	Right	7	7	8	5	6	4	4	2	10	10	7	9	27
East	Left	72	70	88	77	90	70	74	40	37	56	50	43	307
	Through	5	7	12	7	6	8	6	7	1	5	7	7	31
	Right	13	16	15	10	9	8	5	4	5	8	7	10	54
South	Left	13	10	10	13	14	12	22	18	17	5	10	13	46
	Through	176	100	145	115	113	90	115	121	140	103	105	94	536
	Right	67	45	76	60	53	38	40	53	70	41	58	55	248
West	Left	16	10	10	12	14	9	11	13	17	9	9	7	48
	Through	14	16	6	6	5	5	8	9	7	6	7	9	42
	Right	24	12	15	10	14	15	15	10	11	10	14	16	61
Total		513	411	536	452	473	409	455	456	436	397	408	419	1912

Table 3.3 Traffic counts - Pegasus Boulevard and Mapleham Drive intersection (Thursday)

Approach	Movement	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	Peak Hour Total
North	Left	0	2	0	3	0	2	1	3	6

Approach	Movement	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	Peak Hour Total
	Through	0	0	0	0	0	0	0	0	0
	Right	0	1	1	1	1	1	5	4	11
East	Left	0	1	0	0	0	1	1	0	2
	Through	27	48	56	70	47	55	48	39	189
	Right	0	0	1	2	2	1	0	1	4
South	Left	0	2	1	0	0	1	0	0	1
	Through	0	0	0	0	0	0	0	0	0
	Right	0	0	0	0	0	0	0	0	0
West	Left	0	3	1	1	2	6	2	3	13
	Through	29	79	72	86	79	114	103	110	406
	Right	0	1	1	1	0	0	0	1	1
Total		56	137	133	164	131	181	160	161	633

Table 3.4 Traffic counts - Pegasus Boulevard and Mapleham Drive intersection (Sunday)

Approach	Movement	12:00	12:15	12:30	12:45	1:00	1:15	1:30	1:45	2:00	2:15	2:30	2:45	Peak Hour Total
North	Left	2	3	3	3	5	6	5	2	2	2	1	1	11
	Through	0	0	0	1	0	0	0	1	1	0	0	1	1
	Right	2	7	4	1	2	7	3	2	1	1	2	7	14
East	Left	0	0	0	0	0	0	0	1	0	0	0	0	0
	Through	100	87	108	84	111	81	73	51	41	61	65	53	379
	Right	0	2	2	6	0	4	2	3	1	5	2	0	10
South	Left	0	1	0	1	0	0	0	1	1	1	0	0	2
	Through	0	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	0	1	0	0	0	0	0	0	1	0	2	1
West	Left	1	1	4	8	5	6	2	4	2	4	3	0	14
	Through	70	61	75	70	78	65	69	56	55	58	57	53	276

Approach	Movement	12:00	12:15	12:30	12:45	1:00	1:15	1:30	1:45	2:00	2:15	2:30	2:45	Peak Hour Total
	Right	1	0	0	1	0	0	0	0	2	0	0	0	2
Total		176	162	197	175	201	169	154	121	106	133	130	117	710

3.6 Safety

Crash History

A search of the NZ Transport Agency Crash Analysis System (CAS) database for the period of 2015 to 2019 (inclusive), identified 21 crashes in the vicinity of the site. The crashes are summarised in **Table 3.5** and details are included as Appendix A.

The search area included:

- Intersection of Pegasus Boulevard, Mapleham Drive and Te Haunui Lane (crashes within 50m)
- Intersection of Pegasus Boulevard, Main North Road and Bob Robertson Drive (crashes within 50m)
- Intersection of Pegasus Boulevard and Mara-Kai Place (crashes within 50m)
- Intersection of Pegasus Boulevard and Infinity Drive (crashes within 50m)
- Pegasus Boulevard, between Main North Road and Infinity Drive

Table 3.5 Crash data (2015-2019)

Location	Fatal	Serious	Minor	Injury Total	Non-Injury	Total
Intersection of Pegasus Boulevard, Main North Road and Bob Robertson Drive (crashes within 50m)	0	0	1	1	16	17
Intersection of Pegasus Boulevard and Infinity Drive (crashes within 50m)	0	0	0	0	1	1
Pegasus Boulevard, between Main North Road and Infinity Drive	0	0	1	1	2	3
Total	0	0	2	2	19	21

The crash history shows that crashes are concentrated (17 out of 21) at the Main North Road and Pegasus Boulevard roundabout. This is likely to be largely related to the high traffic volumes at the full movement intersection. Out of the 17 crashes at the SH1 roundabout eight were loss of control type crashes and four were associated with lane changes, which suggests that motorists are not negotiating the double lane roundabout well. The roundabout operates under a 70km/h speed limit which may not be appropriate.

The Pegasus Boulevard corridor between Main North Road and Mapleham Drive had only 3 reported non-injury crashes. Overall, there are no obvious safety concerns along Pegasus Drive however the SH1/ Pegasus Drive roundabout should be further investigated.

Risk Maps

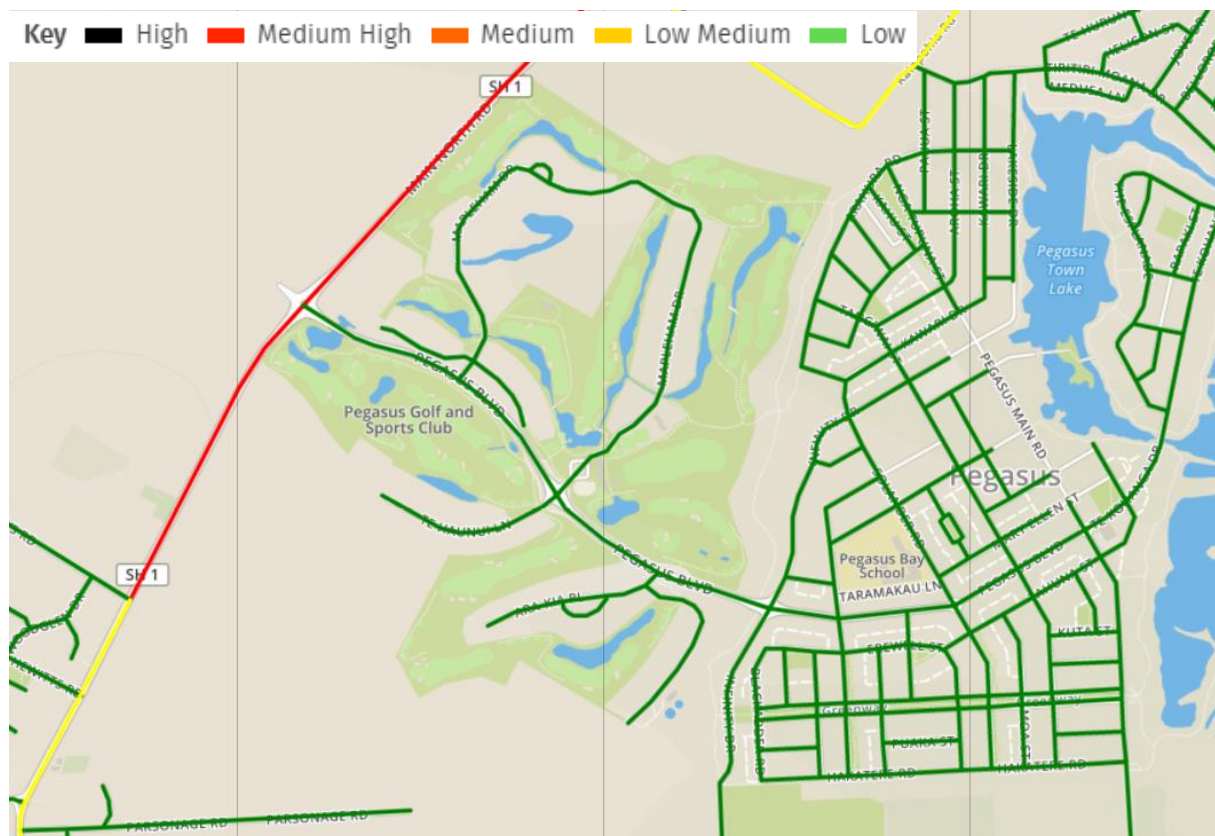
The New Zealand Road Assessment Process, Urban KiwiRAP^[2], is used to analyse the road safety of urban road corridors. The two types of risk metric that form the fundamental risk mapping protocols for Urban KiwiRAP are Collective Risk and Personal Risk as described below:

- Collective Risk is a measure of the total estimated death and serious injury^[3] (DSi) casualty equivalents for a site. It is effectively a measure of the number of deaths and serious injuries that can be expected at a site over the next analysis period (typically five years). At a corridor level, Collective Risk is the total estimated DSi casualty equivalents derived from the intersection and midblock components divided by the length of the corridor. It is expressed as estimated DSi / km.
- Personal Risk is a measure of the risk of an individual dying or being seriously injured at a site. It is calculated by dividing Collective Risk by a measure of traffic volume exposure.

The risk rating categories are low, low-medium, medium, medium-high and high (worst). The maps^[4] showing these ratings for roads adjacent to the Pegasus Resort are included in **Figure 3.4** and **Figure 3.5**.

The risk rating will identify any potential safety issues if traffic volumes on a particular road were to increase. The data shows that Main North Road has a “Medium High” Collective Risk rating and a “Medium” Personal Risk rating and Pegasus Boulevard has a “Low” Collective Risk and a “Low Medium” Personal Risk rating.

As Collective Risk is a measure of the number of crashes per length (km), generally roads with a higher traffic volume have a higher Collective Risk. Given that Main North Road is a part of the strategic road network this is somewhat expected.



^[2] <https://roadsafetyrisk.co.nz/kiwi-rap>

^[3] Serious injuries- Fractures, concussion, internal injuries, crushings, severe cuts and lacerations, severe general shock necessitating medical treatment, and any other injury involving removal to and detention in hospital.

^[4] <https://roadsafetyrisk.co.nz/maps/personal-risk#Canterbury>

Figure 3.4 Collective Risk Map

Personal risk on the other hand is relatable to the public as it shows the risk to an individual using that road. As Personal Risk along both corridors are categorised as Medium, the subject corridors do not require any road safety improvements.

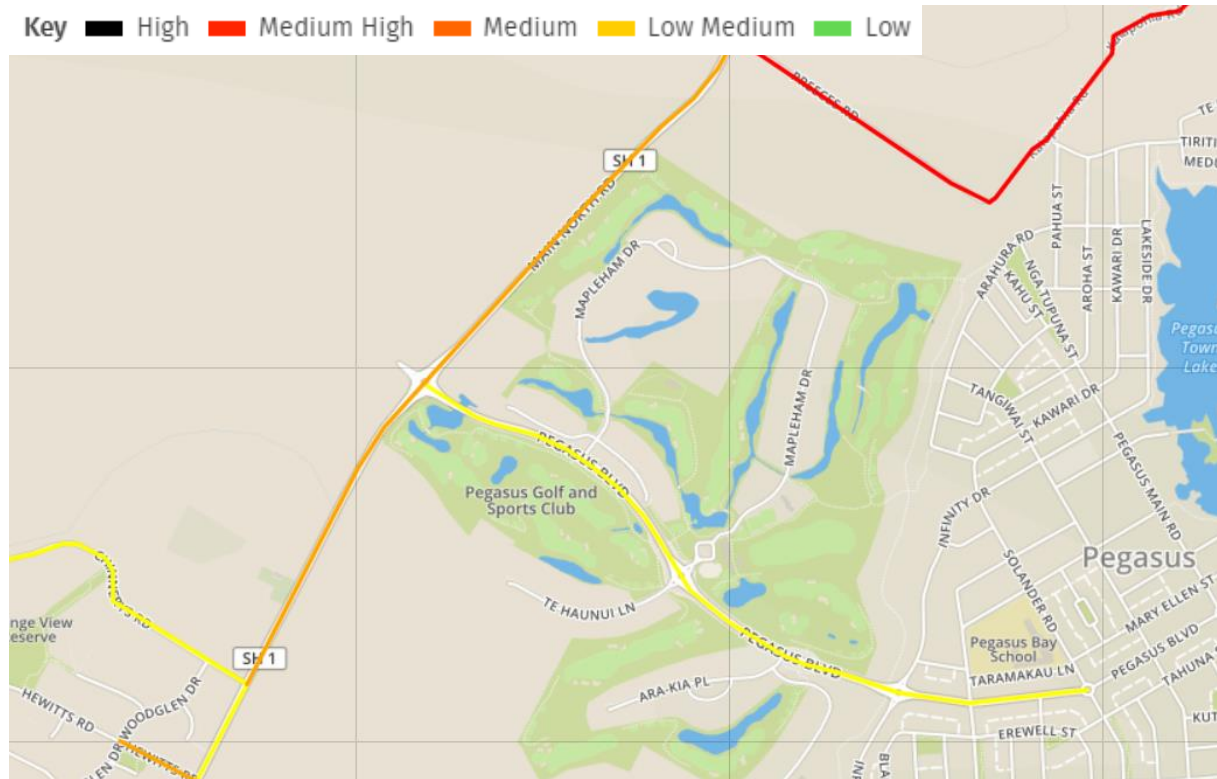


Figure 3.5 Personal Risk Map

3.7 Walking Facilities

The Pegasus Resort site is well connected to the pedestrian network of the Pegasus Town Residential Development. Pegasus Boulevard and Infinity Drive have footpaths on both sides of the road in the vicinity of the site, and Mapleham Drive has a footpath provided along the inner lane. Two pedestrian/ cycle underpasses beneath Pegasus Boulevard are provided 80m northwest and 350m southeast of the golf course entrance. It should be noted that the footpaths are also used by low powered golf carts. No footpaths are provided along Main North Road except around the Pegasus Boulevard roundabout.



Figure 3.6 Footpaths along Pegasus Boulevard

The Main North Road/Pegasus Boulevard roundabout has pedestrian refuge islands with kerb cut downs on three approaches to accommodate crossing pedestrians. No crossing facilities across Pegasus Boulevard are provided at the Pegasus Boulevard/Mapleham Drive roundabout, however as this a lower volume intersection, with no reported crashes involving pedestrians between 2012-2019, this is deemed appropriate for the site.

3.8 Cycling Facilities

The Waimakariri District has two major cycle routes; the Rangiora Woodend Path and the Rangiora to Kaiapoi Path, as shown in **Figure 3.7**. The Rangiora Woodend route consists of a 6.5km sealed off road shared path which connects residents of Woodend to Rangiora. It also provides a connection between Woodend and Kaiapoi and Christchurch via Rangiora, and connects to other facilities such as the Woodend Beach path. The Rangiora to Kaiapoi Path, also known as the Passchendaele Memorial Cycle-Walk Path, is an 8km off road shared path. It provides a connection from Rangiora to Christchurch via a link to the Christchurch major cycle routes. The northern end of the cycleway connects to the existing on-road facilities at Southbrook in Rangiora. The Waimakariri District Walking and Cycling Guide (2017 to 2020) does not detail any proposed major cycle ways in the immediate proximity of the site.

However, in the vicinity of the site there is some provision for cyclists. Connections between Ravenswood and Pegasus Town are facilitated by shared paths and crossing facilities at the Pegasus Boulevard / Main North Road roundabout. Main North Road has sealed shoulders varying in width between approximately 1.5m and 2.5m, however no cycle lanes are provided. Cycle lanes are marked on both the north and south approaches to the Pegasus Boulevard / Main North Road roundabout, which guide cyclists off the road onto a shared path. Refuge islands are provided on the eastern, southern and western approaches. The shared path extends west of Main North Road along Bob Robertson Drive to the

Ravenswood development. Pegasus Boulevard does not have any formal cycle facilities, however there is a sealed path on the southern side that is typically 2.2m wide and could accommodate cyclists if used as a shared path.

An unsealed walking and cycling path between Gladstone Park and Hakatere Road, Pegasus started construction in 2019. This assists in providing an alternative cycle route between Ravenswood, the proposed development, Pegasus and Woodend that avoids use of Main North Road.

Within Pegasus Town, there are marked cycle lanes on Infinity Drive, Solander Road, Murfitt Street and Pegasus Boulevard (east of Infinity Drive) and several recreational paths around the edge of the golf course that connect residential areas.



Figure 3.7 Cycle facilities in the area (sourced: Urban Cycleways Programme)

3.9 Crossing the State Highway

The crash history does not indicate an obvious safety concern at the SH1 roundabout. During the site visit it was observed that crossing the State Highway was problematic due to the high volume of traffic and vehicle speeds. Currently very few pedestrian/ cycle movements exist however, as Ravenswood and Pegasus subdivisions grow more

pedestrian and cycle usage is anticipated. Therefore, an appropriate pedestrian/ cycle crossing may be required for such users to safely cross the State Highway.

3.10 Public Transport

The Pegasus Resort has limited accessibility by public transport as follows:

- Two bus stops (northbound and southbound) are located approximately 740m north of the site along Pegasus Boulevard, at the intersection with Main North Road.
- Two bus stops (northbound and southbound) are located at the intersection of Infinity Drive and Pegasus Boulevard.
- Six additional pairs of bus stops are located along Pegasus Boulevard within the Pegasus Town Residential Development.

The site is serviced by the Bus Route 95 which operates between Christchurch City and Waikuku, via Pegasus. This bus route operates every hour between 6:30am and 10:00pm Monday to Saturday. **Figure 3.8** below shows the location of the existing bus stops in relation to the site. Changes to this route are currently being consulted on. Details are included in Chapter 6.

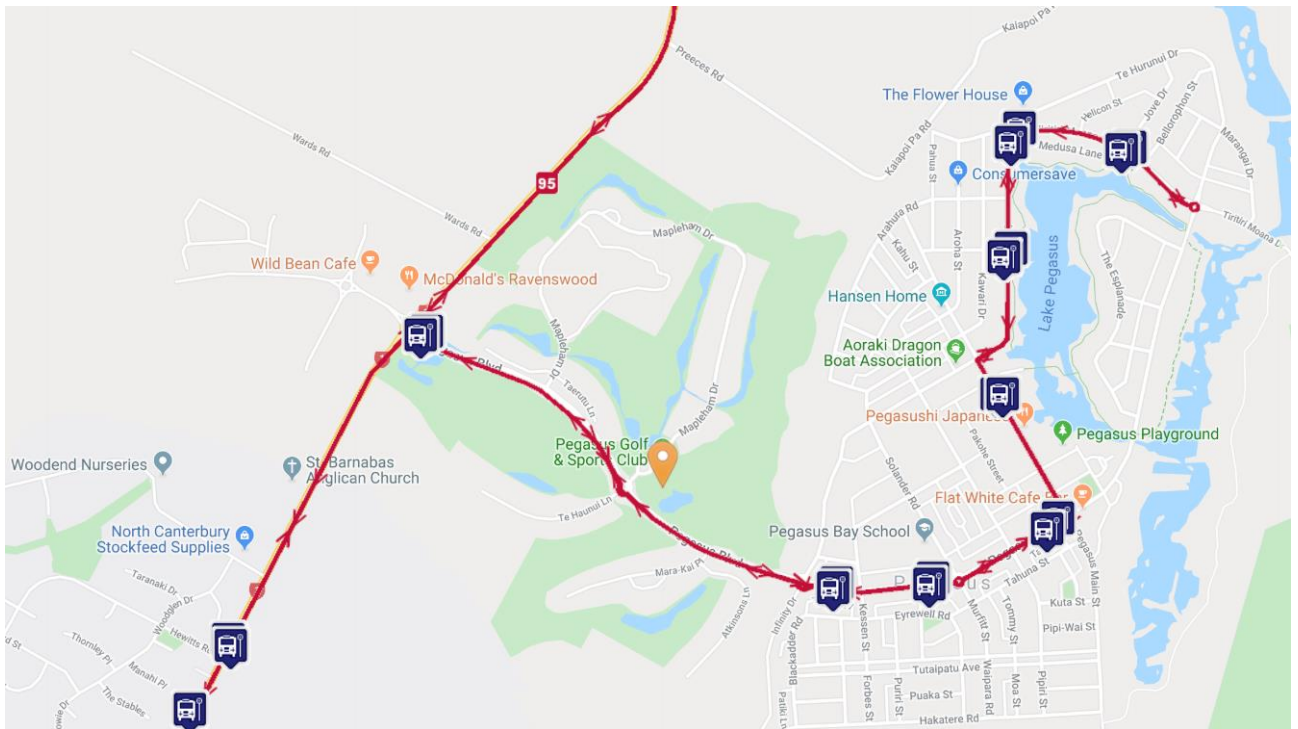


Figure 3.8 Public transport options (sourced: Metro Bus Service)

4. Future Receiving Environment

4.1 Pegasus Town

Pegasus Town is a residential subdivision to the east of the Pegasus golf course. Resource consent was granted circa 2006 to construct 1800 residential units to accommodate 4500 residents with a primary school, recreational parks, community facilities, commercial and retail offerings. Based on NZ Census 2018 data only 60% of Pegasus is occupied. Currently access to the subdivision is provided via Pegasus Boulevard however as the subdivision grows vehicle access to Kaiapoi Pa Road to the north and Gladstone Road to the south is anticipated.

4.2 Ravenswood Village

Ravenswood is a residential and commercial development located to the west of the Pegasus golf course. The total Ravenswood subdivision area is approximately 150 ha and includes 1,352 residential sections ranging in size from 310m² to 700m². The subdivision is bounded by the township of Woodend to the south, State Highway 1 to the east, Rangiora Woodend Road to the west and rural land to the north.

Access to the site is provided via the State Highway 1/Pegasus Boulevard roundabout and a secondary roundabout on the Rangiora Woodend Road. The roundabout on State Highway 1 will provide access to the commercial precinct of the subdivision. The Stage 1 of the Ravenswood subdivision is currently under construction.

The extent of the Ravenswood Subdivision project is shown in **Figure 4.1** below.

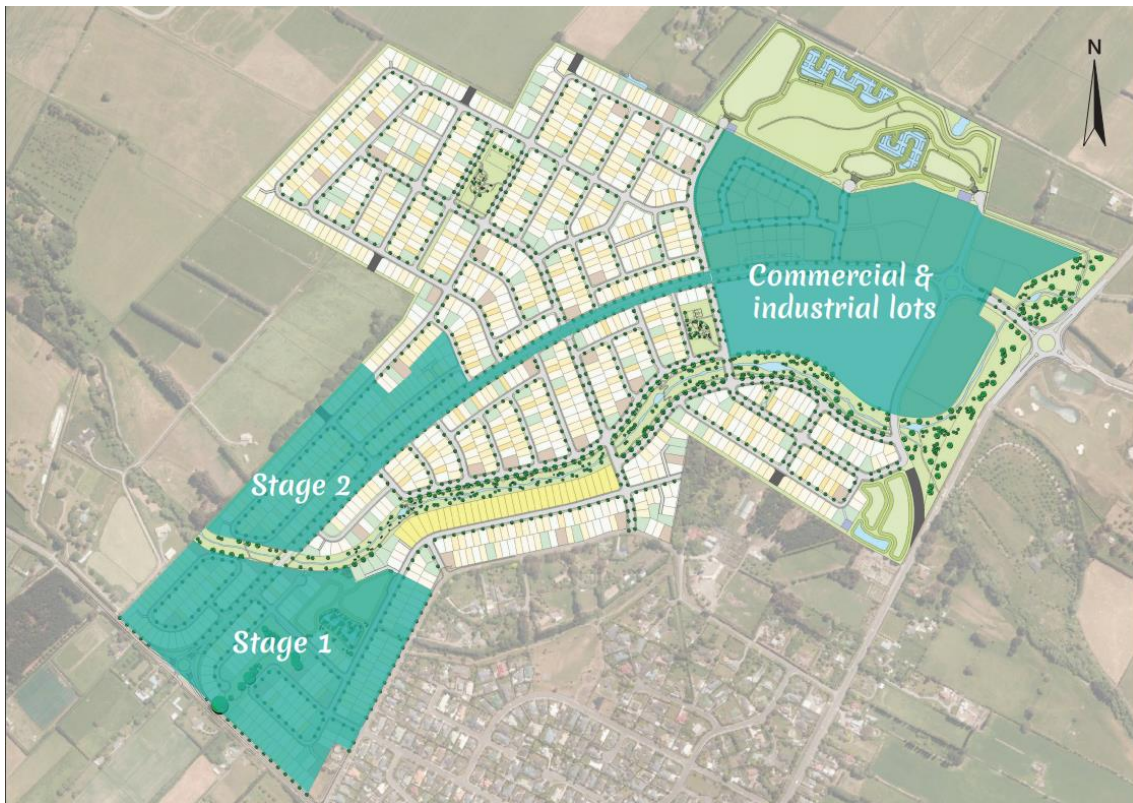


Figure 4.1 Ravenswood Masterplan

4.4 Woodend Short Eastern Alignment

Traffic volumes along State Highway 1 (Main North Road) through Woodend are expected to double over the next thirty years. The increase in traffic is due to an increase in residential developments in the area and an increase in long distance freight movements along the state highway. To accommodate this increase in traffic, a new section of highway that runs to the east of Woodend is planned by the NZ Transport Agency.

The new bypass will have four-lanes and will link in with the current motorway at Lineside Road and run to the entrance to Pegasus at the intersection of Pegasus Boulevard and SH1. The project aims to improve capacity and efficiency of traffic travelling through the Woodend corridor and improve interconnectivity between residents and businesses in Woodend, Pegasus, and Kaiapoi.

The bypass does not have a confirmed construction date.

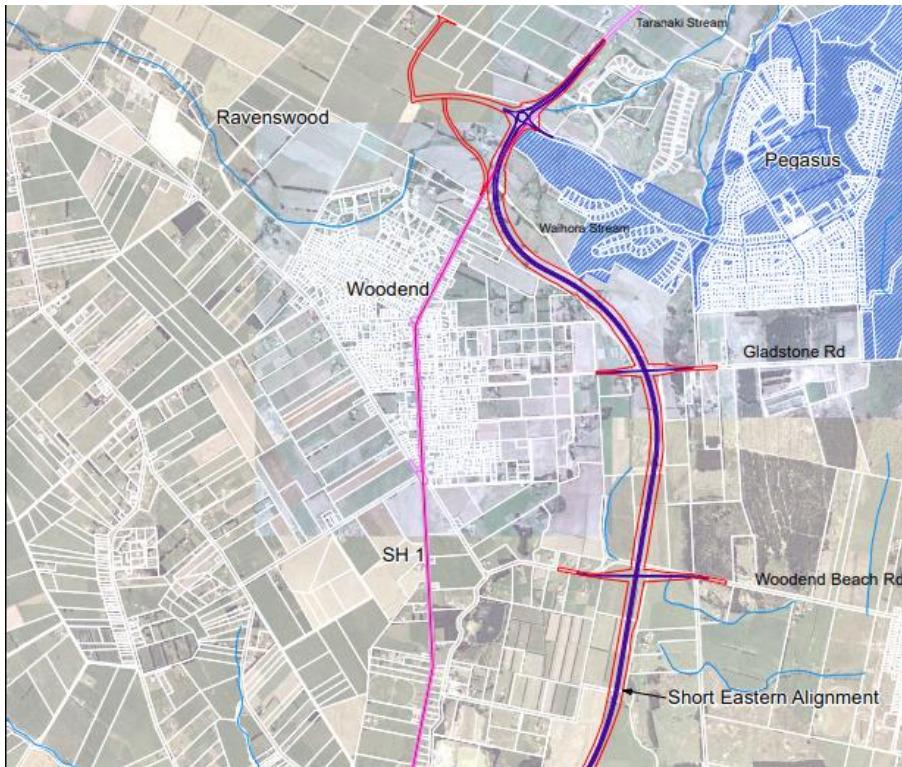


Figure 4.2 Woodend Corridor Bypass

5. Rezoning Proposal

The proposal seeks to rezone approximately 14ha of land to the immediate north of Pegasus from Rural residential to Resort, as Pegasus Resort Special Purpose Zone which would facilitate the development of the following recreational and hospitality offerings.

- Golf club house, gym, golf shop and ancillary facilities
- Hotel/ Apartment style visitor accommodation
- Conference/ events venue
- Retails and commercial activity
- Residential apartments and units
- Spa and recreational water park

The proposed Outline Development Plan (ODP) is shown below.

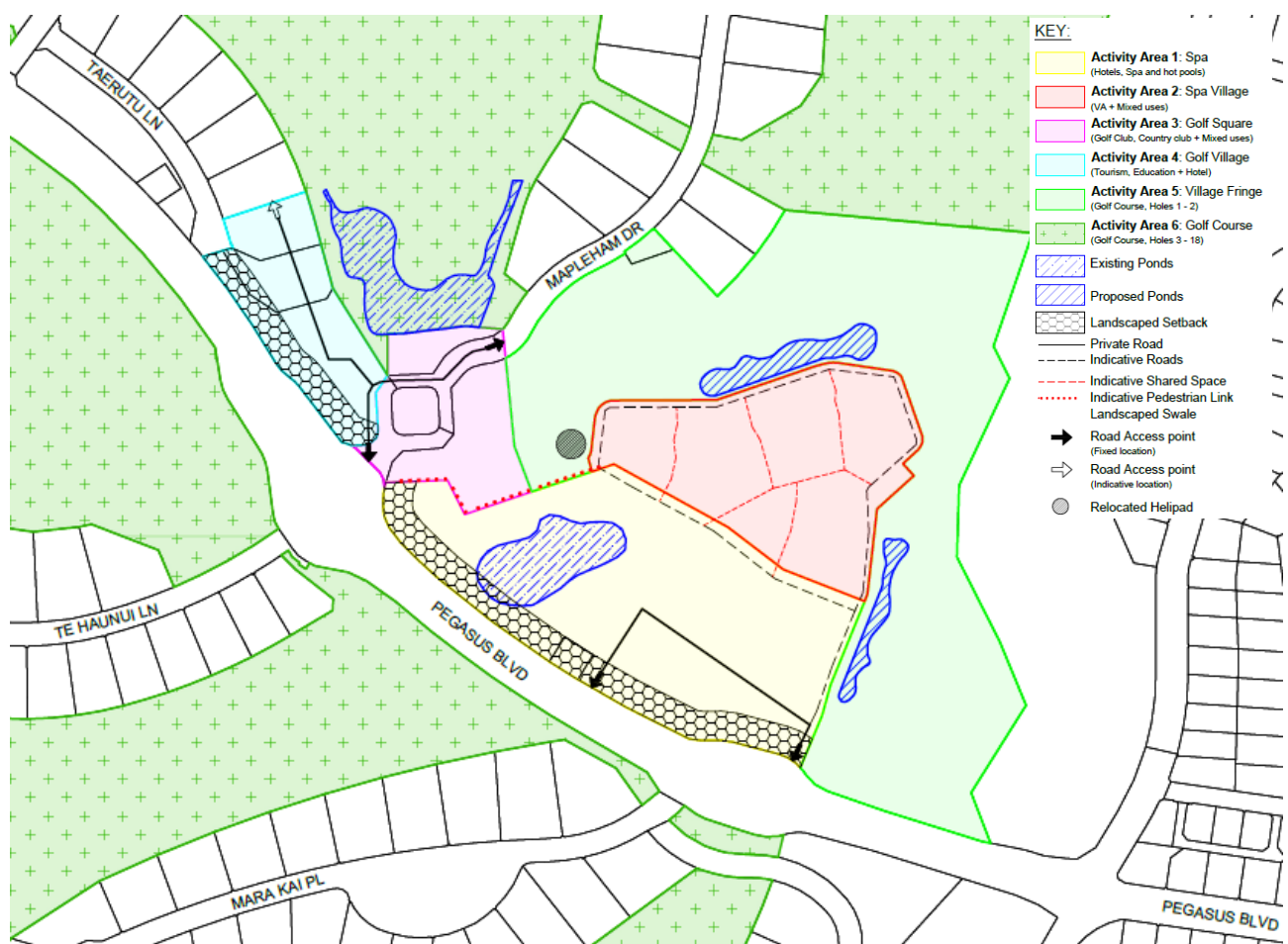


Figure 5.3 Pegasus Resort ODP

Access Arrangement

Pegasus Resort will have access to the wider transport network via Mapleham Drive and potentially via new accesses on Pegasus Boulevard. An internal road network linking the new intersections on Pegasus Boulevard and Mapleham Drive through the Pegasus Resort is likely. New vehicle accesses would be beneficial to provide better circulation through the site and to separate bus/ coach movements and other road users.

The development will be accessed in a similar manner to the existing Golf and Sports Club. Car parking, loading and manoeuvring space for the resort uses will be provided on site with internal connectivity, however certain car parking areas may be restricted for the use of a specific activity. Vehicle accesses and parking layouts of the proposal will be designed to comply with WDC District Plan requirements and will be detailed at resource consent stage. It is envisaged that pedestrian and cycle paths would run through the Pegasus Resort linking the site to the existing shared paths/ foot paths along the wider road network.

The indicative masterplan is shown in **Figure 5.4** and a breakdown of activity areas is shown in **Table 5.1**.



Figure 5.4 Indicative Masterplan

Table 5.1 Activity Areas

Pegasus Resort SPZ Activity Areas:	
Activity Area 1: Spa	3.66ha
Activity Area 2: Spa Village	2.16ha
Activity Area 3: Golf Square	1.03ha
Activity Area 4: Golf Village	1.02ha
Activity Area 5: Village Fringe	6.11ha
Sub Total	13.98ha
Activity Area 6: Golf Course	64.66ha
Total	78.64ha

6. Accessibility

Motor Vehicle

The site is well connected to the strategic road network via Pegasus Boulevard. The SH1/ Pegasus Boulevard roundabout has been designed to accommodate fully developed Ravenswood and Pegasus Town developments. The proposed Woodend Bypass and Christchurch Northern Motorway projects will further improve connectivity between the Resort and the Christchurch CBD and the International Airport where most hotel, conference and golf guests are expected to arrive from or depart to.

The suitability of the nearby intersections has been assessed in Chapter 8.

Public Transport

The Resort site is located on an existing public transport corridor with limited services (every 30 minutes during peak hours and hourly for the remainder). However, bus route changes to the Waimakariri region are proposed by Environment Canterbury (ECAN). The following changes, which are directly related to Pegasus are proposed to the existing network and are currently in public consultation.

- *The 95 would travel from Pegasus to the city during the morning peak hours (about 6.30-8am), and back from the city during the afternoon peak hours (about 2.30-6pm).*
- *Pegasus would be connected to Woodend, Kaiapoi and Silverstream by proposed Pegasus-Silverstream Link.*
- *To travel to the city outside of peak hours and during weekends, Pegasus residents could travel on the proposed Pegasus-Silverstream Link service to Kaiapoi's town centre, and transfer to the Blue Line.*

The proposed changes to the services will provide better connectivity between Pegasus and nearby Woodend, Silverstream, Kaiapoi and Rangiora and as a result would provide an alternative to private motor vehicle.

The proposed changes to the bus network are shown in Appendix B.

The nearest bus stops are located approximately 750m west and east of the Maplesham Drive / Pegasus Boulevard roundabout, equating to about a 10-minute walk from the site. In order to encourage public transportation use, it is recommended that additional bus stops are provided in the immediate vicinity of the Maplesham Drive / Pegasus Boulevard roundabout to better service the Resort.

Walking and Cycling

The Resort road network is expected to be designed to ensure that pedestrians/ cyclists can conveniently walk/ cycle between it and nearby residential areas via the existing road network/ shared paths that run along Pegasus Boulevard. However, it's worth noting that pedestrian accessibility could be significantly improved through the provision of a formal pedestrian/ cycle crossing across Main North Road to improve connectivity between Ravenswood and Pegasus.

The provision of cycle parking and end of trip facilities are anticipated and will encourage customers and employees to cycle especially those who live within 2km-5km radius from the Resort. The existing shared paths on Pegasus Boulevard and Bob Robertson Drive will link users to the wider walking/cycle network.

At resource consent stage, internal roads and car parking at the Pegasus Resort will be designed in line with Crime Prevention Through Environmental Design (CPTED) principles. All customer cycle parking spaces will be provided along the main façade of buildings to provide passive surveillance of bicycles. The car park and areas with pedestrian movement will be lit to an appropriate level and potentially monitored to maximise safety.

7. Travel Characteristics and Trip Generation

7.1 Trip Generation

The Pegasus Resort will provide a range of land use/ activities. The following land uses are currently anticipated;

- Golf club house, gym, golf shop and ancillary facilities
- Hotel/ Apartment style visitor accommodation
- Conference/ events venue
- Retails and commercial activity
- Residential apartments and units
- Spa and recreational water park

Estimated gross floor area/ number of units were provided by the urban design consultant. These gross floor areas are not finalised and should be treated as preliminary only.

The traffic surveys informed the trip generation of the existing golf club. Trip rates for each proposed land use was sourced from three commonly used trip rate sources, namely;

- NZ Transport Agency Research Report 453 Trips and parking related land use.
- TRICS trips database
- RMS/ RTA NSW Guidelines to Traffic Generating Developments

Where an appropriate trip rate was unavailable a first principles approach was used to estimate the trip generation of that activity. Land use GFA and associated trip rates for the weekday peak hour and Sunday peak hour are summarised in **Table 7.1**.

Table 7.1 Land use and trip rates

	Development Stage	Land Use	Unit	Peak Hour Trip Rate	Weekday Peak Hour Trip Generation	Sunday Peak Hour Trip Generation
Existing	Golf Square	Golf Club	1200 GFA	Existing	32	50
Stage 1		Golf Club	800 GFA	Same as existing	21	33
		Golf Academy	1650 GFA	Same as existing	44	59
		Retail/ Commercial	1000 GFA	5.2 per 100m ² for weekday (RTA) 9.0 per 100m ² for weekend day (RTA)	52	91
		Spa	Hotel & Lodge	175 Rooms	0.4 per room (RTA)	76
Hotel Café			220	5 per 100m ² (RTA)	11	11
Hotel Restaurant			600	5 per 100m ² (RTA)	30	30
Hotel Bar			350	15.6 per 100m ² (RR453)	55	55
Conference Rooms			200 pax per event	On a typical day 80% will be full with 50% arriving by private vehicle whilst the other 50% is in buses or staying at the onsite hotel	80	80

		Spa Facility	1000 pax a day	Capacity is 1000 visitors a day with 20% arriving or departing in the peak hour. 50% capacity on weekday and 90% on weekend. Vehicle occupancy of 3 per vehicle.	67	120
		Retail/ Commercial	2000 GFA	5.2 per 100m ² for weekday (RTA) 9.0 per 100m ² for weekend day (RTA)	104	182
	Spa Village	Residential Units/ Apartments (Size Varies)	250 units	0.7 per unit Average of the following rates: <ul style="list-style-type: none"> Outer Suburban Retirement Unit Hotel Motel 	175	88
		Retail/ Commercial	1000 GFA	5.2 per 100m ² for weekday (RTA) 9.0 per 100m ² for weekend day (RTA)	52	91
Stage 2	Golf Village	Hotel & Lodge 60 Rooms	2532	0.4 per room (RTA)	41	41
		Hotel Restaurant	350	5 per 100m ² (RTA)	18	18
		Hotel Bar	220	5 per 100m ² (RTA)	34	34
		Conference Rooms	1000	On a typical day 80% will be full with 50% arriving by private vehicle whilst the other 50% is in buses or staying at the onsite hotel	40	40
		Retail/ Commercial	1000 GFA	5.2 per 100m ² for weekday (RTA) 9.0 per 100m ² for weekend day (RTA)	52	91
Completed Resort					984	1190
Internal Trips Removed					656	737

The above trip rates assume that each activity operate independently. However, in reality trips are likely to be shared between activities. For example, some of the golf club visitors could stay at any of the on-site accommodation options on offer. Similarly, the hotel bar and café could be used by hotel guests or golf club visitors already on site. To account for these shared trips within the resort, the trip generation of all activity was discounted by 20% whilst retail/ commercial rates were discounted by 50%. Consequently, the resort is expected to generate approximately 530 two-way trips on a weekday peak hour and 593 two-way trips on Sunday peak hour. A further 127 two-way trips on a weekday peak hour and 142 two-way trips on Sunday peak hour will be added to the network by the Golf Village.

7.2 Trip Distribution

Trips associated with the golf club/ academy, 20% of retail/ commercial and 20% of the spa village accommodation were assigned to the existing Mapleham Drive Roundabout whereas the remainder of the stage 1 resort was assigned to two new intersections anticipated between Mapleham Drive and Infinity Drive. The intersection closest to Mapleham Drive will be a left in left out intersection primarily designed to accommodate hotel and spa visitors. A full movement intersection providing access to the spa village will be located between Mara Kai Place and Infinity Drive.

The existing turning movement proportions were used to inform the trip distribution. In general, 60% of trips will be arriving/ leaving from the west whilst the remainder will be from Pegasus Town. However, considering the new land uses, the above distribution is anticipated to change with more demand coming and going to Main North Road (SH1). The trips for each land use were split according to **Table 7.2**.

Table 7.2 Anticipated Trip Distribution

Land Use	Origin/ Destination is Pegasus Town	Origin/ Destination is via SH1/ Pegasus Boulevard Roundabout
Golf Club	40%	60%
Residential	20%	80%
Retail/ Commercial	50%	50%
Hospitality – Dining, Café and Bar	40%	60%
Hospitality – Conference/ Events	0%	100%
Accommodation	0%	100%
Spa/ Water park	10%	90%
Average Proportion	23%	77%

8. Effects on Transport Network

8.1 Modelling Approach

Pegasus Boulevard currently carries approximately 6,000 vehicles a day. During the site visit and surveys, it was observed that Pegasus Boulevard between Main North Road and Infinity Drive operates in almost free flowing conditions with minimal delays and queues.

Pegasus Town was granted resource consent in 2006, to provide 1800 residential dwellings. However, based on the 2018 census, Pegasus Town has only 1059 dwellings, which is 60% of the anticipated 1800 dwellings. Therefore, for a robust assessment the surveyed traffic flow has been adjusted to reflect a fully developed Pegasus Town. The surveyed traffic flows associated with Pegasus Town were increased by 40%. In addition, the traffic flow along Main North Road was increased by 2% per annum to adjust for traffic growth along the State Highway.

In addition, a sensitivity test was conducted by increasing the traffic volume in and out of Ravenswood by 150% to account for the fully developed Ravenswood residential and commercial developments.

The future year was chosen as 2029 (10 years from current). The following scenarios were modelled;

Weekday Peak Hour

- 2019 base with semi developed Pegasus Town and Mapleham subdivisions and golf course
- 2029 base with fully developed Pegasus Town and Mapleham subdivisions and golf course
- 2029 base with Stage 1 development
- 2029 base with full development (incl second hotel)
- 2029 base with full development and sensitivity test for Ravenswood

Sunday Peak Hour

- 2019 base with semi developed Pegasus Town and Mapleham subdivisions and golf course
- 2029 base with fully developed Pegasus Town and Mapleham subdivisions and golf course
- 2029 base with Stage 1 development
- 2029 base with full development (incl second hotel)
- 2029 base with full development and sensitivity test for Ravenswood

8.2 Model results

The performance of the subject roundabouts for the above scenarios was tested using SIDRA Intersection 8 Software. SIDRA Intersection offers a range of outputs for any given model. The outputs selected for this analysis are:

- Degree of Saturation (DoS)
- Average delay (seconds);
- Level of Service (LOS); and
- 95th percentile back of queue and queue distance (metres).

The DOS is a ratio of the demand placed on the intersection against the capacity of the intersection. A DOS equal to 1.0 indicates that the intersection is operating at its maximum theoretical capacity.

Average delay is the average delay experienced by vehicles travelling through an intersection and includes deceleration, queuing, stopping and acceleration.

The LOS generally describes the traffic conditions in terms of travel time, volume, capacity, freedom to manoeuvre and convenience. The LOS ranges from A to F where A represents the least impediment to vehicle movement and F represents heavy congested conditions.

The 95th percentile back of queue and queue distance is the value below which 95% of all observed queue lengths fall (i.e. 5% of all observed queue lengths exceed this value).

One of the key metrics reported is the Level of Service (LOS) at an approach level and overall at each intersection. Typically, in assessments of intersections in peak demand periods the industry best practice is to keep the operation of an intersection at or below LOS E although LOS F can be tolerated in busy urban environments. A general description of level of service is shown in [Table 7.3](#).

Table 7.3 Level of Service (LOS) general descriptions

Level of Service Band	General Traffic Flow Description
LOS A	Primarily free-flow operation
LOS B	Reasonably unimpeded operation
LOS C	Stable operation
LOS D	A less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed
LOS E	Characterised by unstable operation and significant delay
LOS F	Characterised by flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay

Performance of the road network for each of the scenarios is described below with a summary at the end of the section. Detailed outputs are included in Appendix C and D.

8.3 Intersection performance

2019 base with semi developed Pegasus Town and Mapleham subdivisions and golf course

The performance of the two nearby intersections mentioned previously has been modelled with the collected turning movement data. The modelled queues were calibrated using observed queues.

The results show that the intersections operate with minimal queues and delays with an overall LOS A at both the SH1 roundabout and Mapleham Drive roundabout. The worst approach for the SH1 intersection, which is SH1 North has a degree of saturation of 0.398 with 7.1 seconds average delay. The worst approach for the Mapleham Drive intersection, which is Pegasus Boulevard North West has a degree of saturation of 0.267 with 4.7s average delay.

The Sunday results were similar with minimal queuing and delays at both intersections.

2029 base with fully developed Pegasus Town and Mapleham subdivisions and golf course

For this scenario, the above traffic volumes were increased to account for 10 years traffic growth and a fully developed Pegasus Town subdivision.

Similar to the existing scenario, the results show that the intersections operate with minimal queues and delays with an overall LOS A at both the SH1 roundabout and Mapleham Drive roundabout. The worst approach for the SH1 intersection, which is SH1 North has a degree of saturation of 0.646 with 12.8s average delay. The worst approach for the Mapleham Drive intersection, which is Pegasus Boulevard North West has a degree of saturation of 0.479 with 4.9s average delay.

The Sunday results were similar with minimal queuing and delays at both intersections.

2029 base with Stage 1 development

For this scenario, the above traffic volumes were increased to account for the Stage 1 components of the Resort. Furthermore, a new left in/ left out intersection and a three-legged roundabout between Mara-kai Place and Infinity Drive is proposed. The roundabout location satisfies the minimum distance to nearby intersections criteria of the WDP.

The results show that the intersections operate with reasonable queues and delays with SH1 roundabout performing with an overall LOS B and Mapleham Drive roundabout performing at LOS A. This demonstrates that there is capacity within the receiving environment to accommodate additional traffic associated with the proposed plan change, without adversely affecting the performance of the receiving transport environment.

The worst approach for the SH1 intersection, which is SH1 North has a degree of saturation of 0.901 with 37.3s average delay. The worst approach for the Mapleham Drive intersection, which is Pegasus Boulevard North West has a degree of saturation of 0.649 with 9.0 seconds average delay. The new roundabout intersection will operate with a degree of saturation of 0.515, an average delay of 5.7s and LOS A.

The Sunday results were similar with LOS B at the SH1 roundabout, LOS A at Mapleham Drive roundabout and Mara-Kai Place roundabout.

2029 base with full development (including second hotel)

For this scenario, the above traffic volumes were increased to account for the Stage 2 components of the Resort. The results show that the intersections operate with reasonable queues and delays with SH1 roundabout performing with an overall LOS B and Mapleham Drive roundabout performing at LOS A. The worst approach for the SH1 intersection, which is SH1 North has a degree of saturation of 0.734 with 27.6s average delay. The worst approach for the Mapleham Drive intersection, which is Pegasus Boulevard North West has a degree of saturation of 0.658 with 5.0s average delay. The new roundabout intersection will operate with a degree of saturation of 0.524, an average delay of 5.7s and LOS A.

The Sunday results were similar with LOS B at SH1 roundabout, LOS A at Mapleham Drive roundabout and Mara-Kai Place roundabout.

2029 base with full development and fully developed Ravenswood

In this scenario, in order to account for a fully developed Ravenswood subdivision, the existing traffic flows in and out of Bob Robertson Drive were increased by 160%. This increased trip generation is associated with the residential, commercial and supermarket land uses as the McDonalds and BP fuel station are part of the existing trip generation.

The following trips were added to the SH1/ Pegasus Boulevard roundabout.

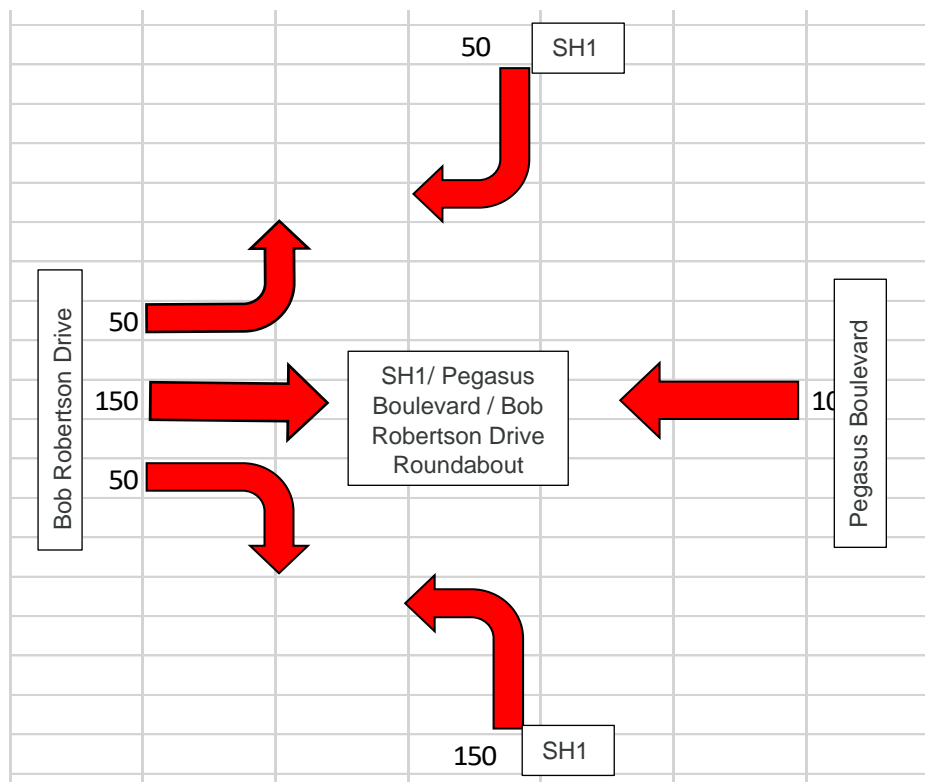


Figure 7.1 Ravenswood Trip Generation

The results showed that in the evening peak hour the intersection would operate at an overall LOS E, with an average delay of 57.7 seconds. The worst approach, SH1 North has a degree of saturation of 1.157 with an average delay of 216.1 seconds and LOS F. The Sunday peak hour shows similar queues and delays with SH1 roundabout performing

with an overall LOS D. The worst approach, which is SH1 North has a degree of saturation of 0.995 with an average delay of 79.8 seconds.

The addition of Ravenswood traffic has minimal impact on the performance of the Mapleham Drive/ Pegasus Drive intersection and the new roundabout for both time periods.

Overall, the introduction of more Ravenswood traffic will affect the performance of the SH1/ Pegasus Boulevard roundabout with a drop in the overall LOS.

8.4 Comparison of Scenarios

To consider the effects of the development it is helpful to see the results of intersection performance for each scenario side-by-side. The existing, future base and with development scenarios for the PM peak hour/ Sunday peak hour for the SH1/ Pegasus Boulevard intersection are shown in **Table 7.4** and **Table 7.5**.

The level of service change between the future base and the development scenarios are acceptable except for the fully developed resort and Ravenswood scenario where the north approach performance is unacceptable.

Table 7.4 SH1/ Pegasus Boulevard weekday peak hour comparison

Approach	Movement	Existing Base	Future Base	Pegasus Resort Stage 1	Full Pegasus Resort	Full Pegasus with Ravenswood
Pegasus Boulevard E	Left	LOS A	LOS A	LOS A	LOS A	LOS A
	Ahead	LOS A	LOS A	LOS A	LOS A	LOS A
	Right	LOS B	LOS B	LOS B	LOS B	LOS B
Approach		<u>LOS A</u>	LOS A	LOS B	LOS B	LOS B
Main North Road N	Left	LOS A	LOS B	LOS D	LOS C	LOS F
	Ahead	LOS A	LOS B	LOS D	LOS C	LOS F
	Right	LOS B	LOS B	LOS C	LOS D	LOS F
Approach		LOS A	LOS B	LOS D	LOS C	LOS F
Bob Robertson W	Left	LOS A	LOS A	LOS B	LOS B	LOS B
	Ahead	LOS A	LOS A	LOS A	LOS B	LOS C
	Right	LOS B	LOS B	LOS B	LOS B	LOS C
Approach		LOS B	LOS B	LOS B	LOS B	LOS C
Main North Road S	Left	LOS A	LOS A	LOS A	LOS A	LOS B
	Ahead	LOS A	LOS A	LOS A	LOS A	LOS B
	Right	LOS B	LOS B	LOS B	LOS B	LOS B
Approach		LOS A	LOS A	LOS A	LOS A	LOS B
Intersection		LOS A	<u>LOS A</u>	<u>LOS B</u>	LOS B	LOS E

Table 7.5 SH1/ Pegasus Boulevard Sunday Peak Hour Comparison

Approach	Movement	Existing Base	Future Base	Pegasus Resort Stage 1	Full Pegasus Resort	Full Pegasus with Ravenwood
Pegasus Boulevard E	Left	LOS A	LOS A	LOS B	LOS C	LOS D
	Ahead	LOS A	LOS A	LOS A	LOS A	LOS B
	Right	LOS B	LOS B	LOS B	LOS B	LOS B
Approach		LOS A	LOS B	LOS B	LOS C	LOS D
Main North Road N	Left	LOS A	LOS B	LOS C	LOS B	LOS F
	Ahead	LOS A	LOS A	LOS C	LOS B	LOS F
	Right	LOS B	LOS B	LOS B	LOS C	LOS F
Approach		LOS A	LOS B	LOS C	LOS B	LOS F
Bob Robertson W	Left	LOS A	LOS B	LOS B	LOS B	LOS B
	Ahead	LOS A	LOS A	LOS A	LOS A	LOS C
	Right	LOS B	LOS B	LOS B	LOS B	LOS D
Approach		LOS B	LOS B	LOS B	LOS B	LOS C
Main North Road S	Left	LOS A	LOS A	LOS A	LOS A	LOS B
	Ahead	LOS A	LOS A	LOS A	LOS A	LOS B
	Right	LOS B	LOS B	LOS B	LOS B	LOS C
Approach		LOS A	LOS A	LOS A	LOS A	LOS B
Intersection		LOS A	LOS A	LOS B	LOS B	LOS D

8.5 Summary of Development Effects

This section has described the effects to the road network as a result of the proposed Pegasus Resort in the critical weekday evening peak period and the Sunday peak period. The average delay on the north approach to the SH1/ Pegasus Boulevard intersection is expected to increase by 15 seconds. However, when the Ravenswood development traffic is introduced the average delay increases by more than 200 seconds.

Intersection improvements such as extending the length of the short lanes on the State Highway, modifying the east approach to include two exit lanes or changing the lane configuration on the west approach to shared left turn/ through and dedicated right turn could alleviate the modelled delays and queues. However, given the uncertainty around the future receiving environment in the vicinity of the SH1/ Pegasus Boulevard roundabout the above traffic modelling results should be discussed with NZ Transport Agency.

The proposed Woodend Bypass could also significantly alter the traffic movements in the area.

As discussed in Section 6, walking and cycling links will be designed within the resort zone and connect to external links to support and encourage trips made by modes other than the private motor vehicles.

9. Strategic Planning Framework

There are a number of key strategic planning documents with which any land rezoning is expected to conform. An assessment of the proposed Pegasus Resort development against these documents is summarised below.

9.1 Regional Policy Environment

Canterbury Regional Policy Statement

The Canterbury Regional Policy Statement 2013 sets out significant resource management issues in the region and details ways to resolve those issues and achieve the integrated management of the natural and physical resources. Chapter 5 ('Land Use and Infrastructure') highlights a number of policies relating to the transportation networks:

Policy 5.3.7 - Strategic land transport network and arterial roads (Entire Region)

In relation to strategic land transport network and arterial roads, the avoidance of development which:

- (1) adversely affects the safe efficient and effective functioning of this network and these roads, including the ability of this infrastructure to support freight and passenger transport services; and*
- (2) in relation to the strategic land transport network and arterial roads, to avoid development which forecloses the opportunity for the development of this network and these roads to meet future strategic transport requirements.*

Policy 5.3.8 - Land use and transport integration (Wider Region)

Integrate land use and transport planning in a way:

- (1) that promotes:*
 - (a) the use of transport modes which have low adverse effects;*
 - (b) the safe, efficient and effective use of transport infrastructure, and reduces where appropriate the demand for transport;*
- (2) that avoids or mitigates conflicts with incompatible activities; and*
- (3) where the adverse effects from the development, operation and expansion of the transport system:*
 - (a) on significant natural and physical resources and cultural values are avoided, or where this is not practicable, remedied or mitigated; and*
 - (b) are otherwise appropriately controlled.*

Policy 5.3.9 - Regionally significant infrastructure (Wider Region)

In relation to regionally significant infrastructure (including transport hubs):

- (1) avoid development which constrains the ability of this infrastructure to be developed and used without time or other operational constraints that may arise from adverse effects relating to reverse sensitivity or safety;*

Policy 6.3.2 Development form and urban design

Business development, residential development (including rural residential development) and the establishment of public space is to give effect to the principles of good urban design below, and those of the NZ Urban Design Protocol 2005, to the extent appropriate to the context:

(2) Integration – recognition of the need for well-integrated places, infrastructure, movement routes and networks, spaces, land uses and the natural and built environment. These elements should be overlaid to provide an appropriate form and pattern of use and development.

(3) Connectivity – the provision of efficient and safe high quality, barrier free, multimodal connections within a development, to surrounding areas, and to local facilities and services, with emphasis at a local level placed on walking, cycling and public transport as more sustainable forms of transport

Policy 6.3.4 Transport effectiveness–

Ensure that an efficient and effective transport network that supports business and residential recovery is restored, protected and enhanced so that it maintains and improves movement of people and goods around Greater Christchurch by:

(1) avoiding development that will overload strategic freight routes;

(2) providing patterns of development that optimise use of existing network capacity and ensuring that, where possible, new building projects support increased uptake of active and public transport, and provide opportunities for modal choice;

(3) providing opportunities for travel demand management;

(4) requiring integrated transport assessment for substantial developments; and

(5) improving road user safety.

The Resort will not require direct access to/from the strategic road network, nor will it compromise the use of infrastructure for freight or passenger transport. Pegasus Boulevard is currently classified as a Local Road and the Resort would not prevent it from being upgraded to a higher hierarchy in the future because access to each land use is from internal roads and not directly from Pegasus Boulevard.

The provision of some residential development within the Resort will ensure some recreational and hospitality trips are captured within the development reducing the demand on the external road network. The development is located within 2km from more than 3300 residential dwellings, which is an acceptable cycling distance for many people. The provision of shared paths with underpasses to provide safe crossing of higher speed roads will encourage walking and cycling as the population grows.

The Christchurch Northern Motorway and the Woodend Bypass are two significant infrastructure projects currently scheduled for the region. Neither of these projects will be adversely affected by the proposed resort development. The Bypass is expected to be connected just south of the SH1/ Pegasus Roundabout therefore will improve connectivity to the site.

The traffic effects assessment shows that the traffic generated by the proposed plan change does not adversely affect the effective or safe functioning of the strategic road network in the immediate area, and the resultant levels of service do not preclude the arterial network from being developed further in future. The development is not expected to have an adverse effect on the Woodend Bypass project.

The site accommodates non-car modes of travel and the provision made for walking and cycling journeys is considered to be appropriate for the nature of the proposed zoning. Walking and cycling links will be provided to connect the Resort to residential development towards the east and west, and the likely number of walking and cycling trips is unlikely to result in the need for additional infrastructure on the frontage road (Pegasus Boulevard).

The safety records in the area do not indicate that the plan change request would result in any adverse effects arising on the adjacent network, and the infrastructure within the site will be designed to meet current WDC and NZ standards.

Canterbury Regional Land Transport Plan 2015 – 2025

The Canterbury Regional Land Transport Plan 2015 – 2025 describes a list of primary objectives to achieve the vision of “Canterbury has an accessible, affordable, integrated, safe, resilient and sustainable transport system”.

These primary objectives are;

- Progressively reduce transport-related fatalities and serious injuries
- Increase the attractiveness of public transport, walking and cycling, so there is greater use of these modes:
 - For public transport the focus is on timeliness, convenience, affordability, efficiency, connectedness, and sustainability
 - For walking and cycling the focus is on safety, amenity, convenience, connectivity and being able to take a direct route
- Improve connections between different transport modes
- Increased capability for appropriate roads and bridges to carry heavy vehicles
- All roads comply with One Network Road Classification performance measures
- Improve journey time reliability on key corridors, with a focus on freight, public transport and tourism
- Improve access to freight hubs
- Resilience routes are in place for strategic routes that are most at risk of disruption
- Reduce the number and duration of road closures
- Increased uptake of energy efficient and environmentally sustainable vehicles
- Increased transport and land use integration
- Reduced air and water pollution
- Improved storm water management

The Pegasus Resort will facilitate a development that will not give rise to adverse effects on the strategic transport network and does not require any new roading links. The plan change area is located on a key movement corridor that provides public transport services and will therefore provide for a choice of travel modes. ECAN is proposing changes to the Christchurch bus network which is expected to increase bus services past the site to further improve public transport accessibility.

The proposal does not deviate from the ONRC classification or performance measures.

Canterbury Regional Public Transport Plan 2018 – 2028

The Canterbury Regional Public Transport Plan 2018-2028 sets out Environment Canterbury's objectives and policies for delivering public transport in Canterbury. One of the key objectives of the plan is to grow and expand the Christchurch Public Transport network whilst growing patronage and providing a quality customer experience.

The proposed changes to the Waimakariri services will assist in improving public transport accessibility between local suburbs and the Resort.

9.2 Local Policy Environment

Waimakariri District Plan

Objectives and policies

There are three policies within the District Plan which are particularly relevant to consideration of a plan change request:

Policy 11.1.1.5 –

New developments and activities in relation to their traffic generation characteristics should:

- A) Locate on or establish primary access to an appropriate level of road within the road hierarchy*
- B) Not have vehicular access to an inappropriate level of road within the hierarchy*
- C) Provide cycleways along arterial, strategic and collector roads*

Policy 11.1.1.6 –

Every site should have access that provides safe entry and exit for vehicles to and from the site to a road without compromising the safety or efficiency of the road or road network. Where a site has two or more road frontages access should be from the lowest road classification within the road hierarchy.

Policy 11.1.1.7 –

Vehicle parking, loading and manoeuvring provided on-site, or within shared parking facilities, shall ensure that:

- a) safe and efficient access is provided;*
- b) use of off-site parking facilities will not adversely affect pedestrian, cycle or public transportation, public safety, and the safe, efficient operation of the road network; and*
- c) for shared parking, a legally binding arrangement is established that protects ongoing access and use.*

The proposal aims to provide a development that encourages recreation and tourism which is much desired in the Waimakariri district. The Resort proposal is in line with the above Policies by providing access from the existing road network using a typical road hierarchy where access is provided by the lowest classification. Vehicle access to the Resort will be via well designed roundabout intersections on a key movement corridor (Pegasus Boulevard). No new vehicle crossings that would compromise the functioning of Pegasus Boulevard are proposed.

All onsite parking, loading and turning for vehicles will be accommodated internally with appropriate pedestrian and cycle connections throughout the Resort.

District Plan Rules

No departures from the operative traffic and transportation rules within the District Plan and no new transportation-related Objectives, Policies or Rules are proposed. However, it is also envisaged that there may be occasional departures from these to achieve the optimum urban design outcome. If there are any deviations from this, these will be identified when land use and/or subdivision consents are sought, and the acceptability of these non-compliances determined at that time.

It is anticipated that at resource consent stage of any development, the transport related District Plan Rules set out in Chapter 30 Utilities and Traffic Management and the Waimakariri District Council Engineering Code of Practice Part 8 Rooding will form an appropriate basis for the design and layout of the internal site.

10. Conclusion

This Integrated Transport Assessment has identified, evaluated and assessed the various transport and access elements of a plan change request for land located at the Pegasus Golf Course to provide a resort with multiple hospitality and recreational activity. Overall, the development that would be facilitated by the plan change will result in an increased level of activity compared to the current zoning.

The current level of service of the surrounding roading network have been assessed, taking into account traffic growth expected at Pegasus Town and Ravenswood. Intersection traffic modelling has been undertaken to assess the operation of nearby intersections for the evening peak hour and Sunday afternoon peak hour under two future development scenarios. The results of the analysis demonstrate that the receiving transport network has some capacity to accommodate the traffic generated from the resort. However, when a fully developed Ravenswood subdivision is introduced, some relatively minor design and traffic management changes will be required to the SH1/Pegasus Boulevard roundabout to improve traffic operations with the forecast higher traffic flows.

Given the uncertainty around the future receiving environment in the vicinity of the SH1/ Pegasus Boulevard roundabout in particular the layout and timing of the proposed Woodend Bypass, discussions should be held with the NZ Transport Agency.

The current crash history along Pegasus Boulevard does not highlight any underlying safety issues. Accordingly, it is considered unlikely that the proposed development related traffic will compromise road safety within the vicinity. However, with the growth projected for nearby subdivisions an appropriate pedestrian/ cycle crossing facility may be required to ensure users can cross the State Highway safely.

The proposed rezoning has been assessed against the relevant transport planning framework contained in regional and local strategies and policies, and overall, it is considered that the proposal is consistent with the transport-related objectives and policies of those documents.

Appendix A Crash History



Untitled query

Saved sites

Pegasus

Crash year

2015 – 2019

Plain English report

21 results from your query.

Showing 20 100 results at once.

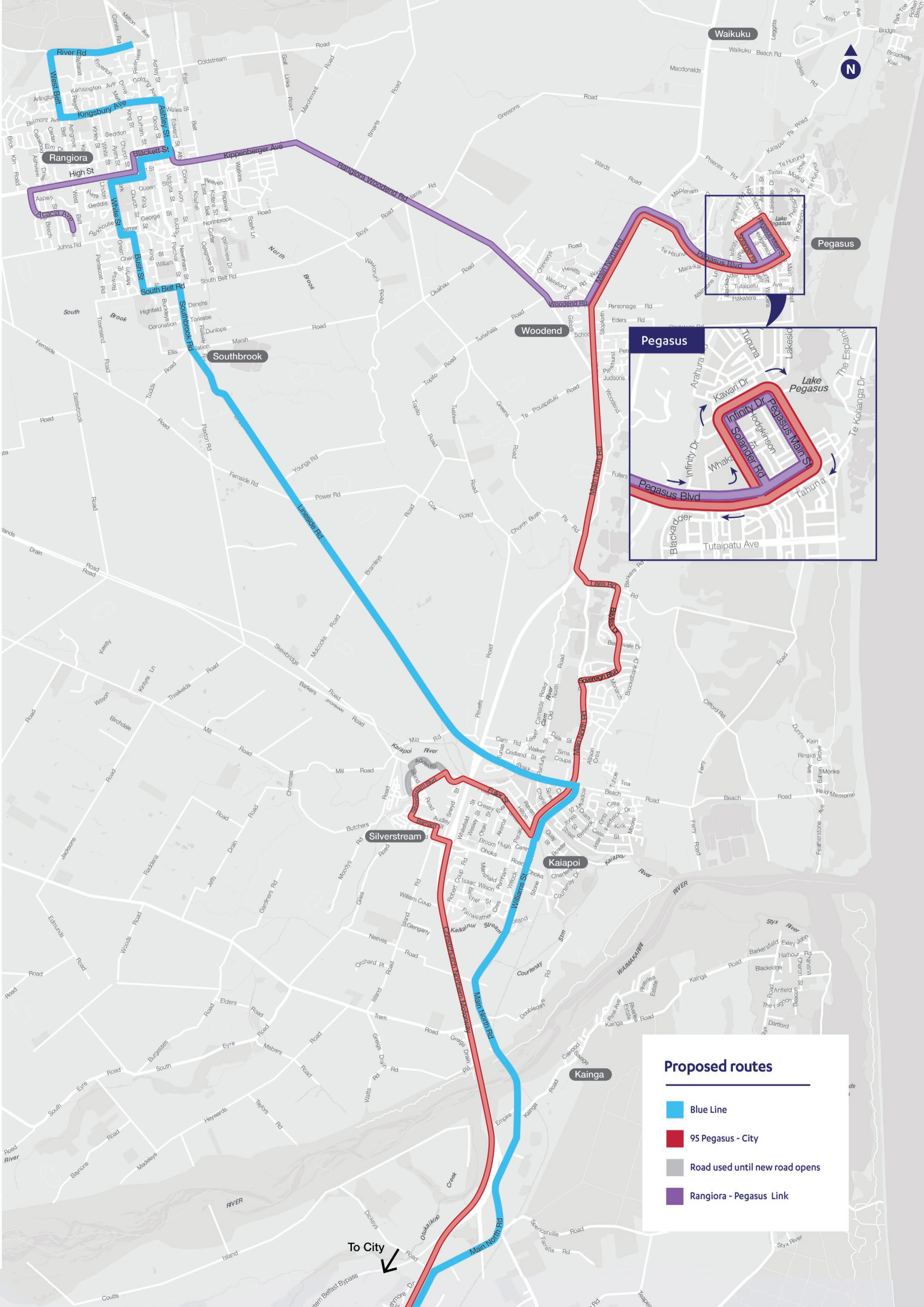
1-20 of 21

Crash road	Distance	Direction	Reference station	Route position	Side road	Easting	Northing	Longitude	Latitude	ID	Date	Day of week	Time	Description of events	Crash factors	Surface condition	Natural light	Weather	Junction	Control	Crash count fatal	Crash count severe	Crash count minor	Social cost \$/m
015-0311		I			PEGASUS BOULEVARD	1573557	5204743	172.673935	-43.309677	201976416	02/08/2019	Fri	11:20	Car/Wagon1 SDB on Old main north rd overtaking SUV2	-	Dry	Bright sun	Fine	Roundabout	Give way	0	0	0	0.02
015-0311		I			PEGASUS BOULEVARD	1573553	5204742	172.673889	-43.309689	201899991	21/11/2018	Wed	07:14	Car/Wagon1 SDB on SH 1 lost control turning right; went off road to left	-	Dry	Bright sun	Fine	Roundabout	Give way	0	0	0	0.02
INFINITY DR		I			PEGASUS BOULEVARD	1574714	5204049	172.688171	-43.315971	201977948	15/08/2019	Thu	12:50	Car/Wagon1 EDB on PEGASUS BOULEVARD, PEGASUS, WAIMAKARIRI hit Car/Wagon2 crossing at right angle from right	-	Dry	Bright sun	Fine	Roundabout	Give way	0	0	0	0.02
MAIN NORTH ROAD		I			BOB ROBERTSON DRIVE	1573590	5204752	172.674347	-43.309593	201981144	20/09/2019	Fri	20:00	Car/Wagon1 SDB on BOB ROBERTSON DRIVE lost control turning right; went off road to left, Car/Wagon1 hit light pole	-	Dry	Dark	Fine	Roundabout	Give way	0	0	0	0.04
MAIN NORTH ROAD		I			BOB ROBERTSON DRIVE	1573563	5204783	172.674020	-43.309320	201970100	07/06/2019	Fri	12:58	Van1 NDB on MAIN NORTH ROAD changing lanes to left hit Car/Wagon2, Car/Wagon2 hit kerb	-	Dry	Bright sun	Fine	Roundabout	Give way	0	0	0	0.02
MAIN NORTH ROAD		I			PEGASUS BOULEVARD	1573575	5204739	172.674160	-43.309711	201985050	11/11/2019	Mon	07:55	Car/Wagon1 SDB on MAIN NORTH ROAD, WOODEND, WAIMAKARIRI lost control turning right; went off road to left, Car/Wagon1 hit light pole	-	Wet	Overcast	Light rain	Roundabout	Give way	0	0	0	0.02
MAIN NORTH ROAD		I			PEGASUS BOULEVARD	1573563	5204741	172.674011	-43.309700	201984989	10/11/2019	Sun	19:45	Car/Wagon1 SDB on MAIN NORTH ROAD, WOODEND, WAIMAKARIRI lost control turning right; went off road to left, Car/Wagon1 hit fence	-	Wet	Twilight	Light rain	Roundabout	Give way	0	0	0	0.02
MAIN NORTH ROAD		I			PEGASUS BOULEVARD	1573587	5204786	172.674320	-43.309288	201967592	15/05/2019	Wed	12:10	Car/Wagon1 SDB on MAIN NORTH ROAD hit rear end of SUV2 stop/slow for cross traffic	-	Dry	Overcast	Fine	Roundabout	Give way	0	0	0	0.04
MAIN NORTH ROAD		I			PEGASUS BOULEVARD	1573578	5204740	172.674204	-43.309704	201969316	01/06/2019	Sat	16:00	Car/Wagon1 SDB on MAIN NORTH ROAD lost control turning right; went off road to left, Car/Wagon1 hit guard rail	-	Wet	Overcast	Heavy rain	Roundabout	Give way	0	0	0	0.04
PEGASUS BLVD		I			MAIN NORTH ROAD	1573597	5204742	172.674438	-43.309689	201975954	30/07/2019	Tue	06:45	Car/Wagon1 WDB on Pegasus blvd hit Cyclist2 (Age 58) crossing at right angle from right	-	Wet	Dark	Light rain	Roundabout	Give way	0	0	0	0.02
PEGASUS BOULEVARD	200m	W			INFINITY DRIVE	1574502	5204093	172.685562	-43.315567	201517243	17/10/2015	Sat	21:30	Car/Wagon1 EDB on PEGASUS BOULEVARD lost control; went off road to left, Car/Wagon1 hit non specific pole	-	Dry	Dark	Fine	Nil (Default)	Unknown	0	0	1	0.11

Crash road	Distance	Direction	Reference station	Route position	Side road	Easting	Northing	Longitude	Latitude	ID	Date	Day of week	Time	Description of events	Crash factors	Surface condition	Natural light	Weather	Junction	Control	Crash count fatal	Crash count severe	Crash count minor	Social cost \$/m
PEGASUS BOULEVARD	180m	W			MAPLEHAM DRIVE	1573779	5204652	172.676666	-43.310509	201645405	04/07/2016	Mon	12:40	Van1 EDB on Pegasus Boulevard lost control; went off road to left, Van1 hit non specific fence, non specific tree	-	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	0	0.02
PEGASUS BOULEVARD	170m	S			MAPLEHAM DRIVE	1574073	5204472	172.680283	-43.312141	201653658	11/11/2016	Fri	16:30	Car/Wagon1 SDB on Pegasus boulevard lost control turning right, Car/Wagon1 hit non specific tree	-	Dry	Overcast	Light rain	Nil (Default)	Unknown	0	0	0	0.02
PEGASUS BOULEVARD		I			SH 1S	1573582	5204771	172.674240	-43.309429	201653132	20/11/2016	Sun	13:13	load or trailer from Truck1 SDB on State Highway One hit VEHB, Truck1 hit non specific traffic island	-	Dry	Bright sun	Fine	Roundabout	Give way	0	0	0	0.02
PEGASUS BOULEVARD		I			SH 1S	1573575	5204754	172.674164	-43.309582	201714057	21/05/2017	Sun	16:12	Car/Wagon1 SDB on Main North Rd, Pegasus lost control turning right, Car/Wagon1 hit non specific cliff	-	Dry	Bright sun	Fine	Roundabout	Give way	0	0	2	0.11
SH 1S		I			PEGASUS BOULEVARD	1573582	5204757	172.674240	-43.309555	201631266	22/01/2016	Fri	19:02	Car/Wagon1 WDB on SH 1S hit Car/Wagon2 crossing at right angle from right	-	Dry	Bright sun	Fine	Roundabout	Give way	0	0	0	0.02
SH 1S		I			PEGASUS BOULEVARD	1573585	5204764	172.674286	-43.309494	201731909	09/02/2017	Thu	09:50	Truck1 NDB on Main North Road changing lanes/overtaking to right hit Car/Wagon2	-	Dry	Bright sun	Fine	Roundabout	Give way	0	0	0	0.02
SH 1S		I			PEGASUS BOULEVARD	1573582	5204771	172.674240	-43.309429	201757187	26/12/2017	Tue	11:50	Car/Wagon1 NDB on Sh1 hit rear end of Truck2 stopped/moving slowly	-	Wet	Overcast	Light rain	Roundabout	Give way	0	0	0	0.02
SH 1S		I			PEGASUS BOULEVARD	1573585	5204764	172.674286	-43.309494	201834114	10/02/2018	Sat	11:50	SUV1 NDB on Main north road lost control turning right, SUV1 hit non specific traffic island	-	Dry	Bright sun	Fine	Roundabout	Nil	0	0	0	0.02
SH 1S		I			PEGASUS BOULEVARD	1573585	5204764	172.674286	-43.309494	201650106	15/10/2016	Sat	01:00	Car/Wagon1 SDB on Main North Road lost control; went off road to left, Car/Wagon1 hit non specific fence	-	Wet	Dark	Fine	Roundabout	Give way	0	0	0	0.02

Appendix B Bus Routes





Waikuku



Pegasus

Woodend

Pegasus

Silverstream

Kaiapoi

Kainga

To City

Proposed routes

- Blue Line
- 95 Pegasus - City
- Road used until new road opens
- Rangiora - Pegasus Link

Appendix C
SIDRA Output



MOVEMENT SUMMARY

 Site: 101 [Pegasus Blvd / Te Haunio Ln Rbt - Sunday Future Base]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	11	2.0	0.458	4.9	LOS A	2.4	16.7	0.13	0.44	0.13	53.8
22	T1	678	2.0	0.458	4.8	LOS A	2.4	16.7	0.13	0.44	0.13	63.2
23	R2	18	2.0	0.458	10.1	LOS B	2.4	16.7	0.13	0.44	0.13	42.9
Approach		706	2.0	0.458	5.0	LOS A	2.4	16.7	0.13	0.44	0.13	62.3
NorthEast: GC Entrance												
24	L2	25	2.0	0.023	2.5	LOS A	0.1	1.0	0.59	0.37	0.59	39.6
25	T1	11	2.0	0.026	3.0	LOS A	0.1	1.1	0.61	0.49	0.61	35.9
26	R2	13	2.0	0.026	5.8	LOS A	0.1	1.1	0.61	0.49	0.61	38.9
Approach		48	2.0	0.026	3.5	LOS A	0.1	1.1	0.60	0.43	0.60	38.5
NorthWest: Pegasus Blvd												
27	L2	16	2.0	0.345	4.9	LOS A	1.4	9.9	0.11	0.45	0.11	40.7
28	T1	494	2.0	0.345	4.8	LOS A	1.4	9.9	0.11	0.45	0.11	63.3
29	R2	11	2.0	0.345	10.1	LOS B	1.4	9.9	0.11	0.45	0.11	55.9
Approach		520	2.0	0.345	4.9	LOS A	1.4	9.9	0.11	0.45	0.11	62.1
SouthWest: Te Haunui Ln												
30	L2	11	2.0	0.032	5.0	LOS A	0.1	1.0	0.50	0.61	0.50	50.7
31	T1	11	2.0	0.032	5.8	LOS A	0.1	1.0	0.50	0.61	0.50	35.3
32	R2	11	2.0	0.032	9.6	LOS A	0.1	1.0	0.50	0.61	0.50	51.7
Approach		32	2.0	0.032	6.8	LOS A	0.1	1.0	0.50	0.61	0.50	44.5
All Vehicles		1306	2.0	0.458	4.9	LOS A	2.4	16.7	0.15	0.45	0.15	60.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [Pegasus Blvd / Te Haunio Ln Rbt - Wk Full Dev with Ravenswood]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	3	2.0	0.489	5.0	LOS A	3.1	21.8	0.25	0.46	0.25	53.3
22	T1	668	2.0	0.489	5.0	LOS A	3.1	21.8	0.25	0.46	0.25	62.4
23	R2	28	2.0	0.489	10.3	LOS B	3.1	21.8	0.25	0.46	0.25	42.6
Approach		700	2.0	0.489	5.2	LOS A	3.1	21.8	0.25	0.46	0.25	61.2
NorthEast: GC Entrance												
24	L2	29	2.0	0.070	12.9	LOS B	0.5	3.4	0.92	0.78	0.92	35.6
25	T1	11	2.0	0.103	10.1	LOS B	0.8	5.9	0.95	0.79	0.95	33.4
26	R2	52	2.0	0.103	12.9	LOS B	0.8	5.9	0.95	0.79	0.95	36.0
Approach		92	2.0	0.103	12.6	LOS B	0.8	5.9	0.94	0.79	0.94	35.5
NorthWest: Pegasus Blvd												
27	L2	48	2.0	0.755	5.1	LOS A	6.6	47.1	0.26	0.44	0.26	40.4
28	T1	1109	2.0	0.755	5.0	LOS A	6.6	47.1	0.26	0.44	0.26	62.5
29	R2	11	2.0	0.755	10.3	LOS B	6.6	47.1	0.26	0.44	0.26	55.2
Approach		1168	2.0	0.755	5.1	LOS A	6.6	47.1	0.26	0.44	0.26	61.0
SouthWest: Te Haunui Ln												
30	L2	11	2.0	0.035	5.3	LOS A	0.2	1.1	0.55	0.62	0.55	50.5
31	T1	11	2.0	0.035	6.1	LOS A	0.2	1.1	0.55	0.62	0.55	35.2
32	R2	11	2.0	0.035	9.9	LOS A	0.2	1.1	0.55	0.62	0.55	51.5
Approach		32	2.0	0.035	7.1	LOS A	0.2	1.1	0.55	0.62	0.55	44.4
All Vehicles		1992	2.0	0.755	5.5	LOS A	6.6	47.1	0.29	0.47	0.29	58.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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: ABLEY TRANSPORTATION CONSULTANTS LIMITED | Processed: Tuesday, 8 September 2020 1:16:03 p.m.

Project: J:\Sports & Education Corporation Ltd (SAECL)\SAECL-J001 Pegasus Resort Outline Development Plan\Models\Pegasus - Te Haunui Rbt Revised.sip8

MOVEMENT SUMMARY

 Site: 101 [Pegasus Blvd / Te Haunio Ln Rbt - Sunday Full Dev with Ravenswood]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	11	2.0	0.653	5.0	LOS A	5.2	37.0	0.29	0.46	0.29	53.2
22	T1	936	2.0	0.653	5.0	LOS A	5.2	37.0	0.29	0.46	0.29	62.2
23	R2	23	2.0	0.653	10.3	LOS B	5.2	37.0	0.29	0.46	0.29	42.5
Approach		969	2.0	0.653	5.1	LOS A	5.2	37.0	0.29	0.46	0.29	61.5
NorthEast: GC Entrance												
24	L2	18	2.0	0.030	6.9	LOS A	0.2	1.3	0.77	0.59	0.77	37.8
25	T1	11	2.0	0.061	5.0	LOS A	0.4	3.0	0.78	0.65	0.78	35.1
26	R2	42	2.0	0.061	7.8	LOS A	0.4	3.0	0.78	0.65	0.78	37.9
Approach		71	2.0	0.061	7.1	LOS A	0.4	3.0	0.77	0.63	0.77	37.4
NorthWest: Pegasus Blvd												
27	L2	34	2.0	0.554	4.9	LOS A	3.2	22.6	0.17	0.45	0.17	40.6
28	T1	804	2.0	0.554	4.9	LOS A	3.2	22.6	0.17	0.45	0.17	63.0
29	R2	11	2.0	0.554	10.2	LOS B	3.2	22.6	0.17	0.45	0.17	55.7
Approach		848	2.0	0.554	4.9	LOS A	3.2	22.6	0.17	0.45	0.17	61.6
SouthWest: Te Haunui Ln												
30	L2	11	2.0	0.045	7.8	LOS A	0.2	1.8	0.72	0.71	0.72	49.0
31	T1	11	2.0	0.045	8.6	LOS A	0.2	1.8	0.72	0.71	0.72	34.5
32	R2	11	2.0	0.045	12.4	LOS B	0.2	1.8	0.72	0.71	0.72	49.9
Approach		32	2.0	0.045	9.6	LOS A	0.2	1.8	0.72	0.71	0.72	43.2
All Vehicles		1920	2.0	0.653	5.2	LOS A	5.2	37.0	0.26	0.46	0.26	59.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [SH1 / Pegasus Blvd Rbt - Wk Current]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	176	2.0	0.179	6.5	LOS A	1.0	6.9	0.62	0.70	0.62	60.5
22	T1	18	2.0	0.092	7.3	LOS A	0.4	3.1	0.62	0.77	0.62	58.1
23	R2	43	2.0	0.092	14.1	LOS B	0.4	3.1	0.62	0.77	0.62	57.8
Approach		237	2.0	0.179	7.9	LOS A	1.0	6.9	0.62	0.72	0.62	59.8
NorthEast: SH1												
24	L2	29	2.0	0.398	6.9	LOS A	2.7	19.8	0.65	0.64	0.65	59.8
25	T1	520	5.0	0.398	6.8	LOS A	2.7	19.8	0.64	0.65	0.64	61.7
26	R2	22	2.0	0.197	14.0	LOS B	1.1	7.9	0.60	0.68	0.60	60.9
Approach		572	4.7	0.398	7.1	LOS A	2.7	19.8	0.64	0.65	0.64	61.5
NorthWest: Bob Robertson Dr												
27	L2	36	2.0	0.054	8.1	LOS A	0.2	1.7	0.63	0.73	0.63	59.5
28	T1	23	2.0	0.078	6.6	LOS A	0.4	2.6	0.61	0.75	0.61	58.8
29	R2	46	2.0	0.078	13.4	LOS B	0.4	2.6	0.61	0.75	0.61	58.5
Approach		105	2.0	0.078	10.1	LOS B	0.4	2.6	0.62	0.74	0.62	58.9
SouthWest: SH1												
30	L2	117	2.0	0.325	4.7	LOS A	2.3	16.6	0.30	0.42	0.30	62.0
31	T1	431	5.0	0.325	4.4	LOS A	2.3	16.6	0.30	0.45	0.30	63.3
32	R2	360	2.0	0.325	11.2	LOS B	2.3	16.1	0.31	0.60	0.31	58.9
Approach		907	3.4	0.325	7.2	LOS A	2.3	16.6	0.30	0.51	0.30	61.3
All Vehicles		1821	3.6	0.398	7.4	LOS A	2.7	19.8	0.47	0.60	0.47	61.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [SH1 / Pegasus Blvd Rbt - Wk FS1]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	479	2.0	0.564	9.0	LOS A	4.6	32.9	0.85	0.96	1.01	58.7
22	T1	48	2.0	0.292	8.4	LOS A	1.6	11.3	0.75	0.90	0.75	57.2
23	R2	118	2.0	0.292	15.2	LOS B	1.6	11.3	0.75	0.90	0.75	56.9
Approach		645	2.0	0.564	10.1	LOS B	4.6	32.9	0.83	0.95	0.94	58.2
NorthEast: SH1												
24	L2	67	2.0	0.901	44.1	LOS D	20.2	147.3	1.00	1.59	2.67	38.0
25	T1	634	5.0	0.901	37.2	LOS D	20.2	147.3	0.98	1.45	2.29	41.6
26	R2	27	2.0	0.445	23.1	LOS C	3.3	23.9	0.93	1.02	1.10	53.3
Approach		728	4.6	0.901	37.3	LOS D	20.2	147.3	0.98	1.45	2.28	41.6
NorthWest: Bob Robertson Dr												
27	L2	43	2.0	0.115	12.2	LOS B	0.6	4.1	0.82	0.91	0.82	55.8
28	T1	53	2.0	0.196	9.6	LOS A	1.1	8.0	0.85	0.94	0.85	57.4
29	R2	57	2.0	0.196	16.3	LOS B	1.1	8.0	0.85	0.94	0.85	57.0
Approach		153	2.0	0.196	12.8	LOS B	1.1	8.0	0.84	0.93	0.84	56.8
SouthWest: SH1												
30	L2	142	2.0	0.588	6.0	LOS A	5.4	39.3	0.64	0.57	0.64	59.9
31	T1	525	5.0	0.588	5.8	LOS A	5.4	39.3	0.64	0.57	0.64	62.0
32	R2	824	2.0	0.625	12.2	LOS B	6.3	44.6	0.65	0.67	0.65	56.5
Approach		1492	3.1	0.625	9.3	LOS A	6.3	44.6	0.65	0.62	0.65	58.6
All Vehicles		3018	3.2	0.901	16.4	LOS B	20.2	147.3	0.78	0.91	1.11	53.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [SH1 / Pegasus Blvd Rbt - Sun Current]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	323	2.0	0.324	6.7	LOS A	1.9	13.4	0.65	0.75	0.65	60.4
22	T1	33	2.0	0.144	7.8	LOS A	0.7	4.9	0.63	0.80	0.63	58.2
23	R2	57	2.0	0.144	14.5	LOS B	0.7	4.9	0.63	0.80	0.63	57.9
Approach		413	2.0	0.324	7.8	LOS A	1.9	13.4	0.65	0.76	0.65	59.8
NorthEast: SH1												
24	L2	53	2.0	0.377	6.4	LOS A	2.5	18.4	0.60	0.61	0.60	60.1
25	T1	486	5.0	0.377	6.4	LOS A	2.5	18.4	0.59	0.62	0.59	61.9
26	R2	28	2.0	0.186	13.5	LOS B	1.0	7.4	0.56	0.65	0.56	60.9
Approach		567	4.6	0.377	6.7	LOS A	2.5	18.4	0.59	0.62	0.59	61.7
NorthWest: Bob Robertson Dr												
27	L2	51	2.0	0.081	8.4	LOS A	0.4	2.5	0.65	0.77	0.65	59.2
28	T1	44	2.0	0.125	6.8	LOS A	0.6	4.3	0.64	0.77	0.64	59.0
29	R2	64	2.0	0.125	13.5	LOS B	0.6	4.3	0.64	0.77	0.64	58.6
Approach		159	2.0	0.125	10.0	LOS B	0.6	4.3	0.64	0.77	0.64	58.9
SouthWest: SH1												
30	L2	48	2.0	0.328	4.9	LOS A	2.3	16.7	0.36	0.44	0.36	61.6
31	T1	564	5.0	0.328	4.6	LOS A	2.3	16.7	0.36	0.48	0.36	62.7
32	R2	261	2.0	0.328	11.4	LOS B	2.3	16.3	0.37	0.59	0.37	59.9
Approach		874	3.9	0.328	6.7	LOS A	2.3	16.7	0.37	0.51	0.37	61.8
All Vehicles		2013	3.6	0.377	7.2	LOS A	2.5	18.4	0.51	0.61	0.51	61.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [SH1 / Pegasus Blvd Rbt - Sun Future Base]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	549	2.0	0.617	9.5	LOS A	5.4	38.2	0.85	0.99	1.06	58.2
22	T1	56	2.0	0.278	8.8	LOS A	1.4	10.1	0.73	0.90	0.73	57.4
23	R2	97	2.0	0.278	15.5	LOS B	1.4	10.1	0.73	0.90	0.73	57.1
Approach		702	2.0	0.617	10.3	LOS B	5.4	38.2	0.83	0.97	0.99	58.0
NorthEast: SH1												
24	L2	89	2.0	0.587	10.4	LOS B	5.8	42.1	0.86	0.91	1.04	57.8
25	T1	593	5.0	0.587	9.9	LOS A	5.8	42.1	0.83	0.88	0.97	59.6
26	R2	35	2.0	0.290	15.8	LOS B	1.7	12.6	0.74	0.81	0.74	59.2
Approach		717	4.5	0.587	10.3	LOS B	5.8	42.1	0.83	0.88	0.97	59.4
NorthWest: Bob Robertson Dr												
27	L2	62	2.0	0.132	10.1	LOS B	0.6	4.3	0.75	0.87	0.75	57.6
28	T1	75	2.0	0.219	8.0	LOS A	1.2	8.2	0.77	0.86	0.77	58.5
29	R2	78	2.0	0.219	14.7	LOS B	1.2	8.2	0.77	0.86	0.77	58.1
Approach		215	2.0	0.219	11.0	LOS B	1.2	8.2	0.76	0.86	0.76	58.1
SouthWest: SH1												
30	L2	59	2.0	0.481	5.5	LOS A	4.0	29.0	0.54	0.51	0.54	60.5
31	T1	687	5.0	0.481	5.2	LOS A	4.0	29.0	0.54	0.53	0.54	61.8
32	R2	444	2.0	0.481	12.1	LOS B	3.9	27.9	0.55	0.65	0.55	58.3
Approach		1191	3.7	0.481	7.8	LOS A	4.0	29.0	0.54	0.58	0.54	60.4
All Vehicles		2824	3.4	0.617	9.3	LOS A	5.8	42.1	0.70	0.77	0.78	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [SH1 / Pegasus Blvd Rbt - Wk FS2]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	518	2.0	0.606	9.1	LOS A	5.0	35.8	0.86	0.99	1.04	58.6
22	T1	53	2.0	0.315	8.3	LOS A	1.7	11.9	0.75	0.90	0.75	57.3
23	R2	127	2.0	0.315	15.0	LOS B	1.7	11.9	0.75	0.90	0.75	57.0
Approach		698	2.0	0.606	10.1	LOS B	5.0	35.8	0.83	0.97	0.97	58.2
NorthEast: SH1												
24	L2	72	2.0	0.734	26.0	LOS C	10.0	72.5	1.00	1.25	1.71	46.5
25	T1	634	5.0	0.734	27.4	LOS C	10.0	72.5	1.00	1.24	1.72	46.7
26	R2	27	2.0	0.734	35.7	LOS D	8.7	63.6	1.00	1.24	1.72	45.4
Approach		733	4.6	0.734	27.6	LOS C	10.0	72.5	1.00	1.24	1.72	46.6
NorthWest: Bob Robertson Dr												
27	L2	43	2.0	0.124	12.8	LOS B	0.6	4.4	0.83	0.92	0.83	55.3
28	T1	56	2.0	0.216	10.1	LOS B	1.3	9.1	0.87	0.95	0.87	57.0
29	R2	57	2.0	0.216	16.8	LOS B	1.3	9.1	0.87	0.95	0.87	56.7
Approach		156	2.0	0.216	13.3	LOS B	1.3	9.1	0.86	0.94	0.86	56.4
SouthWest: SH1												
30	L2	142	2.0	0.602	6.2	LOS A	5.6	40.5	0.67	0.59	0.67	59.8
31	T1	525	5.0	0.602	5.9	LOS A	5.6	40.5	0.67	0.59	0.67	61.8
32	R2	869	2.0	0.667	12.4	LOS B	7.0	50.1	0.70	0.68	0.70	56.3
Approach		1537	3.0	0.667	9.6	LOS A	7.0	50.1	0.69	0.64	0.69	58.3
All Vehicles		3123	3.1	0.734	14.1	LOS B	10.0	72.5	0.80	0.87	1.00	55.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [SH1 / Pegasus Blvd Rbt - Wk FS2 with Fully Dev Ravenswood]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	518	2.0	0.610	9.3	LOS A	5.1	36.0	0.86	0.99	1.05	58.4
22	T1	158	2.0	0.444	8.8	LOS A	2.8	19.6	0.79	0.93	0.88	58.4
23	R2	127	2.0	0.444	15.5	LOS B	2.8	19.6	0.79	0.93	0.88	58.0
Approach		803	2.0	0.610	10.2	LOS B	5.1	36.0	0.83	0.97	0.99	58.3
NorthEast: SH1												
24	L2	72	2.0	1.157	213.0	LOS F	59.5	432.8	1.00	2.87	6.49	13.9
25	T1	634	5.0	1.157	215.3	LOS F	59.5	432.8	1.00	2.75	6.27	13.9
26	R2	80	2.0	1.157	225.1	LOS F	46.7	338.8	1.00	2.58	5.95	13.7
Approach		785	4.4	1.157	216.1	LOS F	59.5	432.8	1.00	2.75	6.26	13.9
NorthWest: Bob Robertson Dr												
27	L2	96	2.0	0.345	15.3	LOS B	1.9	13.7	0.91	0.97	0.98	53.3
28	T1	214	2.0	0.750	23.5	LOS C	7.1	50.6	1.00	1.19	1.61	48.1
29	R2	109	2.0	0.750	30.2	LOS C	7.1	50.6	1.00	1.19	1.61	47.9
Approach		419	2.0	0.750	23.4	LOS C	7.1	50.6	0.98	1.14	1.47	49.1
SouthWest: SH1												
30	L2	300	2.0	0.809	13.0	LOS B	13.2	95.3	0.98	0.99	1.33	55.4
31	T1	525	5.0	0.809	12.7	LOS B	13.5	96.3	0.98	0.99	1.32	56.9
32	R2	869	2.0	0.809	17.9	LOS B	13.5	96.3	0.96	0.94	1.25	53.6
Approach		1695	2.9	0.809	15.4	LOS B	13.5	96.3	0.97	0.96	1.29	54.9
All Vehicles		3702	2.9	1.157	57.7	LOS E	59.5	432.8	0.95	1.36	2.30	33.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [SH1 / Pegasus Blvd Rbt - Wk Future Base]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	299	2.0	0.346	7.2	LOS A	2.2	15.3	0.75	0.82	0.75	59.9
22	T1	31	2.0	0.179	8.1	LOS A	0.9	6.5	0.71	0.86	0.71	57.5
23	R2	74	2.0	0.179	14.9	LOS B	0.9	6.5	0.71	0.86	0.71	57.2
Approach		403	2.0	0.346	8.7	LOS A	2.2	15.3	0.74	0.83	0.74	59.2
NorthEast: SH1												
24	L2	51	2.0	0.646	13.5	LOS B	7.3	53.2	0.94	1.04	1.27	55.2
25	T1	634	5.0	0.646	12.6	LOS B	7.3	53.2	0.91	1.00	1.16	57.3
26	R2	27	2.0	0.319	17.1	LOS B	2.0	14.2	0.79	0.87	0.79	58.3
Approach		712	4.7	0.646	12.8	LOS B	7.3	53.2	0.91	1.00	1.15	57.2
NorthWest: Bob Robertson Dr												
27	L2	43	2.0	0.087	9.9	LOS A	0.4	2.8	0.73	0.85	0.73	57.8
28	T1	39	2.0	0.133	7.8	LOS A	0.7	4.8	0.73	0.84	0.73	58.2
29	R2	57	2.0	0.133	14.6	LOS B	0.7	4.8	0.73	0.84	0.73	57.9
Approach		139	2.0	0.133	11.2	LOS B	0.7	4.8	0.73	0.84	0.73	58.0
SouthWest: SH1												
30	L2	142	2.0	0.480	5.1	LOS A	4.1	29.5	0.45	0.48	0.45	61.0
31	T1	525	5.0	0.480	4.8	LOS A	4.1	29.5	0.45	0.48	0.45	63.2
32	R2	612	2.0	0.485	11.7	LOS B	4.1	29.0	0.47	0.63	0.47	57.2
Approach		1279	3.2	0.485	8.1	LOS A	4.1	29.5	0.46	0.55	0.46	59.9
All Vehicles		2533	3.4	0.646	9.7	LOS A	7.3	53.2	0.65	0.74	0.72	58.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [SH1 / Pegasus Blvd Rbt - Sun FS1]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	759	2.0	0.876	17.3	LOS B	13.7	97.3	1.00	1.28	1.80	51.8
22	T1	77	2.0	0.394	9.6	LOS A	2.3	16.1	0.78	0.94	0.85	56.7
23	R2	134	2.0	0.394	16.4	LOS B	2.3	16.1	0.78	0.94	0.85	56.4
Approach		969	2.0	0.876	16.6	LOS B	13.7	97.3	0.95	1.21	1.60	52.8
NorthEast: SH1												
24	L2	128	2.0	0.810	24.7	LOS C	13.4	97.2	1.00	1.32	1.88	47.3
25	T1	593	5.0	0.810	21.6	LOS C	13.4	97.2	0.97	1.23	1.65	50.3
26	R2	35	2.0	0.400	19.8	LOS B	2.8	20.0	0.88	0.96	0.96	55.8
Approach		756	4.4	0.810	22.0	LOS C	13.4	97.2	0.97	1.23	1.65	50.0
NorthWest: Bob Robertson Dr												
27	L2	62	2.0	0.165	11.5	LOS B	0.8	5.6	0.81	0.90	0.81	56.4
28	T1	108	2.0	0.320	9.0	LOS A	1.8	13.0	0.85	0.92	0.86	58.3
29	R2	78	2.0	0.320	15.7	LOS B	1.8	13.0	0.85	0.92	0.86	57.9
Approach		248	2.0	0.320	11.7	LOS B	1.8	13.0	0.84	0.91	0.85	57.7
SouthWest: SH1												
30	L2	59	2.0	0.595	6.1	LOS A	5.5	40.3	0.68	0.57	0.68	59.6
31	T1	687	5.0	0.595	5.8	LOS A	5.5	40.3	0.68	0.57	0.68	61.5
32	R2	639	2.0	0.595	12.8	LOS B	5.4	38.4	0.70	0.72	0.70	56.5
Approach		1385	3.5	0.595	9.1	LOS A	5.5	40.3	0.69	0.64	0.69	59.0
All Vehicles		3359	3.1	0.876	14.3	LOS B	13.7	97.3	0.84	0.96	1.18	54.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [SH1 / Pegasus Blvd Rbt - Sun FS2]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	803	2.0	0.931	23.2	LOS C	18.6	132.5	1.00	1.44	2.26	47.8
22	T1	81	2.0	0.418	9.9	LOS A	2.5	17.5	0.79	0.95	0.88	56.5
23	R2	141	2.0	0.418	16.6	LOS B	2.5	17.5	0.79	0.95	0.88	56.2
Approach		1025	2.0	0.931	21.2	LOS C	18.6	132.5	0.95	1.33	1.96	49.5
NorthEast: SH1												
24	L2	137	2.0	0.646	17.2	LOS B	7.4	53.8	1.00	1.13	1.41	52.2
25	T1	593	5.0	0.646	18.2	LOS B	7.4	53.8	1.00	1.14	1.43	52.6
26	R2	35	2.0	0.646	25.9	LOS C	6.7	48.8	1.00	1.15	1.44	51.5
Approach		764	4.3	0.646	18.4	LOS B	7.4	53.8	1.00	1.14	1.43	52.5
NorthWest: Bob Robertson Dr												
27	L2	62	2.0	0.172	11.8	LOS B	0.8	5.9	0.82	0.91	0.82	56.2
28	T1	115	2.0	0.346	9.5	LOS A	2.0	14.5	0.87	0.95	0.91	58.1
29	R2	78	2.0	0.346	16.3	LOS B	2.0	14.5	0.87	0.95	0.91	57.7
Approach		255	2.0	0.346	12.1	LOS B	2.0	14.5	0.86	0.94	0.89	57.5
SouthWest: SH1												
30	L2	59	2.0	0.617	6.3	LOS A	5.9	43.0	0.71	0.59	0.72	59.4
31	T1	687	5.0	0.617	6.0	LOS A	5.9	43.0	0.71	0.59	0.72	61.4
32	R2	680	2.0	0.623	13.3	LOS B	6.1	43.5	0.73	0.74	0.76	56.2
Approach		1426	3.4	0.623	9.5	LOS A	6.1	43.5	0.72	0.66	0.74	58.7
All Vehicles		3471	3.1	0.931	15.1	LOS B	18.6	132.5	0.86	0.99	1.26	54.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [SH1 / Pegasus Blvd Rbt - Sun FS2 with Fully Dev Ravenswood]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	803	2.0	0.998	44.7	LOS D	30.6	217.9	1.00	1.92	3.71	37.3
22	T1	186	2.0	0.582	11.8	LOS B	4.2	29.9	0.87	1.02	1.11	56.0
23	R2	141	2.0	0.582	18.5	LOS B	4.2	29.9	0.87	1.02	1.11	55.7
Approach		1131	2.0	0.998	36.0	LOS D	30.6	217.9	0.96	1.66	2.95	41.4
NorthEast: SH1												
24	L2	137	2.0	0.955	76.6	LOS F	25.8	186.7	1.00	1.85	3.46	28.5
25	T1	593	5.0	0.955	79.2	LOS F	25.8	186.7	1.00	1.81	3.40	28.3
26	R2	87	2.0	0.955	88.9	LOS F	21.1	153.4	1.00	1.76	3.33	27.5
Approach		817	4.2	0.955	79.8	LOS F	25.8	186.7	1.00	1.81	3.40	28.3
NorthWest: Bob Robertson Dr												
27	L2	115	2.0	0.392	14.9	LOS B	2.2	15.4	0.89	0.98	1.01	53.6
28	T1	273	2.0	0.875	30.3	LOS C	10.1	71.6	1.00	1.32	2.05	44.3
29	R2	131	2.0	0.875	37.1	LOS D	10.1	71.6	1.00	1.32	2.05	44.1
Approach		518	2.0	0.875	28.6	LOS C	10.1	71.6	0.98	1.24	1.82	46.0
SouthWest: SH1												
30	L2	217	2.0	0.809	12.9	LOS B	13.5	97.9	0.99	1.01	1.37	55.6
31	T1	687	5.0	0.809	12.8	LOS B	13.5	97.9	0.99	1.02	1.37	56.8
32	R2	680	2.0	0.809	20.7	LOS C	13.1	93.3	1.00	1.06	1.42	51.7
Approach		1584	3.3	0.809	16.2	LOS B	13.5	97.9	1.00	1.03	1.39	54.3
All Vehicles		4049	2.9	0.998	36.2	LOS D	30.6	217.9	0.98	1.39	2.29	41.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [Pegasus Blvd / Te Haunio Ln Rbt - Wk Current]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	2	2.0	0.134	4.8	LOS A	0.5	3.4	0.05	0.44	0.05	54.2
22	T1	199	2.0	0.134	4.7	LOS A	0.5	3.4	0.05	0.44	0.05	63.7
23	R2	4	2.0	0.134	10.1	LOS B	0.5	3.4	0.05	0.44	0.05	43.1
Approach		205	2.0	0.134	4.9	LOS A	0.5	3.4	0.05	0.44	0.05	62.9
NorthEast: GC Entrance												
24	L2	6	2.0	0.007	2.7	LOS A	0.0	0.3	0.55	0.33	0.55	39.5
25	T1	1	2.0	0.011	1.8	LOS A	0.1	0.4	0.52	0.45	0.52	35.8
26	R2	12	2.0	0.011	4.6	LOS A	0.1	0.4	0.52	0.45	0.52	38.7
Approach		19	2.0	0.011	3.8	LOS A	0.1	0.4	0.53	0.41	0.53	38.8
NorthWest: Pegasus Blvd												
27	L2	14	2.0	0.267	4.8	LOS A	0.9	6.1	0.03	0.44	0.03	41.0
28	T1	427	2.0	0.267	4.7	LOS A	0.9	6.1	0.03	0.44	0.03	63.9
29	R2	1	2.0	0.267	10.0	LOS B	0.9	6.1	0.03	0.44	0.03	56.4
Approach		442	2.0	0.267	4.7	LOS A	0.9	6.1	0.03	0.44	0.03	62.8
SouthWest: Te Haunui Ln												
30	L2	1	2.0	0.003	3.2	LOS A	0.0	0.0	0.20	0.47	0.20	51.8
31	T1	1	2.0	0.003	3.9	LOS A	0.0	0.0	0.20	0.47	0.20	35.8
32	R2	1	2.0	0.003	7.7	LOS A	0.0	0.0	0.20	0.47	0.20	52.8
Approach		3	2.0	0.003	4.9	LOS A	0.0	0.0	0.20	0.47	0.20	45.3
All Vehicles		669	2.0	0.267	4.8	LOS A	0.9	6.1	0.05	0.44	0.05	61.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [Pegasus Blvd / Te Haunio Ln Rbt - Wk Future Base]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	11	2.0	0.243	4.9	LOS A	1.0	7.1	0.12	0.45	0.12	53.9
22	T1	338	2.0	0.243	4.8	LOS A	1.0	7.1	0.12	0.45	0.12	63.3
23	R2	7	2.0	0.243	10.1	LOS B	1.0	7.1	0.12	0.45	0.12	43.0
Approach		356	2.0	0.243	4.9	LOS A	1.0	7.1	0.12	0.45	0.12	62.3
NorthEast: GC Entrance												
24	L2	7	2.0	0.012	6.2	LOS A	0.1	0.5	0.73	0.51	0.73	38.1
25	T1	11	2.0	0.032	4.1	LOS A	0.2	1.5	0.72	0.57	0.72	35.5
26	R2	20	2.0	0.032	6.9	LOS A	0.2	1.5	0.72	0.57	0.72	38.4
Approach		38	2.0	0.032	6.0	LOS A	0.2	1.5	0.72	0.55	0.72	37.5
NorthWest: Pegasus Blvd												
27	L2	17	2.0	0.479	4.8	LOS A	2.3	16.2	0.11	0.44	0.11	40.7
28	T1	726	2.0	0.479	4.8	LOS A	2.3	16.2	0.11	0.44	0.11	63.4
29	R2	11	2.0	0.479	10.1	LOS B	2.3	16.2	0.11	0.44	0.11	55.9
Approach		754	2.0	0.479	4.9	LOS A	2.3	16.2	0.11	0.44	0.11	62.5
SouthWest: Te Haunui Ln												
30	L2	11	2.0	0.027	3.6	LOS A	0.1	0.6	0.30	0.52	0.30	51.5
31	T1	11	2.0	0.027	4.3	LOS A	0.1	0.6	0.30	0.52	0.30	35.7
32	R2	11	2.0	0.027	8.1	LOS A	0.1	0.6	0.30	0.52	0.30	52.5
Approach		32	2.0	0.027	5.3	LOS A	0.1	0.6	0.30	0.52	0.30	45.1
All Vehicles		1179	2.0	0.479	4.9	LOS A	2.3	16.2	0.14	0.45	0.14	60.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [Pegasus Blvd / Te Haunio Ln Rbt - Sunday Current]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	1	2.0	0.259	4.8	LOS A	1.0	7.3	0.06	0.45	0.06	54.1
22	T1	399	2.0	0.259	4.7	LOS A	1.0	7.3	0.06	0.45	0.06	63.6
23	R2	11	2.0	0.259	10.1	LOS B	1.0	7.3	0.06	0.45	0.06	43.1
Approach		411	2.0	0.259	4.9	LOS A	1.0	7.3	0.06	0.45	0.06	62.8
NorthEast: GC Entrance												
24	L2	15	2.0	0.011	1.3	LOS A	0.1	0.4	0.44	0.23	0.44	39.9
25	T1	1	2.0	0.012	1.5	LOS A	0.1	0.4	0.46	0.43	0.46	35.9
26	R2	12	2.0	0.012	4.3	LOS A	0.1	0.4	0.46	0.43	0.46	38.9
Approach		27	2.0	0.012	2.6	LOS A	0.1	0.4	0.45	0.32	0.45	39.2
NorthWest: Pegasus Blvd												
27	L2	15	2.0	0.194	4.8	LOS A	0.6	4.1	0.04	0.45	0.04	40.9
28	T1	291	2.0	0.194	4.7	LOS A	0.6	4.1	0.04	0.45	0.04	63.8
29	R2	2	2.0	0.194	10.1	LOS B	0.6	4.1	0.04	0.45	0.04	56.3
Approach		307	2.0	0.194	4.8	LOS A	0.6	4.1	0.04	0.45	0.04	62.1
SouthWest: Te Haunui Ln												
30	L2	2	2.0	0.004	3.7	LOS A	0.0	0.1	0.32	0.48	0.32	51.8
31	T1	1	2.0	0.004	4.5	LOS A	0.0	0.1	0.32	0.48	0.32	35.8
32	R2	1	2.0	0.004	8.3	LOS A	0.0	0.1	0.32	0.48	0.32	52.8
Approach		4	2.0	0.004	5.0	LOS A	0.0	0.1	0.32	0.48	0.32	46.8
All Vehicles		749	2.0	0.259	4.8	LOS A	1.0	7.3	0.07	0.44	0.07	61.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [Pegasus Blvd / Te Haunio Ln Rbt - Sunday Full Dev]

New Site
 Site Category: (None)
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	11	2.0	0.569	5.0	LOS A	3.7	26.3	0.24	0.46	0.24	53.4
22	T1	805	2.0	0.569	5.0	LOS A	3.7	26.3	0.24	0.46	0.24	62.5
23	R2	23	2.0	0.569	10.3	LOS B	3.7	26.3	0.24	0.46	0.24	42.6
Approach		839	2.0	0.569	5.1	LOS A	3.7	26.3	0.24	0.46	0.24	61.6
NorthEast: GC Entrance												
24	L2	18	2.0	0.026	4.9	LOS A	0.1	1.0	0.68	0.50	0.68	38.6
25	T1	11	2.0	0.052	3.3	LOS A	0.3	2.4	0.67	0.57	0.67	35.6
26	R2	42	2.0	0.052	6.1	LOS A	0.3	2.4	0.67	0.57	0.67	38.5
Approach		71	2.0	0.052	5.4	LOS A	0.3	2.4	0.68	0.55	0.68	38.0
NorthWest: Pegasus Blvd												
27	L2	34	2.0	0.440	4.9	LOS A	2.0	14.6	0.14	0.45	0.14	40.7
28	T1	621	2.0	0.440	4.8	LOS A	2.0	14.6	0.14	0.45	0.14	63.2
29	R2	11	2.0	0.440	10.2	LOS B	2.0	14.6	0.14	0.45	0.14	55.8
Approach		665	2.0	0.440	4.9	LOS A	2.0	14.6	0.14	0.45	0.14	61.3
SouthWest: Te Haunui Ln												
30	L2	11	2.0	0.038	6.3	LOS A	0.2	1.4	0.62	0.66	0.62	49.9
31	T1	11	2.0	0.038	7.1	LOS A	0.2	1.4	0.62	0.66	0.62	34.9
32	R2	11	2.0	0.038	10.9	LOS B	0.2	1.4	0.62	0.66	0.62	50.9
Approach		32	2.0	0.038	8.1	LOS A	0.2	1.4	0.62	0.66	0.62	43.9
All Vehicles		1606	2.0	0.569	5.1	LOS A	3.7	26.3	0.22	0.46	0.22	59.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: SIDRA Roundabout LOS.
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 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 [Pegasus Blvd / Te Haunio Ln Rbt - Wk Full Dev]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Pegasus Blvd												
21	L2	3	2.0	0.418	5.0	LOS A	2.3	16.3	0.22	0.47	0.22	53.4
22	T1	563	2.0	0.418	4.9	LOS A	2.3	16.3	0.22	0.47	0.22	62.5
23	R2	28	2.0	0.418	10.2	LOS B	2.3	16.3	0.22	0.47	0.22	42.6
Approach		595	2.0	0.418	5.2	LOS A	2.3	16.3	0.22	0.47	0.22	61.1
NorthEast: GC Entrance												
24	L2	29	2.0	0.056	9.2	LOS A	0.4	2.6	0.84	0.69	0.84	36.9
25	T1	11	2.0	0.084	7.0	LOS A	0.6	4.4	0.86	0.72	0.86	34.4
26	R2	52	2.0	0.084	9.8	LOS A	0.6	4.4	0.86	0.72	0.86	37.1
Approach		92	2.0	0.084	9.2	LOS A	0.6	4.4	0.86	0.71	0.86	36.7
NorthWest: Pegasus Blvd												
27	L2	48	2.0	0.658	5.0	LOS A	4.3	30.7	0.20	0.45	0.20	40.5
28	T1	952	2.0	0.658	4.9	LOS A	4.3	30.7	0.20	0.45	0.20	62.8
29	R2	11	2.0	0.658	10.3	LOS B	4.3	30.7	0.20	0.45	0.20	55.5
Approach		1011	2.0	0.658	5.0	LOS A	4.3	30.7	0.20	0.45	0.20	61.1
SouthWest: Te Haunui Ln												
30	L2	11	2.0	0.032	4.6	LOS A	0.1	0.9	0.47	0.59	0.47	50.9
31	T1	11	2.0	0.032	5.4	LOS A	0.1	0.9	0.47	0.59	0.47	35.4
32	R2	11	2.0	0.032	9.2	LOS A	0.1	0.9	0.47	0.59	0.47	51.9
Approach		32	2.0	0.032	6.4	LOS A	0.1	0.9	0.47	0.59	0.47	44.7
All Vehicles		1728	2.0	0.658	5.3	LOS A	4.3	30.7	0.25	0.47	0.25	58.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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: ABLEY TRANSPORTATION CONSULTANTS LIMITED | Processed: Tuesday, 8 September 2020 1:14:56 p.m.

Project: J:\Sports & Education Corporation Ltd (SAECL)\SAECL-J001 Pegasus Resort Outline Development Plan\Models\Pegasus - Te Haunui Rbt Revised.sip8

Appendix D Volume Plots



INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [Pegasus Blvd / Te Haunio Ln Rbt - Sunday Current]

New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	2	276	14
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	11	1	14
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	2	1	1
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	1	379	10
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	390	382	8
NE: GC Entrance	26	25	1
NW: Pegasus Blvd	292	286	6
SW: Te Haunui Ln	4	4	0
Total	712	698	14

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [Pegasus Blvd / Te Haunio Ln Rbt - Sunday Full Dev]

New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	10	590	32
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	40	10	17
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	10	10	10
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	10	765	22
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	797	781	16
NE: GC Entrance	67	66	1
NW: Pegasus Blvd	632	619	13
SW: Te Haunui Ln	30	29	1
Total	1526	1495	31

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [Pegasus Blvd / Te Haunio Ln Rbt - Wk Full Dev]

New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	10	904	46
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	49	10	28
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	10	10	10
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	3	535	27
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	565	554	11
NE: GC Entrance	87	85	2
NW: Pegasus Blvd	960	941	19
SW: Te Haunui Ln	30	29	1
Total	1642	1609	33

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [Pegasus Blvd / Te Haunio Ln Rbt - Sunday Future Base]

New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	10	469	15
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	12	10	24
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	10	10	10
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	10	644	17
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	671	658	13
NE: GC Entrance	46	45	1
NW: Pegasus Blvd	494	484	10
SW: Te Haunui Ln	30	29	1
Total	1241	1216	25

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [Pegasus Blvd / Te Haunui Ln Rbt - Wk Full Dev with Ravenswood]

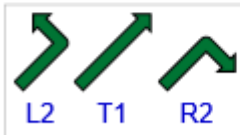
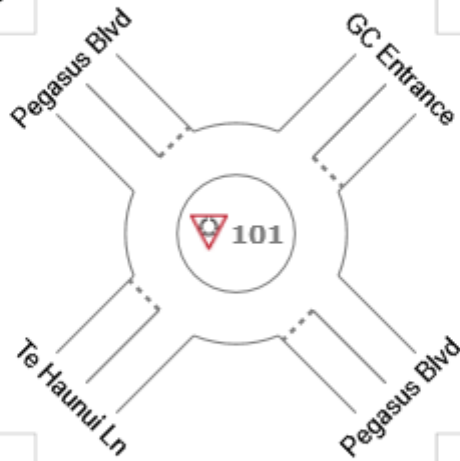
New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	10	1054	46
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	49	10	28
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	10	10	10
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	3	635	27
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	665	652	13
NE: GC Entrance	87	85	2
NW: Pegasus Blvd	1110	1088	22
SW: Te Haunui Ln	30	29	1
Total	1892	1854	38

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [Pegasus Blvd / Te Haunui Ln Rbt - Sunday Full Dev with Ravenswood]

New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	10	764	32
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	40	10	17
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	10	10	10
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	10	889	22
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	921	903	18
NE: GC Entrance	67	66	1
NW: Pegasus Blvd	806	790	16
SW: Te Haunui Ln	30	29	1
Total	1824	1788	36

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [SH1 / Pegasus Blvd Rbt - Wk Current]

New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	44	22	34
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	21	494	28
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	111	409	342
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	167	17	41
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	225	221	5
NE: SH1	543	517	26
NW: Bob Robertson Dr	100	98	2
SW: SH1	862	832	30
Total	1730	1668	62

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [SH1 / Pegasus Blvd Rbt - Wk FS1]

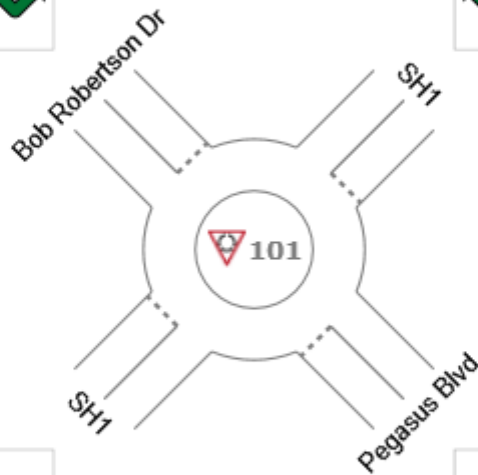
New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	54	50	41
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	26	602	64
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	135	499	783
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	455	46	112
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	613	601	12
NE: SH1	692	660	32
NW: Bob Robertson Dr	145	142	3
SW: SH1	1417	1374	43
Total	2867	2777	90

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [SH1 / Pegasus Blvd Rbt - Sun Current]

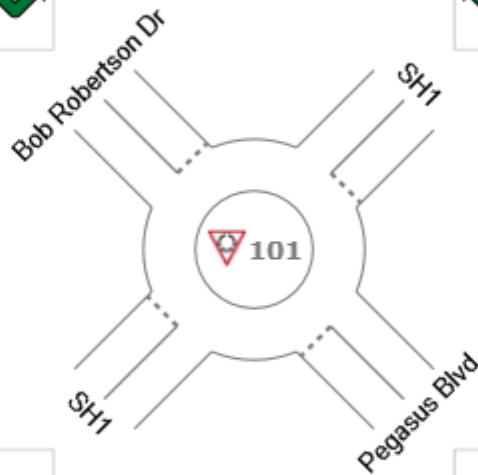
New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	61	42	48
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	27	462	50
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	46	536	248
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	307	31	54
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	392	384	8
NE: SH1	539	514	25
NW: Bob Robertson Dr	151	148	3
SW: SH1	830	797	33
Total	1912	1844	68

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [SH1 / Pegasus Blvd Rbt - Sun Future Base]

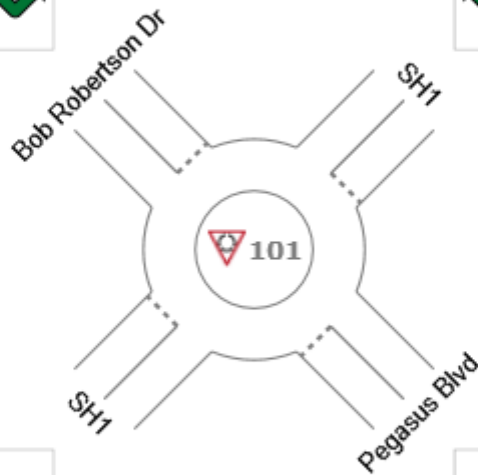
New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	74	71	59
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	33	563	85
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	56	653	422
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	522	53	92
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	667	654	13
NE: SH1	681	650	31
NW: Bob Robertson Dr	204	200	4
SW: SH1	1131	1089	42
Total	2683	2593	90

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [SH1 / Pegasus Blvd Rbt - Wk FS2]

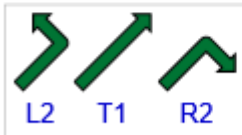
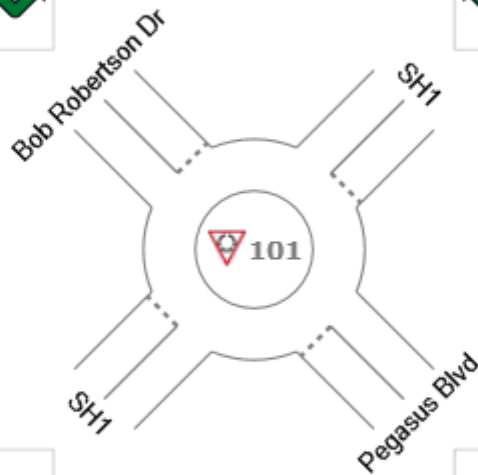
New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	54	53	41
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	26	602	68
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	135	499	826
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	492	50	121
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	663	650	13
NE: SH1	696	664	32
NW: Bob Robertson Dr	148	145	3
SW: SH1	1460	1416	44
Total	2967	2875	92

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [SH1 / Pegasus Blvd Rbt - Wk FS2 with Fully Dev Ravenswood]

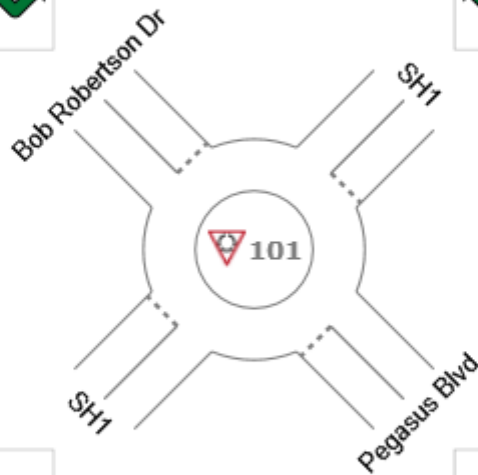
New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	104	203	91
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	76	602	68
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	285	499	826
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	492	150	121
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	763	748	15
NE: SH1	746	713	33
NW: Bob Robertson Dr	398	390	8
SW: SH1	1610	1563	47
Total	3517	3414	103

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [SH1 / Pegasus Blvd Rbt - Wk Future Base]

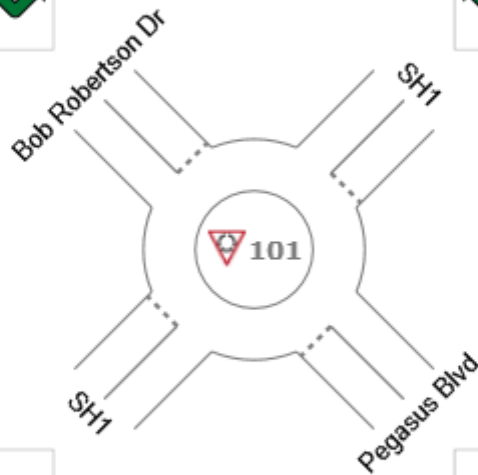
New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	54	37	41
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	26	602	48
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	135	499	581
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	284	29	70
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	383	375	8
NE: SH1	676	644	32
NW: Bob Robertson Dr	132	129	3
SW: SH1	1215	1176	39
Total	2406	2325	81

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [SH1 / Pegasus Blvd Rbt - Sun FS1]

New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	74	103	59
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	33	563	122
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	56	653	607
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	721	73	127
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	921	903	18
NE: SH1	718	687	31
NW: Bob Robertson Dr	236	231	5
SW: SH1	1316	1270	46
Total	3191	3091	100

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [SH1 / Pegasus Blvd Rbt - Sun FS2]

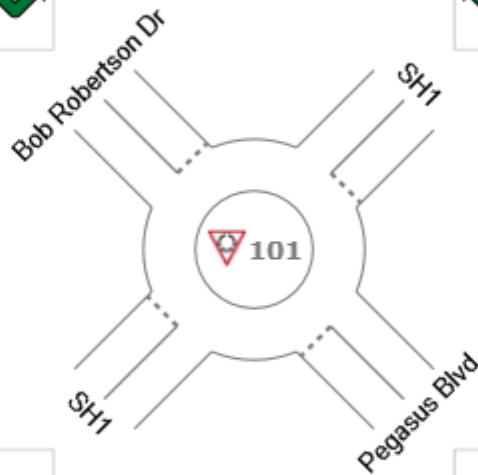
New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	74	109	59
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	33	563	130
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	56	653	646
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	763	77	134
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	974	955	19
NE: SH1	726	695	31
NW: Bob Robertson Dr	242	237	5
SW: SH1	1355	1308	47
Total	3297	3195	102

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [SH1 / Pegasus Blvd Rbt - Sun FS2 with Fully Dev Ravenswood]

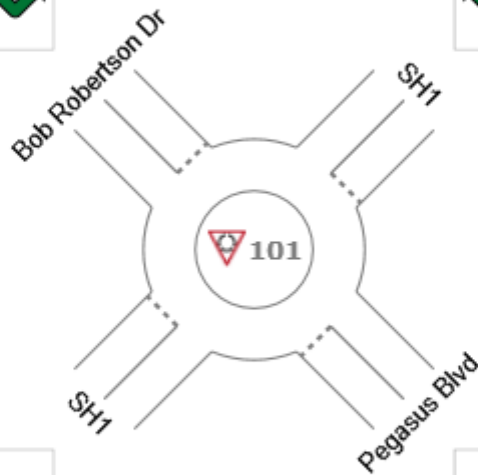
New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	124	259	109
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	83	563	130
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	206	653	646
LV	98%	95%	98%
HV	2%	5%	2%



	L2	T1	R2
Tot	763	177	134
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	1074	1053	21
NE: SH1	776	744	32
NW: Bob Robertson Dr	492	482	10
SW: SH1	1505	1455	50
Total	3847	3734	113

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [Pegasus Blvd / Te Haunio Ln Rbt - Wk Current]

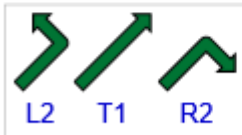
New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	1	406	13
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	11	1	6
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	1	1	1
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	2	189	4
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	195	191	4
NE: GC Entrance	18	18	0
NW: Pegasus Blvd	420	412	8
SW: Te Haunui Ln	3	3	0
Total	636	623	13

INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

 Site: 101 [Pegasus Blvd / Te Haunio Ln Rbt - Wk Future Base]

New Site
 Site Category: (None)
 Roundabout

Volume Display Method: Total and %

	R2	T1	L2
Tot	10	690	16
LV	98%	98%	98%
HV	2%	2%	2%



	R2	T1	L2
Tot	19	10	7
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	10	10	10
LV	98%	98%	98%
HV	2%	2%	2%



	L2	T1	R2
Tot	10	321	7
LV	98%	98%	98%
HV	2%	2%	2%

	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
SE: Pegasus Blvd	338	331	7
NE: GC Entrance	36	35	1
NW: Pegasus Blvd	716	702	14
SW: Te Haunui Ln	30	29	1
Total	1120	1098	22

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