



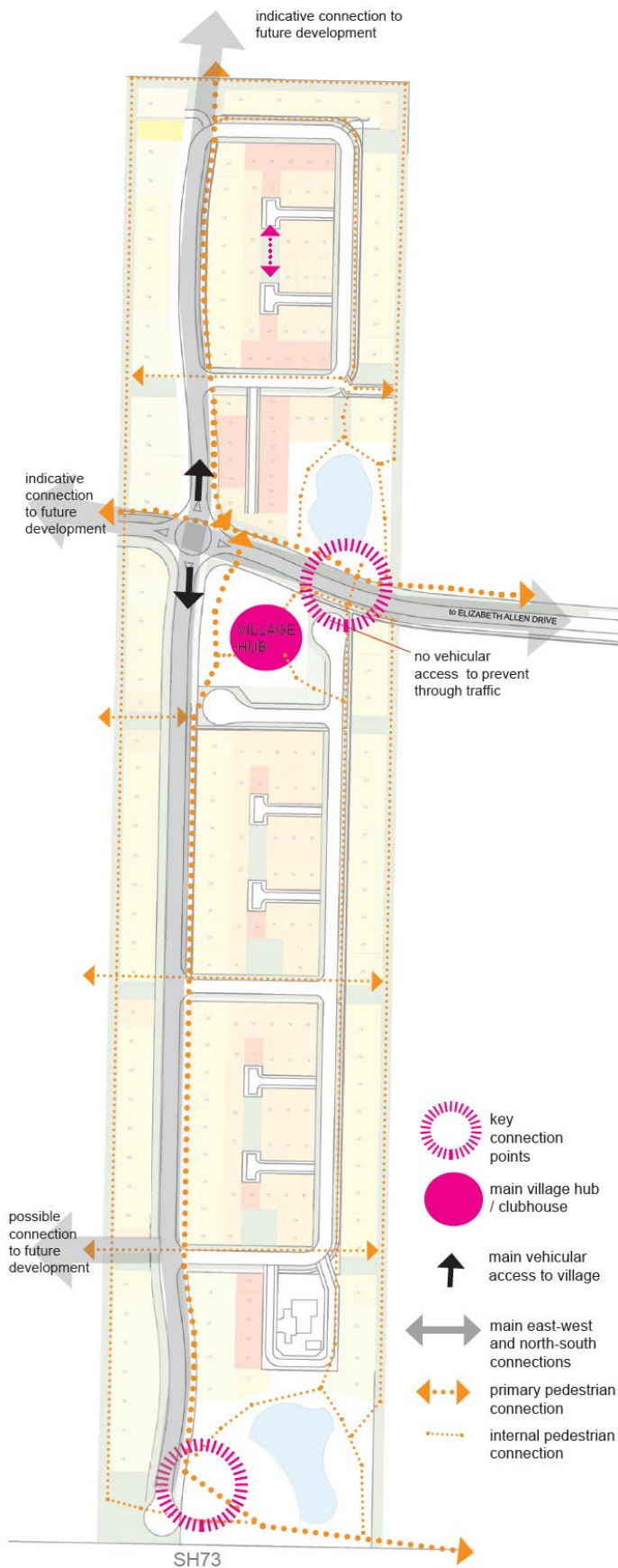
1234 WEST COAST ROAD, WEST MELTON - PRIVATE PLAN CHANGE

INTEGRATED TRANSPORTATION ASSESSMENT

June 2022

Prepared for:
West Melton Holdings

Project Number:
310204997



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Cover image:

*Movement and Connectivity plan in Urban Design Statement
prepared by a+urban Ltd., 28 May 2022*



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Acronyms / Abbreviations

ADT	Average Daily Traffic
CAS	Crash Analysis System
CAST	Christchurch Assignment and Simulation Traffic (SATURN traffic model)
GFA	Gross Floor Area
HGV	Heavy Goods Vehicle
ITA	Integrated Transportation Assessment
km/h	Kilometres per hour
LOS	Level of Service
NPSUD	National Policy Statement on Urban Development
ODP	Operative District Plan / Outline Development Plan
PCU	Passenger Car Unit
PT	Public Transport
ROW	Right of way
SDC	Selwyn City Council
SH	State Highway
vmpd	vehicle movements per day
vpd	vehicles per day
vph	vehicles per hour



1 Introduction

- 1.1.1 West Melton Holdings Limited is seeking to rezone land located on the western edge of the West Melton Township as part of a Private Plan Change (PPC) application to facilitate residential development, and more specifically, for a Lifestyle Retirement Village / Senior Adult Housing development.
- 1.1.2 The main development property, RS 6619 located at 1234 West Coast Road | State Highway 73 (SH73), comprises an area of 12.55 ha and is presently zoned as 'Rural Inner Plains'. with the PPC application, the proposal is for the land to be rezoned to 'Living Z' under the Operative District Plan (ODP). A smaller land parcel, Lot 283 DP 458646 located at 44 Shepherd Avenue, forms part of the application and will provide for a road connection to the local road network on the western side of West Melton.
- 1.1.3 This Integrated Transportation Assessment (ITA) provides an assessment of the transportation aspects and effects associated with the proposed PPC application.
- 1.1.4 The remainder of the ITA report is structured as follows:
 - Section 2: Site Overview;
 - Section 3: Current Transportation Network;
 - Section 4: Planned Changes to the Transport Network;
 - Section 5: Development Proposal;
 - Section 6: Traffic Generation and Distribution;
 - Section 7: Effects on the Transportation Network;
 - Section 8: District Plan and Planning Matters; and
 - Section 9: Conclusions and Recommendations.



2 Site Overview

2.1 Location

- 2.1.1 The PPC area (the 'Site') is located on the western side of West Melton and adjoins the Preston Downs subdivision. The location of the site in the context of the local area is shown on the map in **Figure 2.1** and on the aerial plan in **Figure 2.2**.



Figure 2.1: General Location of the Development Site

Source: [Openstreetmap](https://www.openstreetmap.org/), 2022

2 Site Overview

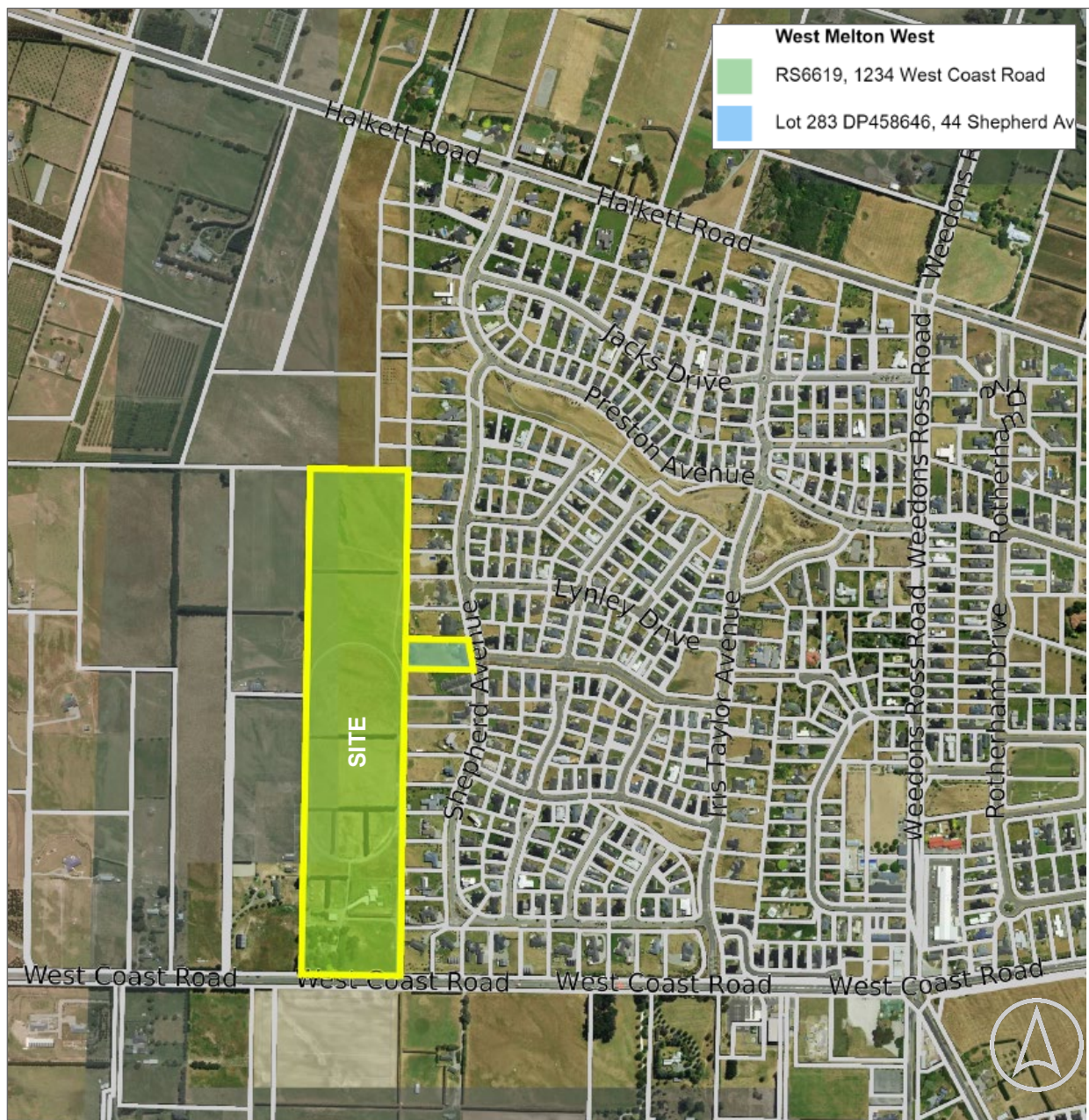


Figure 2.2: Aerial Photograph of the Development Site and Environs

Source: [GRIP](#), 2022

- 2.1.2 The main property RS 6619 is used for agricultural purposes and has a direct access off SH73 to the south at 1234 West Coast Road. This access will be 'closed' with the rezoning and residential development, i.e., the PPC application does not propose for maintaining this access off SH73 as a permanent, direct access. However, an application for access during construction and/or for emergency purposes may be lodged with Waka Kotahi | NZ Transport Agency at a later stage.
- 2.1.3 It is proposed that an initial, primary linkage to the proposed development will be formed onto Shepherd's Avenue, via Lot 283 DP 458646 located at 44 Shepherd Avenue,



2 Site Overview

meaning that a proportion of residents could then gain access onto either Halkett road (via Shepherd and Preston Avenues) or SH73 (via Iris Taylor Avenue).

2.2 Property Particulars

The property particulars are as summarised in **Table 2.1** below.

Table 2.1: Property Particulars

Appellation	RS 6619	Lot 283 DP 458646
Address	1234 West Coast Road, West Melton	44 Shepherd Avenue
Land District	Canterbury	Canterbury
Area	12.55 ha	0.5 ha
Territorial Authority	Selwyn District Council	Selwyn District Council
Owners	West Melton Holdings Limited	West Melton Holdings Limited

Source: [GRIP](#), 2022



3 Current Transportation Networks

3.1 Road Hierarchy

3.1.1 The One Network Road Classifications (ONRC) classifications for the local road network is shown graphically in **Figure 3.1**.

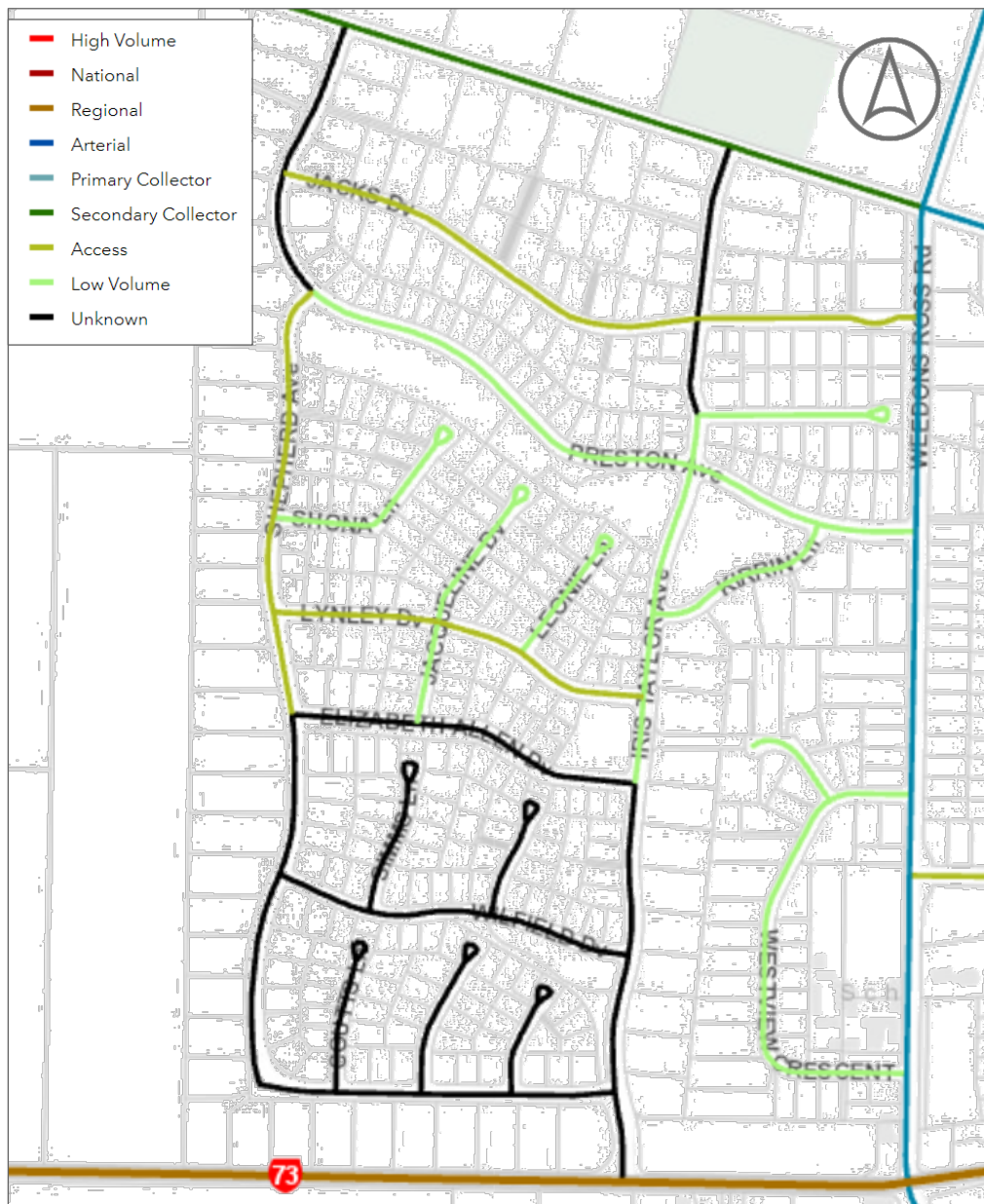


Figure 3.1: One Network Road Classifications

Source: [NZTA](#), 2022

3 Current Transportation Networks

3.1.2 The ONRC classifications for the key roads in the study area are as follows:

- SH73 | West Coast Road: Regional Road;
- Halkett Road: Primary Collector;
- Iris Taylor Avenue: Secondary Collector (South), Access Road (Central) to Access Road (North);
- Weedon Ross Road: Primary Collector Road;
- Shepherd Avenue: Low Volume Road / Access Road
- Preston Avenue: Low Volume Road; and
- Elizabeth Avenue and other Local Roads: Access or Low Volume Roads.

3.1.3 Selected road section features for the key roads in the study area from MobileRoad; including Average Daily Traffic (ADT), ONRC classification and roadway widths; is summarised in **Table 3.1** overleaf.

3.1.4 **Table 3.1** 'illustrates' how the ONRC classifications are influenced by higher traffic and heavy goods vehicle flows, e.g., the lower volume roads have lower heavy flows at around 5% - 5.5% whereas the higher order roads have heavy vehicle flows at around 7% or higher (and as high as 14.5% in the case of SH73).

3.2 State Highway 73

3.2.1 Adjacent to the site, SH73 is subject to a 100 km/h speed limit and provides one traffic lane in each direction. The alignment is flat and straight, and the legal width is 20 m. There is a drainage ditch on the southern side of the highway.

3.2.2 As the highway enters West Melton, the speed limit reduces to 60 km/h. On the existing western fringe of West Melton, Iris Taylor Avenue meets SH73 at a priority ('give-way') controlled T-intersection.

3.2.3 The flush median on SH73 westbound transitions to form a right-turn lane for vehicles turning into Iris Taylor Avenue. This comprises of a 10 m queue storage length coupled with a 10 m tapered section.

3.2.4 The next intersection along SH73 is the 4-way intersection with Weedons Ross Road. This intersection is the main access to West Melton and provides access to the local shops, the West Melton School and other local services and businesses.

3.2.5 East of Weedons Ross Road, SH73 runs through West Melton and for a further approximately 13 km before terminating at SH 1 on the western outskirts of Christchurch.



3 Current Transportation Networks

Table 3.1: Selected Roadway Features

Roadway section	SH73; Iris Taylor Av - Weedon Ross Rd	Halkett Rd; Iris Taylor Av - Preston Av	Halkett Rd; Weedon Ross Rd to Iris Taylor Av	Iris Taylor Ave; Shepherd Av - SH73 (West Coast Rd)	Iris Taylor Av; Halkett Rd - Jacks Dr	Shepherd Av; Elizabeth Allen Dr - Wilfield Dr	Shepherd Av; Preston Av - Shona Ln	Preston Av; Jacks Dr - Halkett Rd	Weedons Ross Rd; Halkett Rd To Bells Rd
Estimated Annual Daily Traffic, date and HGV%	7,852 24/12/2020 14.5%	1,299 30/06/2021 7%	912 30/06/2021 7%	1,916 30/06/2021 5.5%	618 30/06/2021 5.5%	216 30/06/2021 5%	138 30/06/2021 5%	163 30/06/2021 5.5%	1,099 30/06/2021 10%
ONRC Classification	Regional	Primary Collector	Primary Collector	Secondary Collector	Access	Low Volume	Low Volume	Low Volume	Primary Collector
Roadway Widths	11.5 m (inc. shoulders)	6.2 m	6.2 m	8.2 m	8.2 m	6.8 m	6.8 m	7.2 m	6.3 m

Source: [MobileRoad](#), 2022



3 Current Transportation Networks



Figure 3.2: CCTV Image of the SH73 & Weedons Ross Intersection Looking West

Source: Waka Kotahi, 2021

3.3 Iris Taylor Avenue

- 3.3.1 Within the Preston Downs subdivision, Iris Taylor Avenue is subject to a 50 km/h speed limit and has a 7.5 m wide carriageway with a flat and a curvilinear alignment.
- 3.3.2 Around 100 m north of the highway, Shepherd Avenue joins Iris Taylor Avenue from the west. The Iris Taylor Avenue / Shepherd Avenue intersection is notionally uncontrolled, with no signs or markings provided. However, in practice, traffic on Iris Taylor Avenue retains priority.

3.4 Shepherd Avenue and Preston Avenue

- 3.4.1 Shepherd avenue itself has a 7.0 m wide carriageway and is subject to a 50 km/h speed limit. Of note is that there is a swale on the southern side and nib kerbs, whereas towards the north is standard kerbing. There are multiple driveways on the road.
- 3.4.2 Approximately 400 m west of Iris Taylor Avenue, Shepherd Avenue turns through 90 degrees to run along a north-south alignment. The curve has a central island such that one traffic stream is physically separated from the other, with a minimum carriageway width of 4.9 m provided.
- 3.4.3 This part of Shepherd Avenue has a sinusoidal horizontal alignment with an overall north-south alignment, and it is joined by several local roads on the eastern side, including Willfield Avenue and Elizabeth Allen Drive. The road then meets Preston Avenue some 850 m north of the curve at a priority intersection. In turn, Preston Avenue then connects to Halkett road at a priority intersection where there is a little widening of the priority route (suggesting few vehicles turn right into Preston Road).



3 Current Transportation Networks

3.5 Halkett Road

- 3.5.1 Halkett road has a flat and straight alignment, providing one traffic lane in each direction. The speed limit on the road is 60 km/h. Towards the east it connects with SH73 around 3.2 km from Preston road. Towards the west, Halkett road connects to Old West Coast Road some 8 km northwest of West Melton, which in turn provides a connection to SH72 and other district roads further west.

3.6 Road Safety

- 3.6.1 The Waka Kotahi Crash Analysis System has been assessed to identify the location and nature of the recorded traffic crashes in the 5-year period between 2017 to 2021 within the wider study area. This showed that thirteen (13) crashes had been recorded. The location of the crashes is shown in **Figure 3.1** (crash 'pin' map), **Figure 3.2** (crash density map) and **Figure 3.3** (Collision type / cause map).

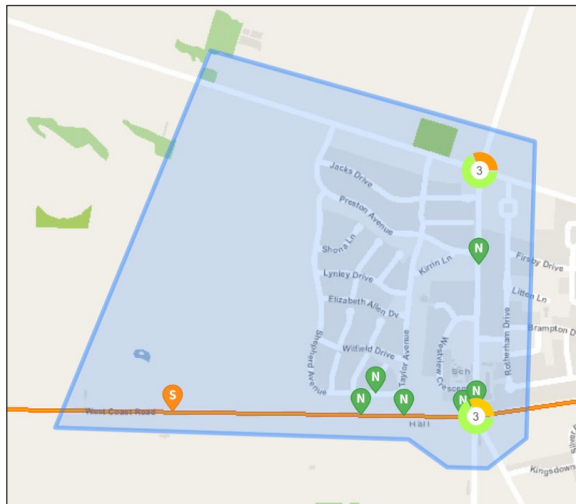


Figure 3.3: CAS Crash 'Pin' Map

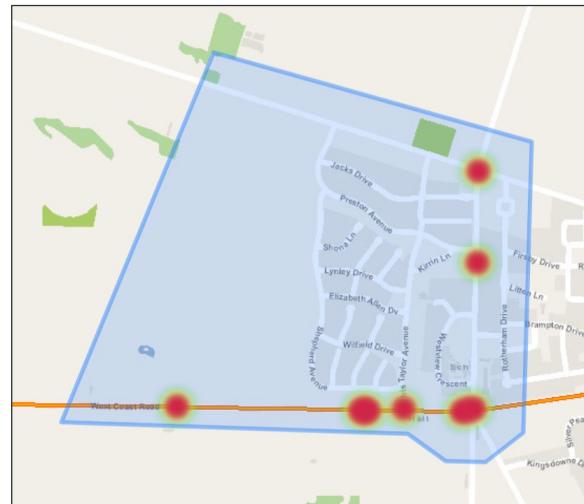


Figure 3.4: CAS Crash Density Map

- 3.6.2 As expected, crashes predominantly occurred at the key intersections, namely at:
- SH73 & Iris Taylor Avenue: One (1) crash
 - SH73 & Weedons Ross Road: Five (5) crashes
 - Weedons Ross Road & Halkett Road: Three (3) crashes
- 3.6.3 Most crashes were 'no injury' type crashes, with one (1) injury crash and two (2) serious crashes recorded. One serious crash occurred along SH73 west of the Site (due to a 'U' turn movement in front of a following vehicle) and the other at the Halkett / Weedons Ross Road intersection (due to a vehicle crossing in front of an oncoming vehicle).
- 3.6.4 Given the relatively low number of crashes and the varying contributing factors and different locations, it is not considered that the crash record indicates any underlying road safety issues on the roading network in this area.

3 Current Transportation Networks

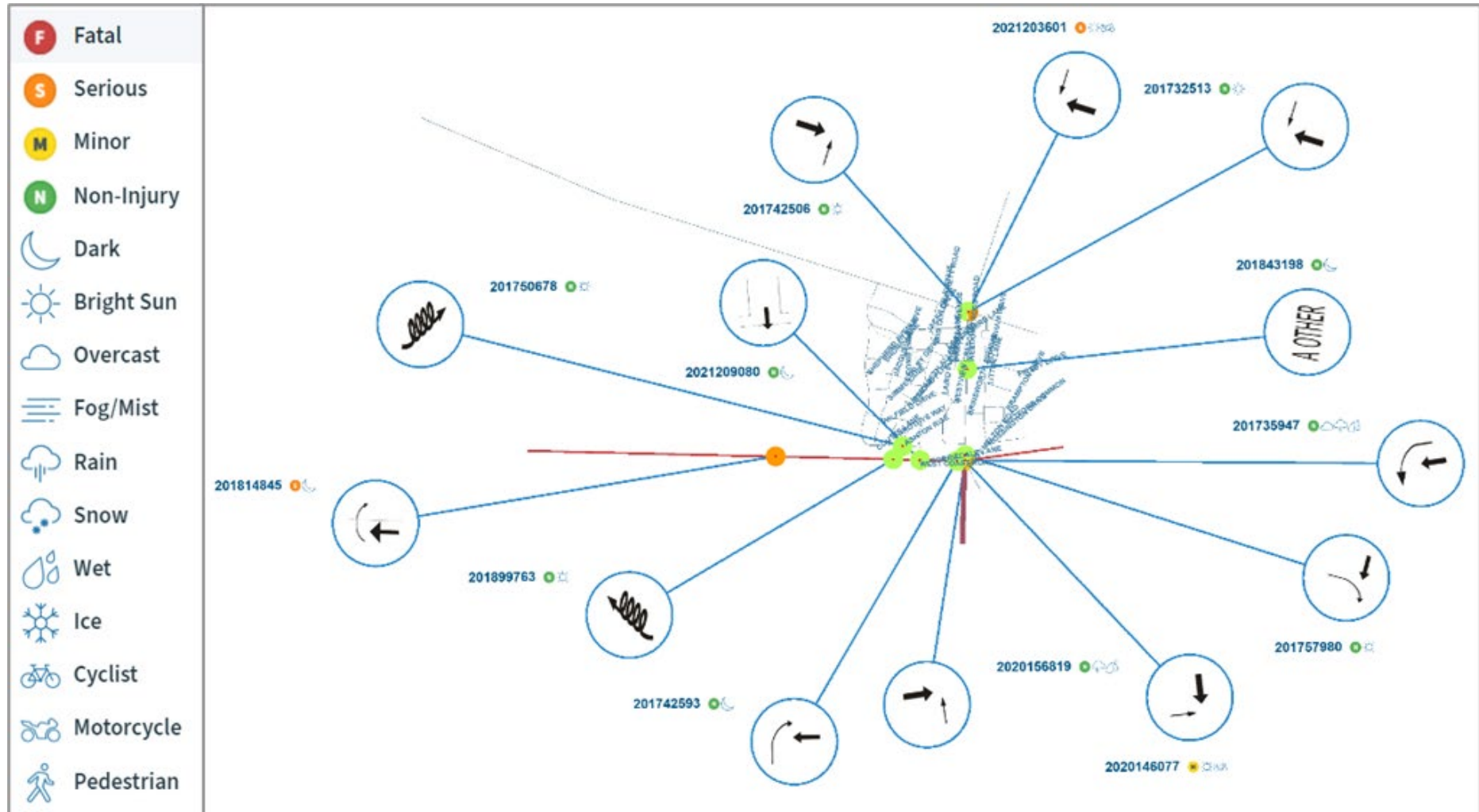


Figure 3.5: CAS Collision Diagram



3.7 Existing Pedestrian Infrastructure

- 3.7.1 There are footpaths located along most of the roads within the Preston Downs Subdivision and within the urban area of West Melton; including footpaths on the southern side of SH73 (terminating near Iris Taylor Avenue), on both sides of Iris Taylor Avenue and the northern side of Shepherd Avenue. There are also shared paths / tracks along the Preston Downs Reserve / Kirrin Island Park and in other open green space areas.
- 3.7.2 The existing walking catchment (or accessibility) is shown in the isochrone map (5-min intervals, up to 20-minutes) in Figure 4.1 below. The map indicates that services and business along Weedons Ross Road centre can be reached within a 15 minute walk from the proposed development as measured from active transport 'access' points (shown as 'black' dots).

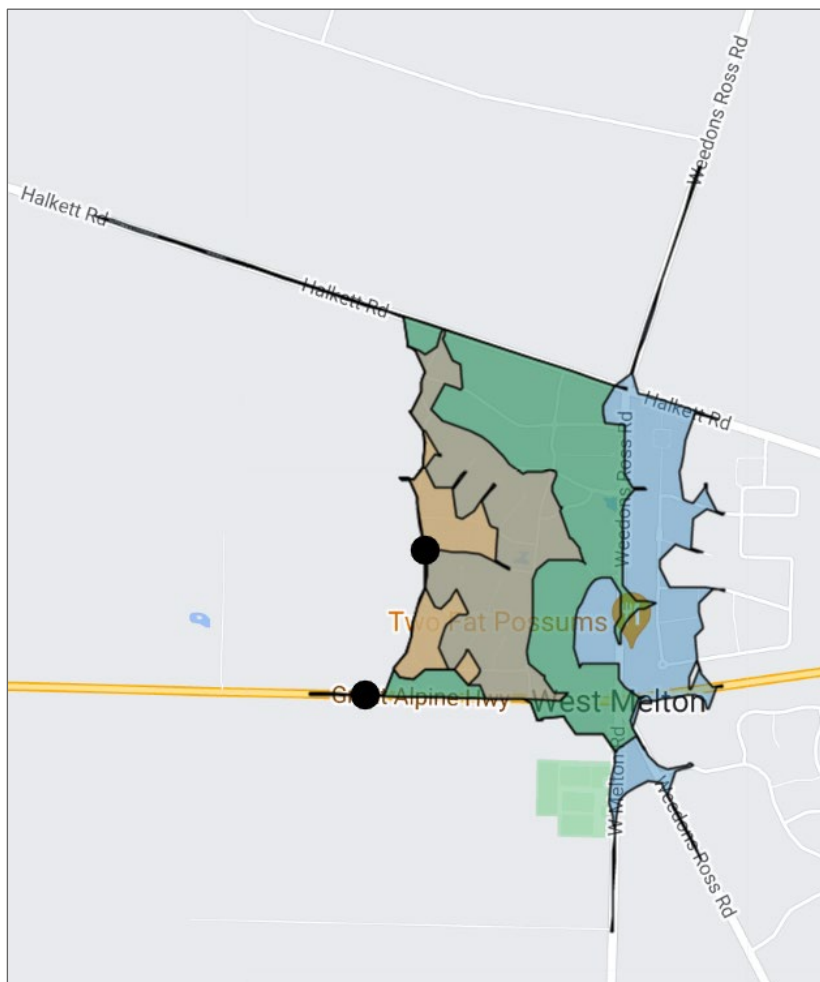


Figure 3.6: Existing Walking Isochrone map (5-min intervals, up to 20-min)

Source: Stantec, 2022

3.8 Existing Cycling Infrastructure

- 3.8.1 There is currently no exclusive or separated (from general traffic) infrastructure provided for cycling, i.e., other than for the shared paths / tracks along the Preston Downs Reserve / Kirrin Island Park and in other open green space areas. As such, cyclists are required make use of the general-purpose traffic lanes when cycling.
- 3.8.2 The existing walking catchment (or accessibility) is shown in the isochrone map (5-minute intervals, up to 20-minutes) in Figure 4.2 below. The map indicates that services and business along Weedons Ross Road centre can be reached within a 5 minute bike ride from the proposed development as measured from active transport 'access' points (shown as 'black' dots).

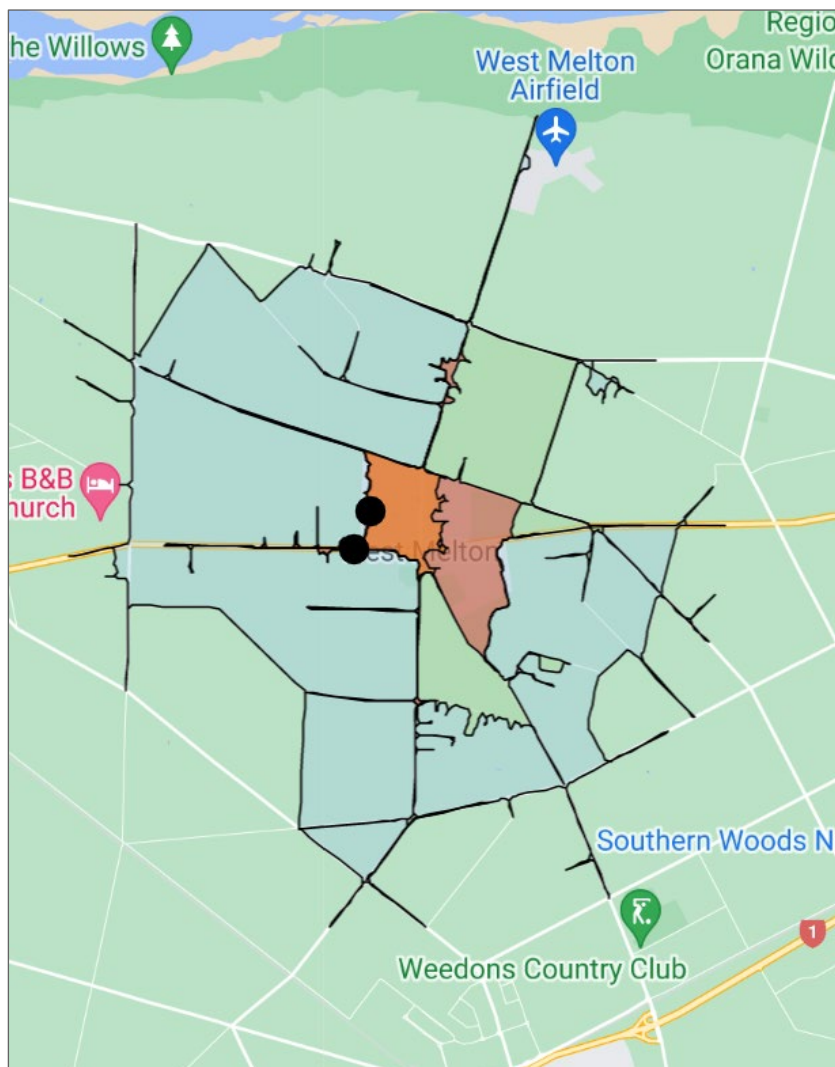


Figure 3.7: Existing Cycling Isochrone map (5-min intervals, up to 20-min)

Source: Stantec, 2022

3.9 Commuter Bus Services

- 3.9.1 The 86 'Darfield – City' bus service is for residents to commute to Christchurch City from the townships of Darfield, Kirwee and West Melton. This service operates as a weekday, peak hour only express service between Russley Road on the western outskirts of Christchurch (located near the airport). The morning trip does not pick-up passengers after Russley Road (drop-offs only) and the afternoon trip does not drop-off passengers before Russley Road (pick-ups only).
- 3.9.2 The route through West Melton follows SH73 - Weedons Ross Road – Halkett Road. The bus stop locations in West Melton are shown in **Figure 4.2.** and includes stops at West Melton School, Preston Reserve (just south of Preston Avenue) and along Halkett Road (near Rossington Drive intersection).
- 3.9.3 The service takes approximately 45 minutes between West Melton and Christchurch City Centre Bus Interchange. The departure time from West Melton is at 7.30 a.m. and return arrival time at 5.30 p.m.
- 3.9.4 A Zone 2 fare applies between West Melton and the City. This amounts to \$3.85 for an adult when paying by Metrocard Also, when paying by Metrocard, users receive unlimited free transfers within a two-hour period. It is noted that SuperGold card holders only travel free on off-peak Metro services and hence do not qualify for a discount on this peak hour only bus service.



Figure 3.8: Commuter bus stop locations in West Melton

Source: [Metro Christchurch](#), 2022

4 Planned Changes to Transport Infrastructure

4.1.1 Waka Kotahi is progressing changes to the intersection of SH73 and Weedons Ross Road. The project, which is part of the New Zealand Upgrade Programme, is scheduled for implementation from Summer 2022/23 and includes, amongst other infrastructure improvements, for (refer **Figure 5.1**):

- Traffic signals at the existing intersection helping to make travel times more reliable, with protected pedestrian crossings for improved safety and road widening to accommodate right-turn lanes on all approaches;
- A new road linking Weedons Ross Road with West Melton Road opposite Kingsdowne Drive allowing West Melton Road to become a cul-de-sac where it currently connects to Weedons Ross Road;
- A new single lane roundabout at the intersection of the new link road with Weedons Ross Road; and
- New pedestrian footpaths and/or shared paths for both pedestrians and cyclists along SH73, Weedons Ross Road, the new link road and West Melton Road connecting key parts of the community.

4.1.2 These changes are not expected to result in significant changes to traffic flows along SH73 on a typical day. Whilst the traffic signals will 'stop' SH73 traffic flows as well, the overall effect will result in a reduced level of congestion at this 'bottleneck' intersection and hence more reliable journey times along SH73.

4.1.3 However, the installation of traffic signals will make this intersection more attractive for right-turning vehicles. This may result in an increase on congestion at this intersection during especially the morning and afternoon peak hours as limited right-turn queue 'space' is proposed and queue spillback may affect through traffic movements during busy times.

4.1.4 The introduction of improved walking and cycling infrastructure coupled with the protected crossing facilities at the intersection is likely to make active transport modes more attractive (i.e., as a positive outcome).

4.1.5 For the purposes of this assessment, the intersection has been modelled with the signalised intersection layout as proposed. However, no changes have been made to the traffic flows as a result of the traffic signals project.

4 Planned Changes to Transport Infrastructure

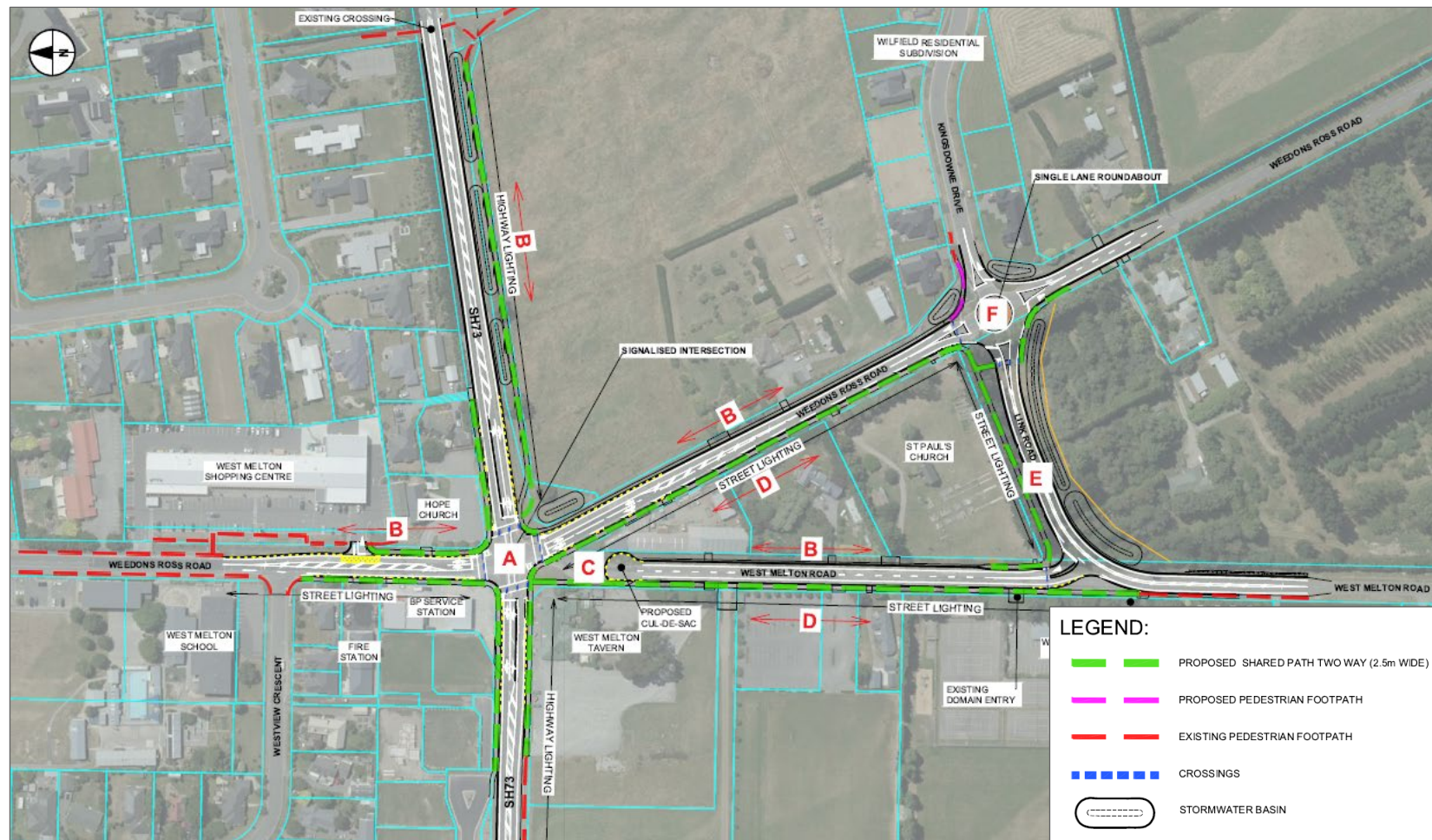


Figure 4.1: SH73 / Weedons Ross Road intersection Improvements

Source: Waka Kotahi, 2021



5 Development Proposal

5.1 Land-use / Activity

- 5.1.1 The proposal is for a private plan change to facilitate a senior adult housing / senior living residential subdivision.
- 5.1.2 Senior adult housing can be defined¹ as single-family units located within independent living developments that can be described by various names including retirement communities, age-restricted housing, and active adult communities. Typically, these development has a minimum age restriction for its residents. Residents in these development are typically considered active and requiring little to no medical supervision.
- 5.1.3 The development may include amenities such as 24-hour security, transportation, and common recreational facilities.
- 5.1.4 The dwelling units can be either detached or attached. The types of housing types represented by sites in the database include traditional single-family detached homes, patio homes, duplexes, and townhouses. Single-family attached housing includes any single-family housing unit that shares a wall with an adjoining dwelling unit, whether the walls are for living space, a vehicle garage, or storage space.
- 5.1.5 The development area (12.55 ha) will provide for lots in a range between 150 and 300 m². The proposal is to develop approximately 218 units. The development includes for a communal Clubhouse / Neighbourhood Park for use by residents in the retirement village but these, along with associated programs, may also be offered to residents in the local community on a membership basis. Separate Caretaker buildings will also be provided on a separate lot. The Outline Development Plan (ODP) is shown in **Figure 5.1**. A copy of the proposed Concept Scheme Plan is shown in **Appendix A**.
- 5.1.6 For the purposes of this ODP, it is anticipated that the built standard for a “Primary Route” will be the equivalent to the District Plan standards for a Local-Major Road, and a “Secondary Route” will be the equivalent to the District Plan standards for a Local-Major or Local-Intermediate Road.
- 5.1.7 The ODP provides for an integrated but simple transport network incorporating:
- Two Primary, Major Local Roads (as ‘Boulevards’ with a 20 m reserve) that acts as:
 - a north-south spine road; and
 - A east-west spine road that connects with Shepherd Avenue via Lot 283 DP 458646 located at 44 Shepherd Avenue. This access forms a key link to the east and achieves connectivity between the proposed development and the Preston Downs subdivision.
 - Secondary, Local or Low Volume Roads with a 15 m cross-section; and
 - Accessways with an 8 m reserve.

¹ ITE Trip Generation Manual, 11th Edition (ITE, 2021)



5 Development Proposal

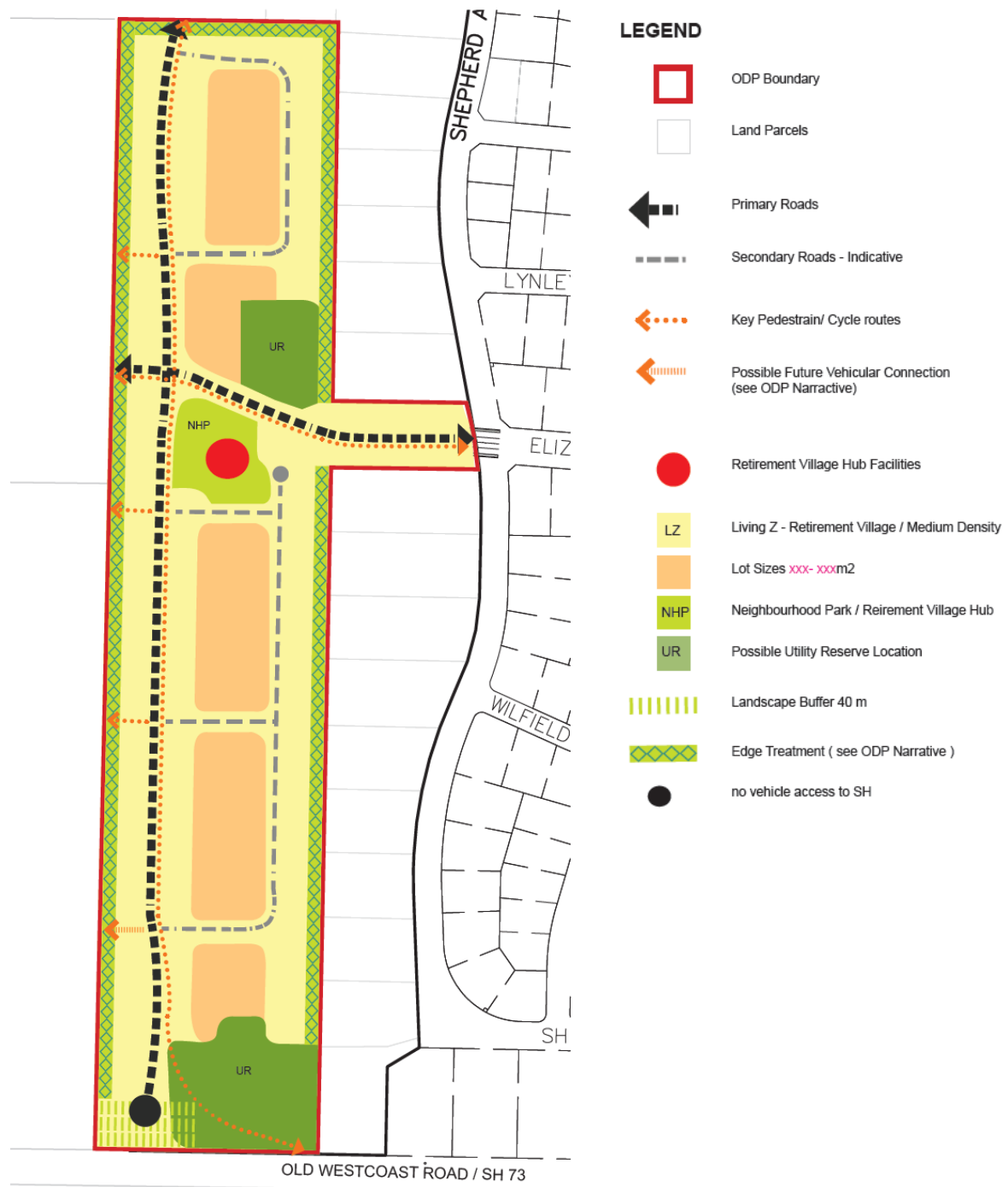


Figure 5.1: Outline Development Plan

Source: a+urban, 2022



5 Development Proposal

- 5.1.8 The road reserve cross-section dimensions for the three categories of roads are shown on diagrams included in **Appendix B**.
- 5.1.9 The ODP allows for future connectivity for vehicular and active transport modes into adjoining areas to the north and west that can be activated with further development.
- 5.1.10 A southern access off SH73 to the development may be applied for to serve as (a) a construction access during development, and (b) an emergency access only during the operation stage of the retirement village. However, the north-south roadway is planned and will be designed to potentially enable a future vehicular connection to and across the State Highway to any future development in the South West quadrant of West Melton, if necessary.
- 5.1.11 The assumption is that a longer-term, higher order north-south roadway, with a direct access intersection off SH73, will be provided on land to the west of the retirement village development. This is based on State Highway operational and spacing considerations and also based on a main thoroughfare not being required to support the retirement village development (and this also not being desirable from a retirement village amenity perspective).
- 5.1.12 The ODP makes provision for pedestrian and cycle links by means of a combination of different facilities, including 1.5 m wide footpaths (along the secondary roads, which will also accommodate on-street cycling), 3.0 m wide shared paths (along the primary roads) as well as shared path connection to the south-eastern part which can be linked to a shared path along SH73 in future. The main initial active transport connection will be via the east-west Boulevard and will link to the established active transport facilities within Preston Downs.
- 5.1.13 The transport proposals are shown graphically on the Movement and Connectivity plan in **Figure 5.2** overleaf.



5 Development Proposal

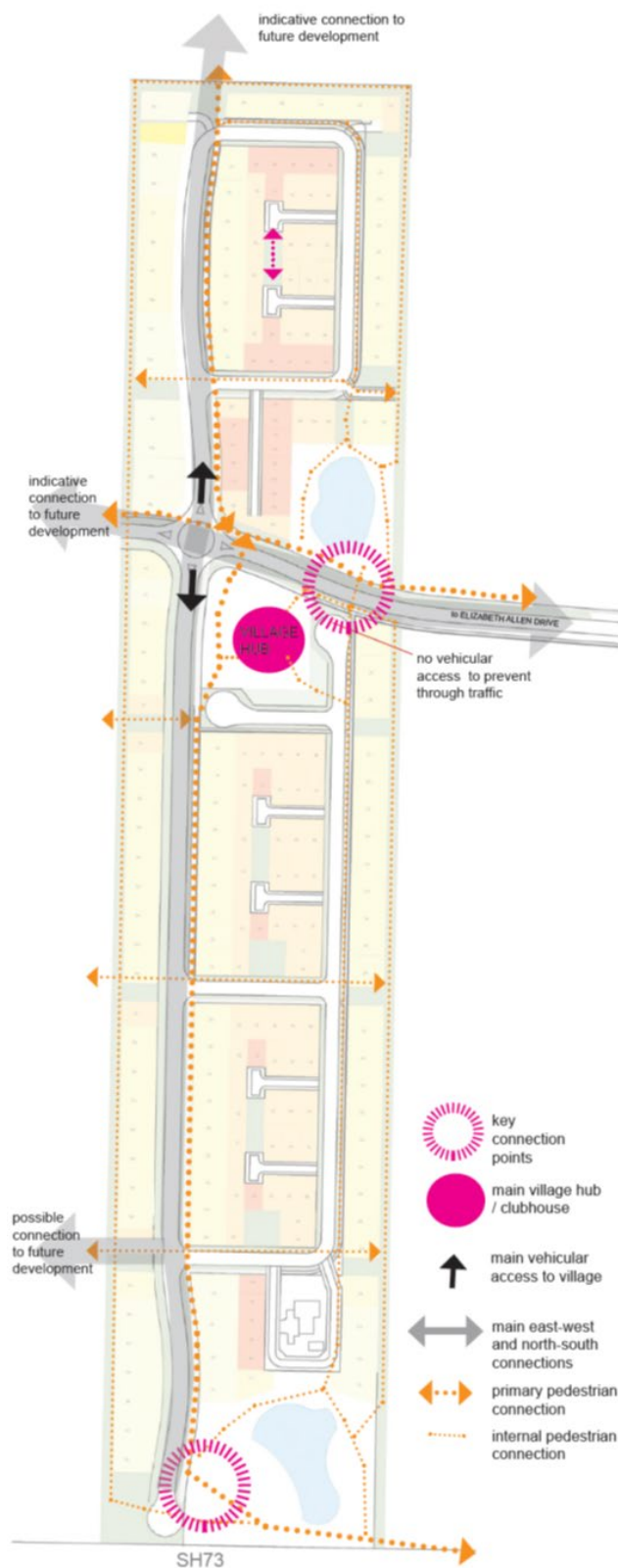


Figure 5.2: Movement and Connectivity Plan

Source: DCM, 2022



6 Traffic Generation and Distribution

6.1 Traffic Generation

- 6.1.1 Several factors affected the trip rates for senior adult housing. Factors such as the average age of residents, development location and size, affluence of residents, employment status, and access to nearby shops, services and other community facilities should be taken into consideration.
- 6.1.2 The trip generation rates for 'Housing for Seniors' from the NSW Roads and Transport Authority (RTA) from the 2009 study by Hyder Consulting have been used in the estimation of trip generation. The rates are based on surveys at ten survey locations; five in the Sydney urban area and five in regional New South Wales. These rates have subsequently been incorporated in the Transport for New South Wales (TfNSW) Technical Direction publication TDT 2013/04a published in August 2013.
- 6.1.3 A summary of the calculated trip generation is summarised in **Table 6.1**. The trip generation is for both person- and vehicle-based trips and for weekdays and weekends. For assessment purposes, the Weekday, PM Peak Hour (on the Road Network) and Total Daily trip generation, is noted as follows:
- Weekday, PM Peak Hour (on the Road Network):
 - Person-trips: 65 trips
 - Vehicle-trips (incl. commercial vehicles/trucks): 44 trips
 - Weekday, Daily trip generation:
 - Person-trips: 698 trips
 - Vehicle-trips (incl. commercial vehicles/trucks): 458 trips

The number of person trips include this made in private cars and other vehicles, either as driver and/or as passenger, but also trips by active modes. The tend to be an increased used of active modes within senior adult / retirement living developments which is clearly evident in the trip generation figures.

As indicated in **Table 6.1**, the development peak hour does not occur during (or overlap) with the AM and PM peak hours. The development's trip generation during the PM peak hours (both person- and vehicle-based) are however close to the 10% of the total daily trip generation figures (as is typically the case on the road network).

6 Traffic Generation and Distribution

Table 6.1: Total Traffic Generation of Site

Trips/Unit (218 No.)	Trip Rate (average)	Trips (estimated)
Weekdays		
Person-based Trips		
- Site Peak Hour	0.55	120
- Road Network AM Peak Hr*	0.18	40
- Road Network PM Peak Hr	0.30	65
- Daily Total Person Trips	3.20	698
Vehicle-based Trips		
- Site Peak Hour	0.40	87
- Road Network AM Peak Hr*	0.13	29
- Road Network PM Peak Hr	0.20	44
- Daily Total Car Trips	1.95	425
- Daily Total CV Trips	0.15	33
- Daily Total Vehicle Trips	2.10	458
Weekends		
Person-based Trips		
- Site Peak Hour	0.44	96
- Road Network Peak Hr	0.30	65
- Daily Total Person Trips	2.00	436
Vehicle-based Trips		
- Site Peak Hour	0.26	57
- Road Network Peak Hr (Interpeak)	0.18	39
- Daily Total Car Trips	1.21	264
- Daily Total CV Trips	0.04	9
- Daily Total Vehicle Trips	1.24	270
Notes		
* Weekday AM Peak hour rates calculated at 33% of the site peak hour rate		

6.2 Trip Distribution

6.2.1 Given that there is already a residential area adjacent to the site, it is reasonable that a similar trip distribution pattern will apply. It is estimated that traffic will distribute to the road network, in accordance with the current residential traffic pattern, as follows:

- 30% of the traffic would travel to/from the north to Preston Avenue (and then equally towards Halkett Road or Iris Taylor Drive);
- 45% of the traffic would travel via Elizabeth Allen Drive to/from Iris Taylor Avenue (equally split to the north and south along Iris Taylor Drive); and
- 25% of the traffic would travel south, equally via Shepherd Avenue and Willfield Drive, to/from Iris Taylor Avenue and SH73.

The resulting daily trip distribution (on an hourly basis) is as summarised in **Table 6.2**.



6 Traffic Generation and Distribution

Table 6.2: Hourly Distribution of Entering and Exiting Vehicle Trips

Time, hour	Development			New East West Link, 100%			North (via Shepherd/Preston Avenues), 30% est.			East (via Elizabeth Allen Drive), 45% est.			South (via Shepherd Avenue and Willfield Drive), 25% est.		
	Percentage of 24hr total			Trips											
	Total	Entering	Exiting	Total	Entering	Exiting	Total	Entering	Exiting	Total	Entering	Exiting	Total	Entering	Exiting
12:00 - 1:00 AM	0.2%	0.1%	0.1%	1	1	0	0.3	0.2	0.1	0.4	0.3	0.1	0.2	0.1	0.1
1:00 - 2:00 AM	0.1%	0.1%	0.1%	1	0	0	0.2	0.1	0.1	0.3	0.2	0.1	0.2	0.1	0.1
2:00 - 3:00 AM	0.1%	0.1%	0.0%	0	0	0	0.1	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.0
3:00 - 4:00 AM	0.1%	0.0%	0.1%	0	0	0	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.0	0.1
4:00 - 5:00 AM	0.2%	0.0%	0.2%	1	0	1	0.3	0.0	0.2	0.4	0.1	0.4	0.2	0.0	0.2
5:00 - 6:00 AM	0.7%	0.1%	0.6%	3	1	3	1.0	0.2	0.9	1.5	0.2	1.3	0.8	0.1	0.7
6:00 - 7:00 AM	2.3%	0.5%	1.8%	11	2	8	3.2	0.7	2.5	4.8	1.0	3.8	2.7	0.6	2.1
7:00 - 8:00 AM	5.4%	1.4%	4.0%	25	6	18	7.4	1.9	5.5	11.1	2.8	8.3	6.2	1.6	4.6
8:00 - 9:00 AM	6.4%	2.0%	4.4%	29	9	20	8.7	2.7	6.0	13.1	4.0	9.1	7.3	2.2	5.0
9:00 - 10:00 AM	6.8%	2.6%	4.2%	31	12	19	9.3	3.6	5.8	14.0	5.4	8.6	7.8	3.0	4.8
10:00 - 11:00 AM	7.1%	3.0%	4.0%	32	14	18	9.7	4.2	5.5	14.5	6.3	8.3	8.1	3.5	4.6
11:00 - 12:00 PM	7.5%	3.6%	4.0%	35	16	18	10.4	4.9	5.5	15.5	7.4	8.2	8.6	4.1	4.5
12:00 - 1:00 PM	7.9%	3.9%	4.0%	36	18	18	10.8	5.4	5.4	16.2	8.0	8.2	9.0	4.5	4.5
1:00 - 2:00 PM	7.3%	3.6%	3.6%	33	17	17	10.0	5.0	5.0	14.9	7.5	7.5	8.3	4.2	4.2
2:00 - 3:00 PM	7.4%	3.9%	3.5%	34	18	16	10.2	5.4	4.8	15.3	8.1	7.2	8.5	4.5	4.0
3:00 - 4:00 PM	7.9%	4.5%	3.4%	36	21	15	10.8	6.2	4.6	16.3	9.3	7.0	9.0	5.2	3.9
4:00 - 5:00 PM	7.8%	4.7%	3.1%	36	21	14	10.7	6.4	4.3	16.1	9.7	6.4	8.9	5.4	3.6
5:00 - 6:00 PM	7.8%	4.7%	3.0%	36	22	14	10.7	6.5	4.2	16.0	9.7	6.3	8.9	5.4	3.5
6:00 - 7:00 PM	6.3%	3.6%	2.7%	29	17	12	8.6	5.0	3.7	12.9	7.4	5.5	7.2	4.1	3.1
7:00 - 8:00 PM	3.9%	2.6%	1.3%	18	12	6	5.4	3.5	1.8	8.0	5.3	2.8	4.5	2.9	1.5
8:00 - 9:00 PM	2.9%	2.2%	0.8%	13	10	3	4.0	3.0	1.0	6.1	4.5	1.6	3.4	2.5	0.9
9:00 - 10:00 PM	2.1%	1.5%	0.6%	10	7	3	2.9	2.1	0.8	4.3	3.1	1.2	2.4	1.7	0.7
10:00 - 11:00 PM	1.3%	0.9%	0.4%	6	4	2	1.8	1.2	0.5	2.6	1.8	0.8	1.5	1.0	0.5
11:00 - 12:00 AM	0.6%	0.4%	0.2%	3	2	1	0.8	0.5	0.2	1.2	0.8	0.3	0.6	0.5	0.2
Daily Totals	100.0%	50.0%	50.0%	458	229	229	137.4	68.7	68.7	206.0	103.0	103.0	114.5	57.2	57.2

Source: Based on distribution data for Senior Adult Housing in ITE Trip Generation Manual, 11th Edition



6 Traffic Generation and Distribution

6.2.2 As indicated in **Table 6.1**, the level of vehicular trips distributed to the lower order network will be relatively modest. Looking at the approximate PM Peak Hour (5 – 6 pm) and overall, 24-hour weekday period the distributed trips will result in the following estimated level of additional flows on the local road network.

- Weekday, PM Peak Hour:
 - North (via Shepherd/Preston Avenues): Approx. 11 trips (7 in, 4 out)
 - East (via Elizabeth Allen Drive), Approx. 16 trips (10 in, 6 out)
 - South (via Shepherd Avenue and Willfield Drive): Approx. 9 trips (5 in, 4 out)
- Daily, Traffic
 - North (via Shepherd/Preston Avenues): Approx. 138 trips (69 in, 69 out)
 - East (via Elizabeth Allen Drive), Approx. 206 trips (103 in, 103 out)
 - South (via Shepherd Avenue and Willfield Drive): Approx. 114 trips (57 in, 57 out)

Note: The ITE distribution calculated a slightly lower level of traffic during the PM Peak Hour compared to the PM Peak Hour rate recommended by the TfNSW, namely 36 vs. 44 trips. This is not significant from an assessment perspective.

In summary, based on the estimated level of trip generation and distribution; especially during the PM peak hour; it is evident that the development traffic could be comfortably accommodated on the local road network and nearby intersections without any significant effect on operations and capacity.



7 Effects on the Transportation Networks

7.1 Roading Network Capacity

- 7.1.1 On the basis of the expected modest level of vehicular trip generation and distribution from the proposed senior adult housing / retirement living development, it is considered that the traffic generated by the development of the site can be accommodated on the adjacent road network without resulting in any adverse efficiency effects.
- 7.1.2 It is expected that there will be no observable changes in the delay and the levels of service at any intersection on the adjacent local and major road network including along SH3.
- 7.1.3 As such, no detailed capacity / operational assessment of the SH3 intersections at Iris Taylor and Weedons Ross was carried out as the resulting impact of the development trips on these intersection operations would not be significant (i.e., no measurable change in level of service or delay is expected).

7.2 Non-Car Modes of Transport

- 7.2.1 The extent of walking and cycling in the local area is expected to increase due to the development. The proposed footpaths and shared paths within the development coupled with the existing footpath / walking track provision will be sufficient to accommodate the increased demand.
- 7.2.2 The provision of footpath and/or shared path along SH73 could facilitate walking and cycling but this may require widening of the legal reserve (i.e., considering the need for sealed road shoulders, shared path geometric design requirements and for adequate separation between vehicles and active mode users) and this is hence not proposed for implementation as part of the initial development.
- 7.2.3 That said, it is anticipated that the roads within the site will meet the council's standards for new roads, including the provisions of footpaths, active paths and cycling infrastructure, and therefore no further comment has been made on the internal road network.

7.3 Road Safety

- 7.3.1 The crash history in the vicinity of the site does not indicate that there are any particular features or factors that would affect, or be affected by, the development of the site.
- 7.3.2 New roads within the site can be expected to meet current design standards, including for non- motorised travel and therefore it is unlikely that any new road safety issues will be introduced.



8 District Plan and NZTA Planning Matters

8.1 Introduction

- 8.1.1 The district plan sets out a number of transportation-related policies and rules with which any new development is expected to comply. An assessment has been carried out of the proposed ODP layout against these rules.

8.2 Rule 5.1: Road and Engineering Standards / Appendices E13.3.1 and E13.3.2

- 8.2.1 The generally flat topography of the site means that the maximum gradients set out within this rule can be achieved.
- 8.2.2 With regard to the requirements for the roading network set out in appendices E13.3.1 and E13.3.2, the roads within the site are able to meet the requirements of the district plan for local residential roads.
- 8.2.3 Taking into account that the internal roads are likely to have a speed limit of 50 km/h or less, the minimum spacing between internal intersections (measured from centreline to centreline) is 75 m. This is achieved under the ODP within the site but in due course, intersections may be located closer together in order to provide suitable permeability within the site. However, this is a matter to be considered when subdivision consents are sought.
- 8.2.4 From the proposed east-west connection from the site (via Lot 283 DP 458646 located at 44 Shepherd Avenue), a new / modified crossroad intersection is proposed with Shepherd Avenue & Elizabeth Allen Drive. Given that the roads within the site will carry largely local drivers that are familiar with the roading pattern, and as the roads are intended to be low-speed residential roads, we consider that crossroad intersections can be supported. The alignment of Shepherd Avenue means that appropriate sight distances can be provided at the intersection.

8.3 Rule 5.2: Vehicle Accessways / Appendix E13.2.1

- 8.3.1 The ODP requires that the vast majority of lots gain direct access onto one of the internal roads. It is expected that this will be achieved.
- 8.3.2 No lots will have direct access directly onto state highway 73. This is an appropriate outcome given its status as a high-speed arterial road.
- 8.3.3 The generally flat topography of the site means that the maximum gradients permitted under this rule can easily be achieved.

8.4 Rule 5.3: Vehicle Crossings / Appendices E13.2.2 to E13.2.5

- 8.4.1 As the locations of the vehicle crossings are not presently fixed, they can be located in the position that either complies with, or most nearly complies with, the separation distances from intersections set out in Table E13.5 of Appendix E13.2.2.
- 8.4.2 The flat and largely straight alignment of the roads shown on the ODP it is anticipated that the sight distances provided will be appropriate for the prevailing speed environment.



8 District Plan and NZTA Planning Matters

- 8.4.3 Compliance with the maximum number of vehicle crossings per lot can be achieved, as can the maximum width of the crossings.

8.5 Rule 5.5: Vehicle Parking and Cycle Parking / Appendices E13.1.1 to E13.1.3 and E13.1.6 to E13.1.12

- 8.5.1 Although details of the location and number of car parking spaces have not been shown on the ODP, the size of the proposed lots and the topography of the site mean that the appropriate number and size of car parking spaces can be provided. Parking spaces can be provided on the lot to which they relate, with the manoeuvring areas accommodating the council's design vehicle without the need to reverse into a space, or carry out more than one reversing movement when unparking. An appropriate queuing space of 5.5 m can also be provided.

8.6 Summary of District Plan Compliance

- 8.6.1 On the basis of the above review, the ODP (and future subdivision pattern) is anticipated to comply with the district plan rules and standards. Accordingly, the site layout (as illustrated on the ODP) can be supported from a transportation perspective.



9 Conclusions and Recommendations

- 9.1.1 This report has identified, evaluated and assessed the various transport and access elements of a proposed residential plan change to the west of West Melton for a proposed Senior Adult Housing / Retirement Village development. Overall, it is considered that the traffic generated by the development of the site can be accommodated on the adjacent roading network without any capacity or efficiency issues arising. Levels of service on the surrounding intersections, including along SH73 is expected to remain at the same levels (without any observable changes to level of service or delays).
- 9.1.2 The crash history in the vicinity of the site does not indicate that there would be any adverse safety effects emanating as a result of the proposal.
- 9.1.3 The Outline Development Plan indicates that the subdivision pattern will largely meet the requirements of the Operative District Plan.
- 9.1.4 From the proposed east-west connection from the site (via Lot 283 DP 458646 located at 44 Shepherd Avenue), a new / modified crossroad intersection is proposed with Shepherd Avenue & Elizabeth Allen Drive. Given that the roads within the site will carry largely local drivers that are familiar with the roading pattern, and as the roads are intended to be low-speed residential roads, we consider that crossroad intersections can be supported. The alignment of Shepherd Avenue means that appropriate sight distances can be provided at the intersection.
- 9.1.5 Overall, and subject to the preceding comments, the plan change can be supported from a traffic and transportation perspective and it is considered that there are no traffic and transportation reasons why the plan change request could not be recommended for approval.

Stantec New Zealand Limited



10 References

The following references have been used or referred to in the compilation of this report:

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APPENDICES



Appendix A Concept Scheme Plan



Project Number: 310204997



LEGEND

ODP Boundary

Land Parcels

Primary Roads

Secondary Roads - Indicative

Key Pedestrain/ Cycle routes

Possible Future Vehicular Connection
(see ODP Narrative)

Retirement Village Hub Facilities

LZ

Living Z - Retirement Village / Medium Density

Lot Sizes xxx- xxxm2

NHP

Neighbourhood Park / Reirement Village Hub

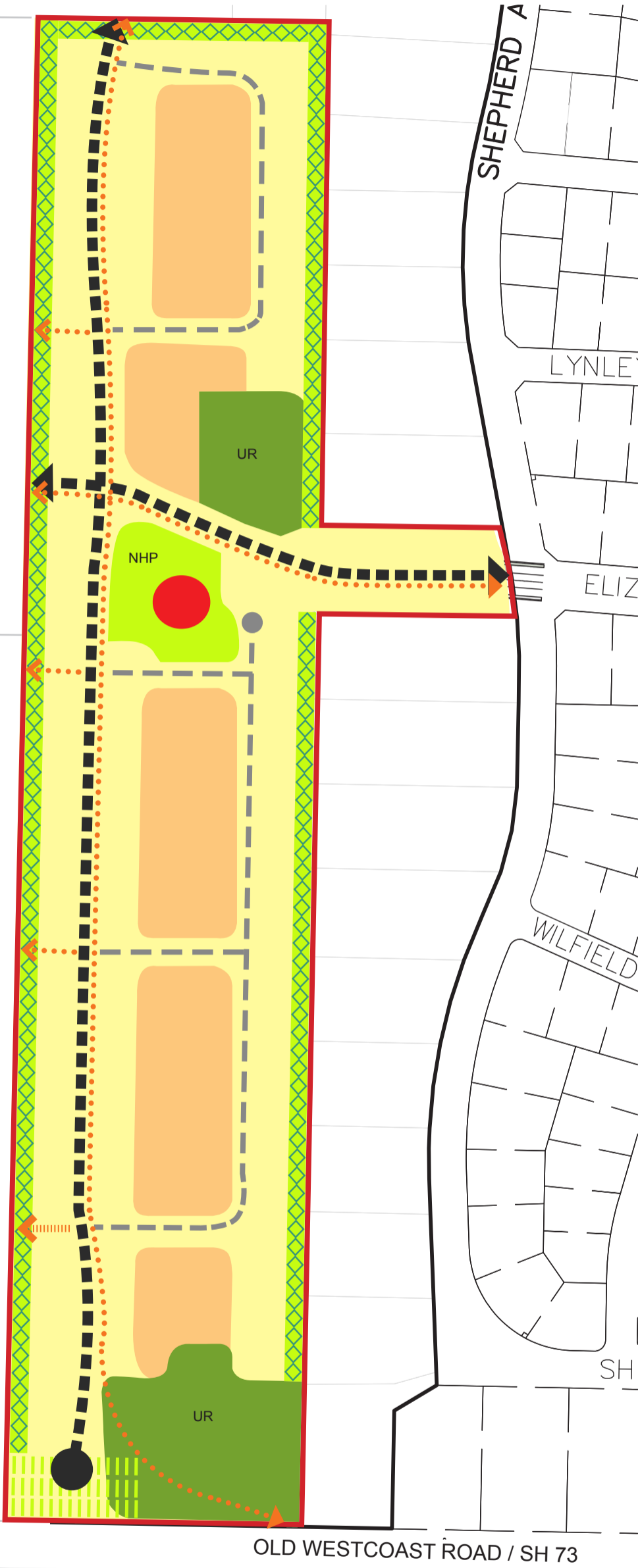
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Possible Utility Reserve Location

Landscape Buffer 40 m

Edge Treatment (see ODP Narrative)

no vehicle access to SH



Note:

Outline Development Plan
OVERALL Plan
West Melton



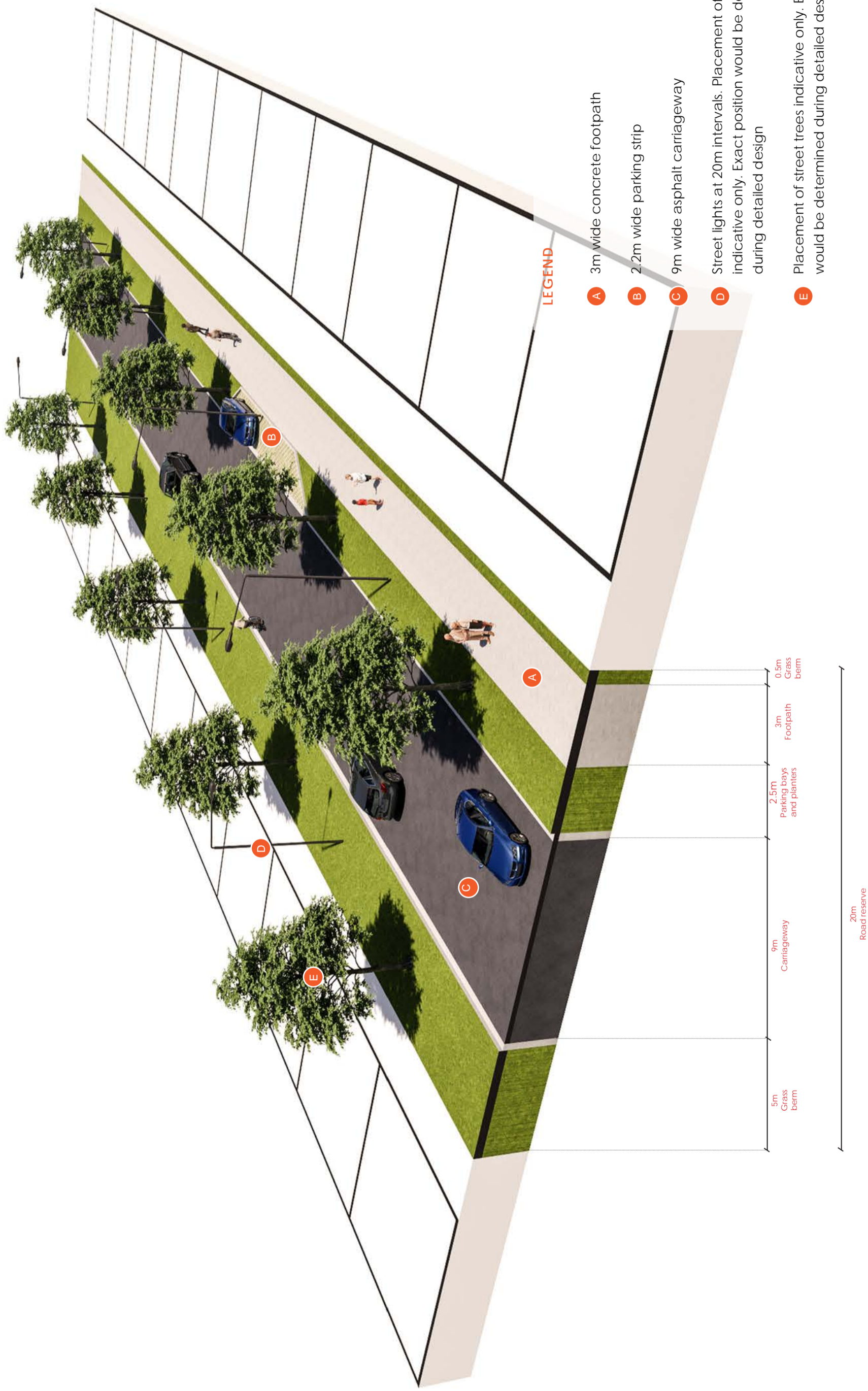
Appendix B Internal Road Cross-sections

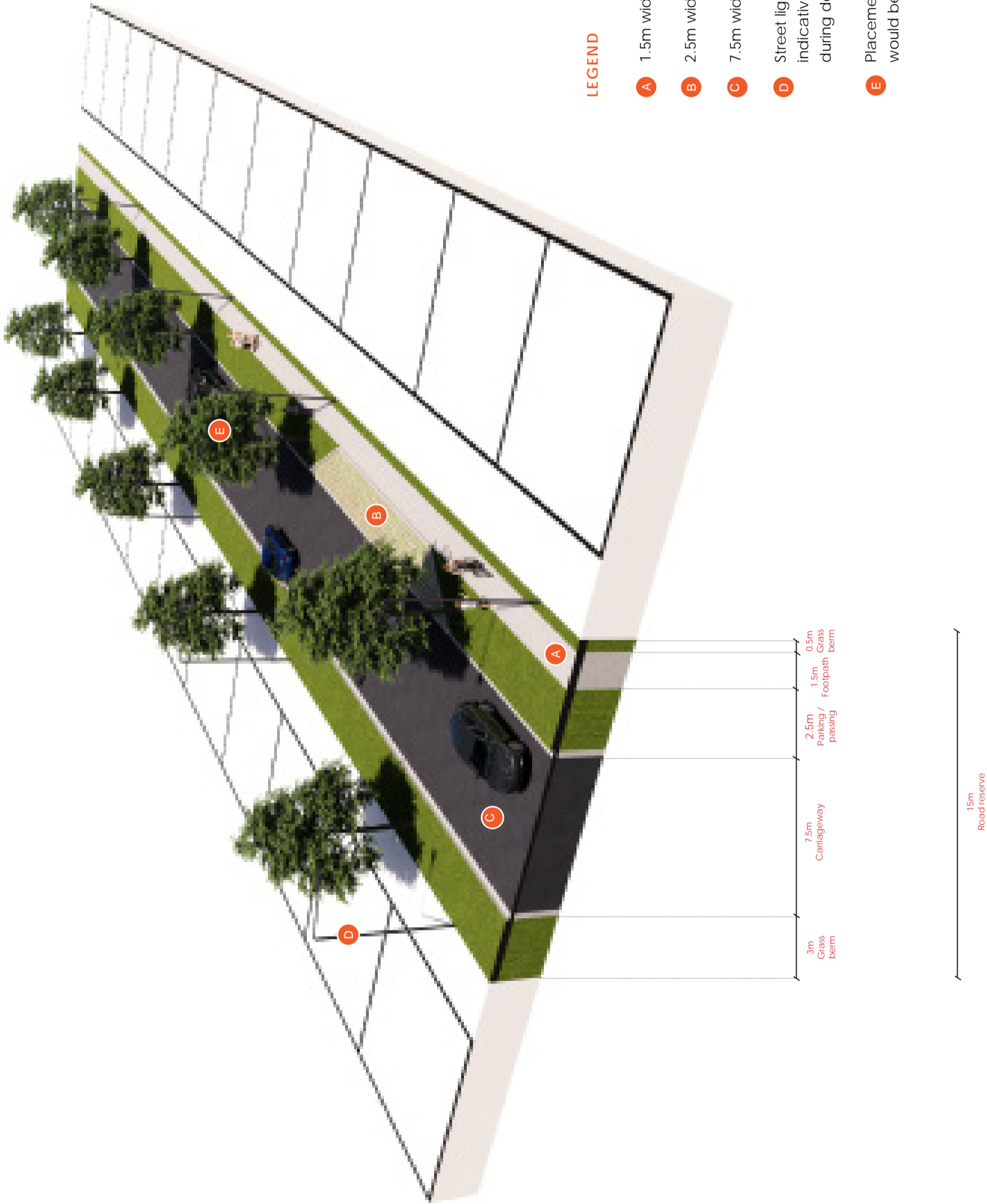


Project Number: 310204997

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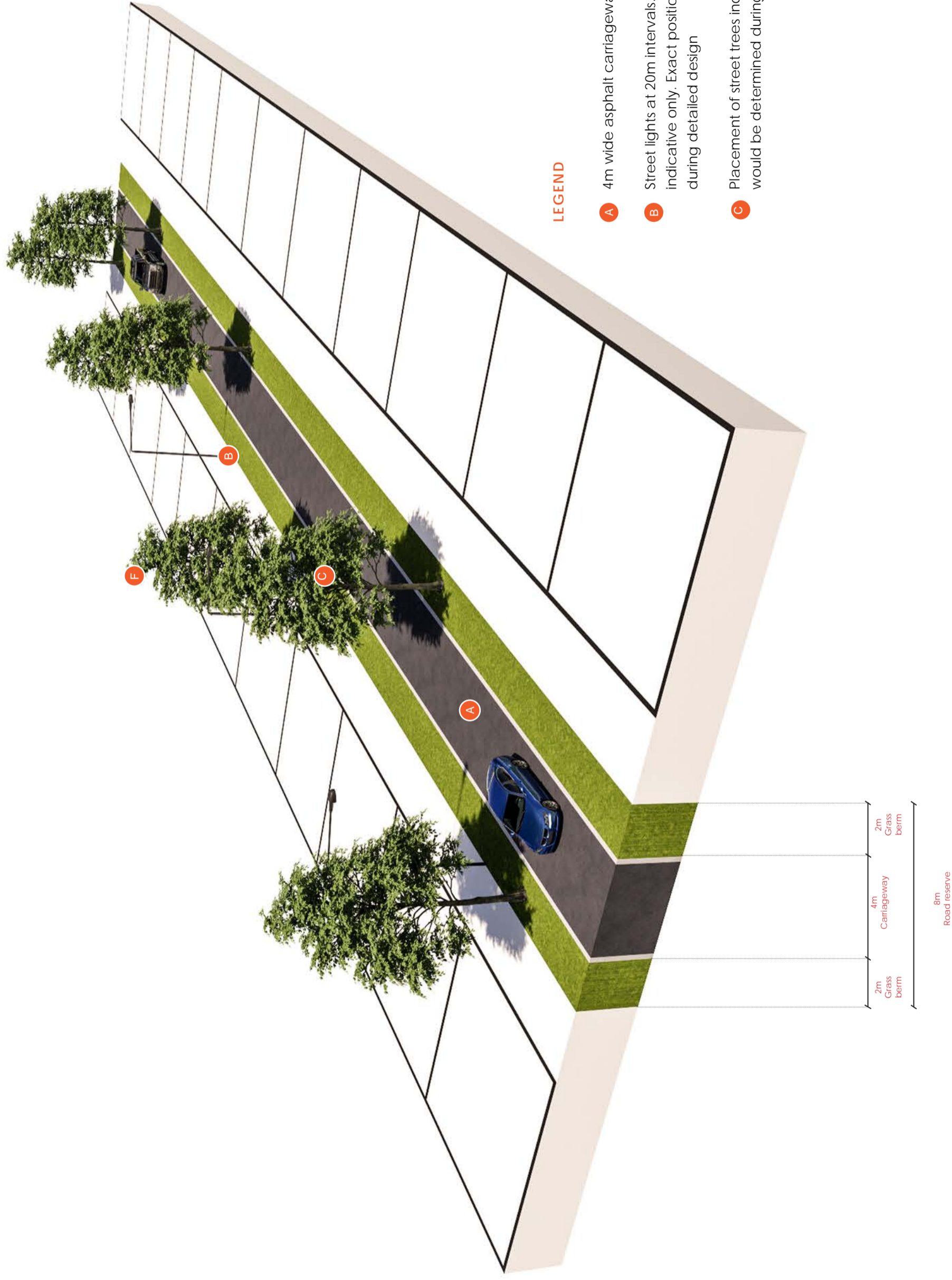






LEGEND

- A** 1.5m wide concrete footpath
- B** 2.5m wide parking strip / passing lane
- C** 7.5m wide asphalt carriageway
- D** Street lights at 20m intervals. Placement of street lights indicative only. Exact position would be determined during detailed design
- E** Placement of street trees indicative only. Exact position would be determined during detailed design.



LEGEND

- A 4m wide asphalt carriageway
- B Street lights at 20m intervals. Placement of street lights indicative only. Exact position would be determined during detailed design
- C Placement of street trees indicative only. Exact position would be determined during detailed design.

Appendix C CAS Crash Records



Crash factors

Crash factors	Crash numbers	% All crashes
#N/A	3	23.08
Alcohol	3	23.08
Disabled, old age or illness	0	0.00
Failed to give way or stop	6	46.15
Fatigue	1	7.69
Incorrect lanes or position	1	7.69
Miscellaneous factors	0	0.00
Overtaking	1	7.69
Pedestrian factors	0	0.00
Poor handling	0	0.00
Poor judgement	1	7.69
Poor observation	10	76.92
Position on Road	0	0.00
Road factors	0	0.00
Travel Speed	0	0.00
Unknown	0	0.00
Vehicle factors	0	0.00
Weather	1	7.69
TOTAL	27	207.69

Crashes with:

Factor groups	Crash numbers	% All crashes
All road user factors	6	46.15
Driver only factors	13	100.00
Pedestrian factors	0	0.00
Vehicle factors	0	0.00
Road factors	0	0.00
Environment factors	1	7.69
No identifiable factors	0	0.00
Retired codes - no future use	0	0.00
TOTAL	20	153.85

Notes: Factors are counted once against a crash - i.e. two fatigued drivers count as one fatigue crash factor.

Driver/vehicle factors are not available for non-injury crashes for Northland, Auckland, Waikato and Bay of Plenty before 2007. This will influence numbers and percentages.

% represents the % of crashes in which the cause factor appears.

Number of parties in crash

Party type	All crashes	% All crashes
Single party	3	23.08
Multiple party, including pedestrian	0	0.00
Multiple party, excluding pedestrian	10	76.92
TOTAL	13	100

 Driver and vehicle statistics

Drivers at fault or part fault in injury crashes - by age

Age	Male	Female	Unknown	Total	Percentage (%)
0-4	0	0	0	0	0.00
5-9	0	0	0	0	0.00
10-14	0	0	0	0	0.00
15-19	0	0	0	0	0.00
20-24	0	0	0	0	0.00
25-29	1	0	0	1	25.00
30-34	1	0	0	1	25.00
35-39	0	0	0	0	0.00
40-44	0	1	0	1	25.00
45-49	0	0	0	0	0.00
50-54	0	0	0	0	0.00
55-59	0	0	0	0	0.00
60-64	0	1	0	1	25.00
65-69	0	0	0	0	0.00
70-74	0	0	0	0	0.00
75-79	0	0	0	0	0.00
80-84	0	0	0	0	0.00
85-89	0	0	0	0	0.00
90-94	0	0	0	0	0.00
95-99	0	0	0	0	0.00
100+	0	0	0	0	0.00
Unknown	0	0	0	0	0.00
TOTAL	2	2	0	4	-
Percent	50.00	50.00	0.00	100.00	-

Note: Driver information is not calculated for non-injury crashes.

Drivers at fault or part fault in injury crashes - by licence

Licence	Male	Female	Unknown	Total	Percentage (%)
Full	2	2	0	4	100.00
Learner	0	0	0	0	0.00
Restricted	0	0	0	0	0.00
Overseas	0	0	0	0	0.00
Wrong class	0	0	0	0	0.00
Never Licensed	0	0	0	0	0.00
Unknown	0	0	0	0	0.00
Forbidden	0	0	0	0	0.00
TOTAL	2	2	0	4	-
Percent	50.00	50.00	0.00	100.00	-

Note: Driver information is not calculated for non-injury crashes.

Vulnerable road users

Crash types	Number	Percentage (%)
Cyclist crashes	0	0.00
Pedestrian crashes	0	0.00
Motorcycle crashes	2	15.38
All other crashes	11	84.62

Note: Some crashes involve more than one vulnerable road user type.

Note: Motorcycle stats include Mopeds.

Vehicles involved in injury crashes (vehicle count)

Vehicle type	No. of vehicles	% of vehicles in injury crashes
Unknown	0	0.00
Car/Wagon	1	16.67
SUV	0	0.00
Van	2	33.33
Ute	0	0.00
Truck	1	16.67
Truck HPMV	0	0.00
Bus	0	0.00
Motorcycle	2	33.33
Moped	0	0.00
Train	0	0.00
Cycle	0	0.00
Other	0	0.00
Unknown	0	0.00
50 Max	0	0.00
Left scene	0	0.00
Uncoupled towed vehicle	0	0.00
TOTAL	6	100.00

Vehicles involved in injury crashes (crash count)

Vehicle type	Injury crashes	% of injury crashes
Unknown	0	0.00
Car/Wagon	1	33.33
SUV	0	0.00
Van	1	33.33
Ute	0	0.00
Truck	1	33.33
Truck HPMV	0	0.00
Bus	0	0.00
Motorcycle	2	66.67
Moped	0	0.00
Train	0	0.00
Cycle	0	0.00
Other	0	0.00
Unknown	0	0.00
50 Max	0	0.00
Left scene	0	0.00
Uncoupled towed vehicle	0	0.00
TOTAL	5	166.67

Road environment statistics

Road type

Road type	State highway	Local road	Unknown	N/A	Total	Percentage (%)
Urban	4	6	0	0	10	76.92
Open	2	1	0	0	3	23.08
Unknown	0	0	0	0	0	0.00
TOTAL	6	7	0	0	13	–
Percent	46.15	53.85	0.00	0.00	100.00	–

Natural light conditions

Conditions	Injury	Non-injury	Total	%
Light/overcast	2	6	8	61.54
Dark/twilight	1	4	5	38.46
Unknown	0	0	0	0.00
TOTAL	3	10	13	100

Conditions

Conditions	Injury	Non-injury	Total	%
Dry	3	8	11	84.62
Ice or Snow	0	0	0	0.00
Wet	0	2	2	15.38
Null	0	0	0	0.00
TOTAL	3	10	13	100

Intersection/midblock

Intersection/mid-block	Total	%
Intersection	7	53.85
Midblock	6	46.15
TOTAL	13	100

Objects struck

Objects struck	Injury crashes	%	Non-injury crashes	%
Crashes w/obj struck	0	0.00	3	23.08

Object struck	Injury crashes	%	Non-injury crashes	%
Animals	0	0.00	0	0.00
Bridges/Tunnels	0	0.00	0	0.00
Cliffs	0	0.00	0	0.00
Debris	0	0.00	0	0.00
Embankments	0	0.00	0	0.00
Fences	0	0.00	2	15.38
Guide/Guard rails	0	0.00	0	0.00
Houses	0	0.00	0	0.00
Traffic Islands	0	0.00	0	0.00
Street Furniture	0	0.00	0	0.00
Kerbing	0	0.00	0	0.00
Landslips	0	0.00	0	0.00
Parked vehicle	0	0.00	0	0.00
Trains	0	0.00	0	0.00
Sight Rails	0	0.00	0	0.00
Poles	0	0.00	1	7.69
Stationary Vehicle	0	0.00	0	0.00
Roadwork	0	0.00	0	0.00
Traffic Sign	0	0.00	2	15.38
Trees	0	0.00	1	7.69
Drainage Structures	0	0.00	1	7.69
Ditches	0	0.00	0	0.00
Other	0	0.00	0	0.00
Thrown or dropped objects	0	0.00	0	0.00
Water	0	0.00	0	0.00
TOTAL	0	-	7	-

Note: % represents the % of crashes in which the object is struck.

Vehicle usage in injury crashes

Vehicle usage	Fatal Crash	Serious Crash	Minor Crash	Total	Percentage (%)
Private	0	2	2	4	66.67
Attenuator Truck	0	0	0	0	0.00
Agricultural	0	0	0	0	0.00
Ambulance	0	0	0	0	0.00
Campervan	0	0	0	0	0.00
Concrete mixer	0	0	0	0	0.00
Fire	0	0	0	0	0.00
Logging truck	0	0	0	0	0.00
Mobile crane	0	0	0	0	0.00
Police	0	0	0	0	0.00
Rental	0	0	0	0	0.00
Road Working	0	0	0	0	0.00
Scheduled service Bus	0	0	0	0	0.00
School bus	0	0	0	0	0.00
Tanker	0	0	0	0	0.00
Taxi	0	0	0	0	0.00
Tour Bus	0	0	0	0	0.00
Trade person	0	0	0	0	0.00
Work travel	0	0	0	0	0.00
Work vehicle	0	0	0	0	0.00
Other	0	0	0	0	0.00
Null	0	2	0	2	33.33
TOTAL	0	4	2	6	-
Percent	0.00	66.67	33.33	100.00	-

🕒 Time period statistics

Month by injury/ non-injury crashes

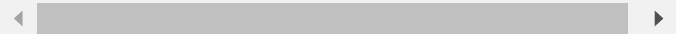
Month	Injury crashes	%	Non-injury crashes	%	Total	%
Jan	0	0	0	0	0	0
Feb	1	33.33	1	10	2	15.38
Mar	0	0	0	0	0	0
Apr	0	0	1	10	1	7.69
May	0	0	0	0	0	0
Jun	1	33.33	3	30	4	30.77
Jul	0	0	1	10	1	7.69
Aug	0	0	0	0	0	0
Sep	0	0	0	0	0	0
Oct	1	33.33	1	10	2	15.38
Nov	0	0	2	20	2	15.38
Dec	0	0	1	10	1	7.69
TOTAL	3	100	10	100	13	100

Day/period

Day/Period	All crashes	% All crashes
Weekday	8	61.54
Weekend	5	38.46
TOTAL	13	100

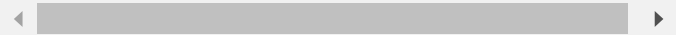
Day/period by hour

	00:00 - 02:59	03:00 - 05:59	06:00 - 08:59	09:00 - 11:59	12:00 - 14:59	15:00 - 17:59	18:00 - 20:59	21:00 - 23:59	Total
Weekday	0	0	1	3	2	1	1	0	8
Weekend	0	0	1	0	0	1	1	2	5
TOTAL	0	0	2	3	2	2	2	2	13



Day/period by hour DOW

	00:00 - 02:59	03:00 - 05:59	06:00 - 08:59	09:00 - 11:59	12:00 - 14:59	15:00 - 17:59	18:00 - 20:59	21:00 - 23:59	Total
Mon	0	0	0	1	0	0	0	0	1
Tue	0	0	0	1	1	0	0	0	2
Wed	0	0	0	0	1	1	0	0	2
Thu	0	0	0	1	0	0	1	0	2
Fri	0	0	1	0	0	0	1	0	2
Sat	0	0	1	0	0	1	0	0	2
Sun	0	0	0	0	0	0	0	2	2
TOTAL	0	0	2	3	2	2	2	2	13



Appendix D Intersection Traffic Count Survey Data



Appendix D Intersection Traffic Count Survey Data

Appendix D.1 SH73 & Weedons Ross Road



Stantec SH73 - Weedons Ross Rd - TMC

Wed May 4, 2022

Full Length (6:30 AM-6:30 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

All Movements

ID: 945708, Location: -43.523994, 172.369866

Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ

Leg Direction	Weedons Ross Rd Southbound Southbound					SH73 Westbound Westbound					Weedons Ross Rd Northbound Northbound					SH73 Eastbound Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2022-05-04 6:30AM	2	7	15	0	24	1	19	18	0	38	6	6	4	0	16	2	63	0	0	65	143
6:45AM	1	10	10	0	21	1	23	21	0	45	17	3	8	0	28	12	71	1	0	84	178
Hourly Total	3	17	25	0	45	2	42	39	0	83	23	9	12	0	44	14	134	1	0	149	321
7:00AM	2	13	16	0	31	8	34	15	0	57	9	9	8	0	26	16	94	5	0	115	229
7:15AM	1	11	29	0	41	3	27	10	0	40	14	17	7	0	38	27	109	11	0	147	266
7:30AM	3	15	26	0	44	13	49	15	0	77	17	14	11	0	42	19	97	9	0	125	288
7:45AM	2	8	20	0	30	16	46	17	0	79	20	18	14	0	52	27	105	10	0	142	303
Hourly Total	8	47	91	0	146	40	156	57	0	253	60	58	40	0	158	89	405	35	0	529	1086
8:00AM	6	15	21	0	42	11	31	11	0	53	17	16	8	0	41	26	70	11	0	107	243
8:15AM	2	29	31	0	62	12	34	12	0	58	15	21	12	0	48	17	88	23	0	128	296
8:30AM	8	19	36	0	63	24	43	16	0	83	11	32	16	0	59	17	76	23	0	116	321
8:45AM	6	26	9	0	41	15	27	18	0	60	11	21	6	0	38	17	51	11	0	79	218
Hourly Total	22	89	97	0	208	62	135	57	0	254	54	90	42	0	186	77	285	68	0	430	1078
9:00AM	9	17	14	0	40	8	43	14	0	65	6	14	10	0	30	11	51	9	0	71	206
9:15AM	3	20	12	0	35	15	33	12	0	60	7	20	3	0	30	9	46	8	0	63	188
9:30AM	8	22	11	0	41	6	25	8	0	39	7	10	9	0	26	9	35	5	0	49	155
9:45AM	5	21	8	0	34	9	28	6	0	43	11	22	4	0	37	8	36	7	0	51	165
Hourly Total	25	80	45	0	150	38	129	40	0	207	31	66	26	0	123	37	168	29	0	234	714
10:00AM	2	10	13	0	25	8	27	1	0	36	9	10	2	0	21	4	28	2	0	34	116
10:15AM	8	7	8	0	23	8	31	5	0	44	5	14	1	0	20	10	42	12	0	64	151
10:30AM	7	14	12	0	33	15	28	10	0	53	12	8	5	0	25	4	35	4	0	43	154
10:45AM	7	9	15	0	31	6	33	8	0	47	14	12	6	0	32	5	46	6	0	57	167
Hourly Total	24	40	48	0	112	37	119	24	0	180	40	44	14	0	98	23	151	24	0	198	588
11:00AM	5	11	11	0	27	14	31	11	0	56	8	11	4	0	23	5	37	5	0	47	153
11:15AM	3	12	12	0	27	11	32	16	0	59	4	6	10	0	20	6	35	2	0	43	149
11:30AM	2	15	8	0	25	6	28	12	0	46	4	14	4	0	22	8	42	4	0	54	147
11:45AM	6	16	13	0	35	19	35	7	0	61	8	7	2	0	17	7	44	16	0	67	180
Hourly Total	16	54	44	0	114	50	126	46	0	222	24	38	20	0	82	26	158	27	0	211	629
12:00PM	6	15	10	0	31	12	34	5	0	51	7	15	5	0	27	7	36	9	0	52	161
12:15PM	12	18	10	0	40	9	26	6	0	41	10	17	2	0	29	4	27	2	0	33	143
12:30PM	8	9	7	0	24	9	37	16	0	62	6	12	1	0	19	6	39	6	0	51	156
12:45PM	3	13	5	0	21	9	28	13	0	50	12	13	7	0	32	9	29	6	0	44	147
Hourly Total	29	55	32	0	116	39	125	40	0	204	35	57	15	0	107	26	131	23	0	180	607
1:00PM	5	16	11	0	32	6	21	15	0	42	5	13	6	0	24	4	28	3	0	35	133
1:15PM	4	14	13	0	31	11	26	14	0	51	7	7	4	0	18	8	34	12	0	54	154
1:30PM	6	13	11	0	30	8	34	9	0	51	11	16	6	0	33	1	40	7	0	48	162
1:45PM	8	12	10	0	30	16	33	8	0	57	5	9	6	0	20	8	33	6	0	47	154
Hourly Total	23	55	45	0	123	41	114	46	0	201	28	45	22	0	95	21	135	28	0	184	603
2:00PM	3	23	7	0	33	17	30	4	0	51	12	19	8	0	39	10	35	4	0	49	172
2:15PM	6	20	7	0	33	17	41	9	0	67	7	8	9	0	24	10	39	7	0	56	180
2:30PM	5	20	23	0	48	25	50	11	0	86	5	32	8	0	45	14	43	8	0	65	244
2:45PM	11	16	14	0	41	29	58	25	0	112	10	31	10	0	51	16	42	13	0	71	275
Hourly Total	25	79	51	0	155	88	179	49	0	316	34	90	35	0	159	50	159	32	0	241	871
3:00PM	9	48	14	0	71	19	46	15	0	80	8	21	13	0	42	23	33	6	0	62	255
3:15PM	5	24	14	0	43	14	60	19	0	93	13	14	11	0	38	9	51	5	0	65	239
3:30PM	9	30	9	0	48	24	73	16	0	113	12	22	4	0	38	10	47	12	0	69	268
3:45PM	8	18	10	0	36	24	65	22	0	111	12	14	15	0	41	18	32	8	0	58	246
Hourly Total	31	120	47	0	198	81	244	72	0	397	45	71	43	0	159	60	163	31	0	254	1008
4:00PM	8	14	13	0	35	32	71	19	0	122	20	14	17	0	51	9	43	8	0	60	268
4:15PM	9	29	15	0	53	15	64	29	0	108	11	19	22	0	52	24	48	12	0	84	297
4:30PM	6	17	12	0	35	20	100	26	0	146	13	24	19	0	56	22	44	5	0	71	308
4:45PM	4	24	11	0	39	22	92	27	0	141	6	15	25	0	46	22	55	8	0	85	311
Hourly Total	27	84	51	0	162	89	327	101	0	517	50	72	83	0	205	77	190	33	0	300	1184

Leg Direction	Weedons Ross Rd Southbound Southbound					SH73 Westbound Westbound					Weedons Ross Rd Northbound Northbound					SH73 Eastbound Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
5:00PM	5	20	11	0	36	26	88	22	0	136	9	27	29	0	65	13	57	10	0	80	317
5:15PM	7	18	9	0	34	24	81	30	0	135	6	15	16	0	37	15	42	3	0	60	266
5:30PM	5	17	9	0	31	20	82	32	0	134	15	17	19	0	51	11	34	6	0	51	267
5:45PM	5	12	9	0	26	30	74	16	0	120	8	26	17	0	51	16	38	13	0	67	264
Hourly Total	22	67	38	0	127	100	325	100	0	525	38	85	81	0	204	55	171	32	0	258	1114
6:00PM	6	19	10	0	35	21	60	14	0	95	3	31	17	0	51	5	35	11	0	51	232
6:15PM	4	12	7	0	23	9	53	11	0	73	2	15	9	0	26	8	27	9	0	44	166
Hourly Total	10	31	17	0	58	30	113	25	0	168	5	46	26	0	77	13	62	20	0	95	398
Total	265	818	631	0	1714	697	2134	696	0	3527	467	771	459	0	1697	568	2312	383	0	3263	10201
% Approach	15.5%	47.7%	36.8%	0%	-	19.8%	60.5%	19.7%	0%	-	27.5%	45.4%	27.0%	0%	-	17.4%	70.9%	11.7%	0%	-	-
% Total	2.6%	8.0%	6.2%	0%	16.8%	6.8%	20.9%	6.8%	0%	34.6%	4.6%	7.6%	4.5%	0%	16.6%	5.6%	22.7%	3.8%	0%	32.0%	-
Motorcycles	0	0	2	0	2	0	5	0	0	5	1	1	0	0	2	2	12	1	0	15	24
% Motorcycles	0%	0%	0.3%	0%	0.1%	0%	0.2%	0%	0%	0.1%	0.2%	0.1%	0%	0%	0.1%	0.4%	0.5%	0.3%	0%	0.5%	0.2%
Lights	250	784	612	0	1646	679	1990	630	0	3299	424	730	443	0	1597	547	2157	373	0	3077	9619
% Lights	94.3%	95.8%	97.0%	0%	96.0%	97.4%	93.3%	90.5%	0%	93.5%	90.8%	94.7%	96.5%	0%	94.1%	96.3%	93.3%	97.4%	0%	94.3%	94.3%
Single-Unit Trucks	11	26	12	0	49	17	81	35	0	133	34	26	12	0	72	11	87	3	0	101	355
% Single-Unit Trucks	4.2%	3.2%	1.9%	0%	2.9%	2.4%	3.8%	5.0%	0%	3.8%	7.3%	3.4%	2.6%	0%	4.2%	1.9%	3.8%	0.8%	0%	3.1%	3.5%
Articulated Trucks	1	3	1	0	5	0	53	29	0	82	7	5	2	0	14	4	50	1	0	55	156
% Articulated Trucks	0.4%	0.4%	0.2%	0%	0.3%	0%	2.5%	4.2%	0%	2.3%	1.5%	0.6%	0.4%	0%	0.8%	0.7%	2.2%	0.3%	0%	1.7%	1.5%
Buses	3	5	2	0	10	1	4	1	0	6	1	7	2	0	10	3	5	4	0	12	38
% Buses	1.1%	0.6%	0.3%	0%	0.6%	0.1%	0.2%	0.1%	0%	0.2%	0.2%	0.9%	0.4%	0%	0.6%	0.5%	0.2%	1.0%	0%	0.4%	0.4%
Bicycles on Road	0	0	2	0	2	0	1	1	0	2	0	2	0	0	2	1	1	1	0	3	9
% Bicycles on Road	0%	0%	0.3%	0%	0.1%	0%	0%	0.1%	0%	0.1%	0%	0.3%	0%	0%	0.1%	0.2%	0%	0.3%	0%	0.1%	0.1%

*L: Left, R: Right, T: Thru, U: U-Turn

Stantec SH73 - Weedons Ross Rd - TMC

Wed May 4, 2022

Full Length (6:30 AM-6:30 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

All Movements

ID: 945708, Location: -43.523994, 172.369866

Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ

[N] Weedons Ross Rd Southbound

Total: 3565

Out: 1851 In: 1714

265

818

631

[W] SH73 Eastbound

Total: 6121

In: 3263
Out: 2858

383

2312

568

In: 3527
Out: 3410

Total: 6937

[E] SH73 Westbound

697

2134

696

459

771

467

In: 1697 Out: 2082

Total: 3779

[S] Weedons Ross Rd Northbound

Stantec SH73 - Weedons Ross Rd - TMC

Wed May 4, 2022

AM Peak (7:45 AM - 8:45 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

All Movements

ID: 945708, Location: -43.523994, 172.369866

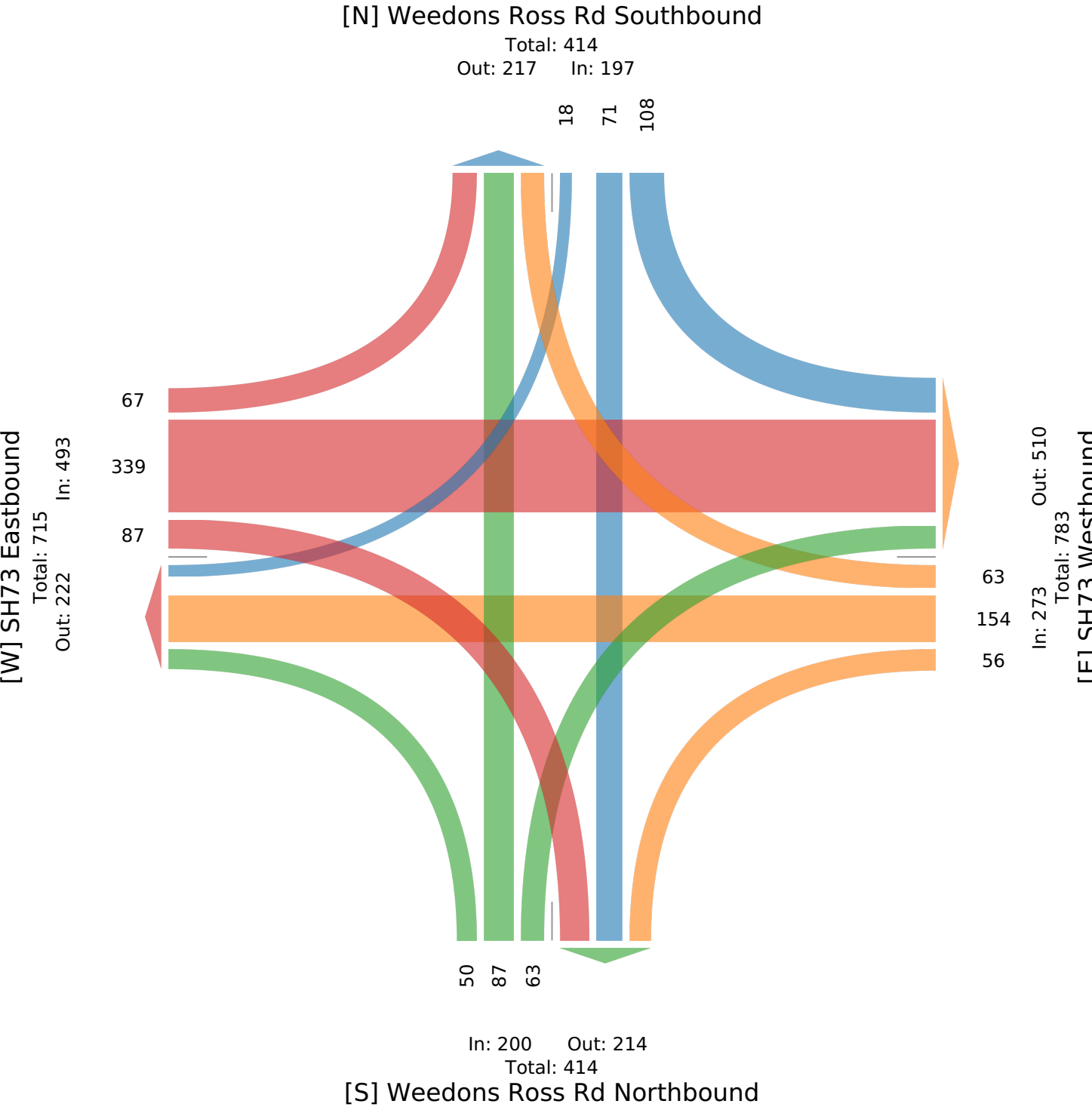
Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ

Leg Direction	Weedons Ross Rd Southbound Southbound					SH73 Westbound Westbound					Weedons Ross Rd Northbound Northbound					SH73 Eastbound Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2022-05-04 7:45AM	2	8	20	0	30	16	46	17	0	79	20	18	14	0	52	27	105	10	0	142	303
8:00AM	6	15	21	0	42	11	31	11	0	53	17	16	8	0	41	26	70	11	0	107	243
8:15AM	2	29	31	0	62	12	34	12	0	58	15	21	12	0	48	17	88	23	0	128	296
8:30AM	8	19	36	0	63	24	43	16	0	83	11	32	16	0	59	17	76	23	0	116	321
Total	18	71	108	0	197	63	154	56	0	273	63	87	50	0	200	87	339	67	0	493	1163
% Approach	9.1%	36.0%	54.8%	0%	-	23.1%	56.4%	20.5%	0%	-	31.5%	43.5%	25.0%	0%	-	17.6%	68.8%	13.6%	0%	-	-
% Total	1.5%	6.1%	9.3%	0%	16.9%	5.4%	13.2%	4.8%	0%	23.5%	5.4%	7.5%	4.3%	0%	17.2%	7.5%	29.1%	5.8%	0%	42.4%	-
PHF	0.563	0.612	0.750	-	0.782	0.656	0.837	0.824	-	0.822	0.788	0.680	0.781	-	0.847	0.806	0.807	0.728	-	0.868	0.906
Motorcycles	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	3
% Motorcycles	0%	0%	0.9%	0%	0.5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1.1%	0.3%	0%	0%	0.4%	0.3%
Lights	14	67	105	0	186	58	136	50	0	244	56	81	46	0	183	80	328	64	0	472	1085
% Lights	77.8%	94.4%	97.2%	0%	94.4%	92.1%	88.3%	89.3%	0%	89.4%	88.9%	93.1%	92.0%	0%	91.5%	92.0%	96.8%	95.5%	0%	95.7%	93.3%
Single-Unit Trucks	3	1	1	0	5	4	14	5	0	23	6	1	3	0	10	5	3	1	0	9	47
% Single-Unit Trucks	16.7%	1.4%	0.9%	0%	2.5%	6.3%	9.1%	8.9%	0%	8.4%	9.5%	1.1%	6.0%	0%	5.0%	5.7%	0.9%	1.5%	0%	1.8%	4.0%
Articulated Trucks	0	0	0	0	0	0	3	1	0	4	1	3	0	0	4	0	7	0	0	7	15
% Articulated Trucks	0%	0%	0%	0%	0%	0%	1.9%	1.8%	0%	1.5%	1.6%	3.4%	0%	0%	2.0%	0%	2.1%	0%	0%	1.4%	1.3%
Buses	1	3	1	0	5	1	1	0	0	2	0	2	1	0	3	1	0	2	0	3	13
% Buses	5.6%	4.2%	0.9%	0%	2.5%	1.6%	0.6%	0%	0%	0.7%	0%	2.3%	2.0%	0%	1.5%	1.1%	0%	3.0%	0%	0.6%	1.1%
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

*L: Left, R: Right, T: Thru, U: U-Turn



Stantec SH73 - Weedons Ross Rd - TMC

Wed May 4, 2022

Midday Peak (11:45 AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

All Movements

ID: 945708, Location: -43.523994, 172.369866

Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ

Leg Direction	Weedons Ross Rd Southbound Southbound					SH73 Westbound Westbound					Weedons Ross Rd Northbound Northbound					SH73 Eastbound Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2022-05-04 11:45AM	6	16	13	0	35	19	35	7	0	61	8	7	2	0	17	7	44	16	0	67	180
12:00PM	6	15	10	0	31	12	34	5	0	51	7	15	5	0	27	7	36	9	0	52	161
12:15PM	12	18	10	0	40	9	26	6	0	41	10	17	2	0	29	4	27	2	0	33	143
12:30PM	8	9	7	0	24	9	37	16	0	62	6	12	1	0	19	6	39	6	0	51	156
Total	32	58	40	0	130	49	132	34	0	215	31	51	10	0	92	24	146	33	0	203	640
% Approach	24.6%	44.6%	30.8%	0%	-	22.8%	61.4%	15.8%	0%	-	33.7%	55.4%	10.9%	0%	-	11.8%	71.9%	16.3%	0%	-	-
% Total	5.0%	9.1%	6.3%	0%	20.3%	7.7%	20.6%	5.3%	0%	33.6%	4.8%	8.0%	1.6%	0%	14.4%	3.8%	22.8%	5.2%	0%	31.7%	-
PHF	0.667	0.806	0.750	-	0.806	0.645	0.892	0.516	-	0.863	0.775	0.750	0.500	-	0.793	0.857	0.830	0.516	-	0.757	0.886
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Motorcycles	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.7%	0%	0%	0.5%	0.2%
Lights	29	56	39	0	124	47	126	31	0	204	27	49	8	0	84	24	126	33	0	183	595
% Lights	90.6%	96.6%	97.5%	0%	95.4%	95.9%	95.5%	91.2%	0%	94.9%	87.1%	96.1%	80.0%	0%	91.3%	100%	86.3%	100%	0%	90.1%	93.0%
Single-Unit Trucks	2	2	0	0	4	2	3	2	0	7	4	1	1	0	6	0	13	0	0	13	30
% Single-Unit Trucks	6.3%	3.4%	0%	0%	3.1%	4.1%	2.3%	5.9%	0%	3.3%	12.9%	2.0%	10.0%	0%	6.5%	0%	8.9%	0%	0%	6.4%	4.7%
Articulated Trucks	1	0	0	0	1	0	3	0	0	3	0	1	1	0	2	0	6	0	0	6	12
% Articulated Trucks	3.1%	0%	0%	0%	0.8%	0%	2.3%	0%	0%	1.4%	0%	2.0%	10.0%	0%	2.2%	0%	4.1%	0%	0%	3.0%	1.9%
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bicycles on Road	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
% Bicycles on Road	0%	0%	2.5%	0%	0.8%	0%	0%	2.9%	0%	0.5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.3%

*L: Left, R: Right, T: Thru, U: U-Turn

Stantec SH73 - Weedons Ross Rd - TMC

Wed May 4, 2022

Midday Peak (11:45 AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

All Movements

ID: 945708, Location: -43.523994, 172.369866

Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ

[N] Weedons Ross Rd Southbound

Total: 263
Out: 133 In: 130

32 58 40

[W] SH73 Eastbound

Total: 377
In: 203
Out: 174

33

146

24

49

132

34

In: 215 Out: 217
Total: 432

[E] SH73 Westbound

10 51 31

In: 92 Out: 116
Total: 208

[S] Weedons Ross Rd Northbound

Stantec SH73 - Weedons Ross Rd - TMC

Wed May 4, 2022

PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

All Movements

ID: 945708, Location: -43.523994, 172.369866

Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ

Leg Direction	Weedons Ross Rd Southbound Southbound					SH73 Westbound Westbound					Weedons Ross Rd Northbound Northbound					SH73 Eastbound Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2022-05-04 4:15PM	9	29	15	0	53	15	64	29	0	108	11	19	22	0	52	24	48	12	0	84	297
4:30PM	6	17	12	0	35	20	100	26	0	146	13	24	19	0	56	22	44	5	0	71	308
4:45PM	4	24	11	0	39	22	92	27	0	141	6	15	25	0	46	22	55	8	0	85	311
5:00PM	5	20	11	0	36	26	88	22	0	136	9	27	29	0	65	13	57	10	0	80	317
Total	24	90	49	0	163	83	344	104	0	531	39	85	95	0	219	81	204	35	0	320	1233
% Approach	14.7%	55.2%	30.1%	0%	-	15.6%	64.8%	19.6%	0%	-	17.8%	38.8%	43.4%	0%	-	25.3%	63.8%	10.9%	0%	-	-
% Total	1.9%	7.3%	4.0%	0%	13.2%	6.7%	27.9%	8.4%	0%	43.1%	3.2%	6.9%	7.7%	0%	17.8%	6.6%	16.5%	2.8%	0%	26.0%	-
PHF	0.667	0.776	0.817	-	0.769	0.798	0.860	0.897	-	0.909	0.750	0.787	0.819	-	0.842	0.844	0.895	0.729	-	0.941	0.972
Motorcycles	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Motorcycles	0%	0%	0%	0%	0%	0%	0.3%	0%	0%	0.2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.1%
Lights	23	88	47	0	158	82	331	101	0	514	35	84	95	0	214	77	193	35	0	305	1191
% Lights	95.8%	97.8%	95.9%	0%	96.9%	98.8%	96.2%	97.1%	0%	96.8%	89.7%	98.8%	100%	0%	97.7%	95.1%	94.6%	100%	0%	95.3%	96.6%
Single-Unit Trucks	0	1	2	0	3	1	7	2	0	10	3	1	0	0	4	2	6	0	0	8	25
% Single-Unit Trucks	0%	1.1%	4.1%	0%	1.8%	1.2%	2.0%	1.9%	0%	1.9%	7.7%	1.2%	0%	0%	1.8%	2.5%	2.9%	0%	0%	2.5%	2.0%
Articulated Trucks	0	1	0	0	1	0	2	1	0	3	1	0	0	0	1	2	4	0	0	6	11
% Articulated Trucks	0%	1.1%	0%	0%	0.6%	0%	0.6%	1.0%	0%	0.6%	2.6%	0%	0%	0%	0.5%	2.5%	2.0%	0%	0%	1.9%	0.9%
Buses	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	5
% Buses	4.2%	0%	0%	0%	0.6%	0%	0.9%	0%	0%	0.6%	0%	0%	0%	0%	0%	0%	0.5%	0%	0%	0.3%	0.4%
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

*L: Left, R: Right, T: Thru, U: U-Turn

Stantec SH73 - Weedons Ross Rd - TMC

Wed May 4, 2022

PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

All Movements

ID: 945708, Location: -43.523994, 172.369866

Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ

[N] Weedons Ross Rd Southbound

Total: 366
Out: 203 In: 163

24 90 49

[W] SH73 Eastbound

Total: 783
Out: 463 In: 320

35
204
81

83
344
104

In: 531 Out: 292
Total: 823

[E] SH73 Westbound

95 85 39

In: 219 Out: 275
Total: 494

[S] Weedons Ross Rd Northbound

Appendix D Intersection Traffic Count Survey Data

Appendix D.2 SH73 & Iris Taylor Drive



Stantec Iris Taylor Ave - SH73 - TMC

Wed May 4, 2022

Full Length (6:30 AM-6:30 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

All Movements

ID: 945709, Location: -43.523934, 172.365659

Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ

Leg Direction	Iris Taylor Ave Southbound				SH73 Westbound Westbound				SH73 Eastbound Eastbound				
Time	R	L	U	App	R	T	U	App	T	L	U	App	Int
2022-05-04 6:30AM	0	10	0	10	1	20	0	21	60	1	0	61	92
6:45AM	4	14	0	18	5	24	0	29	73	0	0	73	120
Hourly Total	4	24	0	28	6	44	0	50	133	1	0	134	212
7:00AM	0	29	0	29	7	37	0	44	81	1	0	82	155
7:15AM	4	41	0	45	5	22	0	27	104	2	0	106	178
7:30AM	1	57	0	58	9	53	0	62	98	1	0	99	219
7:45AM	3	36	0	39	11	34	0	45	95	1	0	96	180
Hourly Total	8	163	0	171	32	146	0	178	378	5	0	383	732
8:00AM	3	38	0	41	7	48	0	55	78	3	0	81	177
8:15AM	3	36	0	39	6	33	0	39	86	2	0	88	166
8:30AM	4	41	0	45	18	44	2	64	81	2	0	83	192
8:45AM	6	33	0	39	11	34	0	45	64	3	0	67	151
Hourly Total	16	148	0	164	42	159	2	203	309	10	0	319	686
9:00AM	2	27	0	29	7	42	0	49	48	1	0	49	127
9:15AM	1	18	0	19	4	34	0	38	42	2	0	44	101
9:30AM	1	19	0	20	2	45	0	47	38	1	0	39	106
9:45AM	0	9	0	9	5	24	0	29	53	2	0	55	93
Hourly Total	4	73	0	77	18	145	0	163	181	6	0	187	427
10:00AM	0	6	0	6	4	26	0	30	28	1	0	29	65
10:15AM	0	5	0	5	4	38	0	42	43	0	0	43	90
10:30AM	0	9	0	9	5	38	0	43	32	0	0	32	84
10:45AM	2	10	0	12	2	38	0	40	54	1	0	55	107
Hourly Total	2	30	0	32	15	140	0	155	157	2	0	159	346
11:00AM	0	10	0	10	12	29	0	41	47	1	0	48	99
11:15AM	0	9	0	9	7	38	0	45	33	1	0	34	88
11:30AM	3	12	0	15	7	23	1	31	43	0	0	43	89
11:45AM	0	13	0	13	8	37	0	45	52	1	0	53	111
Hourly Total	3	44	0	47	34	127	1	162	175	3	0	178	387
12:00PM	0	17	1	18	6	33	0	39	32	2	0	34	91
12:15PM	1	7	0	8	7	35	0	42	42	0	0	42	92
12:30PM	2	4	0	6	11	39	0	50	39	1	0	40	96
12:45PM	0	7	0	7	4	30	0	34	40	1	0	41	82
Hourly Total	3	35	1	39	28	137	0	165	153	4	0	157	361
1:00PM	0	5	0	5	8	22	0	30	36	1	0	37	72
1:15PM	0	7	0	7	7	28	0	35	43	1	0	44	86
1:30PM	1	10	0	11	5	27	0	32	45	1	0	46	89
1:45PM	3	12	0	15	12	43	0	55	42	0	0	42	112
Hourly Total	4	34	0	38	32	120	0	152	166	3	0	169	359
2:00PM	1	5	0	6	5	34	0	39	35	0	0	35	80
2:15PM	2	15	0	17	12	43	0	55	44	0	0	44	116
2:30PM	1	15	0	16	12	44	0	56	56	1	0	57	129
2:45PM	2	17	0	19	18	48	0	66	48	2	0	50	135
Hourly Total	6	52	0	58	47	169	0	216	183	3	0	186	460
3:00PM	7	20	0	27	19	54	0	73	43	2	0	45	145
3:15PM	5	14	0	19	15	59	0	74	56	2	0	58	151
3:30PM	2	13	0	15	16	67	0	83	56	0	0	56	154
3:45PM	0	18	0	18	13	66	0	79	49	1	0	50	147
Hourly Total	14	65	0	79	63	246	0	309	204	5	0	209	597
4:00PM	1	12	0	13	21	82	2	105	44	3	0	47	165
4:15PM	1	22	0	23	24	71	0	95	61	4	0	65	183
4:30PM	6	18	0	24	26	88	0	114	55	1	0	56	194
4:45PM	4	16	0	20	29	93	1	123	63	2	0	65	208
Hourly Total	12	68	0	80	100	334	3	437	223	10	0	233	750

Leg Direction	Iris Taylor Ave Southbound				SH73 Westbound Westbound				SH73 Eastbound Eastbound				
Time	R	L	U	App	R	T	U	App	T	L	U	App	Int
5:00PM	8	16	0	24	34	90	0	124	76	3	0	79	227
5:15PM	4	19	0	23	33	79	0	112	55	4	0	59	194
5:30PM	2	15	0	17	27	71	0	98	47	2	0	49	164
5:45PM	2	23	0	25	33	75	0	108	47	2	0	49	182
Hourly Total	16	73	0	89	127	315	0	442	225	11	0	236	767
6:00PM	4	9	0	13	26	57	0	83	40	0	0	40	136
6:15PM	1	14	0	15	15	55	1	71	36	0	0	36	122
Hourly Total	5	23	0	28	41	112	1	154	76	0	0	76	258
Total	97	832	1	930	585	2194	7	2786	2563	63	0	2626	6342
% Approach	10.4%	89.5%	0.1%	-	21.0%	78.8%	0.3%	-	97.6%	2.4%	0%	-	-
% Total	1.5%	13.1%	0%	14.7%	9.2%	34.6%	0.1%	43.9%	40.4%	1.0%	0%	41.4%	-
Motorcycles	0	2	0	2	0	7	0	7	14	0	0	14	23
% Motorcycles	0%	0.2%	0%	0.2%	0%	0.3%	0%	0.3%	0.5%	0%	0%	0.5%	0.4%
Lights	93	820	0	913	574	2045	7	2626	2386	58	0	2444	5983
% Lights	95.9%	98.6%	0%	98.2%	98.1%	93.2%	100%	94.3%	93.1%	92.1%	0%	93.1%	94.3%
Single-Unit Trucks	3	7	0	10	8	80	0	88	98	5	0	103	201
% Single-Unit Trucks	3.1%	0.8%	0%	1.1%	1.4%	3.6%	0%	3.2%	3.8%	7.9%	0%	3.9%	3.2%
Articulated Trucks	0	1	0	1	1	53	0	54	55	0	0	55	110
% Articulated Trucks	0%	0.1%	0%	0.1%	0.2%	2.4%	0%	1.9%	2.1%	0%	0%	2.1%	1.7%
Buses	1	1	0	2	1	8	0	9	9	0	0	9	20
% Buses	1.0%	0.1%	0%	0.2%	0.2%	0.4%	0%	0.3%	0.4%	0%	0%	0.3%	0.3%
Bicycles on Road	0	1	1	2	1	1	0	2	1	0	0	1	5
% Bicycles on Road	0%	0.1%	100%	0.2%	0.2%	0%	0%	0.1%	0%	0%	0%	0%	0.1%

*L: Left, R: Right, T: Thru, U: U-Turn

Stantec Iris Taylor Ave - SH73 - TMC

Wed May 4, 2022

Full Length (6:30 AM-6:30 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

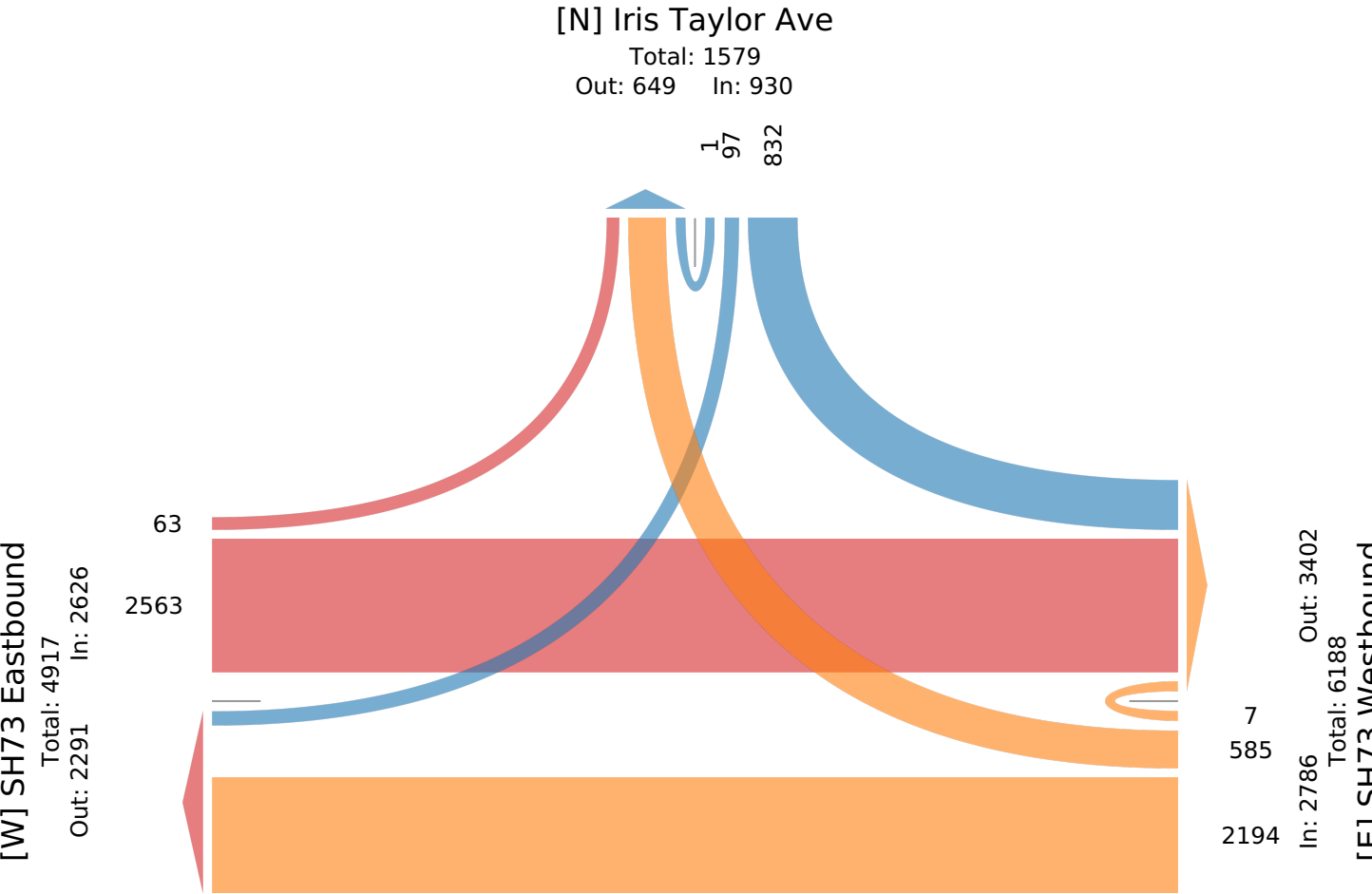
All Movements

ID: 945709, Location: -43.523934, 172.365659

Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ



Stantec Iris Taylor Ave - SH73 - TMC

Wed May 4, 2022

AM Peak (7:15 AM - 8:15 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

All Movements

ID: 945709, Location: -43.523934, 172.365659

Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ

Leg Direction	Iris Taylor Ave Southbound				SH73 Westbound Westbound				SH73 Eastbound Eastbound				
Time	R	L	U	App	R	T	U	App	T	L	U	App	Int
2022-05-04 7:15AM	4	41	0	45	5	22	0	27	104	2	0	106	178
7:30AM	1	57	0	58	9	53	0	62	98	1	0	99	219
7:45AM	3	36	0	39	11	34	0	45	95	1	0	96	180
8:00AM	3	38	0	41	7	48	0	55	78	3	0	81	177
Total	11	172	0	183	32	157	0	189	375	7	0	382	754
% Approach	6.0%	94.0%	0%	-	16.9%	83.1%	0%	-	98.2%	1.8%	0%	-	-
% Total	1.5%	22.8%	0%	24.3%	4.2%	20.8%	0%	25.1%	49.7%	0.9%	0%	50.7%	-
PHF	0.688	0.754	-	0.789	0.727	0.741	-	0.762	0.901	0.583	-	0.901	0.861
Motorcycles	0	1	0	1	0	0	0	0	1	0	0	1	2
% Motorcycles	0%	0.6%	0%	0.5%	0%	0%	0%	0%	0.3%	0%	0%	0.3%	0.3%
Lights	10	170	0	180	29	136	0	165	354	5	0	359	704
% Lights	90.9%	98.8%	0%	98.4%	90.6%	86.6%	0%	87.3%	94.4%	71.4%	0%	94.0%	93.4%
Single-Unit Trucks	1	1	0	2	2	16	0	18	5	2	0	7	27
% Single-Unit Trucks	9.1%	0.6%	0%	1.1%	6.3%	10.2%	0%	9.5%	1.3%	28.6%	0%	1.8%	3.6%
Articulated Trucks	0	0	0	0	0	3	0	3	10	0	0	10	13
% Articulated Trucks	0%	0%	0%	0%	0%	1.9%	0%	1.6%	2.7%	0%	0%	2.6%	1.7%
Buses	0	0	0	0	1	2	0	3	5	0	0	5	8
% Buses	0%	0%	0%	0%	3.1%	1.3%	0%	1.6%	1.3%	0%	0%	1.3%	1.1%
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

*L: Left, R: Right, T: Thru, U: U-Turn

Stantec Iris Taylor Ave - SH73 - TMC

Wed May 4, 2022

AM Peak (7:15 AM - 8:15 AM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

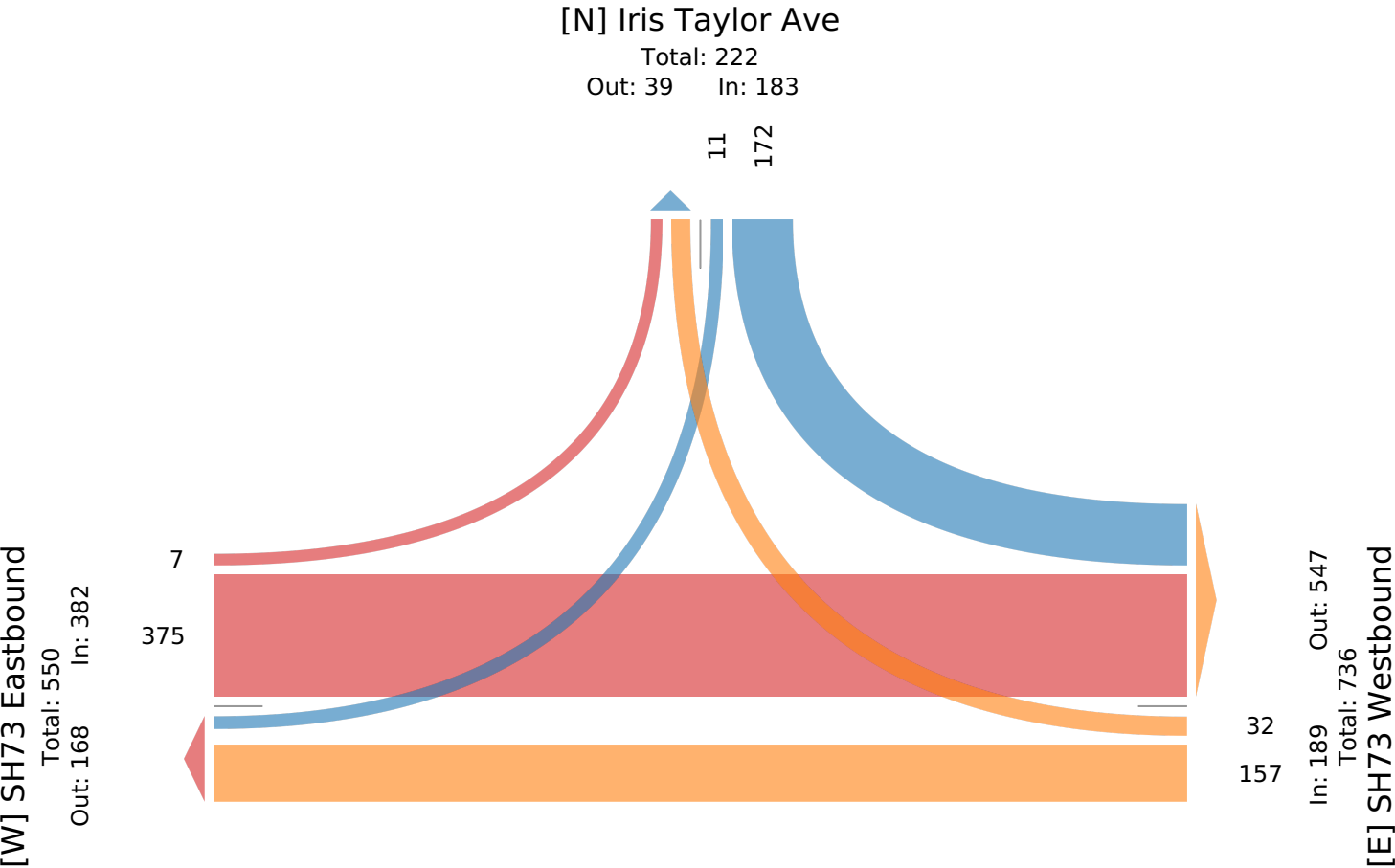
All Movements

ID: 945709, Location: -43.523934, 172.365659

Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ



Stantec Iris Taylor Ave - SH73 - TMC

Wed May 4, 2022

Midday Peak (11:45 AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

All Movements

ID: 945709, Location: -43.523934, 172.365659

Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ

Leg Direction	Iris Taylor Ave Southbound				SH73 Westbound Westbound				SH73 Eastbound Eastbound				
Time	R	L	U	App	R	T	U	App	T	L	U	App	Int
2022-05-04 11:45AM	0	13	0	13	8	37	0	45	52	1	0	53	111
12:00PM	0	17	1	18	6	33	0	39	32	2	0	34	91
12:15PM	1	7	0	8	7	35	0	42	42	0	0	42	92
12:30PM	2	4	0	6	11	39	0	50	39	1	0	40	96
Total	3	41	1	45	32	144	0	176	165	4	0	169	390
% Approach	6.7%	91.1%	2.2%	-	18.2%	81.8%	0%	-	97.6%	2.4%	0%	-	-
% Total	0.8%	10.5%	0.3%	11.5%	8.2%	36.9%	0%	45.1%	42.3%	1.0%	0%	43.3%	-
PHF	0.375	0.603	-	0.647	0.775	0.923	-	0.893	0.793	0.500	-	0.797	0.874
Motorcycles	0	0	0	0	0	0	0	0	1	0	0	1	1
% Motorcycles	0%	0%	0%	0%	0%	0%	0%	0%	0.6%	0%	0%	0.6%	0.3%
Lights	3	41	0	44	30	134	0	164	146	4	0	150	358
% Lights	100%	100%	0%	97.8%	93.8%	93.1%	0%	93.2%	88.5%	100%	0%	88.8%	91.8%
Single-Unit Trucks	0	0	0	0	1	6	0	7	11	0	0	11	18
% Single-Unit Trucks	0%	0%	0%	0%	3.1%	4.2%	0%	4.0%	6.7%	0%	0%	6.5%	4.6%
Articulated Trucks	0	0	0	0	0	4	0	4	7	0	0	7	11
% Articulated Trucks	0%	0%	0%	0%	0%	2.8%	0%	2.3%	4.2%	0%	0%	4.1%	2.8%
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bicycles on Road	0	0	1	1	1	0	0	1	0	0	0	0	2
% Bicycles on Road	0%	0%	100%	2.2%	3.1%	0%	0%	0.6%	0%	0%	0%	0%	0.5%

*L: Left, R: Right, T: Thru, U: U-Turn

Stantec Iris Taylor Ave - SH73 - TMC

Wed May 4, 2022

Midday Peak (11:45 AM - 12:45 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

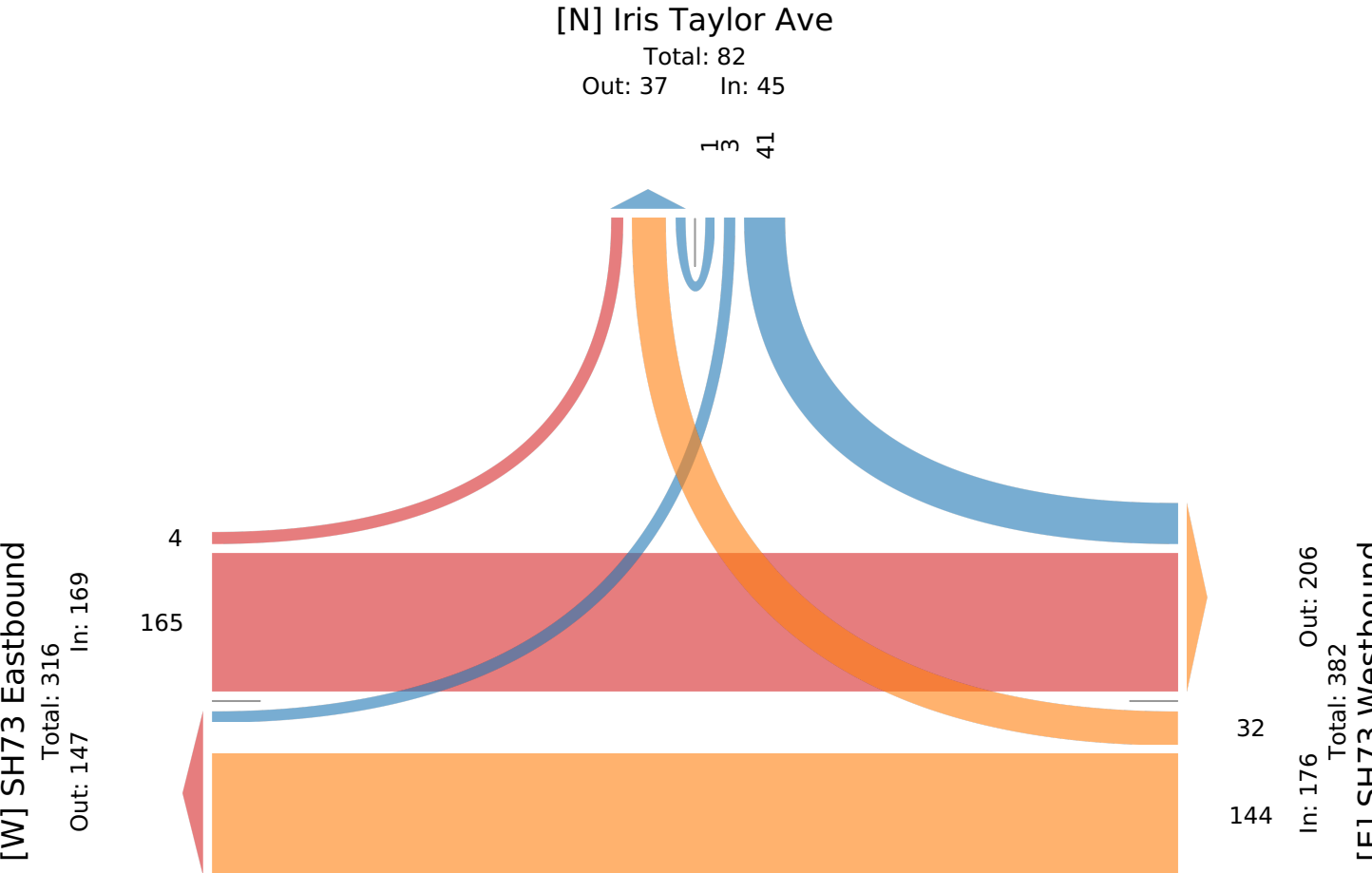
All Movements

ID: 945709, Location: -43.523934, 172.365659

Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ



Stantec Iris Taylor Ave - SH73 - TMC

Wed May 4, 2022

PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

All Movements

ID: 945709, Location: -43.523934, 172.365659

Provided by: Low Down Data

36 School Rd,

Tai Tupu, OT, 7645, NZ

Leg Direction	Iris Taylor Ave Southbound				SH73 Westbound Westbound				SH73 Eastbound Eastbound				
Time	R	L	U	App	R	T	U	App	T	L	U	App	Int
2022-05-04 4:30PM	6	18	0	24	26	88	0	114	55	1	0	56	194
4:45PM	4	16	0	20	29	93	1	123	63	2	0	65	208
5:00PM	8	16	0	24	34	90	0	124	76	3	0	79	227
5:15PM	4	19	0	23	33	79	0	112	55	4	0	59	194
Total	22	69	0	91	122	350	1	473	249	10	0	259	823
% Approach	24.2%	75.8%	0%	-	25.8%	74.0%	0.2%	-	96.1%	3.9%	0%	-	-
% Total	2.7%	8.4%	0%	11.1%	14.8%	42.5%	0.1%	57.5%	30.3%	1.2%	0%	31.5%	-
PHF	0.688	0.908	-	0.948	0.897	0.941	0.250	0.954	0.819	0.625	-	0.820	0.906
Motorcycles	0	0	0	0	0	2	0	2	0	0	0	0	2
% Motorcycles	0%	0%	0%	0%	0%	0.6%	0%	0.4%	0%	0%	0%	0%	0.2%
Lights	22	68	0	90	122	341	1	464	239	10	0	249	803
% Lights	100%	98.6%	0%	98.9%	100%	97.4%	100%	98.1%	96.0%	100%	0%	96.1%	97.6%
Single-Unit Trucks	0	0	0	0	0	5	0	5	7	0	0	7	12
% Single-Unit Trucks	0%	0%	0%	0%	0%	1.4%	0%	1.1%	2.8%	0%	0%	2.7%	1.5%
Articulated Trucks	0	1	0	1	0	1	0	1	3	0	0	3	5
% Articulated Trucks	0%	1.4%	0%	1.1%	0%	0.3%	0%	0.2%	1.2%	0%	0%	1.2%	0.6%
Buses	0	0	0	0	0	1	0	1	0	0	0	0	1
% Buses	0%	0%	0%	0%	0%	0.3%	0%	0.2%	0%	0%	0%	0%	0.1%
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

*L: Left, R: Right, T: Thru, U: U-Turn

Stantec Iris Taylor Ave - SH73 - TMC

Wed May 4, 2022

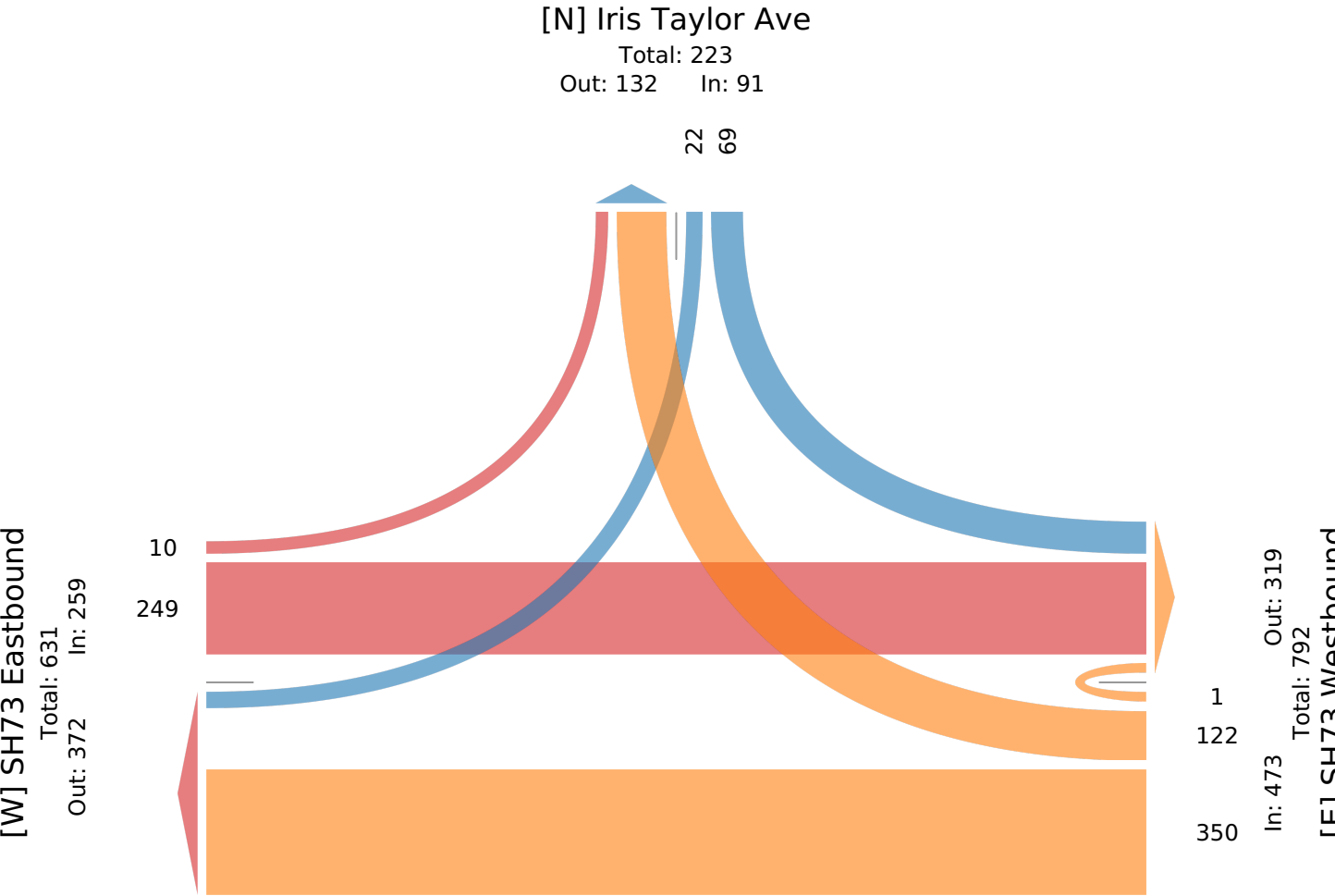
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Bicycles on Road)

All Movements

ID: 945709, Location: -43.523934, 172.365659

Provided by: Low Down Data
36 School Rd,
Tai Tupu, OT, 7645, NZ



Appendix E Photographic Record

