Bright Strategic Traffic Assessment

Traffic Investigations Report

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22 July 2022

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1 INTRODUCTION

Bright is one of the main towns within the Alpine Shire government area, with a permanent population of approximately 2,500 residents. The town's major industry is tourism, due to the proximity to Mount Buffalo National Park, the Mount Hotham and Falls Creek ski fields, as well as the Ovens River.

Due to both an increase in tourism as well as residential and commercial growth across Bright and the surrounds, pressure is growing on the existing road network and parking supply. Of note, Gavan Street, which serves as both the main through road between Bright and surrounding townships, as well as part of the town's main commercial shopping strip is at the epicentre of this pressure.

Alpine Shire Council has accordingly engaged **one**mile**grid** to undertake the first phase (Part A) of a Strategic Transport Assessment of the Bright town centre, which seeks to understand the site's transport context, quantify existing performance of the road network, and provide a clear summary of key issues facing road users.

Later stages of this project may include recommendations for improvements and concept designs and costing of key transport infrastructure.

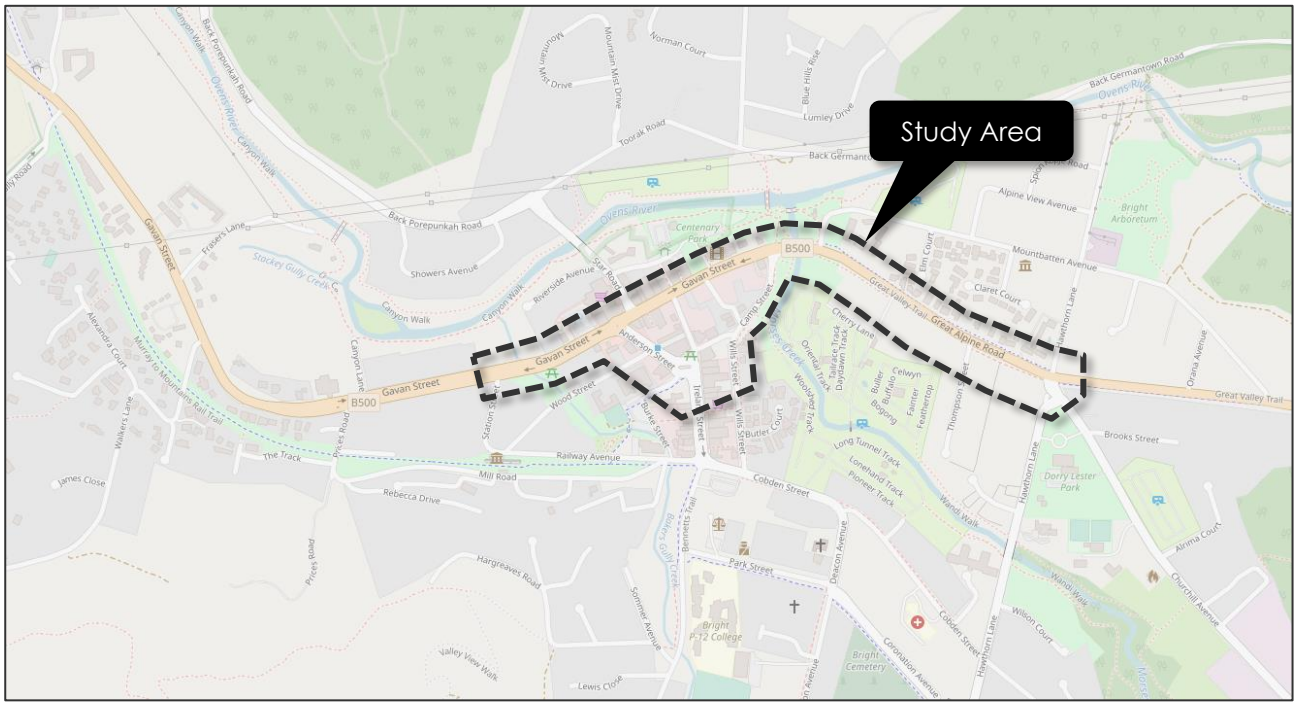
As part of this assessment the subject site has been inspected with due consideration of the development proposal, traffic and parking data has been sourced and relevant background reports have been reviewed.

2 SITE CONTEXT

2.1 Site Location

The study area for the Bright Strategic Traffic Assessment is shown in Figure 1 below, and comprises the central portions of Bright township, generally between Station Street in the west and Churchill Avenue in the east.

Figure 1 Site Location



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The study area includes a range of retail, hospitality, commercial and tourism focused land-uses. The bulk of residential areas in Bright are located outside of the study area. The Ovens River and Splash Park (adjacent to Mountbatten Avenue) are key attractors during summer periods.

2.2 Road Network

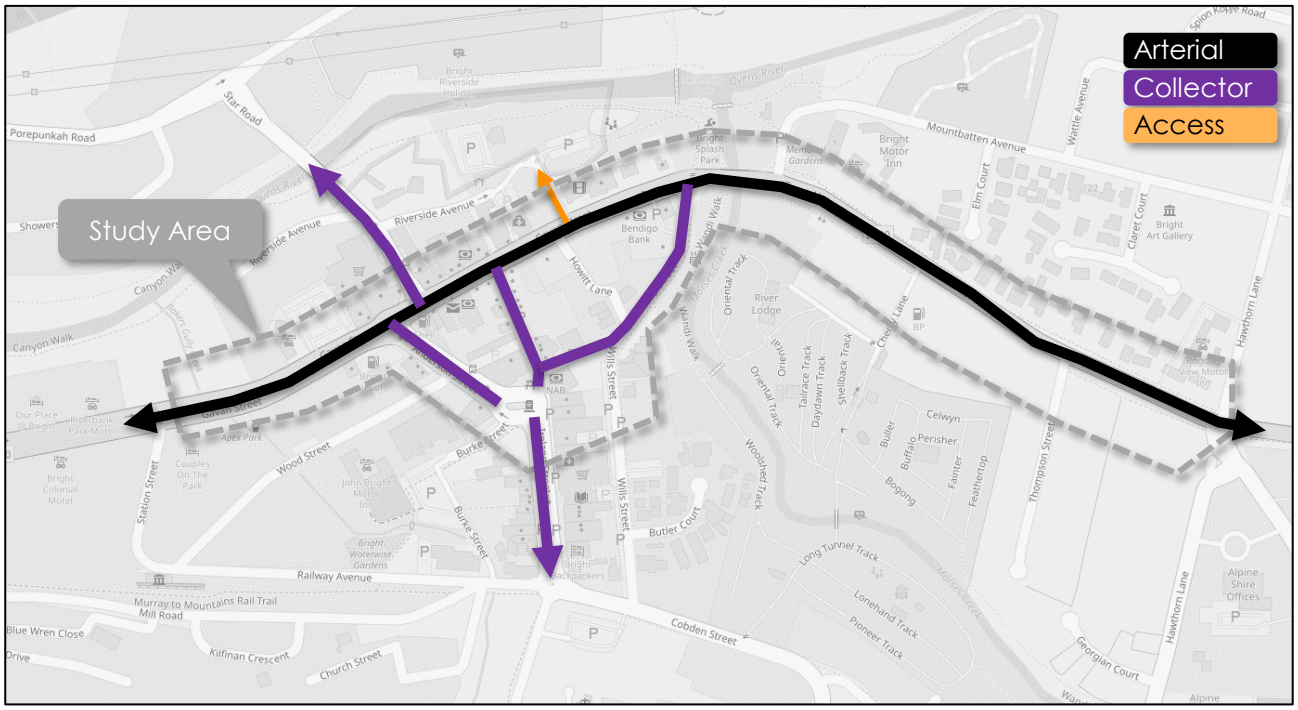
A summary of the cross-section and operating characteristic of each road within the study area is presented in Table 1 below.

A road hierarchy is illustrated in Figure 2.

Table 1 Road Network Characteristics

Road Name	*Between*	*Classification*	*Indicative Capacity (vehicles per day)*	*Alignment*	*Cross-Section*	*Footpath Provision*	*Bicycle Facilities*	*Car Parking*	*Speed Limit*
Gavan Street	Station St & Anderson St	Arterial	18,000	East-west	Two-way / Two-lane (divided)	Both sides	On-road bike lane: south side	Marked kerbside: angled south side, parallel north side	60 km/h
Gavan Street	Anderson St & Camp St	Arterial	12,000	East-west	Two-way / Two-lane, painted median	Both sides	None	Marked kerbside	40 km/h
Delany Avenue	Camp Street & Churchill Ave	Arterial	18,000	East-west	Two-way / Two-lane	Both sides	None	Angled (informal) south side	50 km/h
Star Road	Riverside Ave & Gavan St	Collector	7,000	North-south	Two-way / Two-lane	Both sides	None	Marked angled: east side	40 km/h
Anderson Street	Gavan St & Ireland St	Collector	7,000	North-west/south-east	Two-way / Two-lane (divided)	Both sides	None	Marked	40 km/h
Barnard Street	Gavan St & Ireland St	Collector	3,000	North-south	One-way: southbound	Both sides	None	Marked kerbside	40 km/h
Howitt Lane	Gavan St & Riverside Avenue	Access	3,000	North-south	Two-way unmarked	East side	None	Angled west side	40 km/h
Camp Street	Gavan St & Wills St	Collector	7,000	North-south	Two-way unmarked	Both sides	None	Kerbside on carriageway	40 km/h
Ireland Street	Anderson St & Cobden St	Collector	7,000	North-south	Two-way / Two-lane (divided)	Both sides	None	Angled both sides	40 km/h

Figure 2 Road Hierarchy



2.3 Crash History

Crash history information was obtained through the Department of Transport (VicRoads) CrashStats (the Victorian accident statistics and mapping program) for the latest available 5-year period (1st July 2015 - 30th June 2020) in the vicinity of the site.

Five crashes were recorded within the study area, shown in Figure 3 and summarised in Table 2.

Figure 3 Crash Locations

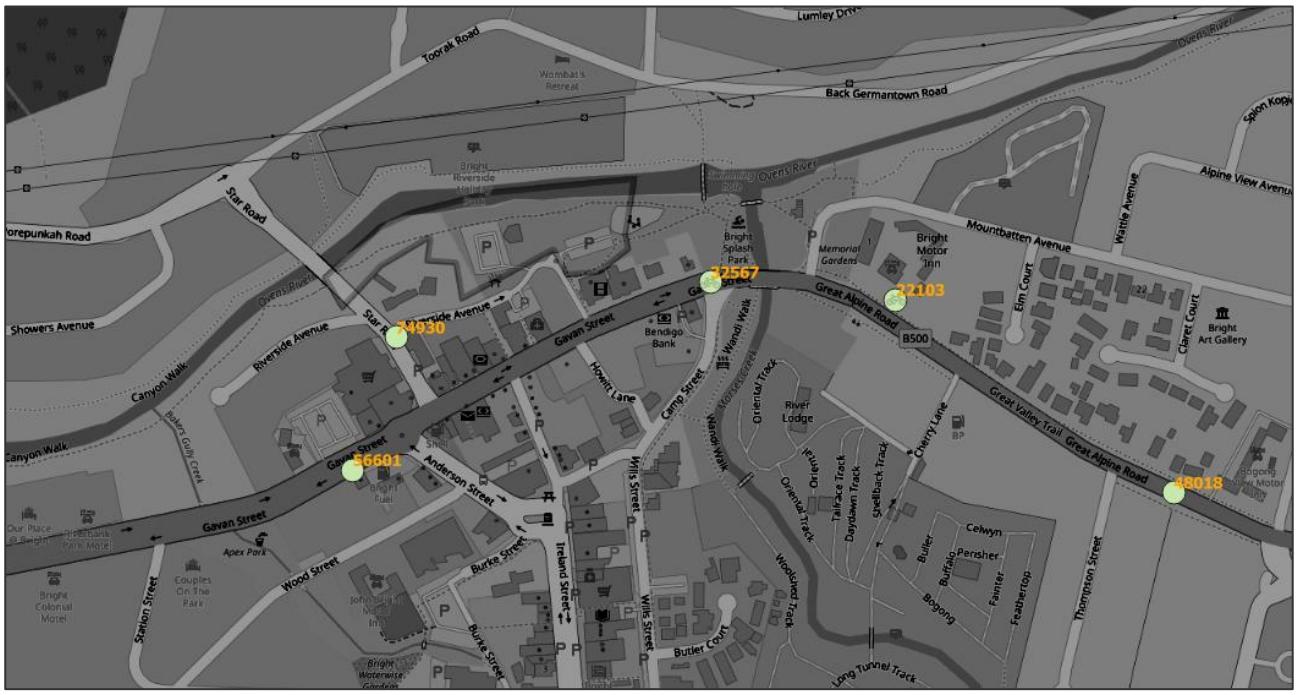


Table 2 Crash Data

ID	Location	Severity	DCA Code	Cyclists	Pedestrians	Year
74930	Star Rd	Other Injury	Vehicle overturned	0	0	2020
56601	Gavan St	Other Injur	Collision with vehicle – entering parking	0	0	2019
48018	Delany Ave	Other Injury	Out of control on carriageway	0	0	2019
32567	Camp St / Gavan St	Other Injury	Collision with vehicle – right-through	1	0	2017
22103	Delany Ave	Other Injury	Vehicle overturned	1	0	2017

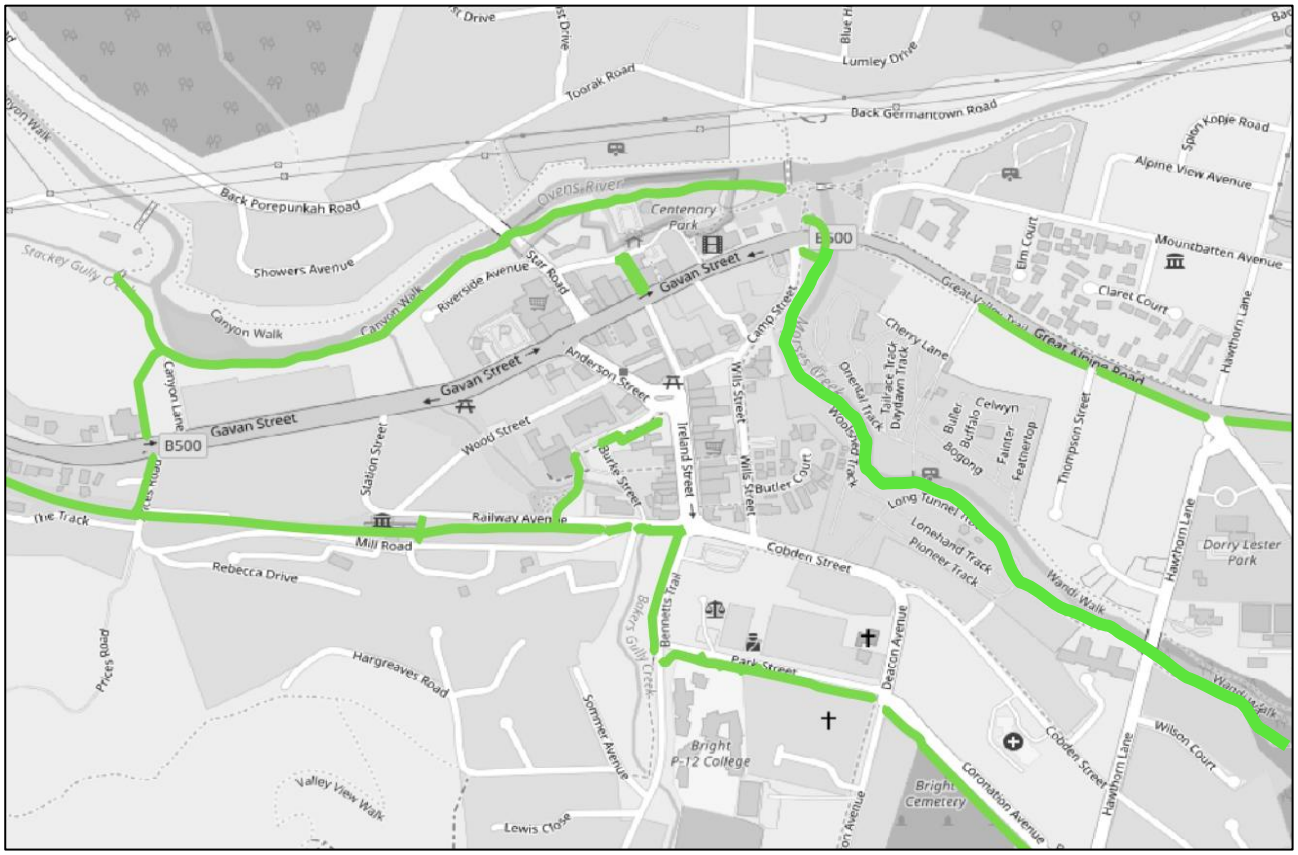
The above crash data does not suggest any specific locations subject to higher incidences of crashes, but the presence of multiple crashes involving bicycles indicates they are over-represented in the data.

2.4 Bicycle Facilities

Dedicated on-road cycling facilities within the study area are limited to on-road facilities on Gavan Street to the east of the township.

There is an extensive network of off-road shared paths, throughout town, include the Murray to Mountains Rail Trail (MMRT) which terminates adjacent to Railway Avenue south of the study area, the Canyon Walk along the banks of the Ovens River, and a number of linking connections, illustrated in Figure 4. Connections between the MMRT and paths east of the township are discontinuous.

Figure 4 Bright Path Network



It is noted that works are underway on the Great Valley Trail, which will provide an off-road link between Harrietville and Bright, accessed via the Great Alpine Road to the south-east of Bright township.

Strava is a social network and training tool for cyclists, runners and swimmers. Users record their physical activity using a dedicated GPS device or utilise the mobile app, and upload the file to their profile. Strava anonymised this information and makes it available through their "Global Heatmap" tool, showing aggregated all public activities over the last two years across the world.

A view of the cycling heatmap in proximity to the study area is provided below in Figure 5. Routes of higher usage are brighter in colour.

Figure 5 Strava Cycling Heatmap

As shown above, primary routes in and out of the study area comprise:

- Gavan Street;
- The MMRT and Railway Avenue;
- Star Road and Back Porepunkah Road;
- Cobden Street; and
- Anderson Street and Ireland Street.

It is noted that this information includes all cycling activities recorded on the platform, inclusive of weekend trips, and all trips throughout the day. Additionally, the data is potentially skewed within Bright due to the considerable volume of cyclists attracted during events such as the Peaks Challenge and Alpine Classic.

2.5 Heavy Vehicles

The alpine areas surrounding Bright are utilised regularly for logging, and require access within and around Bright township for access to logging coups. Figure 6 details existing routes used for logging purposes (provided HVP Plantations), and approved B-Double routes in the vicinity of the site.

Any proposal for alterations to the transport network arising from this project must consider these access requirements.

Figure 6 Heavy Vehicle Routes

3 BACKGROUND INFORMATION

3.1 Camp Street / Mountbatten Avenue

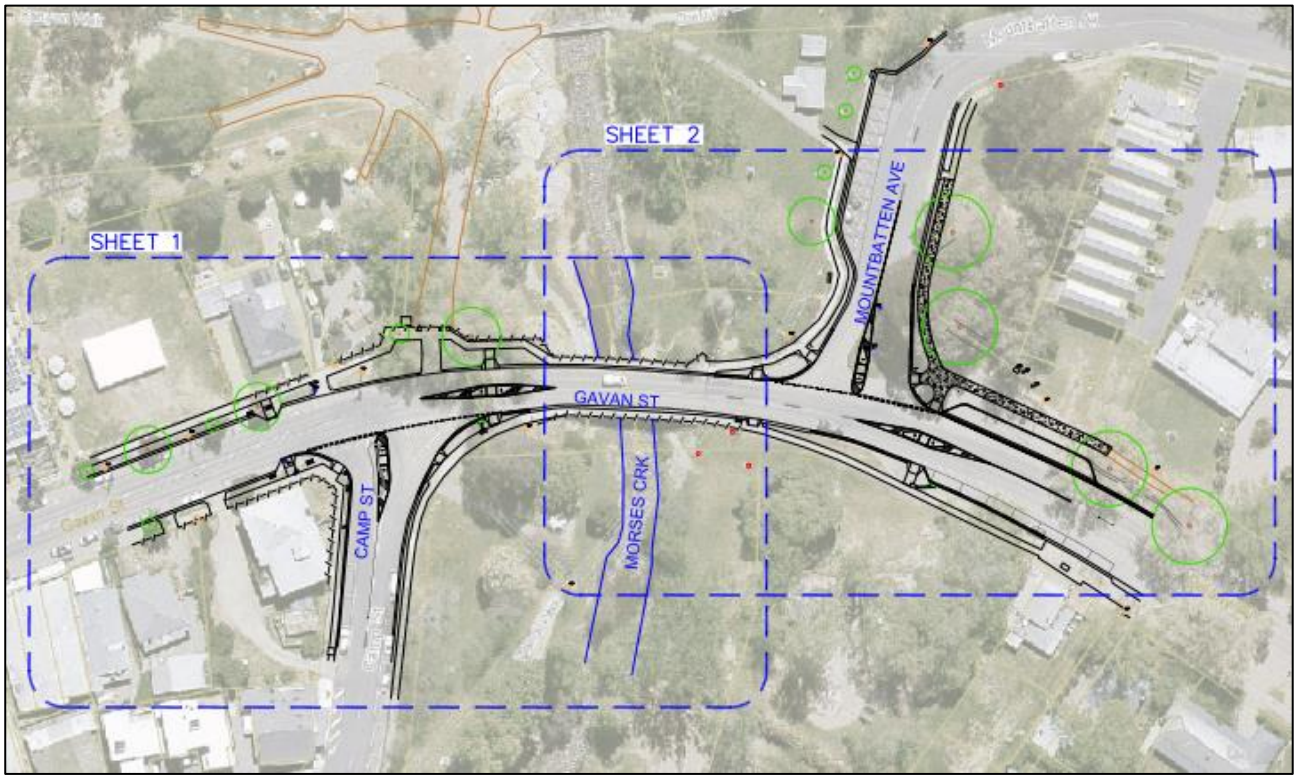
Council has engaged Foresight Engineering Services to prepare functional plans for improvements to the intersections of Camp Street and Mountbatten Avenue with Gavan Street at the eastern end of the study area.

At the Camp Street intersection, the improvements seek to provide a more conventional T-intersection arrangement. This would remove the existing left-turn pseudo slip lane from the east, providing for reduced vehicle speeds through the intersection, establish a more direct east-west pedestrian connection, and introduce a central island and pedestrian crossing point to the immediate east of Camp Street on Gavan Street.

At the Mountbatten Avenue intersection, the proposal is similar, reducing the width of the intersection by modifying the existing splitter island on Mountbatten Avenue, providing an improved east-west pedestrian connection, and creating a central island and pedestrian crossing point to the immediate east of Mountbatten Avenue on Gavan Street.

The functional plans are attached within Appendix A, an extract of which is provided in Figure 7 below.

Figure 7 Camp Street / Mountbatten Avenue Upgrades



3.2 Car Parking Plan

In mid-2018, Council engaged O'Brien Traffic to prepare a Car Parking Plan for the Bright Township, with a view to identify issues and needs, and develop a Car Parking Plan with identified objectives and a prioritised plan for the effective management of current and future parking demands.

Key issues identified as part of the study were:

- Excessive supply of medium to long term parking (2 hours or more) within the Study Area;
- No short term parking (1 hour or less) restrictions, other than a small number of 10 minute spaces;
- No parking restrictions on Saturday afternoons or Sundays;
- Limited enforcement of the existing 2 hour parking restrictions – enabling long term parking by locals and (at peak times) tourists;
- Impact of events on parking in the Study Area, and how this may change following the development of the Alpine Events Centre.

A suite of short-term and long-term actions were provided with the report, which broadly included:

- Increased enforcement of short-term restrictions
- Creation of additional short-term parking
- Extension of restrictions to weekend periods;
- Improved directional signage;
- Improvements to existing parking designs for increased supply;
- Developing strategies for managing demands associated with events;
- Improving access to accessible parking and loading areas;

3.3 Bicycle Infrastructure Improvements

As part of actions identified within the Alpine Shire Cycle Safety Strategy, functional designs have been prepared by GTA Consultants (now Stantec) and the Department of Transport (DoT) for improvements to on-road cycling facilities throughout the study area.

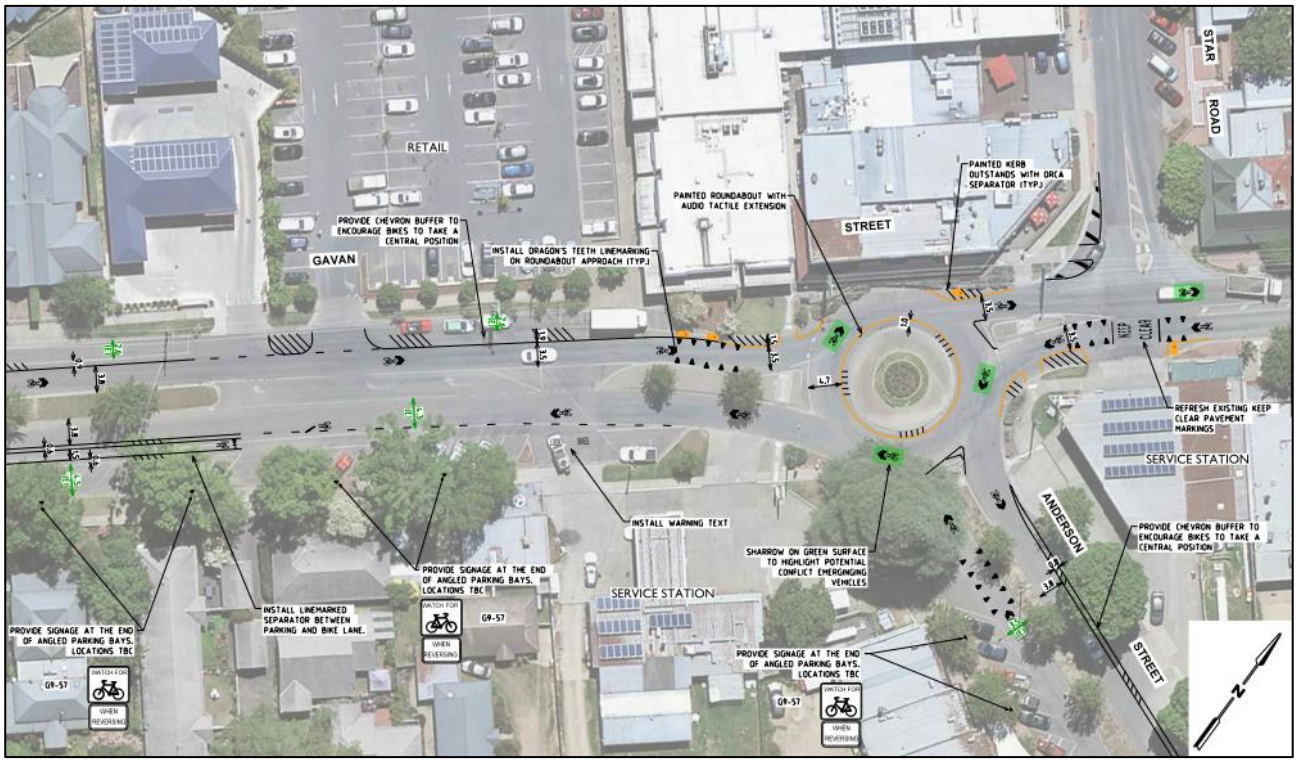
Along Gavan Street Between Prices Road and Anderson Street, the works seek to establish high-quality on-road bicycle lanes, with use of separators and tactile line marking to assist with driver delineation and reducing vehicle speeds at conflict points.

Further east through the town centre, Gavan Street is to be marked with "sharrow" bike treatments to emphasise the shared use of the road, and encourage cyclists to take the lane. Similar treatments are proposed along each of Anderson Street, Camp Street and Ireland Street.

Improvements are also proposed at the Gavan Street / Anderson Street, Anderson Street / Ireland Street, and Ireland Street / Railway Avenue roundabouts that reduce the circulating carriageway with line marking and install sharrow treatments within the roundabout.

A copy of the functional designs is attached within Appendix B, with an extract in Figure 8 below.

Figure 8 Bicycle Infrastructure Improvements (Extract)



4 CONSULTATION & ENGAGEMENT

As part of background review and fact-finding on the project, **one**mile**grid** and Council undertook a series of online consultation sessions on the 19th January 2022 with key community stakeholders. Key findings from these sessions are provided below.

In many cases, issues relating to areas outside of the study area were raised, which have not been detailed within this report, but provided to Council for separate follow-up and review.

Country Fire Authority (CFA)

- **Representative**: Carl Stibilji
- **Access/movement needs within Bright**
  - Typically 1-2 call outs per week
  - Responders need to get to station, then get appliance to event/call
- **What are the major traffic/transport issues in Bright that affect your operations (or your stakeholders)?**
  - Biggest issue is traffic congestion during large events, which are regular occurrence
  - Station location is good for volunteer access, responding is main issue

State Emergency Service (SES)

- **Representative**: Roy Kennedy
- **Access/movement needs within Bright**
  - Respond to tree falls, weather emergencies, road accidents
  - Typically 3 call outs per week
- **What are the major traffic/transport issues in Bright that affect your operations (or your stakeholders)?**
  - Access to areas north of Bright are difficult during peak season with events and tourists
  - Bottleneck between Camp Street / Anderson Street is major challenge

HVP Plantations)

- **Representatives**: Steve Blake, Brendan Harding, Prue Day
- **Access/movement needs within Bright**
  - Require long-term access to logging coups, and will be working within bright for 5-10 years
  - Morses Creek Road, Churchill Avenue and Great Alpine Road are key access routes
  - Large vehicles require access
- **What are the major traffic/transport issues in Bright that affect your operations (or your stakeholders)?**
  - Poor road surface on feeder routes can encourage cyclists into centre of roads
  - Longer vehicles parked in angled spaces with rear-mounted bicycle can reduce the effective width of roads

Alpine Cycling Club

- **Representative**: John Presswell
- **Access/movement needs within Bright**
  - Cycling community comprises road cyclists, MTB riders, families

- **What are the major traffic/transport issues in Bright that affect your operations (or your stakeholders)?**
  - Gavan Street is no less safe than other locations;
  - Pedestrian traffic naturally assists with traffic calming

Chamber of Commerce

- **Representatives**: Bruce Hore, Rupert Shaw
- **Access/movement needs within Bright**
  - Chamber of Commerce was to ensure continued growth and attractiveness for visitors, being easy to get around town on foot, car or bicycle is important
  - Various operators (IGA, Crispys, Brewery) require access for large vehicles
- **What are the major traffic/transport issues in Bright that affect your operations (or your stakeholders)?**
  - Traffic islands with pedestrian crossing points create conflicts with drivers around priority
  - Right-turns across Gavan Street hold up traffic behind
  - Limited off-street parking areas encourage circulating traffic through township, exacerbating traffic issues

Ambulance Victoria

- **Representative**: Michael Bennet
- **Access/movement needs within Bright**
  - Station located on Mountbatten Avenue
  - Require access for AWD Mercedes van, a standard ambulance, and troop carrier
- **What are the major traffic/transport issues in Bright that affect your operations (or your stakeholders)?**
  - Access from the station into Bright and into Myrtleford can be problematic with traffic
  - Congestion on Gavan Street means ambulances may be blocked entirely, with no passing opportunities
  - Issues are primarily in summer holiday periods

5 MOVEMENT & PLACE

5.1 Overview

The Movement & Place framework was introduced by the Department of Transport (DoT) in February 2019 and provides a new approach to integrated transport planning in Victoria.

Three main principles underline the DoT's approach to transport planning within the movement and place framework.

1. People First – We put transport users at the centre of everything we do;
2. Outcomes Focused – We focus on outcomes that deliver more choice, connections and confidence in our travel; and
3. One System – We think as one system, not individual projects or modes.

The Movement & Place framework recognises that streets perform multiple roles and functions beyond moving people from A to B. It recognises the role of streets as places and destinations in their own right, and allows the organisation and classification of transport links by their place and movement roles as well as allowing for the development of performance measures and interventions.

5.2 Module 1 – Network Classifications

Streets are classified on a scale of local to state significance, as detailed below, and shown in Figure 9.

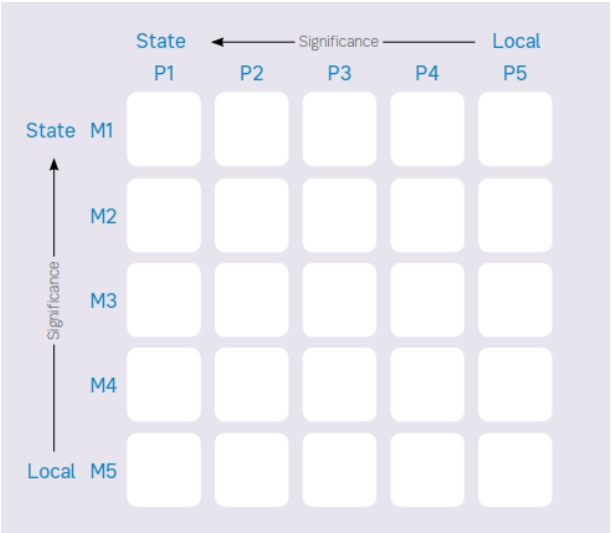
- Movement
  - M1: Mass movement of people and/or goods on routes with a state or national-level movement function or provides primary access to state-level places.
  - M2: Significant movement of people and/or goods on routes connecting across multiple municipalities or provides primary access to regional-level places.
  - M3: Moderate movement of people and/or goods on routes connecting municipalities or provides primary access to municipal-level places.
  - M4: Movement of people and/or goods within a municipality.
  - M5: Local movement
- Place
  - P1: Place of state or national significance.
  - P2: Place of regional significance.
  - P3: Place of municipal significance.
  - P4: Place of neighbourhood significance.
  - P5: Place of local significance.

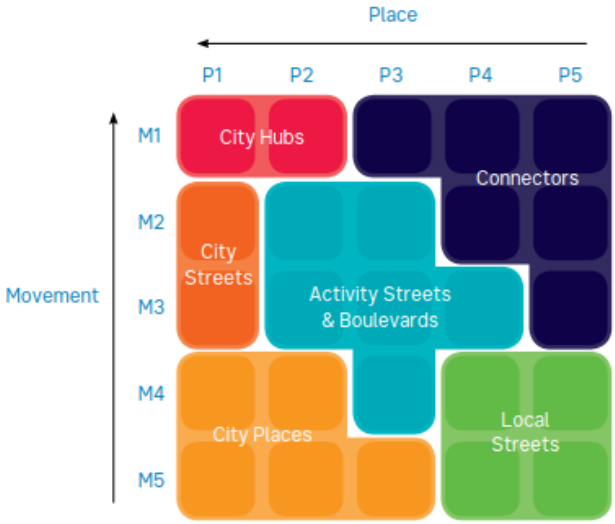
Each of the 'Movement' and 'Place' categories have a series of sub-categories that can also be classified in terms of their importance. These include:

- Movement: Walking, Cycling, Bus, Tram, Interchange, Freight, General Traffic, Tourism Route
- Place: Places of Street Activity, Places of Off-Street Activity

The *Network Classifications – Module 1* technical appendix to the Movement & Place framework is attached within Appendix D., which defines each of theses sub-categories.

Figure 9 Movement and Place Framework Matrix





The Department of Transport has drafted Movement and Place classifications for the bulk of populated areas of Victoria's transport network, including the study area, though these are being refined and reviewed over time.

A summary of the pertinent classifications are provided in Table 3 below, with associated figures in Appendix C.

While the DoT classifications are broadly appropriate, it is considered that there are some that are not necessarily accurate:

- Cycling – The M&P tool does not recognise the significance of Gavan Street in particular as a cycling route, as nothing but Strategic Cycling Corridors are currently mapped. Planned upgrades within Bright (referenced in Section 3.3) may prompt a reclassification. It is likely that Gavan Street would be classified C3: "*Municipal routes support mostly local, short trips to activity centres, including important links to stations and other interchanges. They also feed to C1 and C2 routes (SCCs).*"
- Place: While the designation of PA4 ("*Neighbourhood level of significant place of activity, serving people from immediate neighbourhoods, e.g. milk bars and local shops.")* for the majority of the study area is an accurate assessment of the function during off-peak periods, the M&P tool does not allow consideration of the changing nature of the Bright Activity Centre during peak tourism periods. Over the summer period and long weekends in particular, the study area is considered better classified as PA2: "*Regionally significant place of activity. People travel from adjoining municipalities to experience and use the place. The place has a large number of on-street staying activities e.g. shops and alfresco dining.*" A PA2 classification suggest greater prioritisation of place aspects and pedestrian movements over vehicular traffic.

Table 3 Movement and Place Summary

Road	Between	Movement Significance	Walking	Cycling	Freight	General Traffic	Tourism Route	Place Significance	Network Classifications Matrix
Gavan Street	Station St & Anderson St	M3	W3	-	F3	GT3	TR1	PA4	Activity Street & Boulevard
Gavan Street	Anderson St & Camp St	M3	W3	-	F3	GT3	TR1	PA4	Activity Street & Boulevard
Delany Avenue	Camp Street & Churchill Ave	M3	W3	-	F3	GT3	TR1	PA5	Connector
Star Road	Riverside Ave & Gavan St	M5	W4	-	-	GT5	-	PA4	Local Street
Anderson Street	Gavan St & Ireland St	M5	W4	-	-	GT5	-	PA4	Local Street
Barnard Street	Gavan St & Ireland St	M5	W4	-	-	GT5	-	PA4	Local Street
Howitt Lane	Gavan St & Riverside Avenue	M5	W4	-	-	GT5	-	PA4	Local Street
Camp Street	Gavan St & Wills St	M5	W4	-	-	GT5	-	PA4	Local Street
Ireland Street	Anderson St & Cobden St	M5	W4	-	-	GT5	-	PA4	Local Street

6 CAR PARKING

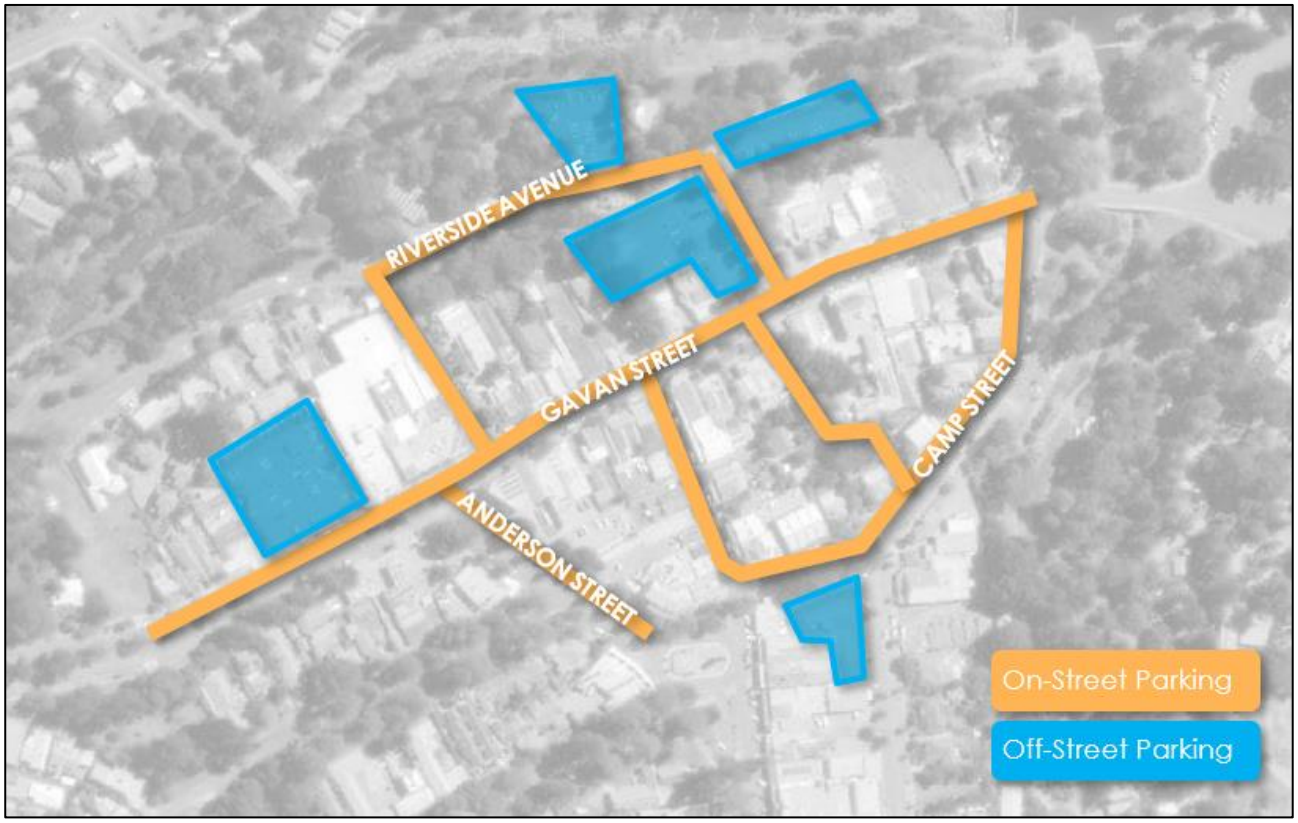
6.1 Survey Methodology

In order to establish existing car parking demands in the vicinity of the site, onemilegrid commissioned car parking occupancy surveys within and around the study area during the following periods:

- Thursday 20th January 2022: 30.0 degrees maximum temperature, 0 rainfall
- Saturday 22nd January 2022: 31.4 degree maximum temperature, 0 rainfall

The survey area is identified in Figure 10 below.

Figure 10 Car Parking Survey Locations

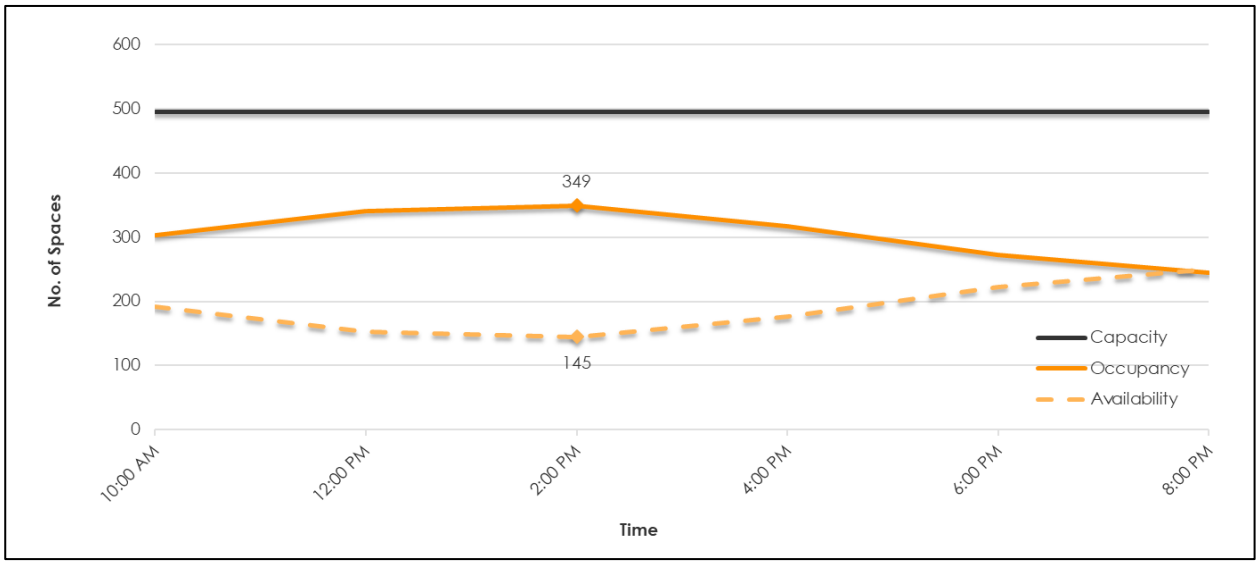


6.1.1 Thursday

6.1.1.1 Total

On the Thursday, the surveys identified a constant supply of 494 parking spaces throughout the survey period. Peak occupancy occurred at 2:00 PM when 349 spaces were occupied, leaving no fewer than 145 spaces available for use. Parking utilisation varied between 71% and 49% of capacity. A view of the parking occupancy profile is provided in Figure 11 below.

Figure 11 Parking Occupancy Profile – Thursday 20th January 2022 – All Parking

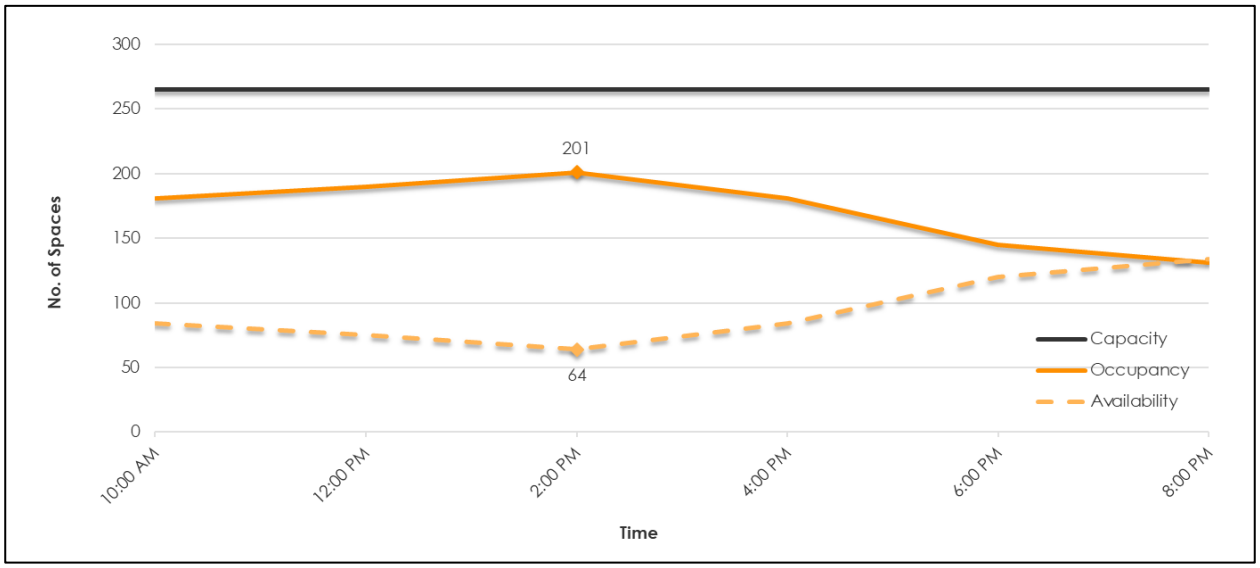


6.1.1.2 On-Street

Limiting the survey data to on-street parking only, there was a supply of 265 parking spaces throughout the survey period. Peak occupancy occurred at 2:00 PM when 201 spaces were occupied, leaving no fewer than 64 spaces available for use. Parking utilisation varied between 76% and 49% of capacity.

Parking demands on Gavan Street were at or approaching capacity during peak times, and surrounding streets were also quite busy. A view of the parking occupancy profile is provided in Figure 12 below.

Figure 12 Parking Occupancy Profile – Thursday 20th January 2022 – On-Street Parking

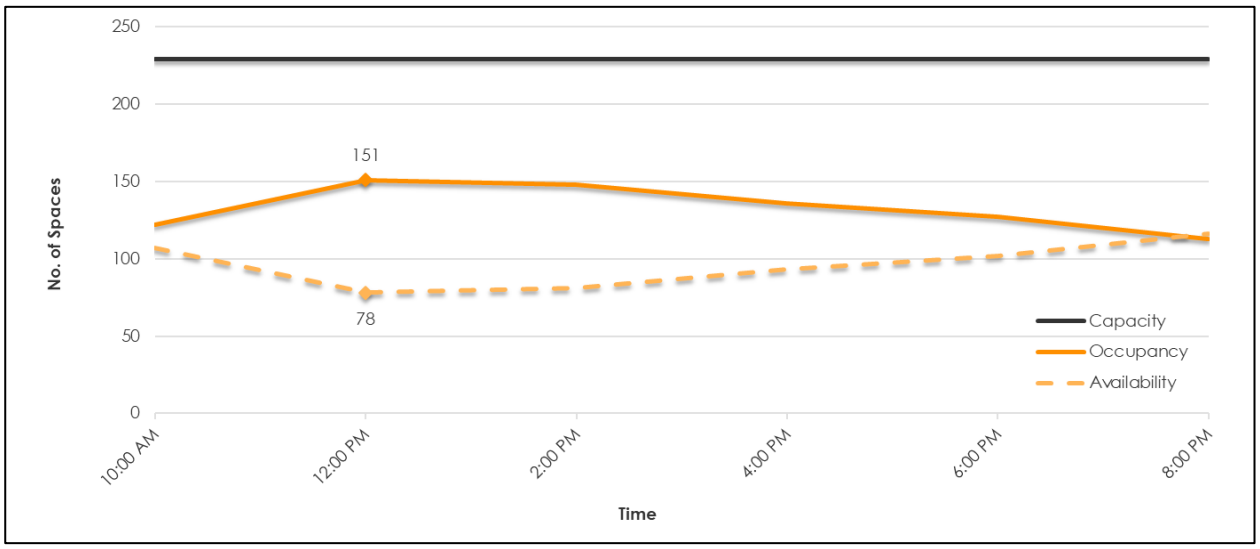


6.1.1.3 Off-Street

Reviewing off-street parking only, there was a supply of 229 parking spaces available for use. Peak occupancy occurred at 12:00 PM when 151 spaces were occupied, leaving no fewer than 78 spaces available for use. Parking utilisation varied between 66% and 49% of capacity.

Demands within the Woolworths car park were generally between 68% and 73% occupancy throughout the day, while demands within the parking areas around Howitt Park were approximately 65% occupied. A view of the parking occupancy profile is provided in Figure 13 below.

Figure 13 Parking Occupancy Profile – Thursday 20th January 2022 – Off-Street Parking

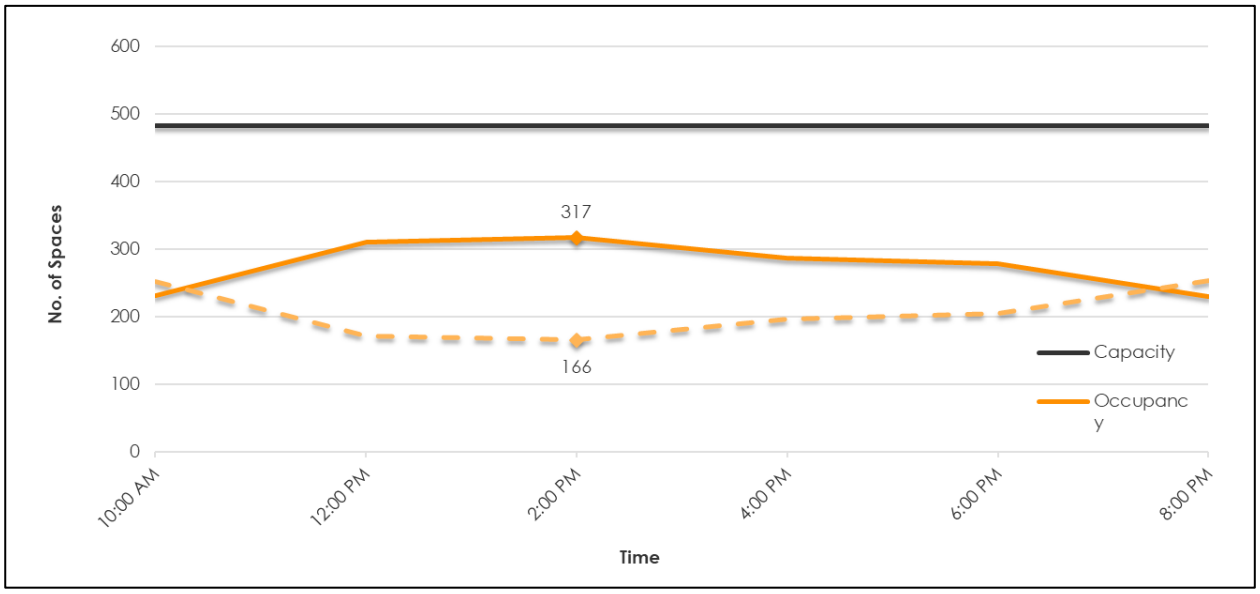


6.1.2 Saturday

6.1.2.1 Total

On the Saturday, the surveys identified a constant supply of 483 parking spaces throughout the survey period. Peak occupancy occurred at 2:00 PM when 317 spaces were occupied, leaving no fewer than 166 spaces available for use. Parking utilisation varied between 66% and 48% of capacity. A view of the parking occupancy profile is provided in Figure 14 below.

Figure 14 Parking Occupancy Profile – Saturday 22nd January 2022 – All Parking

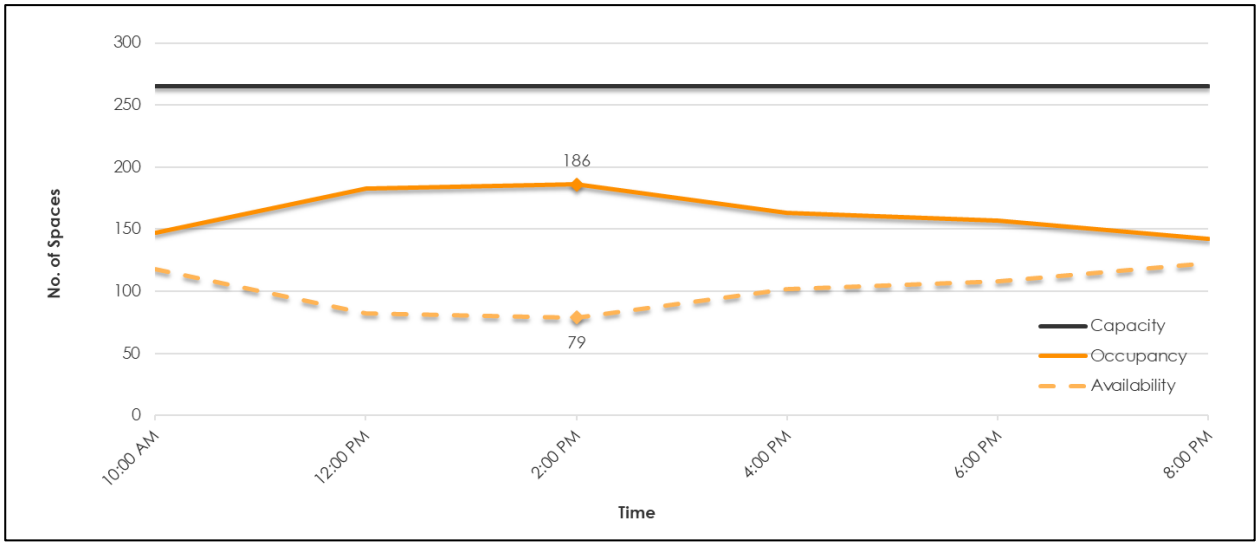


6.1.2.2 On-Street

Limiting the survey data to on-street parking only, there was a supply of 265 parking spaces throughout the survey period. Peak occupancy occurred at 2:00 PM when 186 spaces were occupied, leaving no fewer than 79 spaces available for use. Parking utilisation varied between 70% and 54% of capacity.

Consistent with the Thursday data, occupancy along Gavan Street was quite high, with reduced demands further afield. A view of the parking occupancy profile is provided in Figure 15 below.

Figure 15 Parking Occupancy Profile – Saturday 22nd January 2022 – On-Street Parking

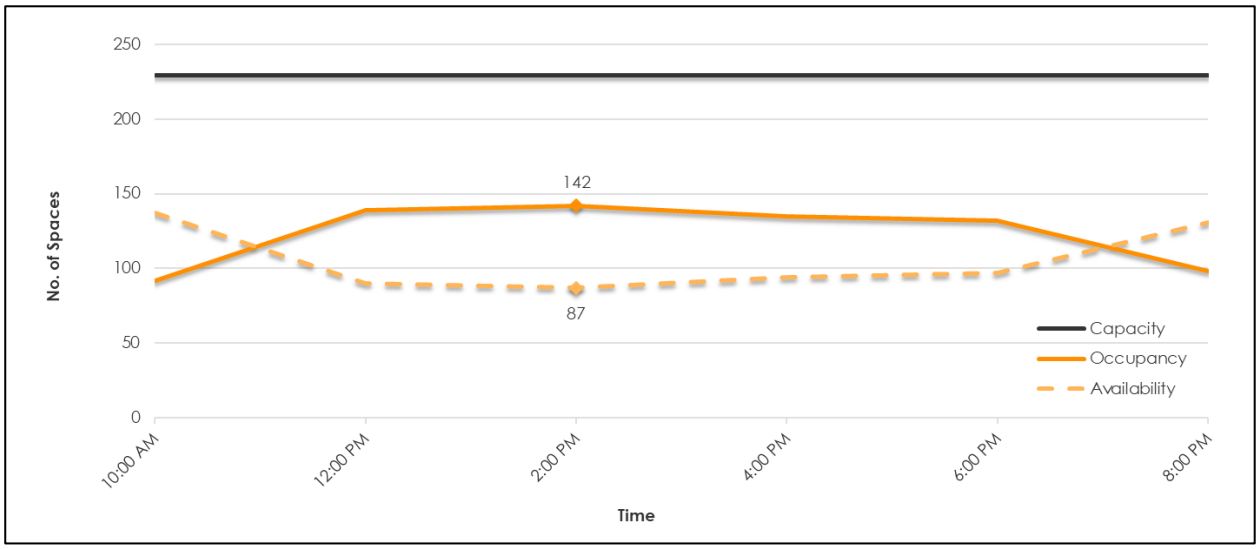


6.1.2.3 Off-Street

Reviewing off-street parking only, there was a supply of 229 parking spaces throughout the survey period. Peak occupancy occurred at 2:00 PM when 142 spaces were occupied, leaving no fewer than 87 spaces available for use. Parking utilisation varied between 62% and 40% of capacity.

Demands within the Woolworths car park were between 55% and 60% occupancy throughout the day, while demands within the parking areas around Howitt Park were up to 80% occupancy at peak times. A view of the parking occupancy profile is provided in Figure 16 below.

Figure 16 Parking Occupancy Profile – Saturday 22nd January 2022 – Off-Street Parking



7 TRAFFIC ANALYSIS

7.1 Traffic Surveys

In order to quantify and evaluate intersection and road performance throughout the study area, a considerable body of traffic data has been collected and analysed.

Due to Council CCTV policy, video surveys were unable to be undertaken to establish turning movements at critical intersections. As such, an alternative approach to data collection was derived whereby pneumatic "tube" counters were placed on approach to each intersection to determine approach volumes, and site observations (18th January and 20th January) used to establish the distribution of turning movement at each approach.

These surveys were undertaken from the 20th until the 26th of January 2022, which includes the end of the summer school holidays, and the Australia Day public holiday, both typically busy periods for tourism and visitation in Bright.

Using this data, we were able to determine turning movement data for each hour across the week at the following intersections:

- Gavan Street / Anderson Street;
- Gavan Street / Star Road;
- Gavan Street / Barnard Street;
- Gavan Street / Howitt Lane;
- Gavan Street / Camp Street; and
- Anderson Street / Barnard Street / Ireland Street / Burke Street;

In addition to the above, three tube counters were retained for the two weeks following (up to 9th February) to allow an understanding of typical traffic conditions outside of holiday periods, located at:

- Gavan Street (at Prices Road);
- Gavan Street (between Barnard Street and Howitt Lane); and
- Delany Avenue (east of Cherry Lane).

7.2 Daily Traffic Volumes

A summary of the daily traffic volume data at select locations (for the week of 20-26/1/22) is provided below.

Table 4 Traffic Volume and Speed Surveys

Location	Segment	Direction	Daily Traffic Volume (vpd)	% of Capacity	Peak Traffic Volume (vpd)		85th Percentile Speed (km/h)
					AM Peak	PM Peak	
Ireland Street	South of Camp Street	Northbound	2,377	69%	231	218	22.8
		Southbound	2,430		244	229	30.1
		Combined	4,807		475	447	26.6
Anderson Street	South of Gavan Street	Northbound	2,756	60%	263	252	29.9
		Southbound	1,442		142	139	30.3
		Combined	4,198		405	391	30.1
Camp Street	South of Gavan Street	Northbound	1,262	33%	118	108	28.9
		Southbound	1,073		103	91	31.4
		Combined	2,335		221	199	30.1
Barnard Street	South of Gavan Street	Northbound	-	42%	-	-	-
		Southbound	1,252		136	117	22.3
		Combined	1,252		136	117	22.3
Star Road	North of Gavan Street	Northbound	2,143	59%	170	190	34.4
		Southbound	1,992		164	153	34.4
		Combined	4,135		334	343	34.3
Back Porepunkah Road	West of Star Road	Westbound	1,502	16%	118	121	48.0
		Eastbound	1,356		122	129	45.7
		Combined	2,858		240	250	46.9
Gavan Street	At Prices Lane	Westbound	3,394	36%	329	303	55.0
		Eastbound	3,052		261	268	57.6
		Combined	6,446		590	571	56.3
Gavan Street	East of Barnard Street	Westbound	4,680	70%	435	397	34.8
		Eastbound	3,725		299	311	36.6
		Combined	8,405		734	708	35.7
Delany Avenue	East of Cherry Lane	Westbound	3,354	36%	311	255	54.1
		Eastbound	3,083		237	292	54.5
		Combined	6,437		548	547	54.3

The above data suggests that all roads operate with daily traffic volumes suitable for their function and cross-section, as described within Table 1. Gavan Street carries up to 8.400 vehicles per day (vpd) in the central section, while Collector Streets (Anderson, Camp, Ireland) all carry less than 5,000 vpd, well below the typical upper limit of 7,000 vpd preferred for Collector Streets.

Traffic speeds throughout the network are generally at or less than 30 km/h, with the exception of key access routes outside of the central areas of town (Back Porepunkah Road, Delany Avenue). This suggests that most roads are suitable for shared use by cyclists and vehicles, and the risks of serious or fatal conflicts between vehicles and pedestrians/cyclists is relatively low.

A summary of traffic data trends across the surveys extended to 9th February is illustrated in Figure 17, Figure 18, and Figure 19 below, with key dates and notable events identified.

Broadly, traffic volumes during the first week of surveys (20-26th January 2022) was considerably higher than the two weeks following, even though there was an additional week of school holidays in the middle week. On a typical weekday, traffic volumes during the busier weeks were between 15% and 30% higher than non-holiday periods.

Figure 17 Traffic Volume Comparison – Gavan Street (at Prices Lane)

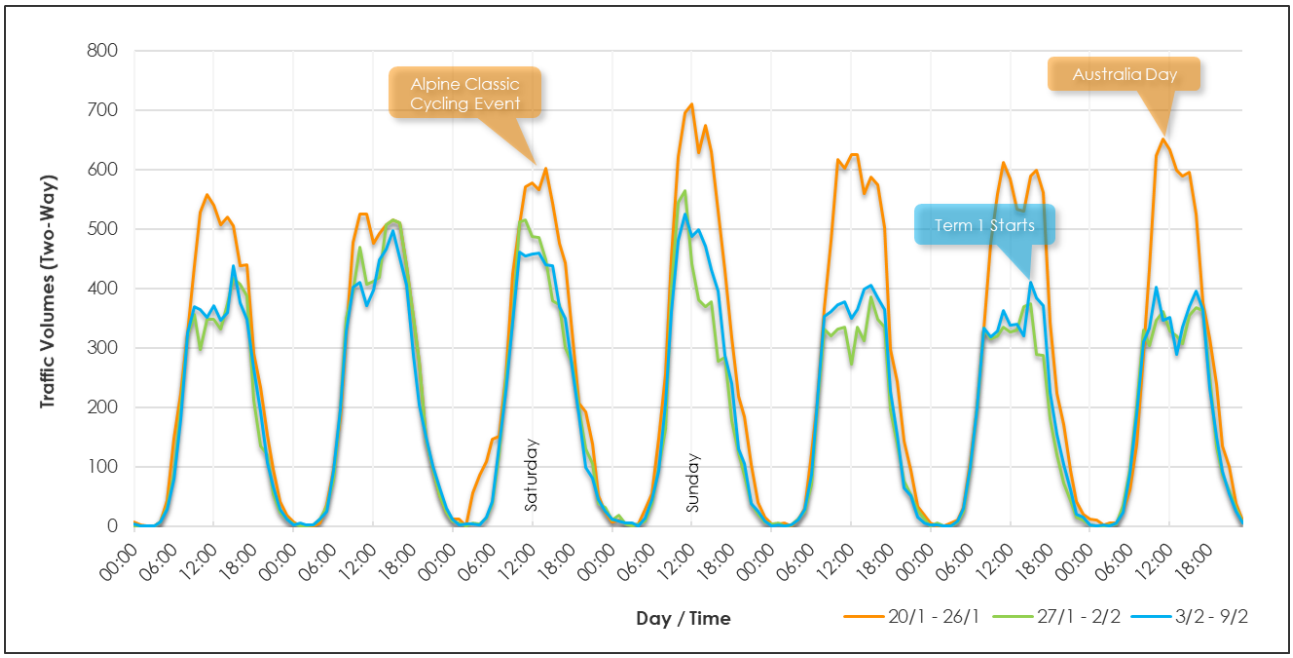


Figure 18 Traffic Volume Comparison – Gavan Street (East of Barnard Street)

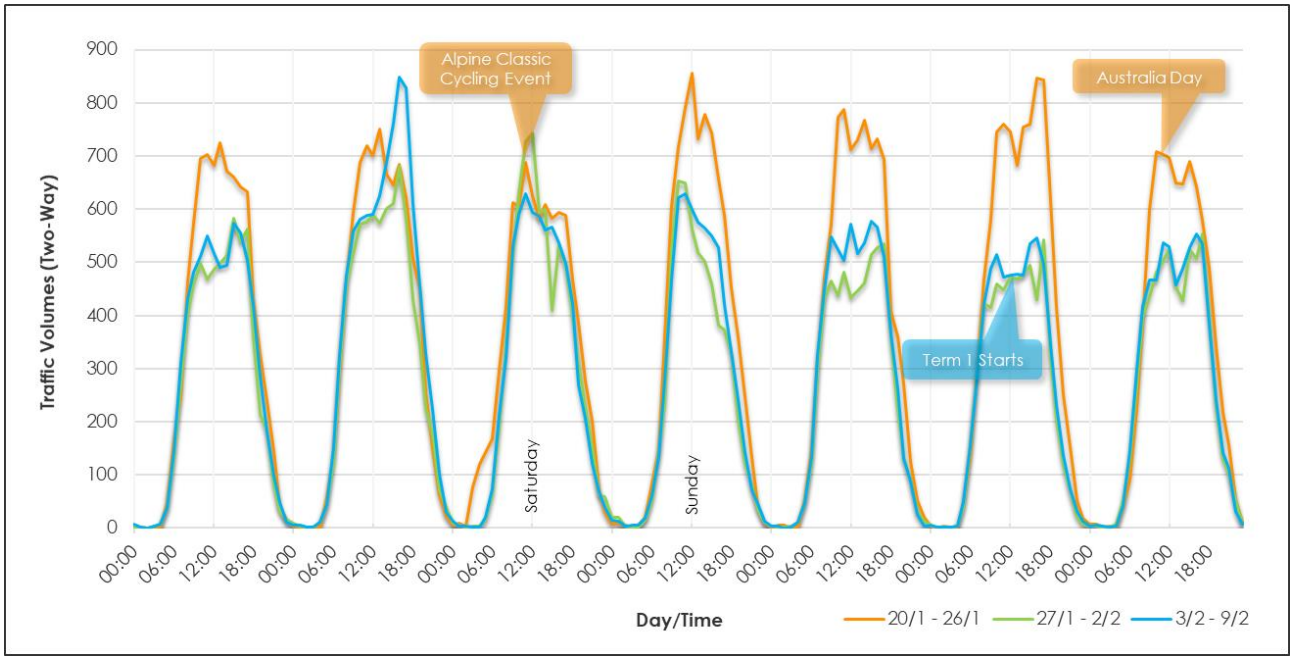
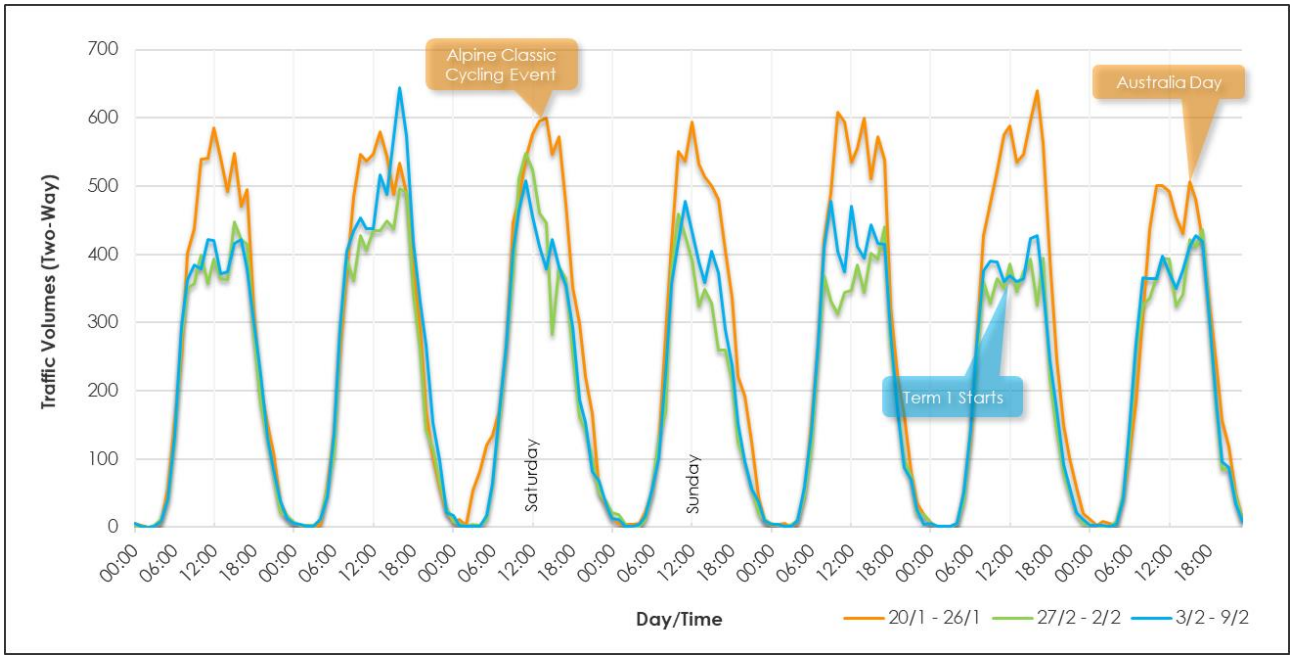


Figure 19 Traffic Volume Comparison – Delany Avenue (East of Cherry Lane)



7.3 Intersection Performance

7.3.1 General

To assess the operation of each surveyed intersection, the traffic volumes derived have been input into SIDRA Intersection, a traffic modelling software package.

Noting the above data, which suggests that the first week of data collection is significantly higher than that collected in the weeks following, we have adopted data from Thursday 20th January for analysis purposes. This represents a relatively conservative assessment and is likely reflective of typical traffic conditions across the summer holiday period. The busiest one-hour period occurred across the network between 11:00 AM – 12:00 PM.

Given the proximity of the surveyed intersections, they have been modelled as a network model, which accounts for interactions between adjacent intersections, and capacity reductions caused by downstream queueing effects.

7.3.2 Performance Parameters

In assessing the performance of individual intersections, the parameters considered relevant are, Degree of Saturation (DoS), 95th Percentile Queue, and Average Delay as described below.

- **Degree of Saturation (DoS)** – The DoS represents the ratio of the traffic volume making a particular movement compared to the maximum capacity for that particular movement. The value of the DoS has a corresponding rating depending on the ratio as shown below.

DoS	*Rating*	*Description*
Up to 0.60	Excellent	Minimal delays
0.61 – 0.70	Very Good	Minimal delays
0.71 – 0.80	Good	Delays and queues increasing
0.81 – 0.90	Fair	Delays and queues growing. Any interruption to flow such as minor incidents causes increasing delays
0.91 – 1.00	Poor	Flows starting to break down and queues and delays increase rapidly
Above 1.00	Very Poor	Queues and delays increase rapidly. Once queues develop it takes a significant time for queues to dissipate, resulting in long delays to traffic movements

It is noted that whilst the range of 0.91 – 1.00 is rated as 'poor', it is acceptable for critical movements at an intersection to be operating within this range during high peak periods, reflecting actual conditions in a significant number of suburban signalised intersections.

- **Average Delay (seconds)** – Average delay is the time delay that can be expected for all vehicles undertaking a particular movement in seconds.
- **95th Percentile (95%ile) Queue** – 95%ile queue represents the maximum queue length in metres that can be expected in 95% of observed queue lengths in the peak hour.

In assessing network performance, a more holistic assessment has been undertaken, considering the following performance factors:

- **Level of Service (LoS)** – A ranking of speed efficiency, which is the ratio of average travel speed to desired speed with the corresponding rating depending on the ratio as shown below.

LoS	*Speed Efficiency*	*Description*
A	0.91 – 1.00	Traffic flows at or above the posted speed limit
B	0.81 – 0.91	Reasonably free flow
C	0.71 – 0.80	Stable flow, at or near free flow
D	0.51 – 0.70	Speeds slightly decrease as traffic volume slightly increase
E	0.31 – 0.50	Flow becomes irregular and speeds rarely reach the posted limit
F	0 – 0.30	Every vehicle moves in lockstep with the vehicle in front of it, with frequent slowing required

- **Travel Speed (km/h)** – Average travel speed across the network
- **Degree of Saturation (DoS)** – DoS of critical intersection within network
- **Average Control Delay (s)** – The average additional travel time experienced by a vehicle relative to a base travel time at free flow speeds. Includes geometric delay (associated with undertaking a turn), and queueing delay occurring at a hold line at an intersection

7.3.3 Upgrade Thresholds

For signalised intersections, it is commonly accepted that a DoS greater than 0.95 represents the intersection reaching practical capacity. Any increase to traffic flows will trigger the need to consider upgrades for additional capacity, or alternative solutions.

For unsignalised intersections, it is important to consider the impact of delays, in addition to DoS when describing intersection performance.

Research undertaken by SIDRA software developer Rahmi Akcelik has identified upgrade triggers for sign-controlled, roundabout, and signalised intersections based on Level of Service parameters which consider the Degree of Saturation (DoS) and control delays. In this model, LoS is determined based on an "or" condition where either DoS or delay parameters are triggered.

When an intersection exceeds LoS D (i.e. LoS E or F), an upgrade is warranted. This is summarised in Table 5 below.

Table 5 Intersection Upgrade Warrants (Akcelik, 2009)

Level of Service	Control delay per vehicle in seconds (d)			Degree of saturation (v/c ratio) (x)
	Signals	Roundabouts	Stop and Give-Way / Yield Signs	
A	$d \leq 10$	$d \leq 10$	$d \leq 10$	$0 < x \leq 0.85$
B	$10 < d \leq 20$	$10 < d \leq 20$	$10 < d \leq 15$	$0 < x \leq 0.85$
C	$20 < d \leq 35$	$20 < d \leq 35$	$15 < d \leq 25$	$0 < x \leq 0.85$
D	$35 < d \leq 55$	$30 < d \leq 50$	$25 < d \leq 35$	$0 < x \leq 0.85$
	$0 < d \leq 55$	$0 < d \leq 50$	$0 < d \leq 35$	$0.85 < x \leq 0.95$
E	$55 < d \leq 80$	$50 < d \leq 70$	$35 < d \leq 50$	$0 < x \leq 0.95$
	$0 < d \leq 80$	$0 < d \leq 70$	$0 < d \leq 50$	$0.95 < x \leq 1.00$
F	$80 < d$	$70 < d$	$50 < d$	$1.00 < x$

7.3.4 Analysis & Discussion

A summary of the SIDRA outputs for each intersection, and for the network as a whole are presented in Table 6 and Table 7 below.

Table 6 Intersection Performance – Thursday 20th January 2022

Site No.	Site	Approach	DoS	Avg. Delay (sec)	Queue (m)	Rating	LoS
1	Gavan St / Anderson St	South	0.284	6.3	12.7	Excellent	A
		East	0.300	2.1	14.2	Excellent	A
		West	0.298	4.5	14.0	Excellent	A
2	Gavan St / Star Rd	East	0.226	1.6	5.1	Excellent	A
		North	0.214	9.8	6.0	Excellent	A
		West	0.194	0.6	1.1	Excellent	A
3	Gavan St / Barnard St	East	0.232	0.7	0.0	Excellent	A
		West	0.226	1.6	5.1	Excellent	A
4	Gavan St / Howitt Ln	East	0.221	0.3	1.0	Excellent	A
		North	0.038	10.7	0.9	Excellent	A
		West	0.182	0.6	0.0	Excellent	A
5	Gavan St / Camp St	South	0.131	5.3	3.5	Excellent	A
		East	0.101	0.5	0.6	Excellent	A
		West	0.191	0.6	2.1	Excellent	A
6	Anderson St / Barnard St / Ireland St	South	0.194	2.2	7.9	Excellent	A
		North	0.114	4.3	4.2	Excellent	A
		North-west	0.108	5.1	4.1	Excellent	A
		South-west	0.024	3.9	0.9	Excellent	A

Table 7 Network Performance – Thursday 20th January 2022

Period	Parameter	Performance	
		Eastbound	Westbound
AM Peak	LoS	D	D
	Travel Speed (km/h)	37.3	39.0
	DoS	0.298	0.300
	Average Control Delay (s)	0.6	0.5

As demonstrated above, all intersections are operating under excellent conditions, with minimal delays of not more than 11 seconds across the network, and queues typically not exceeding 2-3 vehicles. It is noted that delays presented in Table 6 include *geometric* delays (time taken to execute a turn) and *control* delays (time waiting at the hold line).

Across the network, modelling suggests that through traffic is generally unimpeded, and rarely held up due to turning movements for long periods.

We can therefore infer that no upgrades or interventions are warranted on a capacity basis within the study area.

7.3.5 Qualitative Observations

Observations from our site inspections are as follows:

- Gavan St / Anderson St
  - Typically free-flowing traffic
  - Minimal queueing
  - Driver delays are generally only a few seconds
  - Pedestrian facilities could be improved, but do not cause significant pedestrian delay
- Gavan St / Star Rd
  - Right-turn into service station blocks through traffic on Gavan Street
  - Modest delays for drivers exiting Star Road
  - Right-out movement is critical, and can briefly generate queues up to 5 vehicles, but tends to clear quickly
- Gavan St / Barnard St
  - Right-turn into Barnard Street blocks through traffic
  - Delay of up to approximately 12 seconds observed for right-turn during peak periods
  - Queues up to 8 vehicles generated on Gavan Street behind a propped vehicle, but slow moving queues rather than static
- Gavan St / Howitt Ln
  - Some delay for right-out movements
  - Maximum 4 vehicles queued from Howitt Park
- Gavan St / Camp St
  - Generally free-flowing
  - Poor sight distance for right-out movement from Camp Street, with drivers relying on longer gaps. Modest delays for right-out movement as a result
  - Parking on west approach also inhibits sight distance partially
  - Long crossing distances for pedestrians
  - Relatively high-speed turning movements, particularly from east to south
- Anderson St / Barnard St / Ireland St
  - Lots of bike traffic, with potential conflicts at roundabout for path connection
  - Drivers typically travelling quite slow
  - Good visibility
  - Lots of parking activity evidence by u-turns

7.3.6 Sensitivity Analysis

Noting that our data collection occurred over a 1-week period, we have also undertaken additional analysis that considers the network performance on both Saturday 22nd and Wednesday 26th January (Australia Day public holiday) to evaluate the likely worst-case period.

The results of the analysis are summarised in Table 8 and Table 9 below, with detailed data provided in Appendix E.

All intersections in all assessment periods are modelled to operate under excellent conditions and with a Level of Service A. Performance during Saturday peak is effectively equivalent to the Thursday, with the DoS, average delay and 95th percentile queues all comparable. Performance on the Wednesday (Australia Day) peak is marginally worse, with queues increasing by up to one vehicle length at the Gavan Street / Anderson Street intersection, but only marginal increases elsewhere.

Network performance for each assessment period is comparable, with speeds remaining effectively unchanged, and only minor differences in average control delay.

These differences in performance are only minor as the highest traffic volumes (Wednesday) are only 3% higher than the Thursday period. Similarly, the Saturday volumes are only 2% higher.

A summary of the SIDRA outputs for each intersection, and for the network as a whole are presented in Table 6 and Table 7 below.

Table 8 Intersection Performance – Existing

Site No.	Site	Approach	Thur 20th January 2022		Sat 22nd January 2022		Wed 26th January 2022	
			Rating	LoS	Rating	LoS	Rating	LoS
1	Gavan St / Anderson St	South	Excellent	A	Excellent	A	Excellent	A
		East	Excellent	A	Excellent	A	Excellent	A
		West	Excellent	A	Excellent	A	Excellent	A
2	Gavan St / Star Rd	East	Excellent	A	Excellent	A	Excellent	A
		North	Excellent	A	Excellent	A	Excellent	A
		West	Excellent	A	Excellent	A	Excellent	A
3	Gavan St / Barnard St	East	Excellent	A	Excellent	A	Excellent	A
		West	Excellent	A	Excellent	A	Excellent	A
4	Gavan St / Howitt Ln	East	Excellent	A	Excellent	A	Excellent	A
		North	Excellent	A	Excellent	A	Excellent	A
		West	Excellent	A	Excellent	A	Excellent	A
5	Gavan St / Camp St	South	Excellent	A	Excellent	A	Excellent	A
		East	Excellent	A	Excellent	A	Excellent	A
		West	Excellent	A	Excellent	A	Excellent	A
6	Anderson St / Barnard St / Ireland St	South	Excellent	A	Excellent	A	Excellent	A
		North	Excellent	A	Excellent	A	Excellent	A
		North-west	Excellent	A	Excellent	A	Excellent	A
		South-west	Excellent	A	Excellent	A	Excellent	A

Table 9 Network Performance (Corridor)

Period	Parameter	Thur 20th January 2022		Sat 22nd January 2022		Wed 26th January 2022	
		Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
AM Peak	LoS	D	D	D	D	D	D
	Travel Speed (km/h)	37.3	39.0	37.3	39.0	37.2	39.0
	DoS	0.298	0.300	0.323	0.298	0.343	0.327
	Average Control Delay (s)	0.6	0.5	0.6	0.5	0.7	0.5

7.4 Origin-Destination

In addition to conventional traffic surveys, onemilegrid commissioned origin-destination surveys on Thursday 20th January 2022 from 7:00 AM until 9:00 PM to establish the patterns of traffic flow through the township.

This is determined through the use of four Bluetooth "stations" that detect Bluetooth signals from vehicles and mobile devices, and track these through the other stations to determine the origins and destinations, to allow an understand of movement through the centre.

A summary of the data is provided in Table 10 below.

Table 10 Origin-Destination Data

Station No.		Destination Station				Total
		1	2	3	4	
Origin Station	1	-	487	391	568	1,446
	2	700	-	807	1,130	2,637
	3	348	492	-	564	1,404
	4	641	882	700	-	2,223
Total		1,689	1,861	1,898	2,262	

Table 11 Origin-Destination Data (expressed as %)

Station No.		Destination Station				Total
		1	2	3	4	
Origin Station	1		34%	27%	39%	100%
	2	27%		31%	43%	100%
	3	25%	35%		40%	100%
	4	29%	40%	31%		100%

Figure 20 Origin-Destination Data – Station 1

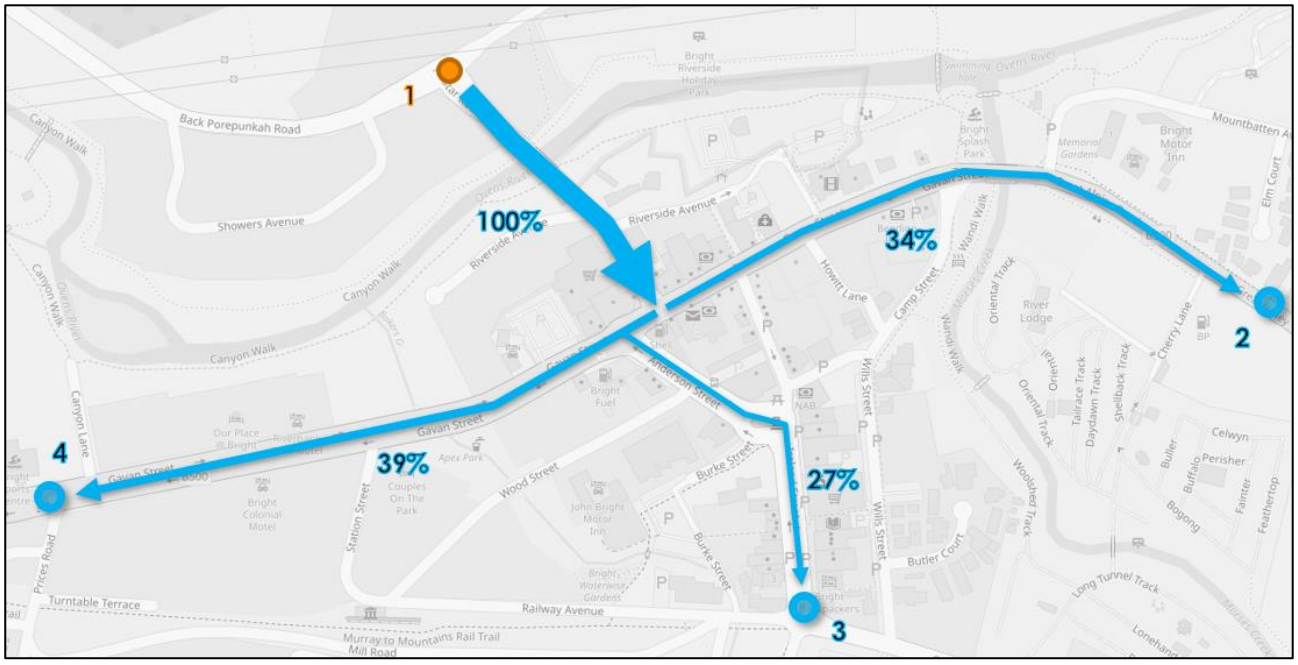


Figure 21 Origin-Destination Data – Station 2

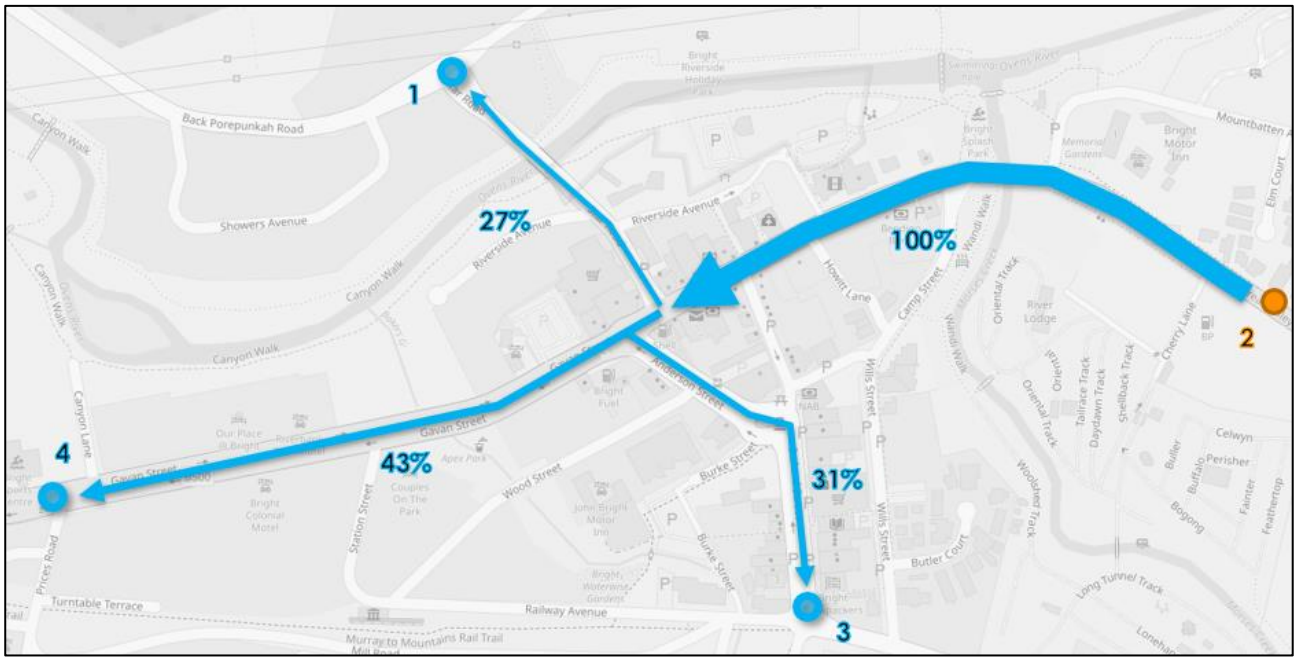


Figure 22 Origin-Destination Data – Station 3

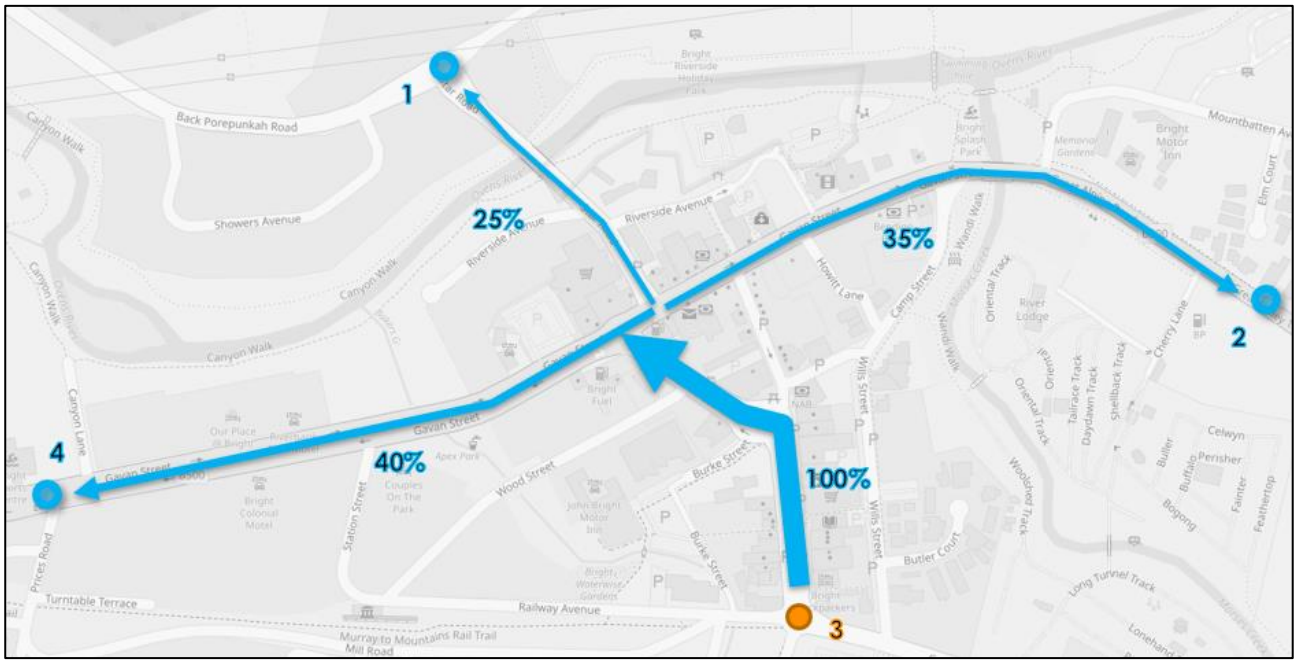
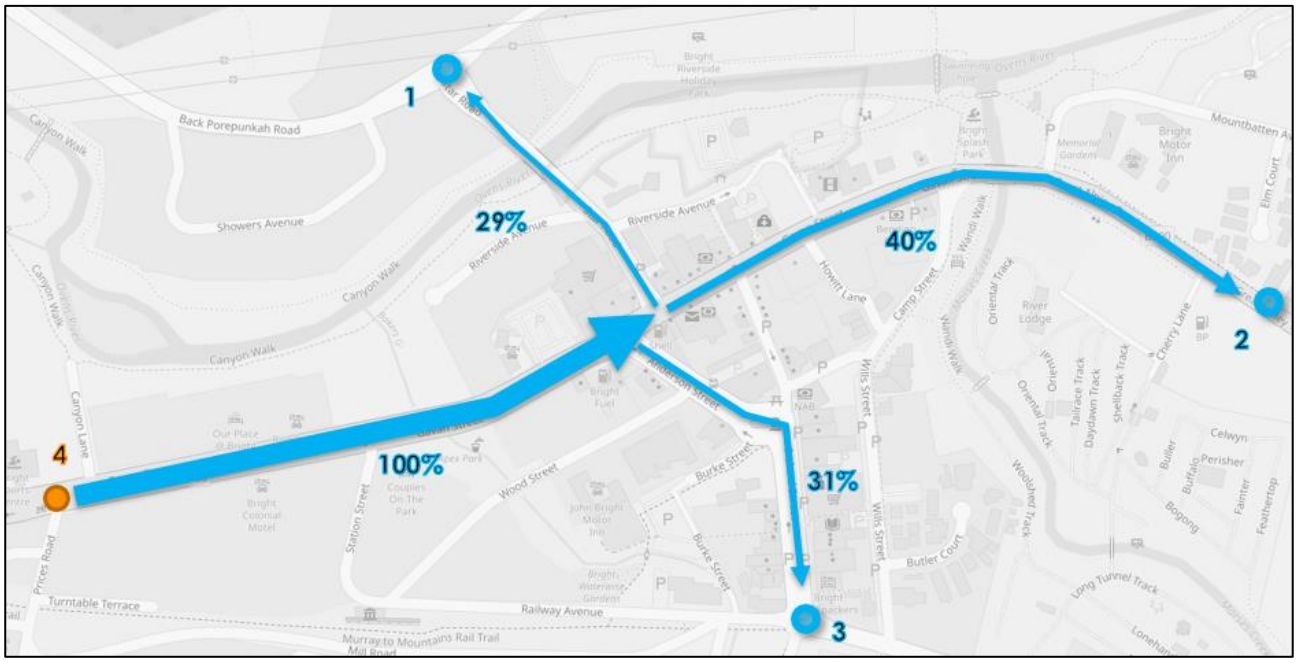


Figure 23 Origin-Destination Data – Station 4

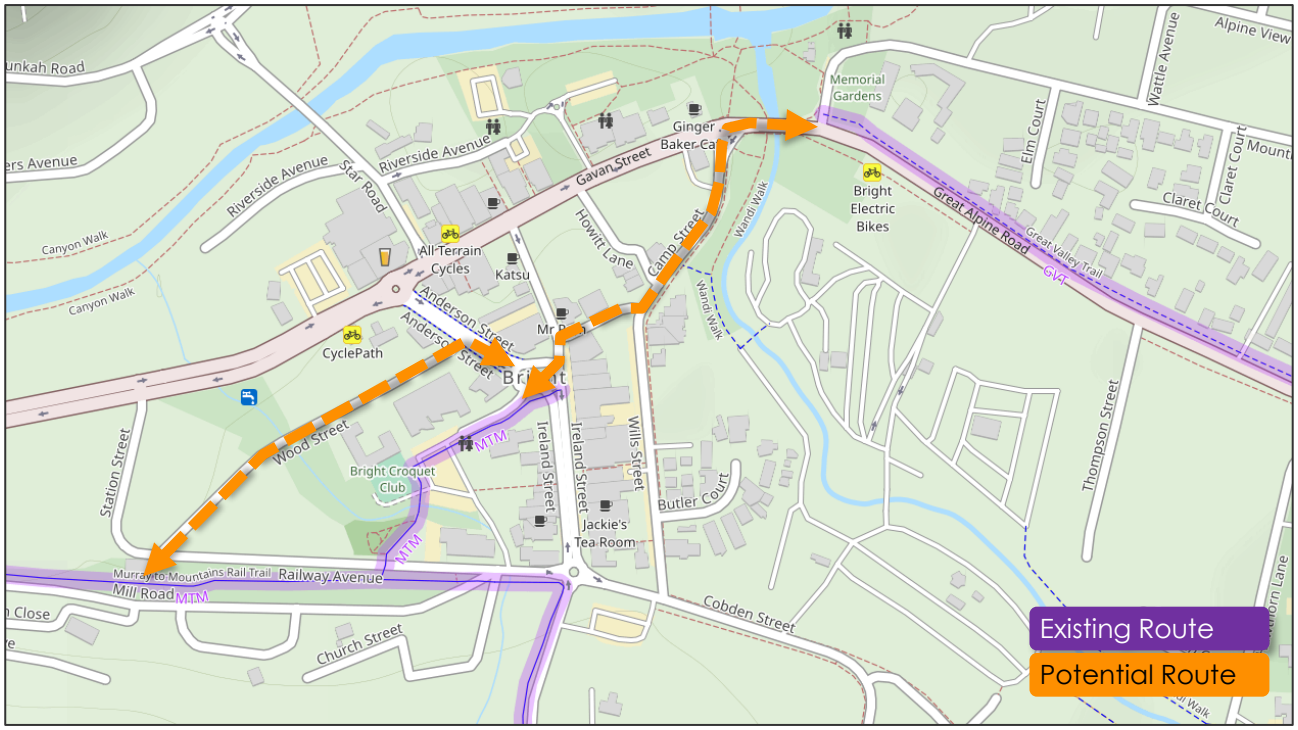


8 CONCLUSIONS

Based on the preceding analysis, we can make the following conclusions regarding the transport network performance within Bright:

- Crash history within the study area does not indicate any locations of high-incidence of crash behaviour, but does indicate that cyclists crashes are over-represented relative to cyclist volumes. Vehicle speeds on most lower-order roads are approximately 30km/h which is an acceptable speed to avoid serious injuries or fatalities for vulnerable road users.
- There are limited on-road cycling facilities within the study area, and a lack of clear, direct off-road connections between the popular MMRT and paths to the east of the Township. Upgrades to on-road cycling facilities on Gavan Street, Ireland Street, and Anderson Street (as noted in Section 3.3) will assist with conveying the legitimacy of cycling activity on these key roads, however traffic volumes and higher than preferred speeds on Gavan Street will likely reduce the attractiveness of travelling via Gavan Street for all but the most confident of cyclists. As a guide, shared use of the carriageway by cyclists and drivers is generally considered appropriate 85th percentile traffic speeds up to 30km/h and volumes generally up to 1,500-3,000 vehicles per day. Consideration should be given to establishing an alternative east-west connection that provides for improved connection around the path network. This could include Wood Street and Camp Street, as shown in Figure 24 below, which provide for low traffic speeds and relatively low traffic volumes.. It is noted that Camp Street is to be upgraded as part of the Bicycle Infrastructure Improvements project. Cycling safety measures (e.g. sharrow line marking) should be implemented along these links to ensure all cyclists feel safe,

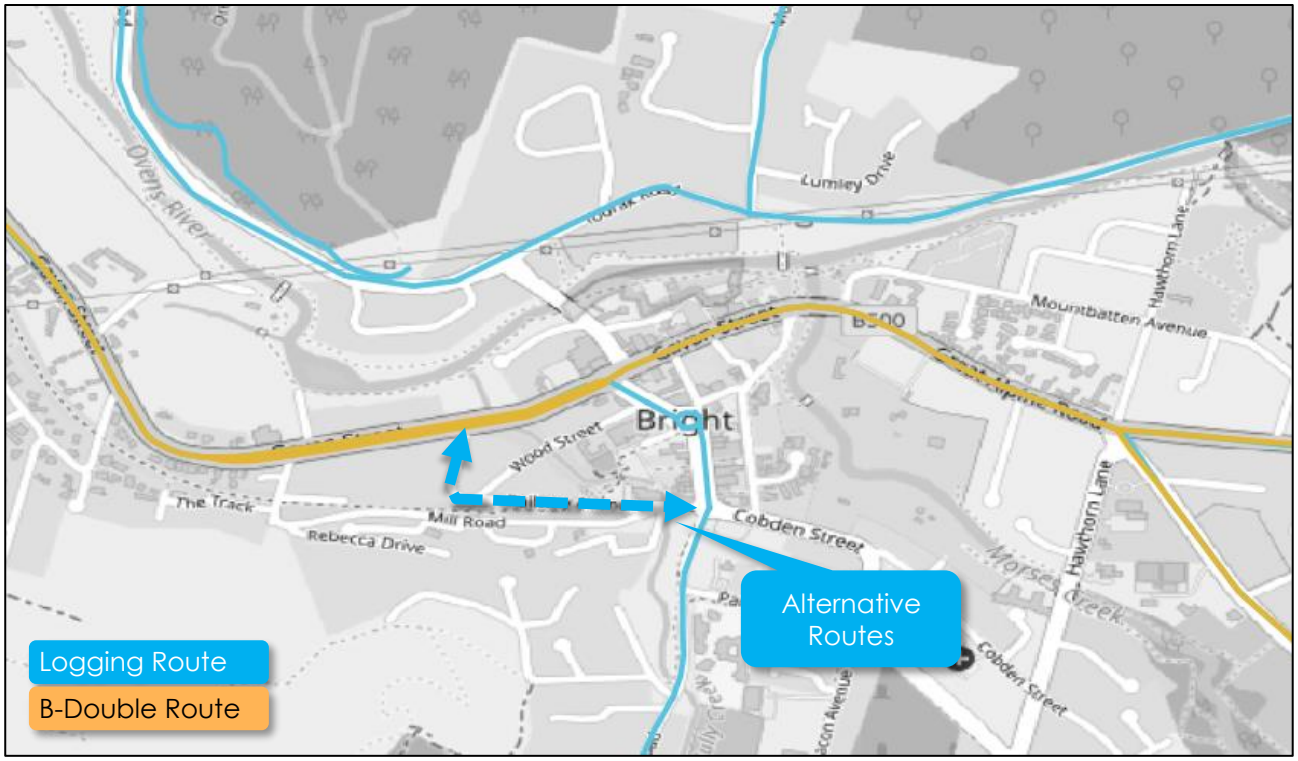
Figure 24 Potential Cycle Links



- Gavan Street is an approved B-double route and is regularly utilised for logging activity, though large trucks comprise only 0.25% of vehicles within central Bright. Ireland Street and Anderson Street form part of a haulage route that extends to logging areas access from Bakers Gully Road. The presence of logging vehicles on areas of high pedestrian and parking activity, particularly on Ireland Street is undesirable. It would be preferable to encourage logging operators to utilise alternative access routes to access Gavan Street such as Railway Avenue / Station Street to the west as shown in Figure 25 below, though it is acknowledged that the residential interface on Railway Avenue and Station Street may be sensitive to logging vehicles,

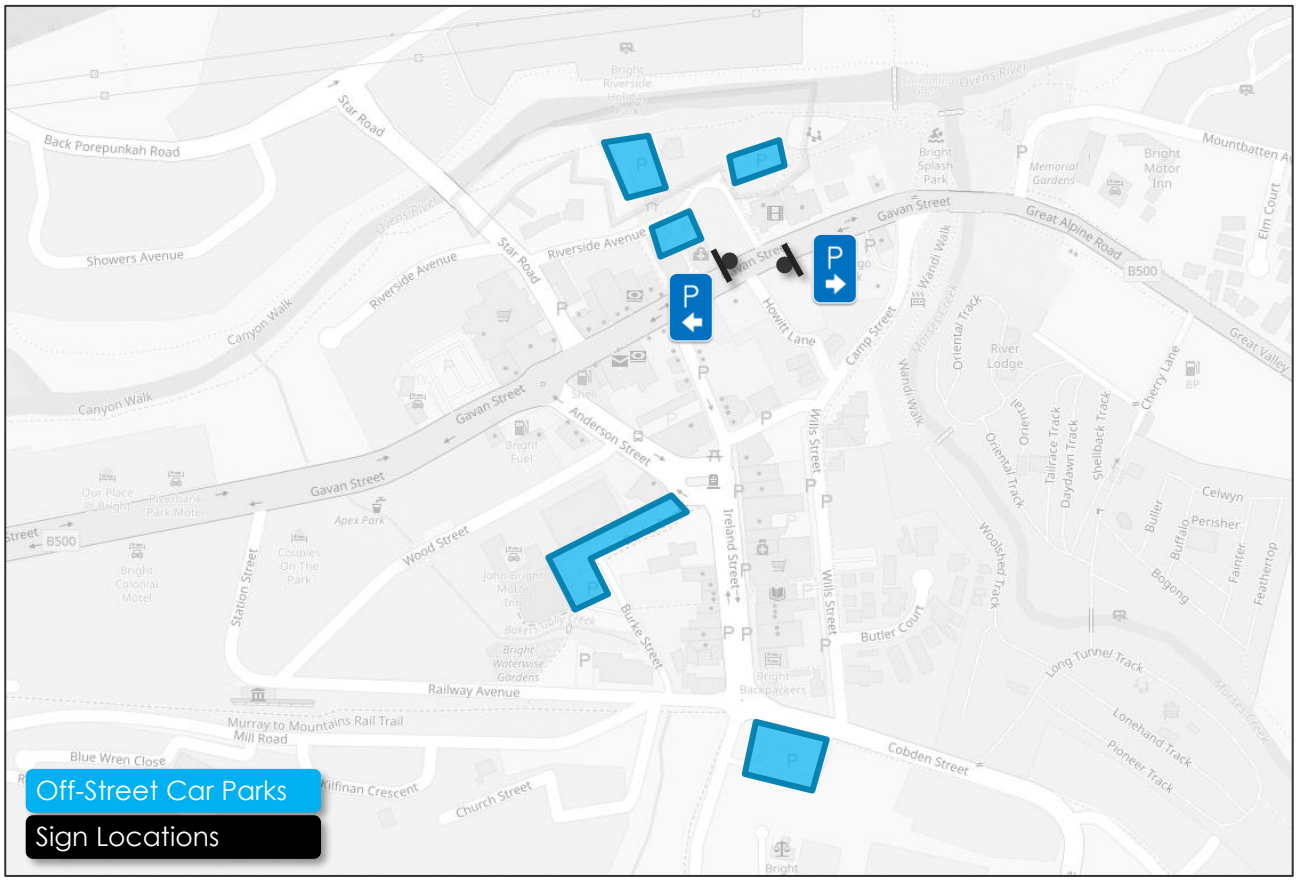
and that there are physical restrictions on accessibility for larger vehicles. Alternatively, logging vehicles could be removed altogether from southern Bright by utilising alternative exits from plantation areas.

Figure 25 Alternative Heavy Vehicle Routes



- Emergency Services stakeholders consistently identified difficulties in travelling through central Bright during peak periods due to congestion. Traffic analysis suggests intersection performance is within acceptable bounds for general traffic use, however this modest level of traffic congestion may not be appropriate in an emergency context. For emergency call outs outside of central Bright, operators should prioritise use of Hawthorn Lane / Cobden Street / Railway Avenue to bypass slow-moving traffic along Gavan Street in peak periods.
- The bulk of streets within the study area are designated as "Local Streets" under the DoT Movement and Place framework. The design of these areas (including Anderson Street, Barnard Street, Howitt Lane, Camp Street and Ireland Street) is generally appropriate for their function, and they appear to operate well. Gavan Street is presently designated an "Activity Street & Boulevard" function with a higher General Traffic than Place function. This does not reflect the regional significance of Bright as a tourism destination during peak periods, where a higher Place function is warranted. The streetscape design within central Bright, comprising relatively narrow traffic lanes, with street furniture and regular pedestrian crossings appropriately reflects this balance of Movement and Place functions.
- Car parking demands within the Activity Centre are relatively high during the early afternoon peak periods, with most on-street parking fully occupied within the central areas. Off-street parking opportunities are limited, and wayfinding signage could be improved, which can contribute to additional traffic circulating for parking. Consider improving wayfinding to parking areas as shown in Figure 26, and establishing additional off-street parking locations. Wayfinding signage will ensure that visitors unfamiliar with the area are aware of off-street parking locations, and do not need to continue circulating looking for on-street parking.

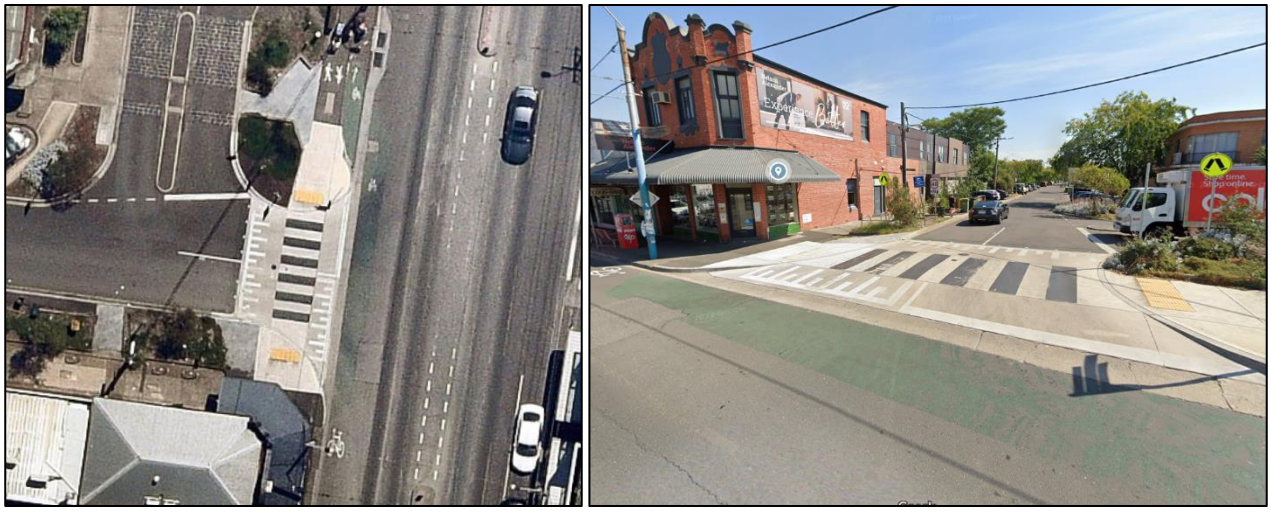
Figure 26 Car Parking Wayfinding



- Activity within Bright, and the associated traffic volumes, are variable throughout the year, with traffic volumes across the summer holiday period and on long weekends considerably higher than off-peak periods.
- Traffic volumes across the network do not exceed capacity having regard to the function and cross-section of each road, as described within Table 1 and Table 4. Daily volumes are all less than 70% of typical daily capacity, even during peak holiday periods.
- Peak-hour intersection modelling suggests that all intersections are operating under 'excellent' conditions, with only modest queueing and delays, and no upgrades or interventions are warranted on a capacity basis. Even accounting for the busiest periods during a week-long survey, the road network was performing with a high level of service. Queues were observed occasionally forming behind turning vehicles, but quickly dissipated. Some level of congestion and queueing is desirable in an Activity Centre context to assist with traffic calming. This ensures that vehicle speeds remain relatively low, leading to better pedestrian amenity, and reduced likelihood and severity of crashes, among other benefits.
- All intersections are generally designed appropriately, providing appropriate sight distances, suitably catering for design vehicles, and with no trends of crash history. The planned improvements to the Camp Street / Gavan Street intersection will provide for improved safety by assisting with reducing vehicle speeds, improving pedestrian connection, and improving sight distance. It is recommended that this work be pursued as a priority.
- Delays to pedestrians within the study area are generally minimal, with slow vehicle speeds generally allowing pedestrians to safely and conveniently cross Gavan Street during peak periods, and lower traffic volumes in off-peak periods providing ample gaps. Observations on-site suggested that delays for pedestrians were generally less than 20 seconds, which suggests very good performance based on Movement & Place definitions.
- Implementation of continuous footpath treatments across side-road intersections with Gavan Street (including Barnard Street, Howitt lane and Camp Street as a priority) will improve pedestrian amenity, and assist with lowering turning vehicle speeds and emphasising a driver's

obligation to give way to pedestrians when entering a side road. This will not adversely affect Gavan Street traffic, or its role as a traffic route of municipal significance. See Figure 27 below for an example treatment.

Figure 27 Continuous Footpath Treatment (Union Street, Northcote)

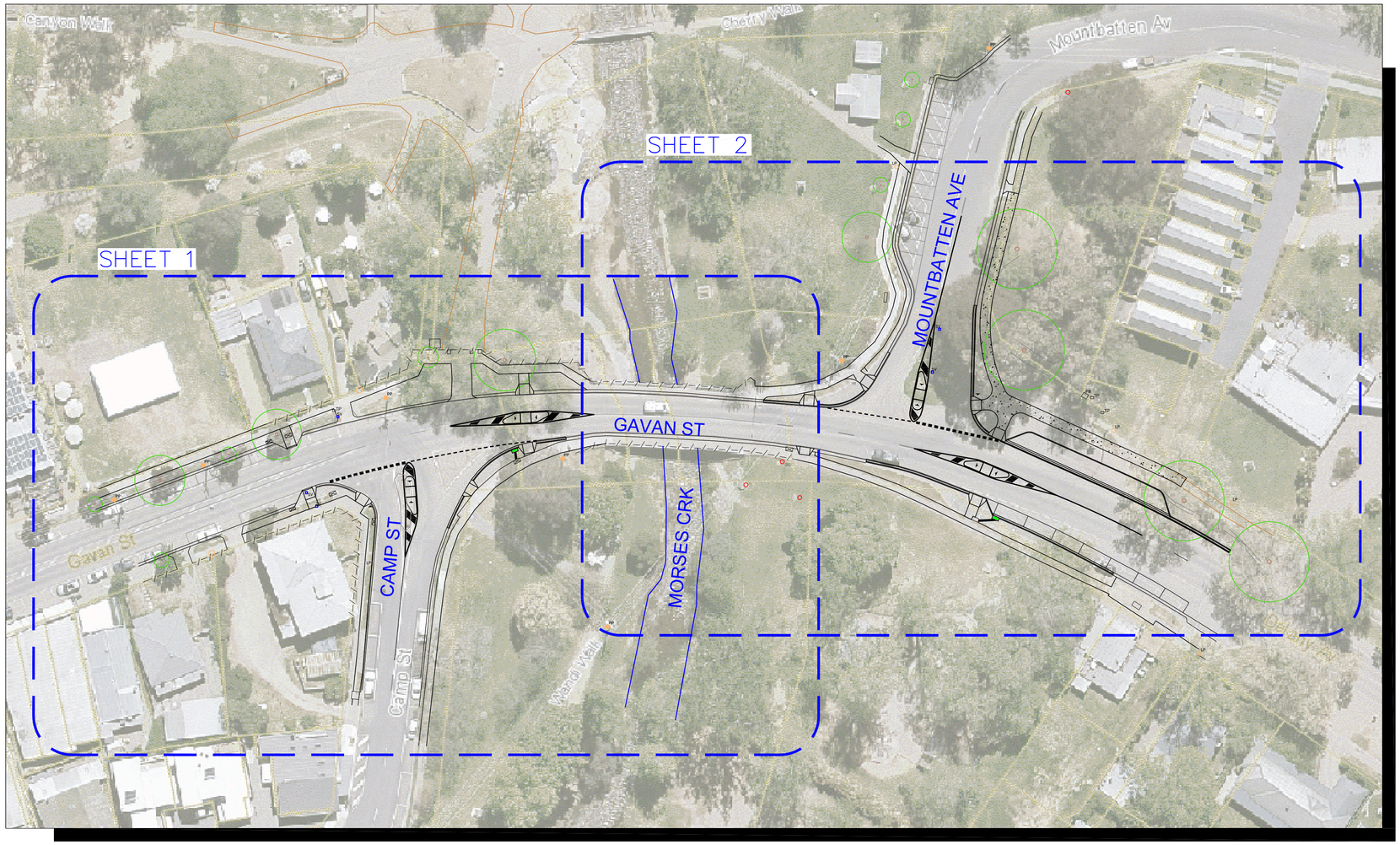


- Origin-destination data suggests that traffic entering Bright is relatively evenly distributed across multiple destinations, indicating that through-traffic is not a contributor to perceived traffic issues. Noting that daily and peak-hour traffic remain comfortably within capacity, there is little justification as a result for establishing an Alternative Route or Bypass at this stage. Should traffic volumes increase from that surveyed during the summer peak (e.g. due to ongoing residential development or tourism increases) then it would require growth of approximately 50% on central Gavan Street until traffic volumes exceed capacity, and an Alternative Route or Bypass may be warranted. High-level modelling undertaken for the Bright Western Gateway suggests residential development in this area may contribute approximately 1,350 additional vehicle movements into central Bright. Allowing for a further 2% annual growth rate, the nominal 12,000 vpd capacity on central Gavan Street may be exceeded in 11 years.
- Traffic surveys and site observations were undertaken in periods subject to no restriction on travel or trading dur to Covid-19 containment measures, however there are likely still some latent impacts that may impact "typical" travel behaviour. Noting this, it is recommended that further surveys and analysis be undertaken on a 12-18 month basis to ensure that the conclusions drawn are based on suitable data.

Appendix A Camp Street / Mountbatten Avenue Functional Plans

CAMP ST & MOUNTBATTEN AVE INTERSECTION REALIGNMENT

GAVAN STREET, BRIGHT, VIC, 3741



DRAWING LIST

Z:\100 Projects\2. Major Clients\Alpine Shire\ALPS74 – Gavan Street Intersection Design\6. Drawing\GRFD.png

REVISIONS

No.	DETAILS	DATE
A.	PRELIMINARY ISSUE	19/06/20
0.	ISSUED FOR CONSTRUCTION	16/11/20

REVISIONS

No.	DETAILS	DATE

Designed	S.P	11/20
Drawn	D.B	11/20
Checked		
Approved		

FORESIGHT
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PROJECT No. ALPS-74

DRAWING No. ALPS74-100

DATUM AHD | GRID GDA–94

ALPINE SHIRE COUNCIL

GAVAN ST, BRIGHT, VIC, 3741
INTERSECTION REALIGNMENTS
COVER SHEET

SHEET: 1 of 1 | A1

GENERAL

G1 THESE STRUCTURAL DRAWINGS HAVE BEEN PREPARED IN ACCORDANCE WITH AS 1100 AND SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS' DRAWINGS, SPECIFICATIONS AND SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK

G2 DETAIL NOTES ON THESE DRAWINGS AND THE SPECIFICATION CLAUSES TAKE PRECEDENCE OVER THE GENERAL NOTES

G3 ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT CURRENT STANDARDS AUSTRALIA CODES AND WITH THE MOST RECENT VERSION OF THE NATIONAL CONSTRUCTION CODES OF AUSTRALIA

G4 UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.

G5 THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT OF CONSTRUCTABILITY OR SAFETY, THE MATTER SHALL BE REFERRED TO THE ENGINEER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

PAVEMENT

P1 ROAD SHOULDER PAVEMENT TO INFRASTRUCTURE DESIGN MANUAL – LOW DENSITY RESIDENTIAL ACCESS ROAD UNO

P2 PAVEMENT DESIGN:

- SUB–GRADE COMPACTED TO 98% MMDD
- SUB–BASE 150 THK VICROADS CLASS 2 CRUSHED ROCK TO 98% MMDD
- BASE 200 THK VICROADS CLASS 1 CRUSHED ROCK TO 98% MMDD
- WEAR COURSE 40mm THICK 14mm AC WITH PRIMER SEAL.

KERB

K1. REFER TO AS. 2876–2000 CONCRETE KERBS AND CHANNELS FOR SPECIFIC REQUIREMENTS.

K2. CONCRETE SHALL BE NORMAL CLASS N25 STANDARD STRENGTH GRADE COMPLYING WITH THE REQUIREMENTS OF AS. 1379. REFER VICROADS STANDARD SPECIFICATION 703 FOR REQUIREMENTS OF CONCRETE TO BE USED IN EXTRUSION MACHINES.

K3. BEDDING TO BE COMPACTED CLASS 3 F.C.R. 20mm BEDDING TO 97% MDD OR EXTENSION OF ROAD PAVEMENT, WHICHEVER IS GREATER. UNLESS OTHERWISE DIRECTED.

K4. CONCRETE TO BE SMOOTH TROWELLED FINISHED ON TRAY AND KERB.

K5. CONCRETE SPONGE FINISHED ON LAYBACK.

K6. CONSTRUCTION JOINTS LOCATED:

– 2500mm (MAX) SPACING

– 75mm (MIN) DEPTH.

K7. ELIMINATE BULLNOSE ON ALL POSITIVE FALL PEDESTRIAN CROSSINGS.

SIGNPOSTING & PAVEMENT MARKING

SP1 SIGNPOSTING AND PAVEMENT MARKING TO COMPLY WITH AS1742 PARTS 1–15 AND THE VICROADS TRAFFIC ENGINEERING MANUAL VOLUMES 1 AND 2.

SP2 ROAD MARKING SHALL BE CARRIED OUT TO THE EXTENTS SHOWN ON THE DRAWINGS. PAINT SHALL BE WHITE, 'TYPE 3' CLASS A COMPLYING WITH THE REQUIREMENTS OF AS K146–1967,

STORMWATER DRAINAGE

D1. STORMWATER DRAINAGE BY OTHERS. LAYOUT SHOWN ON DRAWINGS INDICATIVE ONLY.

EARTHWORKS

E1 ALL WORK TO BE IN ACCORDANCE WITH THE CURRENT EDITION AS 3798

E2 CUT TO LEVEL OF TOP OF SUBGRADE. PROOF ROLL ALL EXPOSED SUBGRADE AND REPLACE SOFT OR SPONGY AREAS AS PER FILL NOTES BELOW, COMPACT AS PER FILL

E3 IN FILL AREAS– CUT AND REMOVE VEGETATION AND STRIP TOPSOIL PROOF ROLL EXPOSED SUBGRADE AND REPLACE SOFT OR SPONGY AREAS, AS DIRECTED BY THE ENGINEER. PLACE AND COMPACT NEW FILL IN 200 mm MAX THICK LAYERS, AT MOISTURE CONTENT IN RANGE OF 0 TO ±2% OF OPTIMUM (AS PER AS1289.5.2.1) AND COMPACT IN ACCORDANCE WITH THE FOLLOWING TABLE U.N.O. TEST COMPACTED FILL

PROJECT TYPE	MINIMUM COMPACTION	
	MAX. DRY DENSITY RATIO (COHESIVE SOILS) AS1289.5.1.1	MINIMUM DENSITY INDEX (COHESIONLESS SOILS)
COMMERCIAL / INDUSTRIAL	98% MODIFIED	80

E4 FILL MATERIAL TO BE AS SPECIFIED IN AS3798 CLAUSE 4.4 AND APPROVED BY THE ENGINEER

E5 FIELD DENSITY TESTS SHALL BE NOT LESS THAN 1 TEST PER 200 m3 OF PLACED MATERIAL. TESTS IN VISUALLY DOUBTFUL AREAS AND RETESTS OF FAILED AREAS ARE ADDITIONAL TO THE TESTING SPECIFIED ABOVE. ALL TESTING, INCLUDING RETESTING, IS TO BE CARRIED OUT BY AN APPROVED AUTHORITY AND IS TO BE ARRANGED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE

E6 TEST ROLLING SHALL BE IN ACCORDANCE WITH AS 3798 CLAUSE 5.5. TEST ROLLING SHALL BE 4 PASSES OF A 12.0 t MINIMUM SMOOTH STEEL WHEELED VIBRATORY ROLLER WITH A LOAD INTENSITY UNDER EITHER THE FRONT OR REAR WHEELS OF 6.0 t/m MIN

E7 TOP SOIL:

- THE CONTRACTOR SHALL PLACE TOPSOIL, PREVIOUSLY STRIPPED, ON ANY AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS, TO THE DETAILS SHOWN ON THE DRAWINGS OR OTHERWISE DIRECTED BY THE PROJECT MANAGER.
- ROCK FRAGMENTS LARGER THAN 50mm IN SIZE, AND TREE ROOTS LARGER THAN 20mm IN DIAMETER OR 300mm IN LENGTH SHALL BE REMOVED FROM THE TOPSOIL PRIOR TO PLACEMENT.
- TOPSOIL SHALL BE SPREAD OVER AREAS TO ACHIEVE 100mm MINIMUM COMPACTED THICKNESS MEASURED NORMAL TO SLOPE IN ORDER TO REINSTATE THE ORIGINAL GROUND PROFILE. TOPSOIL SHALL BE LIGHTLY COMPACTED.

CONCRETE

C1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF AS3600 INCLUDING AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

C2 READYMIX CONCRETE SUPPLY SHALL COMPLY WITH AS1379.

C3 CONCRETE QUALITY:

ELEMENT	GRADE	SLUMP (mm)	MAX AGG. SIZE (mm)	CEMENT TYPE
FOOTPATH	N25	150	10	GP
KERB & CHANNEL	N25	80	20	GP

C4 PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS1012, AS1379 & AS3600.

C5 NO ADMIXTURES CONTAINING CHLORIDES SHALL BE USED.

C6 CLEAR CONCRETE COVER TO ALL REINFORCEMENT FOR DURABILITY SHALL BE AS FOLLOWS, UNLESS SHOWN OTHERWISE ON THE DRAWINGS:

EXPOSURE CLASSIFICATION	CAST AGAINST GROUND	CAST IN FORMS & EXPOSED
A1	50mm	30mm

CONCRETE (cont')

C7 CONCRETE SIZES SHOWN DO NOT INCLUDE THICKNESSES OF APPLIED FINISHES.

C8 FOR CHAMFERS, DRIP GROOVES, REGLETS, ETC., MAINTAIN COVER TO REINFORCEMENT AT THESE DETAILS.

C9 NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ENGINEER.

C10 WHERE NOT SHOWN ON THE STRUCTURAL DRAWINGS CONSTRUCTION JOINTS SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.

C11 CONDUITS, PIPES ETC. SHALL ONLY BE LOCATED IN THE MIDDLE ONE THIRD OF SLAB DEPTH AND SPACED AT NOT LESS THAN 3 DIAMETERS. PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE COVER TO THE REINFORCEMENT.

C12 SLABS AND BEAMS SHALL BE CONSTRUCTED TO BEAR ONLY ON THE BEAMS, WALLS, COLUMNS, ETC. SHOWN ON THE STRUCTURAL DRAWINGS. ALL OTHER BUILDING ELEMENTS SHALL BE KEPT 15MM MINIMUM CLEAR FROM THE SOFFITS OF THE STRUCTURE UNLESS NOTED OTHERWISE.

C13 REINFORCEMENT SHALL BE SUPPORTED ON PURPOSE MADE CONCRETE, STEEL OR PLASTIC SUPPORTS (DEPENDING ON THE EXPOSURE CONDITION) TO PROVIDE THE SPECIFIED CLEAR COVER. AT EXTERNAL SURFACES EITHER ALL PLASTIC OR CONCRETE SUPPORTS SHALL BE USED.

SUPPORTS SHALL BE LOCATED AT NOT MORE THAN 60 BAR DIAMETERS EACH WAY FOR BARS & NO MORE THAN 750mm EACH WAY FOR MESH.

C14 REINFORCEMENT SYMBOLS – BARS

R – ROUND

D – DEFORMED

I – INDENTED

250, 300, 500 – STRENGTH GRADE IN MPa

L – LOW DUCTILITY

N – NORMAL DUCTILITY

eg. D500N16–DEFORMED BAR, GR.500, NORMAL DUCTILITY, ø16mm

C15 REINFORCEMENT SYMBOLS – WELDED MESH

R, D, I AS FOR BARS

500 – STRENGTH GRADE

S / R – SQUARE MESH / RECTANGULAR MESH

L, N – DUCTILITY AS FOR BARS

C16 BARS DENOTED N SHALL BE TYPE D500N.

BARS DENOTED R SHALL BE TYPE R250N.

MESH DENOTED SL..... OR RL.....SHALL BE TYPE D500SL OR TYPE D500RL RESPECTIVELY.

TRENCH MESH SHALL BE TYPE D500L.

REINFORCEMENT NOTATION

N12–300
- SPACING (mm)
- BAR DIAMETER (mm)
- TYPE OF BAR

3–N28
- BAR DIAMETER (mm)
- TYPE OF BAR
- NUMBER OF BARS

THE FIGURE FOLLOWING THE MESH SYMBOLS RL....., SL..... OR L..... IS THE REFERENCE NUMBER FOR MESH IN ACCORDANCE WITH AS4671..

C17 LAP REINFORCING BARS 40 DIAMETERS AT SPLICES UNLESS NOTED OTHERWISE. STAGGER SPLICES SUCH THAT NO ADJACENT SPLICES ARE LOCATED WITHIN 3 PARALLEL RUNS OF THE REINFORCING CONTAINED IN THAT LAYER.

C18 MESH SHALL BE SPLICED SUCH THAT THE OUTERMOST TRANSVERSE WIRES SHALL BE OVERLAPPED BY AT LEAST THE SPACING OF THE TRANSVERSE WIRES + 50mm.

C19 SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE–BENDING TOOL. THE BARS SHALL BE RE–BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600.

C20 REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION.

C21 SLAB REINFORCEMENT SHALL EXTEND AT LEAST 65mm ONTO MASONRY SUPPORT WALLS.

C22 WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE ENGINEER,

C23 AT JOGGLES IN BARS, THE MAXIMUM OFFSET SHALL BE 1 BAR DIAMETER OVER A LENGTH OF 12 BAR DIAMETERS.

C24 REINFORCEMENT COUPLERS, UNLESS SHOWN ON THE DRAWINGS, SHALL NOT BE USED WITHOUT APPROVAL BY THE ENGINEER.

CONCRETE (cont')

C25 ALL DOWELS PLACED IN DOWEL JOINTS AND IN EXPANSION JOINTS IN CONCRETE SLABS SHALL BE PLACED WITHIN THE FOLLOWING TOLERANCES;

VERTICAL ALIGNMENT ± 2 DEGREES FROM LEVEL

HORIZONTAL ALIGNMENT ± 2 DEGREES FROM A LINE PERPENDICULAR TO THE FACE OF THE JOINT.

POSITION ± 5mm

C26 THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK, THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. ALL CONCRETE SHALL BE COMPACTED WITH IMMERSION TYPE HIGH FREQUENCY MECHANICAL VIBRATORS.

C27 CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 7 DAYS, UNLESS SPECIFIED OTHERWISE. APPROVED SPRAY ON CURING COMPOUNDS THAT COMPLY WITH AS3799 MAY BE USED WHERE FLOOR FINISHES WILL NOT BE AFFECTED. POLYTHENE SHEETING OR WET HESSIAN MAY BE USED TO RETAIN CONCRETE MOISTURE WHERE PROTECTED FROM WIND AND TRAFFIC. CURING IS TO COMMENCE IMMEDIATELY AFTER CONCRETE PLACEMENT. FORMWORK SHALL REMAIN IN PLACE ON FORMED SURFACES FOR 7 DAYS TO ACHIEVE ADEQUATE CURING. IF STRIPPING TAKES PLACE PRIOR TO 7 DAYS THEN POLYTHENE SHEETING SHALL BE APPLIED AND SHALL REMAIN IN PLACE FOR THE CURING PERIOD.

C28 CONSTRUCTION SUPPORT PROPPING IS TO BE LEFT IN PLACE WHERE NEEDED TO AVOID OVERSTRESSING THE STRUCTURE DUE TO CONSTRUCTION LOADING. BACKPROPPING IS SUBJECT TO APPROVAL BY THE ENGINEER. NO BRICKWORK OR PARTITION WALLS ARE TO BE CONSTRUCTED ON SUSPENDED LEVELS UNTIL ALL PROPPING IS REMOVED AND THE SLAB HAS DEFLECTED UNDER ITS SELF WEIGHT.

C29 EXPOSED INTERNAL AND EXTERNAL CORNERS OF CONCRETE SHALL BE CHAMFERED 20mm.

C30 ALL CONSTRUCTION JOINTS ARE TO BE HIGH PRESSURE WATER BLASTED TO REMOVE FINES AND ANY LAITANCE PRIOR TO COMMENCING SUBSEQUENT CONCRETE POURS. WATER BLASTING OF THE JOINT IS TO TAKE PLACE WITHIN 24HRS OF THE CONCRETE HAVING BEEN PLACED OR MECHANICAL SCABBLING OF THE JOINT WILL BE REQUIRED.

CONSTRUCTION JOINTS SHALL BE FITTED WITH WATERBAR AND HYDROTITE AS PER THE DRAWINGS AND INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.

C31 VISIBLE FORMED SURFACES SHALL USE CLASS 3 FORMWORK WITH COLOUR CONTROL IN ACCORDANCE WITH AS3610.1.

NON–VISIBLE FORMED SURFACES SHALL USE CLASS 5 FORMWORK WITH NON–COLOUR CONTROL IN ACCORDANCE WITH AS3610.1.

C32 FORMWORK TIE HOLES ARE TO BE ROUGHENED AND FILLED WITH EPIREZ 633 EPOXY OR EQUIVALENT AND GROUND FLUSH.

C33 UNLESS NOTED OTHERWISE ON THE DRAWING THE FOLLOWING FINISHES SHALL APPLY TO UNFORMED CONCRETE SURFACES:

FINISH U1 – WOOD FLOATED FINISH

TOPS OF COVERED FOOTINGS AND PEDESTALS UNDER GROUT.

A WOOD FLOATED FINISH TO PRODUCE A UNIFORM SURFACE WITHOUT SURFACE PITTING OR CAVITIES.

MAXIMUM ALLOWABLE SURFACE IRREGULARITIES:

5MM ABRUPT OR 15mm OVER A 3m STRAIGHT EDGE

FINISH U3 – STEEL TROWELLED FINISH

TOPS OF EXPOSED FOOTINGS, SLABS, WALLS, STAIR TREADS AND PAVEMENTS.

A HIGH QUALITY MECHANICAL STEEL TROWELLED FINISH HAVING A DENSE IMPERVIOUS FINISH WITHOUT SURFACE PITTING OR CAVITIES.

MAXIMUM ALLOWABLE SURFACE IRREGULARITIES:

2mm ABRUPT OR 5MM IN A 3m TEMPLATE

NOTE: ALL U3 TRAFFICABLE SLABS AND FOUNDATIONS SHALL BE LIGHTLY BROOMED AFTER POWER TROWELLING TO ACHIEVE A NON–SLIP SURFACE.

C34 SHRINKAGE CONTROL JOINTS IN SLABS (WHERE SHOWN ON THE DRAWINGS) SHALL BE SAWCUT WITHIN 24 HOURS OF CONCRETE PACEMENT.

C35 A MINIMUM OF 24 HOURS NOTICE IS TO BE GIVEN TO THE ENGINEER FOR THE INSPECTION OF REINFORCEMENT.

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PROJECT No. ALPS-74

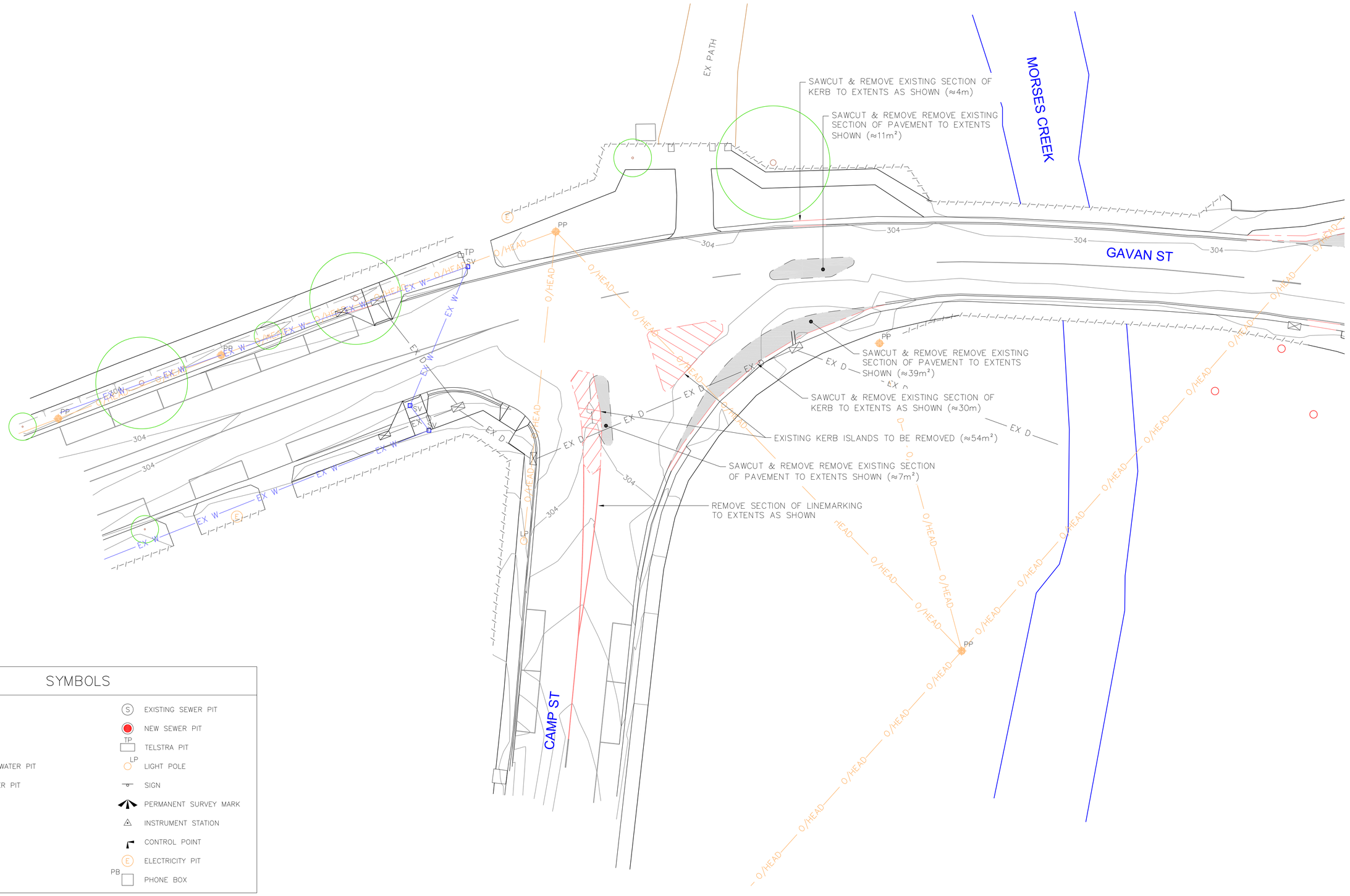
DRAWING No. ALPS74-101

DATUM AHD | GRID GDA–94

ALPINE SHIRE COUNCIL

GAVAN ST, BRIGHT, VIC, 3741
INTERSECTION REALIGNMENTS
GENERAL NOTES

SHEET: 1 of 1 | A1



SYMBOLS

- TREE
- POST/BOLLARD
- NEW BOLLARD
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- STOP VALVE
- HYDRANT
- WATER METER
- WATER TAP
- GATE
- EXISTING SEWER PIT
- NEW SEWER PIT
- TELSTRA PIT
- LIGHT POLE
- SIGN
- PERMANENT SURVEY MARK
- INSTRUMENT STATION
- CONTROL POINT
- ELECTRICITY PIT
- PHONE BOX

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1:200 (A1)
1:400 (A3)
0 5 10m
SCALEBAR (m)

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PROJECT No. ALPS-74
DRAWING No. ALPS74-102
DATUM AHD
GRID GDA-94

ALPINE SHIRE COUNCIL

GAVAN ST, BRIGHT, VIC, 3741
INTERSECTION REALIGNMENTS
DEMOLITION PLAN (SHEET 1)

SHEET: 1 of 1 A1

SYMBOLS

- TREE
- POST/BOLLARD
- NEW BOLLARD
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- STOP VALVE
- HYDRANT
- WATER METER
- WATER TAP
- GATE
- EXISTING SEWER PIT
- NEW SEWER PIT
- TELSTRA PIT
- LIGHT POLE
- SIGN
- PERMANENT SURVEY MARK
- INSTRUMENT STATION
- CONTROL POINT
- ELECTRICITY PIT
- PHONE BOX

MOUNTBATTEN AVENUE.

MORSES CREEK

GAVAN ST

REMOVE SECTION OF LINEMARKING TO EXTENTS AS SHOWN

EXISTING KERB ISLAND TO BE REMOVED (≈97m²)

SAWCUT & REMOVE EXISTING SECTION OF KERB TO EXTENTS AS SHOWN (≈27m)

SAWCUT & REMOVE EXISTING SECTION OF PAVEMENT TO EXTENTS AS SHOWN (≈37m²)

SAWCUT & REMOVE EXISTING SECTION OF KERB TO EXTENTS AS SHOWN (≈4m)

EXISTING PERMANENT SURVEY MARK TO BE RELOCATED

SAWCUT & REMOVE EXISTING SECTION OF PAVEMENT TO EXTENTS AS SHOWN (≈4m²)

SAWCUT & REMOVE EXISTING SECTION OF KERB TO EXTENTS AS SHOWN (≈39m)

SAWCUT & REMOVE EXISTING SECTION OF PAVEMENT TO EXTENTS AS SHOWN (≈445m²)

SAWCUT & REMOVE EXISTING SECTION OF ASPHALT PATH TO EXTENTS AS SHOWN (≈39m²)

SAWCUT & REMOVE EXISTING SECTION OF PAVEMENT TO EXTENTS AS SHOWN (≈11m²)

SAWCUT & REMOVE EXISTING SECTION OF PAVEMENT TO EXTENTS AS SHOWN (≈51m²)

SAWCUT & REMOVE EXISTING SECTION OF KERB TO EXTENTS AS SHOWN (≈36m)

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1:400 (A3)
SCALEBAR (m) 0 5 10m

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PROJECT No. ALPS-74
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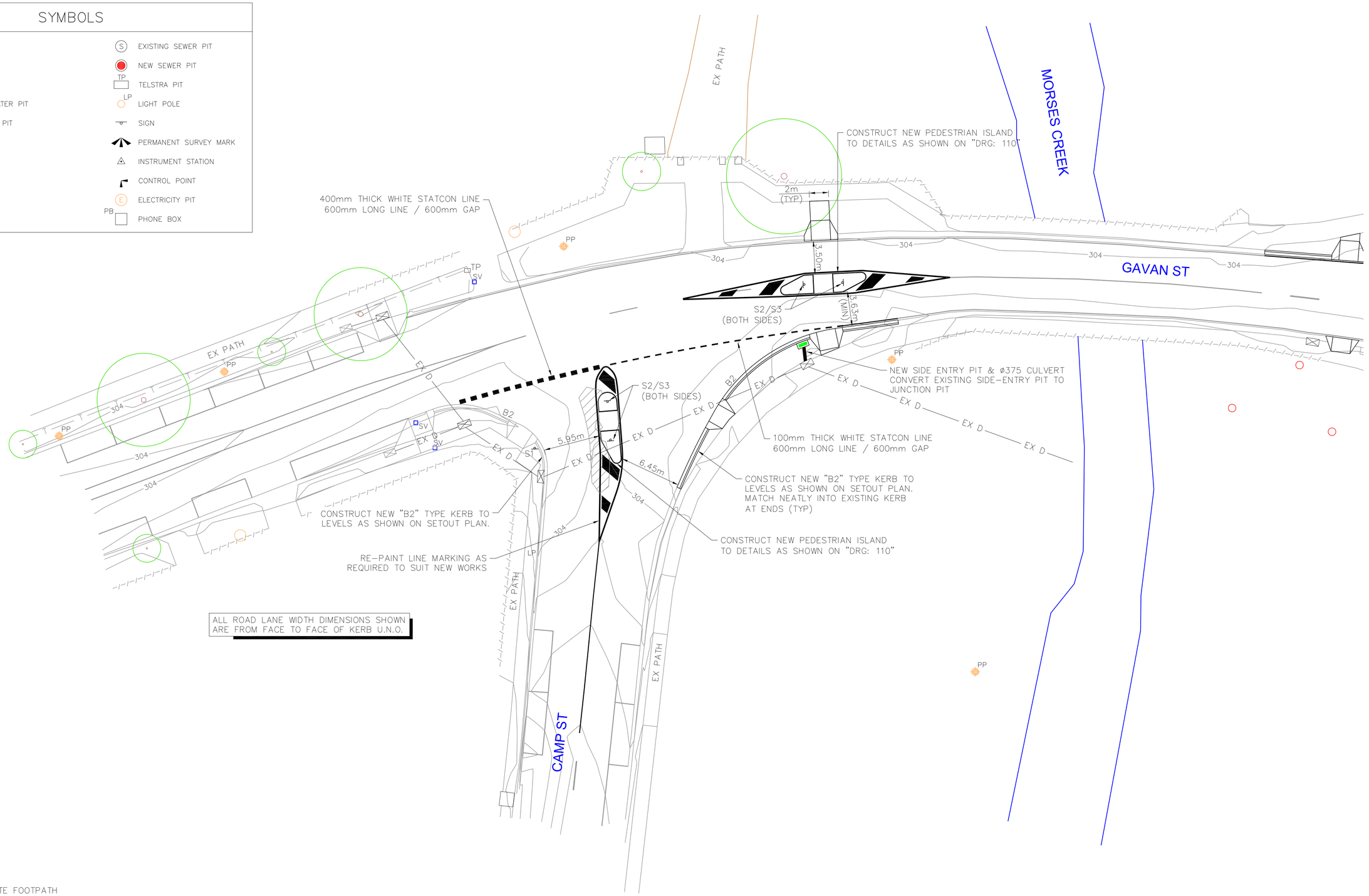
ALPINE SHIRE COUNCIL

GAVAN ST, BRIGHT, VIC, 3741
INTERSECTION REALIGNMENTS
DEMOLITION PLAN (SHEET 2)

SHEET: 1 of 1 | A1

SYMBOLS

TREE	EXISTING SEWER PIT
POST/BOLLARD	NEW SEWER PIT
NEW BOLLARD	TELSTRA PIT
EXISTING STORMWATER PIT	LIGHT POLE
NEW STORMWATER PIT	SIGN
STOP VALVE	PERMANENT SURVEY MARK
HYDRANT	INSTRUMENT STATION
WATER METER	CONTROL POINT
WATER TAP	ELECTRICITY PIT
GATE	PHONE BOX



ALL ROAD LANE WIDTH DIMENSIONS SHOWN ARE FROM FACE TO FACE OF KERB U.N.O.

– NEW CONCRETE FOOTPATH

– NEW ASPHALT PAVEMENT

REVISIONS			REVISIONS		
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DRAWING No. ALPS74-104
DATUM AHD
GRID GDA-94

ALPINE SHIRE COUNCIL

GAVAN ST, BRIGHT, VIC, 3741
INTERSECTION REALIGNMENTS
NEW LAYOUT (SHEET 1)

SHEET: 1 of 1 A1

SYMBOLS

- TREE
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- NEW BOLLARD
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- STOP VALVE
- HYDRANT
- WATER METER
- WATER TAP
- GATE
- EXISTING SEWER PIT
- NEW SEWER PIT
- TELSTRA PIT
- LIGHT POLE
- SIGN
- PERMANENT SURVEY MARK
- INSTRUMENT STATION
- CONTROL POINT
- ELECTRICITY PIT
- PHONE BOX

ALL ROAD LANE WIDTH DIMENSIONS SHOWN ARE FROM FACE TO FACE OF KERB U.N.O.

NEW LINE MARKING (BY OTHERS)

RE-PAINT LINE MARKING AS REQUIRED TO SUIT NEW WORKS

CONSTRUCT NEW PEDESTRIAN ISLAND WITH "SM2" TYPE KERB TO DETAILS AS SHOWN ON "DRG: 110"

CONSTRUCT NEW "B2" TYPE KERB TO LEVELS AS SHOWN ON SETOUT PLAN.

400mm THICK WHITE STATCON LINE
600mm LONG LINE / 600mm GAP

CONSTRUCT NEW 125TH CONCRETE PATH TO LEVELS AS SHOWN ON SETOUT PLAN. PROVIDE SAWCUT JOINTS AT RATIO NO GREATER THAN 2:1 (REFER DETAIL ON "DRG: 109")

CONSTRUCT NEW "M2" TYPE KERB TO LEVELS AS SHOWN ON SETOUT PLAN.

CONSTRUCT NEW "B1" TYPE KERB TO LEVELS AS SHOWN ON SETOUT PLAN.

NEW LONG VEHICLE PARKING BAY

100mm THICK WHITE STATCON LINE
600mm LONG LINE / 600mm GAP

CONSTRUCT NEW "B2" TYPE KERB TO LEVELS AS SHOWN ON SETOUT PLAN. MATCH NEATLY INTO EXISTING KERB AT BOTH ENDS (TYP)

CONSTRUCT NEW PEDESTRIAN ISLAND TO DETAILS AS SHOWN ON "DRG: 110"

NEW SIDE ENTRY PIT & ø375 CULVERT
CONVERT EXISTING SIDE-ENTRY PIT TO JUNCTION PIT

MOUNTBATTEN AVENUE.

MORSES CREEK

GAVAN ST

EX PATH

NEW CONCRETE PATH

EX D

EX D

6.78m

8.69m

11.4m

14.2m

5.22m

4.16m

3.5m

9.7m

6.3

20m (MIN)

6.0m

5.4m

3% FALL

S1

S2/S3 (BOTH SIDES)

SM1

B1

B2

M2

303

304

– NEW CONCRETE FOOTPATH

– NEW ASPHALT PAVEMENT

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PROJECT No. ALPS-74

DRAWING No. ALPS74-105

DATUM AHD | GRID GDA-94

ALPINE SHIRE COUNCIL

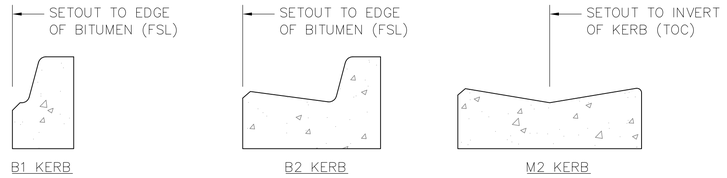
GAVAN ST, BRIGHT, VIC, 3741
INTERSECTION REALIGNMENTS
NEW LAYOUT (SHEET 2)

SHEET: 1 of 1 | A1

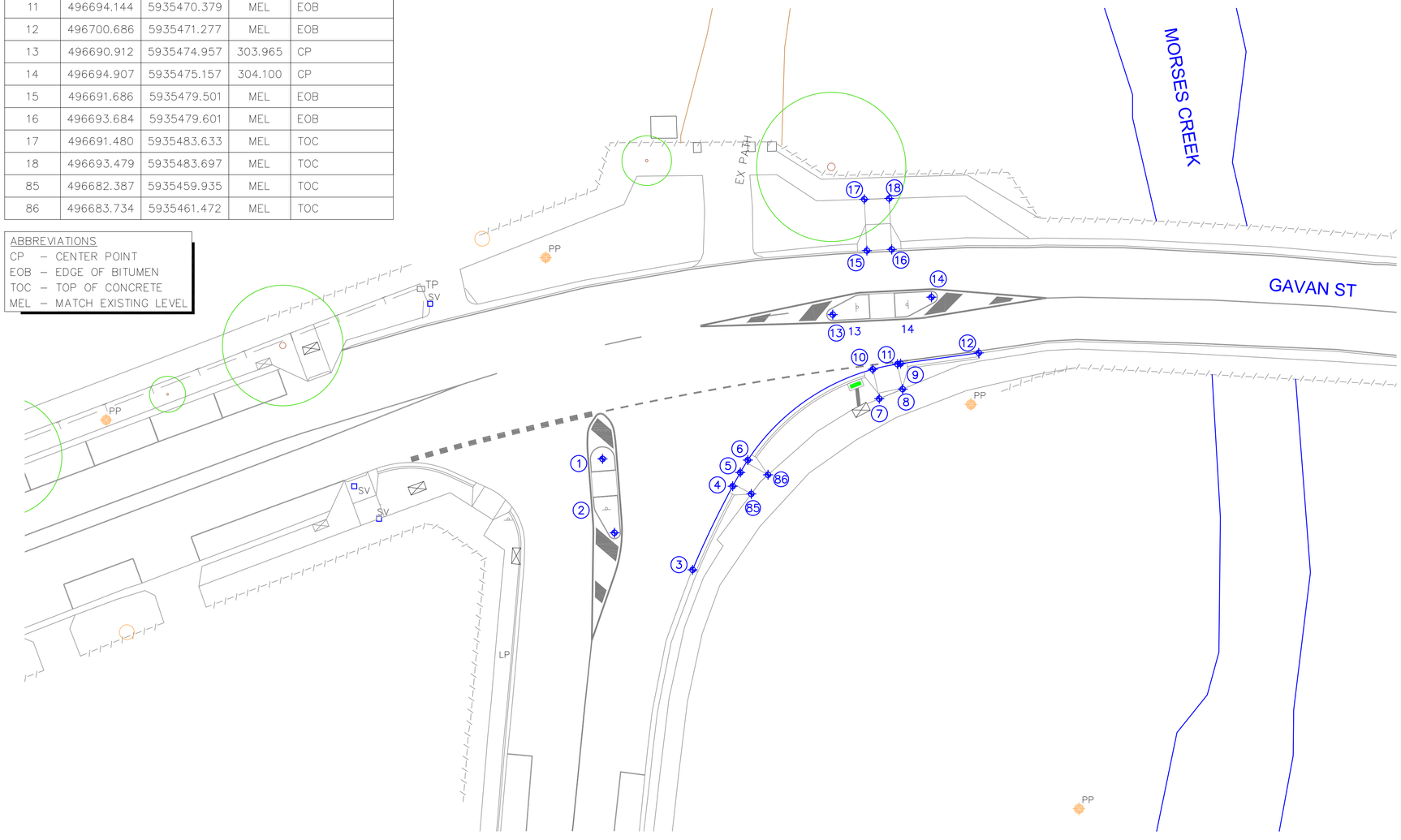
POINT TABLE

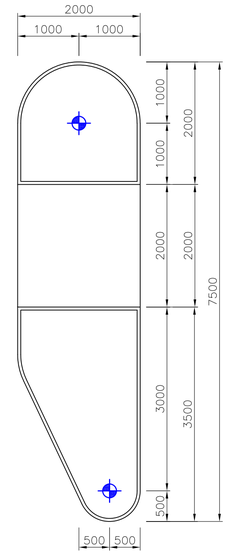
POINT #	EASTING	NORTHING	RL	DESCRIPTION
1	496670.419	5935462.750	303.960	CP
2	496670.728	5935458.762	304.020	CP
3	496677.664	5935453.831	MEL	EOB
4	496680.888	5935460.553	MEL	EOB
5	496681.500	5935461.658	MEL	EOB
6	496682.107	5935462.654	MEL	EOB
7	496692.682	5935467.590	MEL	TOC
8	496694.562	5935468.368	MEL	TOC
9	496694.400	5935470.416	MEL	EOB
10	496692.163	5935469.959	MEL	EOB
11	496694.144	5935470.379	MEL	EOB
12	496700.686	5935471.277	MEL	EOB
13	496690.912	5935474.957	303.965	CP
14	496694.907	5935475.157	304.100	CP
15	496691.686	5935479.501	MEL	EOB
16	496693.684	5935479.601	MEL	EOB
17	496691.480	5935483.633	MEL	TOC
18	496693.479	5935483.697	MEL	TOC
85	496682.387	5935459.935	MEL	TOC
86	496683.734	5935461.472	MEL	TOC

ABBREVIATIONS
CP – CENTER POINT
EOB – EDGE OF BITUMEN
TOC – TOP OF CONCRETE
MEL – MATCH EXISTING LEVEL



B1 KERB B2 KERB M2 KERB





KERB ISLAND SETOUT DETAIL
SCALE 1:50

REVISIONS			REVISIONS		
No.	DETAILS	DATE	No.	DETAILS	DATE
A.	PRELIMINARY ISSUE	19/06/20			
0.	ISSUED FOR CONSTRUCTION	16/11/20			

Designed	S.P	11/20
Drawn	D.B	11/20
Checked		
Approved		

1:200 (A1) 1:400 (A3) SCALEBAR (m) 0 5 10m

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PROJECT No. ALPS-74
DRAWING No. ALPS74-106
DATUM AHD | GRID GDA-94

ALPINE SHIRE COUNCIL

GAVAN ST, BRIGHT, VIC, 3741
INTERSECTION REALIGNMENTS
SETOUT PLAN (SHEET 1)

SHEET: 1 of 1 | A1

POINT TABLE

POINT #	EASTING	NORTHING	RL	DESCRIPTION
19	496746.021	5935469.508	MEL	EOB
20	496748.001	5935469.226	MEL	EOB
21	496745.812	5935468.035	MEL	TOC
22	496747.792	5935467.754	MEL	TOC
23	496758.853	5935466.931	MEL	EOB
24	496763.707	5935465.861	MEL	EOB
25	496771.098	5935463.620	MEL	EOB
26	496779.510	5935460.342	MEL	EOB
27	496781.373	5935459.616	MEL	EOB
28	496782.067	5935459.332	MEL	EOB
29	496783.212	5935456.594	MEL	EOB
30	496777.825	5935456.021	MEL	TOC
31	496779.893	5935455.819	MEL	TOC
32	496800.425	5935448.450	MEL	EOB
33	496806.680	5935445.114	MEL	EOB
34	496780.220	5935465.857	304.145	CP
35	496783.905	5935464.295	304.180	CP
36	496738.900	5935478.106	MEL	EOB
37	496746.636	5935477.505	MEL	EOB
38	496748.630	5935477.350	MEL	EOB
39	496750.811	5935477.180	MEL	EOB
40	496759.132	5935480.589	MEL	EOB
41	496760.260	5935482.178	MEL	EOB
42	496760.373	5935482.372	MEL	EOB
43	496763.358	5935487.576	MEL	EOB
44	496746.820	5935479.879	MEL	TOC
45	496748.859	5935480.296	MEL	TOC
46	496753.196	5935481.829	MEL	TOC
47	496757.163	5935482.084	MEL	TOC
48	496757.756	5935484.105	MEL	TOC
49	496768.696	5935477.569	304.150	CP
50	496769.514	5935481.484	304.130	CP
51	496781.702	5935500.175	MEL	EOB
52	496779.753	5935496.851	MEL	EOB
53	496779.528	5935494.326	MEL	EOB
54	496783.643	5935499.693	MEL	TOC
55	496779.108	5935478.458	MEL	EOB
56	496779.096	5935477.985	MEL	EOB
57	496779.237	5935476.388	MEL	EOB
58	496783.100	5935471.462	MEL	EOB
59	496783.232	5935471.411	MEL	EOB
60	496784.890	5935470.669	MEL	EOB
61	496785.790	5935470.594	MEL	EOB
62	496789.699	5935472.085	304.325	EOB
63	496791.115	5935472.044	304.325	EOB
64	496783.059	5935481.302	304.160	TOC

POINT #	EASTING	NORTHING	RL	DESCRIPTION
65	496781.307	5935478.550	304.225	TOC
66	496782.212	5935476.592	304.290	TOC
67	496784.137	5935473.777	304.315	TOC
68	496786.806	5935474.843	304.390	TOC
69	496789.464	5935475.844	304.450	TOC
70	496785.353	5935481.030	304.220	TOC
71	496785.791	5935480.144	304.310	TOC
72	496786.701	5935479.308	303.990	TOC
73	496806.075	5935461.180	MEL	EOB
74	496817.617	5935455.919	MEL	EOB
75	496829.100	5935449.103	MEL	EOB
76	496807.628	5935464.648	304.520	EOB
77	496815.387	5935460.984	304.635	EOB
78	496816.328	5935459.881	304.635	EOB
79	496816.810	5935463.325	MEL	TOC
80	496819.662	5935461.726	MEL	TOC
81	496817.642	5935465.144	MEL	TOC
82	496820.780	5935463.384	MEL	TOC
83	496786.339	5935518.829	MEL	TOC
84	496788.298	5935518.426	MEL	TOC

ABBREVIATIONS
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TOC – TOP OF CONCRETE
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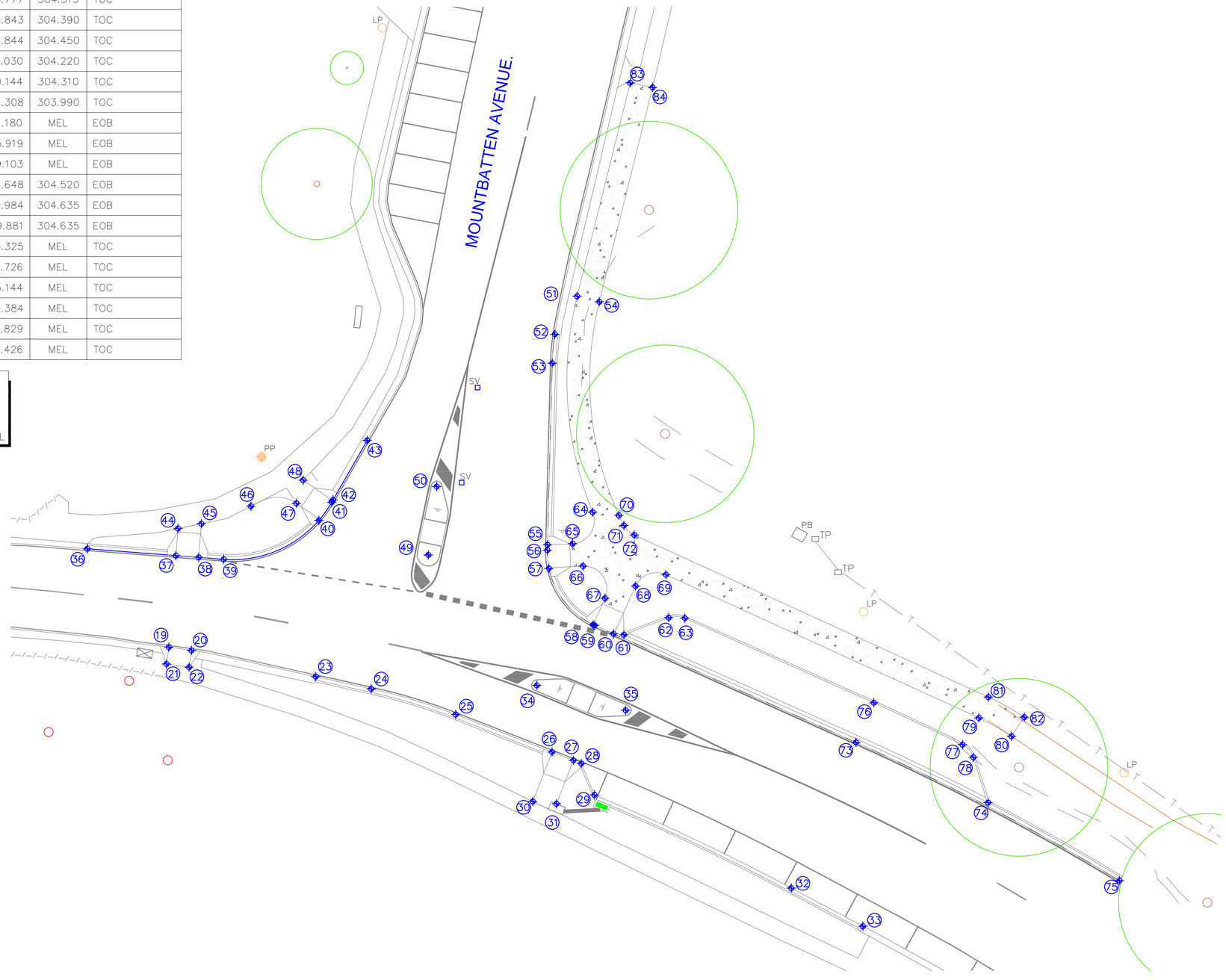

REVISIONS			REVISIONS		
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Checked		
Approved		

1:200 (A1) 1:400 (A3) SCALEBAR (m) 0 5 10m

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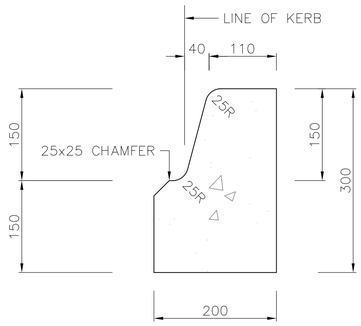
PROJECT No. ALPS-74
DRAWING No. ALPS74-107
DATUM AHD GRID GDA-94

ALPINE SHIRE COUNCIL
GAVAN ST, BRIGHT, VIC, 3741
INTERSECTION REALIGNMENTS
SETOUT PLAN (SHEET 2)

SHEET: 1 of 1 A1



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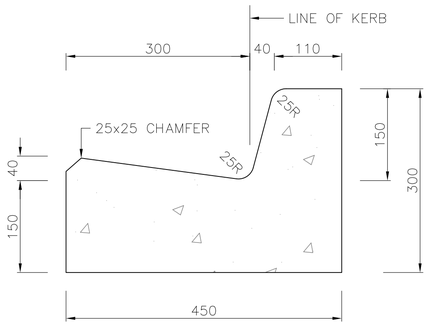

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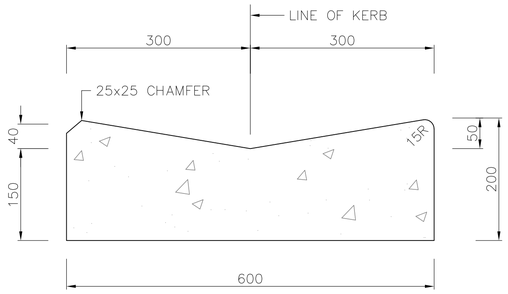
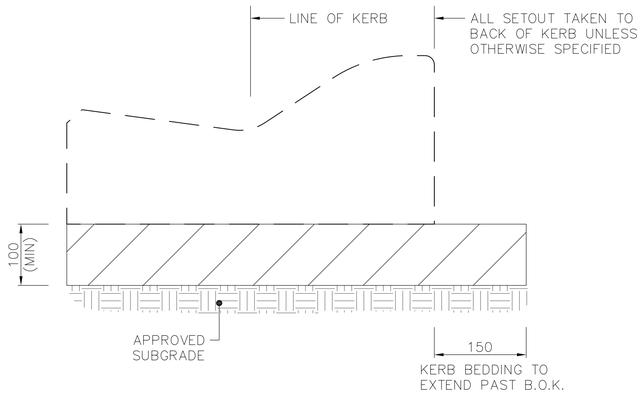
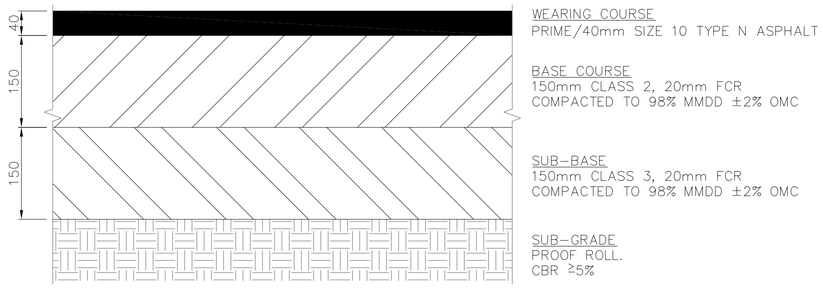


M2

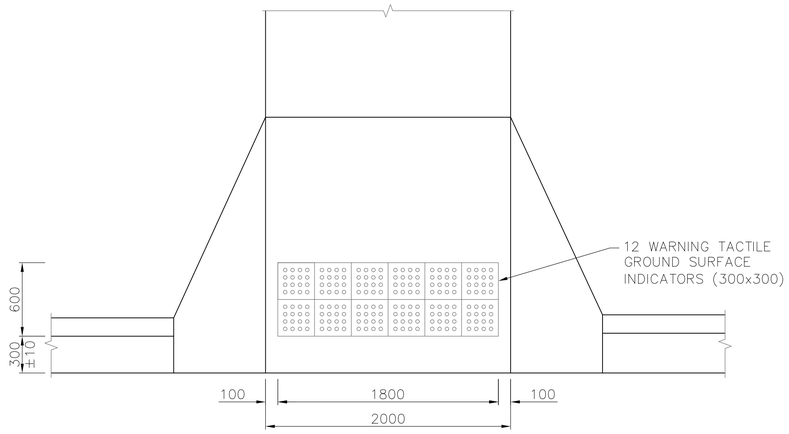
TYPICAL KERB PROFILES
SCALE 1:5



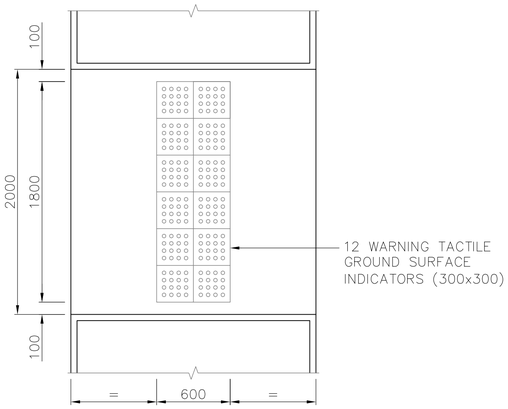
TYPICAL KERB BEDDING DETAIL
SCALE 1:5



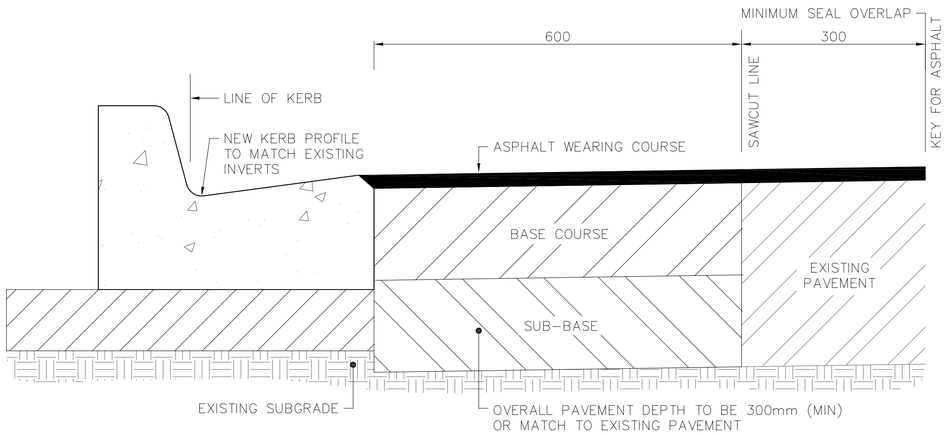
ASPHALT PAVEMENT MAKE UP
SCALE 1:5



TACTILE MARKERS AT REFUGE ISLANDS



TACTILE MARKERS AT REFUGE ISLANDS



KERB & CHANNEL INSTALLATION ABUTTING EXISTING PAVEMENT
SCALE 1:5

REVISIONS			REVISIONS		
No.	DETAILS	DATE	No.	DETAILS	DATE
A.	PRELIMINARY ISSUE	19/06/20			
0.	ISSUED FOR CONSTRUCTION	16/11/20			

Designed	S.P	11/20
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1:5 (A1)
1:10 (A3)
0 0.05 0.2m
SCALEBAR (m)

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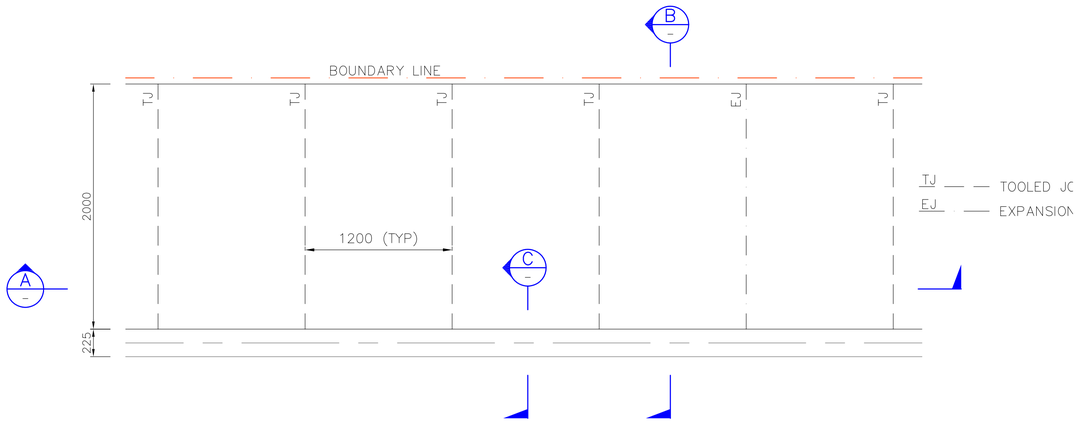
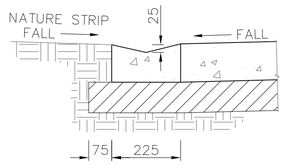
PROJECT No. ALPS-74
DRAWING No. ALPS74-108
DATUM AHD
GRID GDA-94

ALPINE SHIRE COUNCIL
GAVAN ST, BRIGHT, VIC, 3741
INTERSECTION REALIGNMENTS
KERB & PAVEMETN DETAILS

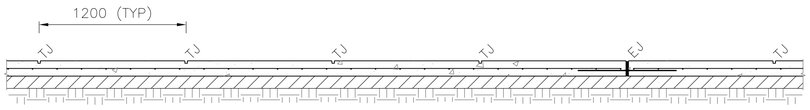
SHEET: 1 of 1 A1



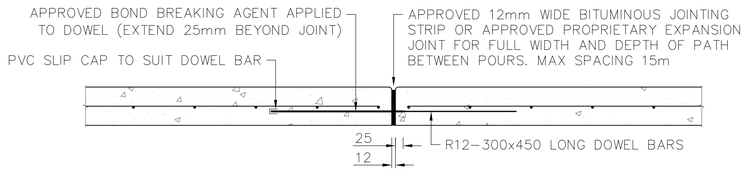
TYPICAL FOOTPATH ARRANGEMENT
SCALE 1:25



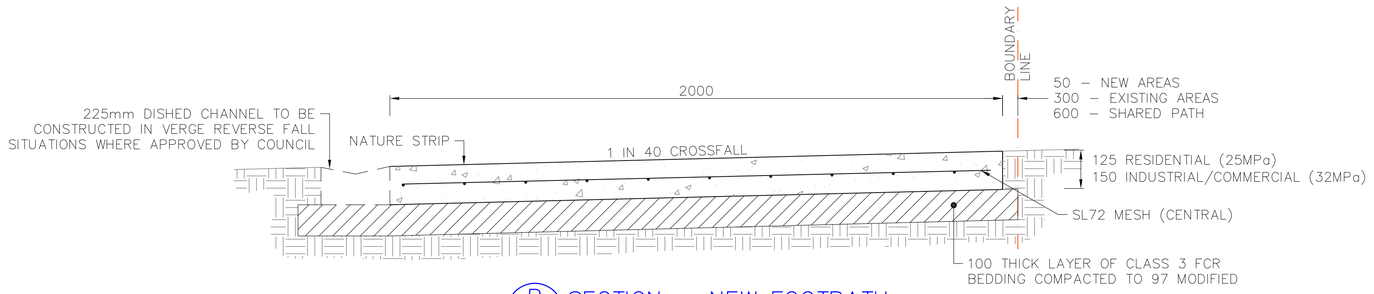
C SECTION – NEW DISHED CHANNEL
SCALE 1:10



A SECTION – NEW FOOTPATH
SCALE 1:25



EJ – EXPANSION JOINT DETAIL
SCALE 1:10



B SECTION – NEW FOOTPATH
SCALE 1:10

REVISIONS			REVISIONS		
No.	DETAILS	DATE	No.	DETAILS	DATE
A.	PRELIMINARY ISSUE	19/06/20			
0.	ISSUED FOR CONSTRUCTION	16/11/20			

Designed	S.P	11/20
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1:10 (A1)
1:20 (A3)
0 0.25 0.5m
SCALEBAR (m)

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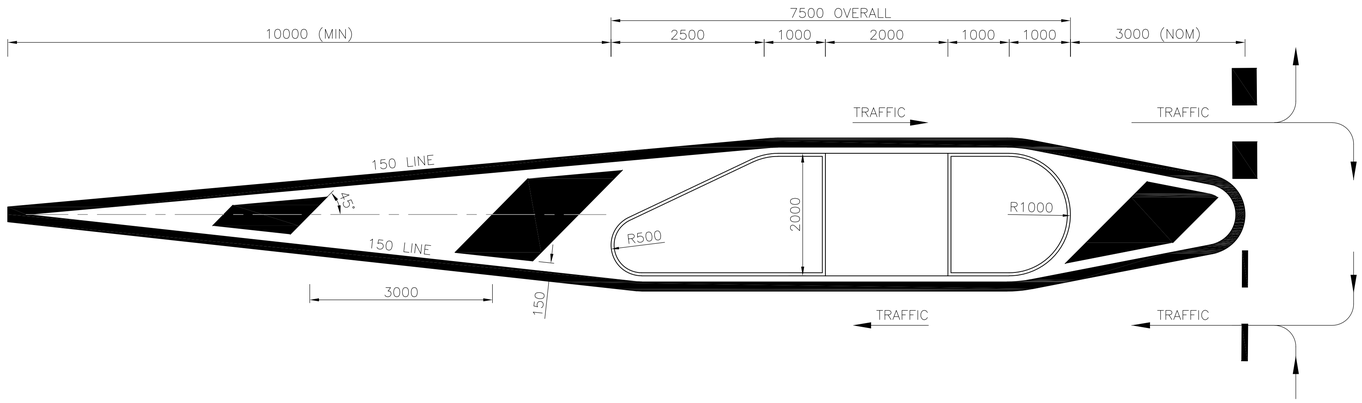
PROJECT No. ALPS-74
DRAWING No. ALPS74-109
DATUM AHD
GRID GDA–94

ALPINE SHIRE COUNCIL

GAVAN ST, BRIGHT, VIC, 3741
INTERSECTION REALIGNMENTS
FOOTPATH DETAILS

SHEET: 1 of 1 | A1

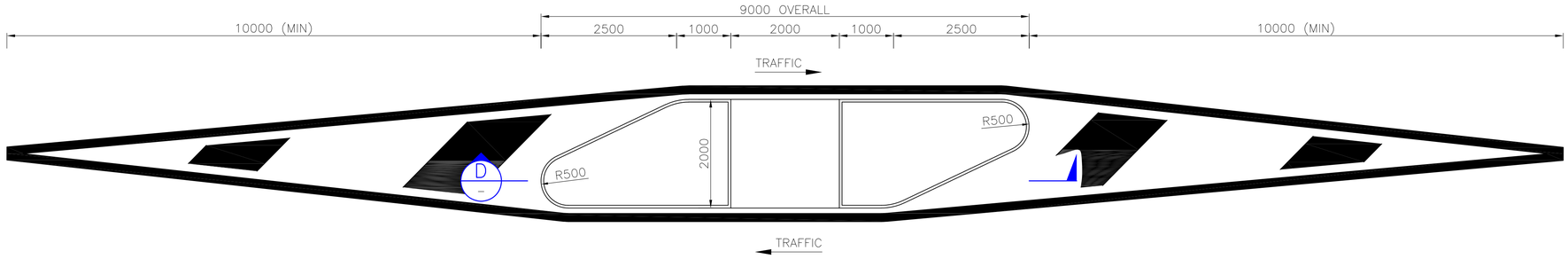


TYPICAL PEDESTRIAN REFUGE LAYOUT – INTERSECTION
SCALE 1:50

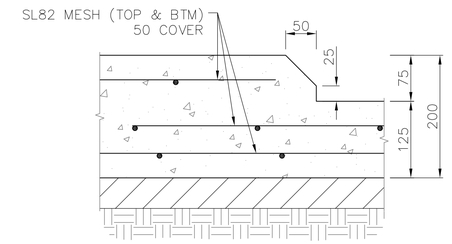
S1 – GIVE WAY

S2 – KEEP LEFT
(TO VIROADS "DRG: R2–V122")

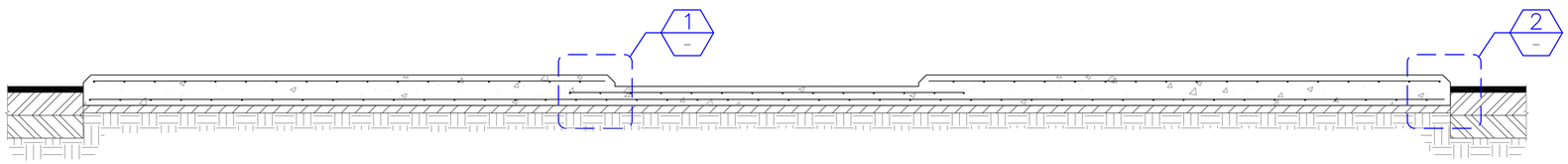
S3 – CHEVRON
(TO VIROADS "DRG: R2–V122")



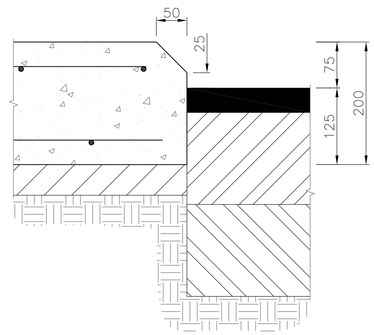
TYPICAL PEDESTRIAN REFUGE LAYOUT – THROUGH ROAD
SCALE 1:50



1 DETAIL – TYPICAL PEDESTRIAN REFUGE
SCALE 1:5



D SECTION – TYPICAL PEDESTRIAN REFUGE
SCALE 1:20



2 DETAIL – TYPICAL PEDESTRIAN REFUGE
SCALE 1:5

REVISIONS			REVISIONS		
No.	DETAILS	DATE	No.	DETAILS	DATE
A.	ISSUED FOR APPROVAL	02/09/20			
0.	ISSUED FOR CONSTRUCTION	16/11/20			

Designed	S.P	11/20
Drawn	D.B	11/20
Checked		
Approved		

1:50 (A1)
1:100 (A3)
SCALEBAR (m) 0 1 2m

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PROJECT No. ALPS-74
DRAWING No. ALPS74-110
DATUM AHD
GRID GDA–94

ALPINE SHIRE COUNCIL

GAVAN ST, BRIGHT, VIC, 3741
INTERSECTION REALIGNMENTS
PEDESTRIAN REFUGE & SIGNAGE

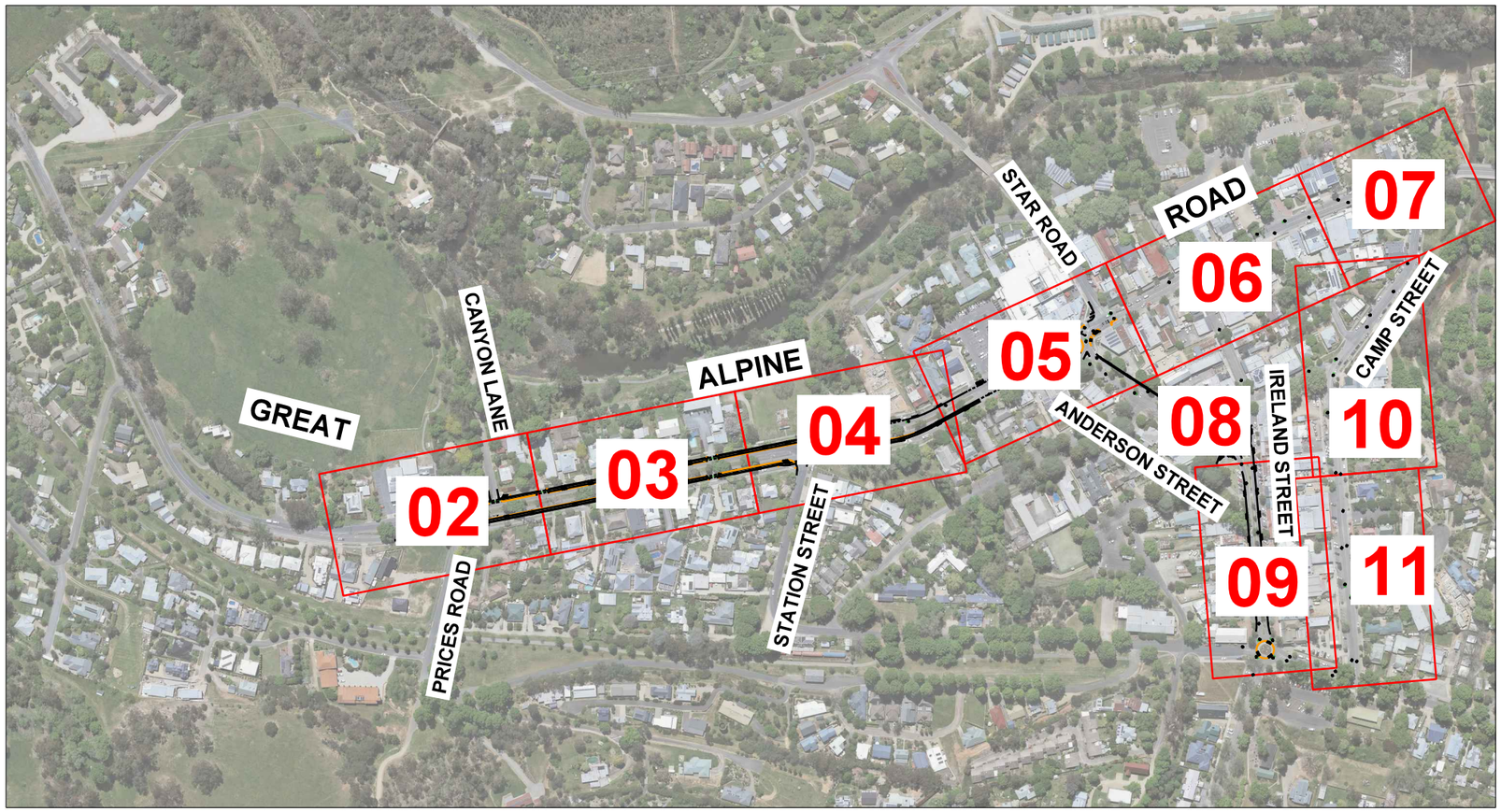
SHEET: 1 of 1 A1

Appendix B GTA/Stantec/DoT Bicycle Infrastructure Functional Designs

GREAT ALPINE ROAD, BRIGHT

BRIGHT ON ROAD BICYCLE INFRASTRUCTURE PACKAGE

FUNCTIONAL DESIGN



PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

PLOTTED BY : hstevenson ON 2/09/2021 AT 10:49:54 AM

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P2	02.09.21	UPDATES FOLLOWING COUNCIL'S COMMENTS	H.S.	J.L.	J.L.
P1	30.08.21	INITIAL ISSUE	H.S.	J.L.	J.L.

GENERAL NOTES
1. ALL DIMENSIONS AND RADII ARE IN METRES AND ARE TO THE FACE OF KERB AND CHANNEL.

2. BASE INFORMATION OBTAINED FROM ALPINE SHIRE COUNCIL AERIAL PHOTOGRAPHY FROM 05 MAY 2019 GTA NOW STANTEC DOES NOT TAKE ANY RESPONSIBILITY FOR THE ACCURACY OF THE EXISTING CONDITIONS BASE (AERIAL PHOTOGRAPHY) ON WHICH THE SETOUT DETAIL IS BASED. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE EXISTING CONDITIONS INCLUDING UNDERGROUND SERVICES SHOULD BE VERIFIED ON SITE.

3. DECLARED MAIN ROAD - GREAT ALPINE ROAD / GAVIN STREET - SPEED ZONE - 50KM/H AND 60KM/H
DECLARED MAIN ROAD - ANDERSON STREET - SPEED ZONE - 40KM/H
DECLARED MAIN ROAD - IRELAND STREET - SPEED ZONE - 40KM/H

4. DESIGN VEHICLE - 8.8M MRV CHECKING VEHICLE - 12.5M HRV

DESIGNED: H. STEVENSON	DESIGN CHECK: -
DRAWN: H. STEVENSON	DRAFTING CHECK: -
APPROVED BY: -	DATE APPROVED FOR INITIAL ISSUE: 30 AUGUST 2021
SCALE A3 Hor. 0 50 100 1:5000	CAD FILE NO. V205441-BRI-02-P2.dgn

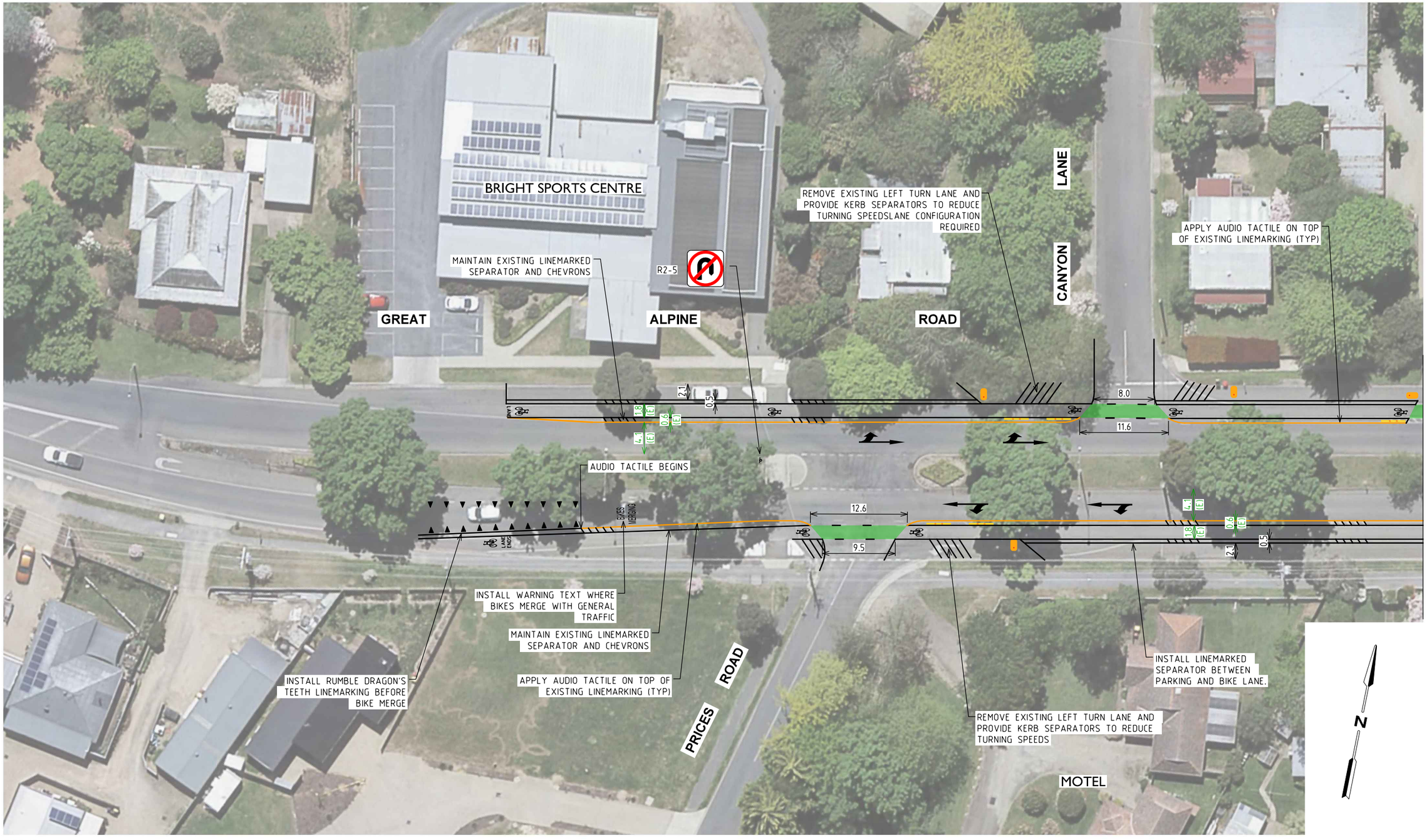
GTA consultants
NOW
Stantec

CLIENT DEPARTMENT OF TRANSPORT

GREAT ALPINE ROAD
ON ROAD BICYCLE INFRASTRUCTURE

BRIGHT
FRONT COVER

MAP REF.	DRAWING NO.	SHEET	ISSUE
-	V205441-BRI-02-01	01 OF 11	P2



FOR CONTINUATION REFER TO V205441-BRI-01-03

LEGEND

- PROPOSED 150MM WHITE LINEMARKING
- PROPOSED WHITE AUDIO TACTILE
- PROPOSED YELLOW BICYCLE SYMBOL
- PROPOSED 3.2m x 300mm SEPARATOR WITH REFELCTIVE BOLLARD
- PROPOSED 1.5m x 800mm SEPARATOR WITH REFELCTIVE BOLLARD

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

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PLOTTED BY : hstevenson ON 2/09/2021 AT 10:49:55 AM

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
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P1	30.08.21	INITIAL ISSUE	H.S.	J.L.	J.L.

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1. ALL DIMENSIONS AND RADII ARE IN METRES AND ARE TO THE FACE OF KERB AND CHANNEL.

2. BASE INFORMATION OBTAINED FROM ALPINE SHIRE COUNCIL AERIAL PHOTOGRAPHY FROM 05 MAY 2019 GTA NOW STANTEC DOES NOT TAKE ANY RESPONSIBILITY FOR THE ACCURACY OF THE EXISTING CONDITIONS BASE (AERIAL PHOTOGRAPHY) ON WHICH THE SETOUT DETAIL IS BASED. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE EXISTING CONDITIONS INCLUDING UNDERGROUND SERVICES SHOULD BE VERIFIED ON SITE.

3. DECLARED MAIN ROAD - GREAT ALPINE ROAD / GAVIN STREET - SPEED ZONE 60KM/H
LOCAL ROAD - PRICES ROAD - SPEED ZONE - 40KM/H
LOCAL ROAD - CANYON LANE - SPEED ZONE - 40KM/H
4. DESIGN VEHICLE - 8.8M MRV CHECKING VEHICLE - 12.5M HRV

DESIGNED H. STEVENSON	DESIGN CHECK -
DRAWN H. STEVENSON	DRAFTING CHECK -
APPROVED BY -	DATE APPROVED FOR INITIAL ISSUE 30 AUGUST 2021
SCALE A3 Hor. 0 5 10 1:500	CAD FILE NO. V205441-BRI-02-P2.dgn

GTA consultants NOW Stantec

CLIENT DEPARTMENT OF TRANSPORT

GREAT ALPINE ROAD
ON ROAD BICYCLE INFRASTRUCTURE
PRICES ROAD / CANYON LANE
BRIGHT
FUNCTIONAL LAYOUT

MAP REF.	DRAWING NO.	SHEET	ISSUE
-	V205441-BRI-02-02	02 OF 11	P2

FOR CONTINUATION REFER TO V205441-BRI-01-02

FOR CONTINUATION REFER TO V205441-BRI-01-04

LEGEND

- PROPOSED 150MM WHITE LINEMARKING
- PROPOSED WHITE AUDIO TACTILE
- PROPOSED YELLOW BICYCLE SYMBOL
- PROPOSED 3.2m x 300mm SEPARATOR WITH REFELCTIVE BOLLARD
- PROPOSED 1.5m x 800mm SEPARATOR WITH REFELCTIVE BOLLARD

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY. SUBJECT TO CHANGE WITHOUT NOTIFICATION

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

PLOTTED BY : hstevenson ON 2/09/2021 AT 10:49:56 AM

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P2	02.09.21	UPDATES FOLLOWING COUNCIL'S COMMENTS	H.S.	J.L.	J.L.
P1	30.08.21	INITIAL ISSUE	H.S.	J.L.	J.L.

GENERAL NOTES
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3. DECLARED MAIN ROAD - GREAT ALPINE ROAD / GAVIN STREET - SPEED ZONE 60KM/H

4. DESIGN VEHICLE - 8.8M MRV CHECKING VEHICLE - 12.5M HRV

DESIGNED: H. STEVENSON	DESIGN CHECK: -
DRAWN: H. STEVENSON	DRAFTING CHECK: -
APPROVED BY: -	DATE APPROVED FOR INITIAL ISSUE: 30 AUGUST 2021
SCALE A3 Hor. 0 5 10 1:500	CAD FILE NO. V205441-BRI-02-P2.dgn

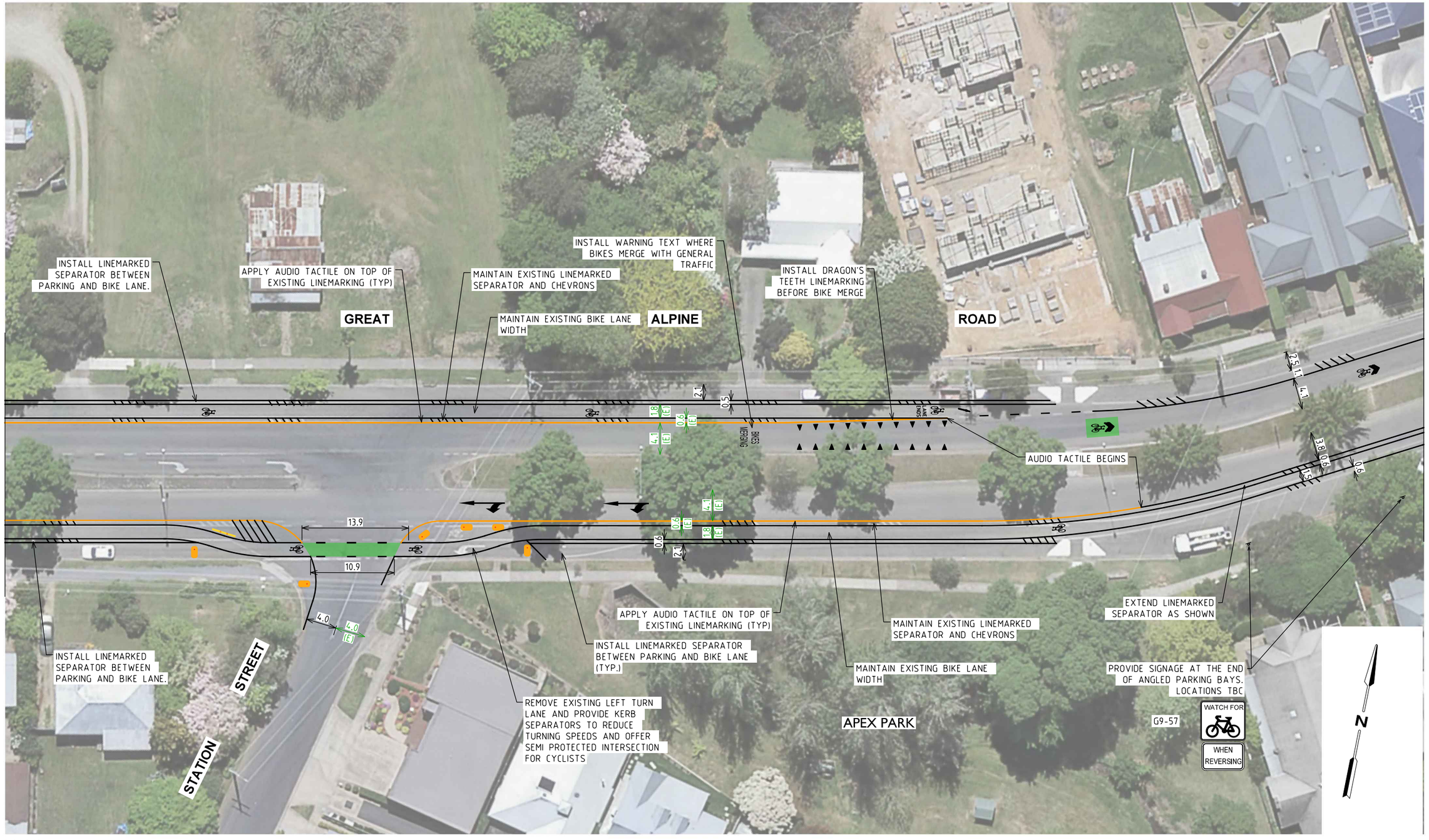
GTA consultants NOW Stantec

CLIENT DEPARTMENT OF TRANSPORT

GREAT ALPINE ROAD ON ROAD BICYCLE INFRASTRUCTURE

BRIGHT
FUNCTIONAL LAYOUT

MAP REF.	DRAWING NO.	SHEET	ISSUE
-	V205441-BRI-02-03	03 OF 11	P2



LEGEND

- PROPOSED 150MM WHITE LINEMARKING
- PROPOSED WHITE AUDIO TACTILE
- PROPOSED YELLOW BICYCLE SYMBOL
- PROPOSED 3.2m x 300mm SEPARATOR WITH REFELCTIVE BOLLARD
- PROPOSED 1.5m x 800mm SEPARATOR WITH REFELCTIVE BOLLARD

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

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PLOTTED BY : hstevenson ON 2/09/2021 AT 10:49:58 AM

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P2	02.09.21	UPDATES FOLLOWING COUNCIL'S COMMENTS	H.S.	J.L.	J.L.
P1	30.08.21	INITIAL ISSUE	H.S.	J.L.	J.L.

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3. DECLARED MAIN ROAD - GREAT ALPINE ROAD / GAVIN STREET - SPEED ZONE 60KM/H
LOCAL ROAD - STATION STREET - SPEED ZONE - 40KM/H

4. DESIGN VEHICLE - 8.8M MRV CHECKING VEHICLE - 12.5M HRV

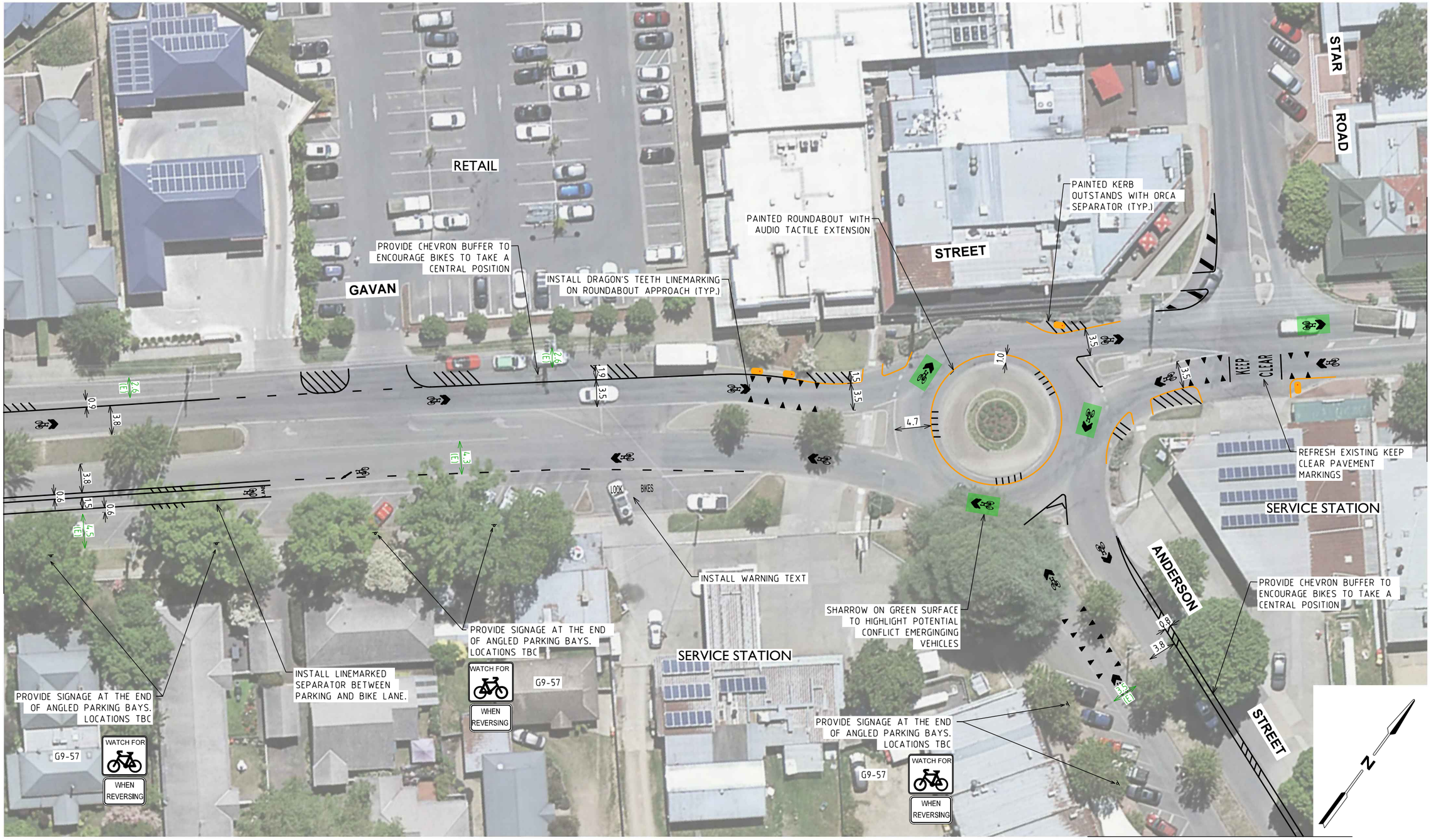
DESIGNED: H. STEVENSON	DESIGN CHECK: -
DRAWN: H. STEVENSON	DRAFTING CHECK: -
APPROVED BY: -	DATE APPROVED FOR INITIAL ISSUE: 30 AUGUST 2021
SCALE A3 Hor. 0 5 10 1:500	CAD FILE NO. V205441-BRI-02-P2.dgn

GTA consultants NOW Stantec

CLIENT DEPARTMENT OF TRANSPORT

GREAT ALPINE ROAD
ON ROAD BICYCLE INFRASTRUCTURE
STATION STREET
BRIGHT
FUNCTIONAL LAYOUT

MAP REF.	DRAWING NO.	SHEET	ISSUE
-	V205441-BRI-02-04	04 OF 11	P2



LEGEND

- PROPOSED 150MM WHITE LINEMARKING
- PROPOSED WHITE AUDIO TACTILE
- PROPOSED YELLOW BICYCLE SYMBOL
- PROPOSED 3.2m x 300mm SEPARATOR WITH REFELCTIVE BOLLARD
- PROPOSED 1.5m x 800mm SEPARATOR WITH REFELCTIVE BOLLARD

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

WARNING
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PLOTTED BY : hstevenson
DN 2/09/2021 AT 10:45:59 AM

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P2	02.09.21	UPDATES FOLLOWING COUNCIL'S COMMENTS	H.S.	J.L.	J.L.
P1	30.08.21	INITIAL ISSUE	H.S.	J.L.	J.L.

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3. DECLARED MAIN ROAD - GREAT ALPINE ROAD / GAVIN STREET - SPEED ZONE 50KM/H
DECLARED MAIN ROAD - ANDERSON STREET - SPEED ZONE - 40KM/H

4. DESIGN VEHICLE - 8.8M MRV CHECKING VEHICLE - 12.5M HRV

DESIGNED H. STEVENSON	DESIGN CHECK -
DRAWN H. STEVENSON	DRAFTING CHECK -
APPROVED BY -	DATE APPROVED FOR INITIAL ISSUE 30 AUGUST 2021
SCALE A3 Hor. 0 5 10 1:500	CAD FILE NO. V205441-BRI-02-P2.dgn

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CLIENT DEPARTMENT OF TRANSPORT

GREAT ALPINE ROAD
ON ROAD BICYCLE INFRASTRUCTURE
ANDERSON STREET
BRIGHT
FUNCTIONAL LAYOUT

MAP REF.	DRAWING NO.	SHEET	ISSUE
-	V205441-BRI-02-05	05 OF 11	P2

FOR CONTINUATION REFER TO V205441-BRI-01-05

FOR CONTINUATION REFER TO V205441-BRI-01-07

LEGEND

- PROPOSED 150MM WHITE LINEMARKING
- PROPOSED WHITE AUDIO TACTILE
- PROPOSED YELLOW BICYCLE SYMBOL
- PROPOSED 3.2m x 300mm SEPARATOR WITH REFELCTIVE BOLLARD
- PROPOSED 1.5m x 800mm SEPARATOR WITH REFELCTIVE BOLLARD

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

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PLOTTED BY : hstevenson ON 2/09/2021 AT 10:56:01 AM

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P2	02.09.21	UPDATES FOLLOWING COUNCIL'S COMMENTS	H.S.	J.L.	J.L.
P1	30.08.21	INITIAL ISSUE	H.S.	J.L.	J.L.

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3. DECLARED MAIN ROAD - GREAT ALPINE ROAD / GAVIN STREET - SPEED ZONE 50KM/H
LOCAL ROAD - BANARD STREET - SPEED ZONE - 40KM/H

4. DESIGN VEHICLE - 8.8M MRV CHECKING VEHICLE - 12.5M HRV

DESIGNED: H. STEVENSON	DESIGN CHECK: -
DRAWN: H. STEVENSON	DRAFTING CHECK: -
APPROVED BY: -	DATE APPROVED FOR INITIAL ISSUE: 30 AUGUST 2021
SCALE A3 Hor. 0 5 10 1:500	CAD FILE NO. V205441-BRI-02-P2.dgn

GTA consultants
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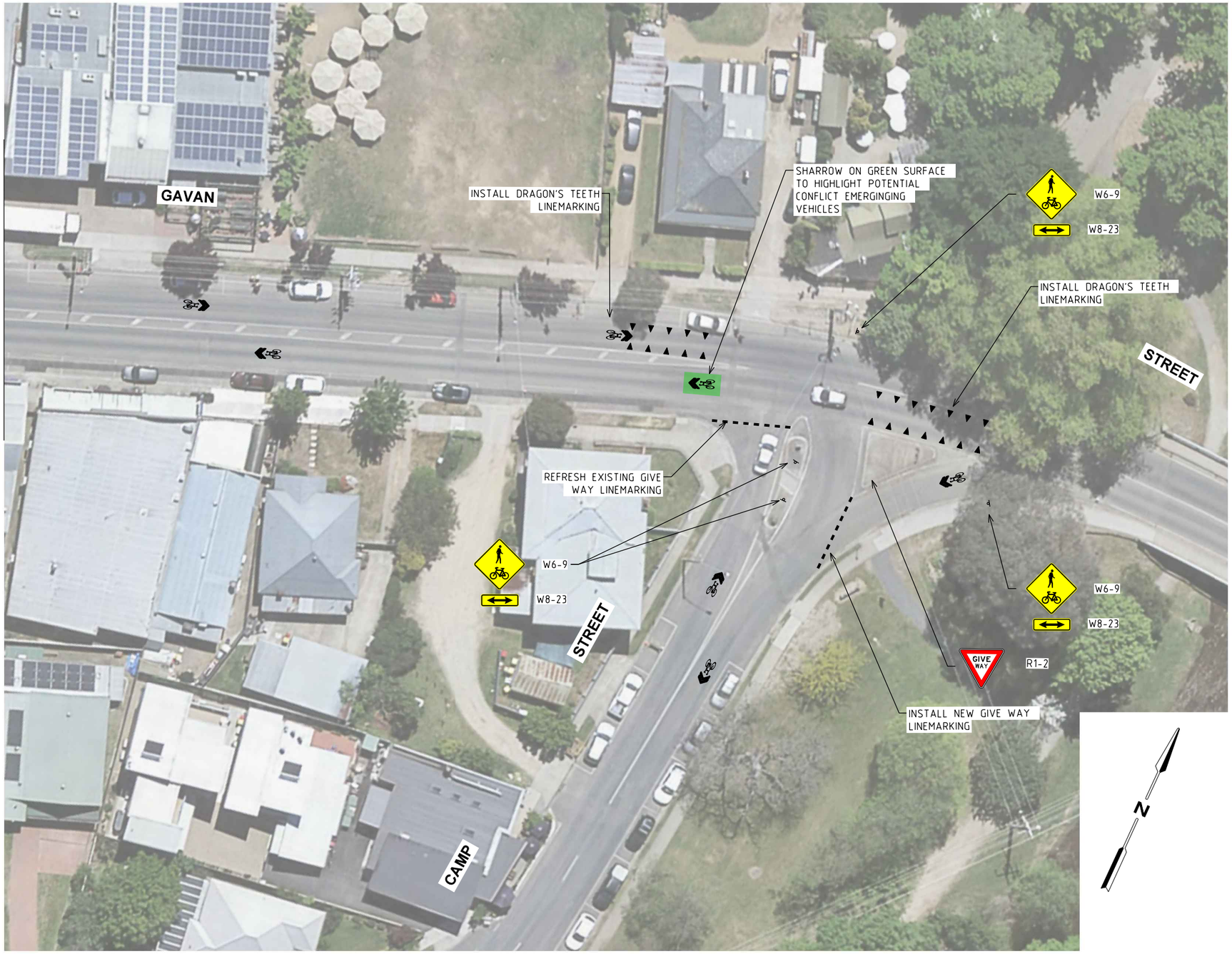
CLIENT DEPARTMENT OF TRANSPORT

GREAT ALPINE ROAD
ON ROAD BICYCLE INFRASTRUCTURE
BANARD STREET
BRIGHT
FUNCTIONAL LAYOUT

MAP REF.	DRAWING NO.	SHEET	ISSUE
-	V205441-BRI-02-06	06 OF 11	P2

FOR CONTINUATION REFER TO V205441-BRI-01-06



LEGEND

- PROPOSED 150MM WHITE LINEMARKING
- PROPOSED WHITE AUDIO TACTILE
- PROPOSED YELLOW BICYCLE SYMBOL
- PROPOSED 3.2m x 300mm SEPARATOR WITH REFELCTIVE BOLLARD
- PROPOSED 1.5m x 800mm SEPARATOR WITH REFELCTIVE BOLLARD

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

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PLOTTED BY : hstevenson ON 2/09/2021 AT 10:50:02 AM

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P2	02.09.21	UPDATES FOLLOWING COUNCIL'S COMMENTS	H.S.	J.L.	J.L.
P1	30.08.21	INITIAL ISSUE	H.S.	J.L.	J.L.

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3. DECLARED MAIN ROAD - GREAT ALPINE ROAD / GAVIN STREET - SPEED ZONE 50KM/H
LOCAL ROAD - CAMP STREET - SPEED ZONE - 40KM/H

4. DESIGN VEHICLE - 8.8M MRV CHECKING VEHICLE - 12.5M HRV

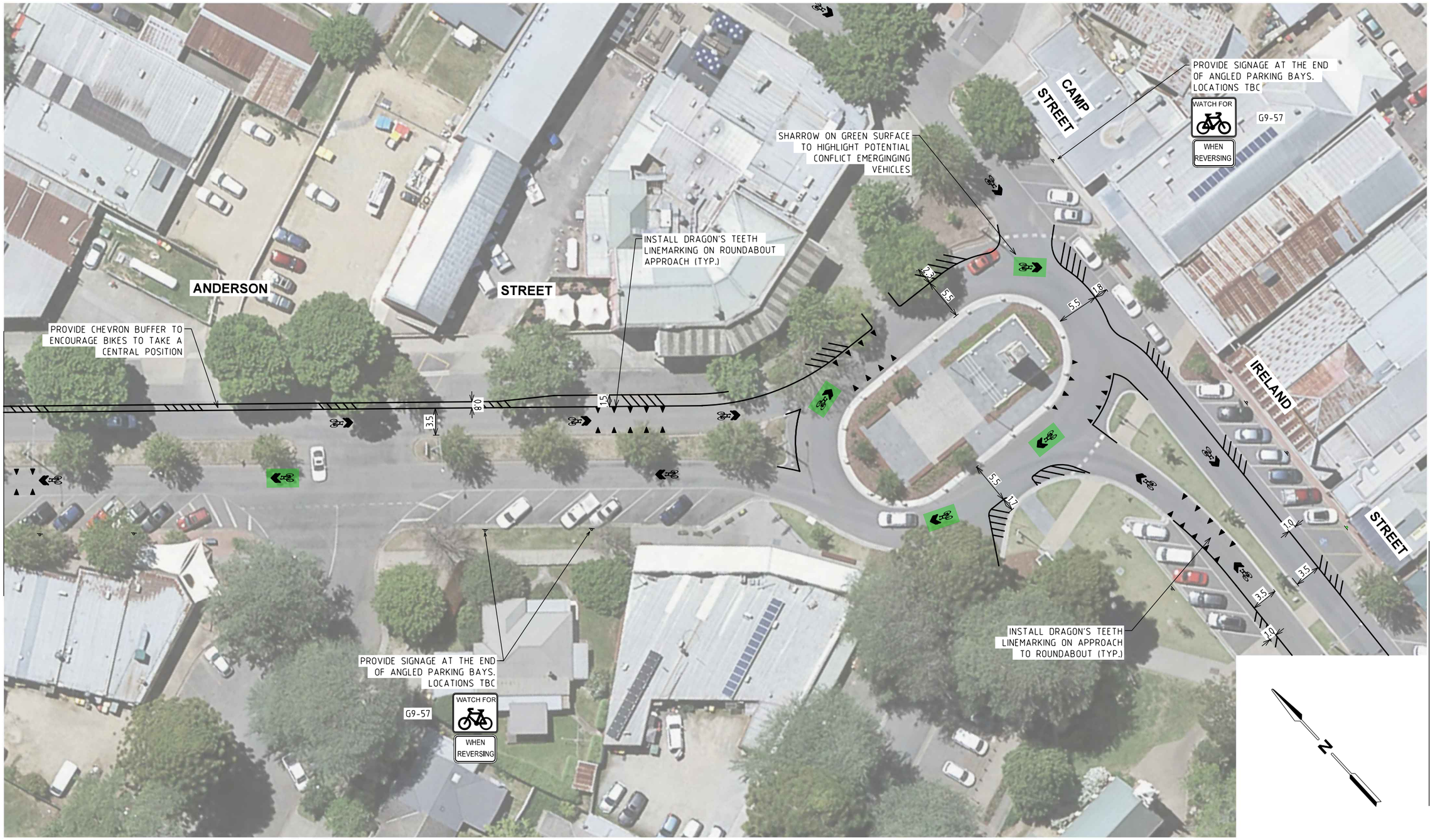
DESIGNED: H. STEVENSON	DESIGN CHECK: -
DRAWN: H. STEVENSON	DRAFTING CHECK: -
APPROVED BY: -	DATE APPROVED FOR INITIAL ISSUE: 30 AUGUST 2021
SCALE A3 Hor. 0 5 10 1:500	CAD FILE NO. V205441-BRI-02-P2.dgn

GTA consultants NOW Stantec

CLIENT DEPARTMENT OF TRANSPORT

GREAT ALPINE ROAD
ON ROAD BICYCLE INFRASTRUCTURE
CAMP STREET
BRIGHT
FUNCTIONAL LAYOUT

MAP REF.	DRAWING NO.	SHEET	ISSUE
-	V205441-BRI-02-07	07 OF 11	P2



FOR CONTINUATION REFER TO V205441-BRI-01-05

FOR CONTINUATION REFER TO V205441-BRI-01-09

LEGEND

- PROPOSED 150MM WHITE LINEMARKING
- PROPOSED WHITE AUDIO TACTILE
- PROPOSED YELLOW BICYCLE SYMBOL
- PROPOSED 3.2m x 300mm SEPARATOR WITH REFELCTIVE BOLLARD
- PROPOSED 1.5m x 800mm SEPARATOR WITH REFELCTIVE BOLLARD

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

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PLOTTED BY : hstevenson ON 7/09/2021 AT 10:50:04 AM

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P2	02.09.21	UPDATES FOLLOWING COUNCIL'S COMMENTS	H.S.	J.L.	J.L.
P1	30.08.21	INITIAL ISSUE	H.S.	J.L.	J.L.

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3. DECLARED MAIN ROAD - GREAT ALPINE ROAD / GAVIN STREET - SPEED ZONE 50KM/H
DECLARED MAIN ROAD - ANDERSON STREET - SPEED ZONE - 40KM/H
DECLARED MAIN ROAD - IRELAND STREET - SPEED ZONE - 40KM/H

4. DESIGN VEHICLE - 8.8M MRV CHECKING VEHICLE - 12.5M HRV

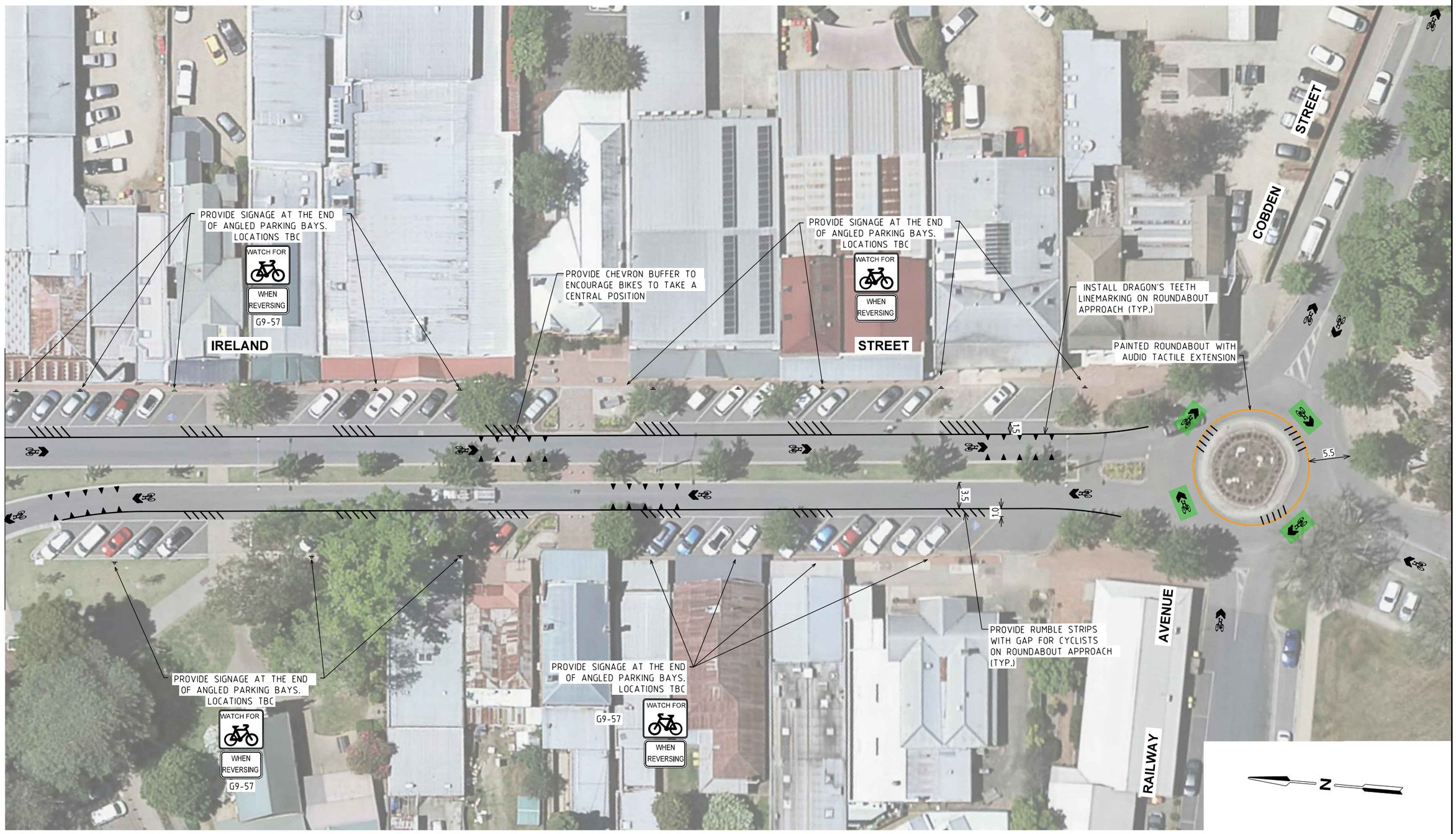
DESIGNED: H. STEVENSON	DESIGN CHECK: -
DRAWN: H. STEVENSON	DRAFTING CHECK: -
APPROVED BY: -	DATE APPROVED FOR INITIAL ISSUE: 30 AUGUST 2021
SCALE A3 Hor. 0 5 10 1:500	CAD FILE NO. V205441-BRI-02-P2.dgn

GTA consultants NOW Stantec

CLIENT DEPARTMENT OF TRANSPORT

GREAT ALPINE ROAD
ON ROAD BICYCLE INFRASTRUCTURE
ANDERSON STREET / IRELAND STREET
BRIGHT
FUNCTIONAL LAYOUT

MAP REF.	DRAWING NO.	SHEET	ISSUE
-	V205441-BRI-02-08	08 OF 11	P2



FOR CONTINUATION REFER TO V205441-BRI-01-08

PLOTTED BY : hstevenson ON 2/09/2021 AT 10:50:05 AM

LEGEND

- PROPOSED 150MM WHITE LINEMARKING
- PROPOSED WHITE AUDIO TACTILE
- PROPOSED YELLOW BICYCLE SYMBOL
- PROPOSED 3.2m x 300mm SEPARATOR WITH REFELCTIVE BOLLARD
- PROPOSED 1.5m x 800mm SEPARATOR WITH REFELCTIVE BOLLARD

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

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AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P2	02.09.21	UPDATES FOLLOWING COUNCIL'S COMMENTS	H.S.	J.L.	J.L.
P1	30.08.21	INITIAL ISSUE	H.S.	J.L.	J.L.

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3. DECLARED MAIN ROAD - GREAT ALPINE ROAD / GAVIN STREET - SPEED ZONE 50KM/H
DECLARED MAIN ROAD - ANDERSON STREET - SPEED ZONE - 40KM/H
DECLARED MAIN ROAD - IRELAND STREET - SPEED ZONE - 40KM/H

4. DESIGN VEHICLE - 8.8M MRV CHECKING VEHICLE - 12.5M HRV

DESIGNED: H. STEVENSON	DESIGN CHECK: -
DRAWN: H. STEVENSON	DRAFTING CHECK: -
APPROVED BY: -	DATE APPROVED FOR INITIAL ISSUE: 30 AUGUST 2021
SCALE A3 Hor. 0 5 10 1:500	CAD FILE NO. V205441-BRI-02-P2.dgn

GTA consultants NOW Stantec

CLIENT DEPARTMENT OF TRANSPORT

GREAT ALPINE ROAD
ON ROAD BICYCLE INFRASTRUCTURE
IRELAND STREET
BRIGHT
FUNCTIONAL LAYOUT

MAP REF.	DRAWING NO.	SHEET	ISSUE
-	V205441-BRI-02-09	09 OF 11	P2

FOR CONTINUATION REFER TO V205441-BRI-01-08

ON 2/09/2021 AT 10:59:07 AM

PLOTTED BY : hstevenson

LEGEND

- PROPOSED 150MM WHITE LINEMARKING
- PROPOSED WHITE AUDIO TACTILE
- PROPOSED YELLOW BICYCLE SYMBOL
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DESIGNED H. STEVENSON	DESIGN CHECK -
DRAWN H. STEVENSON	DRAFTING CHECK -
APPROVED BY -	DATE APPROVED FOR INITIAL ISSUE 30 AUGUST 2021
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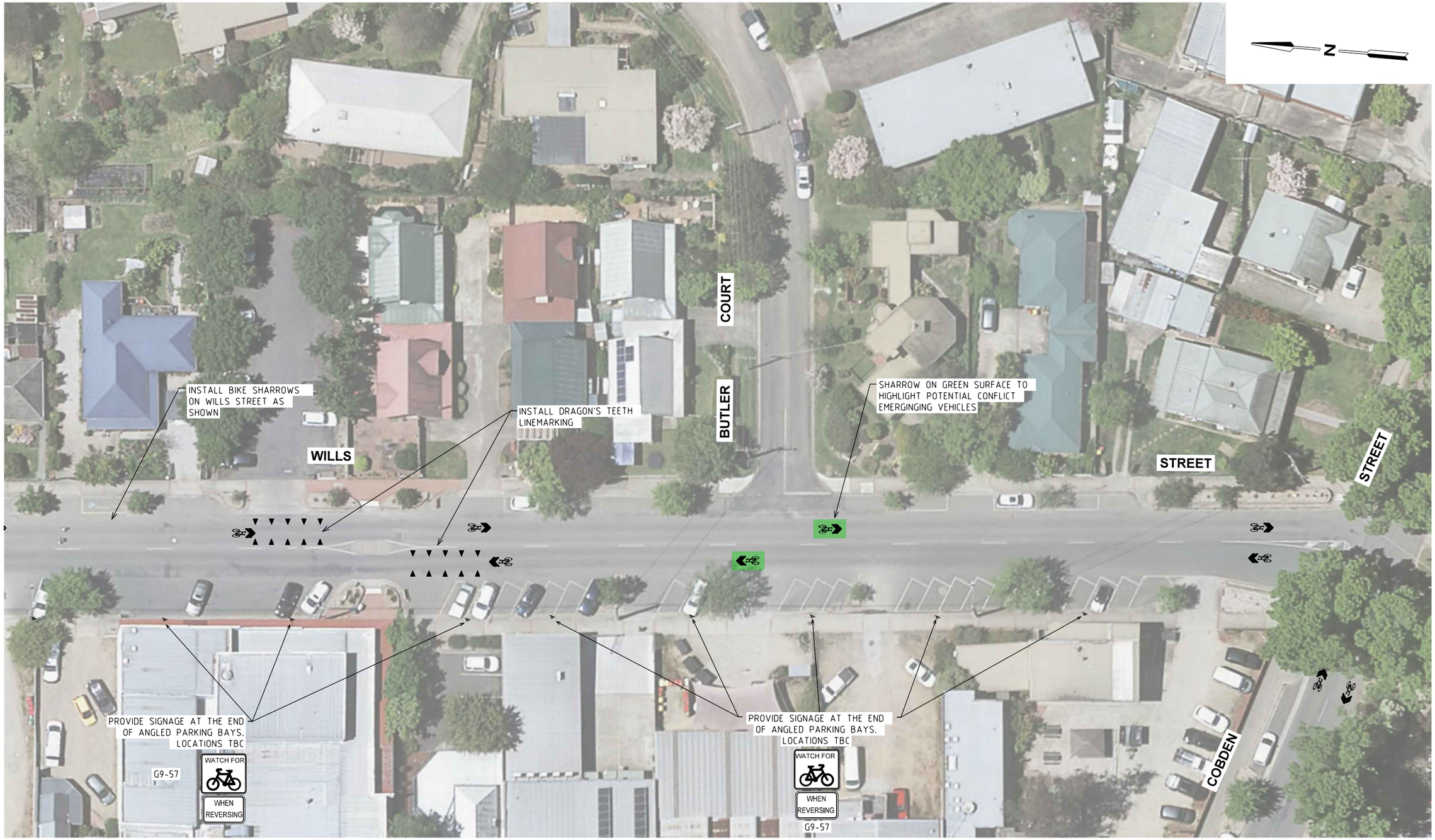
GTA consultants NOW Stantec

CLIENT DEPARTMENT OF TRANSPORT

GREAT ALPINE ROAD
ON ROAD BICYCLE INFRASTRUCTURE
CAMP STREET / WILLS STREET
BRIGHT
FUNCTIONAL LAYOUT

MAP REF.	DRAWING NO.	SHEET	ISSUE
-	V205441-BRI-02-10	10 OF 11	P2



LEGEND

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PLOTTED BY : hstevenson ON 7/09/2021 AT 10:50:08 AM

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P2	02.09.21	UPDATES FOLLOWING COUNCIL'S COMMENTS	H.S.	J.L.	J.L.
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DECLARED MAIN ROAD - IRELAND STREET - SPEED ZONE - 40KM/H

4. DESIGN VEHICLE - 8.8M MRV CHECKING VEHICLE - 12.5M HRV

DESIGNED: H. STEVENSON	DESIGN CHECK: -
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APPROVED BY: -	DATE APPROVED FOR INITIAL ISSUE: 30 AUGUST 2021
SCALE A3 Hor. 0 5 10 1:500	CAD FILE NO. V205441-BRI-02-P2.dgn

GTA consultants NOW Stantec

CLIENT DEPARTMENT OF TRANSPORT

GREAT ALPINE ROAD
ON ROAD BICYCLE INFRASTRUCTURE
WILLS STREET / COBDEN STREET
BRIGHT
FUNCTIONAL LAYOUT

MAP REF.	DRAWING NO.	SHEET	ISSUE
-	V205441-BRI-02-11	11 OF 11	P2

Appendix C Movement & Place Classifications

Figure 28 Movement & Place Classification – Movement

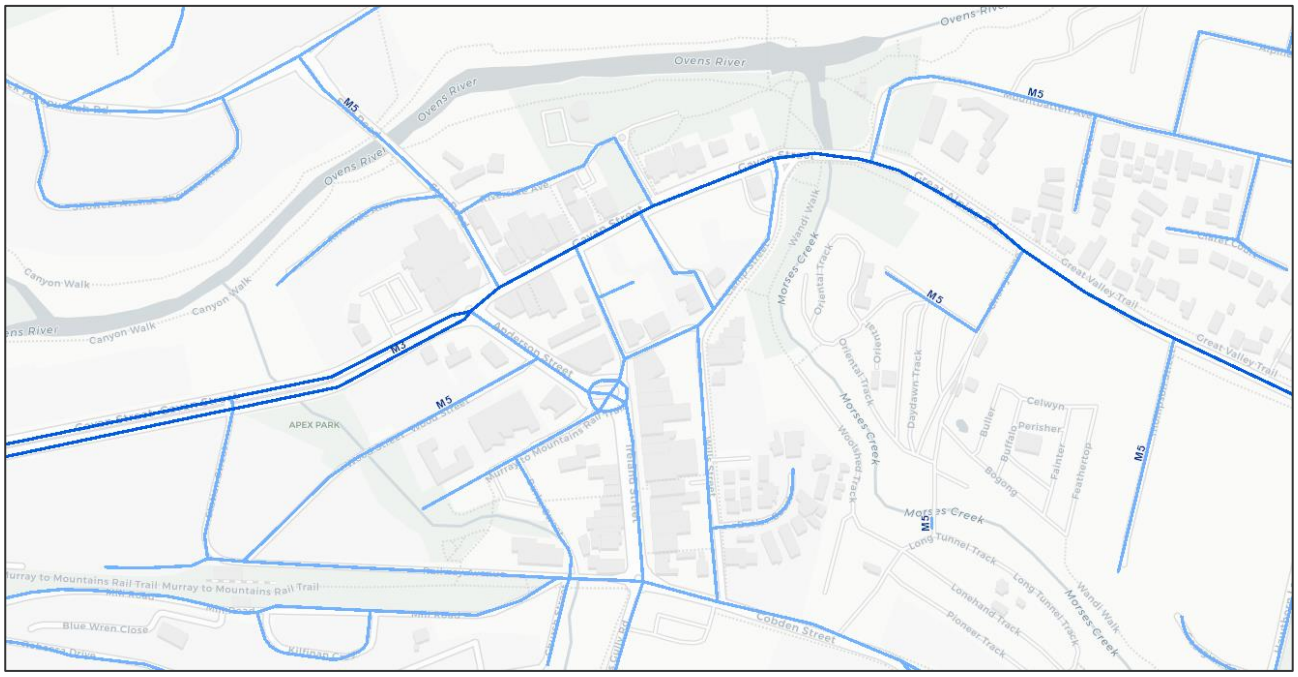


Figure 29 Movement & Place Classification – Walking

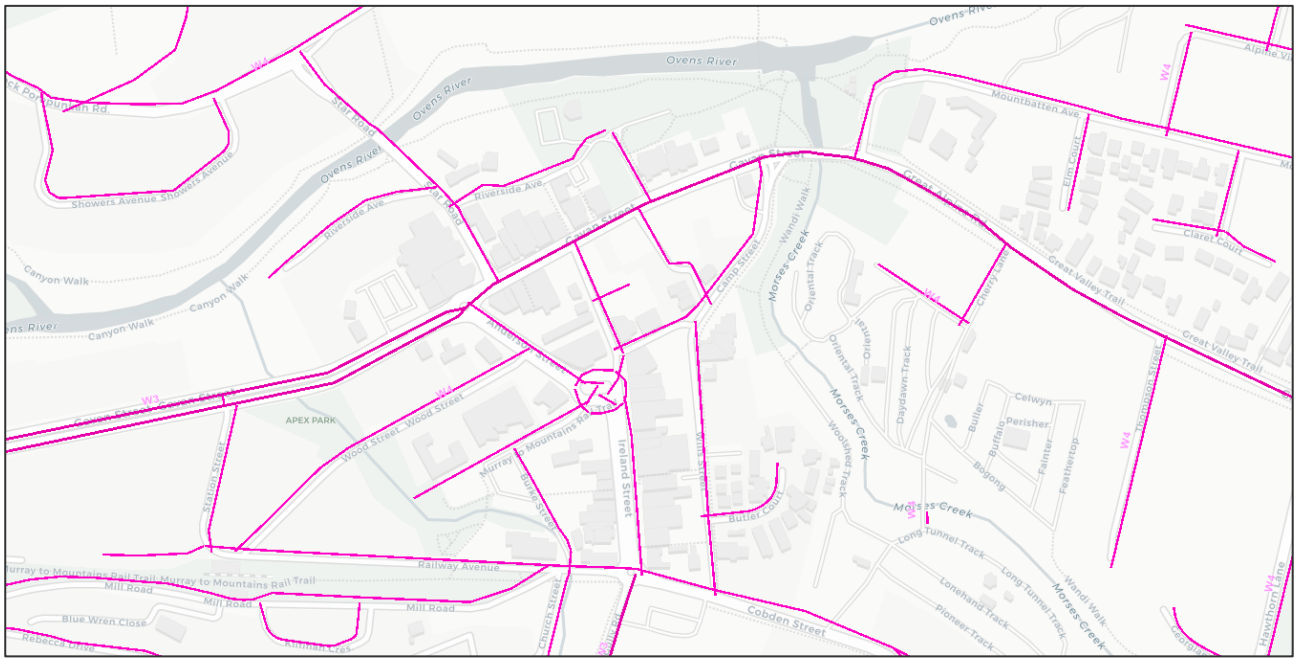


Figure 30 Movement & Place Classification -Freight

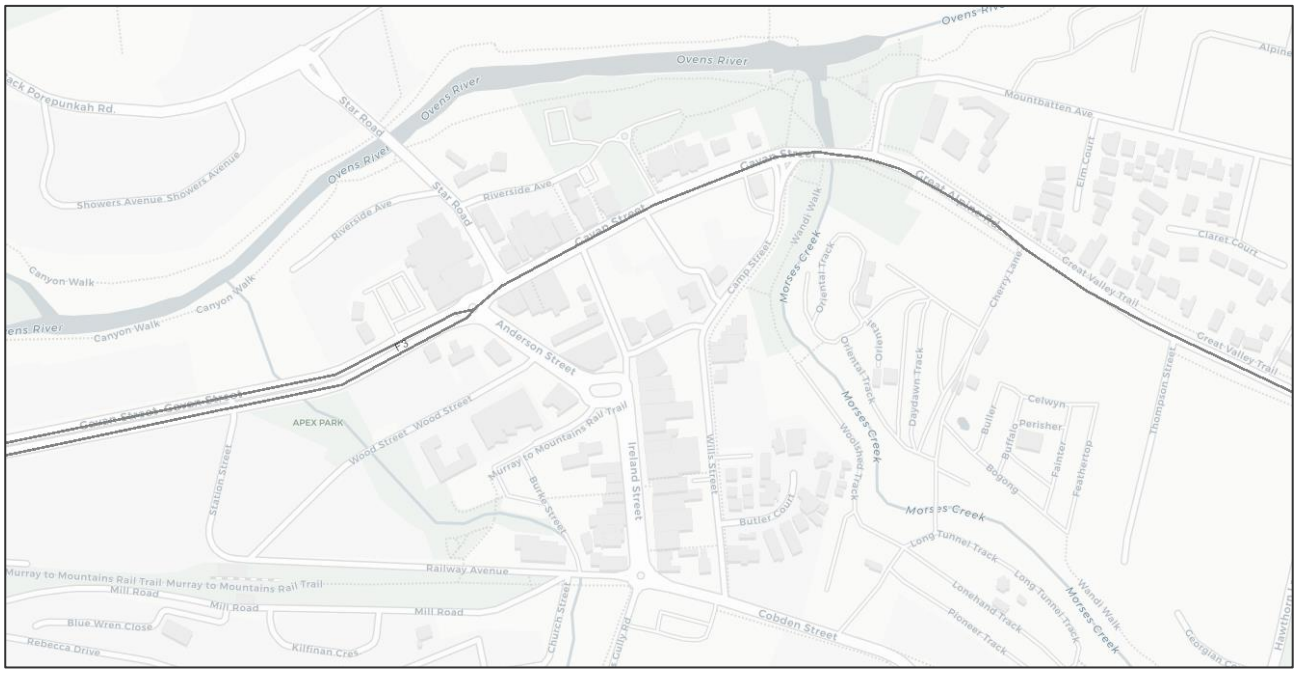


Figure 31 Movement & Place Classification -General Traffic

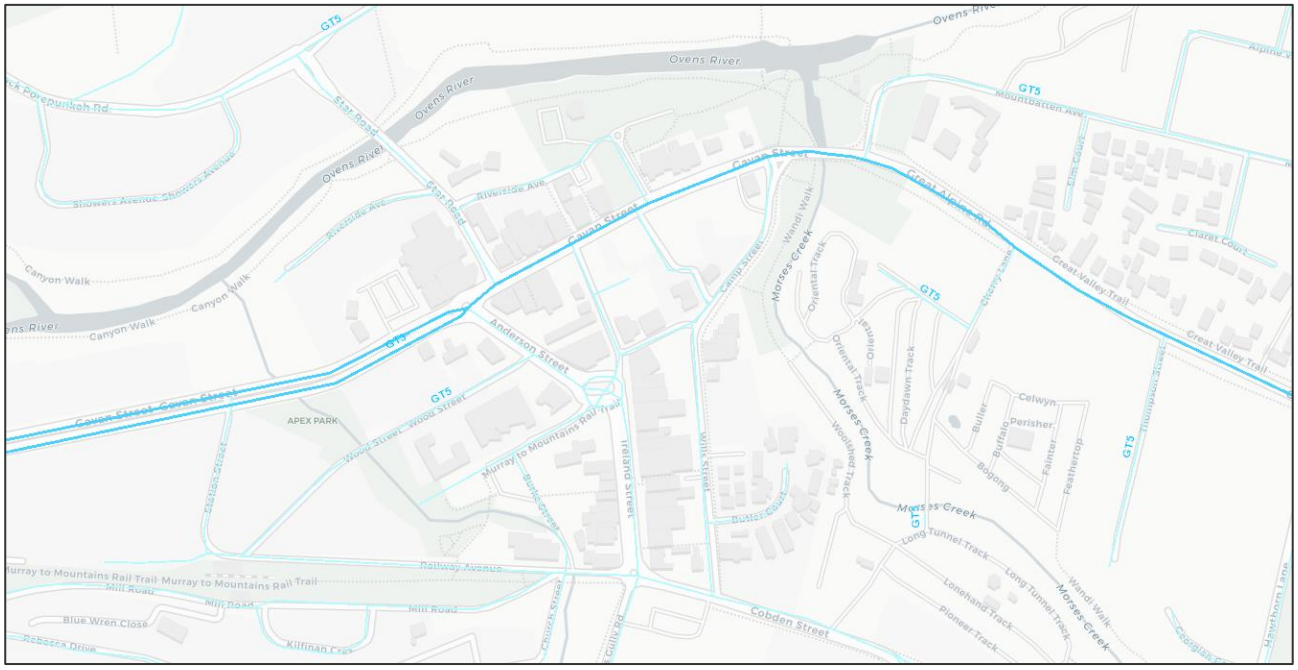


Figure 32 Movement & Place Classification -Tourism Route

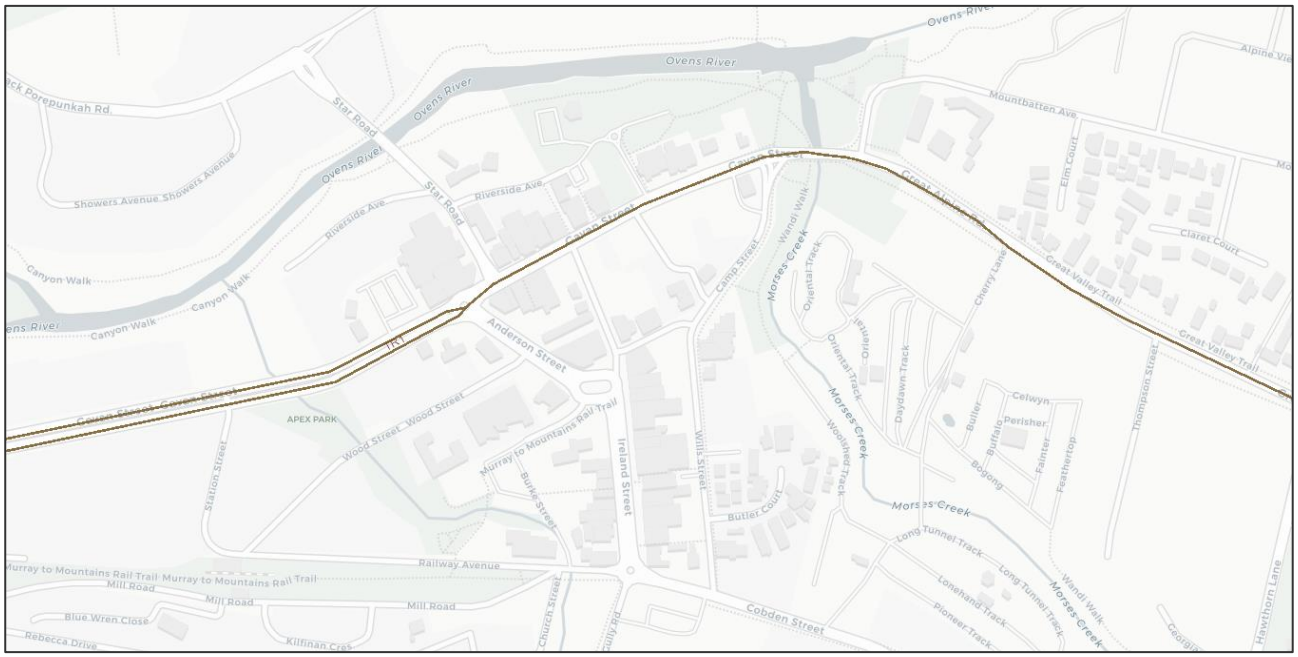


Figure 33 Movement & Place Classification – Places of Street Activity

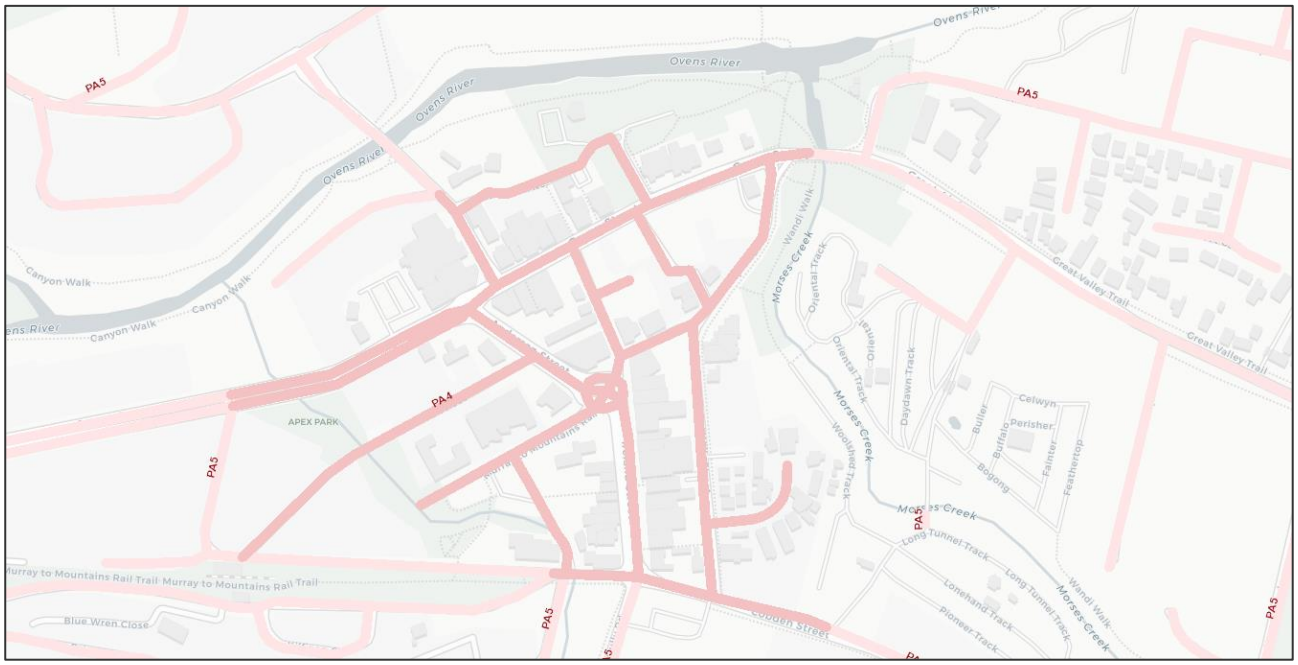
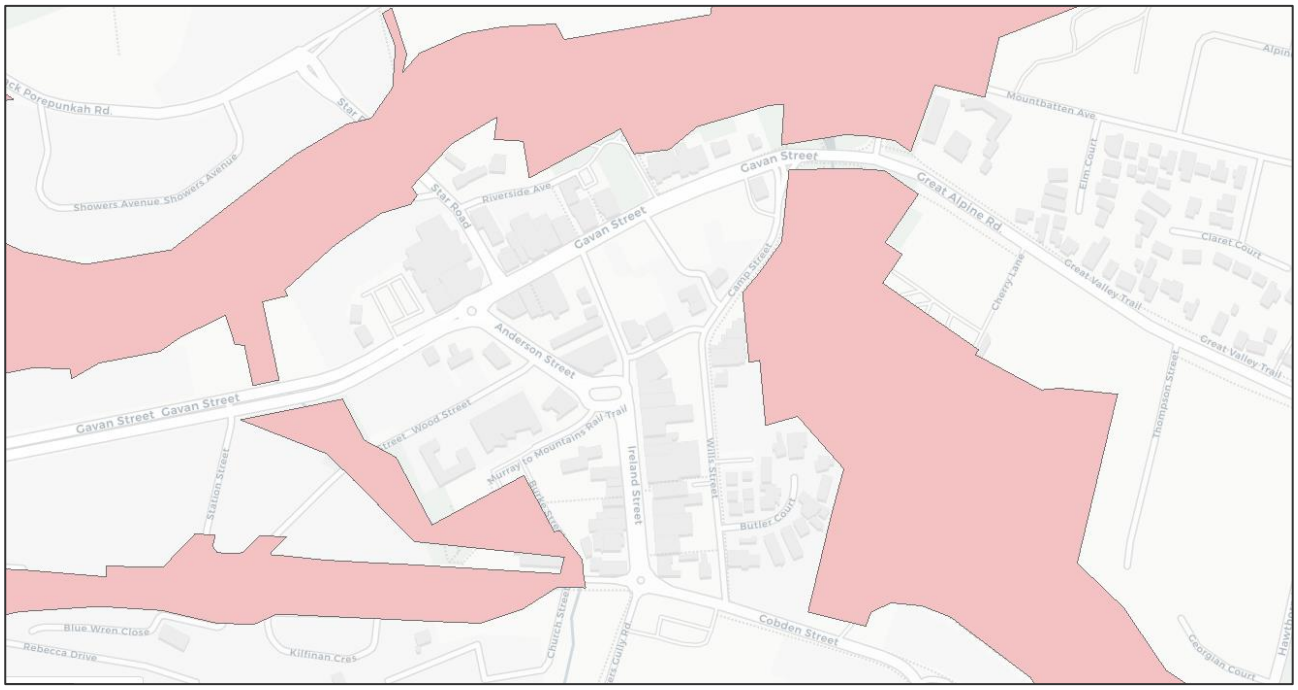


Figure 34 Movement & Place Classification – Places of Off-Street Activity



Appendix D Movement & Place Technical Appendix

Network Classifications

Module 1

Network Classifications

Module 1 of the Movement & Place Framework assigns future strategic visions for movement and place to the transport network. Strategic vision is based on State-level transport and land use planning strategies.

The road network is divided into transport links and each link is assigned a movement and place Network Classification, to define the strategic vision for that link.

There are five levels of Network Classification and these make up a system for describing strategic functionality and significance. The five levels of Network Classification are defined in the table below:

Classification Level	**Classification Definition**
Classification Level 1	Mass movement of people and/or goods on routes with a State or National level movement function or primary access to a State level place. Associated with Place of State or National significance and associated.
Classification Level 2	Significant movement of people and/or goods on routes connecting across multiple municipalities or primary access to Regional level places. Associated with Place of Regional significance
Classification Level 3	Moderate movement of people and/or goods on routes connecting municipalities or primary access to Municipal level places. Associated with Place of Municipal significance
Classification Level 4	Movement of people and/or goods within a municipality Associated with Place of Neighbourhood importance
Classification Level 5	Local movement Associated with Place of Local importance

Aligning the classifications for movement and place using this structure:

- provides consistent terminology to describe strategic intent
- introduces a mindset to understand the functionality of transport links with respect to place and movement
- can assist in discussions relating to the strategic vision for modes on the network

Module 1 – Network Classifications also allows us to apply classifications for the other two themes, Safety and Environment.

Place Classifications

Overall Place Classifications

Place (P)	Definition	Mapping
P1	Place of State or National significance	PA1, PO1
P2	Place of Regional significance	PA2, PO2
P3	Place of Municipal significance	PA3, PO3
P4	Place of Neighbourhood importance	PA4, PO4
P5	Place of Local importance	PA5

Metropolitan Places of Activity (PA)

Both Planning Scheme Zone and Geographical Boundary apply to the rule to each definition. It should be noted that Road Zone Category 1 (RDZ1) and Road Zone Category 2 (RDZ2) are mapped as the highest order adjacent zone. The Metropolitan Places of Street Activity are mapped within the Urban Growth Boundary, not by VicRoads or Transport for Victoria geographical regions.

Metropolitan Places			
Places of Street Activity (PA)	Definition	Mapping	
		Planning Scheme Zones	Geographical Boundary
PA1	Nationally and state significant place of activity. People travel from across the country and state to experience and use the place. The place has a very large number of on-street staying activities e.g. shops and alfresco dining.	Capital City Zone (CCZ) (Schedule 1-6) and, Docklands Zone (DZ) (Schedule 1-3), including Public Use Zone Schedule 2 (PUZ2) (Education), Public Use Zone Schedule 3 (PUZ3) (Health & Community), Public Park & Recreation Zone (PPRZ) within CCZ & DZ zoned areas,	N/A. Zoning extents and as noted adjacent
PA2	Regionally significant place of activity. People travel from adjoining municipalities to experience and use the place. The place has a large number of on-street	Activity Centre Zone (ACZ), Commercial 1 Zone (C1Z), Mixed Use Zone (MUZ), Comprehensive Development Zone (CDZ), Priority Development Zone (PDZ), Residential Growth Zone, Public Use Zone Schedule 2 (PUZ2) (Education), Public Use Zone Schedule 3 (PUZ3) (Health &	Metropolitan Activity Centres (*Plan Melbourne*) Or Within the defined boundaries of the National Employment &

	staying activities e.g. shops and alfresco dining.	Community), Public Use Zone – Schedule 6 (PUZ6) (Local Government), Public Use Zone – Schedule 7 (Other Public Use) (PUZ7) and Public Park & Recreation Zone (PPRZ)	Innovation Clusters (NEIC)
PA3	Municipal level of significant place of activity. People travel from across the municipality to experience and use the place. The place has visible on-street staying activities such as public seating and alfresco dining.	Activity Centre Zone (ACZ), Commercial 1 Zone (C1Z), Mixed Use Zone (MUZ), Comprehensive Development Zone (CDZ), Residential Growth Zone (RGZ), Priority Development Zone (PDZ), Public Use Zone Schedule 2 (PUZ2) (Education), Public Use Zone Schedule 3 (PUZ3) (Health & Community), Public Use Zone – Schedule 6 (PUZ6) (Local Government), Public Use Zone – Schedule 7 (Other Public Use) (PUZ7) and Public Park & Recreation Zone (PPRZ),	Major Activity Centres (500 metre radius from *Plan Melbourne* defined point)
PA4	Neighbourhood level of significant place of activity, serving people from immediate neighbourhoods, e.g. milkbars and local shops.	Activity Centre Zone (ACZ), Commercial 1 Zone (C1Z), Commercial 2 Zone (C2Z), Residential Growth Zone (RGZ), Public Use Zone Schedule 2 (PUZ2) (Education), Public Use Zone Schedule 3 (PUZ3) (Health & Community),	All remaining zoning as noted in areas outside of P1, P2 and P3 areas.
PA5	Local level of significant place of activity. Places are generally quiet and a destination for people accessing residential properties	Urban Growth Zone (UGZ), Rural Activity Zone (RAZ), General Resident Zone (GRZ), Neighbourhood Residential Zone (NRZ) Low Density Residential Zone (LDRZ), Rural Living Zone (RLZ), Township Zone (TZ), Mixed Use Zone (MUZ), Green Wedge Zone (GWZ), Green Wedge A Zone (GWAZ), Rural Conservation Zone (RCZ), Farming Zone (FZ), Residential Activity Zone (RAZ), Public Use Zone – Schedule 5 (Cemetery/Crematorium) Public Use Zone – Schedule 6 (PUZ6) (Local Government), Public Use Zone – Schedule 7 (Other Public Use) (PUZ7) and Public Park & Recreation Zone (PPRZ)	All remaining zoning areas as noted outside of P1, P2, P3 and P4 areas.

Note that the following layers have not been mapped: Industrial 1 Zone (IN1Z), Industrial 2 Zone (IN2Z), Industrial 3 Zone (IN3Z), Special Use Zone (SUZ), Port Zone (PZ), Public Use Zone – Schedule 1 (Service & Utilities), Urban Floodway Zone (UFZ).

Regional Places of Activity (PA)

Both Planning Scheme Zone and Geographical Boundary apply to the rule to each definition. It should be noted that Road Zone Category 1 (RDZ1) and Road Zone Category 2 (RDZ2) are mapped as the highest order adjacent zone. The Regional Places for People are mapped as outside Urban Growth Boundary, not by VicRoads or Transport for Victoria geographical regions.

Regional Places			
Places of Street Activity (PA)	**Definition**	**Mapping**	
		Planning Scheme Zone	**Geographical Boundary**
PA1	State significant place of activity. People travel from across the country and state to experience and use the place. The place has a very large number of on-street staying activities e.g. shops and alfresco dining.	Activity Centre Zone (ACZ), Commercial 1 Zone (C1Z), Mixed Use Zone (MUZ), Comprehensive Development Zone (CDZ), Priority Development Zone (PDZ), Residential Growth Zone (RGZ), Public Use Zone Schedule 2 (PUZ2) (Education), Public Use Zone Schedule 3 (PUZ3) (Health & Community), Public Park & Recreation Zone (PPRZ) with CCZ & DZ zoned areas	In Centre (1km Radius) of Urban Locality of Geelong, Bendigo and Ballarat
PA2	Regionally significant place of activity. People travel from adjoining municipalities to experience and use the place. The place has a large number of on-street staying activities e.g. shops and alfresco dining.	Activity Centre Zone (ACZ), Commercial 1 Zone (C1Z), Mixed Use Zone (MUZ), Special Use Zone (SUZ), Comprehensive Development Zone (CDZ), Priority Development Zone (PDZ), Residential Growth Zone (RGZ), Public Use Zone Schedule 2 (PUZ2) (Education), Public Use Zone Schedule 3 (PUZ3) (Health & Community), Public Use Zone (PUZ7) (Other Public Use), Public Park & Recreation Zone (PPRZ)	In Centre (500m Radius) of Urban Locality of Shepparton, Albury-Wodonga (Wodonga part), Mildura-Buronga (Mildura Part), Warnambool, Traralgon, Wangaratta, Morwell
PA3	Municipal level of significant place of activity. People travel from across the municipality to experience and use the place. The place has visible on-street staying activities such as public seating and alfresco dining.	Activity Centre Zone (ACZ) (Schedule 1-3), Commercial 1 Zone (C1Z), Mixed Use Zone (MUZ), Special Use Zone (SUZ), Comprehensive Development Zone (CDZ), Priority Development Zone (PDZ), Residential Growth Zone (RGZ), Public Use Zone Schedule 2 (PUZ2) (Education), Public Use Zone Schedule 3 (PUZ3) (Health & Community), Public Use Zone (PUZ7) (Other	In Centre (500m Radius) of Urban Locality of Ocean Grove-Barwon Heads, Bacchus Marsh, Torquay-Jan Juc, Horsham, Moe-Newborough, Warragul, Sale, Lara, Bairnsdale, Echuca-Moama (Echuca Part), Drysdale-Clifton Springs, Colac, Drouin, Leopold, Swan Hill,

		Public Use) Public Park & Recreation Zone (PPRZ)	Portland, Castlemaine, Gisborne, Benalla, Hamilton, Wallan, Healesville, Wonthaggi, Yarrawonga-Mulwala (Yarrawonga Part), Maryborough, Kilmore, Ararat, Portarlington-St. Leonards, Lakes Entrance, Kyabram, Seymour, Stawell, Cobram, Leongatha, Inverloch
PA4	Neighbourhood level of significant place of activity, serving people from immediate neighbourhoods, e.g. milk bars and local shops.	Commercial 1 Zone (C1Z), Commercial 2 Zone (C2Z). Mixed Use Zone (MUZ), Comprehensive Development Zone (CDZ), Priority Development Zone (PDZ), Regional Growth Zone (RGZ), Public Use Zone Schedule 2 (PUZ2) (Education), Public Use Zone Schedule 3 (PUZ3) (Health & Community)	All remaining zoning areas outside of P1, P2 and P3 areas.
PA5	Local level of significant place of activity. Places are generally quiet and a destination for people accessing residential/rural properties.	Urban Growth Zone (UGZ), Rural Activity Zone (RAZ), General Resident Zone (GRZ), Neighbourhood Residential Zone (NRZ), Low Density Residential Zone (LDRZ), Rural Living Zone (RLZ), Green Wedge Zone (GWZ), Green Wedge A Zone (GWAZ), Rural Conservation Zone (RCZ), Farming Zone (FZ), Residential Activity Zone (RAZ), Public Use Zone – Schedule 5 (Cemetery/Crematorium) Public Use Zone – Schedule 6 (PUZ6) (Local Government), Public Use Zone – Schedule 7 (Other Public Use), Public Park & Recreation Zone (PPRZ)	All other areas

Note that the following layers have not been mapped: City Centre Zone (CCZ), Docklands Zone (DZ), Industrial 1 Zone (IN1Z), Industrial 2 Zone (IN2Z), Industrial 3 Zone (IN3Z), Special Use Zone (SUZ), Port Zone (PZ), Public Use Zone – Schedule 1 (Service & Utilities), Public Use Zone (PUZ4) (Transport), Public Conservation & Resource Zone (PCRZ), Urban Floodway Zone (UFZ)

Places of Off-Street Activity (PO)

Places of off-street activity are defined below**.** Where a road has multiple valid place classifications, the higher overall place classification is applied.

Places of Off-Street Activity (PO)	**Definition**	**Automatic Mapping Based on Zoning**	**Other Mapping Rules (PO classification will be the highest trigger taken from the table below)**		
			Annual Patronage	**Single Day Patronage**	**Annual Value of Freight Imported/Exported**
PO1	State significant places (without on-street activity) generating very high demands on the transport network for high value and/or volume of people or freight movement.	Port Zone (PZ)	>20,000,000 For example: - Melbourne Airport - Chadstone Shopping Centre - Emporium Shopping Centre	>50,000 For example: - Flemington Racecourse - MCG - Melbourne Olympic Park - Melbourne Airport - Chadstone Shopping Centre - Emporium Shopping Centre	>$5,000,000,000 For example: - Port of Melbourne - Melbourne Airport
PO2	Regional significant places (without on-street activity) generating high demands on the transport network for high value and or volume of people or freight movement.	N/A	10,000,000 to 20,000,000 For example: - Doncaster Shopping Town - Highpoint	20,000 to 50,000 For example: - Shrine of Remembrance - Doncaster Shopping Town - Highpoint	$1,000,000,000 to $5,000,000,000 For example: - Port of Hastings

PO3	Specialised places (without on-street activity) generating unique demands on the transport network for people or freight movement.	Specialised industries and storage facilities that have limited locations across the state (INZ2)	1,000,000 to 10,000,000 For example: - Melbourne Zoo		
PO4	Other places (without on-street activity) generating unique demands on the transport network for people and/or freight movement.	General industrial and storage facilities (INZ1, INZ3) Off-street parks and gardens (PPRZ)			

Applying Land Use Zones

Applying place classifications by planning scheme zones are listed below.

Planning Scheme Zone	**Mapping**
Residential Zones	
Low Density Residential Zone (LDRZ)	PA5 (metro and regional)
Mixed Use Zone (MUZ)	PA1 (Regional, within Geographical boundary) PA2 (Metro & Regional within Geographical boundary), PA3 (Metro & Regional within Geographical Boundaries), PA4 (metro & regional)
Township Zone (TZ)	PA1 (Regional, within Geographical boundary) PA2 (Metro & Regional within Geographical boundary), PA3 (Metro & Regional within Geographical Boundaries), PA4 (metro & regional)
Residential Growth Zone (RGZ)	PA1 (Regional, within Geographical boundary) PA2 (Metro & Regional within Geographical boundary), PA3 (Metro & Regional within Geographical Boundaries), PA4 (metro & regional)
General Residential Zone (GRZ)	PA5 (metro & rural)
Neighbourhood Residential Zone (NRZ)	PA5 (metro & rural)

Industrial Zones	
Industrial 1 Zone (IN1Z)	PO4
Industrial 2 Zone (IN2Z)	PO3
Industrial 3 Zone (IN3)	PO4
Commercial Zones	
Commercial 1 Zone (C1Z)	PA1 (regional where geographical boundaries apply), PA2 (metro & regional where geographical boundaries apply), PA3 (metro & regional where geographical boundaries apply) PA4 (Metro & regional) for links greater than 200m
Commercial 2 Zone (C2Z)	PA4 (metro & regional)
Rural Zones	
Rural Living Zone (RLZ)	PA5 (metro & regional)
Green Wedge Zone (GWZ)	PA5 (metro & regional)
Green Wedge A Zone (GWAZ)	PA5 (metro & regional)
Rural Conservation Zone (RCZ)	PA5 (metro & regional)
Farming Zone (FZ)	PA5 (metro & regional)
Rural Activity Zone	PA5 (metro & regional)
Public Land Zones	
Public Use Zone – Schedule 1 (Service & Utility) (PUZ1)	Not mapped in PA
Public Use Zone – Schedule 2 (Education) (PUZ2)	PA1 (metro within nominated zoning area, regional where geographical boundaries apply), PA2 (metro & regional where geographical boundaries apply) PA3 (metro & regional where geographical boundaries apply) PA4 (Metro & regional)
Public Use Zone – Schedule 3 (Health and Community) (PUZ3)	PA1 (metro within nominated zoning area & regional where geographical boundaries apply)

	PA2 (metro and regional where geographical boundaries apply) PA3 (metro and regional where geographical boundaries apply) PA4 (Metro and regional)
Public Use Zone – Schedule 4 (Transport) (PUZ4)	Not currently mapped in PA
Public Use Zone – Schedule 5 (Cemetery/Crematorium) (PUZ5)	PA5 (Metro & Regional)
Public Use Zone – Schedule 6 (Local Government) (PUZ6)	PA5 (Metro & regional)
Public Use Zone – Schedule 7 (Other Public Use)	PA1 (metro within nominated zoning area and regional where geographical boundaries apply) PA2 (metro & regional where geographical boundaries apply) PA3 (metro & rural where geographical boundaries apply) PA5 (Metro & regional)
Public Park & Recreation Zone (PPRZ)	PA1 (metro within nominated zoning area and regional where geographical boundaries apply) PA2 (metro & regional where geographical boundaries apply) PA3 (metro & rural where geographical boundaries apply) PA5 (metro & region) PO4 (metro & region)
Public Conservation & Resource Zone (PCRZ)	BD2
Special Purpose Zone	
Special Use Zone (SUZ)	Not mapped but special exceptions apply to map as PA and/or PO
Comprehensive Development Zone (CDZ)	PA1 (regional where geographical boundaries apply), PA2 (metro & regional where geographical boundaries apply), PA3 (metro & rural where geographical boundaries apply) PA4 (metro & regional)
Urban Floodway Zone (UFZ)	Not mapped
Capital City Zone (CCZ)	PA1 (metro only)
Docklands Zone (DZ)	PA1 (metro only)

Priority Development Zone (PDZ)	PA1 (regional, geographical boundaries apply) PA2 (metro and rural where geographical boundaries apply) PA3 (metro & rural where geographical boundaries apply) PA4 (metro & regional)
Urban Growth Zone (UGZ)	PA5 (metro & rural)
Activity Centre Zone (ACZ)	PA1 (regional where geographical boundaries apply) PA2 (metro & where geographical boundaries apply) PA3 (metro & regional where geographical boundaries apply) PA4 (metro & regional)
Port Zone (PZ)	PO1
Urban Flood Zone	CR1
Industrial Zones	
Industrial 1 Zone (IN1Z)	PO4
Industrial 2 Zone (IN2Z)	PO3
Industrial 3 Zone (IN3Z)	PO4

Movement Classification

Overall Movement Classifications

Movement (M)	Definition	Modal classifications
M1	Mass movement of people &/or goods on routes with a State or National level movement function or primary access to a State level place.	GT1, R1, T1, B1, F1
M2	Significant movement of people &/or goods on routes connecting across multiple municipalities or primary access to Regional level places.	GT2, T2, B2, F2
M3	Moderate movement of people &/or goods on routes connecting municipalities or primary access to Municipal level places.	GT3, T3, B3, F3, C1, W1
M4	Movement of people &/or goods within a municipality	GT4, B4, F3, FS, C2, W2
M5	Local movement	GT5, C3-5, B5, W3-5

Active Transport – Walking

Classification	Definition	Principle mapping description	Proxy mapping rules
W1	State significant walking movements with the highest concentration of pedestrian activity, mainly within the CBD.	Highest volume Principal Pedestrian Network (PPN) routes (both existing and potential volumes)	• All streets within Hoddle Grid • 200m radius around all CBD railway stations • Distance between the following stations and the activity generators (these are stations within the I classifications with a Special Function (SF) triggered by a Special Event). • I1/I2 bus/tram interchanges with a Special Event SF

W2	Regionally significant walking links in close proximity to key activity generators with existing and/or potential demand. This includes strip shopping, educational institutions, railway stations and employment precincts.	PPN routes typically around 400m of primary walking destinations including all stations and other I1-I3 interchanges, and P1- P3 destinations including educational institutions, strip shopping and other major trip generators such as employment precincts and hospitals	Routes providing access to all railway stations and I1-I3 (2051) bus and tram stops, and P1-P3 places within 400m that are NOT 'freeways', NOT part of off-road links like railway, cycling, tram, NOT have movement GT classification = 'GT5', NOT already assigned a walking classification
W3	Municipal walking links that support pedestrian movements to and around activity generators such as activity centres, schools and transport interchanges. These routes capture the complete Principal Pedestrian Network and support Plan Melbourne's 20-minute neighbourhood principle.	All other PPN routes, including routes to all interchanges, educational institutions, strip shopping and major trip generators such as employment precincts and hospitals. This covers all key walking routes within the 20-minute neighbourhood principle.	Routes providing access to all I classifications and P1-P4 places within 2km that are NOT 'freeways', NOT part of off-road links like railway, cycling, tram, NOT have movement GT classification = 'GT5', NOT already assigned a walking classification
W4	Neighbourhood walking links, providing important connections to the Principal Pedestrian Network, supporting the complete walking journey. These links are mainly residential streets.	Balance of pedestrian network (i.e. all routes within a PPN catchment that are not identified as PPN)	GT5 and local roads within 2km of P1-P5; NOT already assigned a walking classification
W5	The balance of the pedestrian network, covering all local walking links.	All other walkable routes outside of PPN catchment (i.e. greater than 2km from activity), providing a minimum pedestrian requirement.	All other roads that are NOT 'freeways'; NOT already have a walking classification assigned
WR	Routes identified for walking for recreation. Routes usually located beside rivers, creeks and rail lines – often shared facilities with cyclists.	Routes usually located beside rivers, creeks and rail lines – mainly shared facilities with cyclists.	

Active Transport – Cycling

C1 and C2 classifications (SCCs) have been mapped. Mapping of the remaining classifications requires further consultation with local councils and stakeholders. In the interim, proxy mapping rules will be used to map Cycling classifications.

Cycling for Transport Classifications		
	Definition	**Mapping**

C1	*Primary routes* provide a core network of Strategic Cycling Corridors that connect places of state significance – the central city, Metropolitan Activity Centres (MACs) and National Employment and Innovation Centres (NEICs) within metropolitan Melbourne.	**Principal based mapping** Strategic Cycling Corridor
C2	*Main routes* are Strategic Cycling Corridors that provide additional connections to state significant destinations, as well as connections to major activity centres and key railway stations within metropolitan Melbourne. In regional towns, main routes provide the SCC network that connects to destinations of regional importance including activity areas, school and railway stations.	**Principal based mapping** Strategic Cycling Corridor
C3	*Municipal routes* support mostly local, short trips to activity centres, including important links to stations and other interchanges. They also feed to C1 and C2 routes (SCCs).	**Principal based mapping** Municipal Cycling Plan **Proxy** C3 links are designated as PBN segments that are on the local road (GT4-5) network and not already **mapped as a C1 or C2.** **Not yet mapped**
C4	*Neighbourhood and local links* that make up the balance of the cyclable road network and provide short connections to C1-C3 routes and nearby activity centres.	**Principal based mapping** TBD **Proxy** C4 links are designated as the balance of the cyclable network excluding C1-3s and specialised cycling classifications. **Not yet mapped**

Specialised Classifications		
	Definitions	**Mapping**
CD	*Direct cycling routes* provide a more direct alternative route to C1-C2 routes. These routes are expected to be used by cyclists who are comfortable riding in higher traffic stress environments.	**Principal based mapping** TBD in consultation with LGAs **Proxy** TBD (SMEs to designate segments) **Not yet mapped**
CH	*High traffic stress routes* make up the balance of the legally cyclable arterial road network (GT1-3).	**Principal based mapping** TBD **Proxy** GT1-3 segments that are not C1, C2 or CD **Not yet mapped**

CT	*Training routes* are designated routes used for training and sports cycling, mostly longer distances and at high speeds	**Principal based mapping** TBD (e.g. Popular Strava routes) **Proxy** N/A **Not yet mapped**
CR	*Recreational routes* provide a quieter environment cycling for recreation and tourism. Routes usually run beside rivers, creeks and rail lines	**Principal based mapping** TBD **Proxy** Off Road paths excluding C1-3s **Not yet mapped**

Public Transport – Interchange

	Definition	**Mapping**			
		Service Diversity (SD)	**Catchment (CA)**	**Usage (US)**	**Special Function (SF)**
I1	State significant interchanges, the major focal points of public transport usage in Victoria with the highest levels of connectivity, service diversity and activity.	**SD1** - Interchange point meets one or more:15+ train routes, 8+ regional rail routes, 10+ tram routes, 30+ bus routes, 6+ regional coach, 3+ interstate rail and 1+ international air, and 3+ ferry *(excludes a continuous corridor).*	N/A	**US1 –** 25,000 or more people entering or interchanging on an average weekday in 2016; 35,000 in 2031 and 2051.	N/A
I2	Regionally significant interchanges, attracting high numbers travellers from wide catchments to access a diversity of public transport services and/or regionally significant connections.	**SD2** Interchange point meets one or more of: 6+ train routes, 6+ regional rail routes, 4+ tram routes, 10+ bus routes, 4+ regional coach, 2+ interstate rail, or 2+ ferry *(excludes a continuous corridor).*	*N/A*	**US2 -** 10,000 or more people entering or interchanging on an average weekday (observed)	**SF2 –** Train to Train Interchange Hubs Special Events venues (very heavy demand at multiple times of year) Bus Tram SF2 Special Events venues (very heavy demand at multiple times of year, with a PO1 location connection)

	Definition	Mapping			
		Service Diversity (SD)	**Catchment (CA)**	**Usage (US)**	**Special Function (SF)**
I3	Municipally significant interchanges, where the capacity, frequency and/or variety of services on offer attract travellers to them to access these connections from surrounding suburbs.	**SD3 –** Interchange point meets one or more of: 2+ train routes, 1+ regional rail routes, 2+ tram routes, 5+ bus routes, 2+ regional coach, 2+ interstate rail or 1+ ferry *(excludes a continuous corridor).*	**CA3 -** Rail see catchment table below *(Catchment does not influence Tram or Bus)*	**US3 -** 5,000 or more people entering or interchanging on an average weekday (observed)	**SF3 -** Tram to Tram Interchange Hubs Tram to SmartBus Interchange Hub Special Events venues (heavy demand at selected times) and tram route terminus
I4	Neighbourhood public transport hubs. Travellers will connect here with higher frequency/capacity services or may travel from their local stop/area to access additional travel options.	**SD4 –** All rail stations and tram and bus stops on a B3/T3 or higher line segment.	**CA4 -** Rail see catchment table below *(Catchment does not influence Tram or Bus)*	**US4 –** 1,000 or more people entering or interchanging on an average weekday (observed)	**SF4 -**
I5	Local public transport stops which serve as the nearest, walkable point of access to the network for travellers, but are unlikely to attract those from further away.	No other services provided. The station/stop is the only transport provision within a 350m radius.	N/A	**N/A**	N/A
RC	Interchanges associated with Regional Coaches (with no connection to a passenger railway station).	N/A	**N/A**	**N/A**	N/A

Catchment Mapping				
Cycle Catchment Population > …	16,300 or higher	11,100 to 16,300	4,500 to 11,100	0 to 4,500

Walk catchment population V				
7,100 or higher	3	3	3	4
4,500 to 7,100	3	3	3	4
2,800 to 4,500	3	3	4	4
900 to 2,800	3	4	4	5
0 to 900	4	4	5	5

Mapping Rules for Tram and Bus Interchanges are as follows:

- Apply to all bus/coach/tram stops, whether they form a multi-stop interchange or a single stop.
- All Tram/Bus stops are classified as I5, unless otherwise designated.
- Tram/Bus stops within 200m of a Rail Station are classified the same as that Rail Station.
- Else, the Tram/Bus stop is classified as the highest score of the 4 sub-classifications – Service Diversity, Usage, Catchment, Special Function.
- Tram and bus stops (serving different routes) that are located within proximity to each other perform a combined interchange function and are therefore considered as a single interchange (i.e. stops within 100 metres of each other/ an overlapping radius, or buffer, of 50 metres).

Note: Mapping Currently only applies to interchanges that contain train stations.

Public Transport – Rail

Rail (R)	Definition
R1	Mass movement of people providing high frequency access to a high-level Places.

Public Transport – Tram and Bus

Tram (T) /Bus (B)	Definition	Mapping Indicative capacity and service frequency by tram or bus type
T1/B1	Mass movement of people by bus and tram to and through state significant places	Capacity: 1,800 per hour Trams/hr (by class) • E: 10+ (freq 6 mins or better) • B,C,F: 13+ (freq 4 mins or better) • A,Z: 30+ (freq 2 mins or better) Buses / hr: • 25+ buses/hr

		• frequency 2 mins or better
T2/B2	Movement of people by higher frequency bus and tram to access higher order places	Capacity: 750 – 1,800 per hour Trams/hr (by class): • E: 4 – 9 (freq 7 – 15 mins) • B,C,F: 6 – 12 (freq 5 – 10 mins) • A,Z: 11 – 30 (freq 2 – 6 mins) Buses/hr: • 11 – 25 (freq 2 – 6 mins)
T3/B3	Movement of people by moderate frequency bus and tram	Capacity: 250 – 750 per hour Trams/hr (by class): A,Z: 4 – 10 (freq 6 – 15 mins) Buses/hr: 4 – 10 buses (freq 6 – 15 mins)
B4	Movement of people by lower frequency local bus	Capacity: 125 – 250 Buses/hr: 2 – 3 buses (freq 20 – 30 mins)
B5	Movement of people by low/irregular frequency bus	Capacity: 0 – 125 Buses/hr: 1 bus (freq 40 mins or less)

Note: Mapping only currently applied to metropolitan areas.

Freight (on-road)

Freight (F)	Definition	Mapping
F1	Mass movement of goods at high speed	All freeways and nationally significant routes on the PFN
F2	Routes that facilitate significant movement of goods where higher speeds are not achievable due to a constrained operating environment	Arterial roads on the PFN
F3	Freight access routes where provision for freight vehicles is important however freight is not a priority movement	Arterial network. Local B Double and HML network
FS	Special freight routes required for the movement of goods by unique freight vehicles	OD routes and OSOM routes

Where the following principles apply, it is likely that the road's freight (F) function matches its classification:

- F1 classifications support long distance, high value freight movements. They are intended to move large quantities of goods at higher speeds. Freight is a priority movement on these routes.
- FS routes do not support significant numbers of vehicle movements but are critical for the vehicles that do use them as there may be no alternative route.

Note: where there is a FS classification, there can also be an F1, F2, or F3 classification.

General Traffic

The General Traffic classifications are based on Motorways, the Arterial Road network and SmartRoads (superseded) Preferred Traffic Routes. These are shown in the table below.

General Traffic (GT)	Definition	Mapping
GT1	Mass movement of people by private vehicles on routes with a State or National level movement function or providing primary access to State level places (P1)	**Melbourne:** Freeways in Melbourne **Regional:** High Level Connectivity – Functional Classification
GT2	Significant movement of people by private vehicle on routes connecting multiple municipalities or providing primary access to Regional level places (P2)	**Melbourne:** Preferred Traffic Routes (and future Preferred Traffic Routes) **Regional:** Good Connectivity Functional Classification
GT3	Moderate movement of people by private vehicle on routes connecting municipalities or providing primary access to Municipal level places (P3)	**Melbourne:** Remaining arterial roads **Regional:** Moderate Connectivity Functional Classification
GT4	Movement of people by private vehicle within a municipality or providing primary access to Neighbourhood level places (P4)	**Melbourne:** Local Roads on Bus Priority Routes and Local roads on PBN. **Regional:** Arterial Connectivity Functional Classification
GT5	Local people movement by private vehicle	All remaining roads

Other movements to be developed

Other movements that are currently not mapped include:

Tourist Route (not mapped)	TR1-TR3
Motorcyclist Touring (not mapped)	MTR1-MTR3
Emergency (not mapped)	EM1-EM3 (Refer to website)

Safety Classification

Road Safety Classification

Safety (S)	Definition
S1	An operating environment and transport system that do not result in death or serious injury as a consequence of errors on the roads.

Note: Not mapped just assumed to the whole network

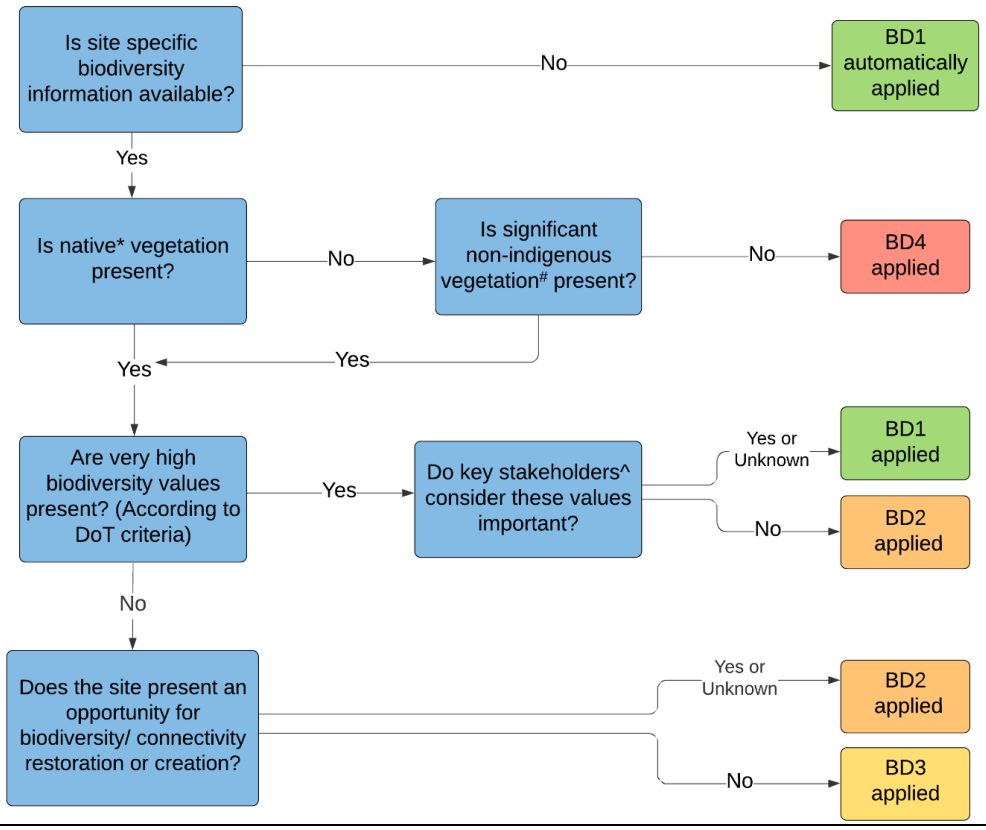
Environment Classification

Biodiversity Classification

Biodiversity (BD)	Definition
BD1	Very High Biodiversity values of significant strategic importance or site values and strategic importance not known.
BD2	Very High biodiversity values with no particular strategic importance or site with significant non-indigenous vegetation or indigenous vegetation with strategically important rehabilitation potential.
BD3	No very high biodiversity values (including significant non-indigenous vegetation); site not strategically important for creating additional biodiversity values.
BD4	No native vegetation or no significant non-indigenous vegetation.

Note: Biodiversity classifications are not mapped they need to be determined at a project specific level

Biodiversity Classification Tool



*Native vegetation = plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses, including dead trees.

#Significant non-native vegetation can include trees, shrubs, herbs and grasses that provide important habitat or resources for native fauna species.

^ Examples of key stakeholders includes DELWP representatives, councils, CMAs and/or subject matter experts. Traditional Owners must be invited to contribute if they express an interest to do so. Community groups and community members should be consulted at this stage.

NOTE: Refer to the Movement & Place Biodiversity Practice Note for more information

Appendix E Detailed SIDRA Outputs

Table 12 Intersection Performance

Site No.	Site	Approach	Thur 20th January 2022					Sat 22nd January 2022					Wed 26th January 2022				
			DoS	Avg. Delay (sec)	Queue (m)	Rating	LoS	DoS	Avg. Delay (sec)	Queue (m)	Rating	LoS	DoS	Avg. Delay (sec)	Queue (m)	Rating	LoS
1	Gavan St / Anderson St	South	0.284	6.3	12.7	Excellent	A	0.251	6.3	10.9	Excellent	A	0.303	6.5	13.9	Excellent	A
		East	0.300	2.1	14.2	Excellent	A	0.298	2.2	13.9	Excellent	A	0.327	2.3	15.9	Excellent	A
		West	0.298	4.5	14.0	Excellent	A	0.323	4.4	15.6	Excellent	A	0.343	4.6	16.9	Excellent	A
2	Gavan St / Star Rd	East	0.226	1.6	5.1	Excellent	A	0.254	1.6	6.0	Excellent	A	0.246	1.7	5.7	Excellent	A
		North	0.214	9.8	6.0	Excellent	A	0.295	10.6	9.1	Excellent	A	0.233	10.2	6.4	Excellent	A
		West	0.194	0.6	1.1	Excellent	A	0.200	0.7	1.3	Excellent	A	0.210	0.6	1.2	Excellent	A
3	Gavan St / Barnard St	East	0.232	0.7	0.0	Excellent	A	0.207	0.7	0.0	Excellent	A	0.227	0.7	0.0	Excellent	A
		West	0.226	1.6	5.1	Excellent	A	0.251	1.5	5.6	Excellent	A	0.236	1.6	5.3	Excellent	A
4	Gavan St / Howitt Ln	East	0.225	0.2	1.0	Excellent	A	0.221	0.3	1.0	Excellent	A	0.220	0.2	1.0	Excellent	A
		North	0.037	10.7	0.9	Excellent	A	0.038	10.7	0.9	Excellent	A	0.037	10.5	0.9	Excellent	A
		West	0.166	0.6	0.0	Excellent	A	0.182	0.6	0.0	Excellent	A	0.171	0.6	0.0	Excellent	A
5	Gavan St / Camp St	South	0.136	5.9	3.5	Excellent	A	0.136	5.9	3.5	Excellent	A	0.136	5.9	3.5	Excellent	A
		East	0.135	0.7	1.3	Excellent	A	0.135	0.7	1.3	Excellent	A	0.135	0.7	1.3	Excellent	A
		West	0.208	0.6	2.5	Excellent	A	0.208	0.6	2.5	Excellent	A	0.208	0.6	2.5	Excellent	A
6	Anderson St / Barnard St / Ireland St	South	0.194	2.2	7.9	Excellent	A	0.176	2.3	7.1	Excellent	A	0.190	2.2	7.7	Excellent	A
		North	0.114	4.3	4.2	Excellent	A	0.116	4.2	4.2	Excellent	A	0.108	4.3	3.9	Excellent	A
		North-west	0.108	5.1	4.1	Excellent	A	0.093	5.1	3.4	Excellent	A	0.101	5.1	3.7	Excellent	A
		South-west	0.024	3.9	0.9	Excellent	A	0.019	4.0	0.7	Excellent	A	0.025	4.0	0.9	Excellent	A