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# APPENDIX Q – Environmental Impact Statement

# Traffic impact assessment

Prepared for Lake Lyell Project Pty Ltd

# Lake Lyell Pumped Hydro Energy Storage Project

## Traffic impact assessment

Lake Lyell Project Pty Ltd

E221111 RP10

February 2026

| Version | Date | Prepared by | Reviewed by | Comments |
|---|---|---|---|---|
| 1 | 29/08/2024 | Fan Fang<br>Dr John Mai | Abdullah Uddin | Draft |
| 2 | 08/09/2025 | Jan Muller | Abdullah Uddin | Revised draft |
| 3 | 11/11/2025 | Jan Muller | Abdullah Uddin | Final draft |
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# Executive Summary

## ES1 Introduction

EnergyAustralia Portfolio Holdings Pty Ltd (EnergyAustralia) in partnership with EDF power solutions Australia (EDFA), referred to as Lake Lyell Project Pty Ltd (LLP) as trustee, is developing the Lake Lyell Pumped Hydro Energy Storage (PHES) Project (the project). The project will have the capacity to store up to 3,080 megawatt hours (MWh) of energy and generate at 385 megawatts (MW) for 8 hours or generate up to around 440 MW for a shorter period. The project, located near Lithgow, 100 kilometres (km) west of Sydney, leverages existing infrastructure from the Mount Piper power station, which will be decommissioned in the coming decades.

In June 2024, the project was declared critical State significant infrastructure (CSSI) by the Minister for Planning and Public Spaces. As CSSI, the project is subject to rigorous environmental impact assessment under the EP&A Act, requiring an environmental impact assessment (EIS) and Ministerial approval.

This traffic impact assessment (TIA) forms part of the EIS for the project.

## ES2 Existing

Traffic surveys for the project were undertaken in July 2025, during a non-school holiday period to reflect typical traffic conditions. Crash data for the period 2019 to 2023 indicate that the road network adjacent to the construction area is generally safe. Only a few crashes were recorded along Magpie Hollow Road, suggesting a relatively low crash risk in the immediate vicinity. However, several crashes occurred along the route between the construction site and the alternative Town camp.

Public transport options are limited. The nearest train station is located 10.5 km away in Lithgow. The site lacks pedestrian or bicycle infrastructure due to its rural location. However, occasional recreational cyclists may use the route, as the broader locality attracts visitors as a popular tourist destination.

School buses operate along Magpie Hollow Road, with one service in the morning and a returning service in the afternoon during school days. Local public bus routes in Lithgow traverse through parts of the assessed road network relevant in the context of the alternative Town camp.

## ES3 Assessment of impacts

Construction site access will be from Sir Thomas Mitchell Drive. Up to 600 workers are expected during peak construction, with around 80% accommodated in a dedicated camp. Traffic generation will peak during construction and is expected to be negligible during operation and decommissioning:

- daily traffic generation during peak construction:
    - construction site – 766 light vehicle movements, 274 heavy vehicle movements, and 104 shuttle bus movements, for a total of 1,144 vehicle movements
    - accommodation camp (Lakeside or Town camp option) – 390 light vehicle movements, 110 heavy vehicle movements, and 104 shuttle bus movements, for a total of 604 vehicle movements
- weekday AM and PM peak hour traffic generation:
    - construction site – 383 light vehicle movements, 58 heavy vehicle movements, and 52 shuttle bus movements, for a total of 493 vehicle movements during each peak hour

- accommodation camp (Lakeside or Town camp option) – 182 light vehicle movements, 42 heavy vehicle movements, and 52 shuttle bus movements, for a total of 276 vehicle movements during each peak hour.

The preferred location for the accommodation camp is Lakeside on Lockyers Line near the construction area. An alternative Town camp location is in Lithgow near the Valley Plaza shopping area. While ultimately only one location will be selected, traffic impacts for both accommodation locations have been assessed for two scenarios, with most project traffic originating from Sydney / Blue Mountains or from Lithgow.

The assessment has adopted a modified Magpie Hollow Road / Sir Thomas Mitchell Drive intersection layout. Vehicles travelling between Magpie Hollow Road (north) and Sir Thomas Mitchell Drive are given priority (refer to Section 2.4).

Traffic analysis indicates that the Great Western Highway / Magpie Hollow Road intersection, under the existing give-way control, cannot accommodate project-related traffic, regardless of the accommodation camp location. Signalisation is required to improve safety and intersection performance to acceptable levels.

Establishing the camp lakeside will have less traffic impact compared to the town location but would require upgrading Magpie Hollow Road between Lockyers Line and Thomas Mitchell Drive, and the Magpie Hollow Road / Lockyers Line intersection. By contrast, locating the camp in town requires vehicles to travel for approximately 10 km along Lithgow Street, Wrights Road, Methven Street, Musket Parade, Bayonet Street, and the Great Western Highway, causing several issues:

- At the Great Western Highway / Magpie Hollow Road intersection, the right-turn queue on the north approach exceeds the available turn bay capacity under the scenario where most construction traffic originates from Lithgow, requiring extension of the turn lane pocket. This constraint does not occur if most construction traffic originates from the Blue Mountains and Sydney.

- At the Great Western Highway / Bayonet Street intersection, the right-turn queue on the south approach exceeds the available turn bay capacity, requiring extension of the turn lane. Otherwise, the northbound through movement may be impeded.

- The Lithgow Street / Kirkland Link intersection would perform poorly under existing give-way control regardless of project-only or cumulative traffic including the impact from the nearby Bunnings store. The intersection requires an upgrade to signal control.

- Several sight line issues have been identified:

  - right turn from Magpie Hollow Road onto Great Western Highway; upgrade to signal control is recommended to address this issue

  - left and right turn from Sir Thomas Mitchell Drive onto Magpie Hollow Road, requiring realignment of the intersection

  - left turn from Lockyers Line onto Magpie Hollow Road, requiring installation of truck warning signs on Magpie Hollow Road.

Public transport, pedestrian, and cycling routes are not expected to be impacted by the project. To mitigate potential disruptions to local school bus operations, truck drivers will be notified about the presence of school buses on Magpie Hollow Road, documented in a Drivers Code of Conduct. On-site parking will be provided to ensure vehicles do not park on public roads.

If the Town camp is established in Lithgow, project vehicles will traverse several bus routes and stops enroute to the construction area. However, bus stops will not be affected by increased vehicle queues. Additional delays at intersections are expected to be minor, resulting in limited impact on bus operation.

## ES4 Road upgrades and mitigation measures

A schedule of road upgrades and intersection treatments is required to facilitate project traffic movements:

- Irrespective of accommodation camp location:
  - Great Western Highway / Magpie Hollow Road intersection to be upgraded to signal control
  - Magpie Hollow Road upgrade to 9-metres (m)-wide sealed road, between Great Western Highway and Sir Thomas Mitchell Drive
  - Sir Thomas Mitchell Drive upgrade to 9-m-wide sealed road, between Magpie Hollow Road and construction site access
  - Basic Left Turn (BAL) treatment on Magpie Hollow Road north approach at the Sir Thomas Mitchell Drive intersection.
- Lakeside camp:
  - Magpie Hollow Road upgrade to 9-m-wide sealed road, between Sir Thomas Mitchell Drive and Lockyers Line
  - Lockyers Line upgrade to 7-m-wide sealed road, between Magpie Hollow Road and the Lakeside camp location access
  - Channelised Right Turn (CHR) treatment on Sir Thomas Mitchell Drive west approach at the Magpie Hollow Road intersection
  - Short Channelised Right Turn (CHR(s)) treatment on Magpie Hollow Road north approach at the Lockyers Line intersection.
- Town camp:
  - Extend turn queues on Great Western Highway and both the north approach to Magpie Hollow Road and the south approach to Bayonet Street (or other solution developed with Transport for NSW (TfNSW))
  - Basic Right Turn (BAR) treatment on Sir Thomas Mitchell Drive west approach at the Magpie Hollow Road intersection
  - Lithgow Street / Kirkland intersection to be signalised (or other solution developed with Lithgow City Council).

Note that the project includes the Lakeside camp as the preferred option. The Town camp has been identified and assessed as a possible alternative site however the associated road upgrades that would be required will need to be designed in consultation with Lithgow City Council and/or TfNSW. As such, this TIA has made recommendations for road safety and upgrade requirements that will need to be resolved should this option ultimately be selected prior to project approval.

A signage plan is recommended to be developed for the area, in consultation with Lithgow City Council, for consideration by the Lithgow Local Traffic Committee (refer to Section 0).

A construction traffic management plan (CTMP) will be prepared by the construction contractor. The CTMP will aim to ensure the safety of workers and road users within the vicinity of the project.

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# 1 Introduction

## 1.1 Background

EnergyAustralia Portfolio Holdings Pty Ltd (EnergyAustralia) in partnership with EDF power solutions Australia (EDFA), referred to as Lake Lyell Project Pty Ltd (LLP) as trustee, is developing the Lake Lyell Pumped Hydro Energy Storage (PHES) Project (the project). The project will have the capacity to store up to 3,080 megawatt hours (MWh) of energy and generate at 385 megawatts (MW) for 8 hours or generate up to around 440 MW for a shorter period. At a basic level, it will consist of upper and lower water reservoirs, a pipeline connecting them, and a hydro-electric power station connected to the national energy grid that is capable of generating or consuming electricity.

The project is located approximately 5 kilometres (km) west of Lithgow and 110 km west of the Sydney central business district, shown in Figure 1.1 and Figure 1.2. The project takes advantage of existing infrastructure (i.e. Lake Lyell) associated with Mount Piper power station which will be decommissioned in the coming decades and allows Lake Lyell to continue to serve a specific purpose in electricity generation (consistent with its existing use).

In June 2024, the Minister for Planning and Public Spaces declared the project to be critical State significant infrastructure (CSSI). Accordingly, approval for the project is required under Part 5, Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). This requires the preparation of an environmental impact statement (EIS) for the project in accordance with Secretary's environmental assessment requirements (SEARs) and the approval of the Minister. EMM Consulting Pty Limited (EMM) has been engaged by LLP to prepare the EIS.

This traffic impact assessment (TIA) is an appendix to the project's EIS and should be read in conjunction with it. The TIA addresses the SEARs issued for the project.

## 1.2 Assessment guidelines and requirements

This TIA has been prepared with reference to relevant guidelines, policies and industry requirements, and following consultation with stakeholders, including relevant government agencies and the community. Guidelines and policies referenced are as follows:

- Transport for NSW (TfNSW) Guide to Transport Impact Assessment (2024).
- Austroads Guide to Road Design Part 3: Geometric Design (Austroads 2016a).
- Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development (Austroads 2016b).
- Austroads Guide to Road Design Part 4: Intersections and Crossings: General (Austroads 2017).
- The Roads and Maritime Supplements to Austroads.

This TIA includes:

- determining the existing background traffic conditions (types and number of movements) on the surrounding road network and associated levels of service along road sections and intersections that would be used to facilitate site access for the project during construction and operation
- determining the project's likely traffic generation (volumes and scheduling) associated with the construction phase (including transport and movements of excavated materials)
- determining the adequacy of the local road network to accommodate the project's estimated traffic generation volumes

- considering the availability / adequacy of on-site parking for site personnel
- assessing the potential impacts with construction traffic for the project, including:
  - an assessment of the existing road network in terms of its safety and capacity
  - an assessment of the vehicular accessibility to the nominated construction sites
  - an assessment of heavy vehicle accessibility to the sites and travel routes
  - identifying the likely road upgrade requirements
  - identifying other traffic management measures that would be required as part of this project.

### 1.2.1 SEARs

This TIA has been prepared in accordance with the requirements of the NSW Department of Planning, Housing and Infrastructure (DPHI) and relevant agencies, which are set out in the SEARs for the project, issued on 17 November 2025. The SEARs identify matters which must be addressed in the EIS. Individual requirements relevant to this TIA and where they are addressed in this report are listed in Table 1.1.

**Table 1.1 SEARs relevant comments and EMM responses**

| No. | SEARs requirement | EMM responses / information location |
|---|---|---|
| 1 | An assessment of the peak and average traffic generation, including over-dimensional vehicles / heavy vehicles requiring escort and construction worker transportation. | Chapter 4 |
| 2 | An assessment of the likely transport impacts to the site access route(s) including for over-dimension vehicles, site access point(s), any Crown land, particularly in relation to the capacity and condition of the roads, road safety and intersection performance. | Annexure D |
| 3 | A cumulative impact assessment of traffic from nearby developments. | Section 4.2 |
| 4 | Provide details of measures to mitigate and/or manage potential impacts including a schedule of all required road upgrades (including resulting from heavy vehicle and over mass/over dimensional traffic haulage routes), clear figures of proposed road upgrades (including the site access points), road maintenance contributions, and any other traffic control measures, developed in consultation with the relevant road authority. | Chapter 6 |
| 5 | Details of ongoing maintenance works required to service assets, outlining the measures to maintain the road. | Chapter 6 |

### 1.2.2 Agency engagement

DPHI invited government agencies, including Transport for NSW (TfNSW) and Lithgow City Council (Council), to recommend matters to be addressed in the EIS. These matters were considered by the Secretary for DPHI when preparing the SEARs. Comments made by agencies relating to the assessment of TIA and where they are addressed in this report are outlined below.

#### i Transport for NSW

TfNSW in its letter dated 17 August 2023 raised several traffic related comments. TfNSW comments and EMM responses are provided in Table 1.2.

**Table 1.2 TfNSW comments and EMM responses**

| No. | TfNSW comments | EMM responses / information location |
|---|---|---|
| ***Over Size Over Mass (OSOM) Vehicles*** | | |
| 1a | Identify the oversize over mass (OSOM) route to be utilised and any indicative pinch points within the network vertically, horizontally and laterally and the potential civil works required to accommodate the OSOM vehicles. | Annexure D |
| 1b | The logistics assessment is to highlight each at-risk road structures that the haulage route crosses including bridges, traffic signals, signage, major culverts, and minor culverts that may not meet the desirable cover to cater for proposed axle loads. | Annexure D |
| 1c | Pull-over bay locations for the design vehicle or identification of any long haulage segments of the route where overtaking cannot be achieved. | Annexure D |
| 1d | The design vehicle templates used with the swept path analysis software are also requested in order for TfNSW to review the performance within the software (e.g. Autodesk Vehicle Tracking or Transoft AutoTURN) | Annexure D |
| 1e | Provide the following measurements parameters of the OSOM components / materials to be moved:<br>• Identify all the types of OSOM vehicles proposed to be used for the project.<br>• Overall combination length, width, height and mass.<br>• Maximum component length (e.g. blade length, blade overhang length, etc.).<br>• Maximum component widths (e.g. turbine tower, battery component, pipes, etc.).<br>• Maximum load heights (clearance to overhead obstructions such as structures, utilities and vegetation).<br>• Wheelbase dimensions.<br>• Maximum trailer articulation angle(s).<br>• Minimum overhang heights above the road surface.<br>• Axle loads and axle group loads in terms of both tonnes and Equivalent Standard Axles (refer to Austroads Guide to Pavement Technology). | Sections 4.5.1 and 4.5.2 |
| 1f | The cumulative impacts and consideration in relation to the timing of movements of OSOMs where other projects will be utilising the same routes as proposed for this development. | Annexure D |
| 1g | Identify the return routes for OSOMs. | There are no return trips as the vehicle will be dismantled. |
| 1h | National Heavy Vehicle Regulator (NHVR) approved routes identified on the Restricted Access Maps (RAV MAP) are to be utilised for the heavy vehicle routes for the proposed development. | Annexure D |

| No. | TfNSW comments | EMM responses / information location |
|---|---|---|
| 1i | Further include details on the number of OSOM movements, the intended time for OSOM movements to occur, and GPS coordinates along the proposed routes for pinch points, traffic management measures and pull-over bays / rest areas along the OSOM routes. | Annexure D |
| 1j | Identifying road and rail projects occurring along the OSOM route within the anticipated schedule for the movement of the OSOM components. Inclusive of any impacts (e.g. civil works or obstructions) that could impede the movement of the OSOM components due to the concurrent road and rail projects occurring along the nominated OSOM route(s). | Annexure D |
| 1k | Origin, haulage route and destination. | Annexure D |
| ***Traffic Impact Assessment (TIA)*** | | |
| 2 | Identify the timeframe for the schedule of works (commencement year and completion year) overlapping timeframe of components during construction (to capture worst case scenario) and identify the construction hours for the project. | Section 4.1 |
| **3. Detailed plans identifying the proposed location of any:** | | |
| 3a | Project-related infrastructure within and outside of the project boundary. | Chapter 2. Further details of the project components are provided in the EIS. |
| 3b | Transmission line infrastructure, or any other project-related structures, within a road reserve. Include demarcation of local and classified road reserves. | Chapter 2. Further details of the project components are provided in the EIS. |
| 3c | Identify the key access roads with the classified road network required for the project (including any access required from classified road network for components being constructed outside of the project area) and justification of additional access required to a classified road in accordance with section 2.119 of *State Environmental Planning Policy (Transport and Infrastructure) 2021*. | Chapter 2. Further details of the project components are provided in the EIS. |
| 3d | The Scoping Report identifies that ancillary infrastructure and temporary facilities will be provided on-site including (but not limited to) concrete batching facilities. The TIA will need to identify the source for input materials and quantify the traffic generation associated with the haulage of the source materials. | Chapter 4. Further details of the project components are provided in the EIS. |
| **4. Cumulative impacts:** An assessment should be undertaken as a part of the EIS and TIA to identify the projects that will have overlapping construction periods and assess the cumulative traffic impacts with emphasis on the following: | | |
| 4a | The cumulative impacts from traffic generated from the construction workforces in terms of the origin destination routes, access, AM/PM peaks where there is overlap with other projects. | Section 4.2 |
| 4b | The cumulative impacts of heavy vehicle movements in terms of AM/PM peaks and routes where there is an overlap with other projects. | Section 4.2 |
| **5. Project schedule** | | |
| 5a | Hours and days of work, number of shifts and start and end times. | Section 4.1.1 |
| 5b | Phases and stages of the project, including construction, operation and decommissioning. | Section 4.1 |

| No. | TfNSW comments | EMM responses / information location |
|---|---|---|
| 6 | **Traffic volumes including:**<br>• existing background traffic<br>• project-related traffic for each phase or stage of the project<br>• projected cumulative traffic at commencement of operation, and a 10-year horizon post-commencement. | Section 3.4.1, Section 3.5, Section 4.1.4, Section 4.1.5, Section 4.1.6<br>Since the maximum traffic generation will occur during the construction stage, any traffic analysis for a 10-year horizon is not required. |
| 7 | **Traffic characteristics including:**<br>• number and ratio of heavy vehicles to light vehicles<br>• peak times for existing traffic<br>• peak times for project-related traffic including commuter periods<br>• proposed hours for transportation and haulage<br>• specify the design vehicles for the project (in particular identifying all relevant types of heavy / OSOM /specialist vehicles and shuttle buses)<br>• interactions between existing and project-related traffic. | Section 3.4.1, Section 3.5, Section 4.1.4, Section 4.1.5, Section 4.5 |
| 8 | Capacity analysis using SIDRA or other relevant application, to identify an acceptable Level of Service (LOS) at intersections with the classified (State) road/s, and where relevant, analysis of any other intersections along the proposed transport route/s. | Section 5.3 |
| 9 | The origins, destinations and routes for:<br>• commuter (employee and contractor) light vehicles and pool vehicles<br>• heavy (haulage) vehicles. | Section 4.1.5 |
| 10 | Road safety assessment of key haulage route/s. Where road safety concerns are identified at a specific location along the proposed haulage routes, TfNSW suggests that the TIA be supported by a targeted Road Safety Audit undertaken by suitably qualified persons in accordance with the Austroads Guidelines. | Section 5.8 |
| | Identify the necessary road network infrastructure upgrades that are required to cater for and mitigate the impact of project related traffic on both the local and classified road network for the development (for instance, road widening and/or intersection treatments). In this regard, preliminary concept drawings should be submitted with the SSD application for any identified road infrastructure upgrades. It should be noted that any identified road infrastructure upgrades will need to be to the satisfaction of TfNSW and Council. | Section 6 |
| | • Proposed road facilities, access and intersection treatments are to be identified and be in accordance with Austroads Guide to Road Design including provision of Safe Intersection Sight Distance (SISD). | Section 5.6, Section 5.7, Section 5.8 |
| | • Consideration of the local climate conditions that may affect road safety during the life of the project (e.g. fog, wet and dry weather, icy road conditions). | This will be incorporated in the Traffic Management Plan and Drivers Code of Conduct to be prepared in accordance with the project approval conditions. |
| | The layout of the internal road network, parking facilities and infrastructure. | Section 5.10 |
| | Impact on public transport (public and school bus routes) and consideration for alternative transport modes such as carpooling and shuttle buses during construction. | Section 5.9 |

| No. | TfNSW comments | EMM responses / information location |
|---|---|---|
| | Identification and assessment of potential environmental impacts of the project, such as blasting, lighting, visual, noise, dust and drainage on the function and integrity of all affected public roads. | The blasting, lighting, visual, noise and drainage assessment are out of scope of this TIA and are covered in other technical assessments as part of this EIS. |
| | Controls for transport and use of any dangerous goods in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development, the Australian Dangerous Goods Code and AS4452 Storage and Handling of Toxic Substances. | Any dangerous goods assessment is out of scope of this TIA. |
| | A draft traffic management plan (TMP) that could be implemented following approval of the EIS, in consultation with relevant Councils and TfNSW. | Chapter 7 |
| | Awaiting Maritime comments for the Navigable Water component for the Lake Lyell. The SEARs will be updated and reissued upon receipt of the comments from Maritime. | No specific requirements were received from NSW Maritime as at the date of this TIA. |

A meeting was also held with TfNSW on 23 October 2025 to present the outcomes of the draft TIA and discuss proposed mitigation and management measures. TfNSW's comments are summarised below and have been considered in the preparation of this TIA:

- Signalisation of Great Western Highway / Magpie Hollow Road intersection: TfNSW request that justification for the signalisation of this intersection, in relation to safety, is included in the TIA. This should include an explanation of options explored. TfNSW also indicated that the detailed design should be considered with broader context by bringing other community benefits.
- Town camp: To minimise any potential upgrade work at the signalised intersections along the Great Western Highway, TfNSW has suggested staggering the traffic to minimise traffic impacts during the peak hours, if feasible.
- Design: TfNSW supported not presenting signal design as part of the EIS until the preferred accommodation camp is selected. It was agreed that this can be considered during Response to Submission (RTS) stage.
- Speed reductions: TfNSW is not supportive to any speed zone reduction associated with any development application, including on Magpie Hollow Road.
- OSOM movements: TfNSW has asked to review the feasibility of the OSOM route 1 (via M7/M4 motorways, Great Western Highway) and noted that there may be potential localised traffic restriction for certain type of OSOM vehicles.

### ii Lithgow City Council comments

The Council in its letter dated 11 August 2023 raised several traffic related comments. Council's comments and EMM responses are provided in Table 1.3.

**Table 1.3 Lithgow City Council's comments and EMM responses**

| No. | Lithgow City Council's comments | EMM responses/information location |
|---|---|---|
| 1 | In addition to potential traffic volumes and impacts, Council requires management measures safety, and road designs for the proposed upgrade works to Sir Thomas Mitchell Drive, as well as the entry designs. | Chapter 6, Chapter 7 |
| 2 | A traffic management plan will be required to be developed to include any road closures during construction work as well as a roadside vegetation management plan. | Chapter 7 |
| 3 | Should the proposal be approved, Council would require a bond agreement for the upgrade works. | Road maintenance agreement will be discussed with Council as part of the approval conditions. |
| 4 | Engineering details should also be provided within the EIS to detail the bridge crossing over Farmers Creek. | Section 4.7 |

An online meeting was held with Council on 13 October 2025 to present the outcomes of the draft TIA and discuss proposed mitigation and management measures. Council's comments are summarised below and have been considered in the preparation of this TIA:

- Council is supportive to the proposed signalisation of Great Western Highway / Magpie Hollow Road. It will assist the residential developments further to the north in relation to vehicular accesses to/from Great Western Highway.
- Council is supportive to the proposed intersection upgrade at Magpie Hollow Road / Sir Thomas Mitchell Drive and Magpie Hollow Road / Lockyers Line intersections and road widening of Magpie Hollow Road and Sir Thomas Mitchell Drive.
- Council is supportive to the proposed signalisation of Lithgow Street / Kirkland Link intersection (associated with the Town camp). There are existing sight distance issues to the left from Valley Drive to Kirkland Link. Hence, Council has installed a convex mirror on the western side of Kirkland Link, opposite to Valley Drive. Should the Town camp option proceed, the LLP and Council will work together for the traffic congestion and safety issues at these two closely spaced intersections (Lithgow Street / Kirkland Link and Kirkland Link / Valley Drive).
- Overall Council is supportive of all the proposed road upgrades as part of this project as it resolves many inherent traffic safety and congestion issues in the locality.
- Upon submission of the EIS traffic report, Council will refer the proposed road upgrades as part of this project to the Lithgow Traffic Committee.

## 1.3 Limitations of this report

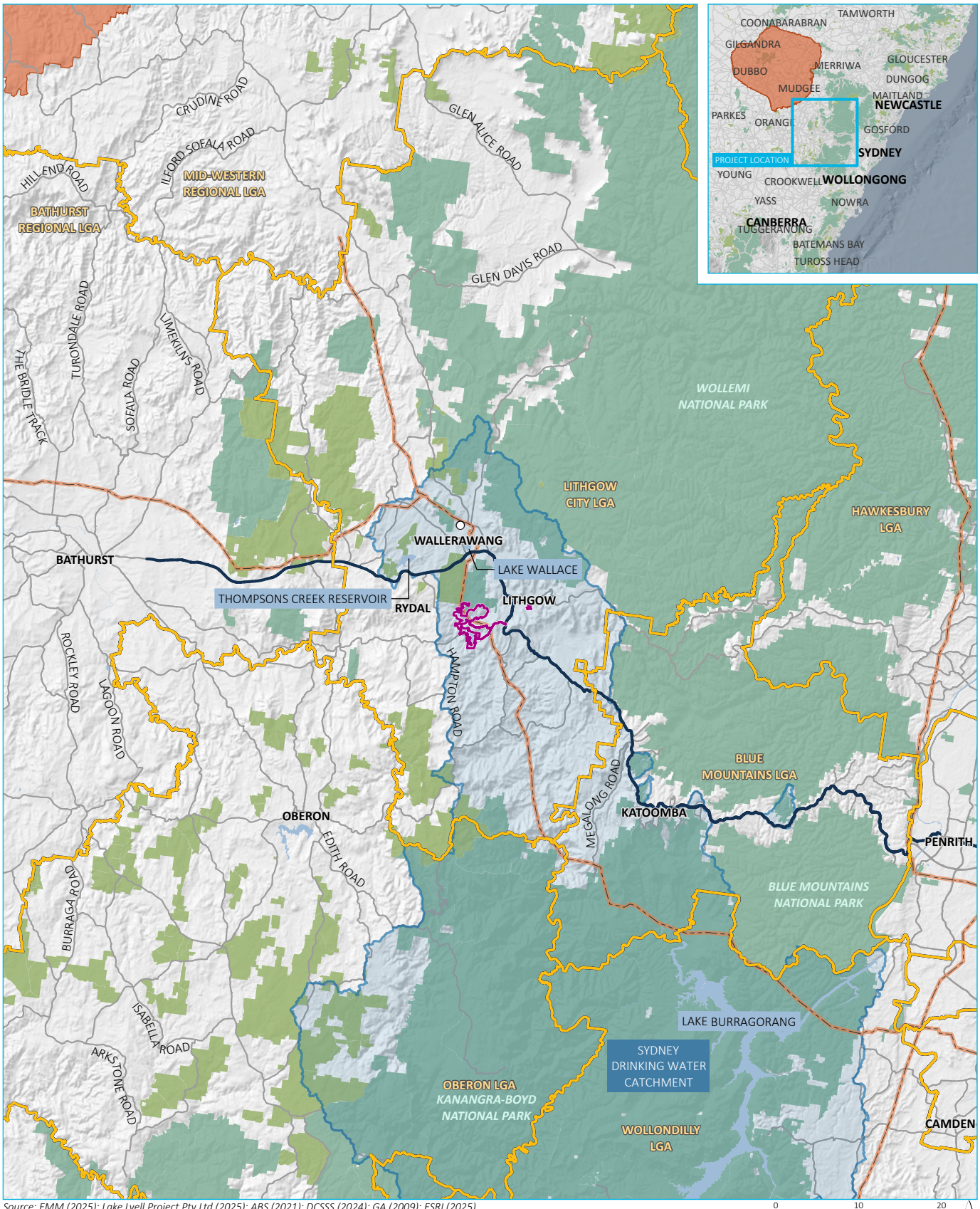
The purpose of TIA is to identify key traffic safety, efficiency, and constraint issues along the project's proposed transport and haulage routes and to recommend mitigation measures where required. This report does not provide detailed design requirements for necessary road or intersection upgrades associated with the project.

Estimated traffic volumes and timelines are based on information provided by the proponent. These may change following the appointment of a construction contractor and completion of detailed design. Accordingly, the project schedule, traffic volumes, and resulting recommendations (refer to Chapter 6) may change.

Any bridges required for this project will be subject to detailed assessment by a quantified road designer and structural engineer during the detailed design phase.

A construction traffic management plan (CTMP) will be prepared prior to commencement of works. The appointed construction contractor will be responsible for conducting a detailed risk assessment of project haulage routes to ensure road safety. A Road Safety Audit may also be required to identify existing hazard. Site-specific risks that arise during construction will be the responsibility of the contractor to assess and mitigate these. EMM bears no responsibility in this regard.

Given the scale and duration of the project, ongoing liaison with TfNSW, Lithgow City Council and the community will be necessary to address road safety risks and to ensure effective outcomes.




Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); ABS (2021); DCSSS (2024); GA (2009); ESRI (2025)

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GDA2020 MGA Zone 56

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## KEY

- Project area

Existing environment

- Mt Piper Power Station
- Major road
- Great Western Highway
- 330 kV transmission line
- Named waterbody
- NPWS reserve
- State forest
- Local government area
- Sydney Drinking Water Catchment
- Central West Orana Renewable Energy Zone

## INSET KEY

- Major road
- NPWS reserve
- State forest
- Central West Orana Renewable Energy Zone

# Regional context

Lake Lyell PHES
Traffic Impact Assessment
Figure 1.1

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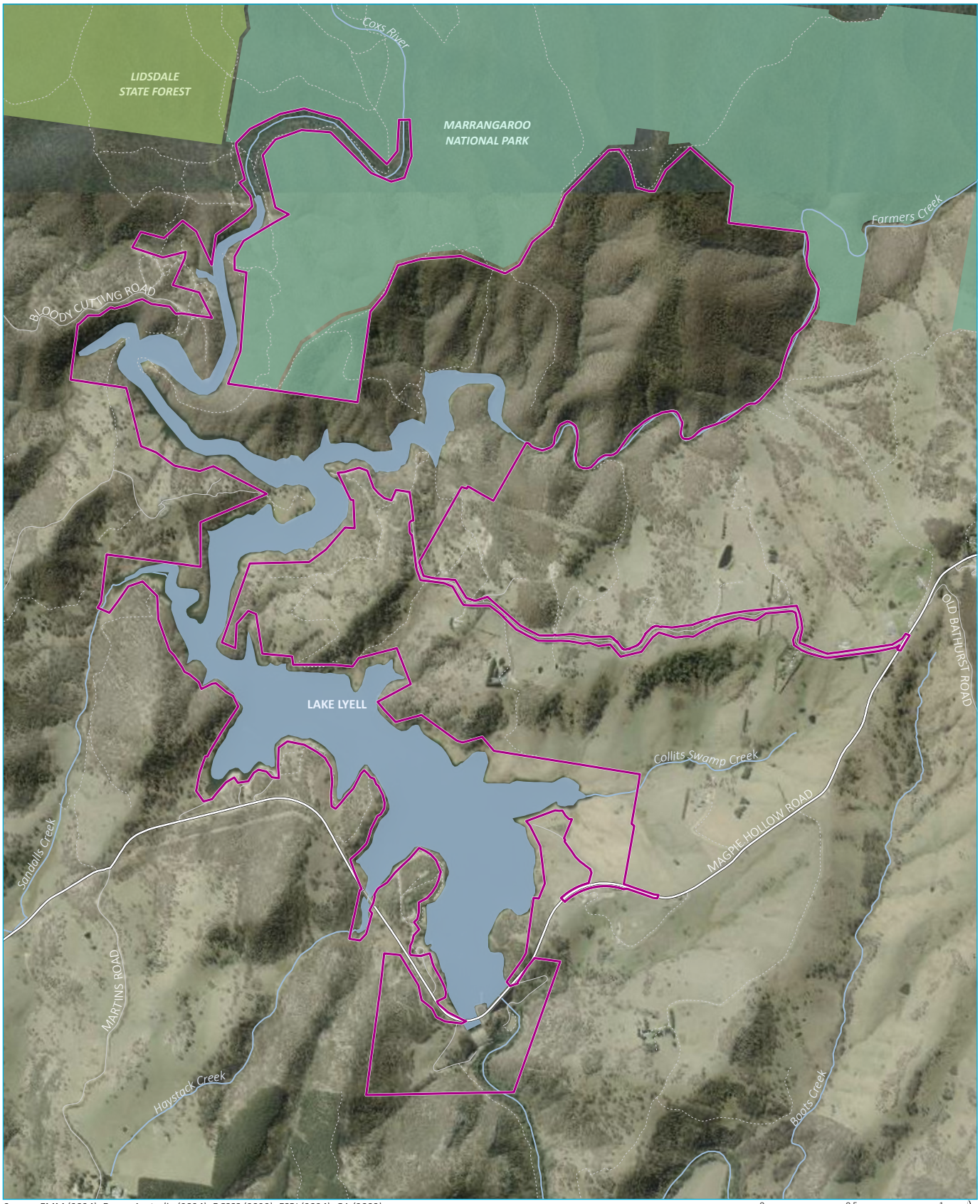


Source: EMM (2024); EnergyAustralia (2024); DCSSS (2023); ESRI (2024); GA (2009)

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KEY

- Project area
- Existing environment
- Major road
- Minor road
- Vehicular track
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

Local context

Lake Lyell PHES
Traffic Impact Assessment
Figure 1.2

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# 2 Project description

A detailed description of the project, including an overview of its design, construction and operation is provided in the project's EIS. The EIS (specifically Chapter 3 and Appendix B) should be read in conjunction with this report. A summary of the project's key elements is provided below.

The project design, as shown in Figure 2.1, can be broadly categorised into:

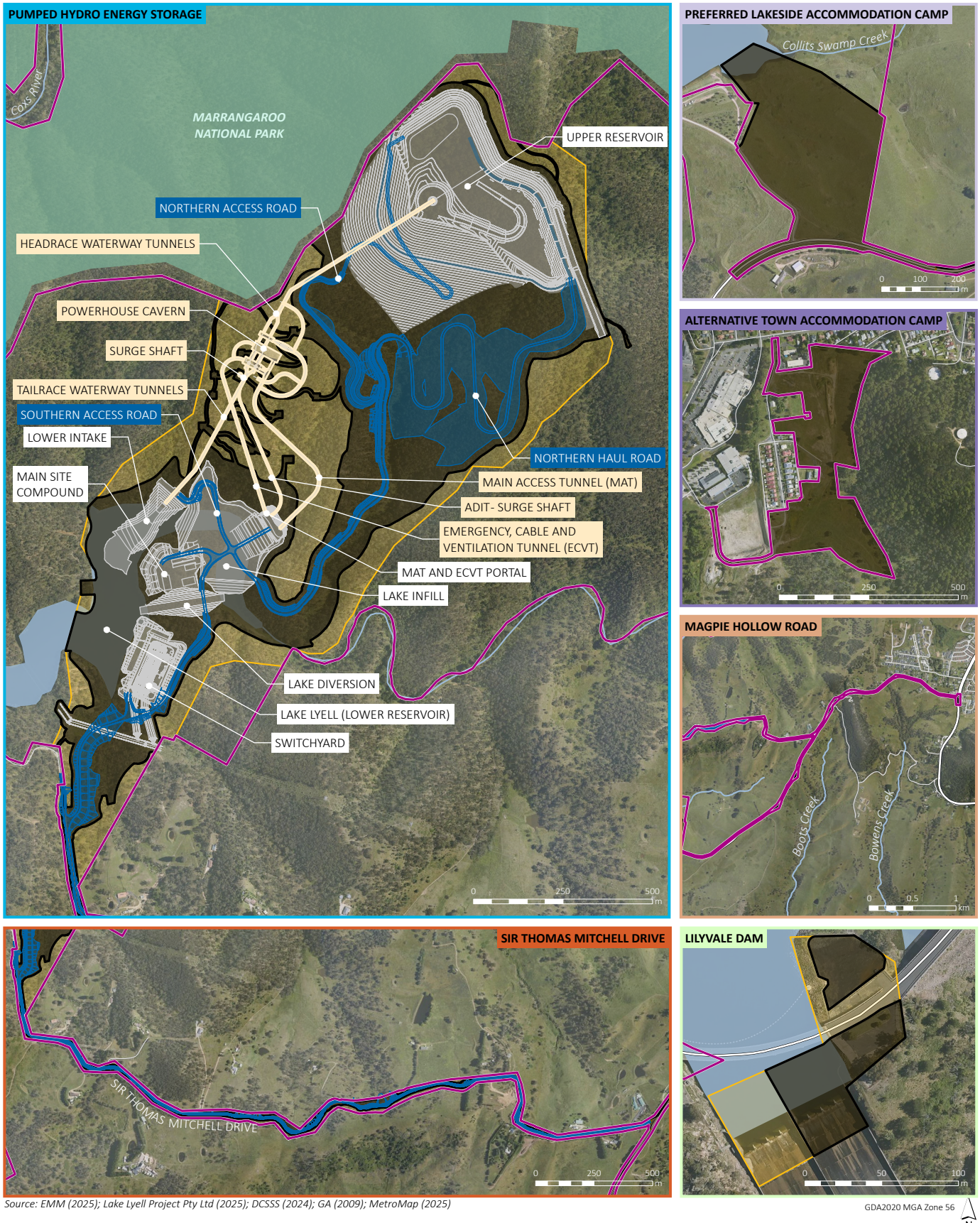
- pumped hydro generation components – including a 5.3 gigalitre (GL) upper reservoir to be constructed behind the southern ridge of Mount Walker, a 33.5 GL lower reservoir (existing Lake Lyell), inlet / outlet structures, and an underground powerhouse, surge shaft and waterway tunnels
- transmission connection components – including a new high voltage switchyard and connection to the existing 330 kilovolt (kV) transmission line that runs through the site
- site access and ancillary facilities – including upgrade of existing and construction of new access roads and bridges, a diversion and infill of a section of Lake Lyell, administration and utilities
- other construction components or works – including geotechnical investigations, temporary workforce accommodation, site work pads, laydown areas and facilities, and spoil management.

Construction will be completed in stages, including:

- pre-construction / enabling works – consisting of initial access works (internal and external roads), geotechnical investigations, site establishment and preparation of the worker's accommodation camp
- main works – consisting of all other construction activities needed to enable operation of the project.

During operation, the project will act as an electrical energy storage system through the conversion of electrical to kinetic energy to gravitational energy and back via water as it is transferred from the elevated upper reservoir to a lower reservoir. The project will provide services to the wholesale 'spot' market on the National Electricity Market (NEM), and support ancillary services used to manage the power system reliably.

After the 80 to 100-year design life of the project, the asset may remain viable for a plant refurbishment and extension of life as has been seen for other older assets globally. Following the plants final refurbishment or once it has reached the end of its serviceable life then the project would look to return the site to a more natural state and encourage community beneficial use.




*Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009); MetroMap (2025)*

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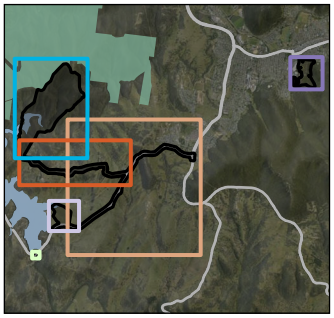

KEY

- Project area
- Permanent road
- Above ground design
- Underground design
- Construction envelope
- Disturbance footprint

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve

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# Project overview

Lake Lyell PHES
Traffic Impact Assessment
Figure 2.1

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## 2.1 Construction hours

Construction works would generally be conducted within the hours outlined in Table 2.1. As some activities would be undertaken 24 hours a day, seven days a week, the project construction environmental management plan (CEMP) would include out-of-hours mitigation measures to reduce potential impacts of these construction activities at nearby receptors during these periods.

**Table 2.1 Construction hours**

| Work type | Hours of work |
|---|---|
| Normal construction | Monday to Saturday 6.00 am to 6.00 pm |
| | Sundays or public holidays 9.00 am to 5.00 pm (low noise work only) |
| Deliveries | Monday to Saturday 6.00 am to 10.00 pm |
| | No work on Sundays or public holidays |
| Blasting (at surface) | Monday to Saturday 9.00 am to 6.00 pm |
| | No work on Sundays or public holidays |
| Underground excavation and tunnelling (including blasting) | Monday to Saturday 24 hours |
| | Sundays or public holidays 24 hours |

## 2.2 Workforce and accommodation

The project's peak workforce is expected to be approximately 600 full-time equivalent (FTE) workers, 80% of which are expected to require temporary accommodation. For this reason, a temporary accommodation camp for 500 workers will be provided. Two potential locations have been assessed:

- Lakeside camp near the construction site at Lockyers Line (preferred location)
- Town camp in Lithgow near Valley Plaza shopping area (alternative location).

Locating the camp in Lithgow would require vehicles to travel for approximately 10 km to the construction site, along Lithgow Street, Wrights Road, Methven Street, Musket Parade, Bayonet Street, and the Great Western Highway, as shown in Figure 3.1. Light vehicle access would be though Valley Drive, and heavy vehicle access, including shuttle buses and deliveries, though Silcock Street and Bent Street. The Town camp has been identified and assessed as a possible alternative site however any associated road upgrades will need to be discussed and designed with Lithgow City Council and TfNSW before project approval.

Only one of these accommodation camp locations will proceed, to be determined at a later stage. Any associated road upgrades will be subject to the detailed design process (not part of this TIA).

## 2.3 Construction site access and internal roads

The construction site access will be via Sir Thomas Mitchell Drive. Internal roads will be constructed to provide access to the key on-site facilities, including the switchyard pad and main site compound.

### 2.3.1 Permanent roads

The roads within the site will be constructed as part of the project, and designed considering construction and operational requirements, to minimise overall ground disturbance. It is intended that where possible construction haul roads will become permanent roads for operation, or otherwise rehabilitated.

The proposed site access and internal roads required for project operation are shown in Figure 2.1, and include:

- southern access road – joins directly with Sir Thomas Mitchell Drive and provides direct access to the main access tunnel (MAT) platform with intersections to the switchyard, surface building platform, inlet / outlet platform and the intersection to the road to the upper reservoir and includes a permanent bridge over the Farmers Creek Diversion at the lake
- inlet/outlet access road – connects the southern access road with the inlet / outlet platform area
- switchyard access road – connects the southern access road with the switchyard platform area
- surface building access road – connects the southern access road to the surface building platform area
- MAT and emergency, cable and ventilation tunnel (ECVT) access roads – located within the MAT and ECVT, the road connects the underground powerhouse with the surface access from the portals
- upper reservoir access road – the main two-way access road from the southern access road to the upper reservoir.

All permanent roads would initially be established as construction access roads and used to build project infrastructure. During construction, it is anticipated internal roads would be unsealed road, designed with sufficient berms, edge protection, and water management (such as culverts, cut drains or basins) to minimise risks to vehicles, plant, and the downstream environment. All permanent roads would be unsealed apart from the upper reservoir access road which would ultimately be completed as a combination of sealed and unsealed sections based on the vertical grades.

The permanent access roads would be two-lane roads including curve widening, to accommodate heavy vehicles, i.e. B-Double (25 m), apart from the upper reservoir access road that would be designed to accommodate a single unit heavy rigid vehicle (12.5 m).

The two-lane access roads have a total width of 9 m, i.e. 2 x 3 m lanes, 2 x 0.5 m wide shoulders and 2 x 1 m verge. The section of the upper reservoir access road on the dam wall is a single lane section which would be 7 m wide i.e. 1 x 4 m lane, 2 x 0.5 m shoulders and 2 x 1.0 m verges. The switchback on the dam wall will also provide sufficient area for a layby.

### 2.3.2 Temporary haul roads

Temporary haul roads outside the footprint of permanent works will be required, in particular to support haulage of excavated material from the lake diversion and tunnel portals to stockpile and infill areas in addition to the upper reservoir construction. Construction haul roads will be two-way, 15 to 20 m in width and only used by large earthmoving equipment such as scrapers or dump trucks. The maximum grade of haul roads is designed based on the upper limits to safely operate heavy vehicles on the roads. Temporary haul roads are shown in Figure 2.1.

### 2.3.3 Road works

Road works will involve clearing, excavation (cut and fill) and grading (refer to Figure 2.2). Haul roads will be compacted and will be unsealed during construction. Some roads will be retained permanently and sealed, and as such pavement works may be completed earlier in the construction schedule.

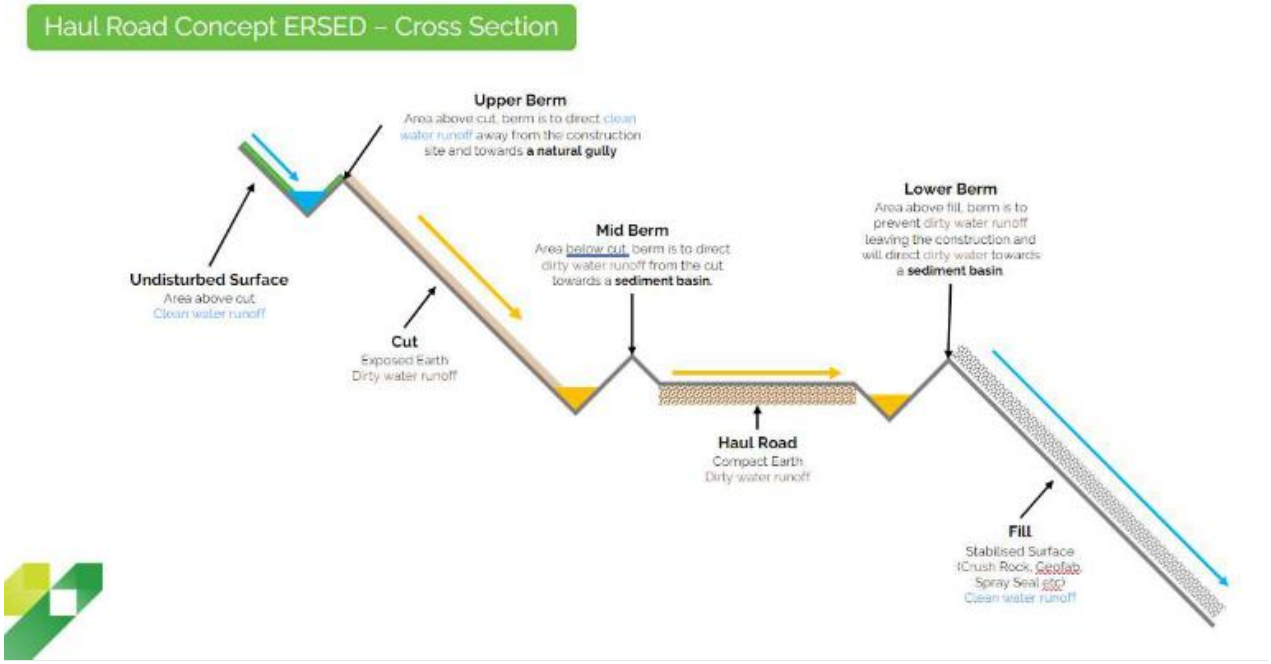



**Figure 2.2 Haul road concept**

## 2.4 Proposed priority changes at Magpie Hollow Road/Sir Thomas Mitchell Drive intersection

As part of the project, it is proposed to modify the intersection priority so that vehicles travelling between Magpie Hollow Road (north) and Sir Thomas Mitchell Drive are given priority. Vehicles from Magpie Hollow Road (south approach) will be required to give way to these movements. Accordingly, the traffic analysis for all future scenarios is based on the modified intersection layout. Further details are provided in Section 5.11 and Annexure E of this report.

## 2.5 Car parking

Car parking will be provided on the main site compound (refer to Figure 2.1). The main site compound will be a general-purpose facility located on a 90 m x 90 m pad. As well as providing car parking, the main site compound will also provide a workspace, kitchen, lunch, and ablution facilities for 50 engineers and staff, as well as crib and ablution facilities for 350 workers.

Further car parking areas are also provided in laydown areas within the site.

# 3 Existing conditions

## 3.1 Site inspection and observations

EMM traffic engineers conducted a site inspection and collected field observation data on Wednesday, 23 July 2025.

Along Magpie Hollow Road, several previously formed potholes were observed which have been patched over time, as shown in Photograph 3.1. Observations relating to other aspects of the existing road conditions have been integrated throughout the relevant sections of this report.

**Photograph 3.1 Potholes along Magpie Hollow Road (view from east towards Lockyers Line)**

Furthermore, there are concealed driveways and moderate bends along Sir Thomas Mitchell Drive (refer to Photograph 3.2). Adequate warning signs will be installed to mitigate any risks.

**Photograph 3.2 Moderate bends along Sir Thomas Mitchell Drive (view from east)**

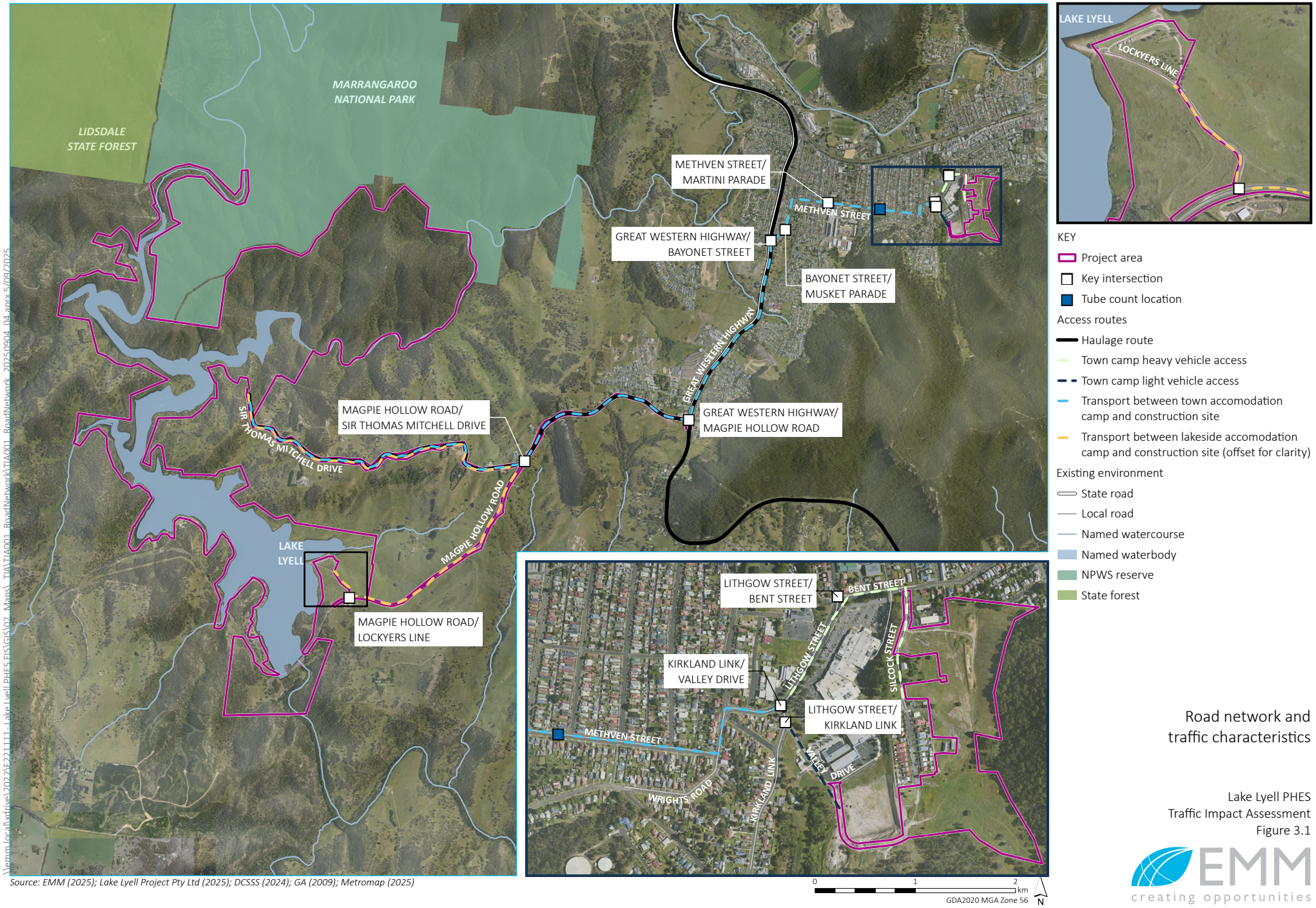
## 3.2 Road network

The NSW administrative road hierarchy comprises the following road classifications:

- State roads – freeways and primary arterials (TfNSW managed).
- Regional roads – secondary or sub arterials (council managed and part funded by the State).
- Local roads – collector and local access roads (Council managed).

An overview of the surrounding road network and traffic characteristics is presented in Figure 3.1.

The key roads are described in Table 3.1 to Table 3.9 and shown in Photograph 3.3 to Photograph 3.11.

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*Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009); Metromap (2025)*

# Road network and traffic characteristics

Lake Lyell PHES
Traffic Impact Assessment
Figure 3.1

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**Table 3.1 Great Western Highway (A32)**

| Aspect | Description |
|---|---|
| Road classification and connectivity | State road extending from Parramatta Road in Sydney to Bathurst in the west. It passes through Penrith, Katoomba, and Lithgow. |
| Alignment | Generally, north–south near Magpie Hollow Road. |
| Number of lanes | Two lanes each way, between Magpie Hollow Road and Lithgow. |
| Carriageway type | Sealed road. |
| Carriageway width | Approximately 12.8 m (at the vicinity of the site) with 3.6 m travel lane each way and 2.8 m shoulders (measured from MetroMap). |
| Posted speed limit | 60 to 70 kilometres per hour (km/h) in urbanised areas.<br>80 to 110 km/h in non-urban areas. |
| Heavy vehicle access | Access for vehicles up to 19 m length and over 50 tonnes (t).<br>OSOM approved with conditions. |
| Traffic function | Forms a key east to west commuter and freight corridor connecting Greater Sydney with the Central Tablelands and regional NSW.<br>Carries local and regional traffic. |

**Photograph 3.3 Great Western Highway (view from Bayonet Street)**

### Table 3.2 Magpie Hollow Road

| Aspect | Description |
|---|---|
| Road classification and connectivity | Local that connects the Great Western Highway at South Bowenfels in the east, to rural areas along Lake Lyell, and Hampton Road to the west. |
| Alignment | Generally, east–west. |
| Number of lanes | One lane each way, excluding near the intersections. |
| Carriageway type | Sealed road. |
| Carriageway width | Approximately 6.4 m with 3.2 m travel lane each way and no shoulders (measured during site visit). |
| Posted speed limit | 70 km/h near Great Western Highway / Magpie Hollow Road intersection.<br>80 km/h between:<br>• 160 m east of Great Western Highway / Magpie Hollow Road intersection<br>• 250 m south of Magpie Hollow Road / Sir Thomas Mitchell Drive intersection.<br>100 km/h general speed south of Magpie Hollow Road / Sir Thomas Mitchell Drive intersection. |
| Heavy vehicle access | Access for vehicles up to 19 m length and under 50 t. |
| Traffic function | Carries recreational and local traffic.<br>Provides access to townships. |
| Additional comments | Provides access to Lyell Dam.<br>Provides access to Lake Lyell Recreation Park accommodation and recreational facilities. |

### Photograph 3.4 Rural section of Magpie Hollow Road (view from Sir Thomas Mitchell Drive)

### Table 3.3 Sir Thomas Mitchell Drive

| Aspect | Description |
|---|---|
| Road classification and connectivity | Local no-through road extending from Magpie Hollow Road, providing local access only and terminates at its western end. |
| Alignment | Generally, east–west. |
| Number of lanes | The road operates as one lane in each direction until the unsealed section, where it narrows to a single shared lane for two-way traffic. |
| Carriageway type | Sealed road for 2.8 km, unsealed for 1.3 km. |
| Carriageway width | Sealed road is approximately 4.8 m wide with 2.4 m travel lane each way and no shoulders (measured during site visit).<br>Unsealed road is approximately 3.7 m wide with no shoulders (measured during site visit). |
| Assumed speed limit | 100 km/h, considering default rural speed limit without any speed limit signposting. |
| Heavy vehicle access | Access for vehicles up to 19 m length and under 50 t. |
| Traffic function | Carries residential traffic. |
| Additional comments | Provides access to Japanese Bathhouse which opens on Friday, Saturday and Sunday. |

### Photograph 3.5 Sir Thomas Mitchell Drive (view from north)

### Table 3.4 Lockyers Line

| Aspect | Description |
|---|---|
| Road classification and connectivity | Local no-through road, extending from Magpie Hollow Road, terminates at its northern end near Lake Lyell. |
| Alignment | Generally, north–south. |
| Number of lanes | One lane each way. |
| Carriageway type | Sealed road from Magpie Hollow Road for 100 m, then unsealed up to Lake Lyell. |
| Carriageway width | Sealed road is approximately 6.8 m wide with 3.4 m travel lane each way and no shoulders (measured during site visit).<br>Unsealed road is approximately 4.0 m wide with no shoulders (measured during site visit). |
| Speed limit | Assumed 50 km/h. |
| Heavy vehicle access | Access for 19 m vehicles under 50 t. |
| Traffic function | Carries recreational traffic. |
| Additional comments | Lockyers Line provides access to camping sites operated by Lake Lyell Recreation Park, which offers paid camping for registered visitors. |

### Photograph 3.6 Lockyers Line (view from north)

### Table 3.5 Bayonet Street

| Aspect | Description |
|---|---|
| Road classification and connectivity | Local road extending from Great Western Highway in the west, to Martini Parade in the east, providing access to and connecting residential areas in southern Lithgow. |
| Alignment | Generally, west–east. |
| Number of lanes | One lane each way. |
| Carriageway type | Sealed road. |
| Carriageway width | Approximately 11 to 12 m (MetroMap). |
| Posted speed limit | 50 km/h. |
| Heavy vehicle access | Access for vehicles up to 19 m length and under 50 t. |
| Traffic function | Carries local traffic. Provides an access route between the Great Western Highway and the Lithgow Arms factory and Martini Parade. |
| Additional comments | Bus stop located near the Great Western highway (westbound).<br>On-street unrestricted parking on both sides. |

### Photograph 3.7 Bayonet Street (view from Great Western Highway)

### Table 3.6 Musket Parade

| Aspect | Description |
|---|---|
| Road classification and connectivity | Local road in Lithgow extending from Bayonet Street in the south, to Main Street in the north. |
| Alignment | Generally, north–south. |
| Number of lanes | One lane each way, with a wide median between Lee Street and Bayonet Street. |
| Carriageway type | Sealed road. |
| Carriageway width | Each carriageway approximately 6 m, slightly wider at intersections (MetroMap). |
| Posted speed limit | 50 km. |
| Heavy vehicle access | Access for vehicles up to 19 m length and under 50 t. |
| Traffic function | Carries local traffic. Provides a north-south access route running parallel to the Great Western Highway, between Main Street in the north, Lee Street, Bayonet Street in the south. |
| Additional comments | Bus stops (southbound) located north of Methven Street, north of Bayonet Street, and south of Main Street.<br>On-street unrestricted parking on both sides.<br>Footpaths provided on western side between Lee Street and Main Street. |

### Photograph 3.8 Musket Parade (view from north)

### Table 3.7 Methven Street

| Aspect | Description |
|---|---|
| Road classification and connectivity | Local road in Lithgow extending from Hassans Walls Road / Lithgow Street in the east to Musket Parade in the west. |
| Alignment | Generally, west–east. |
| Number of lanes | One lane each way, expect for a short section at the signalised Martini Parade intersection, providing two lanes each way. |
| Carriageway type | Sealed road. |
| Carriageway width | Approximately 12 m, slightly wider at intersections (MetroMap). |
| Posted speed limit | 50 km/h, 40 km/h school zone between Rifle Parade and Ordnance Avenue. |
| Heavy vehicle access | Access for vehicles up to 19 m length and under 50 t. |
| Traffic function | Functions as a west-east spine through Lithgow, running parallel to Main Street to the south. Alternative route between Lithgow Valley Plaza shopping area (via Lithgow Street) and the Great Western Highway (via Musket Parade and Martini Parade). |
| Additional comments | Footpaths provided on both sides along most sections.<br>Zebra pedestrian crossing provided between Martini Parade and Ordnance Avenue.<br>Bus stop located near Ferro Street (westbound), and near Ordnance Avenue (both directions).<br>On-street parking on both sides with some restrictions. |

### Photograph 3.9 Methven Street (view from the west)

### Table 3.8 Lithgow Street

| Aspect | Description |
|---|---|
| Road classification and connectivity | Local road in Lithgow extending from Hassans Walls Road/Wrights Road in the west, to Main Street in the north. |
| Alignment | Generally, north–west. |
| Number of lanes | One lane each way, with additional turning lanes provided at intersections. |
| Carriageway type | Sealed road. |
| Carriageway width | Approximately 12 m, up to 18 m including shoulders at various sections with additional turning lanes (MetroMap). |
| Posted speed limit | 50 km/h, 40 km/h school zone between Bent Street and Main Street. |
| Heavy vehicle access | Access for vehicles up to 19 m length and under 50 t. |
| Traffic function | Carries local traffic. Provides a key route through Lithgow between Main Street in the north and Hassans Walls Road / Wrights Road / Methven Street intersection to the south, providing access to Lithgow Valley Plaza (shopping centre). |
| Additional comments | Footpaths provided on both sides along most sections.<br>Bus stop located near Wrights Road (westbound).<br>On-street parking on both sides between Bent Street and Mort Street with some restrictions. |


### Photograph 3.10 Lithgow Street (view from Bent Street)

### Table 3.9 Bent Street

| Aspect | Description |
|---|---|
| Road classification and connectivity | Local road in Lithgow extending from Lithgow Street in the west to Eskbank Street in the east. |
| Alignment | Generally, west–east. |
| Number of lanes | One lane each way. |
| Carriageway type | Sealed road. |
| Carriageway width | Approximately 12 m (MetroMap). |
| Posted speed limit | 50 km/h, with a 40 km/h school zone in effect along the entire length. |
| Heavy vehicle access | Access for vehicles up to 19 m length and under 50 t. |
| Traffic function | Carries local traffic. |
| Additional comments | Footpaths provided on both sides along most sections.<br>Pedestrian crossing refuge island between Lithgow Street and Hassan Street.<br>Bus stops located near Lithgow Street and Cook Street (westbound).<br>On-street parking on both sides between Eskbank Street and Waratah Street. |

### Photograph 3.11 Bent Street near Lithgow Street (view from east)

## 3.3 Key intersections

Key intersections with existing intersection management have been identified for this traffic analysis:

- associated with the construction site and Lakeside camp:
    1. Magpie Hollow Road / Lockyers Line (give-way)
    2. Magpie Hollow Road / Sir Thomas Mitchell Drive (give-way)
    3. Great Western Highway / Magpie Hollow Road (give-way)
- associated with the alternative Town camp:
    1. Great Western Highway / Bayonet Street (signalised)
    2. Bayonet Street / Musket Parade (give-way)
    3. Methven Street / Martini Parade (signalised)
    4. Kirkland Link / Valley Drive (give-way)
    5. Lithgow Street / Kirkland Link (give-way)
    6. Lithgow Street / Bent Street (give-way)

The key intersection locations are labelled in Figure 3.1.

The intersections are described in Table 3.10 to Table 3.12 and shown in Figure 3.2 to Figure 3.10.

### Table 3.10 Magpie Hollow Road / Lockyers Line intersection

| Aspect | Description |
|---|---|
| Location from the site | 2.0 km south of construction site.<br>400 m south of Lakeside camp. |
| Intersection control | Priority controlled T-intersection (give way). |
| Major road | Magpie Hollow Road. |
| North approach | One approach lane and one departure lane. |
| East approach | One approach lane and one departure lane. |
| West approach | One approach lane and one departure lane. |
| Pedestrian connectivity | There is no pedestrian connectivity at this intersection. |
| Traffic function | Predominantly carries residential and local traffic.<br>Provides access to recreational services. |
| Speed limit | 100 km/h on all approaches, except the north approach, which is assumed 50 km/h. |
| Additional comments | Has a relatively small geometry. This intersection will have to accommodate heavy vehicles for deliveries and a standard bus for the Lakeside camp. Potential intersection widening is likely to be required. |


Source: MetroMap

### Figure 3.2 Magpie Hollow Road / Lockyers Line intersection

### Table 3.11 Magpie Hollow Road / Sir Thomas Mitchell Drive intersection

| Aspect | Description |
|---|---|
| Location from the site | 3.3 km east of construction site.<br>2.2 km north-east of Lakeside camp. |
| Intersection control | Priority controlled Y-intersection (give way). |
| Major road | Magpie Hollow Road. |
| North-east approach | One approach lane and one departure lane. |
| South-west approach | One approach lane and one departure lane. |
| West approach | One approach lane and one departure lane. |
| Pedestrian connectivity | There is no pedestrian connectivity at this intersection. |
| Traffic function | Predominantly carries residential and local traffic.<br>Provides access to recreational services. |
| Speed limit | 80 km/h on Magpie Hollow Road.<br>Assumed 100 km/h on Sir Thomas Mitchell Drive. |
| Additional comment | Due to Y-shape, the sight distance from Sir Thomas Mitchell Drive to the right into Magpie Hollow Road is poor. Potential mitigation measures to address this issue are likely to be required. |


Source: MetroMap

### Figure 3.3 Magpie Hollow Road / Sir Thomas Mitchell Drive intersection

**Table 3.12 Great Western Highway / Magpie Hollow Road intersection**

| Aspect | Description |
|---|---|
| Location from the site | 5.3 km east of construction site.<br>3.8 km north-east of Lakeside camp. |
| Intersection control | Priority controlled T-intersection (give way). |
| Major road | Great Western Highway. |
| North approach | On approach, one right turning lane and two through lanes.<br>On departure, two through lanes. |
| South approach | On approach, one left turning lane, one right turning lane and two through lanes.<br>On departure, two through lanes. |
| West approach | One approach lane and one departure lane. |
| Pedestrian connectivity | There is no pedestrian connectivity at this intersection. |
| Traffic function | Predominantly carries arterial and local traffic.<br>Provides access to recreational facilities through Magpie Hollow Road. |
| Speed limit | 70 km/h on all approaches and departures. |
| Additional comments | A dedicated right turning bay is provided on the south approach into the Donnybrooks pub car park, located to the east of the intersection.<br>The sight distance from Magpie Hollow Road to the left is poor and measures to address this issue are likely to be required. |


Source: MetroMap

**Figure 3.4 Great Western Highway / Magpie Hollow Road intersection**

### Table 3.13 Great Western Highway / Bayonet Street intersection

| Aspect | Description |
|---|---|
| Location from the site | 5.9 km north-east of construction site.<br>2.0 km west of Town camp. |
| Intersection control | Signalised four-arm intersection. |
| Major road | Great Western Highway. |
| North approach | On approach, one shared left-turn and though lane, one through lane, and a dedicated short (80 m) right-turn lane.<br>Two departure lanes. |
| South approach | On approach, one shared left-turn and though lane, one through lane, and a dedicated short (80 m) right-turn lane.<br>Two departure lanes. |
| West approach | Two approach lanes and one departure lane. |
| East approach | Two approach lanes and one departure lane. |
| Pedestrian connectivity | Signalised pedestrian crossing on each arm. |
| Traffic function | Predominantly carries arterial traffic. |
| Speed limit | 70 km/h along the Great Western Highway, otherwise 50 km/h. |
| Additional comments | Pedestrian crossing facilities are provided in all four approaches. |


Source: MetroMap

### Figure 3.5 Great Western Highway / Bayonet Street intersection

**Table 3.14 Bayonet Street / Musket Parade intersection**

| Aspect | Description |
|---|---|
| Location from the site | 6.2 km north-east of construction site.<br>1.9 km west of Town camp. |
| Intersection control | Priority controlled T-intersection (give way). |
| Major road | Bayonet Street. |
| North approach | One approach lane and one departure lane, including 1 m wide median. |
| South approach | One approach lane and one departure lane. |
| West approach | One approach lane and one departure lane. |
| Pedestrian connectivity | There is no pedestrian connectivity at this intersection. A footpath is provided on the southern side along Bayonet Street. |
| Traffic function | Predominantly carries local traffic. Provides an access route between the Great Western Highway and the Lithgow Arms factory car parks. |
| Speed limit | 50 km/h on all approaches and departures. |
| Additional comments | Conditions of the pavement on Bayonet Street is poor, with some patched-up potholes observed during the site inspection. |


Source: MetroMap

**Figure 3.6 Bayonet Street / Musket Parade intersection**

### Table 3.15 Methven Street / Martini Parade intersection

| Aspect | Description |
|---|---|
| Location from the site | 6.8 km north-east of construction site.<br>1.4 km west of Town camp. |
| Intersection control | Signalised four-arm intersection. |
| Major road | Methven Street. |
| North approach | On approach, two lanes.<br>On departure, two lanes. |
| South approach | On approach, two lanes.<br>On departure, two lanes. |
| West approach | On approach, two lanes.<br>On departure, two lanes. |
| East approach | On approach, two lanes.<br>On departure, two lanes. |
| Pedestrian connectivity | Signalised pedestrian crossing on each arm. |
| Traffic function | Predominantly carries local west-east traffic within Lithgow along Methven Street. |
| Speed limit | 50 km/h on all approaches and departures.<br>40 km/h school zone on all approaches and departures. |
| Additional comments | Lane markings at this location are becoming worn and faded, reducing visibility and potentially impacting driver guidance and safety. |


Source: MetroMap

### Figure 3.7 Methven Street / Martini Parade intersection

**Table 3.16 Lithgow Street / Kirkland Link intersection**

| Aspect | Description |
|---|---|
| Location from the site | 7.0 km north-east of construction site.<br>0.4 km north-west of Town camp. |
| Intersection control | Priority controlled T-intersection (give way). |
| Major road | Lithgow Street. |
| South approach | On approach, one right and one left turning lane.<br>Two departure lanes. |
| West approach | On approach, one short right (30 m) turning lane, one through lane.<br>One departure lane. |
| East approach | On approach, one through lane and one left-turn slip lane.<br>Two departure lanes, the inside lane is a short lane (15 m). |
| Pedestrian connectivity | Footpaths are provided along Lithgow Street and on the eastern side of Kirkland Link.<br>Pedestrian connectivity is provided along the southern of Lithgow Street across Kirkland Link, and includes two refuge islands. |
| Traffic function | Predominantly carries local traffic, Kirkland Link provides access to the Aldi store and other facilities. |
| Speed limit | 50 km/h on all approaches and departures. |
| Additional comments | Provides access to the Aldi store car park, the future Bunnings development, and other nearby stores and facilities. |


Source: MetroMap

**Figure 3.8 Lithgow Street / Kirkland Link intersection**

### Table 3.17 Kirkland Link / Valley Drive intersection

| Aspect | Description |
|---|---|
| Location from the site | 7.0 km north-east of construction site.<br>0.4 km north-west of Town camp. |
| Intersection control | Priority controlled Y-intersection (give way). |
| Major road | Kirkland Link. |
| North approach | On approach, one left turning lane and one through lane.<br>On departure, two through lanes. |
| South approach | One approach lane and one departure lane. |
| East approach | One approach lane and one departure lane. |
| Pedestrian connectivity | A footpath is provided along the eastern side of Kirkland Link and Valley Drive. |
| Traffic function | Predominantly carries local traffic, Valley Drive provides access to the Aldi store and other facilities. |
| Speed limit | 50 km/h on all approaches and departures. |
| Additional comments | Provides access to the Aldi store car park, and other nearby stores and facilities. |


Source: MetroMap

### Figure 3.9 Kirkland Link / Valley Drive intersection

**Table 3.18 Lithgow Street / Bent Street intersection**

| Aspect | Description |
|---|---|
| Location from the site | 7.7 km north-east of construction site.<br>0.5 km north of Town camp. |
| Intersection control | Priority controlled T-intersection (give way). |
| Major road | Lithgow Street. |
| North approach | One approach lane and one departure lane. |
| South approach | On approach, one through lane and one short (40 m) right turn lane.<br>Two departure lanes, the inside lane is a short lane (15 m). |
| East approach | On approach lane, one through lane and one short (40 m) left turn slip lane.<br>One departure lane. |
| Pedestrian connectivity | Footpaths are provided along each arm on both sides. A refuge island is provided across Bent Street. |
| Traffic function | Predominantly carries arterial and local traffic. |
| Speed limit | 50 km/h on all approaches and departures.<br>40 km/h school zone on north and east approaches and departures. |
| Additional comments | N/A |


Source: MetroMap

**Figure 3.10 Lithgow Street / Bent Street intersection**

## 3.4 Existing traffic volumes

### 3.4.1 Intersection traffic volumes

Traffic surveys were conducted at the key intersections during a non-school holiday period on Wednesday, 23 July 2025, from 6.00 am to 9.00 am and 3.30 pm to 7.30 pm, capturing commuter peak hours.

Table 3.19 summarises the observed peak hours for the five intersections.

**Table 3.19 Intersection peak hours**

| Intersection | AM peak hour | PM peak hour |
|---|---|---|
| Magpie Hollow Road / Lockyers Line | 8.00 am to 9.00 am | 3.30 pm to 4.30 pm |
| Magpie Hollow Road / Sir Thomas Mitchell Drive | 8.00 am to 9.00 am | 3.30 pm to 4.30 pm |
| Great Western Highway / Magpie Hollow Road | 7.45 am to 8.45 am | 3.30 pm to 4.30 pm |
| Great Western Highway / Bayonet Street | 8.00 am to 9.00 am | 3.30 pm to 4.30 pm |
| Bayonet Street / Musket Parade | 8.00 am to 9.00 am | 3.30 pm to 4.30 pm |
| Methven Street / Martini Parade | 8.00 am to 9.00 am | 3.30 pm to 4.30 pm |
| Kirkland Link / Valley Drive | 8.00 am to 9.00 am | 3.30 pm to 4.30 pm |
| Lithgow Street / Kirkland Link | 8.00 am to 9.00 am | 3.30 pm to 4.30 pm |
| Lithgow Street / Bent Street | 8.00 am to 9.00 am | 3.30 pm to 4.30 pm |

Table 3.19 indicates distinct peak periods across the surveyed intersections from 8.00 am to 9.00 am, and 3.30 pm to 4.30 pm. Accordingly, traffic analysis has been undertaken for these peak-hour periods.

The surveyed 2025 baseline intersection traffic volumes are shown in Figure 3.11.

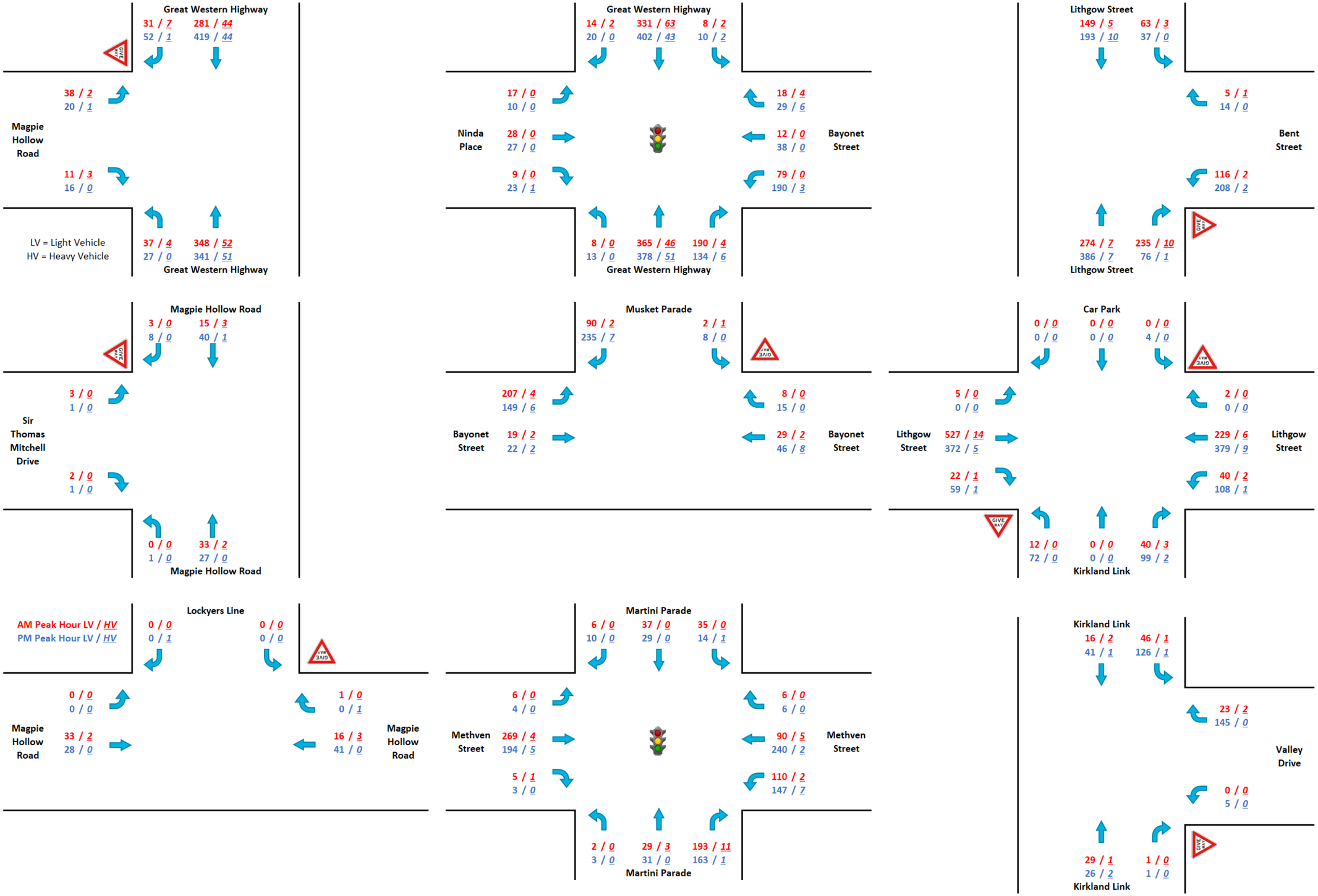



**Figure 3.11 2025 baseline peak hour traffic volumes**

### 3.4.2 Pedestrian traffic volumes

The peak-hour pedestrian traffic volumes were observed during the same peak periods as peak vehicle volumes and have been extracted from the survey data (Annexure A).

### 3.4.3 Tube count traffic volumes

Tube count surveys were undertaken on Methven Street between Malvern Street and Ordnance Avenue during a one-week non- school holiday period (22 to 29 July 2025). The tube count location is shown in Figure 3.1.

Average daily traffic (ADT), 85$^{th}$ percentile (85%ile) speed and light vehicle percentages were recorded. A summary of the tube count results is presented in Table 3.20.

**Table 3.20 Tube count survey – Methven Street**

| Tube count location | | Both directions | Westbound | Eastbound |
|---|---|---|---|---|
| Traffic volume (vehicles per day) | weekday (5-day) average | 7,676 | 4,023 | 3,653 |
| | 7-day average | 6,883 | 3,582 | 3,301 |
| Speed (km/h) | 85%ile | 56.7 | 56.6 | 56.8 |
| | average | 51.4 | 51.4 | 51.5 |
| Heavy vehicle % (7-day) | | 13.3% | 13.1% | 13.4% |

Methven Street carries close to 8,000 vehicles per day during survey period. The recorded 85%ile speed[1] is around 56 km/h, slightly higher than the posted speed limit of 50 km/h, and much higher than the school zone speed limit of 40 km/h present at the count location. The proportion of heavy vehicles (AustRoads vehicle classification 3 to 12) is around 13%.

### 3.4.4 TfNSW traffic volume viewer

The 7-day average bi-directional traffic volumes for Great Western Highway 5 km south of Great Western Highway / Magpie Hollow Road intersection are available from the TfNSW Traffic Volume [2] Viewer data set. The data are outlined in Table 3.21 and Figure 3.12. The data between 2015 and 2024 have been compared to estimate the linear growth of traffic.

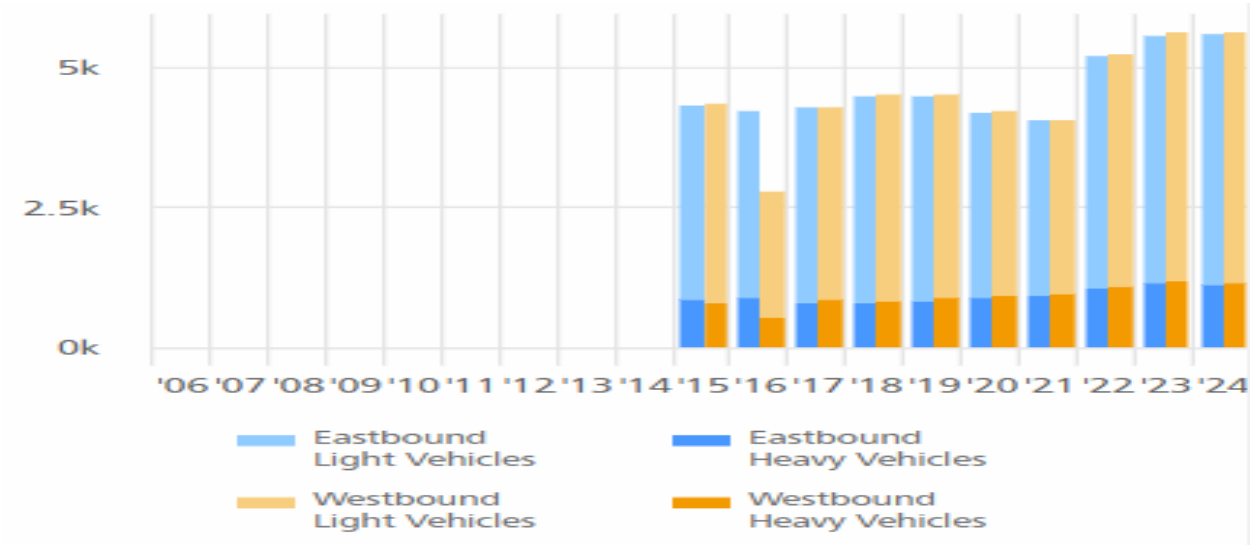
**Table 3.21 TfNSW traffic volume viewer daily traffic volumes – Great Western Highway**

| Year | Daily volumes (7-day AADT) | Eastbound | | Westbound | |
|---|---|---|---|---|---|
| | | Traffic volume | Heavy vehicle % | Traffic volume | Heavy vehicle % |
| 2015 | 8,699 | 4,334 | 20.0 | 4,365 | 18.6 |
| 2024 | 11,292 | 5,631 | 20.4 | 5,661 | 20.5 |

Source: TfNSW Traffic Volume Viewer

[1] The 85th percentile speed is the speed at or below which 85 percent of the drivers travel on a road segment. Motorists traveling above the 85th percentile speed are considered to be exceeding the safe and reasonable speed for road and traffic conditions.

[2] https://maps.transport.nsw.gov.au/egeomaps/traffic-volumes/index.html#/?z=6




Source: Source: TfNSW Traffic Volume Viewer

**Figure 3.12 TfNSW traffic volume viewer daily traffic volumes graph – Great Western Highway**

The data demonstrates that the traffic volumes are approximately even in both directions, with a 29.8% increase from 2015 to 2024, resulting in a linear growth of 3.3% per annum. However, there is a high variability in volumes, specifically between 2021 to 2022, likely due to COVID restrictions at that time. Therefore, there is insufficient data to determine a reliable linear background traffic growth factor.

## 3.5 Baseline traffic volumes

Projected 2030 baseline traffic volumes have been derived by applying growth factors to the surveyed 2025 baseline volumes.

### 3.5.1 Background traffic growth

Growth rates for the local road network have been calculated based on historical population trends. Given that the Great Western Highway is a State road linking multiple regions through various local roads within the Lithgow and Bathurst areas, both LGAs were assessed to ensure an accurate representation. Table 3.22 presents the data used in this assessment.

**Table 3.22 Population growth calculation**

| Year | Population | | |
|---|---|---|---|
| | Lithgow LGA | Bathurst LGA | Total |
| 2011 | 20,160 | 38,519 | 58,679 |
| 2021 | 20,842 | 43,567 | 64,409 |
| **Growth Per Annum (%)** | **0.3** | **1.3** | **1.0** |

Source: ABS (2021a) & ABS (2021b)

According to census data, the population of the Lithgow and Bathurst LGAs increased by an average of 1.0% per annum over the 10-year period from 2011 to 2021 (ABS, 2021a; ABS, 2021b).

### 3.5.2 2030 baseline traffic volumes

Peak construction traffic is expected in June 2027, coinciding with spoil haulage from the Creek Diversion and portal pad works. The peak workforce is expected in May 2030. For a conservative assessment, it is assumed that both events occur simultaneously, representing an assessed worst-case traffic scenario for 2030.

For the local roads within Lithgow, including Magpie Hollow Road and Sir Thomas Mitchell Drive, a linear traffic growth rate of 1.0% per annum (refer to Table 3.22) has been applied to the surveyed traffic volumes, to project 2030 baseline traffic volumes.

For the Great Western Highway, a background growth rate of 1.6% per annum, as advised by TfNSW, has been applied to estimate future baseline volumes.

It is assumed that peak hours remain unchanged, with peak traffic occurring at the same times as observed in 2025. The projected 2030 baseline peak hour intersection volumes are illustrated in Figure 3.13.

### 3.5.3 2030 baseline pedestrian volumes

For a conservative assessment, pedestrian volumes have been doubled.

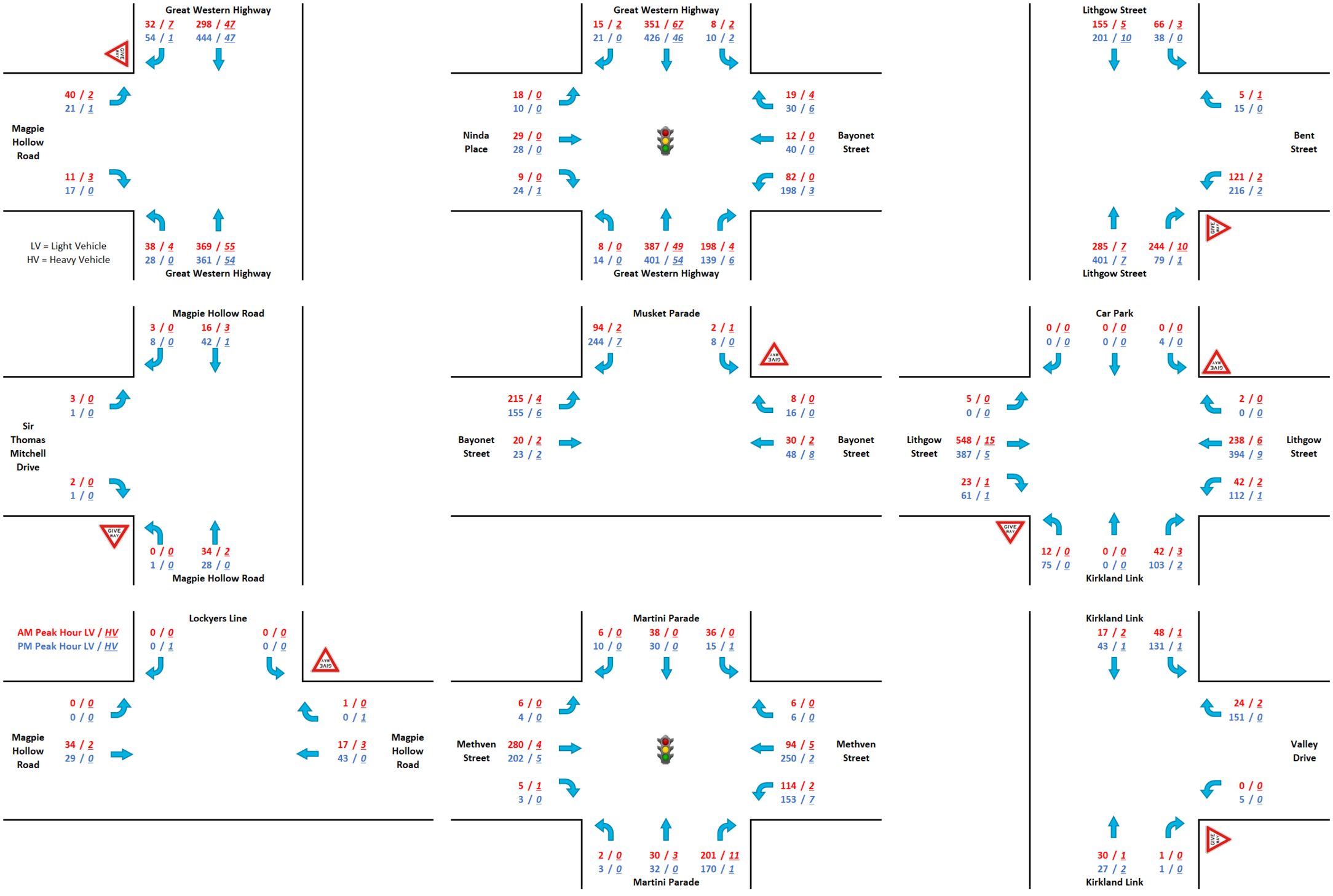



**Figure 3.13 2030 baseline peak hour traffic volumes**

## 3.6 Model calibration

Model calibration can involve adjusting parameters during traffic model development to accurately reflect surveyed and observed conditions.

For SIDRA modelling, calibration is the verification process used to ensure the model can reliably reproduce on-street conditions, with a focus on signalised intersections. Several model parameters can be adjusted to better represent real-world conditions. In congested urban networks, one key parameter is saturation flow, which may require separate surveys to measure stop-line capacity by lane. However, such surveys are costly and generally only necessary in specific cases.

For relatively uncongested networks, good practice is to compare maximum observed queue lengths on each intersection approach with modelled queue lengths, ideally using observations taken at the same time as traffic count surveys.

The two surveyed signalised intersections – Great Western Highway / Bayonet Street and Methven Street / Martini Parade – were found to be relatively uncongested, with minimal delays and short queues observed. Nevertheless, maximum queue lengths recorded during the surveys were compared with modelled values to provide additional confidence in the model outputs.

Table 3.23 presents this comparison, showing a good match between observed and modelled maximum queue lengths. Therefore, no adjustments to the default model parameters are required. Observed queue lengths are presented in Annexure I.

**Table 3.23 Maximum approach queues (vehicles) – signalised intersections (2025 baseline conditions)**

| Intersection | Approach | AM | | PM | |
|---|---|---|---|---|---|
| | | Observed queue | Modelled queue | Observed queue | Modelled queue |
| Great Western Highway/Bayonet Street | South: Great Western Highway | 8 | 10 | 7 | 9 |
| | East: Bayonet Street | 3 | 2 | 4 | 6 |
| | North: Great Western Highway | 9 | 6 | 6 | 7 |
| | West: Flint McClelland Avenue | 3 | 2 | 4 | 3 |
| Methven Street/Martini Parade | South: Martini Parade | 3 | 4 | 5 | 3 |
| | East: Methven Street | 3 | 2 | 3 | 4 |
| | North: Martini Parade | 2 | 1 | 2 | 1 |
| | West: Methven Street | 2 | 2 | 2 | 2 |

SIDRA calibration for priority-controlled intersections is uncommon and may only be necessary in congested networks, where gap acceptance parameters can be adjusted to reflect drivers accepting shorter gaps to merge into opposing traffic flows. Such calibration would require a separate survey. As the network is relatively uncongested, no adjustments to gap acceptance parameters are required.

## 3.7 Crash data analysis

Crash data is available on the NSW Centre for Road Safety website (TfNSW 2025) for the period 2019–2023. During the five-year period, 21 crashes occurred along the haulage route on Sir Thomas Mitchell Drive, Magpie Hollow Road, and 18 occurred in Lithgow along the route from the alterative Town camp. The crashes are categorised based on the severity of the crashes:

- one fatality
- seven serious injuries
- one minor / other injury
- 16 moderate injuries
- 14 non-casualties (towaway).

The distribution of the crashes is summarised in Table 3.24 and presented in Figure 3.14.

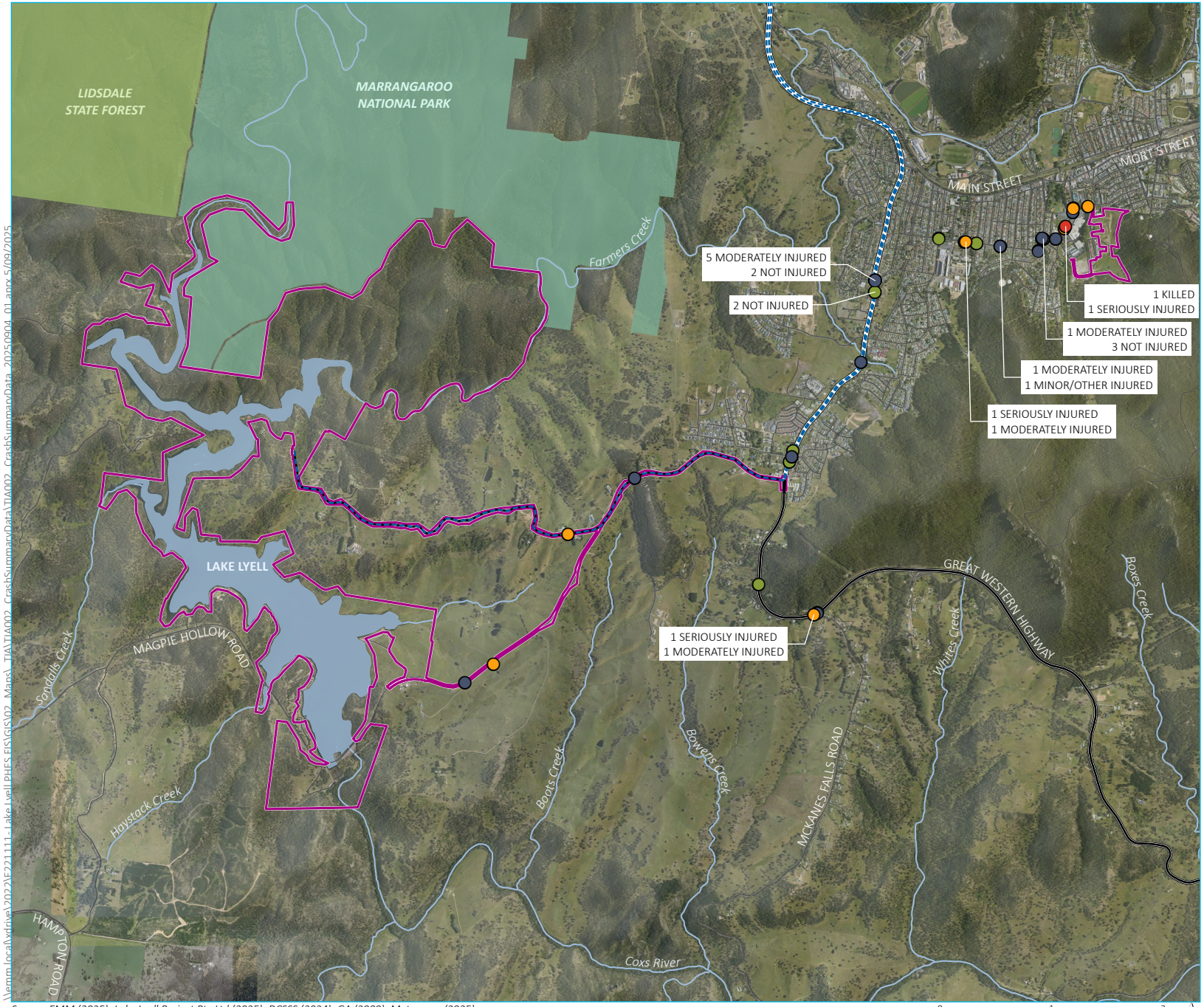
**Table 3.24 Crash data summary on the road network**

| Type of crash | Nearby location | Severity of injury | | | | |
|---|---|---|---|---|---|---|
| | | Non-casualty | Minor | Moderate | Serious | Fatal |
| **Great Western Highway** | | | | | | |
| Left run off into object | Endeavour Park | 2 | | | | |
| Head on (not overtaking) | Bayonet Street | | | 2 | | |
| Rear end | Kirkely Street | 1 | | | | |
| Pedestrian collision | Kirkely Street | 1 | | | | |
| Cross traffic | Kirkely Street | | | 1 | | |
| Right through | Bayonet Street | | | 3 | | |
| Left turn sideswipe | Kirkely Street | 1 | | | | |
| Left run off road into object | Bayonet Street | 2 | | | | |
| Head on (not overtaking) | Mudgee Street | 1 | | | | |
| Left run off road into object | Falls Road | | | | 2 | |
| Left run off road into object | McKanes Falls Road | 1 | | | | |
| Right rear | | | | 1 | | |
| **Bent Street** | | | | | | |
| Cross traffic | Valley Drive | | | | 1 | |
| **Hassans Walls Road** | | | | | | |
| Cross traffic | Lithgow Street | | | 1 | | |

| Type of crash | Nearby location | Severity of injury | | | | |
|---|---|---|---|---|---|---|
| | | Non-casualty | Minor | Moderate | Serious | Fatal |
| **Lithgow Street** | | | | | | |
| Right through | Bent Street | | | | 1 | |
| Rear end | Lithgow Street | | | 1 | 1 | |
| Other manoeuvring | Wrights Road | 1 | | | | |
| Right run-off into object | Wrights Road | 1 | | | | |
| Right run-off into object | Valley Plaza access | | | | | 1 |
| Left run off road into object | Proto Avenue and Wrights Road | 1 | | 1 | | |
| **Methven Street** | | | | | | |
| Right/left | Martini Parade | 1 | | | | |
| Rear end | Cupro Street | | 1 | | | |
| Left rear | Cupro Street | | | 1 | | |
| Other same direction | Ordnance Avenue | | | 1 | | |
| Left run off into object | Wrights Road and Ordnance Avenue | | | 1 | 1 | |
| Off road / right bend into object | Academy Street | 2 | | | | |
| **Magpie Hollow Road** | | | | | | |
| Left run off into object | Old Bathurst Road | | | 1 | | |
| Left run off on right bend | | | | 1 | | |
| Head-on (not overtaking) | | | | | 1 | |
| **Sir Thomas Mitchell Drive** | | | | | | |
| Right run-off into object | | | | | 1 | |
| **Total** | | **12** | **1** | **15** | **6** | **1** |

Most crashes involved vehicles running off the road. T-bone type crashes also occurred on three occasions, generally at intersections along the Great Western Highway. Speeding was involved in five crashes while fatigue was involved in seven crashes.

There were no crashes near the Great Western Highway / Magpie Hollow Road or Magpie Hollow Road / Sir Thomas Mitchell Drive intersections. However, several crashes occurred along the route between the construction site and the alternative Town camp location, including one fatal incident near the Valley Plaza access on Lithgow Street. These crashes would potentially require further investigation should the camp be established in town.




\\emm.local\xdrive\2022\E221111-Lake Lyell PHES FIS\GIS\02_Maps_TIA\TIA002_CrashSummaryData\TIA002_CrashSummaryData_20250904_01.aprx 5/09/2025

*Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009); Metromap (2025)*

Crash data summary

Lake Lyell PHES
Traffic Impact Assessment
Figure 3.14

EMM
creating opportunities

## 3.8 Public transport

### 3.8.1 Trains

The nearest train station is in Lithgow, providing train services to Penrith, Parramatta and Central (Sydney) via the Blue Mountains railway line. Lithgow railway station is located around 10.5 km north-east from the project site.

### 3.8.2 Buses

#### i Public transport buses

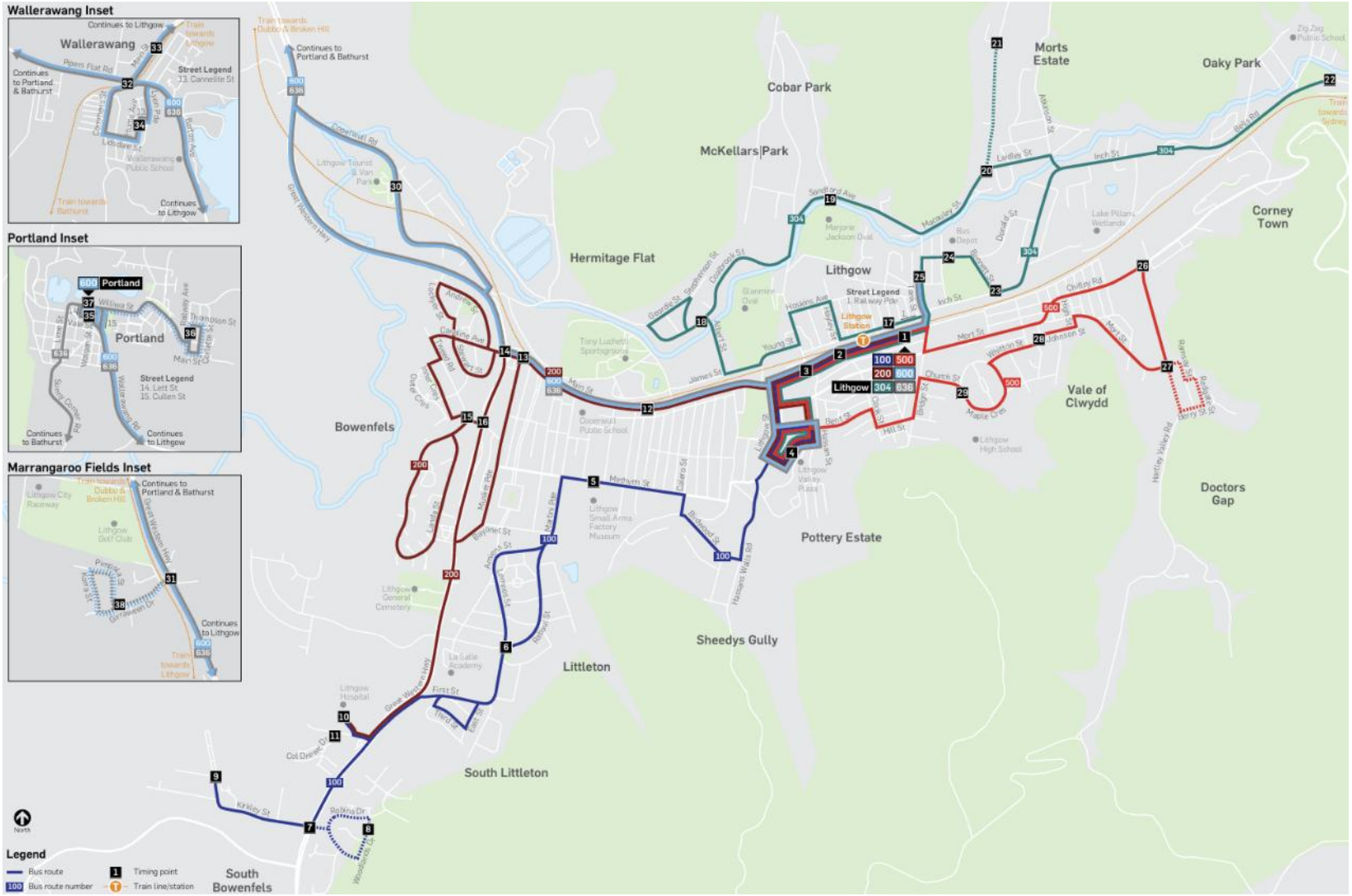
Most of the local public bus routes, summarised below, traverse the assessed road network segments impacted by the project.

- 100 Littleton and Lithgow Hospital via Strathlone Estate and Kirkley Gardens (loop service)
- 200 Bowenfels via Cooerwull and Lithgow Hospital (loop service)
- 304 McKellars Park and Oakley Park via Hermitage Flat and Morts Estate
- 500 Vale of Clwydd via Hill Street
- 600 Portland-Lithgow via Wallerawang (and return)
- 636 Lithgow to Bathurst via Wallerawang-Portland-Meadow Flat-Mt Lambie-Yetholme
- 636 Bathurst to Lithgow via Yetholme-Mt Lambie-Meadow Flat-Portland-Wallerawang

These routes are served by the private bus company *Lithgow Buslines* which is part of "Buslines Group". The bus route maps (effective April 2025) is shown in Figure 3.15.

There are several bus stops located on routes impacted by the project:

- Methven Street – westbound near Ferro Street
- Methven Street – both directions near Ordnance Avenue
- Martini Parade – northbound south of Methven Street
- Musket Parade – southbound north of Methven Street
- Musket Parade – southbound north of Bayonet Street
- Great Western Highway – northbound south of Flint McClelland Avenue
- Great Western Highway – both directions north of Robinia Drive / Kirkley Street.




Source: Lithgow Buslines

**Figure 3.15 Bus route map for routes 100, 200, 304, 500, 600 and 636**

### ii School bus services

School bus services in the Magpie Hollow Road area are operated by Lithgow Buslines. The PM17 service runs travels along Magpie Hollow Road, running between 8.00 am and 4.00 pm on school days, according to Lithgow Buslines, valid as of 2024. The AM service heads eastbound towards Lithgow, while the PM service travels westbound. This service picks up students from the several schools in the area:

- Cooerwull Public School
- St Patricks Primary School
- Lithgow Primary School
- Lithgow High School
- La Salle Academy.

The service operates under a “Hail and Ride” system, common in regional areas, with limited designated stops. Drivers typically stop at regular locations, often where parents wait in their cars.

There are no other school bus services in the vicinity of the site.

## 3.9 Active transport infrastructure

Pedestrian crossings are provided at the signalised intersections. Refuge islands are provided at the Lithgow Street / Kirkland Link intersection. Due to the rural nature, there is no active transport infrastructure in the vicinity of the construction site.

## 3.10 Level crossing

There is no level crossing near the construction site.

## 3.11 Recreational facilities along the haulage route

### 3.11.1 Japanese Bath House

Japanese Bath House is located approximately 1 km south of the main construction site access, refer to Figure 3.12 and Photograph 3.12 for opening hours.


**Photograph 3.12 Japanese Bathhouse opening hours**

### 3.11.2 Lake Lyell Recreation Park

Lake Lyell Recreation Park is located west of Lyell Dam which includes operation of a campground adjacent to the potential Lakeside camp on Lockyers Line (refer to Photograph 3.13).


**Photograph 3.13 Lake Lyell Recreation Park campground**

# 4 Assessment method and assumptions

## 4.1 Construction

### 4.1.1 Work hours

Normal construction work will take place according to the hours summarised below:

- Monday to Saturday: 6.00 am to 6.00 pm.
- Sundays or public holidays: 9.00 am to 5.00 pm.

Underground excavation and tunnelling are assumed to occur according to the hours listed in Section 2.1, 24 hours a day, seven days a week. Furthermore, it is assumed that the shift changes between the day and night shift will occur at the same time as the main construction work's start and finish times. This means that the vehicle movements associated with the transport of workers for the main construction work will coincide with the vehicle movements associated with the transport of workers for the underground excavation and tunnelling.

### 4.1.2 Workforce and accommodation

There will be a peak workforce of approximately 600 FTE workers. Approximately 80% of this workforce will be staying in the accommodation camp.

### 4.1.3 Vehicle types

The largest construction-related heavy vehicle is expected to be a 25 m B-doubles (excluding OSOM vehicles). Shuttle buses for worker transport carry an average of 30 passengers, consistent with a typical 12.5 m bus.

### 4.1.4 Project traffic generation

The anticipated vehicle trips for the project during peak construction phase in 2030 is summarised below:

- Project site services per week (distributed over **daily** 10-hour work periods):
    - fuel deliveries: two heavy vehicles
    - cement deliveries: five heavy vehicles
    - wastewater pump out: six heavy vehicles
    - reinforcement deliveries: five heavy vehicles
    - explosives and plant floats deliveries: two heavy vehicles
    - batch plant and WTP deliveries: 10 heavy vehicles
    - offsite haulage of soil material: 400 heavy vehicles
    - fencing and gates deliveries: 15 heavy vehicles
    - TMD road improvement deliveries: 50 heavy vehicles.

- Project site workforce:
    - local workers who are not based in the accommodation camp (20% of the total workforce): 146 trips per day, assumed to occur during commuter peak hours.
- Accommodation camp services (per day distributed over daily 10-hour periods):
    - food and supply deliveries: 10 heavy vehicles
    - waste removal: four heavy vehicles
    - servicing, maintenance, cleaning and miscellaneous: 10 heavy vehicles.
- Accommodation camp workforce (80% of the total workforce, per day occurring during commuter peak hours to and from the project site):
    - light vehicles (dayshift): 115 trips
    - light vehicles (nightshift): 12 trips
    - heavy vehicles (dayshift): 25 crew trucks and 15 buses
    - heavy vehicles (nightshift): two crew trucks and three buses.

A vehicle trip is defined as one inbound and one outbound movement. One vehicle trip equates to two vehicular movements and incorporates the following assumptions:

- construction will be occurring seven days a week
- 20% of workforce is local, travelling from surrounding areas directly to the construction site
- peak workforce traffic generation (light vehicles) is expected in March 2030
- peak construction deliveries and spoil removal (heavy vehicles) is expected in April 2027
- peak construction activity coincides with peak workforce in 2030, assumed as a worst-case scenario
- peak construction deliveries and spoil removal transport are distributed evenly over seven days per week, 10 hours per day, volumes are the same on weekdays and weekends
- shuttle buses transporting workers between the accommodation camp and construction site are considered heavy vehicles:
    - depart from a local depot within Lithgow
    - do not park on-site at the construction site or the accommodation camp
- day- and nightshift start end times coincide with the commuter peak hours
- light vehicle trips between the accommodation camp and workers' respective place of residence occur infrequently and outside of commuter peak hours, and therefore have not been considered
- a contingency factor of 1.4 has been applied to all volumes.

The trip generation for the accommodation camp is summarised in Table 4.1 and the generation for the construction site in Table 4.2.

**Table 4.1 Accommodation camp trip generation**

| Transport element | Daily | Hourly | Peak hour pattern | AM peak hour | | PM peak hour | |
|---|---|---|---|---|---|---|---|
| | | | | Inbound | outbound | Inbound | outbound |
| **Heavy vehicles** | | | | | | | |
| dayshift subby crew trucks (one-way, to and from construction site) | 35 | 35 | occurs during commuter network peak hour | - | 35 | 35 | - |
| dayshift buses (two-way, to and from construction site) | 21 | 21 | | 21 | 21 | 21 | 21 |
| nightshift subby crew trucks (one-way, to and from construction site) | 3 | 3 | | 3 | - | - | 3 |
| nightshift buses (two-way, to and from construction site) | 5 | 5 | | 5 | 5 | 5 | 5 |
| site services (two-way, to and from Lithgow) | 17 | 2 | occurs over 10-hour period | 2 | 2 | 2 | 2 |
| **Heavy vehicles (total)** | **81** | **66** | | **31** | **63** | **63** | **31** |
| | | | | | | | |
| **Light vehicles** | | | | | | | |
| dayshift (one-way, to and from construction site) | 161 | 161 | occurs during commuter network peak hour | - | 161 | 161 | - |
| nightshift (one-way, to and from construction site) | 17 | 17 | | 17 | - | - | 17 |
| site services (two-way, to and from Lithgow) | 17 | 2 | occurs over 10-hour period | 2 | 2 | 2 | 2 |
| **Light vehicles (total)** | **195** | **180** | | **19** | **163** | **163** | **19** |
| | | | | | | | |
| **Total vehicles** | **276** | **246** | | **50** | **226** | **226** | **50** |

## Table 4.2 Construction site trip generation

| Transport element | weekly | daily | hourly | peak hour pattern | AM peak hour | | PM peak hour | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Inbound | outbound | Inbound | outbound |
| **Heavy vehicles** | | | | | | | | |
| dayshift subby crew trucks (one-way, to and from accommodation camp | | 35 | 35 | occurs during commuter network peak hour | 35 | - | - | 35 |
| dayshift buses (two-way, to and from accommodation camp) | | 21 | 21 | | 21 | 21 | 21 | 21 |
| nightshift subby crew trucks (one-way, to and from accommodation camp) | | 3 | 3 | | - | 3 | 3 | - |
| nightshift buses (two-way, to and from accommodation camp) | | 5 | 5 | | 5 | 5 | 5 | 5 |
| site services (two-way, to and from Lithgow, Blue Mountains, and Sydney) | 693 | 99 | 10 | occurs over 10-hour period | 10 | 10 | 10 | 10 |
| **Heavy vehicles (total)** | | **163** | **74** | | **71** | **39** | **39** | **71** |
| | | | | | | | | |
| **Light vehicles** | | | | | | | | |
| dayshift (one-way, to and from accommodation camp) | | 161 | 161 | occurs during commuter network peak hour | 161 | - | - | 161 |
| nightshift (one-way, to and from accommodation camp) | | 17 | 17 | | - | 17 | 17 | - |
| local workers (one-way, to and from Lithgow, Blue Mountains, and Sydney) | | 205 | 205 | | 205 | - | - | 205 |
| **Light vehicles (total)** | | **383** | **383** | | **366** | **17** | **17** | **366** |
| | | | | | | | | |
| **Total vehicles** | | **546** | **457** | | **437** | **56** | **56** | **437** |

### 4.1.5 Project traffic distribution

To provide flexibility in the management of the project, four separate scenarios have been assessed, to ensure consideration of a worst-case scenario in terms of directional distribution at the Great Western Highway / Magpie Hollow Road intersection, comprising:

- Project scenario 1:
  - Lakeside camp (Lockyers Line location)
  - 100% of deliveries and material transport and 75% of local workers arrive from the Blue Mountains and Sydney, 25% of local workers from Lithgow.
- Project scenario 2:
  - Lakeside camp
  - 100% of deliveries and material transport and 75% of local workers arrive from Lithgow, 25% of local workers from the Blue Mountains and Sydney.
- Project scenario 3:
  - same as Scenario 1 but Town camp (Lithgow location)
- Project scenario 4:
  - same as Scenario 2 but Town camp.

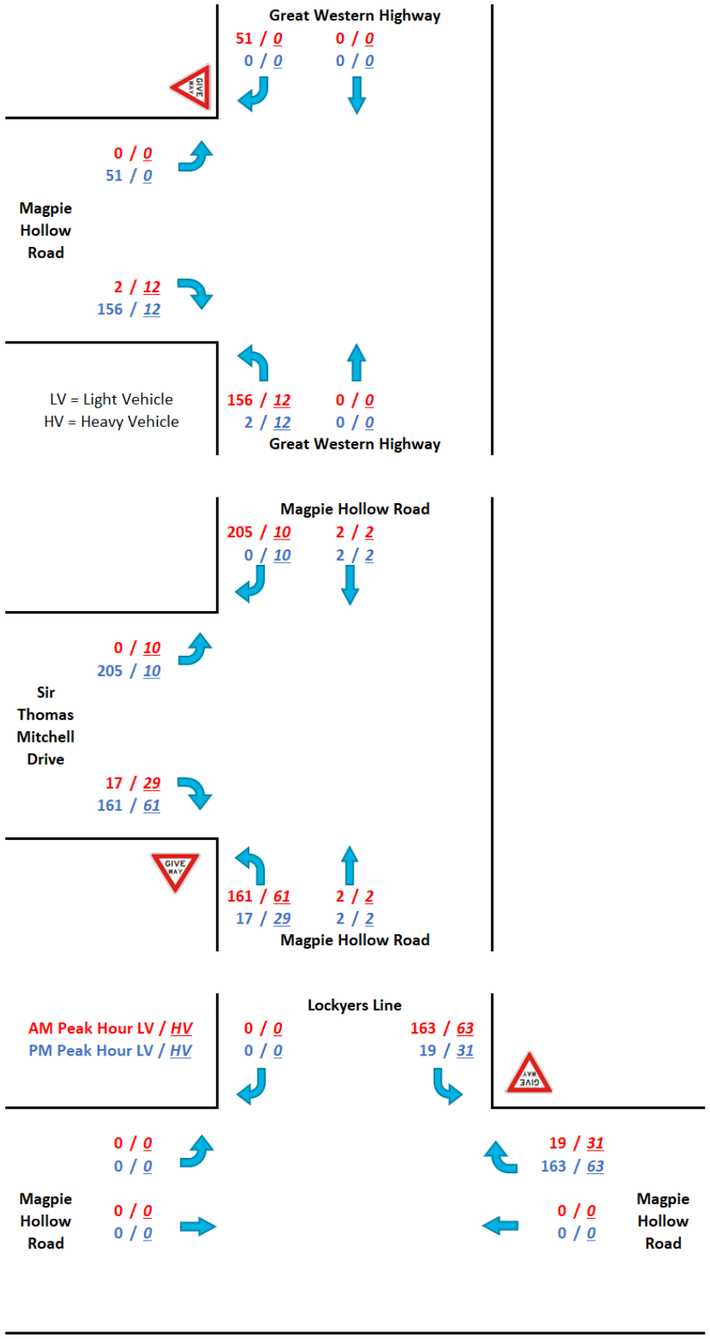
The access arrangement for the Town camp and the proposed route between the camp and the construction site, is shown in Figure 3.1 and summarised below:

- **Heavy vehicles and buses:** access through Silcock Street, then travelling via Bent Street, Lithgow Street, Wrights Road, Methven Street, Musket Parade, Bayonet Street, Great Western Highway, Methven Street, Magpie Hollow Road, and Sir Thomas Mitchell Drive.
- **Light vehicles:** access through Valley Drive, then travelling via Lithgow Street, then using the same route as heavy vehicles.

Site service and delivery traffic to the Town camp is through Silcock Street, travelling via Bent Street, Lithgow Street, and Main Street.

### 4.1.6 Project traffic volumes

Figure 4.1 to Figure 4.4 Illustrate the project-related peak hour intersection traffic volumes for each assessed scenario.



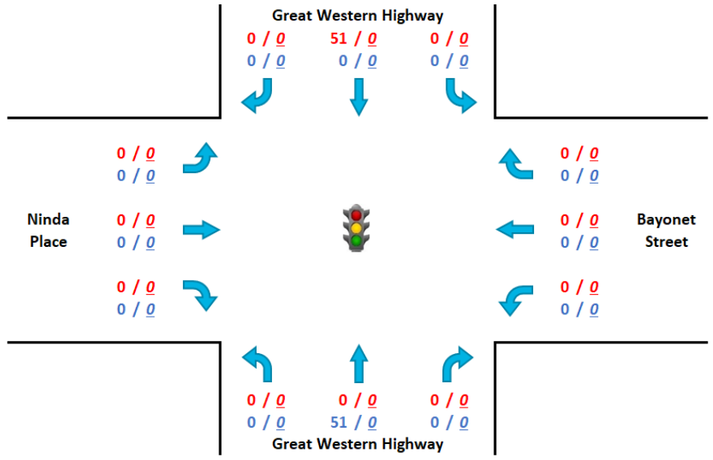
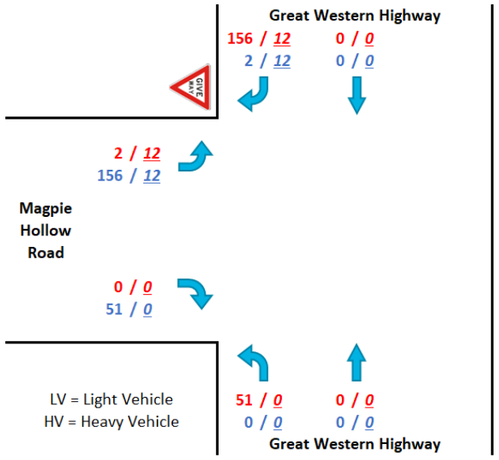
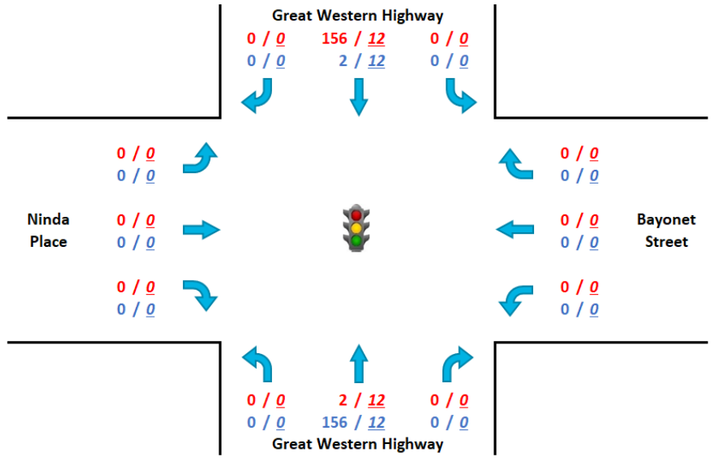
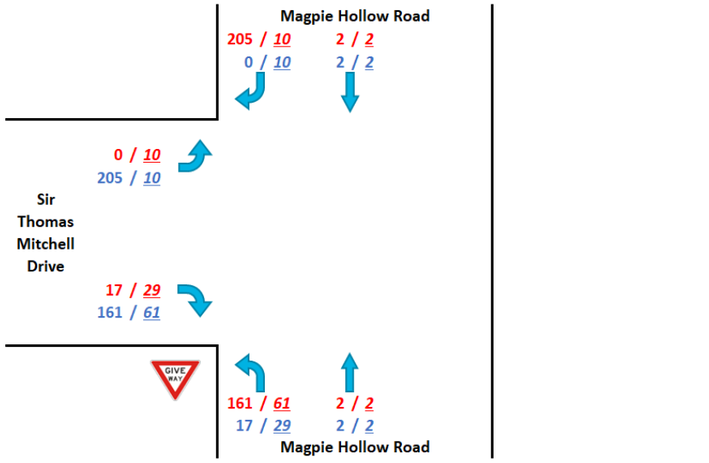




**Figure 4.1** **Project peak hour traffic volumes (scenario 1)**



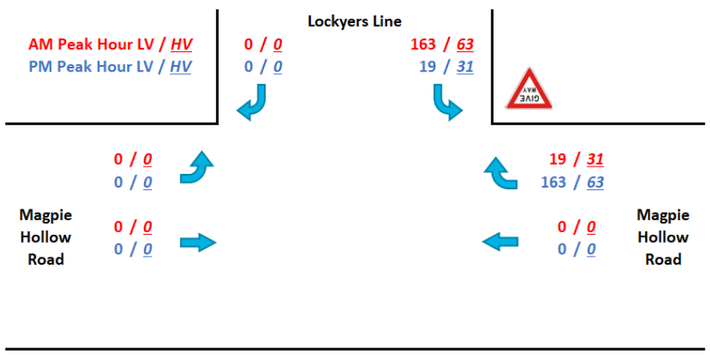




**Figure 4.2 Project peak hour traffic volumes (scenario 2)**

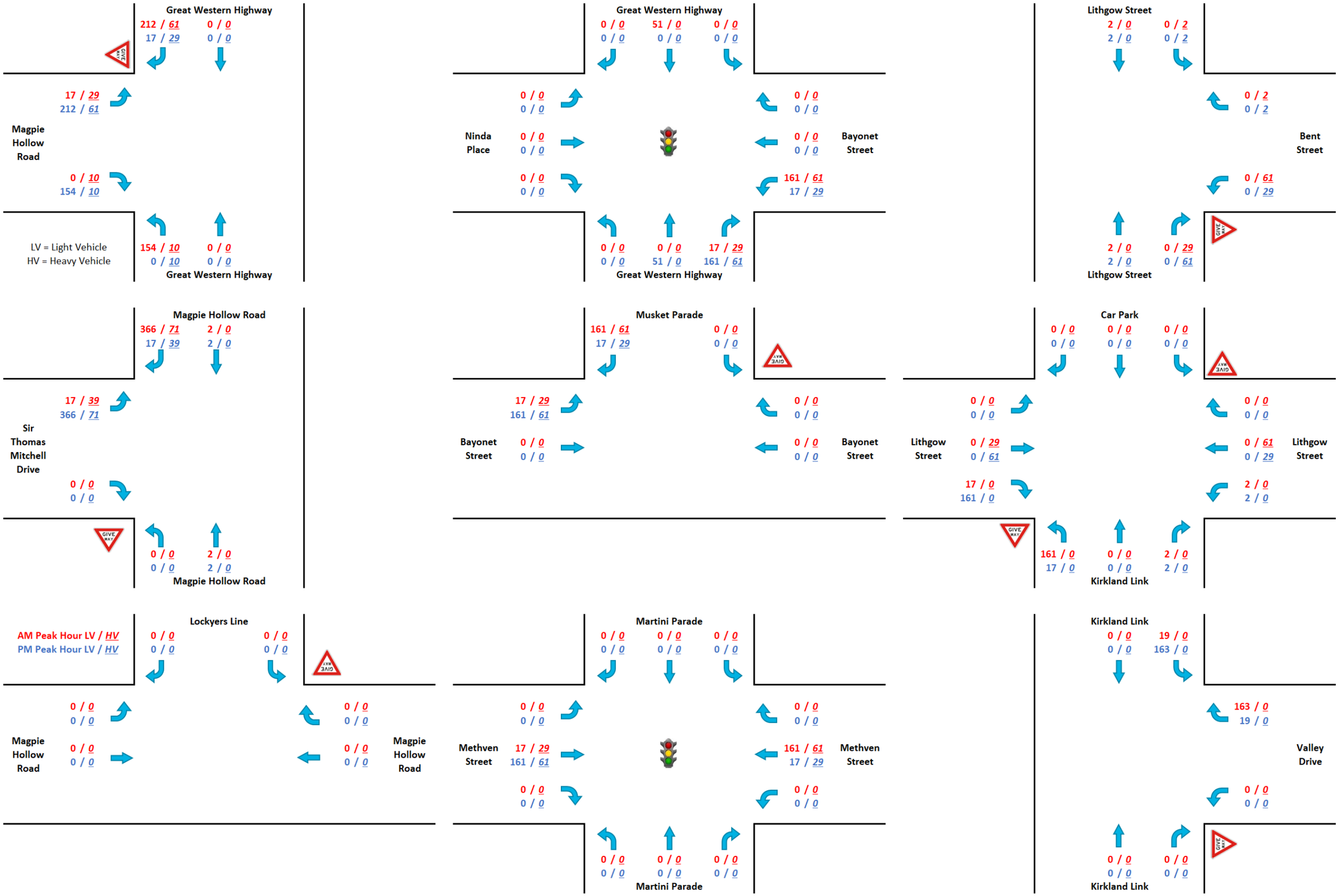



**Figure 4.3** **Project peak hour traffic volumes (scenario 3)**

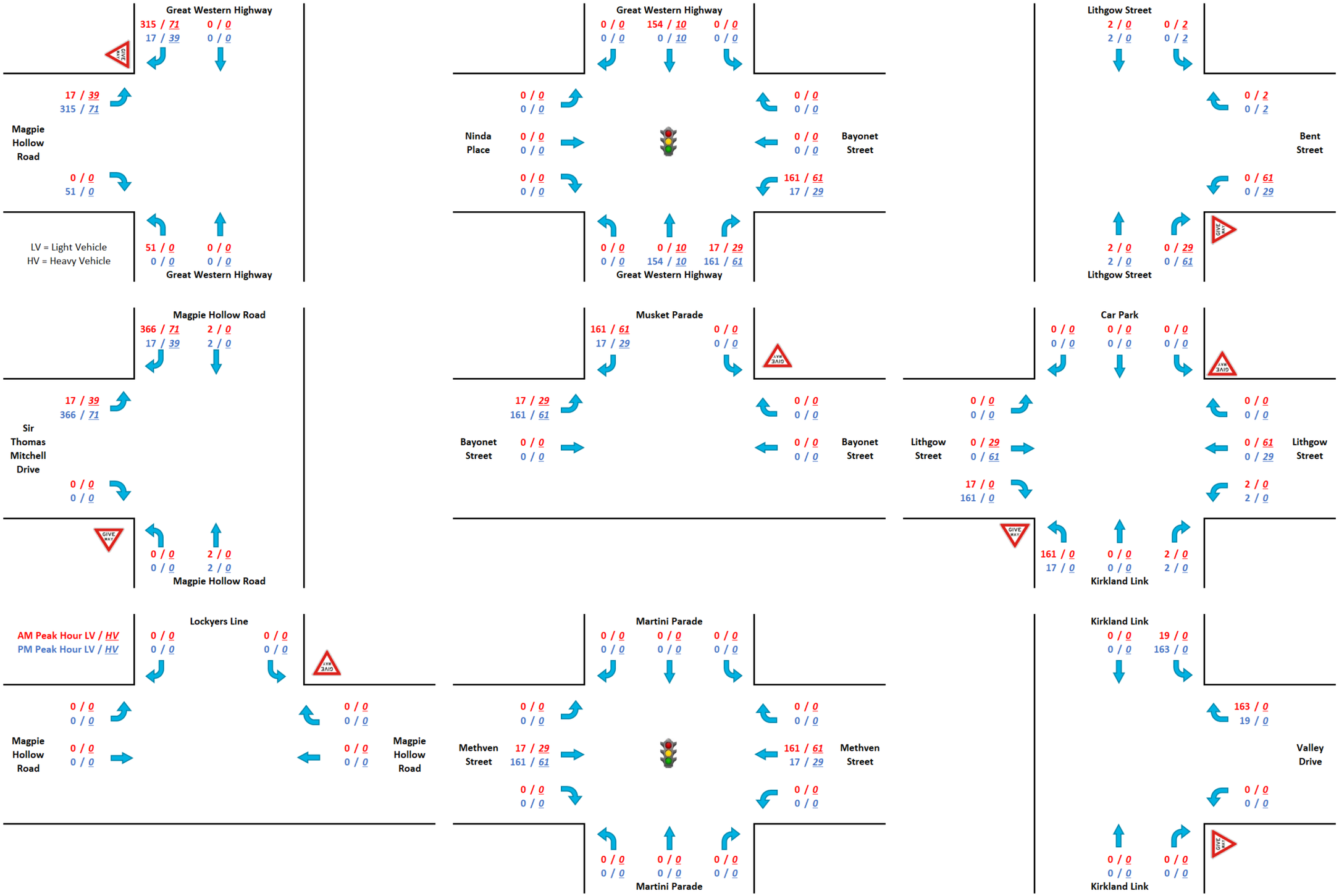
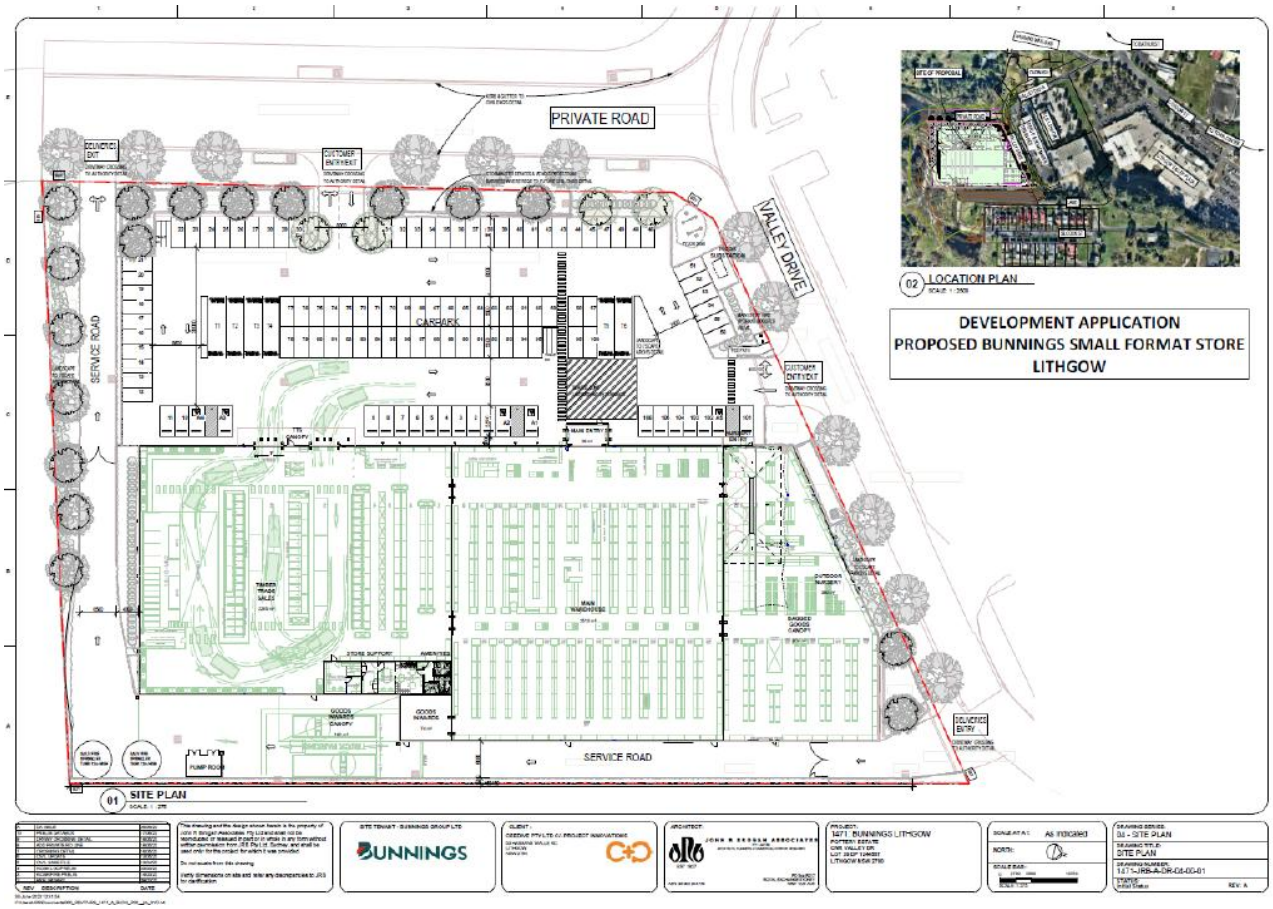



**Figure 4.4** **Project peak hour traffic volumes (scenario 4)**

## 4.2 Nearby developments

The most significant potential cumulative traffic impact in the area is associated with the operation of the Bunnings small-format store (6,214 m$^2$ GFA) on Valley Drive (refer to Figure 4.5).

This development was under construction at the time of the traffic surveys and therefore, the operational trip generation has not been captured. The store is expected to impact traffic associated with the Town camp, as both developments would share light vehicle access via Valley Drive.




Notes: TIA prepared by The Transport Planning Partnership (dated 8 July 2022, Version 1, Section 7)

**Figure 4.5 Bunnings store site plan**

The TIA for the proposed Bunnings store, prepared by The Transport Planning Partnership (dated 8 July 2022, Version 1, Section 7), estimates the following trip generation:

- weekday PM peak: 173 trips/hour
- Saturday midday peak: 387 trips/hour.

The TIA does not specify the directional distribution of trips, the inbound / outbound split, or the proportion of light versus heavy vehicles. For the purposes of this assessment, the following simplifying assumptions have been made:

- equal inbound and outbound trip split
- only light vehicles are generated during weekday peak hours; heavy vehicle trips occur outside peak periods

- weekday AM peak hour trip generation is assumed to be half the PM peak generation
- trip distribution across the surrounding road network has been assumed as follows:
  - 25% via Kirkland Link, Lithgow Street, then Bent Street
  - 25% via Kirkland Link, Lithgow Street, then Mort Street and Main Street
  - 50% via Kirkland Link, Lithgow Street, Wrights Road, Methven Street, Musket Parade northbound (25%) and southbound (25%)
  - Musket Parade southbound trips (25%) distributed onto the Great Western Highway north- and southbound equally.

### 4.2.1 Bunnings development traffic volumes

Figure 4.6 illustrates the peak hour network traffic volumes generated by the future Bunnings store.

### 4.2.2 2030 cumulative traffic volumes

Figure 4.7 to Figure 4.10 illustrate the 2030 cumulative peak hour intersection traffic volumes (scenarios 1 to 4) comprising:

- 2030 baseline (refer to Figure 3.13)
- project-related, scenarios 1 to 4 (refer to Figure 4.1 to Figure 4.4)
- Bunnings development (refer to Figure 4.6).

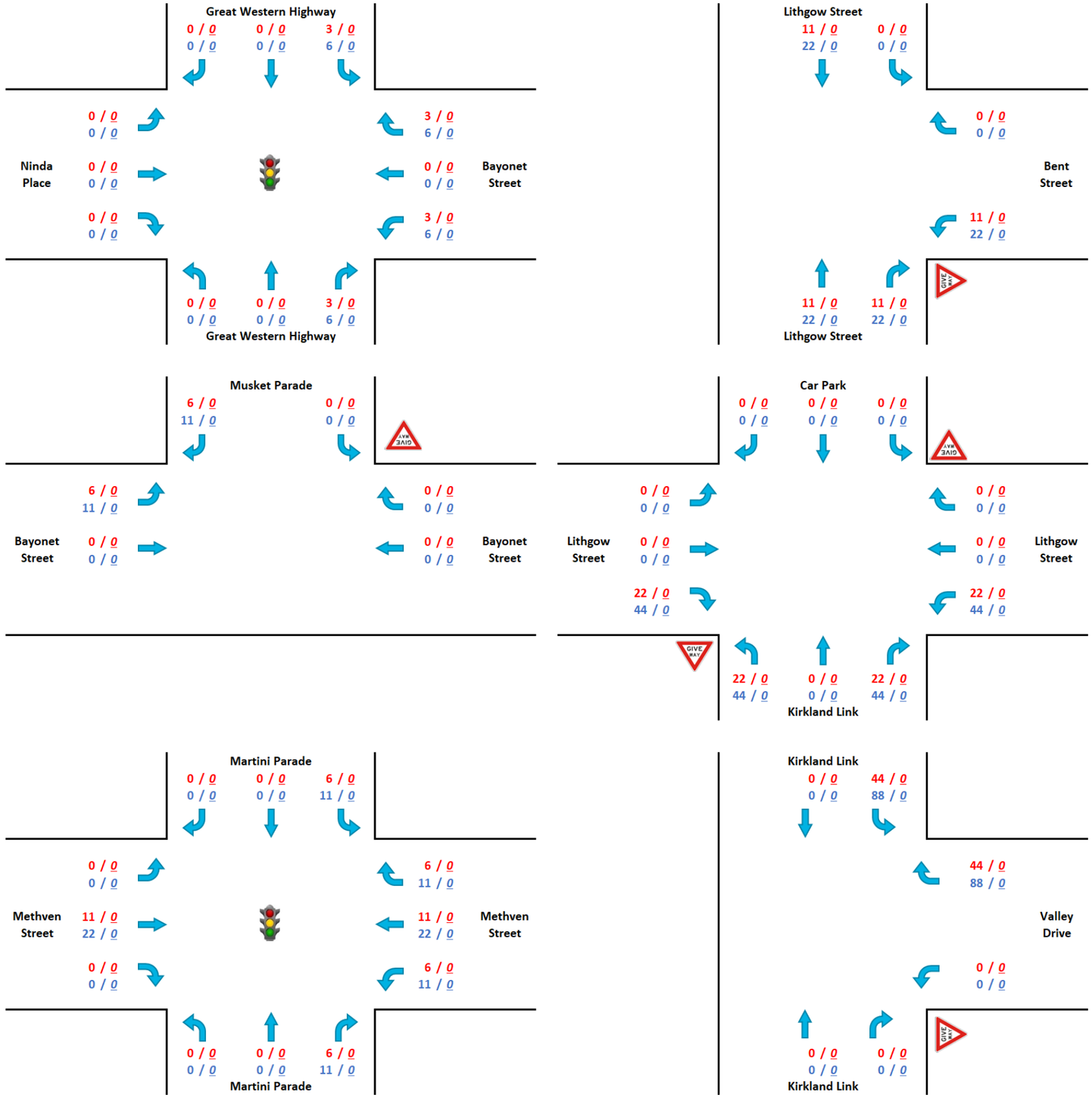



**Figure 4.6** **Bunnings development peak hour traffic volumes**

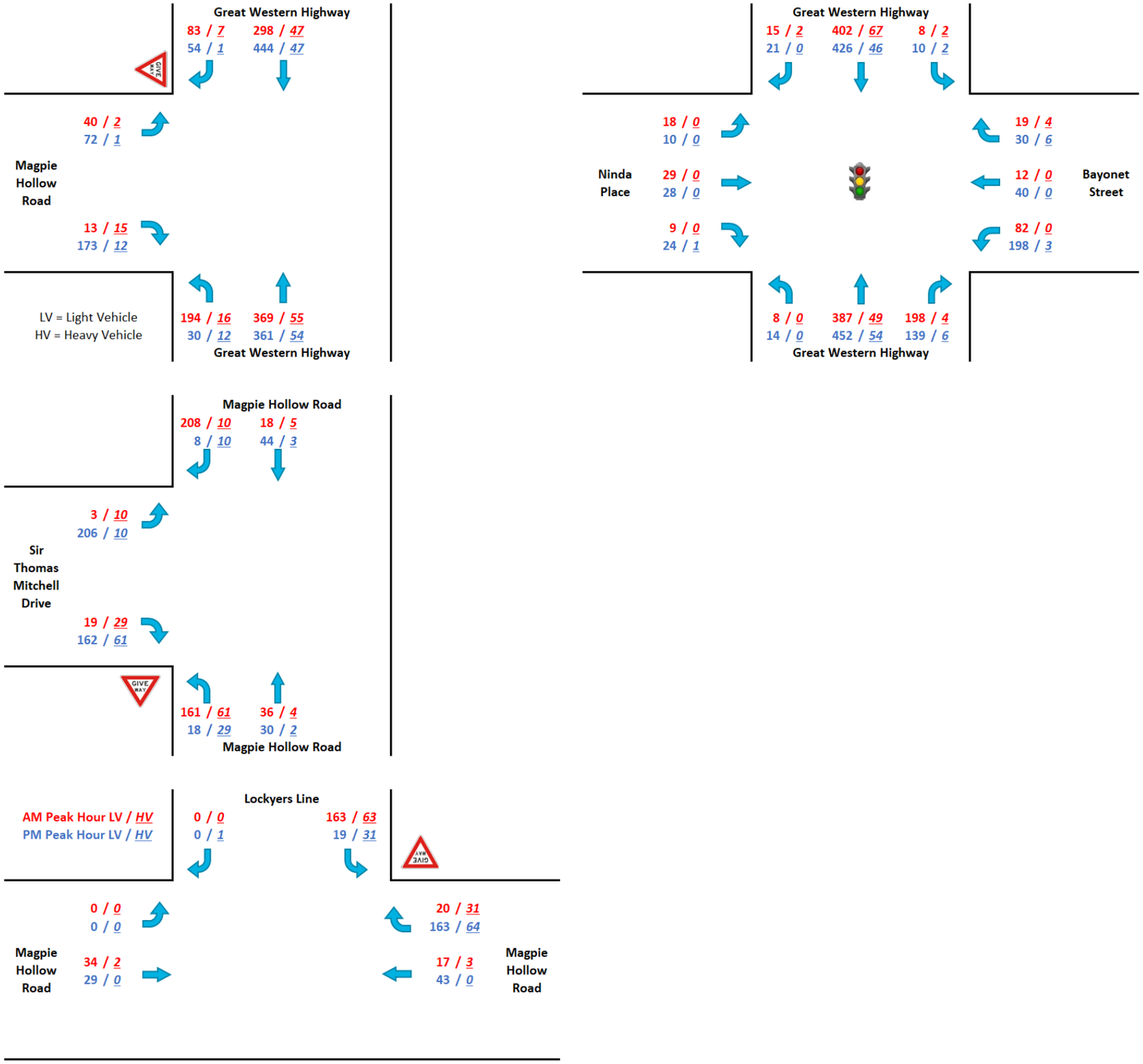



**Figure 4.7** **2030 cumulative peak hour traffic volumes (scenario 1)**

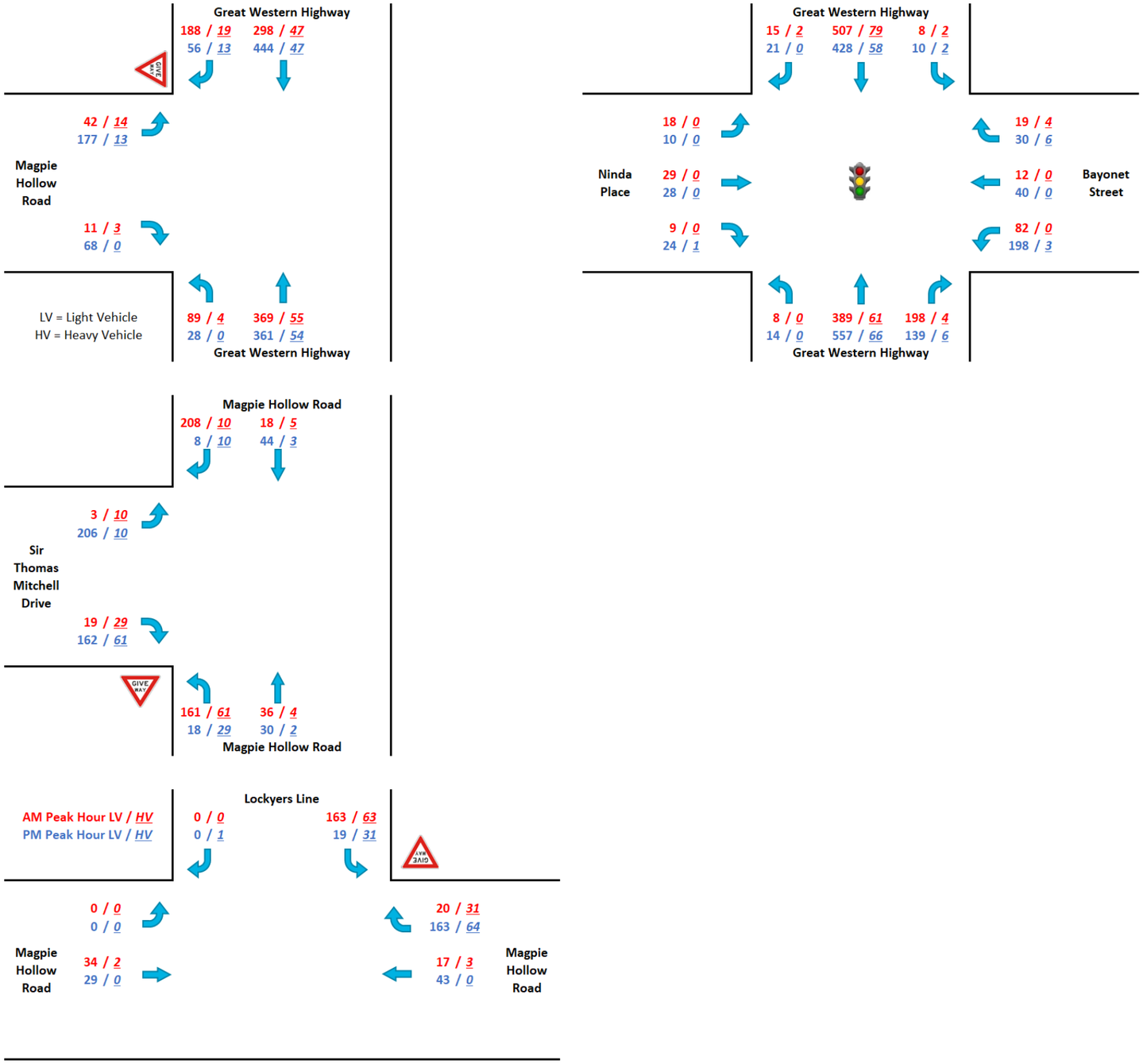



**Figure 4.8 2030 cumulative peak hour traffic volumes (scenario 2)**

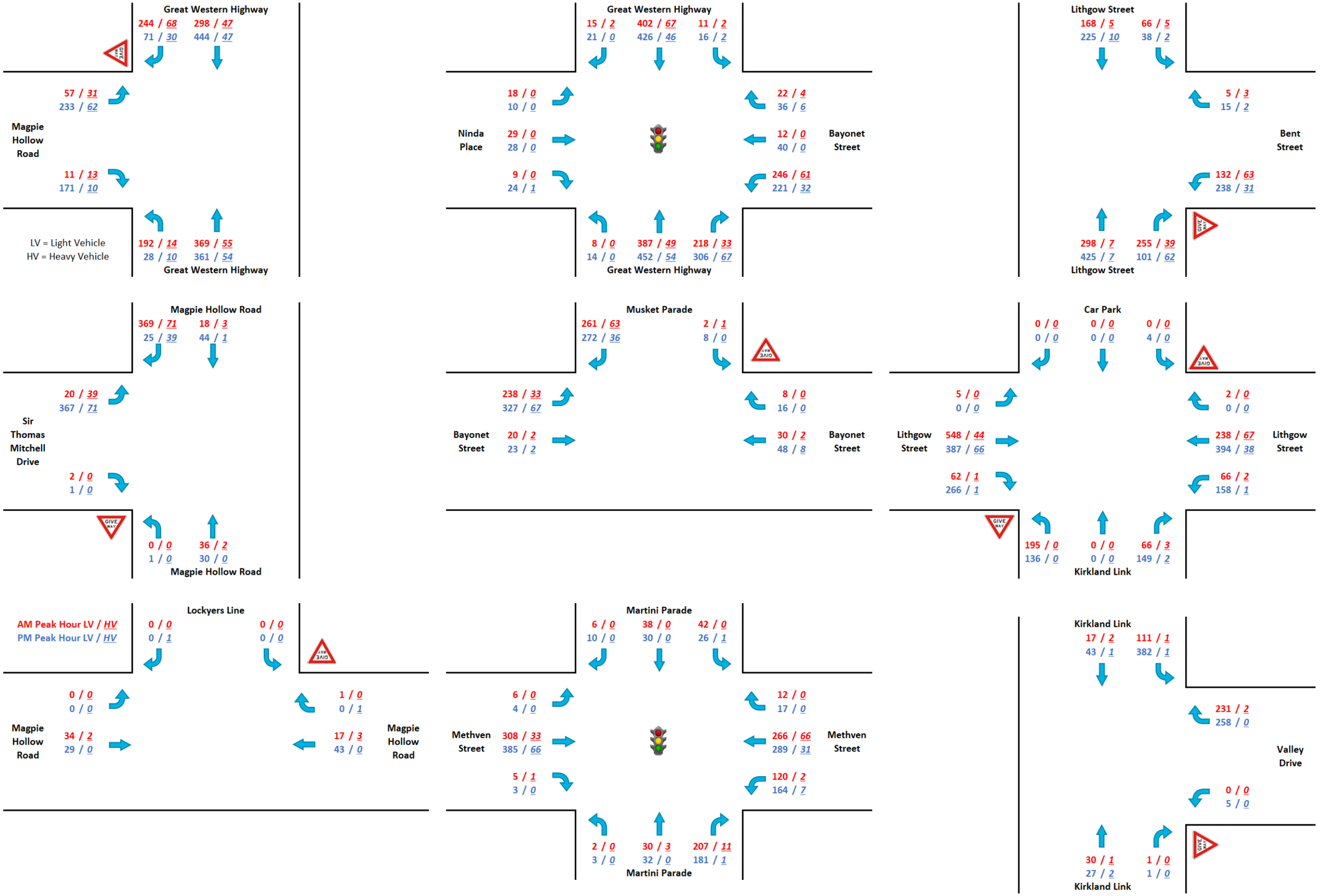



**Figure 4.9** **2030 cumulative peak hour traffic volumes (scenario 3)**

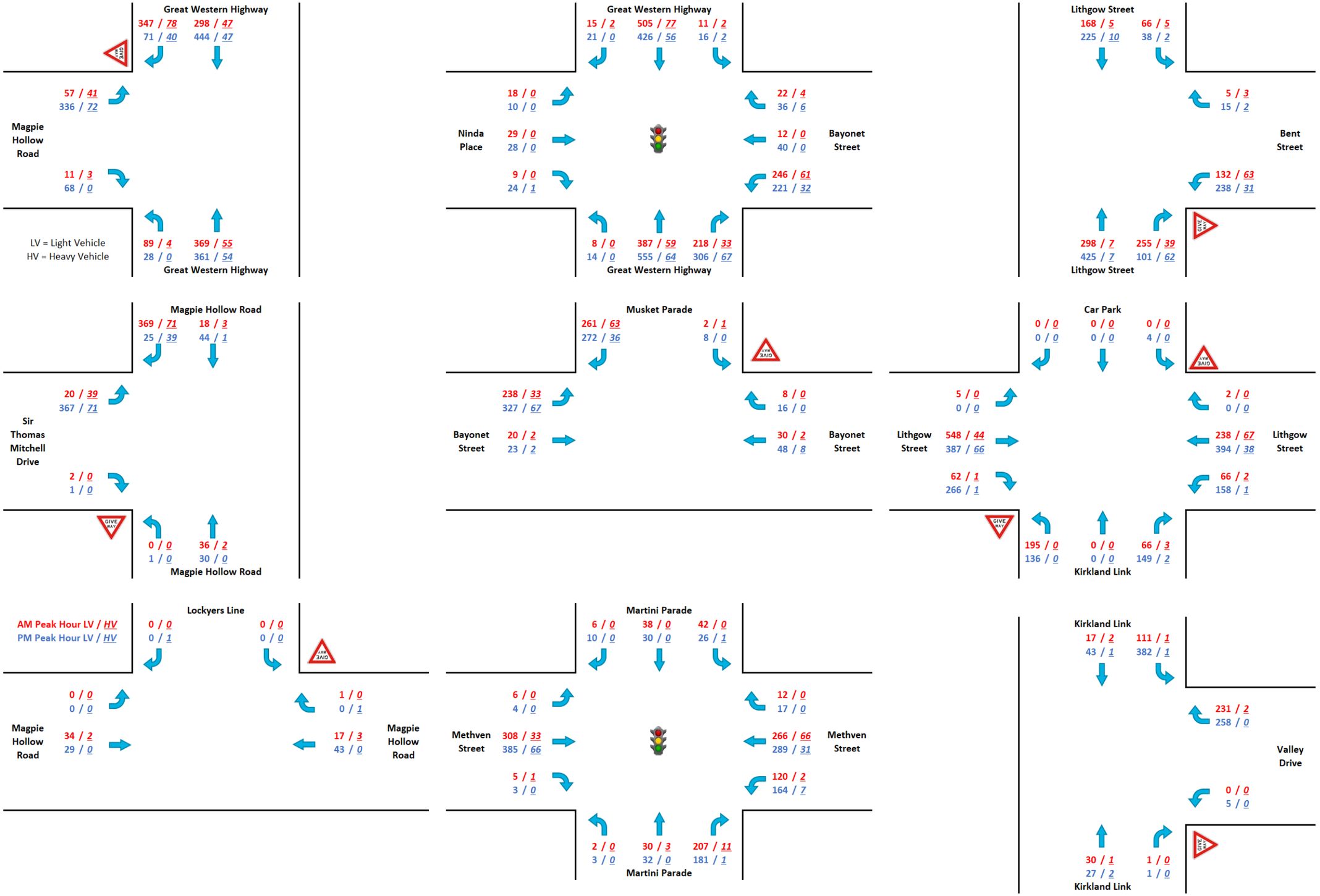



**Figure 4.10** **2030 cumulative peak hour traffic volumes (scenario 4)**

## 4.3 Operational traffic volumes

The expected traffic volumes during the operational phase are summarised as:

- 12 inbound and 12 outbound light vehicle movements per day
- five inbound and five outbound heavy vehicle (service vehicle) movements per day.

During the annual maintenance, the volumes increase to:

- 30 inbound and 30 outbound light vehicle movements per day
- 10 inbound and 10 outbound heavy vehicle movements per day.

Any traffic impact associated with the operation of the project is expected to be negligible and significantly less than the construction traffic impact and therefore, has not been assessed.

## 4.4 Decommissioning or repowering traffic

Any traffic impact associated with the decommissioning or repowering of the project is expected to be negligible and significantly less than the construction traffic impact and therefore, has not been assessed.

## 4.5 Oversize over mass vehicles

OSOM vehicles will be required to transport components to the site. Different OSOM vehicle configurations will be assessed going to different sites, as different components will be carried.

### 4.5.1 OSOM vehicle movements along Sir Thomas Mitchell Drive

An OSOM report prepared by ARES (2024) states that the longest, tallest and heaviest equipment will be a transformer with the following dimensions and weight:

- 8.5 m long
- 3.8 m wide
- 3.6 m high
- 180 t mass.

ARES (2024) also mentions that the widest equipment will be a steel can with the following dimensions and weight:

- 5.04 m long
- 5.04 m wide
- 3.0 m high
- 35 t mass.

To assess the transport of these OSOM components, the largest OSOM vehicle based on TransGrid Specification design criteria have been used to determine the upgrades that will be required along the route (Mott MacDonald 2024a).

The largest OSOM vehicle assessed by Mott MacDonald (2024a) is a prime mover with two 10 x 8 platform trailers and beamset in the following configuration (refer to Figure 4.11):

- 56.633 m long
- 5.74 m wide
- 4.247 m high
- 15 t maximum load per axle row
- 25.666 m wall-to-wall turning radius.

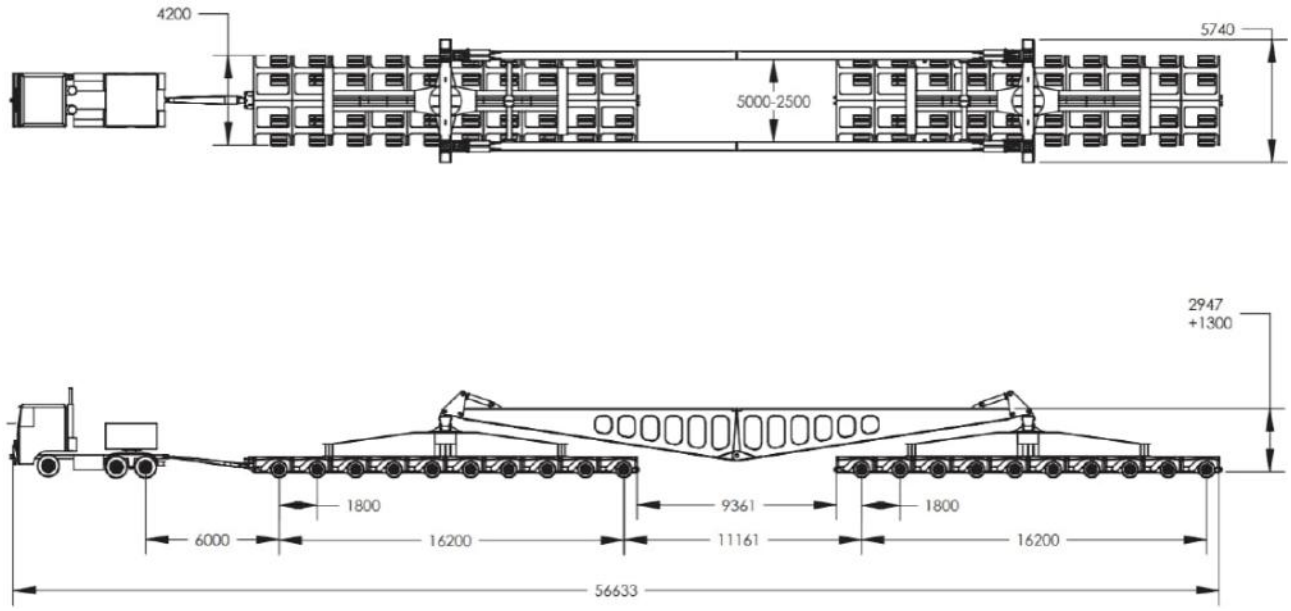



**Figure 4.11 OSOM vehicle travelling to Sir Thomas Mitchell Drive**

Further details of the OSOM assessment can be found in Annexure D.

### 4.5.2 OSOM vehicle movements associated with the construction of the accommodation camp

There are expected to be around 250 OSOM vehicle movements to support the construction of the accommodation camp. The longest and widest OSOM load is expected to be an accommodation building with the following dimensions and weight:

- 15 m long
- 4 m wide
- 4 m high
- 6 t mass.

The heaviest and tallest OSOM load is expected to be a D11 bulldozer with the following dimensions and weight:

- 10.5 m long
- 3.6 m wide

- 4.7 m high
- 104.2 t mass.

For simplicity and to be conservative, a single load that merges the largest values of both types of OSOM loads will be assessed and have the following configuration:

- 15 m long
- 4 m wide
- 4.7 m high
- 104.2 t mass.

The largest OSOM vehicle that will be able to carry the above load is a prime mover with a 2 x 8 dolly and 8 x 8 platform trailer in the following configuration:

- 33.066 m long
- 4 m wide body (with up to 5.3 m wide dolly track width that can be retracted to 3.3 m wide)
- 5.8 m high (may be lowered in height by up to 200 mm)
- 14 t maximum load per axle row on platform trailer and maximum load of 31 t on the 2 x 8 dolly
- 17.877 m wall-to-wall turning radius.

The OSOM vehicle associated with the construction of the accommodation camp is shown in Figure 4.12.

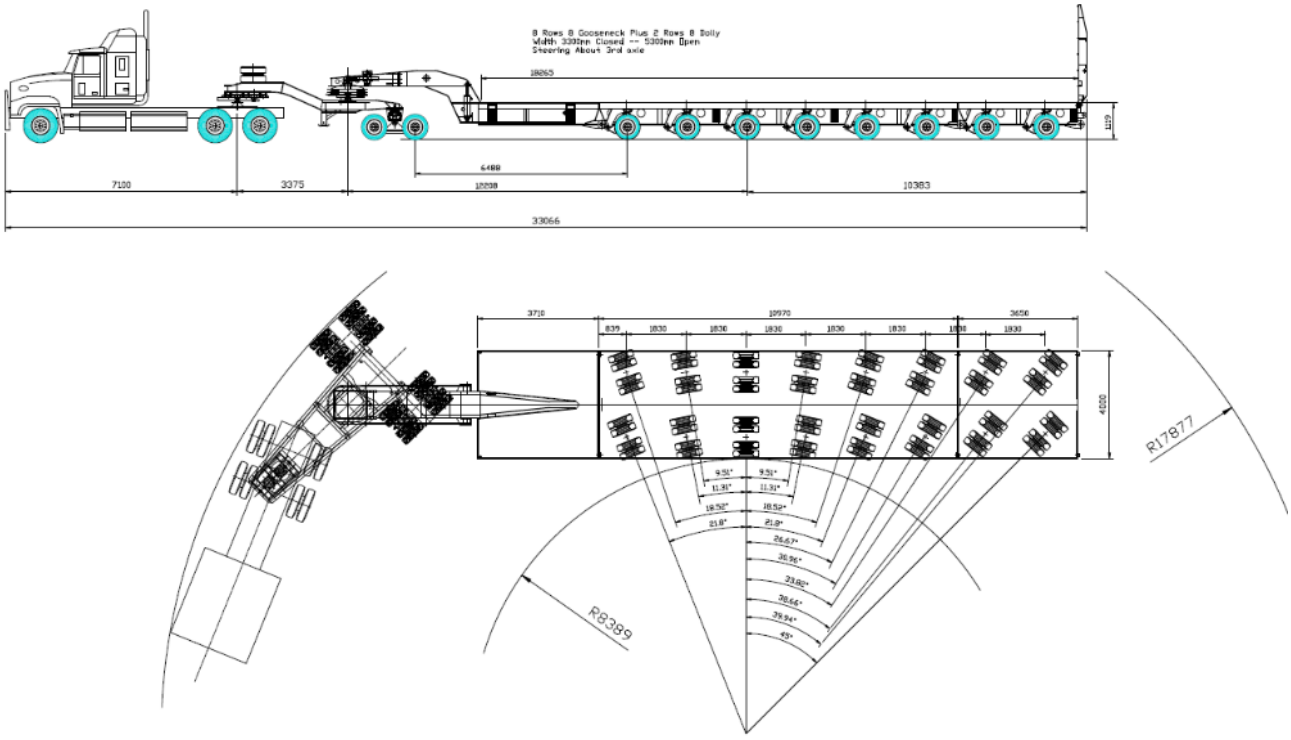



**Figure 4.12 OSOM vehicle associated with the construction of the accommodation camp**

It is noted that if the D11 bulldozer on the platform trailer sits too high to be transported under any structures along the haulage route (such as bridges), there is an option to use the shorter D9 bulldozer, which is 4 m high. When placed on the platform trailer, the OSOM vehicle with the D9 bulldozer load sits at 5.1 m high. The bulldozers are likely to be sourced locally, so the load is unlikely to pass through structures with height restrictions.

## 4.6 Parking requirements

All parking will be provided on-site. No public roads will be used for parking. Since shuttle buses will be used to transport most workers to and from the construction site, there will be sufficient parking on-site for the local workers and workers traveling by individual light vehicles from the accommodation camp.

Sufficient parking will also be provided at the accommodation camp, with the use of shuttle buses supporting a reduction in light vehicle movements and parking provision on the construction site.

## 4.7 Bridge crossings

Both temporary and permanent water crossings will be constructed on site. Two temporary bridges are required to cross Farmers Creek to allow access to the project area north of Farmers Creek. The northern temporary bridge will comprise prefabricated structures lifted into place by a crane while the southern temporary bridge will be large diameter culverts semi submerged into the water.

A permanent bridge across Farmers Creek will be required to cross the Farmers Creek diversion. According to Mott MacDonald (2024b), the bridge is anticipated to be 62 m long and comprise two equal simply supported spans that are 31 m long. To construct the permanent bridge, precast and prestressed Super-T beams will be used, which will then support a 250 mm cast in-situ concrete slab on top. The deck will support a 9 m wide road, with 10 m total clear width between barriers.

31-m-long Super-T beams are expected to be constructed on site. Therefore, no OSOM movements are required on the public road network to transport the beams to the location.

# 5 Impact assessment

## 5.1 Proposed signalisation of Great Western Highway/Magpie Hollow Road intersection

The sight distance issue for right-turning vehicles from Magpie Hollow Road to the Great Western Highway – identified in Section 3.3 – is caused by the existing horizontal and vertical curves. Several treatment options have been considered, including a seagull-type intersection with two-stage crossing for the right-turn from Magpie Hollow Road. However, given the current 70 km/h speed limit on the Great Western Highway in the semi-urbanised area, traffic signal control is considered the best option.

Table 5.1 below provides various options that has considered for the control of Great Western Highway / Magpie Hollow Road intersection.

**Table 5.1 Option assessment for Great Western Highway/Magpie Hollow Road intersection control**

| Intersection treatment | Costs | Benefits | Risks | Constraints |
|---|---|---|---|---|
| Do nothing – Retain Giveway control | Nil. | No disruption to existing traffic as there is no construction activity at this intersection. | • Safety issue as the sight distance to the left from Magpie Hollow Road to the Great Western Highway is very limited due to the existing horizontal and vertical curves.<br>• High traffic delays, potentially Level of Service F for the right turn movement form Magpie Hollow Road.<br>• No pedestrian connectivity at this intersection. | Nil |
| Seagull treatment | High mostly associated with civil works. | Two stage right turn from Magpie Hollow Road to Great Western Highway will be beneficial for the general road users, compared to the existing situation. | • Truck turning right from Magpie Hollow Road to Great Western Highway will take longer to execute the right turn, hence risk of collision between the turning trucks and northbound traffic on Great Western Highway will still exist.<br>• Seagull islands do not resolve the existing pedestrian connectivity issues.<br>• Lower value for money.<br>• Traffic disruption during the construction of this intersection. | • Realignment of the overall intersection to the west due to the limited opportunity to widen the existing layout to the east (road reserve).<br>• Existing driveways on the western side of Great Western Highway will be impacted due to the realignment. |

| Intersection treatment | Costs | Benefits | Risks | Constraints |
|---|---|---|---|---|
| Roundabout | • High mostly associated with civil works.<br>• Potential land acquisition to construct a large roundabout suitable for high traffic approach speed. | • A roundabout will resolve the sight distance issues to the left as vehicles turning right from Magpie Hollow Road will obtain the priority to their left.<br>• Pedestrian safety issues can be partially resolved by refuge islands at the middle. | • The current speed limit of this intersection is 70 km/h. As such, the speed limit may require further reduction on approach to the roundabout.<br>• There will be pedestrian safety issues at any multi lane roundabout.<br>• Lowest value for money.<br>• Traffic disruption during the construction of this intersection.<br>• Overall delay of the Lake Lyell PHES project. | • Based on the current road reserve, a roundabout installation may not be feasible in the existing road geometry. Hence, land acquisition may be required (see below).<br>  <br>Source: https://portal.spatial.nsw.gov.au/explorer/index.html |
| Traffic lights | Minimal cost for the civil works as the existing road geometry is suitable for the installation of traffic signals. | • Resolves existing traffic safety and sight distance issues.<br>• Provides pedestrian connectivity.<br>• According to Lithgow City Council, the proposed signalisation will benefit the vehicular accesses located north of the intersection (western side of Great Western Highway).<br>• Highest value for money. | • Traffic disruption during the construction of this intersection. | • No major constraint, however, this proposed signalisation should bring broader community benefits in the locality. |

## 5.2 Traffic signal warrant assessment and layout

This section provides the warrant assessment for installing traffic signals.

TfNSW signalised intersection guidelines (RTA 2008) provides an overview for the warrant assessment. Section 2.3 of the *Traffic signal design: Section 2 – Warrants* guideline provides the warrant categories to be assessed as:

- traffic demand
- continuous traffic
- pedestrian safety
- pedestrian safety on a high-speed road
- crashes.

For the Great Western Highway / Magpie Hollow Road intersection, none of the warrants would be fully satisfied based on the specific criteria for each category.

While none of these assessed categories meet the criteria fully, some are partially met:

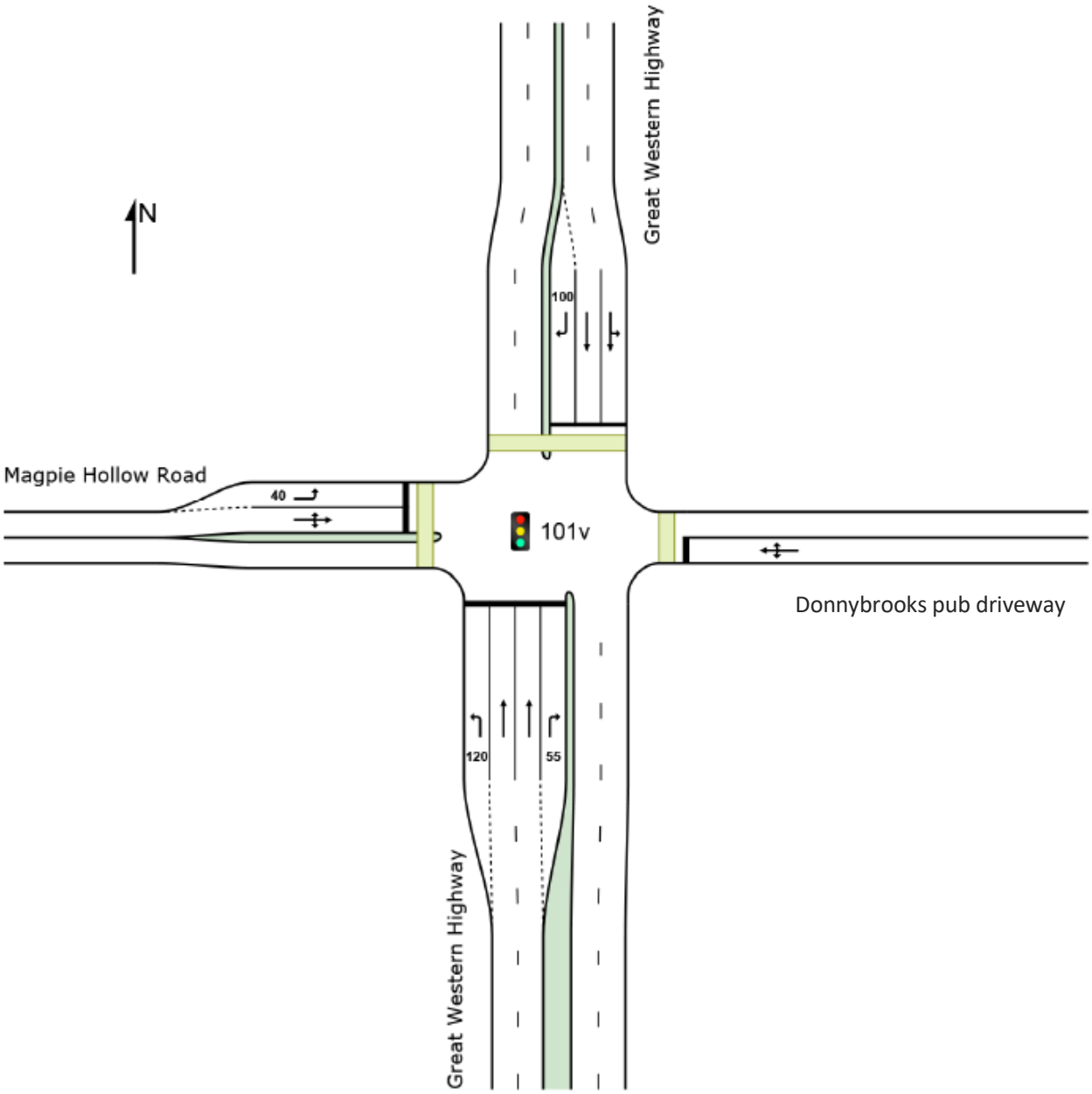
- The major road flow along Great Western Highway exceeds 600 vehicles per hour in each direction for two one-hour periods of the day when both baseline and construction traffic volumes are considered.
- The minor road flow along Magpie Hollow Road exceeds 200 vehicles per hour in one direction for two one-hour periods of the day when both baseline and construction traffic volumes are considered.
- The speed of traffic on the major road (Great Western Highway) combined with limited sight distance from the minor road (Magpie Hollow Road) for vehicles waiting to turn right onto Great Western Highway (south) creates a safety hazard.
- There is no other nearby traffic signal site easily accessible to the minor road (Magpie Hollow Road) vehicles.

Although no crashes have been recorded at this intersection in the past five years, the combination of identified factors present a safety risk. The five-year construction period for the project is relatively long and will impact intersection safety. Right-turning heavy vehicles from the project site have limited visibility to the left, substantially increasing the likelihood of crashes.

Accordingly, the installation of traffic signals is recommended, also offering substantial community safety benefits. Therefore, intersection performance under signal control has been assessed in Section 5.5.

There are very few pedestrian movements at this intersection, as the location is on the outskirts of Lithgow with limited nearby developments within walking distance for residents or workers.

Therefore, pedestrian crossing facilities on both approaches of the Great Western Highway are not warranted, and a crossing is proposed on the northern arm only. The assessed layout is illustrated in Figure 5.1. An indicative traffic signal plan is provided in Annexure G.




Notes: Pedestrian crossings are required on each approach, according to TfNSW guidelines. Any non-provision on any leg requires TfNSW approval

**Figure 5.1 Proposed layout Great Western Highway / Magpie Hollow Road signalised intersection**

## 5.3 Intersection performance

The key intersections have been modelled using SIDRA Intersection Version 10 software, a micro-analytical tool designed for individual intersections and small networks. SIDRA provides the following performance indicators:

- Degree of saturation (DOS):
  Represents the ratio of traffic demand to capacity, with a value of 1.0 indicating full capacity (100% saturation). The thresholds are commonly referred to as practical degrees of saturation. Target DoS thresholds are generally accepted as follows:
  - 0.90 for signalised intersections
  - 0.85 for roundabouts
  - 0.80 for priority-controlled intersections.
- Average delay (DEL):
  Represents the average delay (in seconds) experienced by vehicles at the intersection:
  - for signalised and roundabout intersections, DEL is averaged across all movements
  - for priority-controlled intersections (e.g. stop or give-way), DEL is typically reported for the worst-performing movement. It is important to assess individual approach delays, as high delays on minor roads can be masked by low delays on dominant through movements.
- Level of service (LOS):
  A qualitative measure that categorises average delay into levels ranging from A (best) to F (worst). LOS provides an intuitive summary of intersection performance. The LOS thresholds are provided in Table 5.2.
- 95% queue lengths (Q95)
  Refers to the queue length (in metres) that has only a 5% probability of being exceeded during the analysis period. This metric translates delays into a spatial measure, helping identify potential spillback risks and storage deficiencies.

**Table 5.2 Intersection LOS standards**

| Level of service LOS | Average delay DEL (seconds per vehicle) |
|---|---|
| A | <14 |
| B | 15 to 28 |
| C | 29 to 42 |
| D | 43 to 56 |
| E | 57 to 70 |
| F | >71 |

Source: TfNSW Guide to Transport Impact Assessment (TfNSW 2024)

The following abbreviations are used to describe the direction of the Q95 approach:

- LT – left turn
- RT – right turn
- TH – through movement.

## 5.4 Assessment scenarios

SIDRA intersection modelling has been conducted for several project and cumulative impact scenarios outlined in Table 5.3, and summarised below:

- 2025 baseline:
  - observed (surveyed) background traffic.
- 2030 baseline:
  - observed (surveyed) background traffic
  - includes five years of background traffic growth.
- 2030 project scenario 1:
  - 2030 baseline
  - Lakeside camp
  - 100% of construction delivery and material transport, and 75% of local workers arrive from the Blue Mountains and Sydney, 25% of local workers from Lithgow.
- 2030 project scenario 2:
  - 2030 baseline
  - Lakeside camp
  - 100% of construction deliveries and material transport, and 75% of local workers arrive from Lithgow, 25% of local workers from the Blue Mountains and Sydney.
- 2030 project scenario 3:
  - same as Scenario 1 but with Town camp.
- 2030 project scenario 4:
  - same as Scenario 2 but with Town camp.
- 2030 cumulative scenarios 1 to 4, as per project scenario 1 to 4, but with the additional traffic volumes from the Bunnings development.

**Table 5.3 SIDRA project scenarios**

| Scenario | background traffic | most project traffic to/from Penrith / Sydney | most project traffic to/from Lithgow | Lakeside camp | Town camp |
|---|---|---|---|---|---|
| 2025 baseline | ✓ (2025) | ✗ | ✗ | ✗ | ✗ |
| 2030 baseline | ✓ (2030) | ✗ | ✗ | ✗ | ✗ |
| 2030 scenario 1 | ✓ (2030) | ✓ | ✗ | ✓ | ✗ |
| 2030 scenario 2 | ✓ (2030) | ✗ | ✓ | ✓ | ✗ |
| 2030 scenario 3 | ✓ (2030) | ✓ | ✗ | ✗ | ✓ |
| 2030 scenario 4 | ✓ (2030) | ✗ | ✓ | ✗ | ✓ |

The Lithgow Street / Kirkland Link and Kirkland Link / Valley Drive intersections have been modelled as a network, as these are closely spaced intersections.

The SIDRA results for the assessed intersections are presented in the following sections. Detailed SIDRA results are provided in Annexure C.

## 5.5 Intersection performance

This section details the performance of the key intersections that were surveyed.

### 5.5.1 Magpie Hollow Road / Lockyers Line

The SIDRA modelling results for the Magpie Hollow Road intersection / Lockyers Line intersection are presented in Table 5.4.

**Table 5.4 SIDRA modelling results for Magpie Hollow Road intersection / Lockyers Line intersection**

| Give-way control | AM Peak (Wednesday) | | | | | | PM Peak (Wednesday) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scenarios | Intersection volume | DEL (s) | LOS | DOS | Q95 (m) | Q95 approach and direction | Intersection volume | DEL (s) | LOS | DOS | Q95 (m) | Q95 approach and direction |
| 2025 baseline | 61 | 7.8 | A | 0.01 | 0.1 | LT and RT from north | 77 | 10.2 | A | 0.02 | 0.1 | LT and RT from north |
| 2030 baseline | 63 | 7.8 | A | 0.02 | 0.1 | LT and RT from north | 80 | 10.2 | A | 0.02 | 0.1 | LT and RT from north |
| 2030 project scenarios 1 & 2 | 353 | 9.3 | A | 0.17 | 6.9 | LT and RT from north | 369 | 9.0 | A | 0.19 | 8.3 | TH and RT from east |
| 2030 project scenario 3 & 4 | 63 | 7.8 | A | 0.02 | 0.1 | LT and RT from north | 80 | 10.2 | A | 0.02 | 0.1 | LT and RT from north |

Key findings:

- existing and future baseline LOS is A
- worst-case traffic impact is associated with the Lakeside camp (project scenarios 1 and 2)

- project traffic can be accommodated, LOS remaining at A with minimal queuing and delays
- cumulative scenarios not assessed, as the intersection is not expected to be affected by additional traffic from the Bunnings development, given its distance from the site.

### 5.5.2 Magpie Hollow Road / Sir Thomas Mitchell Drive intersection

The SIDRA modelling results for the Magpie Hollow Road / Sir Thomas Mitchell Drive intersection are presented in Table 5.5.

**Table 5.5 SIDRA modelling results for Magpie Hollow Road intersection / Sir Thomas Mitchell Drive intersection**

| Give-way control | AM Peak (Wednesday) | | | | | | PM Peak (Wednesday) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scenarios** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** |
| 2025 baseline (existing layout) | 64 | 8.6 | A | 0.02 | 0.1 | LT and RT from west | 83 | 11.8 | A | 0.03 | 0.1 | LT and RT from west |
| 2030 baseline (proposed layout) | 66 | 8.4 | A | 0.02 | 0.1 | LT and RT from west | 86 | 11.4 | A | 0.03 | 0.1 | LT and RT from west |
| 2030 project scenario 1 & 2 (proposed layout) | 594 | 11.6 | A | 0.20 | 3.0 | LT and RT from west | 614 | 9.5 | A | 0.31 | 13.1 | LT and RT from west |
| 2030 project scenario 3 & 4 (proposed layout) | 591 | 10.4 | A | 0.29 | 0.2 | LT and RT from west | 609 | 11.1 | A | 0.29 | 0.1 | LT and RT from west |

Key findings:

- existing and future baseline LOS is A
- worst-case traffic impact is associated with the Lakeside camp (project scenarios 1 and 2)
- project traffic can be accommodated, LOS remaining at A with minimal queuing and delays
- cumulative scenarios not assessed, as the intersection is not expected to be affected by additional traffic from the Bunnings development, given its distance from the site.

### 5.5.3 Great Western Highway / Magpie Hollow Road intersection

The SIDRA modelling results for the Great Western Highway / Magpie Hollow Road intersection are presented in Table 5.6.

**Table 5.6 SIDRA modelling results for Great Western Highway / Magpie Hollow Road intersection**

| **Baseline scenarios: Give-way control**<br>**Project scenarios: signal control** | **AM Peak (Wednesday)** | | | | | | **PM Peak (Wednesday)** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scenarios** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** |
| 2025 baseline | 903 | 32.4 | C | 0.15 | 3.4 | RT from west | 1,023 | 28.6 | C | 0.14 | 2.9 | RT from west |
| 2030 baseline | 954 | 36.4 | C | 0.16 | 3.7 | RT from west | 1,082 | 31.9 | C | 0.15 | 3.4 | RT from west |
| 2030 project scenario 1 | 1,214 | 21.2 | B | 0.83 | 49.5 | TH from south | 1342 | 21.4 | B | 0.65 | 46.2 | TH from south |
| 2030 project scenario 2 | 1,214 | 22.6 | B | 0.65 | 50.4 | TH from south | 1342 | 18.1 | B | 0.49 | 43.7 | TH from south |
| 2030 project scenario 3 | 1,487 | 28.9 | C | 0.88 | 98.8 | RT from north | 1616 | 20.6 | B | 0.75 | 49.6 | TH from south |
| 2030 project scenario 4 | 1,487 | 32.5 | C | 0.87 | 144.5 | RT from north | 1616 | 21.0 | B | 0.78 | 50.5 | TH from south |

Key findings:

- existing and future baseline LOS is C under give-way control
- **Scenarios 1 and 2** – Lakeside camp
  - proposed signal control upgrade improves the LOS to B
- **Scenarios 3 and 4** – worst-case traffic impact is associated with the Town camp
- **Scenario 3** – most construction traffic from the Blue Mountains and Sydney
  - project traffic can be accommodated under signal control, LOS remains C
  - projected maximum vehicle queue of 99 m for the right-turn movement on the north approach can be accommodated within the existing 100 m-long turn bay during the critical AM peak
- **Scenario 4** – most construction traffic from Lithgow
  - LOS remains C under signal-control
  - projected maximum right-turn queue length is 145 m on the north approach (AM peak)
  - exceeds the available right-turn pocket capacity (105 m)

- queueing vehicles can potentially spill over, impeding the southbound through movement
- the right turn bay at the north approach may need to be extended to accommodate project-related vehicles queues for this scenario

- **cumulative scenarios** – not assessed, as intersection is not affected by additional traffic from the Bunnings development, given its distance from the site.

### 5.5.4 Great Western Highway / Bayonet Street intersection

The SIDRA modelling results for the Great Western Highway / Bayonet Street intersection are presented in Table 5.7.

**Table 5.7 SIDRA modelling results for Great Western Highway / Bayonet Street intersection**

| Signalised | AM Peak (Wednesday) | | | | | | PM Peak (Wednesday) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scenarios** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** |
| 2025 baseline | 1,263 | 29.3 | C | 0.66 | 69.1 | RT from south | 1,459 | 28.3 | B | 0.79 | 70.8 | TH from north |
| 2030 baseline | 1,314 | 30.6 | C | 0.72 | 74.2 | RT from south | 1,517 | 30.2 | C | 0.67 | 70.5 | TH from south |
| 2030 project scenario 3 | 1,666 | 35.6 | C | 0.81 | 114.1 | RT from south | 1,872 | 35.8 | C | 0.85 | 148.6 | RT from south |
| 2030 project scenario 4 | 1,796 | 39.3 | C | 0.88 | 125.1 | RT from south | 2,001 | 37.5 | C | 0.86 | 153.4 | RT from south |
| 2030 cumulative scenario 3 | 1,679 | 35.7 | C | 0.80 | 115.1 | RT from south | 1,897 | 36.8 | C | 0.86 | 153.4 | RT from south |
| 2030 cumulative scenario 4 | 1,808 | 40.1 | C | 0.89 | 127.8 | RT from south | 2,026 | 38.8 | C | 0.88 | 160.3 | RT from south |

Key findings:

- existing baseline LOS is C in the AM peak and B in the PM peak, future baseline LOS is C (AM and PM)
- LOS remains at an acceptable C under project and cumulative impact scenarios
- worst-case traffic impact is associated with the Town camp (scenarios 3 and 4)
- under this scenario, the projected maximum queue for right-turning vehicles is 110 to 160 m on the south approach
- exceeds the available right-turn pocket capacity (75 m)
- queueing vehicles can potentially spill over, impeding the northbound through movement
- turn pocket may need to be extended to accommodate vehicles queues.

### 5.5.5 Bayonet Street / Musket Parade intersection

The SIDRA modelling results for the Bayonet Street / Musket Parade intersection are presented in Table 5.8.

**Table 5.8 SIDRA modelling results for Bayonet Street / Musket Parade intersection**

| Give-way control | | AM Peak (Wednesday) | | | | | | PM Peak (Wednesday) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scenarios** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** |
| 2025 baseline | 385 | 5.3 | A | 0.12 | 2.2 | LT and RT from north | 524 | 5.4 | A | 0.24 | 6.7 | LT and RT from north |
| 2030 baseline | 400 | 5.3 | A | 0.13 | 2.3 | LT and RT from north | 544 | 5.5 | A | 0.25 | 7.0 | LT and RT from north |
| 2030 project scenarios 3 & 4 | 682 | 6.1 | A | 0.36 | 12.4 | LT and RT from north | 826 | 6.9 | A | 0.36 | 12.7 | LT and RT from north |
| 2030 cumulative scenarios 3 & 4 | 695 | 6.2 | A | 0.36 | 12.7 | LT and RT from north | 849 | 7.1 | A | 0.38 | 13.8 | LT and RT from north |

Key findings:

- existing and future baseline LOS is A
- project and cumulative traffic can be accommodated, LOS remaining at A.

### 5.5.6 Martini Parade / Methven Street intersection

The SIDRA modelling results for the Martini Parade / Methven Street intersection are presented in Table 5.9.

**Table 5.9 SIDRA modelling results for Martini Parade / Methven Street intersection**

| Signalised | | AM Peak (Wednesday) | | | | | | PM Peak (Wednesday) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scenarios** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** |
| 2025 baseline | 857 | 14.6 | B | 0.52 | 28.4 | RT from south | 905 | 13.7 | A | 0.43 | 28.0 | TH and RT from east |
| 2030 baseline | 888 | 14.9 | B | 0.51 | 28.6 | RT from south | 941 | 13.7 | A | 0.45 | 29.4 | TH and RT from east |
| 2030 project scenarios 3 & 4 | 1,171 | 25.5 | B | 0.49 | 41.0 | TH and RT from east | 1,223 | 22.7 | B | 0.48 | 34.9 | TH and RT from east |

| Signalised | AM Peak (Wednesday) | | | | | | PM Peak (Wednesday) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scenarios** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** |
| 2030 cumulative scenarios 3 & 4 | 1,219 | 25.6 | B | 0.58 | 42.6 | TH and RT from east | 1,316 | 23.1 | B | 0.53 | 38.3 | TH and RT from east |

Key findings:

- existing and future baseline LOS is B in the AM and A in the PM peak
- project traffic can be accommodated, with the LOS remaining at B
- vehicle queues are expected to increase slightly, but to acceptable levels
- maximum projected queue length is 43 m on the east approach in the AM peak
- lane markings around the intersection are fading, recommended to be repainted to clearly indicate the two-lane approaches
- recommended to extend the 'No Stopping' zone for 20 to 30 m along the east and west approaches to accommodate increased vehicle queues.

### 5.5.7 Lithgow Street / Kirkland Link intersection

The SIDRA modelling results for the Lithgow Street / Kirkland Link intersection are provided in Table 5.10 for the existing give-way control, and in Table 5.11 for the mitigated signal control.

**Table 5.10 SIDRA modelling results for Lithgow Street / Kirkland Link intersection**

| Give-way control | AM Peak (Wednesday) | | | | | | PM Peak (Wednesday) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scenarios** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** |
| 2025 baseline | 955 | 18.8 | B | 0.30 | 4.8 | RT from south | 1,175 | 22.4 | B | 0.431 | 13.0 | RT from south |
| 2030 baseline | 993 | 20.7 | B | 0.315 | 5.4 | RT from south | 1,220 | 25.0 | B | 0.480 | 14.8 | RT from south |
| 2030 project scenarios 3 & 4 | 1,279 | 30.9 | C | 0.35 | 7.8 | RT from south | 1,506 | 85.0 | F | 0.89 | 38.0 | RT from south |
| 2030 cumulative scenarios 3 & 4 | 1,372 | 36.1 | C | 0.48 | 12.8 | RT from south | 1,692 | 428.2 | F | 1.41 | 232.8 | RT from south |

Key findings:

- the existing and future baseline LOS is B
- project traffic cannot be accommodated under current give-way control due to excessive delay and queuing
- vehicles from Valley Drive experience insufficient gaps to turn right onto Lithgow Street during the PM peak period represented by LOS F, considering both project and cumulative traffic impacts
- this issue may require the introduction of signals, the intersection performance under signal control is presented in Table 5.11.

**Table 5.11 SIDRA modelling results for Lithgow Street / Kirkland Link intersection – signal control**

| signal control | | AM Peak (Wednesday) | | | | | | PM Peak (Wednesday) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scenarios** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** | | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** |
| 2030 project scenario 3 & 4 signal control | 1,279 | 10.8 | A | 0.66 | 67.4 | TH and LT from west | | 1,506 | 10.1 | A | 0.56 | 50.1 | TH and LT from west |
| 2030 cumulative scenarios 3 & 4 signal control | 1,372 | 11.6 | A | 0.68 | 71.2 | TH and LT from west | | 1,692 | 11.0 | A | 0.63 | 50.4 | TH and LT from west |

Key findings:

- project and cumulative traffic can be accommodated under signal control
- the projected LOS is A.

### 5.5.8 Kirkland Link / Valley Drive intersection

The SIDRA modelling results for the Kirkland Link / Valley Drive intersection are presented in Table 5.12.

**Table 5.12 SIDRA modelling results for Kirkland Link / Valley Drive intersection**

| Give-way control | | AM Peak (Wednesday) | | | | | | PM Peak (Wednesday) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scenarios** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** | | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** |
| 2025 baseline | 128 | 5.1 | A | 0.03 | 0.7 | LT and RT from east | | 366 | 5.4 | A | 0.15 | 4.5 | LT and RT from east |
| 2030 baseline | 134 | 5.1 | A | 0.03 | 0.8 | LT and RT from east | | 381 | 5.5 | A | 0.16 | 4.8 | LT and RT from east |

| Give-way control | AM Peak (Wednesday) | | | | | | PM Peak (Wednesday) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scenarios** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** |
| 2030 project scenarios 3 & 4 | 325 | 5.1 | A | 0.19 | 5.8 | LT and RT from east | 573 | 6.1 | A | 0.21 | 6.1 | LT and RT from east |
| 2030 cumulative scenarios 3 & 4 | 418 | 5.3 | A | 0.23 | 7.6 | LT and RT from east | 758 | 6.7 | A | 0.32 | 10.4 | LT and RT from east |

Key findings:

- the existing and future baseline LOS is A
- project and cumulative traffic can be accommodated with the LOS remaining at A
- however, northbound queues from the upstream Lithgow Street / Kirkland Link intersection would impact operation, necessitating signalisation of the upstream intersection.

### 5.5.9 Lithgow Street / Bent Street intersection

The SIDRA modelling results for the Lithgow Street / Bent Street intersection are presented in Table 5.13.

**Table 5.13 SIDRA modelling results for Lithgow Street / Bent Street intersection**

| Give-way control | AM Peak (Wednesday) | | | | | | PM Peak (Wednesday) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scenarios** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** | **Intersection volume** | **DEL (s)** | **LOS** | **DOS** | **Q95 (m)** | **Q95 approach and direction** |
| 2025 baseline | 916 | 11.2 | A | 0.182 | 6.4 | RT from south | 983 | 9.3 | A | 0.216 | 1.8 | RT from south |
| 2030 baseline | 952 | 11.7 | A | 0.191 | 6.8 | RT from south | 1,021 | 9.7 | A | 0.224 | 1.9 | RT from south |
| 2030 project scenarios 3 & 4 | 1,055 | 16.0 | B | 0.23 | 8.9 | RT from south | 1,124 | 13.2 | A | 0.23 | 6.1 | RT from south |
| 2030 cumulative scenarios 3 & 4 | 1,101 | 17.0 | B | 0.24 | 9.4 | RT from south | 1,217 | 14.8 | B | 0.24 | 6.9 | RT from south |

Key findings:

- the existing and future baseline LOS is A
- project and cumulative traffic can be accommodated, with the LOS at A and B.

## 5.6 Austroads turn treatment assessment

A turn treatment warrant assessment at the rural intersections along Magpie Hollow Road, summarised below, has been carried out based on peak hourly through and turn movement volumes, according to the Austroads Guide to Traffic Management – Part 6: Intersections, Interchanges and Crossings Management (Austroads, 2020b):

- Magpie Hollow Road (80 km/h posted speed limit) / Sir Thomas Mitchell Drive intersection
- Magpie Hollow Road (100 km/h posted speed limit) / Lockyers Line intersection.

Magpie Hollow Road has a posted speed limit of 80 km/h near Sir Thomas Mitchell Drive and 100 km/h near Lockyers Line.

In line with Austroads guidance, an additional 10 km/h has been added to the posted speed limit to determine the design speed for assessment purposes.

The Great Western Highway / Magpie Hollow Road intersection has been excluded from this assessment, as it is proposed to be upgraded to signal control. Turn treatment requirements for this intersection are determined based on the SIDRA analysis in Section 5.5.3.

Urban intersections within Lithgow have also been excluded.

The Austroads Guide specifies turn lane requirements according to road classification and speed environment:

- Figure 5.2: design speeds greater than or equal to 100 km/h, suitable for high-speed rural roads.
- Figure 5.3: design speeds between 70 km/h and 100 km/h, suitable for lower speed rural roads.

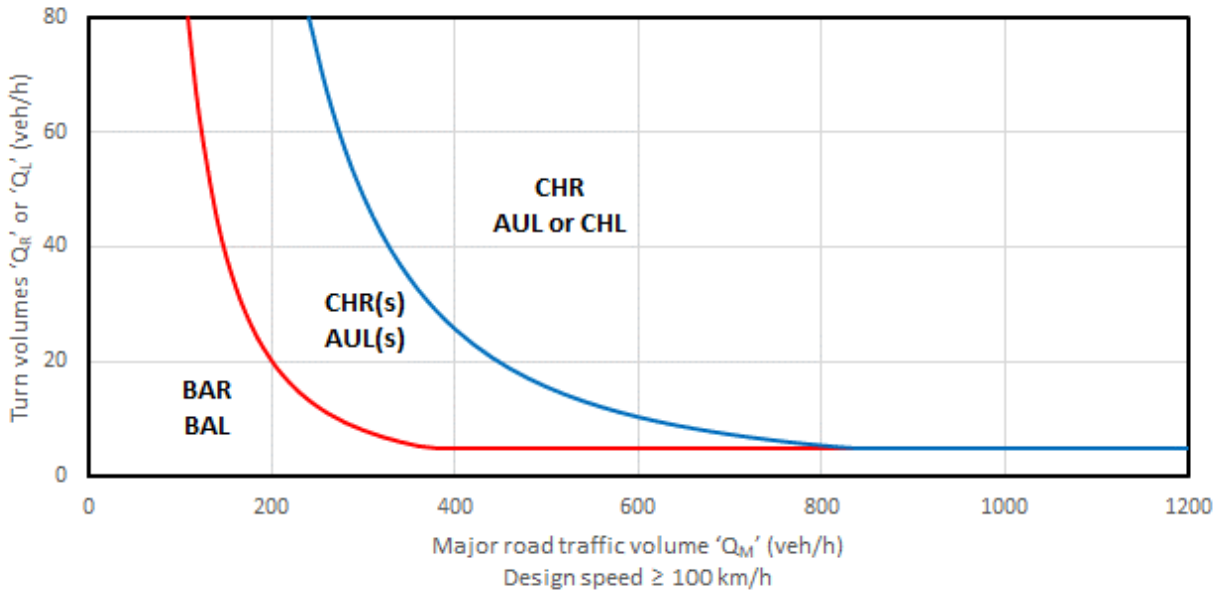



**Figure 5.2 Austroads warrant design charts for high-speed rural intersection turning lanes**

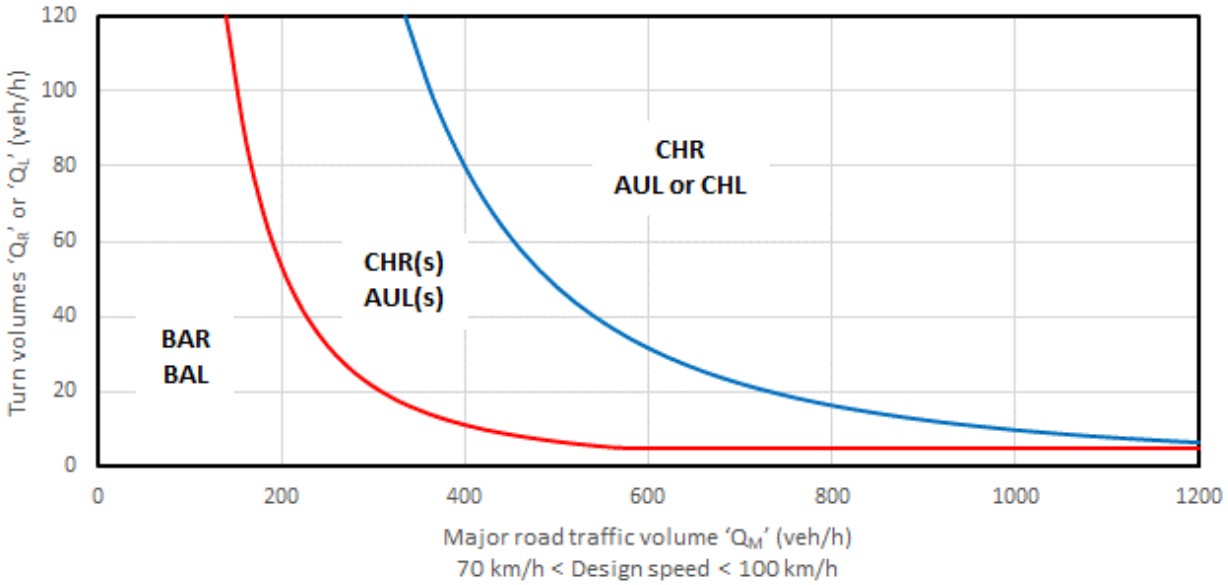



**Figure 5.3 Austroads warrant design charts for lower speed rural intersection turning lanes**

- Curve 1 (red line) defines the boundary between:
  - Basic Right-Turn (BAR) and Channelised Short Right Turn (CHR(S))
  - Basic Left-Turn (BAL) and Auxiliary Short Left-Turn (AUL(S)).
- Curve 2 (blue line) defines the boundary between:
  - CHR(S) and full-length Channelised Right Turn (CHR)
  - AUL(S) and full-length Auxiliary Left-Turn (AUL) or Channelised Left-Turn (CHL).

Two volume scenarios have been assessed, incorporating the worst-case cumulative impact:

- scenario 1: Lakeside camp
- scenario 2: Town camp.

### 5.6.1 Magpie Hollow Road / Sir Thomas Mitchell Drive intersection

Magpie Hollow Road near Sir Thomas Mitchell Drive has a speed limit of 80 km/h, therefore a design speed of 90 km/h is adopted. The warrant assessment and peak hour turning volumes are summarised in Table 5.14.

**Table 5.14 Warrant assessment summary – Magpie Hollow Road / Sir Thomas Mitchell Drive intersection**

| Scenario | Movement | Peak hour | Major road traffic volume | Turning traffic volume | Turn treatment required |
|---|---|---|---|---|---|
| Scenario 1: Lakeside camp | Left turn from major road | AM | 218 | 23 | BAL |
| | | PM | 18 | 47 | |
| | Right turn from major road | AM | 254 | 48 | CHR(s) |
| | | PM | 281 | 223 | CHR |
| Scenario 2: Town camp | Left turn from major road | AM | 440 | 21 | BAL |
| | | PM | 64 | 45 | BAL |
| | Right turn from major road | AM | 520 | 547 | BAR |
| | | PM | 2 | 1 | BAR |

The following treatments are required for a design speed of 90 km/h:

- Left turn for traffic travelling southbound on Magpie Hollow Road (major arm) into Magpie Hollow Road southbound (minor arm):
  - **Scenario 1 and Scenario 2**: BAL treatment is warranted (Figure 5.4 and Figure 5.6).
- Right turn for traffic travelling eastbound on Sir Thomas Mitchell Drive (major arm) into Magpie Hollow Road southbound (minor arm):
  - **Scenario 1**: full-length CHR treatment is warranted (Figure 5.5)
  - **Scenario 2**: BAR treatment is warranted (Figure 5.7).
- Schematic designs for BAL, BAR, and CHR treatments, are provided in Annexure H.
- A concept design for the intersection upgrade is provided in Annexure E.

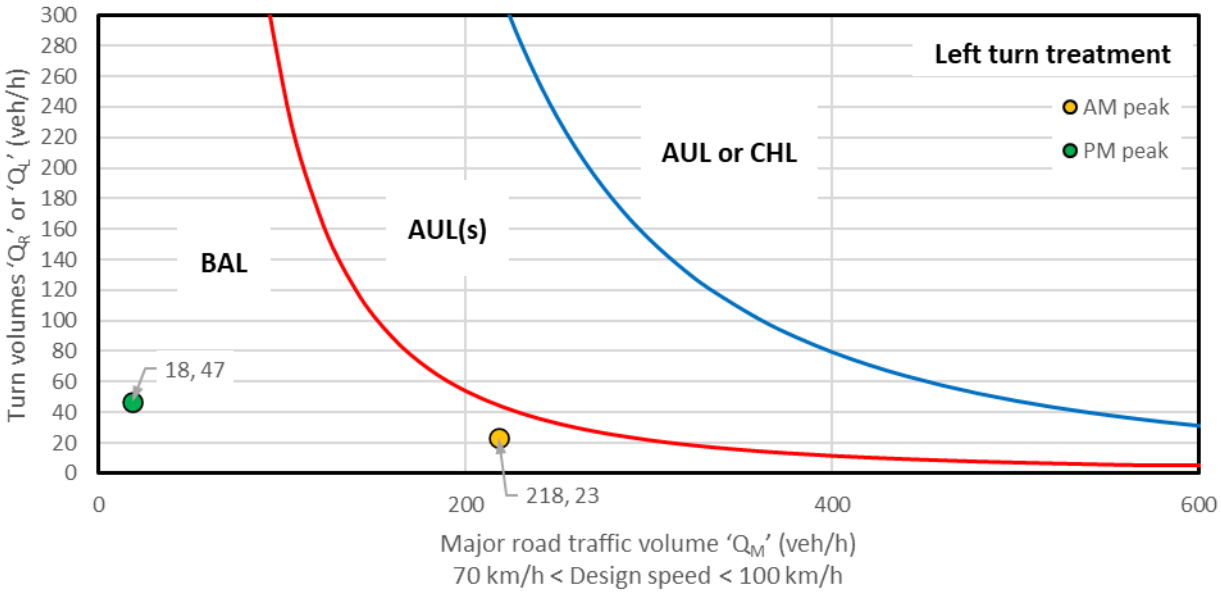



**Figure 5.4 Warrant assessment left-turn lane into Magpie Hollow Road southbound (scenario 1)**

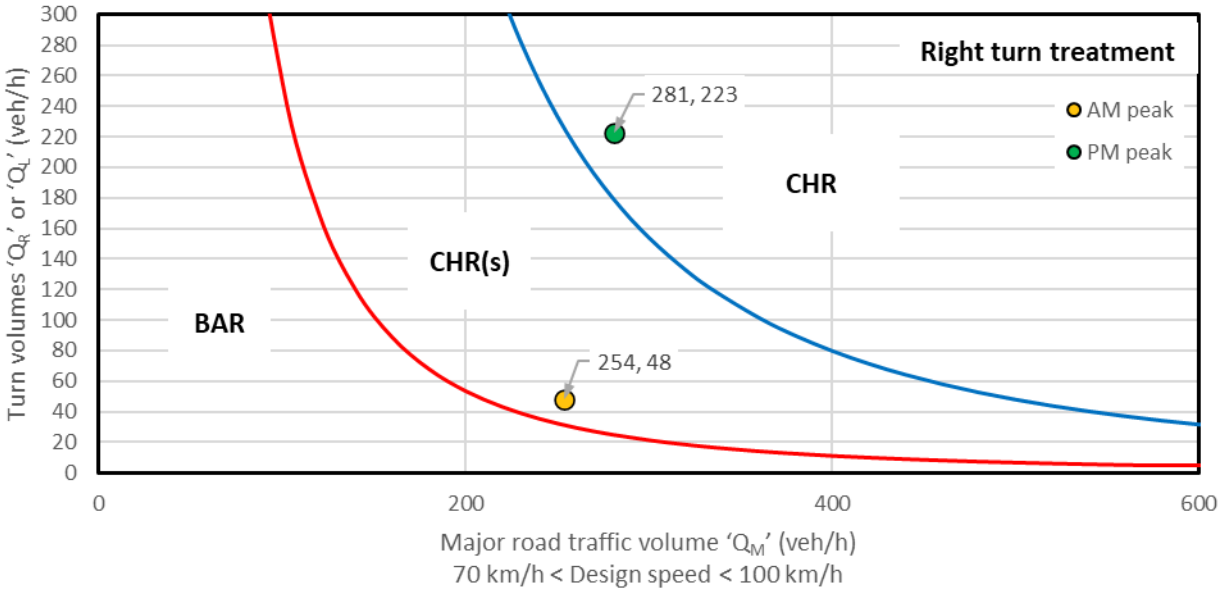



**Figure 5.5 Warrant assessment for right-turn lane into Magpie Hollow Road southbound (scenario 1)**

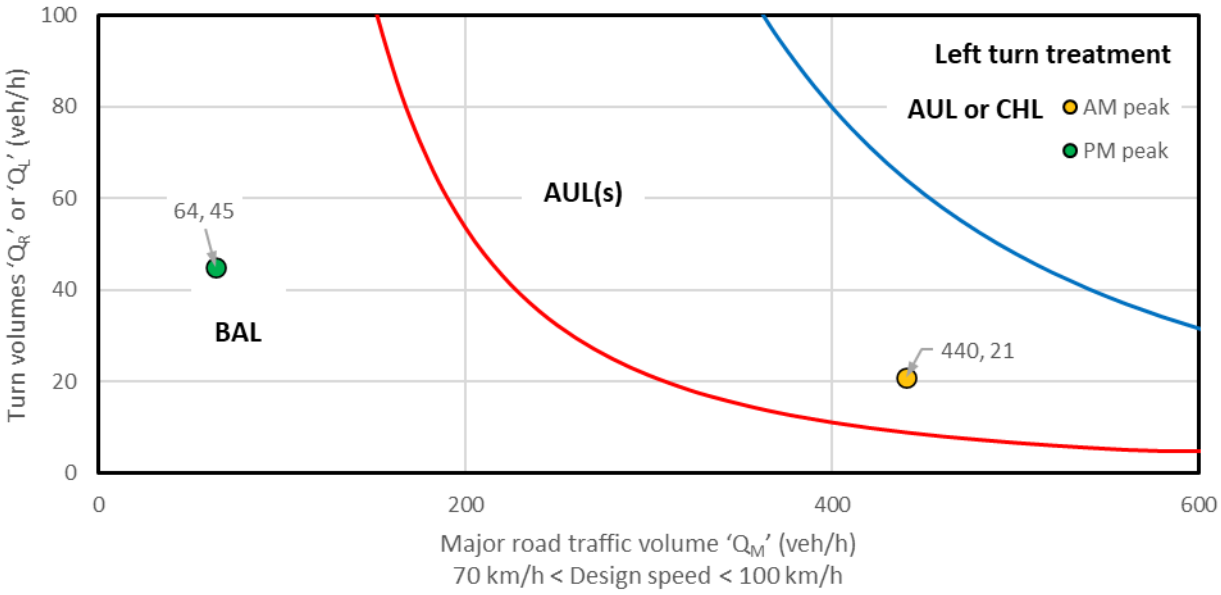



**Figure 5.6** **Warrant assessment for left-turn lane into Magpie Hollow Road southbound (scenario 2)**

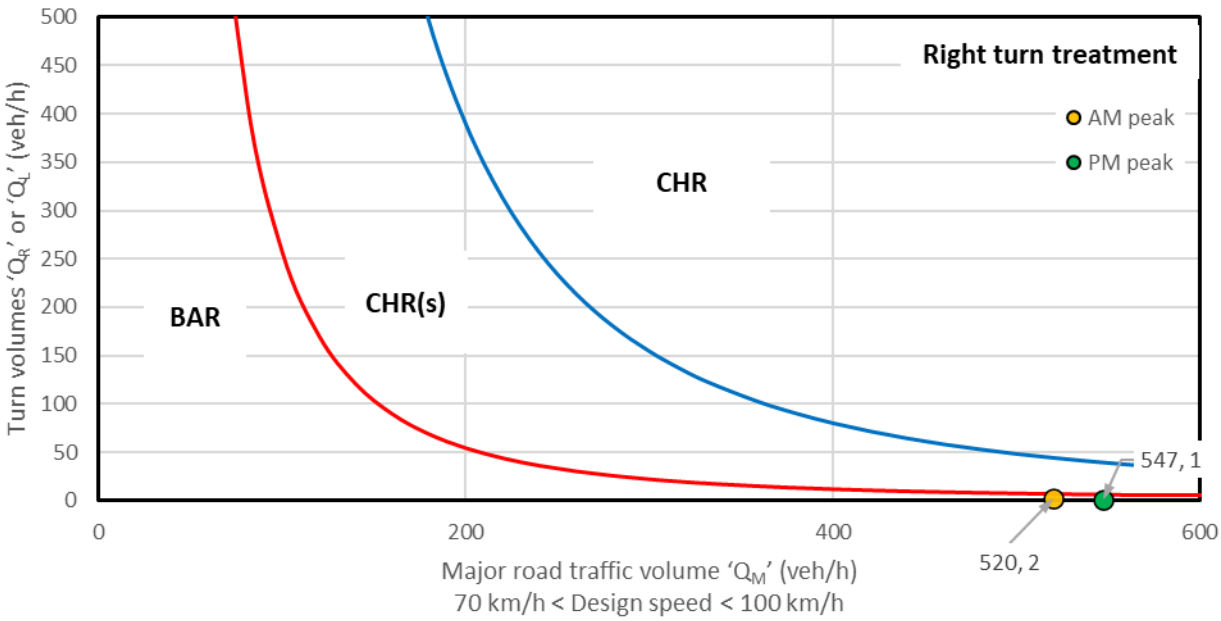



**Figure 5.7** **Warrant assessment for right-turn lane into Magpie Hollow Road southbound (scenario 2)**

### 5.6.2 Magpie Hollow Road / Lockyers Line intersection

Magpie Hollow Road near Lockyers Line has a speed limit of 100 km/h, therefore a design speed of 110 km/h is adopted. The warrant assessment and peak hour turning volumes are summarised in Table 5.15.

**Table 5.15 Warrant assessment summary –- Magpie Hollow Road / Lockyers Line intersection**

| Scenario | Movement | Peak hour | Major road traffic volume | Turning traffic volume | Turn treatment required |
|---|---|---|---|---|---|
| Scenario 1: Lakeside camp | Left turn from major road | No project-related traffic, therefore not assessed | | | |
| | Right turn from major road | AM | 56 | 51 | BAR |
| | | PM | 72 | 227 | CHR(s) |
| Scenario 2: Town camp | No project-related traffic, therefore not assessed | | | | |

The left turn requirements from Lockyers Line (minor road) to Magpie Hollow Road (major road) will be determined based on the swept path assessment.

The following treatments are required for a design speed of 110 km/h:

- Channelised Short Right Turn (CHR(S)) treatment is warranted (Figure 5.8) for right-turning traffic travelling southbound on Magpie Hollow Road into Lockyers Line.
- Existing intersection does not provide a CHR(S).
- Schematic design of a CHR(S) treatment is shown in Annexure H.
- A concept design for the intersection upgrade showing the required turn treatments, is provided in Annexure E.

#### i Scenario 1: Lakeside camp

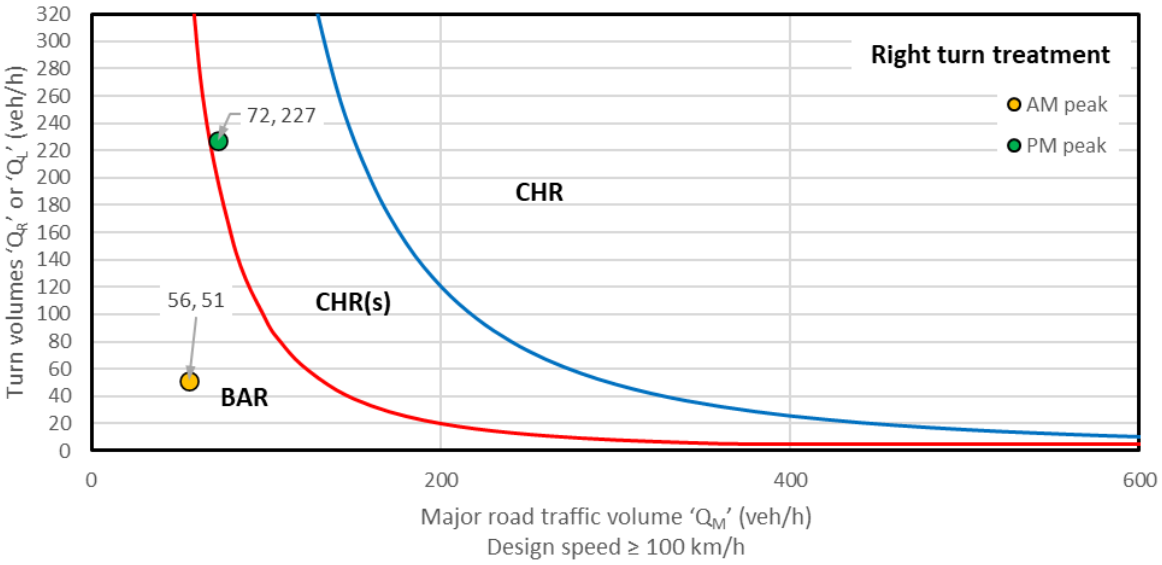



**Figure 5.8 Warrant assessment for right-turn lane into Lockyers Line (scenario 1)**

## 5.7 Road design assessment

Road width design assessment for sealed rural roads is outlined in the *Austroads Guide to Road Design Part 3: Geometric Design* (Austroads 2023), as shown in Table 5.16.

**Table 5.16 Austroads road design for rural road (sealed)**

| Threshold band (daily traffic volumes) | Design standard |
|---|---|
| 1–150 | 8.7 m wide total carriage (if unsealed) or minimum 3.7 m wide seal |
| 150–500 | Minimum 7.2 m wide seal, consisting of 3.1 m wide traffic lanes and 0.5 m wide sealed shoulders on each side |
| 500–1,000 | Minimum 7.2 m, up to 8 m wide seal, consisting of 3.1–3.5 m wide traffic lanes and 0.5 m wide sealed shoulders on each side |
| 1,000–3,000 | Minimum 9 m wide seal, consisting of 3.5 m wide traffic lanes and 1.0 m wide sealed shoulders on each side |
| >3,000 | Minimum 10 m wide seal, consisting of 3.5 m wide traffic lanes and 1.5 m wide sealed shoulders on each side |

Source: Austroads Guide to Road Design Part 3: Geometric Design Table 4.5

The existing road width measurements for the rural roads along the haulage route have been assessed based on daily baseline (2024 ATC counts) and project two-way volumes for:

- Magpie Hollow Road
- Sir Thomas Mitchell Drive
- Lockyers Line.

Two scenarios have been assessed:

- Town camp (Table 5.17)
- Lakeside camp (Table 5.18).

### Table 5.17 Road design assessment (Town camp)

| Road | Daily two-way volume (2024 baseline traffic) Note 1 | Daily two-way volume (2030 baseline traffic) | [3]Daily two-way volume (2030 baseline + project traffic) | Existing road width | Relevant design standard according to daily traffic volume | Meets design standard? |
|---|---|---|---|---|---|---|
| Magpie Hollow Road (between Great Western Highway and Sir Thomas Mitchell Drive) | 1,093 | 1,159 | 2,303 | 6.4 m sealed | Minimum 9 m wide seal | No |
| Sir Thomas Mitchell Drive (sealed section) | 131 | 139 | 1,283 | 4.8 m sealed | Minimum 9 m wide seal | No |
| Sir Thomas Mitchell Drive (unsealed section) | 131 | 139 | 1,283 | 3.7 m unsealed | Minimum 9 m wide seal | No |

Note: 1. ATC counts carried out in 2024

### Table 5.18 Road design assessment (Lakeside camp)

| Road | Daily two-way volume (2024 baseline traffic) Note 1 | Daily two-way volume (2030 baseline traffic) | Daily two-way volume (2030 baseline + project traffic) | Existing road width | Relevant design standard according to daily traffic volume | Meets design standard? |
|---|---|---|---|---|---|---|
| Magpie Hollow Road (between Great Western Highway and Sir Thomas Mitchell Drive) | 1,093 | 1,159 | 1,767 | 6.4 m sealed | Minimum 9 m wide seal | No |
| Sir Thomas Mitchell Drive (sealed section) | 131 | 139 | 1,283 | 4.8 m sealed | Minimum 9 m wide seal | No |
| Sir Thomas Mitchell Drive (unsealed section) | 131 | 139 | 1,283 | 3.7 m unsealed | Minimum 9 m wide seal | No |
| Magpie Hollow Road (between Sir Thomas Mitchell Drive and Lockyers Line) | 1,093 | 1,159 | 1,763 | 6.4 m sealed | Minimum 9 m wide seal | No |
| Lockyers Line (sealed section) | <10 (observed) | <10 | 614 | 6.8 m sealed | Minimum 7 m wide seal Note 2 | No |
| Lockyers Line (unsealed section) | <10 (observed) | <10 | 614 | 4.0 m unsealed | Minimum 7 m wide seal Note 2 | No |

Notes: 1. ATC counts carried out in 2024

2. According to Austroads, a minimum 7.0 m seal should be provided on designated heavy vehicle routes (or where the AADT contains more than 15% heavy vehicles)

The Austroads design requirement is not met for most of the rural road sections. The sections requiring upgrades irrespective of the location of the accommodation camp. This includes:

- Magpie Hollow Road upgrade to 9-m-wide sealed road, between Great Western Highway and Sir Thomas Mitchell Drive
- Sir Thomas Mitchell Drive upgrade, between Magpie Hollow Road and the site access, includes existing sealed and unsealed (500 m) sections, to 9-m-wide sealed road
- additionally, if lakeside accommodation is selected:
    - Magpie Hollow Road upgrade, between Sir Thomas Mitchell Drive and Lockyers Line, to 9-m-wide sealed road
    - Lockyers Line upgrade, between Magpie Hollow Road and the accommodation camp access, includes existing sealed and unsealed (150 m) sections, to 7-m-wide sealed road.

## 5.8 Road safety assessment

In accordance with the *2023 Austroads Guide to Road Design Part 4A*: *Unsignalised and Signalised Intersections* (Austroads 2023), unsignalised T-intersections require clear visibility between through traffic on the major road and turning traffic exiting from the minor road. This allows turning traffic to identify suitable gaps and safely enter the major road. This is referred to as the Safe Intersection Sight Distance (SISD).

The SISD has been assessed for each intersection along the haulage route on Magpie Hollow Road. In line with the Austroads 2023, the design speed is 10 km/h above the posted speed limit.

### 5.8.1 Great Western Highway / Magpie Hollow Road intersection

Sight distances have been estimated through line-of-sight measurements and field observations, illustrated in Figure 5.9. The posted speed limit on the Great Western Highway near this intersection is 70 km/h; a design speed of 80 km/h has been adopted. Assuming a standard driver reaction time of two seconds, the minimum SISD required for this design speed is 181 m.

Sight distance to the left (160 m)

Sight distance to the right (330 m)



Source: MetroMap

**Figure 5.9 Sight distance to the left and right of Magpie Hollow Road**

The available sight distance to the right is about 330 m, satisfying the Austroads Guide 2023 minimum requirement. However, the available sight distance to the left is about 160 m and falls short of the required minimum due to crest and dip along the Great Western Highway, obstructing visibility.

To address this safety deficiency, signalisation of the intersection is recommended. The proposed traffic signals will require TfNSW approval. A draft Traffic Control Signal (TCS) plan is included in Annexure G. Following TfNSW concurrence and feedback, a final TCS plan will be prepared.

### 5.8.2 Magpie Hollow Road / Sir Thomas Mitchell Drive intersection

The estimated sight distances are illustrated in Figure 5.10. The posted speed limit near this intersection is 80 km/h; a design speed of 90 km/h has been adopted. According to Austroads 2023, the minimum SISD for this design speed is 214 m (two seconds reaction time).



Sight distance to the left (180 m)

Sight distance to the right (180 m)

Source: MetroMap

**Figure 5.10 Sight distance to the left and right of Sir Thomas Mitchell Drive**

The available sight distances to both the left and right fall short of this requirement:

- left: limited by a crest and dip to the north-east of the intersection (shown in Annexure F)
- right: limited by roadside vegetation (highlighted in red in Figure 5.10).

A concept realignment plan (refer to Annexure E) has been prepared for this intersection. The proposed realignment achieves the required SISD in both directions.

### 5.8.3 Magpie Hollow Road/Lockyers Line intersection

The estimated sight distances are shown in Figure 5.11. The posted speed limit on Magpie Hollow Road near this location is 100 km/h; a design speed of 110 km/h has been adopted. According to Austroads 2023, the minimum SISD for this design speed is 285 m (two seconds reaction time).


Sight distance to the right (155 m)

Source: MetroMap

**Figure 5.11 Sight distance to the right of Lockyers Line**

Traffic from the proposed Lakeside camp would exit Lockyers Line with a left-turn only onto Magpie Hollow Road. Accordingly, only the right-hand sight distance requires assessment. This sight distance does not meet the minimum SISD requirement due to obstruction by terrain, as Magpie Hollow Road curves out of view around a bend.

To improve safety, installation of truck warning signs on Magpie Hollow Road to the east and west of the intersection is recommended.

## 5.9 Impact on public transport, school buses, cyclists and pedestrians

There are no public transport facilities near the construction site. Therefore, public transport vehicles and commuters will not be affected. Similarly, no cycling or pedestrian facilities exist in the vicinity, meaning there will be no direct impacts to cyclists or pedestrians. There may be recreational cyclists along Magpie Hollow Road. Any presence of cyclists along this road and safety measures will be covered in the Drivers Code of Conduct.

At the Great Western Highway / Magpie Hollow Road intersection, signalised pedestrian crossings are proposed on the north, east, and west approaches. This will allow pedestrians to cross safely, improving on the existing arrangement, which does not provide any pedestrian crossings.

School buses travelling along Magpie Hollow Road do not stop near the site, resulting in minimal impact on school bus routes. Truck drivers will be informed of school bus movements along Magpie Hollow Road, and this will be incorporated into the Drivers Code of Conduct.

If the accommodation camp is located in Lithgow, project related vehicles will traverse several bus routes and stops enroute to the construction site. Bus stops will not be affected by increased vehicle queues, and delays at intersections are expected to be minor, resulting in limited impact on bus operations.

## 5.10 Parking assessment

Adequate on-site parking will be provided for those driving to the construction site, with most of the workforce expected to travel via shuttle buses. Shuttle buses will not park on-site and only pick up and drop off passengers.

In summary, no parking on public roads will be required; therefore, no parking impacts to the surrounding road network are anticipated.

## 5.11 Concept design

Concept designs will be prepared for the following intersections:

- Magpie Hollow Road / Sir Thomas Mitchell Drive
- Magpie Hollow Road / Lockyers Line.

These plans will be developed according to:

- Austroads turn warrant assessment (refer to Section 5.6)
- sight distance assessment (refer to Section 5.8)
- swept path assessment for the largest vehicles expected to use these intersections, including the largest OSOM vehicles.

### 5.11.1 Magpie Hollow Road / Sir Thomas Mitchell Drive intersection

Given the projected construction traffic volumes, it is recommended to switch the intersection priorities. This matter has been discussed with Lithgow City Council, who are supportive to this proposal, subject to Lithgow Local Traffic Committee's consideration. Vehicles approaching from and departing to the south would be required to give way to vehicles on Sir Thomas Mitchell Drive. Following the completion of the construction phase, the priorities can be reversed, if needed. The traffic analysis for this project has been undertaken based on the proposed change of priorities.

#### a Interim treatment

The concept design identifies the following upgrades to accommodate project traffic (refer to Annexure E):

- BAL for left-turning traffic from Magpie Hollow Road southbound.
- CHR for right-turning traffic from Sir Thomas Mitchell Drive eastbound.
- Widening and realignment to accommodate:
  - 25 m B-double turning movements between Magpie Hollow Road (north) and Sir Thomas Mitchell Drive (both directions)
  - 12.5 m HRV turning movements between Magpie Hollow Road (south) and Sir Thomas Mitchell Drive (both directions)
  - OSOM vehicle movements (prime mover and two 12 x 8 platform trailers with beam set, as described in Section 4.5.1 from Magpie Hollow Road (south) to Sir Thomas Mitchell Drive.

#### b Ultimate (permanent treatment)

The concept design identifies the following upgrades to accommodate project traffic (Annexure E):

- Potential raising of the intersection elevation to improve sight distances to the north (to be addressed during detail design).
- BAL for left-turning traffic from Magpie Hollow Road to Sir Thomas Mitchell Drive.
- BAR for right-turning traffic from Magpie Hollow Road to Sir Thomas Mitchell Drive.
- Potential tree removal/trimming on both sides of Magpie Hollow Road.

### 5.11.2 Magpie Hollow Road / Lockyers Line intersection

This intersection only requires upgrade if the Lakeside camp is chosen.

The concept design identifies the following upgrades to accommodate Lakeside camp traffic (Annexure E):

- CHR(s) for right-turning traffic from Magpie Hollow Road to Lockyers Line.
- Due to the existing curve, the realignment of this intersection to the north is proposed to achieve the sight distances.
- Installation of truck warning and speed reduction signs on both approaches, as the intersection is located on a moderate bend.

# 6 Mitigation measures

## 6.1 Construction phase

The mitigation measures for the project are compared against any risks and hazards identified during site inspection observations made by EMM. The proposed traffic management mitigation measures are summarised in Table 6.1. Specific mitigation measures apply depending on whether the Lakeside camp or Town camp is ultimately selected. These have been identified in Table 6.1.

**Table 6.1 Mitigation measures**

| Risk/hazard | Mitigation measure | Responsibility | Timing |
|---|---|---|---|
| Construction traffic management | Preparation of detailed Construction Traffic Management Plan (CTMP) with reference to the CTMP framework provided in Chapter 7. | Construction contractor | Prior to construction |
| Narrow sections of Sir Thomas Mitchell Drive do not allow opposing construction traffic movements to pass safely (Section 5.7) | Appropriate traffic control measures and/or upgrades to narrow sections are to be included in the CTMP. | Construction contractor | Prior to construction |
| Insufficient road width / condition on Magpie Hollow Road to accommodate expected daily traffic volumes | Road upgrade on Magpie Hollow Road between Great Western Highway and Sir Thomas Mitchell Drive. Existing potholes to be repaired. | Construction contractor | Prior to construction |
| | Road upgrade of Lockyers Line and Magpie Hollow Road between Sir Thomas Mitchell Drive and Lockyers Line (Lakeside camp). | Construction contractor | Prior to construction |
| Insufficient sight distance from Magpie Hollow Road at Great Western Highway / Magpie Hollow Road intersection (Section 5.8) | Great Western Highway / Magpie Hollow Road intersection to be upgraded to signal control. | Construction contractor / TfNSW | Prior to construction |
| Moderate bends and concealed driveways along Sir Thomas Mitchell Drive | Adequate signage on the approach side. | Construction contractor | Prior to construction |
| Local road maintenance during construction | Development of road maintenance strategy in consultation with Council, to maintain local roads during construction. | LLP / Lithgow City Council | Prior to construction |
| Insufficient sight distance from Sir Thomas Mitchell Drive at Magpie Hollow Road / Sir Thomas Mitchell Drive intersection | Intersection upgrade and provision of truck warning signage on approach to the intersection.<br>Vegetation to be trimmed to improve sight distances. | Construction contractor | Prior to construction |
| Lane markings around the Methven Street / Martini Parade intersection are fading | Repainted lane markings to clearly indicate the two-lane approaches (Town camp). | Construction contractor | Prior to construction |
| Increasing vehicle queues on east and west approaches at the Methven Street / Martini Parade intersection | Extend 'No Stopping' zone (20 to 30 m) along east and west approaches to accommodate increased vehicle queues (Town camp). | Construction contractor | Prior to construction |
| Vehicles from Valley Drive experience insufficient gaps to turn right onto Lithgow Street during the PM peak at the Lithgow Street / Kirkland intersection | Signalise intersection (Town camp). | Construction contractor | Prior to construction |

| Risk/hazard | Mitigation measure | Responsibility | Timing |
|---|---|---|---|
| Maximum right-turn queue on the north approach exceeds the available turn pocket capacity at the Great Western Highway / Magpie Hollow Road intersection, under the scenario where most construction traffic originates from Lithgow | Extend north approach right turn pocket to 150 m (Town camp). | Construction contractor | Prior to construction |
| Maximum right-turn queue on the south approach at the Great Western Highway / Bayonet Street intersection exceeds the available pocket capacity | Extend south approach right turn pocket to 160 m (Town camp). | Construction contractor | Prior to construction |
| Conflicts from turning movements at Magpie Hollow Road / Sir Thomas Mitchell Drive intersection due to project vehicles | BAL treatment on the north approach.<br>CHR treatment on the west approach (Lakeside camp). | Construction contractor | During construction |
| Approach from Sir Thomas Mitchell Drive does not meet Magpie Hollow Road at a preferred 90°-angle at Magpie Hollow Road/Sir Thomas Mitchell Drive intersection, limiting sight lines | Intersection upgrade to achieve the sight distances on both interim and ultimate treatments. | Construction contractor | During construction |
| Insufficient sight distance from Lockyers Line at Magpie Hollow Road intersection (Lakeside camp) | The intersection to be slightly shifted to the north, to achieve required sight distances.<br>Provision of speed reduction and truck warning signage on approach to intersection.<br>Provision of T-intersection warning signage on approach to the intersection.<br>Short right turn (CHR(s)) treatment on the Magpie Hollow Road north approach | Construction contractor | During construction |
| Existing road geometry along the haulage route does not allow for OSOM vehicle movements | A series of road modifications, traffic control measures, traffic sign removal and replacement are presented in the OSOM report in Annexure D. The extent of required road modifications to be detailed during detailed design. | Construction contractor | During construction |
| Impacts on public transport buses, cyclists and pedestrians | Project is unlikely to have any significant impact on public transport, cyclists and pedestrians. However, local schools should be informed about the presence of additional trucks in the area.<br>The presence of recreational cyclists will be outlined in the Drivers Code of Conduct. | Construction contractor | During construction |
| Impacts on school buses | Driver awareness through Drivers Code of Conduct. | LLP | During construction |
| Impacts to tourists and local businesses | Driver awareness through Drivers Code of Conduct. | LLP | During construction |

## 6.2 Recommended signage

A comprehensive signage plan should be prepared for the affected sections along Magpie Hollow Road, Sir Thomas Mitchell Drive, and Lockyers Line, in consultation with y Council and consideration by the Lithgow Local Traffic Committee. Table 6.2 illustrated signs for consideration, where appropriate.

**Table 6.2 Recommended signage**

| No | Sign name | Sign image | Sign number |
|---|---|---|---|
| 1 | Curve (left and right) |  | W1-3_l and W1-3_r |
| 2 | Reverse Curve (left and right) |  | W1-4_l and W1-4_r |
| | Chevron alignment marker |  | D4-6 |
| 3 | Caution Driveways |  | w2-206a_n |
| 4 | Reduce Speed (left and right) |  | W2-211-10-1n and w2-211-10n |
| 5 | Reduce Speed on Reverse Curve (left and right) |  | W2-211-11-1n and w2-211-11n |

| No | Sign name | Sign image | Sign number |
|---|---|---|---|
| 6 | Hazardous motorcycle curve (left and right) |  | W5-230n_l and w5-230n_r |
| 7 | Tilting truck (left and right) |  | W1-8-1_L and W1-8-1_R |
| 7 | Road narrows |  | w4-3 |
|  | Beware Cyclists |  | W6-213n |
| 9 | Changed traffic condition |  | t1-23 |
| 10 | Trucks Crossing Or Entering |  | W5-22 |
| 11 | Crest and Dip |  | W5-11 and W5-9 |

## 6.3 Operation phase

Operational traffic volumes are expected to be negligible, and significantly lower than during project construction. Movements of heavy and OSOM vehicles is expected to be very low during the operational phase. Hence, no significant traffic impact is expected during operation.

A detailed operations traffic management plan (OTMP) will be prepared before commencement of operations, in consultation with relevant traffic authorities.

## 6.4 Decommissioning phase

Pumped hydro systems usually function for a very long time and are maintained for decades. Repowering pumped hydro systems is a common practice, extending their useful life. If the project needs to be decommissioned or repowered, all decommissioning or repowering activities will be planned in a detailed and dedicated plan at the time. Decommissioning traffic volumes are expected to be significantly lower than during project construction. Hence, no significant traffic impact is expected during decommissioning.

# 7 Indicative construction traffic management plan

The construction of the project will require a range of vehicles to access the site, including light vehicles, heavy vehicles, and OSOM vehicles. These vehicle movements will be managed through a detailed construction traffic management plan (CTMP). The detailed CTMP will be prepared after project approval in consultation with the relevant authorities and the nominated construction contractor. An outline of the construction traffic management plan is provided in the following sections.

## 7.1 Objective

The CTMP aims to ensure the safety of all workers and road users within the vicinity of the construction site to:

- minimise the impact of the construction traffic on the local and regional road network and on other road users (e.g. school bus operators)
- ensure continuous, safe and efficient movement of traffic for the general public and construction workers
- install appropriate advance warning signs to inform users of the changed traffic conditions
- provide information regarding the access arrangements and a description of the proposed external routes, including the construction vehicles accessing the site.

## 7.2 Hours of work

Construction hours are expected to be 24-hour a day, seven days a week, throughout the five-year construction period (refer to Section 2.1).

## 7.3 General requirements

In accordance with TfNSW requirements, vehicles transporting loose materials will have the entire load covered and secured, to prevent large items, excess dust, or dirt particles, depositing onto the roadway during travel. Subcontractors will be inducted by the lead contractor, ensuring procedures are met for vehicles entering and exiting the construction site. The lead contractors will monitor the roads leading to and from the site and take necessary steps to rectify any occurrences of road deposit caused by vehicles.

Vehicles operating to, from, and within the site, will do so in a manner which does not create unreasonable or unnecessary noise or vibration. No tracked vehicles will be permitted or required on any paved roads. Public roads and the access road will not be obstructed by any materials, vehicles, refuse skips, or similar.

## 7.4 Construction vehicle types

The largest heavy vehicle (excluding OSOM vehicles) expected to access the site is a 25 m B-double. OSOM vehicles will be required to transport transformers, accommodation huts and other bulky or heavy components.

For any oversized vehicle that is required to travel to the project site, a separate application of the required permits will be prepared for submission and determination by the National Heavy Vehicle Regulator (NHVR), prior to any delivery. A separate application will be lodged to NHVR for OSOM vehicles travelling from Port Kembla, and Lithgow City Council and TfNSW will be consulted.

## 7.5 Construction vehicle routes

Construction vehicle routes, as illustrated in Figure 3.1, will be provided in the CTMP.

## 7.6 Traffic control measures

Traffic Guidance Schemes (TGS) formerly referred to as traffic control plans (TCPs) will be developed in the CTMP in accordance with the Australian Standards and the TfNSW Traffic Control at Work Sites Manual (TfNSW 2022).

All traffic controllers engaged on-site shall be accredited by TfNSW and act in accordance with TfNSW Standard Conditions.

## 7.7 On-site parking

The project has a large footprint and therefore, providing on-site parking is not considered to be an issue. During the construction period, vehicles are expected to be parked on unsealed areas. No vehicles will park on public roads. Most workers travelling from the accommodation camp will be transported by shuttle buses to the construction site, reducing the requirement for parking spaces at the construction site.

## 7.8 Work site security

Temporary road barriers and fences will be used to secure the road access points to the project area. All access points are to be securely locked when construction activities are not in progress.

## 7.9 Emergency activity strategy

The CTMP will include a strategy to enable regular and emergency management activities to be carried out on-site. The strategy will outline:

- vehicle routes and amendments in the event of an emergency within the site and maintenance of emergency service access
- clear marking of parking and no-parking areas, ensuring maintenance of emergency vehicles access routes
- staff inductions to ensure employees are briefed on emergency procedures
- workplace health and safety and Drivers' Code of Conduct, ensuring inclusion of specific measures to enable emergency management activities and appropriate driver behaviour in the event of an emergency.

## 7.10 Staff induction

Staff and subcontractors will be required to undergo a site induction upon entry to the project site. The induction will include guidance on permitted site access routes for all vehicles, standard environmental, occupation health and safety, driver protocols, and emergency procedures. Additionally, the lead contractor will discuss traffic management requirements regularly as part of the toolbox talks.

## 7.11 Workplace health and safety

Any personnel required to undertake works or traffic control within the public domain will be suitably trained and covered by appropriate insurances. Traffic controllers will be TfNSW accredited.

## 7.12 Drivers' code of conduct

The Driver's Code of Conduct will be provided to all relevant personnel prior to their arrival at site. The Driver's Code of Conduct is to be read and signed by all light and heavy vehicle drivers prior to operation of vehicles. This will be in addition to regular safety briefings and updates. The Driver's Code of Conduct will address all relevant site and locality road safety and traffic management measures including:

- compliance with all road rules and regulations
- driving to local road conditions, which includes sections of narrow gravel and unsealed roads, steep side slopes and rock cuts with no edge protection, and sharp bends with limited sight distances
- driver behaviour near schools, school buses and residential areas
- courtesy to other road users
- fatigue management
- checking vehicles and covering loads
- hazards of driving in varying weather conditions including fog and sun glare
- the appropriate use of compression braking
- safety procedures for accidents and breakdowns.

The Driver's Code of Conduct will also include a single page summary detailing the site access, primary and OSOM transport routes and other key aspects of light and heavy vehicle related compliance.

## 7.13 Complaint management

A complaint management system to enable active community consultation and maintain positive communication with local residents will be implemented for the site. The purpose of this system will be to minimise complaints by providing timely responses to community concerns and monitoring the ongoing environmental performance of the site construction activity and associated vehicle movement.

### 7.13.1 Registering complaints

A dedicated community complaints phone number will be established that is available 24 hours, seven days a week for community members who have enquiries or who wish to lodge complaints in relation to project construction activities. The Community Complaints phone number allows community members to enquire or lodge complaints about project related vehicles travelling on the public road system.

### 7.13.2 Complaint response

An initial response will be provided to the complainant generally within 24 hours using the contact details provided (phone and/or email). Preliminary investigations into each complaint will commence within 48 hours of complaint receipt. Complainants will be advised as soon as possible of the result of the investigation.

# 8 Conclusions

Construction of the project is expected to span five years. Up to 600 workers are expected during peak construction, with around 80% accommodated in a dedicated camp. Traffic generation will peak during construction and is anticipated to be negligible during operation and decommissioning.

Construction site access will be from Sir Thomas Mitchell Drive:

- daily traffic generation during peak construction:
  - construction site – 766 light vehicle movements, 274 heavy vehicle movements, and 104 shuttle bus movements, for a total of 1,144 vehicle movements
  - accommodation camp (Lakeside or Town camp option) – 390 light vehicle movements, 110 heavy vehicle movements, and 104 shuttle bus movements, for a total of 604 vehicle movements
- weekday AM and PM peak hour traffic generation:
  - construction site – 383 light vehicle movements, 58 heavy vehicle movements, and 52 shuttle bus movements, for a total of 493 vehicle movements during each peak hour
  - accommodation camp (Lakeside or Town camp option) – 182 light vehicle movements, 42 heavy vehicle movements, and 52 shuttle bus movements, for a total of 276 vehicle movements during each peak hour.

The preferred location for the accommodation camp is Lakeside on Lockyers Line near the construction area. An alternative Town camp location is in Lithgow near the Valley Plaza shopping area. Traffic impacts for both locations have been assessed for two scenarios; most project traffic originates from Sydney / Blue Mountains or from Lithgow.

The assessment has adopted a modified Magpie Hollow Road / Sir Thomas Mitchell Drive intersection layout. Vehicles travelling between Magpie Hollow Road (north) and Sir Thomas Mitchell Drive are given priority (refer to Section2.4).

Traffic analysis indicates that the Great Western Highway / Magpie Hollow Road intersection, under the existing give-way control, cannot accommodate project-related traffic, irrespective of the accommodation camp location. An upgrade to signal control is required, to improve safety and intersection performance to acceptable levels.

Establishing the camp lakeside will have less traffic impact compared to the town location but would require upgrading Magpie Hollow Road between Lockyers Line and Thomas Mitchell Drive, and the Magpie Hollow Road / Lockyers Line intersection. By contrast, locating the camp in town requires vehicles to travel for approximately 10 km along Lithgow Street, Wrights Road, Methven Street, Musket Parade, Bayonet Street, and the Great Western Highway, causing several issues:

- Great Western Highway/Magpie Hollow Road intersection:
  - the maximum right-turn queue on the north approach exceeds the available turn pocket capacity under the scenario where most construction traffic originates from Lithgow
  - this constraint does not occur if most construction traffic originates from the Blue Mountains and Sydney.
- Great Western Highway/Bayonet Street intersection:
  - the projected right-turn queue on the south approach exceeds the available pocket capacity.

- Lithgow Street/Kirkland Link intersection:
    - poor intersection performance under existing give-way control, requiring signalisation: vehicles from Valley Drive experience insufficient gaps to turn right onto Lithgow Street during the PM peak, regardless of project-only or cumulative traffic impact from the nearby Bunnings store.

Sight line issues have been identified at the following locations for:

- vehicles turning right from Magpie Hollow Road onto Great Western Highway (looking left); signalisation would address this issue
- vehicles turning left and right from Sir Thomas Mitchell Drive onto Magpie Hollow Road, requiring realigning of the intersection to achieve the required sight distances in both directions, and a concept realignment
- vehicles turning left from Lockyers Line onto Magpie Hollow Road requiring installation of truck warning signs on Magpie Hollow Road.

Public transport, pedestrian, and cycling routes are not expected to be impacted. Warning signs are recommended to be installed on Lockyers Line, Magpie Hollow Road, Sir Thomas Mitchell Drive, to alert motorists of potential pedestrians and cyclists in the area.

To mitigate potential disruptions to local school bus operations, truck drivers will be notified (to be documented in the Drivers Code of Conduct) about the presence of school buses on Magpie Hollow Road.

On-site car parking will be provided during construction to ensure vehicles do not park on public roads. Shuttle buses will transport workers between the accommodation camp and the construction site.

A schedule of road upgrades and intersection modifications is required to facilitate project traffic, and would be completed as part of early works for the project:

- Irrespective of accommodation camp location:
    - Great Western Highway / Magpie Hollow Road intersection to be upgraded to signal control
    - Magpie Hollow Road upgrade to 9-m-wide sealed road, between Great Western Highway and Sir Thomas Mitchell Drive
    - Sir Thomas Mitchell Drive upgrade to 9-m-wide sealed road, between Magpie Hollow Road and construction site access
    - BAL treatment on Magpie Hollow Road north approach at the Sir Thomas Mitchell Drive.
- Lakeside camp:
    - Magpie Hollow Road upgrade to 9-m-wide sealed road, between Sir Thomas Mitchell Drive and Lockyers Line
    - Lockyers Line upgrade to 7-m-wide sealed road, between Magpie Hollow Road and the Lakeside camp accommodation access
    - CHR treatment on Sir Thomas Mitchell Drive west approach at the Magpie Hollow Road intersection
    - CHR(s) treatment on Magpie Hollow Road north approach at the Lockyers Line intersection.

- Town camp:
    - extend turn queues on Great Western Highway and both the north approach to Magpie Hollow Road and the south approach to Bayonet Street (or other solution developed with TfNSW)
    - BAR treatment on Sir Thomas Mitchell Drive west approach at the Magpie Hollow Road intersection.
    - Lithgow Street / Kirkland intersection to be signalised (or other solution developed with Lithgow City Council).

Note that the project includes the Lakeside camp as the preferred option. The Town camp has been identified and assessed as a possible alternative site however the associated road upgrades that would be required will need to be designed in consultation with Lithgow City Council and TfNSW. As such, this TIA has made recommendations for road safety and upgrade requirements that will need to be resolved should this option ultimately be selected before project approval.

A signage plan is recommended to be developed for the area, in consultation with Lithgow City Council, for consideration by the Lithgow Local Traffic Committee.

A CTMP will be prepared in consultation with the construction contractor. The CTMP will aim to ensure the safety of all workers and road users within the vicinity of the development footprint.

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# Abbreviations

| | |
|---|---|
| AS | Australian Standard |
| Council | Lithgow City Council |
| CSSI | critical State significant infrastructure |
| CTMP | construction traffic and management plan |
| DEL | average delay |
| DOS | degree of saturation |
| DP | deposited plan |
| EAR | Eastern Access Road |
| km | kilometre |
| LGA | local government area |
| LOS | level of service |
| LT | Left turn |
| m | metres |
| NHVR | National Heavy Vehicle Regulator |
| OSOM | over size over mass |
| Project | Lake Lyell Pumped Hydro Energy Storage Project |
| Q95 | 95% queue lengths |
| RMS | NSW Roads and Maritime Services, now TfNSW |
| RT | Right turn |
| SEARs | Secretary's environmental assessment requirements |
| SSD | State significant development |
| TfNSW | Transport for New South Wales |
| TGS | Traffic Guidance Scheme |
| TH | Through movement |
| TIA | traffic impact assessment |
| vph | vehicles per hour |

# Annexure A

Traffic survey data (intersection counts)

EMM
creating opportunities

# TRANS TRAFFIC SURVEY

trafficsurvey.com.au

## TURNING MOVEMENT SURVEY

## Intersection of Magpie Hollow Rd and Great Western Hwy

***GPS*** *-33.506295, 150.124550*

| | |
|---|---|
| ***Date:*** | Wed 23/07/25 |
| ***Weather:*** | Fine |
| ***Suburban:*** | South Bowenfels |
| ***Customer:*** | EMM |

| | |
|---|---|
| ***North:*** | Great Western Hwy |
| ***East:*** | N/A |
| ***South:*** | Great Western Hwy |
| ***West:*** | Magpie Hollow Rd |

| | | |
|---|---|---|
| ***Survey Period*** | AM: | 6:00 AM-9:00 AM |
| | PM: | 3:30 PM-7:30 PM |
| ***Traffic Peak*** | AM: | 7:45 AM-8:45 AM |
| | PM: | 3:30 PM-4:30 PM |

***All Vehicles***

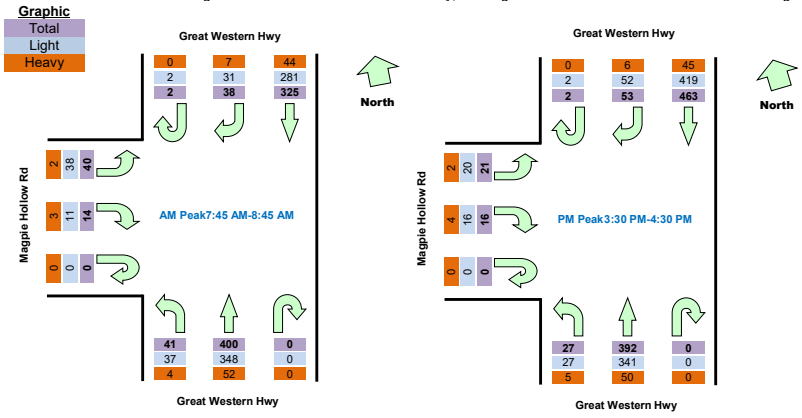
| Time | | th Approach Great Western | | | th Approach Great Western | | | st Approach Magpie Hollow | | | Hourly Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L | Hour | Peak |
| 06:00 | 06:15 | 0 | 6 | 27 | 0 | 38 | 2 | 0 | 3 | 3 | 437 | |
| 06:15 | 06:30 | 0 | 3 | 41 | 0 | 60 | 3 | 0 | 2 | 3 | 492 | |
| 06:30 | 06:45 | 0 | 4 | 57 | 0 | 42 | 1 | 0 | 2 | 4 | 517 | |
| 06:45 | 07:00 | 1 | 8 | 51 | 0 | 69 | 2 | 0 | 2 | 3 | 576 | |
| 07:00 | 07:15 | 0 | 6 | 58 | 0 | 60 | 4 | 0 | 2 | 4 | 640 | |
| 07:15 | 07:30 | 0 | 10 | 50 | 0 | 60 | 9 | 0 | 3 | 5 | 719 | |
| 07:30 | 07:45 | 0 | 9 | 77 | 0 | 72 | 7 | 0 | 2 | 2 | 808 | |
| 07:45 | 08:00 | 0 | 6 | 97 | 0 | 79 | 9 | 0 | 1 | 8 | 860 | Peak |
| 08:00 | 08:15 | 0 | 10 | 79 | 0 | 97 | 8 | 0 | 4 | 15 | 846 | |
| 08:15 | 08:30 | 1 | 12 | 81 | 0 | 109 | 12 | 0 | 5 | 6 | | |
| 08:30 | 08:45 | 1 | 10 | 68 | 0 | 115 | 12 | 0 | 4 | 11 | | |
| 08:45 | 09:00 | 0 | 6 | 67 | 0 | 88 | 9 | 0 | 5 | 11 | | |
| 15:30 | 15:45 | 1 | 15 | 115 | 0 | 94 | 3 | 0 | 3 | 9 | 974 | Peak |
| 15:45 | 16:00 | 0 | 12 | 113 | 0 | 103 | 7 | 0 | 7 | 5 | 964 | |
| 16:00 | 16:15 | 0 | 13 | 119 | 0 | 105 | 12 | 0 | 3 | 4 | 951 | |
| 16:15 | 16:30 | 1 | 13 | 116 | 0 | 90 | 5 | 0 | 3 | 3 | 894 | |
| 16:30 | 16:45 | 0 | 12 | 110 | 0 | 91 | 7 | 0 | 5 | 5 | 895 | |
| 16:45 | 17:00 | 0 | 13 | 129 | 0 | 83 | 1 | 0 | 2 | 6 | 835 | |
| 17:00 | 17:15 | 0 | 8 | 97 | 0 | 81 | 6 | 0 | 1 | 6 | 787 | |
| 17:15 | 17:30 | 1 | 11 | 121 | 0 | 87 | 5 | 0 | 1 | 6 | 736 | |
| 17:30 | 17:45 | 1 | 9 | 75 | 0 | 70 | 5 | 0 | 2 | 8 | 655 | |
| 17:45 | 18:00 | 2 | 13 | 94 | 0 | 65 | 4 | 0 | 2 | 6 | 598 | |
| 18:00 | 18:15 | 0 | 9 | 60 | 0 | 71 | 3 | 0 | 2 | 3 | 522 | |
| 18:15 | 18:30 | 0 | 6 | 70 | 0 | 67 | 1 | 0 | 0 | 7 | 483 | |
| 18:30 | 18:45 | 0 | 3 | 44 | 0 | 57 | 3 | 0 | 3 | 3 | 451 | |
| 18:45 | 19:00 | 0 | 6 | 42 | 0 | 58 | 3 | 0 | 0 | 1 | | |
| 19:00 | 19:15 | 0 | 2 | 45 | 0 | 51 | 4 | 0 | 1 | 6 | | |
| 19:15 | 19:30 | 0 | 2 | 44 | 0 | 63 | 5 | 0 | 0 | 5 | | |

| Peak Time | | th Approach Great Western | | | th Approach Great Western | | | st Approach Magpie Hollow | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L | |
| 07:45 | 08:45 | 2 | 38 | 325 | 0 | 400 | 41 | 0 | 14 | 40 | 860 |
| 15:30 | 16:30 | 2 | 53 | 463 | 0 | 392 | 27 | 0 | 16 | 21 | 974 |

*Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.*

**Graphic**

Total
Light
Heavy




***Light Vehicles***

| Time | | th Approach Great Western | | | th Approach Great Western | | | st Approach Magpie Hollow | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L |
| 06:00 | 06:15 | 0 | 6 | 23 | 0 | 30 | 2 | 0 | 3 | 3 |
| 06:15 | 06:30 | 0 | 3 | 31 | 0 | 42 | 3 | 0 | 2 | 3 |
| 06:30 | 06:45 | 0 | 4 | 50 | 0 | 31 | 0 | 0 | 2 | 4 |
| 06:45 | 07:00 | 1 | 8 | 45 | 0 | 54 | 2 | 0 | 2 | 3 |
| 07:00 | 07:15 | 0 | 6 | 47 | 0 | 44 | 3 | 0 | 2 | 4 |
| 07:15 | 07:30 | 0 | 8 | 46 | 0 | 54 | 7 | 0 | 3 | 4 |
| 07:30 | 07:45 | 0 | 9 | 59 | 0 | 57 | 6 | 0 | 2 | 2 |
| 07:45 | 08:00 | 0 | 5 | 87 | 0 | 68 | 9 | 0 | 1 | 8 |
| 08:00 | 08:15 | 0 | 7 | 67 | 0 | 83 | 7 | 0 | 3 | 14 |
| 08:15 | 08:30 | 1 | 12 | 71 | 0 | 97 | 10 | 0 | 4 | 5 |
| 08:30 | 08:45 | 1 | 7 | 56 | 0 | 100 | 11 | 0 | 3 | 11 |
| 08:45 | 09:00 | 0 | 6 | 56 | 0 | 79 | 8 | 0 | 4 | 11 |
| 15:30 | 15:45 | 1 | 15 | 105 | 0 | 82 | 3 | 0 | 3 | 9 |
| 15:45 | 16:00 | 0 | 11 | 103 | 0 | 84 | 7 | 0 | 7 | 4 |
| 16:00 | 16:15 | 0 | 13 | 108 | 0 | 93 | 12 | 0 | 3 | 4 |
| 16:15 | 16:30 | 1 | 13 | 103 | 0 | 82 | 5 | 0 | 3 | 3 |
| 16:30 | 16:45 | 0 | 12 | 101 | 0 | 83 | 5 | 0 | 5 | 4 |
| 16:45 | 17:00 | 0 | 12 | 120 | 0 | 75 | 1 | 0 | 2 | 6 |
| 17:00 | 17:15 | 0 | 8 | 86 | 0 | 70 | 6 | 0 | 1 | 6 |
| 17:15 | 17:30 | 1 | 11 | 112 | 0 | 78 | 5 | 0 | 1 | 6 |
| 17:30 | 17:45 | 1 | 9 | 67 | 0 | 64 | 4 | 0 | 2 | 8 |
| 17:45 | 18:00 | 2 | 13 | 85 | 0 | 64 | 4 | 0 | 1 | 5 |
| 18:00 | 18:15 | 0 | 9 | 55 | 0 | 65 | 3 | 0 | 2 | 3 |
| 18:15 | 18:30 | 0 | 6 | 65 | 0 | 60 | 1 | 0 | 0 | 7 |
| 18:30 | 18:45 | 0 | 3 | 35 | 0 | 51 | 3 | 0 | 3 | 3 |
| 18:45 | 19:00 | 0 | 5 | 40 | 0 | 53 | 3 | 0 | 0 | 1 |
| 19:00 | 19:15 | 0 | 2 | 38 | 0 | 45 | 4 | 0 | 0 | 6 |
| 19:15 | 19:30 | 0 | 2 | 38 | 0 | 56 | 5 | 0 | 0 | 5 |

| Peak Time | | th Approach Great Western | | | th Approach Great Western | | | st Approach Magpie Hollow | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L | |
| 07:45 | 08:45 | 2 | 31 | 281 | 0 | 348 | 37 | 0 | 11 | 38 | 748 |
| 15:30 | 16:30 | 2 | 52 | 419 | 0 | 341 | 27 | 0 | 16 | 20 | 877 |

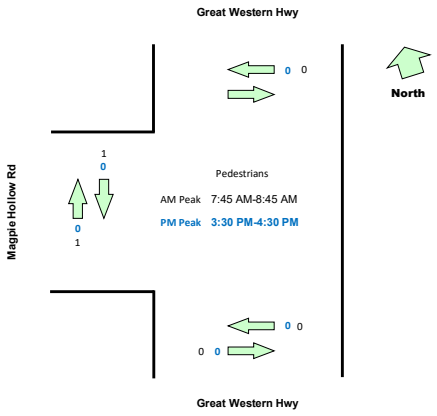
***Heavy Vehicles***

| Time | | th Approach Great Western | | | th Approach Great Western | | | st Approach Magpie Hollow | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L |
| 06:00 | 06:15 | 0 | 0 | 4 | 0 | 8 | 0 | 0 | 0 | 0 |
| 06:15 | 06:30 | 0 | 0 | 10 | 0 | 18 | 0 | 0 | 0 | 0 |
| 06:30 | 06:45 | 0 | 0 | 7 | 0 | 11 | 1 | 0 | 0 | 0 |
| 06:45 | 07:00 | 0 | 0 | 6 | 0 | 15 | 0 | 0 | 0 | 0 |
| 07:00 | 07:15 | 0 | 0 | 11 | 0 | 16 | 1 | 0 | 0 | 0 |
| 07:15 | 07:30 | 0 | 2 | 4 | 0 | 6 | 2 | 0 | 0 | 1 |
| 07:30 | 07:45 | 0 | 0 | 18 | 0 | 15 | 1 | 0 | 0 | 0 |
| 07:45 | 08:00 | 0 | 1 | 10 | 0 | 11 | 0 | 0 | 0 | 0 |
| 08:00 | 08:15 | 0 | 3 | 12 | 0 | 14 | 1 | 0 | 1 | 1 |
| 08:15 | 08:30 | 0 | 0 | 10 | 0 | 12 | 2 | 0 | 1 | 1 |
| 08:30 | 08:45 | 0 | 3 | 12 | 0 | 15 | 1 | 0 | 1 | 0 |
| 08:45 | 09:00 | 0 | 0 | 11 | 0 | 9 | 1 | 0 | 1 | 0 |
| 15:30 | 15:45 | 0 | 0 | 10 | 0 | 12 | 0 | 0 | 0 | 0 |

***Pedestrians Crossing***

| Time | | North Approach Great Western Hwy | | South Approach Great Western Hwy | | West Approach Magpie Hollow Rd | | Hourly Total |
|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Westbound | Eastbound | Westbound | Eastbound | Southbound | Northbound | |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 15:30 | 15:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | |

| Peak Time | | North Approach Great Western Hwy | | South Approach Great Western Hwy | | West Approach Magpie Hollow Rd | | Peak total |
|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Westbound | Eastbound | Westbound | Eastbound | Southbound | Northbound | |
| 07:45 | 08:45 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| 15:30 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 15:45 | 16:00 | 0 | 1 | 10 | 0 | 19 | 0 | 0 | 0 | 1 |
| 16:00 | 16:15 | 0 | 0 | 11 | 0 | 12 | 0 | 0 | 0 | 0 |
| 16:15 | 16:30 | 0 | 0 | 13 | 0 | 8 | 0 | 0 | 0 | 0 |
| 16:30 | 16:45 | 0 | 0 | 9 | 0 | 8 | 2 | 0 | 0 | 1 |
| 16:45 | 17:00 | 0 | 1 | 9 | 0 | 8 | 0 | 0 | 0 | 0 |
| 17:00 | 17:15 | 0 | 0 | 11 | 0 | 11 | 0 | 0 | 0 | 0 |
| 17:15 | 17:30 | 0 | 0 | 9 | 0 | 9 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 0 | 0 | 8 | 0 | 6 | 1 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 9 | 0 | 1 | 0 | 0 | 1 | 1 |
| 18:00 | 18:15 | 0 | 0 | 5 | 0 | 6 | 0 | 0 | 0 | 0 |
| 18:15 | 18:30 | 0 | 0 | 5 | 0 | 7 | 0 | 0 | 0 | 0 |
| 18:30 | 18:45 | 0 | 0 | 9 | 0 | 6 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 1 | 2 | 0 | 5 | 0 | 0 | 0 | 0 |
| 19:00 | 19:15 | 0 | 0 | 7 | 0 | 6 | 0 | 0 | 1 | 0 |
| 19:15 | 19:30 | 0 | 0 | 6 | 0 | 7 | 0 | 0 | 0 | 0 |

| Peak Time | | th Approach Great Western | | | th Approach Great Western | | | st Approach Magpie Hollow | | | Peak |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L | total |
| 07:45 | 08:45 | 0 | 7 | 44 | 0 | 52 | 4 | 0 | 3 | 2 | 112 |
| 15:30 | 16:30 | 0 | 6 | 45 | 0 | 50 | 5 | 0 | 4 | 2 | 112 |

# TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY trafficsurvey.com.au

## Intersection of Sir Thomas Mitchell Dr and Maggie Hollo

GPS -33.909667, 150.105668

| | |
|---|---|
| Date: | Wed 23/07/25 |
| Weather: | Fine |
| Suburban: | South Bowenfels |
| Customer: | EMM |

| | |
|---|---|
| North: | Maggie Hollow Rd |
| East: | N/A |
| South: | Maggie Hollow Rd |
| West: | Sir Thomas Mitchell Dr |

| | | |
|---|---|---|
| Survey Period | AM: | 6:00 AM-9:00 AM |
| | PM: | 3:30 PM-7:30 PM |
| Traffic Peak | AM: | 8:00 AM-9:00 AM |
| | PM: | 3:30 PM-4:30 PM |

### All Vehicles

| Time | | South Approach Maggie Hollow | | | North Approach Maggie Hollow | | | East Approach Sir Thomas Mitch | | | Hourly Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L | Hour | Peak |
| 06:00 | 06:15 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | |
| 06:15 | 06:30 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 19 | |
| 06:30 | 06:45 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 24 | |
| 06:45 | 07:00 | 0 | 0 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 25 | |
| 07:00 | 07:15 | 0 | 0 | 1 | 0 | 5 | 0 | 0 | 0 | 1 | 27 | |
| 07:15 | 07:30 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 40 | |
| 07:30 | 07:45 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 43 | |
| 07:45 | 08:00 | 0 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 2 | 55 | |
| 08:00 | 08:15 | 1 | 0 | 6 | 0 | 13 | 0 | 0 | 0 | 0 | 62 | Peak |
| 08:15 | 08:30 | 0 | 0 | 6 | 0 | 4 | 0 | 0 | 0 | 1 | | |
| 08:30 | 08:45 | 0 | 2 | 5 | 0 | 7 | 0 | 0 | 1 | 1 | | |
| 08:45 | 09:00 | 0 | 1 | 1 | 0 | 11 | 0 | 0 | 1 | 1 | | |
| 15:30 | 15:45 | 0 | 3 | 10 | 0 | 9 | 0 | 0 | 0 | 1 | 79 | Peak |
| 15:45 | 16:00 | 0 | 2 | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 67 | |
| 16:00 | 16:15 | 0 | 2 | 11 | 0 | 4 | 0 | 0 | 0 | 0 | 69 | |
| 16:15 | 16:30 | 0 | 1 | 12 | 0 | 6 | 1 | 0 | 1 | 0 | 61 | |
| 16:30 | 16:45 | 0 | 1 | 3 | 0 | 6 | 1 | 0 | 0 | 0 | 54 | |
| 16:45 | 17:00 | 0 | 1 | 9 | 0 | 7 | 0 | 0 | 0 | 3 | 51 | |
| 17:00 | 17:15 | 0 | 2 | 4 | 0 | 3 | 0 | 0 | 0 | 0 | 38 | |
| 17:15 | 17:30 | 0 | 3 | 5 | 0 | 5 | 0 | 0 | 0 | 1 | 39 | |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 37 | |
| 17:45 | 18:00 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 1 | 35 | |
| 18:00 | 18:15 | 0 | 0 | 7 | 0 | 2 | 0 | 0 | 0 | 1 | 32 | |
| 18:15 | 18:30 | 0 | 2 | 4 | 0 | 5 | 0 | 0 | 0 | 1 | 28 | |
| 18:30 | 18:45 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 3 | 21 | |
| 18:45 | 19:00 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| 19:00 | 19:15 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 1 | | |
| 19:15 | 19:30 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | | |

| Peak Time | | South Approach Maggie Hollow | | | North Approach Maggie Hollow | | | East Approach Sir Thomas Mitch | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L | |
| 08:00 | 09:00 | 1 | 3 | 18 | 0 | 35 | 0 | 0 | 2 | 3 | 62 |
| 15:30 | 16:30 | 0 | 8 | 41 | 0 | 27 | 1 | 0 | 1 | 1 | 79 |

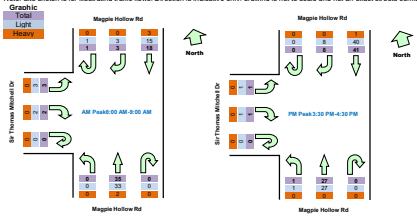
### Pedestrians Crossing

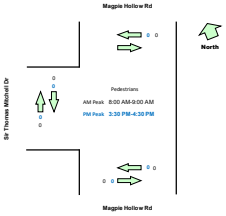
| Time | | North Approach Maggie Hollow R | South Approach Maggie Hollow R | | st Approach Sir Thomas Mitchell | | Hourly Total |
|---|---|---|---|---|---|---|---|
| Period Start | Period End | Eastbound | Westbound | Eastbound | Westbound | Southbound | Northbound | |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 15:30 | 15:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | |

| Peak Time | | North Approach Maggie Hollow R | South Approach Maggie Hollow R | | st Approach Sir Thomas Mitchell | | Peak total |
|---|---|---|---|---|---|---|---|
| Period Start | Period End | Eastbound | Westbound | Eastbound | Westbound | Southbound | Northbound | |
| 08:00 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:30 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note: Site sketch is for illustratino traffic flows. Direction is indicative only. drawing is not to scale and not an exact streets configuration.*

Graphic: Total / Light / Heavy




### Light Vehicles

| Time | | South Approach Maggie Hollow | | | North Approach Maggie Hollow | | | East Approach Sir Thomas Mitch | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L |
| 06:00 | 06:15 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:15 | 06:30 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| 06:30 | 06:45 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 06:45 | 07:00 | 0 | 0 | 4 | 0 | 2 | 0 | 0 | 0 | 0 |
| 07:00 | 07:15 | 0 | 0 | 1 | 0 | 5 | 0 | 0 | 0 | 1 |
| 07:15 | 07:30 | 0 | 0 | 3 | 0 | 4 | 0 | 0 | 0 | 0 |
| 07:30 | 07:45 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 07:45 | 08:00 | 0 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 2 |
| 08:00 | 08:15 | 1 | 0 | 5 | 0 | 13 | 0 | 0 | 0 | 0 |
| 08:15 | 08:30 | 0 | 0 | 5 | 0 | 3 | 0 | 0 | 0 | 1 |
| 08:30 | 08:45 | 0 | 2 | 4 | 0 | 7 | 0 | 0 | 1 | 1 |
| 08:45 | 09:00 | 0 | 1 | 1 | 0 | 10 | 0 | 0 | 1 | 1 |
| 15:30 | 15:45 | 0 | 3 | 10 | 0 | 9 | 0 | 0 | 0 | 1 |
| 15:45 | 16:00 | 0 | 2 | 7 | 0 | 8 | 0 | 0 | 0 | 0 |
| 16:00 | 16:15 | 0 | 2 | 11 | 0 | 4 | 0 | 0 | 0 | 0 |
| 16:15 | 16:30 | 0 | 1 | 12 | 0 | 6 | 1 | 0 | 1 | 0 |
| 16:30 | 16:45 | 0 | 1 | 3 | 0 | 6 | 1 | 0 | 0 | 0 |
| 16:45 | 17:00 | 0 | 1 | 9 | 0 | 7 | 0 | 0 | 0 | 3 |
| 17:00 | 17:15 | 0 | 2 | 4 | 0 | 3 | 0 | 0 | 0 | 0 |
| 17:15 | 17:30 | 0 | 3 | 5 | 0 | 5 | 0 | 0 | 0 | 1 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 1 |
| 18:00 | 18:15 | 0 | 0 | 7 | 0 | 2 | 0 | 0 | 0 | 1 |
| 18:15 | 18:30 | 0 | 2 | 4 | 0 | 5 | 0 | 0 | 0 | 1 |
| 18:30 | 18:45 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 3 |
| 18:45 | 19:00 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19:00 | 19:15 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 1 |
| 19:15 | 19:30 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 |

| Peak Time | | South Approach Maggie Hollow | | | North Approach Maggie Hollow | | | East Approach Sir Thomas Mitch | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L | |
| 08:00 | 09:00 | 1 | 3 | 15 | 0 | 33 | 0 | 0 | 2 | 3 | 57 |
| 15:30 | 16:30 | 0 | 8 | 40 | 0 | 27 | 1 | 0 | 1 | 1 | 78 |

### Heavy Vehicles

| Time | | South Approach Maggie Hollow | | | North Approach Maggie Hollow | | | East Approach Sir Thomas Mitch | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 | 07:30 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 | 08:15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 | 08:30 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 08:30 | 08:45 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 15:30 | 15:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:45 | 16:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Peak Time | | South Approach Maggie Hollow | | | North Approach Maggie Hollow | | | East Approach Sir Thomas Mitch | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | U | NB | L | U | R | L | |
| 08:00 | 09:00 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 5 |
| 15:30 | 16:30 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

# TRANS TRAFFIC SURVEY

## TURNING MOVEMENT SURVEY

trafficsurvey.com.au

**Intersection of Magpie Hollow Rd and Lockyers Line, Sc**

| | |
|---|---|
| GPS | -33.521362, 150.087598 |
| Date: | Wed 23/07/25 |
| Weather: | Fine |
| Suburban: | South Bowenfels |
| Customer: | EMM |

| | |
|---|---|
| North: | Lockyers Line |
| East: | Magpie Hollow Rd |
| South: | N/A |
| West: | Magpie Hollow Rd |

| | | |
|---|---|---|
| Survey Period | AM: | 6:00 AM-9:00 AM |
| | PM: | 3:30 PM-7:30 PM |
| Traffic Peak | AM: | 8:00 AM-9:00 AM |
| | PM: | 3:30 PM-4:30 PM |

### All Vehicles

| Time | | North Approach Lockyers Line | | | East Approach Magpie Hollow Rd | | | West Approach Magpie Hollow Rd | | | Hourly Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | L | U | R | WB | U | EB | L | Hour | Peak |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12 | |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 17 | |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 22 | |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 22 | |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 22 | |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 35 | |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 37 | |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 48 | |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 13 | 0 | 55 | Peak |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 4 | 0 | | |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 7 | 0 | | |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 11 | 0 | | |
| 15:30 | 15:45 | 0 | 1 | 0 | 0 | 0 | 10 | 0 | 9 | 0 | 71 | Peak |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 8 | 0 | 61 | |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 4 | 0 | 61 | |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 7 | 0 | 53 | |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 7 | 0 | 43 | |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 7 | 0 | 41 | |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 | 31 | |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 33 | |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 32 | |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 27 | |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 2 | 0 | 25 | |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 21 | |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 14 | |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | | |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | | |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | | |

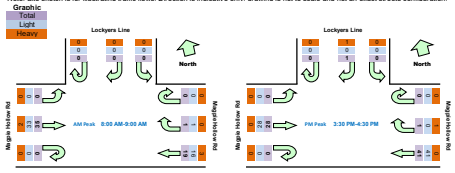
| Peak Time | | North Approach Lockyers Line | | | East Approach Magpie Hollow Rd | | | West Approach Magpie Hollow Rd | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | L | U | R | WB | U | EB | L | |
| 08:00 | 09:00 | 0 | 0 | 0 | 0 | 1 | 19 | 0 | 35 | 0 | 55 |
| 15:30 | 16:30 | 0 | 1 | 0 | 0 | 1 | 41 | 0 | 28 | 0 | 71 |

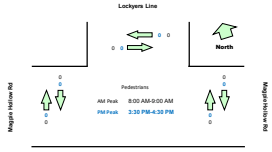
### Pedestrians Crossing

| Time | | North Approach Lockyers Line | | East Approach Magpie Hollow Rd | | West Approach Magpie Hollow Rd | | Hourly Total |
|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Westbound | Eastbound | Northbound | Southbound | Northbound | Southbound | |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 15:30 | 15:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | |

| Peak Time | | North Approach Lockyers Line | | East Approach Magpie Hollow Rd | | West Approach Magpie Hollow Rd | | Peak total |
|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Westbound | Eastbound | Northbound | Southbound | Northbound | Southbound | |
| 08:00 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:30 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note: Site sketch is for illustratino traffic flows. Direction is indicative onlv. drawina is not to scale and not an exact streets configuration.*




### Light Vehicles

| Time | | North Approach Lockyers Line | | | East Approach Magpie Hollow Rd | | | West Approach Magpie Hollow Rd | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | L | U | R | WB | U | EB | L |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 0 |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 13 | 0 |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 3 | 0 |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 7 | 0 |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 10 | 0 |
| 15:30 | 15:45 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 9 | 0 |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 8 | 0 |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 4 | 0 |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 7 | 0 |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 7 | 0 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 7 | 0 |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 2 | 0 |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |

| Peak Time | | North Approach Lockyers Line | | | East Approach Magpie Hollow Rd | | | West Approach Magpie Hollow Rd | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | L | U | R | WB | U | EB | L | |
| 08:00 | 09:00 | 0 | 0 | 0 | 0 | 1 | 16 | 0 | 33 | 0 | 50 |
| 15:30 | 16:30 | 0 | 0 | 0 | 0 | 0 | 41 | 0 | 28 | 0 | 69 |

### Heavy Vehicles

| Time | | North Approach Lockyers Line | | | East Approach Magpie Hollow Rd | | | West Approach Magpie Hollow Rd | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | L | U | R | WB | U | EB | L |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 15:30 | 15:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Peak Time | | North Approach Lockyers Line | | | East Approach Magpie Hollow Rd | | | West Approach Magpie Hollow Rd | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | L | U | R | WB | U | EB | L | |
| 08:00 | 09:00 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 5 |
| 15:30 | 16:30 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |

# TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY trafficsurvey.com.au

## Intersection of Methven St and Martini Parade, Lithgow

| | |
|---|---|
| GPS | -33.487141, 150.140088 |
| Date: | Wed 23/07/25 |
| Weather: | Fine |
| Suburban: | Lithgow |
| Customer: | EMM |

| | |
|---|---|
| North: | Martini Parade |
| East: | Methven St |
| South: | Martini Parade |
| West: | Methven St |

| | | |
|---|---|---|
| Survey Period | AM: | 6:00 AM-9:00 AM |
| | PM: | 3:30 PM-7:30 PM |
| Traffic Peak | AM: | 8:00 AM-9:00 AM |
| | PM: | 3:30 PM-4:30 PM |

### All Vehicles

| Time | | North Approach Martini Parade | | | | East Approach Methven St | | | | South Approach Martini Parade | | | | West Approach Methven St | | | | Hourly Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | Hour | Peak |
| 06:00 | 06:15 | 0 | 0 | 1 | 0 | 0 | 0 | 9 | 5 | 0 | 7 | 6 | 0 | 0 | 1 | 7 | 0 | 184 | |
| 06:15 | 06:30 | 0 | 0 | 3 | 0 | 0 | 1 | 5 | 3 | 0 | 7 | 6 | 1 | 0 | 1 | 14 | 0 | 203 | |
| 06:30 | 06:45 | 0 | 0 | 1 | 1 | 0 | 1 | 6 | 8 | 0 | 8 | 1 | 0 | 0 | 0 | 11 | 0 | 215 | |
| 06:45 | 07:00 | 0 | 0 | 8 | 0 | 0 | 0 | 18 | 6 | 0 | 16 | 1 | 0 | 0 | 1 | 20 | 0 | 249 | |
| 07:00 | 07:15 | 0 | 0 | 7 | 1 | 0 | 0 | 8 | 9 | 0 | 8 | 4 | 0 | 0 | 0 | 18 | 0 | 275 | |
| 07:15 | 07:30 | 0 | 1 | 5 | 0 | 0 | 0 | 12 | 7 | 0 | 8 | 3 | 0 | 0 | 0 | 17 | 0 | 333 | |
| 07:30 | 07:45 | 0 | 0 | 4 | 1 | 0 | 0 | 17 | 8 | 0 | 10 | 6 | 0 | 0 | 2 | 22 | 1 | 427 | |
| 07:45 | 08:00 | 0 | 0 | 6 | 0 | 0 | 0 | 20 | 13 | 0 | 17 | 6 | 0 | 0 | 0 | 32 | 2 | 598 | |
| 08:00 | 08:15 | 0 | 0 | 5 | 1 | 0 | 0 | 18 | 18 | 0 | 18 | 7 | 0 | 0 | 0 | 44 | 2 | 814 | Peak |
| 08:15 | 08:30 | 0 | 0 | 5 | 4 | 0 | 2 | 17 | 15 | 0 | 45 | 2 | 0 | 0 | 3 | 53 | 1 | | |
| 08:30 | 08:45 | 0 | 1 | 13 | 13 | 0 | 3 | 23 | 32 | 0 | 65 | 7 | 1 | 0 | 2 | 81 | 1 | | |
| 08:45 | 09:00 | 0 | 5 | 14 | 17 | 0 | 1 | 37 | 47 | 0 | 76 | 16 | 1 | 0 | 1 | 95 | 2 | | |
| 15:30 | 15:45 | 0 | 5 | 8 | 5 | 0 | 2 | 69 | 50 | 0 | 66 | 11 | 1 | 0 | 0 | 47 | 1 | 860 | Peak |
| 15:45 | 16:00 | 0 | 1 | 2 | 2 | 0 | 2 | 57 | 34 | 0 | 41 | 8 | 0 | 0 | 2 | 60 | 1 | 785 | |
| 16:00 | 16:15 | 0 | 2 | 13 | 4 | 0 | 0 | 62 | 38 | 0 | 23 | 7 | 2 | 0 | 0 | 51 | 2 | 749 | |
| 16:15 | 16:30 | 0 | 2 | 6 | 4 | 0 | 2 | 54 | 32 | 0 | 34 | 5 | 0 | 0 | 1 | 41 | 0 | 707 | |
| 16:30 | 16:45 | 0 | 1 | 2 | 2 | 0 | 3 | 65 | 38 | 0 | 29 | 8 | 1 | 0 | 0 | 41 | 0 | 681 | |
| 16:45 | 17:00 | 0 | 3 | 8 | 1 | 0 | 3 | 45 | 40 | 0 | 25 | 6 | 1 | 0 | 0 | 40 | 2 | 676 | |
| 17:00 | 17:15 | 0 | 2 | 6 | 4 | 0 | 2 | 45 | 33 | 0 | 30 | 3 | 2 | 0 | 0 | 34 | 1 | 639 | |
| 17:15 | 17:30 | 0 | 1 | 6 | 1 | 0 | 2 | 47 | 35 | 0 | 27 | 2 | 1 | 0 | 0 | 30 | 3 | 585 | |
| 17:30 | 17:45 | 0 | 1 | 6 | 2 | 0 | 0 | 52 | 35 | 0 | 26 | 8 | 0 | 0 | 1 | 51 | 3 | 521 | |
| 17:45 | 18:00 | 0 | 0 | 7 | 0 | 0 | 1 | 41 | 30 | 0 | 17 | 6 | 2 | 0 | 0 | 33 | 0 | 426 | |
| 18:00 | 18:15 | 0 | 2 | 0 | 1 | 0 | 2 | 34 | 21 | 0 | 19 | 4 | 0 | 0 | 0 | 23 | 2 | 353 | |
| 18:15 | 18:30 | 0 | 0 | 3 | 0 | 0 | 0 | 21 | 19 | 0 | 17 | 9 | 0 | 0 | 1 | 21 | 0 | 309 | |
| 18:30 | 18:45 | 0 | 1 | 11 | 3 | 0 | 0 | 23 | 15 | 0 | 11 | 2 | 0 | 0 | 3 | 21 | 0 | 273 | |
| 18:45 | 19:00 | 0 | 0 | 3 | 1 | 0 | 2 | 14 | 12 | 0 | 6 | 4 | 0 | 0 | 1 | 20 | 1 | | |
| 19:00 | 19:15 | 0 | 0 | 6 | 0 | 0 | 0 | 17 | 11 | 0 | 11 | 3 | 0 | 0 | 0 | 16 | 0 | | |
| 19:15 | 19:30 | 0 | 0 | 4 | 0 | 0 | 1 | 14 | 10 | 0 | 4 | 4 | 0 | 0 | 1 | 16 | 1 | | |

| Peak Time | | North Approach Martini Parade | | | | East Approach Methven St | | | | South Approach Martini Parade | | | | West Approach Methven St | | | | Peak hour total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | |
| 08:00 | 09:00 | 0 | 6 | 37 | 35 | 0 | 6 | 95 | 112 | 0 | 204 | 32 | 2 | 0 | 6 | 273 | 6 | 814 |
| 15:30 | 16:30 | 0 | 10 | 29 | 15 | 0 | 6 | 242 | 154 | 0 | 164 | 31 | 3 | 0 | 3 | 199 | 4 | 860 |

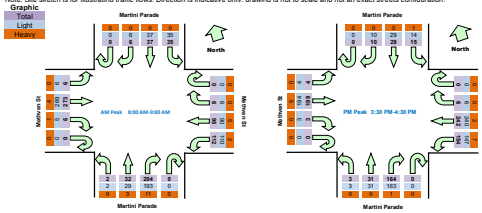
### Pedestrians Crossing

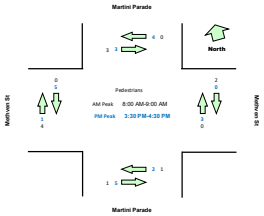
| Time | | North Approach Martini Parade | | East Approach Methven St | | South Approach Martini Parade | | West Approach Methven St | | Hourly Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Westbound | Eastbound | Southbound | Northbound | Westbound | Eastbound | Southbound | Northbound | |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 07:15 | 07:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 08:00 | 08:15 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 11 |
| 08:15 | 08:30 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 3 | |
| 08:30 | 08:45 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 15:30 | 15:45 | 1 | 3 | 0 | 1 | 0 | 0 | 1 | 0 | 23 |
| 15:45 | 16:00 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 17 |
| 16:00 | 16:15 | 1 | 0 | 0 | 1 | 1 | 3 | 3 | 1 | 13 |
| 16:15 | 16:30 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 17:00 | 17:15 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

| Peak Time | | North Approach Martini Parade | | East Approach Methven St | | South Approach Martini Parade | | West Approach Methven St | | Peak hour total |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Westbound | Eastbound | Southbound | Northbound | Westbound | Eastbound | Southbound | Northbound | |
| 08:00 | 09:00 | 0 | 3 | 2 | 0 | 1 | 1 | 0 | 4 | 11 |
| 15:30 | 16:30 | 4 | 3 | 0 | 3 | 2 | 5 | 5 | 1 | 23 |

*Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.*

Graphic: Total / Light / Heavy




### Light Vehicles

| Time | | North Approach Martini Parade | | | | East Approach Methven St | | | | South Approach Martini Parade | | | | West Approach Methven St | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L |
| 06:00 | 06:15 | 0 | 0 | 1 | 0 | 0 | 0 | 7 | 5 | 0 | 7 | 6 | 0 | 0 | 1 | 6 | 0 |
| 06:15 | 06:30 | 0 | 0 | 3 | 0 | 0 | 1 | 4 | 2 | 0 | 7 | 6 | 1 | 0 | 1 | 14 | 0 |
| 06:30 | 06:45 | 0 | 0 | 1 | 1 | 0 | 1 | 6 | 8 | 0 | 7 | 1 | 0 | 0 | 0 | 11 | 0 |
| 06:45 | 07:00 | 0 | 0 | 8 | 0 | 0 | 0 | 17 | 6 | 0 | 16 | 1 | 0 | 0 | 1 | 19 | 0 |
| 07:00 | 07:15 | 0 | 0 | 7 | 1 | 0 | 0 | 8 | 9 | 0 | 8 | 4 | 0 | 0 | 0 | 18 | 0 |
| 07:15 | 07:30 | 0 | 1 | 5 | 0 | 0 | 0 | 11 | 7 | 0 | 7 | 3 | 0 | 0 | 0 | 17 | 0 |
| 07:30 | 07:45 | 0 | 0 | 3 | 1 | 0 | 0 | 15 | 8 | 0 | 10 | 6 | 0 | 0 | 2 | 21 | 1 |
| 07:45 | 08:00 | 0 | 0 | 5 | 0 | 0 | 0 | 18 | 13 | 0 | 17 | 6 | 0 | 0 | 0 | 32 | 2 |
| 08:00 | 08:15 | 0 | 0 | 5 | 1 | 0 | 0 | 17 | 17 | 0 | 17 | 6 | 0 | 0 | 0 | 44 | 2 |
| 08:15 | 08:30 | 0 | 0 | 5 | 4 | 0 | 2 | 17 | 14 | 0 | 41 | 1 | 0 | 0 | 2 | 51 | 1 |
| 08:30 | 08:45 | 0 | 1 | 13 | 13 | 0 | 3 | 20 | 32 | 0 | 62 | 6 | 1 | 0 | 2 | 80 | 1 |
| 08:45 | 09:00 | 0 | 5 | 14 | 17 | 0 | 1 | 36 | 47 | 0 | 73 | 16 | 1 | 0 | 1 | 94 | 2 |
| 15:30 | 15:45 | 0 | 5 | 8 | 5 | 0 | 2 | 69 | 47 | 0 | 65 | 11 | 1 | 0 | 0 | 45 | 1 |
| 15:45 | 16:00 | 0 | 1 | 2 | 1 | 0 | 2 | 55 | 32 | 0 | 41 | 8 | 0 | 0 | 2 | 59 | 1 |
| 16:00 | 16:15 | 0 | 2 | 13 | 4 | 0 | 0 | 62 | 36 | 0 | 23 | 7 | 2 | 0 | 0 | 50 | 2 |
| 16:15 | 16:30 | 0 | 2 | 6 | 4 | 0 | 2 | 54 | 32 | 0 | 34 | 5 | 0 | 0 | 1 | 40 | 0 |
| 16:30 | 16:45 | 0 | 1 | 2 | 2 | 0 | 3 | 64 | 38 | 0 | 29 | 8 | 1 | 0 | 0 | 39 | 0 |
| 16:45 | 17:00 | 0 | 3 | 8 | 1 | 0 | 3 | 45 | 38 | 0 | 25 | 6 | 1 | 0 | 0 | 39 | 2 |
| 17:00 | 17:15 | 0 | 2 | 6 | 4 | 0 | 2 | 45 | 33 | 0 | 28 | 3 | 2 | 0 | 0 | 33 | 1 |
| 17:15 | 17:30 | 0 | 1 | 6 | 1 | 0 | 2 | 47 | 35 | 0 | 27 | 2 | 1 | 0 | 0 | 29 | 3 |
| 17:30 | 17:45 | 0 | 1 | 6 | 2 | 0 | 0 | 52 | 32 | 0 | 26 | 8 | 0 | 0 | 1 | 50 | 3 |
| 17:45 | 18:00 | 0 | 0 | 7 | 0 | 0 | 1 | 41 | 30 | 0 | 16 | 6 | 2 | 0 | 0 | 32 | 0 |
| 18:00 | 18:15 | 0 | 2 | 0 | 1 | 0 | 2 | 34 | 20 | 0 | 19 | 4 | 0 | 0 | 0 | 22 | 2 |
| 18:15 | 18:30 | 0 | 0 | 3 | 0 | 0 | 0 | 21 | 19 | 0 | 16 | 9 | 0 | 0 | 1 | 21 | 0 |
| 18:30 | 18:45 | 0 | 1 | 11 | 3 | 0 | 0 | 23 | 15 | 0 | 11 | 2 | 0 | 0 | 3 | 21 | 0 |
| 18:45 | 19:00 | 0 | 0 | 3 | 1 | 0 | 2 | 14 | 12 | 0 | 6 | 4 | 0 | 0 | 1 | 20 | 1 |
| 19:00 | 19:15 | 0 | 0 | 6 | 0 | 0 | 0 | 16 | 11 | 0 | 11 | 3 | 0 | 0 | 0 | 16 | 0 |
| 19:15 | 19:30 | 0 | 0 | 4 | 0 | 0 | 1 | 14 | 10 | 0 | 3 | 4 | 0 | 0 | 1 | 16 | 1 |

| Peak Time | | North Approach Martini Parade | | | | East Approach Methven St | | | | South Approach Martini Parade | | | | West Approach Methven St | | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | |
| 08:00 | 09:00 | 0 | 6 | 37 | 35 | 0 | 6 | 90 | 110 | 0 | 193 | 29 | 2 | 0 | 5 | 269 | 6 | 788 |
| 15:30 | 16:30 | 0 | 10 | 29 | 14 | 0 | 6 | 240 | 147 | 0 | 163 | 31 | 3 | 0 | 3 | 194 | 4 | 844 |

### Heavy Vehicles

| Time | | North Approach Martini Parade | | | | East Approach Methven St | | | | South Approach Martini Parade | | | | West Approach Methven St | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 | 07:45 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 07:45 | 08:00 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 1 | 0 | 0 | 1 | 2 | 0 |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 1 | 0 |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 |
| 15:30 | 15:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 |
| 15:45 | 16:00 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

| Peak Time | | North Approach Martini Parade | | | | East Approach Methven St | | | | South Approach Martini Parade | | | | West Approach Methven St | | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | |
| 08:00 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 2 | 0 | 11 | 3 | 0 | 0 | 1 | 4 | 0 | 26 |
| 15:30 | 16:30 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 16 |

# TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY trafficsurvey.com.au

## Intersection of Bayonet St and Musket Parade, Lithgow

| | |
|---|---|
| GPS | -33.489470, 150.135408 |
| Date: | Wed 23/07/25 |
| Weather: | Fine |
| Suburban: | Lithgow |
| Customer: | EMM |

| | |
|---|---|
| North: | Musket Parade |
| East: | Bayonet St |
| South: | N/A |
| West: | Bayonet St |

| | | |
|---|---|---|
| Survey Period | AM: | 6:00 AM-9:00 AM |
| | PM: | 3:30 PM-7:30 PM |
| Traffic Peak | AM: | 8:00 AM-9:00 AM |
| | PM: | 3:30 PM-4:30 PM |

### All Vehicles

| Time | | North Approach Musket Para | | | East Approach Bayonet St | | West Approach Bayonet St | | | Hourly Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | L | U | R | WB | U | EB | L | Hour | Peak |
| 06:00 | 06:15 | 0 | 7 | 0 | 0 | 1 | 1 | 0 | 1 | 3 | 112 | |
| 06:15 | 06:30 | 0 | 12 | 0 | 0 | 0 | 2 | 0 | 1 | 13 | 123 | |
| 06:30 | 06:45 | 0 | 9 | 0 | 0 | 1 | 2 | 0 | 1 | 8 | 131 | |
| 06:45 | 07:00 | 0 | 24 | 0 | 0 | 1 | 6 | 0 | 1 | 18 | 154 | |
| 07:00 | 07:15 | 0 | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 15 | 172 | |
| 07:15 | 07:30 | 0 | 14 | 2 | 0 | 2 | 1 | 0 | 2 | 15 | 214 | |
| 07:30 | 07:45 | 0 | 16 | 0 | 0 | 0 | 2 | 0 | 4 | 22 | 263 | |
| 07:45 | 08:00 | 0 | 21 | 1 | 0 | 2 | 7 | 0 | 3 | 34 | 316 | |
| 08:00 | 08:15 | 0 | 18 | 0 | 0 | 3 | 3 | 0 | 5 | 37 | 366 | Peak |
| 08:15 | 08:30 | 0 | 19 | 0 | 0 | 0 | 12 | 0 | 6 | 48 | | |
| 08:30 | 08:45 | 0 | 16 | 1 | 0 | 1 | 4 | 0 | 2 | 73 | | |
| 08:45 | 09:00 | 0 | 39 | 2 | 0 | 4 | 12 | 0 | 8 | 53 | | |
| 15:30 | 15:45 | 1 | 67 | 2 | 0 | 8 | 24 | 0 | 7 | 40 | 499 | Peak |
| 15:45 | 16:00 | 0 | 57 | 4 | 0 | 4 | 16 | 0 | 5 | 40 | 464 | |
| 16:00 | 16:15 | 0 | 59 | 0 | 0 | 2 | 10 | 0 | 9 | 37 | 417 | |
| 16:15 | 16:30 | 0 | 59 | 2 | 0 | 1 | 4 | 0 | 3 | 38 | 383 | |
| 16:30 | 16:45 | 1 | 63 | 0 | 0 | 2 | 15 | 0 | 4 | 29 | 363 | |
| 16:45 | 17:00 | 1 | 40 | 5 | 0 | 2 | 7 | 0 | 3 | 21 | 339 | |
| 17:00 | 17:15 | 0 | 44 | 1 | 0 | 0 | 4 | 0 | 2 | 32 | 319 | |
| 17:15 | 17:30 | 0 | 35 | 0 | 0 | 0 | 10 | 0 | 10 | 32 | 282 | |
| 17:30 | 17:45 | 0 | 44 | 2 | 0 | 1 | 10 | 0 | 8 | 25 | 229 | |
| 17:45 | 18:00 | 0 | 31 | 0 | 0 | 0 | 5 | 0 | 3 | 20 | 187 | |
| 18:00 | 18:15 | 0 | 20 | 2 | 0 | 0 | 1 | 0 | 4 | 19 | 152 | |
| 18:15 | 18:30 | 0 | 15 | 1 | 0 | 0 | 2 | 0 | 5 | 11 | 135 | |
| 18:30 | 18:45 | 0 | 21 | 0 | 0 | 2 | 6 | 0 | 1 | 18 | 136 | |
| 18:45 | 19:00 | 0 | 9 | 0 | 0 | 0 | 3 | 0 | 2 | 10 | | |
| 19:00 | 19:15 | 0 | 15 | 0 | 0 | 1 | 2 | 0 | 2 | 9 | | |
| 19:15 | 19:30 | 0 | 11 | 0 | 0 | 0 | 3 | 0 | 2 | 19 | | |

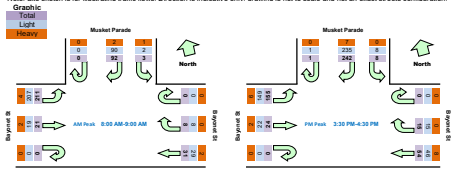
| Peak Time | | North Approach Musket Para | | | East Approach Bayonet St | | West Approach Bayonet St | | | | Peak |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | L | U | R | WB | U | EB | L | total |
| 08:00 | 09:00 | 0 | 92 | 3 | 0 | 8 | 31 | 0 | 21 | 211 | 366 |
| 15:30 | 16:30 | 1 | 242 | 8 | 0 | 15 | 54 | 0 | 24 | 155 | 499 |

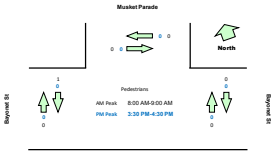
### Pedestrians Crossing

| Time | | North Approach Musket Parade | | East Approach Bayonet St | | West Approach Bayonet St | | Hourly Total |
|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Westbound | Eastbound | Southbound | Northbound | Southbound | Northbound | |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 15:30 | 15:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | |

| Peak Time | | North Approach Musket Parade | | East Approach Bayonet St | | West Approach Bayonet St | | Peak total |
|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Westbound | Eastbound | Southbound | Northbound | Southbound | Northbound | |
| 08:00 | 09:00 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 15:30 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note: Site sketch is for illustratino traffic flows. Direction is indicative onlv. drawina is not to scale and not an exact streets configuration.*




### Light Vehicles

| Time | | North Approach Musket Para | | | East Approach Bayonet St | | West Approach Bayonet St | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | L | U | R | WB | U | EB | L |
| 06:00 | 06:15 | 0 | 5 | 0 | 0 | 1 | 1 | 0 | 1 | 3 |
| 06:15 | 06:30 | 0 | 10 | 0 | 0 | 0 | 1 | 0 | 1 | 13 |
| 06:30 | 06:45 | 0 | 9 | 0 | 0 | 0 | 2 | 0 | 1 | 8 |
| 06:45 | 07:00 | 0 | 22 | 0 | 0 | 1 | 6 | 0 | 1 | 18 |
| 07:00 | 07:15 | 0 | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 15 |
| 07:15 | 07:30 | 0 | 12 | 2 | 0 | 1 | 1 | 0 | 1 | 15 |
| 07:30 | 07:45 | 0 | 14 | 0 | 0 | 0 | 1 | 0 | 4 | 22 |
| 07:45 | 08:00 | 0 | 18 | 1 | 0 | 2 | 6 | 0 | 3 | 34 |
| 08:00 | 08:15 | 0 | 17 | 0 | 0 | 3 | 3 | 0 | 5 | 36 |
| 08:15 | 08:30 | 0 | 19 | 0 | 0 | 0 | 12 | 0 | 6 | 46 |
| 08:30 | 08:45 | 0 | 15 | 1 | 0 | 1 | 3 | 0 | 1 | 72 |
| 08:45 | 09:00 | 0 | 39 | 1 | 0 | 4 | 11 | 0 | 7 | 53 |
| 15:30 | 15:45 | 1 | 66 | 2 | 0 | 8 | 22 | 0 | 6 | 37 |
| 15:45 | 16:00 | 0 | 53 | 4 | 0 | 4 | 13 | 0 | 5 | 39 |
| 16:00 | 16:15 | 0 | 58 | 0 | 0 | 2 | 8 | 0 | 8 | 37 |
| 16:15 | 16:30 | 0 | 58 | 2 | 0 | 1 | 3 | 0 | 3 | 36 |
| 16:30 | 16:45 | 1 | 63 | 0 | 0 | 2 | 15 | 0 | 4 | 28 |
| 16:45 | 17:00 | 1 | 40 | 5 | 0 | 2 | 7 | 0 | 3 | 20 |
| 17:00 | 17:15 | 0 | 44 | 1 | 0 | 0 | 4 | 0 | 2 | 31 |
| 17:15 | 17:30 | 0 | 35 | 0 | 0 | 0 | 10 | 0 | 10 | 32 |
| 17:30 | 17:45 | 0 | 44 | 2 | 0 | 1 | 10 | 0 | 8 | 25 |
| 17:45 | 18:00 | 0 | 31 | 0 | 0 | 0 | 5 | 0 | 3 | 19 |
| 18:00 | 18:15 | 0 | 19 | 2 | 0 | 0 | 1 | 0 | 4 | 18 |
| 18:15 | 18:30 | 0 | 15 | 1 | 0 | 0 | 2 | 0 | 5 | 11 |
| 18:30 | 18:45 | 0 | 21 | 0 | 0 | 2 | 6 | 0 | 1 | 18 |
| 18:45 | 19:00 | 0 | 9 | 0 | 0 | 0 | 3 | 0 | 2 | 10 |
| 19:00 | 19:15 | 0 | 15 | 0 | 0 | 1 | 2 | 0 | 2 | 9 |
| 19:15 | 19:30 | 0 | 11 | 0 | 0 | 0 | 3 | 0 | 2 | 18 |

| Peak Time | | North Approach Musket Para | | | East Approach Bayonet St | | West Approach Bayonet St | | | | Peak |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | L | U | R | WB | U | EB | L | total |
| 08:00 | 09:00 | 0 | 90 | 2 | 0 | 8 | 29 | 0 | 19 | 207 | 355 |
| 15:30 | 16:30 | 1 | 235 | 8 | 0 | 15 | 46 | 0 | 22 | 149 | 476 |

### Heavy Vehicles

| Time | | North Approach Musket Para | | | East Approach Bayonet St | | West Approach Bayonet St | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | L | U | R | WB | U | EB | L |
| 06:00 | 06:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:15 | 06:30 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 06:45 | 07:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 | 07:30 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 07:30 | 07:45 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 07:45 | 08:00 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08:00 | 08:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 08:30 | 08:45 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 08:45 | 09:00 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 15:30 | 15:45 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 3 |
| 15:45 | 16:00 | 0 | 4 | 0 | 0 | 0 | 3 | 0 | 0 | 1 |
| 16:00 | 16:15 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| 16:15 | 16:30 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 18:00 | 18:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

| Peak Time | | North Approach Musket Para | | | East Approach Bayonet St | | West Approach Bayonet St | | | | Peak |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | L | U | R | WB | U | EB | L | total |
| 08:00 | 09:00 | 0 | 2 | 1 | 0 | 0 | 2 | 0 | 2 | 4 | 11 |
| 15:30 | 16:30 | 0 | 7 | 0 | 0 | 0 | 8 | 0 | 2 | 6 | 23 |

# TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

## Intersection of Bayonet St and Great Western Hwy, Bowenfels

| | |
|---|---|
| GPS | -33.490343, 150.123749 |
| Date: | Wed 23/07/25 |
| Weather: | Fine |
| Suburban: | Bowenfels |
| Customer: | EMM |

| | |
|---|---|
| North: | Great Western Hwy |
| East: | Bayonet St |
| South: | Great Western Hwy |
| West: | Ninda Pl |

| | | |
|---|---|---|
| Survey Period | AM: | 6:00 AM-9:00 AM |
| | PM: | 3:30 PM-7:30 PM |
| Traffic Peak | AM: | 8:00 AM-9:00 AM |
| | PM: | 3:30 PM-4:30 PM |

### All Vehicles

| Time | | North Approach Great Western Hwy | | | | East Approach Bayonet St | | | | South Approach Great Western Hwy | | | | West Approach Ninda Pl | | | | Hourly Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | Hour | Peak |
| 06:00 | 06:15 | 0 | 0 | 37 | 0 | 0 | 1 | 0 | 7 | 0 | 3 | 41 | 1 | 0 | 0 | 1 | 0 | 572 | |
| 06:15 | 06:30 | 0 | 0 | 47 | 1 | 0 | 5 | 0 | 8 | 0 | 13 | 74 | 0 | 0 | 1 | 0 | 0 | 645 | |
| 06:30 | 06:45 | 0 | 0 | 50 | 0 | 0 | 2 | 0 | 8 | 0 | 9 | 67 | 0 | 0 | 3 | 0 | 1 | 670 | |
| 06:45 | 07:00 | 0 | 0 | 66 | 1 | 0 | 5 | 2 | 18 | 0 | 16 | 73 | 2 | 0 | 7 | 2 | 0 | 757 | |
| 07:00 | 07:15 | 0 | 3 | 66 | 0 | 0 | 1 | 2 | 5 | 0 | 14 | 66 | 1 | 0 | 3 | 1 | 2 | 809 | |
| 07:15 | 07:30 | 0 | 3 | 58 | 0 | 0 | 0 | 1 | 15 | 1 | 15 | 74 | 4 | 0 | 1 | 2 | 0 | 921 | |
| 07:30 | 07:45 | 1 | 2 | 86 | 0 | 0 | 3 | 0 | 17 | 0 | 21 | 85 | 3 | 0 | 3 | 5 | 1 | 1028 | |
| 07:45 | 08:00 | 0 | 1 | 88 | 1 | 0 | 5 | 4 | 15 | 0 | 34 | 89 | 1 | 0 | 3 | 2 | 1 | 1117 | |
| 08:00 | 08:15 | 1 | 3 | 99 | 1 | 0 | 4 | 2 | 17 | 0 | 38 | 99 | 5 | 0 | 0 | 3 | 4 | 1201 | Peak |
| 08:15 | 08:30 | 0 | 5 | 96 | 3 | 0 | 8 | 3 | 14 | 0 | 44 | 92 | 0 | 0 | 1 | 7 | 8 | | |
| 08:30 | 08:45 | 0 | 2 | 94 | 4 | 0 | 4 | 1 | 13 | 0 | 63 | 120 | 2 | 0 | 4 | 8 | 1 | | |
| 08:45 | 09:00 | 0 | 6 | 105 | 2 | 0 | 6 | 6 | 35 | 0 | 49 | 100 | 1 | 0 | 4 | 10 | 4 | | |
| 15:30 | 15:45 | 0 | 2 | 111 | 3 | 0 | 11 | 15 | 48 | 0 | 36 | 106 | 3 | 0 | 11 | 8 | 3 | 1386 | Peak |
| 15:45 | 16:00 | 0 | 3 | 112 | 2 | 0 | 11 | 11 | 40 | 0 | 37 | 109 | 2 | 0 | 6 | 6 | 4 | 1347 | |
| 16:00 | 16:15 | 0 | 8 | 123 | 4 | 0 | 7 | 5 | 56 | 0 | 38 | 116 | 2 | 0 | 4 | 4 | 2 | 1294 | |
| 16:15 | 16:30 | 0 | 7 | 99 | 3 | 0 | 6 | 7 | 49 | 0 | 29 | 98 | 6 | 0 | 3 | 9 | 1 | 1213 | |
| 16:30 | 16:45 | 0 | 7 | 102 | 1 | 0 | 8 | 9 | 50 | 0 | 26 | 93 | 4 | 0 | 11 | 6 | 1 | 1207 | |
| 16:45 | 17:00 | 0 | 8 | 107 | 0 | 0 | 3 | 7 | 33 | 0 | 23 | 95 | 5 | 0 | 7 | 1 | 1 | 1155 | |
| 17:00 | 17:15 | 0 | 6 | 103 | 3 | 0 | 2 | 8 | 36 | 0 | 23 | 84 | 4 | 0 | 4 | 8 | 7 | 1083 | |
| 17:15 | 17:30 | 1 | 13 | 103 | 2 | 0 | 3 | 7 | 35 | 0 | 36 | 92 | 3 | 0 | 10 | 4 | 2 | 993 | |
| 17:30 | 17:45 | 0 | 4 | 81 | 2 | 0 | 3 | 6 | 43 | 0 | 29 | 85 | 5 | 0 | 3 | 2 | 3 | 853 | |
| 17:45 | 18:00 | 0 | 8 | 68 | 2 | 0 | 3 | 6 | 25 | 0 | 18 | 80 | 1 | 0 | 2 | 3 | 2 | 740 | |
| 18:00 | 18:15 | 0 | 6 | 71 | 0 | 0 | 1 | 6 | 17 | 0 | 19 | 64 | 4 | 0 | 5 | 4 | 1 | 668 | |
| 18:15 | 18:30 | 0 | 6 | 54 | 0 | 0 | 2 | 4 | 14 | 0 | 15 | 66 | 4 | 0 | 4 | 1 | 1 | 629 | |
| 18:30 | 18:45 | 0 | 5 | 51 | 2 | 0 | 4 | 5 | 13 | 0 | 13 | 49 | 2 | 0 | 5 | 4 | 0 | 623 | |
| 18:45 | 19:00 | 0 | 4 | 62 | 1 | 0 | 1 | 0 | 10 | 0 | 10 | 52 | 3 | 0 | 1 | 1 | 1 | | |
| 19:00 | 19:15 | 0 | 10 | 51 | 0 | 0 | 2 | 4 | 11 | 0 | 8 | 63 | 4 | 0 | 2 | 3 | 1 | | |
| 19:15 | 19:30 | 0 | 4 | 48 | 5 | 0 | 2 | 5 | 6 | 0 | 10 | 69 | 2 | 0 | 6 | 6 | 2 | | |

| Peak Time | | North Approach Great Western Hwy | | | | East Approach Bayonet St | | | | South Approach Great Western Hwy | | | | West Approach Ninda Pl | | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | |
| 08:00 | 09:00 | 1 | 16 | 394 | 10 | 0 | 22 | 12 | 79 | 0 | 194 | 411 | 8 | 0 | 9 | 28 | 17 | 1201 |
| 15:30 | 16:30 | 0 | 20 | 445 | 12 | 0 | 35 | 38 | 193 | 0 | 140 | 429 | 13 | 0 | 24 | 27 | 10 | 1386 |

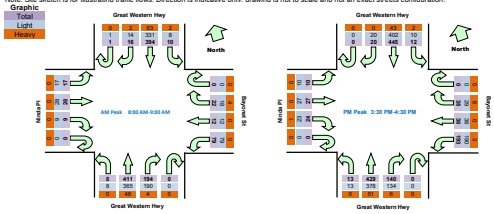
### Pedestrians Crossing

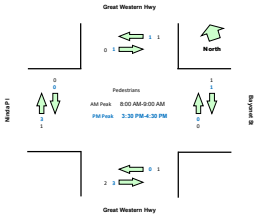
| Time | | North Approach Great Western Hwy | | East Approach Bayonet St | | South Approach Great Western Hwy | | West Approach Ninda Pl | | Hourly Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Eastbound | Westbound | Southbound | Northbound | Eastbound | Westbound | Southbound | Northbound | |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 06:45 | 07:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 |
| 07:00 | 07:15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 6 |
| 07:15 | 07:30 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 |
| 07:30 | 07:45 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 4 |
| 07:45 | 08:00 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 5 |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:30 | 08:45 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | |
| 08:45 | 09:00 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | |
| 15:30 | 15:45 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 9 |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 9 |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 10 |
| 16:15 | 16:30 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 9 |
| 16:30 | 16:45 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 7 |
| 16:45 | 17:00 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 7 |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 |
| 17:30 | 17:45 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 3 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | |

| Peak Time | | North Approach Great Western Hwy | | East Approach Bayonet St | | South Approach Great Western Hwy | | West Approach Ninda Pl | | Peak hour total |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Eastbound | Westbound | Southbound | Northbound | Eastbound | Westbound | Southbound | Northbound | |
| 08:00 | 09:00 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 6 |
| 15:30 | 16:30 | 1 | 1 | 1 | 0 | 0 | 3 | 0 | 3 | 9 |

*Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.*

Graphic: Total / Light / Heavy




### Light Vehicles

| Time | | North Approach Great Western Hwy | | | | East Approach Bayonet St | | | | South Approach Great Western Hwy | | | | West Approach Ninda Pl | | | | Hourly Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | Hour |
| 06:00 | 06:15 | 0 | 0 | 31 | 0 | 0 | 1 | 0 | 5 | 0 | 3 | 32 | 1 | 0 | 0 | 1 | 0 | |
| 06:15 | 06:30 | 0 | 0 | 39 | 1 | 0 | 5 | 0 | 6 | 0 | 13 | 57 | 0 | 0 | 1 | 0 | 0 | |
| 06:30 | 06:45 | 0 | 0 | 44 | 0 | 0 | 2 | 0 | 8 | 0 | 9 | 53 | 0 | 0 | 3 | 0 | 1 | |
| 06:45 | 07:00 | 0 | 0 | 59 | 1 | 0 | 5 | 2 | 16 | 0 | 16 | 58 | 2 | 0 | 7 | 2 | 0 | |
| 07:00 | 07:15 | 0 | 3 | 54 | 0 | 0 | 1 | 2 | 5 | 0 | 14 | 52 | 1 | 0 | 3 | 1 | 2 | |
| 07:15 | 07:30 | 0 | 3 | 51 | 0 | 0 | 0 | 1 | 12 | 1 | 14 | 65 | 4 | 0 | 1 | 2 | 0 | |
| 07:30 | 07:45 | 1 | 2 | 70 | 0 | 0 | 1 | 0 | 17 | 0 | 21 | 71 | 2 | 0 | 3 | 5 | 1 | |
| 07:45 | 08:00 | 0 | 1 | 75 | 1 | 0 | 4 | 4 | 13 | 0 | 34 | 77 | 1 | 0 | 3 | 2 | 1 | |
| 08:00 | 08:15 | 1 | 3 | 85 | 1 | 0 | 3 | 2 | 17 | 0 | 37 | 85 | 5 | 0 | 0 | 3 | 4 | |
| 08:15 | 08:30 | 0 | 4 | 78 | 2 | 0 | 8 | 3 | 14 | 0 | 43 | 84 | 0 | 0 | 1 | 7 | 8 | |
| 08:30 | 08:45 | 0 | 2 | 83 | 3 | 0 | 2 | 1 | 13 | 0 | 62 | 107 | 2 | 0 | 4 | 8 | 1 | |
| 08:45 | 09:00 | 0 | 5 | 85 | 2 | 0 | 5 | 6 | 35 | 0 | 48 | 89 | 1 | 0 | 4 | 10 | 4 | |
| 15:30 | 15:45 | 0 | 2 | 102 | 2 | 0 | 10 | 15 | 47 | 0 | 33 | 88 | 3 | 0 | 10 | 8 | 3 | |
| 15:45 | 16:00 | 0 | 3 | 104 | 2 | 0 | 8 | 11 | 39 | 0 | 36 | 96 | 2 | 0 | 6 | 6 | 4 | |
| 16:00 | 16:15 | 0 | 8 | 111 | 3 | 0 | 5 | 5 | 56 | 0 | 38 | 102 | 2 | 0 | 4 | 4 | 2 | |
| 16:15 | 16:30 | 0 | 7 | 85 | 3 | 0 | 6 | 7 | 48 | 0 | 27 | 92 | 6 | 0 | 3 | 9 | 1 | |
| 16:30 | 16:45 | 0 | 7 | 94 | 1 | 0 | 8 | 9 | 50 | 0 | 25 | 84 | 4 | 0 | 11 | 6 | 1 | |
| 16:45 | 17:00 | 0 | 8 | 96 | 0 | 0 | 3 | 7 | 33 | 0 | 22 | 87 | 5 | 0 | 7 | 1 | 1 | |
| 17:00 | 17:15 | 0 | 6 | 94 | 3 | 0 | 2 | 8 | 36 | 0 | 22 | 74 | 4 | 0 | 4 | 8 | 7 | |
| 17:15 | 17:30 | 1 | 13 | 92 | 2 | 0 | 3 | 7 | 35 | 0 | 36 | 85 | 3 | 0 | 10 | 4 | 2 | |
| 17:30 | 17:45 | 0 | 4 | 68 | 2 | 0 | 3 | 6 | 43 | 0 | 29 | 78 | 5 | 0 | 3 | 2 | 3 | |
| 17:45 | 18:00 | 0 | 7 | 66 | 2 | 0 | 3 | 6 | 25 | 0 | 17 | 78 | 1 | 0 | 2 | 3 | 2 | |
| 18:00 | 18:15 | 0 | 6 | 66 | 0 | 0 | 0 | 6 | 17 | 0 | 18 | 60 | 4 | 0 | 4 | 4 | 1 | |
| 18:15 | 18:30 | 0 | 6 | 45 | 0 | 0 | 2 | 4 | 14 | 0 | 15 | 59 | 4 | 0 | 4 | 1 | 1 | |
| 18:30 | 18:45 | 0 | 5 | 47 | 2 | 0 | 4 | 5 | 13 | 0 | 13 | 43 | 2 | 0 | 5 | 4 | 0 | |
| 18:45 | 19:00 | 0 | 4 | 58 | 1 | 0 | 1 | 0 | 10 | 0 | 10 | 46 | 3 | 0 | 1 | 1 | 1 | |
| 19:00 | 19:15 | 0 | 10 | 46 | 0 | 0 | 2 | 4 | 11 | 0 | 8 | 57 | 4 | 0 | 2 | 3 | 1 | |
| 19:15 | 19:30 | 0 | 3 | 43 | 5 | 0 | 2 | 5 | 6 | 0 | 9 | 63 | 2 | 0 | 6 | 6 | 2 | |

| Peak Time | | North Approach Great Western Hwy | | | | East Approach Bayonet St | | | | South Approach Great Western Hwy | | | | West Approach Ninda Pl | | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | |
| 08:00 | 09:00 | 1 | 14 | 331 | 8 | 0 | 18 | 12 | 79 | 0 | 190 | 365 | 8 | 0 | 9 | 28 | 17 | 1080 |
| 15:30 | 16:30 | 0 | 20 | 402 | 10 | 0 | 29 | 38 | 190 | 0 | 134 | 378 | 13 | 0 | 23 | 27 | 10 | 1274 |

### Heavy Vehicles

| Time | | North Approach Great Western Hwy | | | | East Approach Bayonet St | | | | South Approach Great Western Hwy | | | | West Approach Ninda Pl | | | | Hourly Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | Hour |
| 06:00 | 06:15 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | |
| 06:15 | 06:30 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | |
| 06:30 | 06:45 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | |
| 06:45 | 07:00 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | |
| 07:00 | 07:15 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | |
| 07:15 | 07:30 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | |
| 07:30 | 07:45 | 0 | 0 | 16 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 14 | 1 | 0 | 0 | 0 | 0 | |
| 07:45 | 08:00 | 0 | 0 | 13 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | |
| 08:00 | 08:15 | 0 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 14 | 0 | 0 | 0 | 0 | 0 | |
| 08:15 | 08:30 | 0 | 1 | 18 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | |
| 08:30 | 08:45 | 0 | 0 | 11 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 13 | 0 | 0 | 0 | 0 | 0 | |
| 08:45 | 09:00 | 0 | 1 | 20 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 11 | 0 | 0 | 0 | 0 | 0 | |
| 15:30 | 15:45 | 0 | 0 | 9 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 18 | 0 | 0 | 1 | 0 | 0 | |
| 15:45 | 16:00 | 0 | 0 | 8 | 0 | 0 | 3 | 0 | 1 | 0 | 1 | 13 | 0 | 0 | 0 | 0 | 0 | |
| 16:00 | 16:15 | 0 | 0 | 12 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | |
| 16:15 | 16:30 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | |
| 16:30 | 16:45 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | |
| 16:45 | 17:00 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | |
| 17:00 | 17:15 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | |
| 17:15 | 17:30 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | |
| 17:30 | 17:45 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | |
| 17:45 | 18:00 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | |
| 18:00 | 18:15 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 1 | 0 | 0 | |
| 18:15 | 18:30 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | |
| 18:30 | 18:45 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | |
| 18:45 | 19:00 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | |
| 19:00 | 19:15 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | |
| 19:15 | 19:30 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | |

| Peak Time | | North Approach Great Western Hwy | | | | East Approach Bayonet St | | | | South Approach Great Western Hwy | | | | West Approach Ninda Pl | | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | |
| 08:00 | 09:00 | 0 | 2 | 63 | 2 | 0 | 4 | 0 | 0 | 0 | 4 | 46 | 0 | 0 | 0 | 0 | 0 | 121 |
| 15:30 | 16:30 | 0 | 0 | 43 | 2 | 0 | 6 | 0 | 3 | 0 | 6 | 51 | 0 | 0 | 1 | 0 | 0 | 112 |

# TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY trafficsurvey.com.au

## Intersection of Lithgow St and Bent St, Lithgow

| | |
|---|---|
| GPS | -33.48500 I, 150.153109 |
| Date: | Wed 23/07/25 |
| Weather: | Fine |
| Suburban: | Lithgow |
| Customer: | EMM |

| | |
|---|---|
| North: | Lithgow St |
| East: | Bent St |
| South: | Lithgow St |
| West: | N/A |

| | | |
|---|---|---|
| Survey Period | AM: | 6:00 AM-9:00 AM |
| | PM: | 3:30 PM-7:30 PM |
| Traffic Peak | AM: | 8:00 AM-9:00 AM |
| | PM: | 3:30 PM-4:30 PM |

### All Vehicles

| Time | | North Approach Lithgow St | | | East Approach Bent St | | | South Approach Lithgow St | | | Hourly Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | Hour | Peak |
| 06:00 | 06:15 | 0 | 3 | 3 | 0 | 1 | 7 | 0 | 2 | 11 | 156 | |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 2 | 18 | 181 | |
| 06:30 | 06:45 | 0 | 9 | 0 | 0 | 3 | 7 | 0 | 2 | 28 | 208 | |
| 06:45 | 07:00 | 0 | 9 | 0 | 0 | 2 | 10 | 0 | 8 | 24 | 214 | |
| 07:00 | 07:15 | 0 | 7 | 3 | 0 | 2 | 7 | 0 | 9 | 24 | 252 | |
| 07:15 | 07:30 | 0 | 13 | 1 | 0 | 1 | 8 | 0 | 3 | 28 | 308 | |
| 07:30 | 07:45 | 0 | 13 | 2 | 0 | 1 | 8 | 0 | 5 | 26 | 400 | |
| 07:45 | 08:00 | 0 | 13 | 4 | 0 | 1 | 17 | 0 | 16 | 40 | 618 | |
| 08:00 | 08:15 | 0 | 7 | 4 | 0 | 3 | 14 | 0 | 29 | 51 | 870 | Peak |
| 08:15 | 08:30 | 0 | 21 | 8 | 0 | 1 | 16 | 0 | 50 | 50 | | |
| 08:30 | 08:45 | 0 | 59 | 29 | 0 | 1 | 31 | 0 | 75 | 78 | | |
| 08:45 | 09:00 | 0 | 67 | 25 | 0 | 1 | 57 | 0 | 91 | 102 | | |
| 15:30 | 15:45 | 0 | 43 | 8 | 0 | 3 | 68 | 0 | 25 | 99 | 934 | Peak |
| 15:45 | 16:00 | 0 | 50 | 6 | 0 | 5 | 56 | 0 | 19 | 105 | 896 | |
| 16:00 | 16:15 | 0 | 52 | 11 | 0 | 2 | 48 | 0 | 19 | 94 | 853 | |
| 16:15 | 16:30 | 0 | 58 | 12 | 0 | 4 | 38 | 0 | 14 | 95 | 815 | |
| 16:30 | 16:45 | 0 | 55 | 7 | 0 | 1 | 47 | 0 | 17 | 81 | 774 | |
| 16:45 | 17:00 | 0 | 50 | 4 | 0 | 1 | 31 | 0 | 25 | 87 | 745 | |
| 17:00 | 17:15 | 0 | 46 | 6 | 0 | 3 | 43 | 0 | 15 | 75 | 687 | |
| 17:15 | 17:30 | 0 | 38 | 8 | 0 | 2 | 45 | 0 | 13 | 74 | 628 | |
| 17:30 | 17:45 | 0 | 24 | 7 | 0 | 0 | 48 | 0 | 18 | 82 | 567 | |
| 17:45 | 18:00 | 0 | 26 | 6 | 0 | 2 | 34 | 0 | 10 | 62 | 498 | |
| 18:00 | 18:15 | 0 | 23 | 8 | 0 | 0 | 33 | 0 | 11 | 54 | 429 | |
| 18:15 | 18:30 | 0 | 17 | 7 | 0 | 2 | 23 | 0 | 17 | 53 | 372 | |
| 18:30 | 18:45 | 0 | 27 | 5 | 0 | 4 | 29 | 0 | 7 | 38 | 308 | |
| 18:45 | 19:00 | 0 | 18 | 7 | 0 | 4 | 11 | 0 | 6 | 25 | | |
| 19:00 | 19:15 | 0 | 22 | 3 | 0 | 0 | 14 | 0 | 4 | 29 | | |
| 19:15 | 19:30 | 0 | 12 | 1 | 0 | 0 | 7 | 0 | 8 | 27 | | |

| Peak Time | | North Approach Lithgow St | | | East Approach Bent St | | | South Approach Lithgow St | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | |
| 08:00 | 09:00 | 0 | 154 | 66 | 0 | 6 | 118 | 0 | 245 | 281 | 870 |
| 15:30 | 16:30 | 0 | 203 | 37 | 0 | 14 | 210 | 0 | 77 | 393 | 934 |

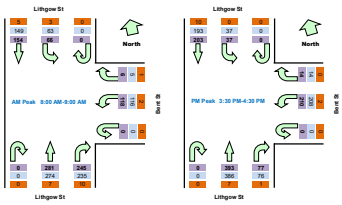
### Pedestrians Crossing

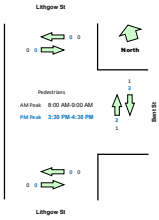
| Time | | North Approach Lithgow St | | East Approach Bent St | | South Approach Lithgow St | | Hourly Total |
|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Eastbound | Westbound | Southbound | Northbound | Eastbound | Westbound | |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 06:30 | 06:45 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 07:00 | 07:15 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 08:00 | 08:15 | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 15:30 | 15:45 | 0 | 0 | 0 | 1 | 0 | 0 | 5 |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 16:00 | 16:15 | 0 | 0 | 1 | 0 | 0 | 0 | 12 |
| 16:15 | 16:30 | 0 | 0 | 2 | 1 | 0 | 0 | 15 |
| 16:30 | 16:45 | 0 | 0 | 1 | 1 | 0 | 0 | 17 |
| 16:45 | 17:00 | 0 | 0 | 2 | 4 | 0 | 0 | 15 |
| 17:00 | 17:15 | 0 | 0 | 3 | 0 | 1 | 0 | 9 |
| 17:15 | 17:30 | 0 | 0 | 0 | 2 | 2 | 1 | 5 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | |

| Peak Time | | North Approach Lithgow St | | East Approach Bent St | | South Approach Lithgow St | | Peak total |
|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Eastbound | Westbound | Southbound | Northbound | Eastbound | Westbound | |
| 08:00 | 09:00 | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| 15:30 | 16:30 | 0 | 0 | 3 | 2 | 0 | 0 | 5 |

*Note: Site sketch is for illustratino traffic flows. Direction is indicative only. drawing is not to scale and not an exact streets configuration.*

Graphic
Total
Light
Heavy




### Light Vehicles

| Time | | North Approach Lithgow St | | | East Approach Bent St | | | South Approach Lithgow St | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB |
| 06:00 | 06:15 | 0 | 2 | 2 | 0 | 1 | 7 | 0 | 2 | 9 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 1 | 17 |
| 06:30 | 06:45 | 0 | 9 | 0 | 0 | 3 | 7 | 0 | 2 | 27 |
| 06:45 | 07:00 | 0 | 9 | 0 | 0 | 2 | 10 | 0 | 8 | 20 |
| 07:00 | 07:15 | 0 | 7 | 2 | 0 | 2 | 7 | 0 | 9 | 24 |
| 07:15 | 07:30 | 0 | 11 | 1 | 0 | 0 | 7 | 0 | 3 | 27 |
| 07:30 | 07:45 | 0 | 12 | 2 | 0 | 0 | 8 | 0 | 5 | 26 |
| 07:45 | 08:00 | 0 | 11 | 3 | 0 | 1 | 16 | 0 | 16 | 39 |
| 08:00 | 08:15 | 0 | 6 | 4 | 0 | 3 | 13 | 0 | 29 | 48 |
| 08:15 | 08:30 | 0 | 20 | 7 | 0 | 1 | 16 | 0 | 46 | 49 |
| 08:30 | 08:45 | 0 | 56 | 28 | 0 | 1 | 31 | 0 | 71 | 77 |
| 08:45 | 09:00 | 0 | 67 | 24 | 0 | 0 | 56 | 0 | 89 | 100 |
| 15:30 | 15:45 | 0 | 40 | 8 | 0 | 3 | 68 | 0 | 25 | 96 |
| 15:45 | 16:00 | 0 | 44 | 6 | 0 | 5 | 56 | 0 | 18 | 103 |
| 16:00 | 16:15 | 0 | 52 | 11 | 0 | 2 | 46 | 0 | 19 | 92 |
| 16:15 | 16:30 | 0 | 57 | 12 | 0 | 4 | 38 | 0 | 14 | 95 |
| 16:30 | 16:45 | 0 | 53 | 7 | 0 | 1 | 46 | 0 | 17 | 79 |
| 16:45 | 17:00 | 0 | 46 | 4 | 0 | 1 | 30 | 0 | 25 | 86 |
| 17:00 | 17:15 | 0 | 45 | 6 | 0 | 2 | 42 | 0 | 15 | 73 |
| 17:15 | 17:30 | 0 | 35 | 8 | 0 | 2 | 43 | 0 | 13 | 73 |
| 17:30 | 17:45 | 0 | 23 | 7 | 0 | 0 | 45 | 0 | 18 | 80 |
| 17:45 | 18:00 | 0 | 23 | 6 | 0 | 0 | 34 | 0 | 10 | 61 |
| 18:00 | 18:15 | 0 | 23 | 7 | 0 | 0 | 32 | 0 | 11 | 53 |
| 18:15 | 18:30 | 0 | 16 | 7 | 0 | 1 | 23 | 0 | 17 | 53 |
| 18:30 | 18:45 | 0 | 26 | 5 | 0 | 3 | 29 | 0 | 7 | 38 |
| 18:45 | 19:00 | 0 | 18 | 7 | 0 | 4 | 11 | 0 | 6 | 25 |
| 19:00 | 19:15 | 0 | 21 | 3 | 0 | 0 | 14 | 0 | 4 | 29 |
| 19:15 | 19:30 | 0 | 11 | 1 | 0 | 0 | 7 | 0 | 7 | 25 |

| Peak Time | | North Approach Lithgow St | | | East Approach Bent St | | | South Approach Lithgow St | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | |
| 08:00 | 09:00 | 0 | 149 | 63 | 0 | 5 | 116 | 0 | 235 | 274 | 842 |
| 15:30 | 16:30 | 0 | 193 | 37 | 0 | 14 | 208 | 0 | 76 | 386 | 914 |

### Heavy Vehicles

| Time | | North Approach Lithgow St | | | East Approach Bent St | | | South Approach Lithgow St | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB |
| 06:00 | 06:15 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 07:00 | 07:15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 | 07:30 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |
| 07:30 | 07:45 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 07:45 | 08:00 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| 08:00 | 08:15 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 3 |
| 08:15 | 08:30 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 4 | 1 |
| 08:30 | 08:45 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 4 | 1 |
| 08:45 | 09:00 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 2 | 2 |
| 15:30 | 15:45 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 15:45 | 16:00 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| 16:15 | 16:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:30 | 16:45 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 16:45 | 17:00 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 17:00 | 17:15 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| 17:15 | 17:30 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 1 |
| 17:30 | 17:45 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 2 |
| 17:45 | 18:00 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 1 |
| 18:00 | 18:15 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| 18:15 | 18:30 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 18:30 | 18:45 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19:00 | 19:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19:15 | 19:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |

| Peak Time | | North Approach Lithgow St | | | East Approach Bent St | | | South Approach Lithgow St | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | |
| 08:00 | 09:00 | 0 | 5 | 3 | 0 | 1 | 2 | 0 | 10 | 7 | 28 |
| 15:30 | 16:30 | 0 | 10 | 0 | 0 | 0 | 2 | 0 | 1 | 7 | 20 |

# TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY trafficsurvey.com.au

## Intersection of Lithgow St and Carpark, Lithgow

GPS -33.487311, 150.151533

| | |
|---|---|
| Date: | Wed 23/07/25 |
| Weather: | Fine |
| Suburban: | Lithgow |
| Customer: | EMM |

| | |
|---|---|
| North: | Carpark |
| East: | Lithgow St |
| South: | Kirkland Link |
| West: | Lithgow St |

| | | |
|---|---|---|
| Survey Period | AM: | 6:00 AM-9:00 AM |
| | PM: | 3:30 PM-7:30 PM |
| Traffic Peak | AM: | 8:00 AM-9:00 AM |
| | PM: | 3:30 PM-4:30 PM |

### All Vehicles

| Time | | North Approach Carpark | | | | East Approach Lithgow St | | | | South Approach Kirkland Link | | | | West Approach Lithgow St | | | | Hourly Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | Hour | Peak |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 0 | 2 | 0 | 4 | 0 | 0 | 13 | 0 | 162 | |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 4 | 0 | 2 | 0 | 4 | 17 | 0 | 183 | |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 29 | 0 | 205 | |
| 06:45 | 07:00 | 0 | 0 | 0 | 1 | 0 | 0 | 17 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 32 | 0 | 219 | |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 34 | 0 | 264 | |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 1 | 0 | 6 | 0 | 3 | 0 | 0 | 25 | 1 | 329 | |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 1 | 0 | 5 | 0 | 0 | 0 | 3 | 26 | 3 | 437 | |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 2 | 0 | 3 | 0 | 0 | 0 | 1 | 66 | 3 | 652 | |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 4 | 0 | 8 | 0 | 1 | 0 | 2 | 71 | 2 | 903 | Peak |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 1 | 39 | 3 | 0 | 8 | 0 | 0 | 0 | 5 | 107 | 1 | | |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | 66 | 13 | 0 | 11 | 0 | 4 | 0 | 9 | 167 | 2 | | |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 0 | 1 | 103 | 22 | 0 | 16 | 0 | 7 | 0 | 7 | 196 | 0 | | |
| 15:30 | 15:45 | 0 | 0 | 0 | 1 | 0 | 0 | 109 | 25 | 0 | 26 | 0 | 15 | 0 | 24 | 104 | 0 | 1111 | Peak |
| 15:45 | 16:00 | 0 | 0 | 0 | 3 | 0 | 0 | 100 | 24 | 0 | 25 | 0 | 23 | 0 | 10 | 100 | 0 | 1045 | |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 91 | 34 | 0 | 28 | 0 | 11 | 0 | 10 | 84 | 0 | 1000 | |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 88 | 26 | 0 | 22 | 0 | 23 | 0 | 16 | 89 | 0 | 969 | |
| 16:30 | 16:45 | 0 | 0 | 0 | 1 | 0 | 0 | 102 | 25 | 0 | 14 | 0 | 19 | 0 | 8 | 69 | 0 | 919 | |
| 16:45 | 17:00 | 0 | 0 | 0 | 1 | 0 | 0 | 86 | 22 | 0 | 28 | 0 | 16 | 0 | 13 | 74 | 0 | 882 | |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 21 | 0 | 16 | 0 | 20 | 0 | 8 | 80 | 0 | 794 | |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 16 | 0 | 17 | 0 | 12 | 0 | 4 | 65 | 0 | 704 | |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 6 | 0 | 21 | 0 | 2 | 0 | 7 | 80 | 0 | 608 | |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 12 | 0 | 9 | 0 | 8 | 0 | 5 | 56 | 0 | 515 | |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 15 | 0 | 13 | 0 | 3 | 0 | 4 | 43 | 0 | 436 | |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 10 | 0 | 16 | 0 | 7 | 0 | 3 | 36 | 0 | 382 | |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 13 | 0 | 5 | 0 | 6 | 0 | 2 | 41 | 0 | 316 | |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 6 | 0 | 5 | 0 | 7 | 0 | 3 | 24 | 0 | | |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 5 | 0 | 4 | 0 | 4 | 0 | 3 | 32 | 0 | | |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 5 | 0 | 3 | 0 | 5 | 0 | 1 | 22 | 0 | | |

| Peak Time | | North Approach Carpark | | | | East Approach Lithgow St | | | | South Approach Kirkland Link | | | | West Approach Lithgow St | | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | |
| 08:00 | 09:00 | 0 | 0 | 0 | 0 | 0 | 2 | 235 | 42 | 0 | 43 | 0 | 12 | 0 | 23 | 541 | 5 | 903 |
| 15:30 | 16:30 | 0 | 0 | 0 | 4 | 0 | 0 | 388 | 109 | 0 | 101 | 0 | 72 | 0 | 60 | 377 | 0 | 1111 |

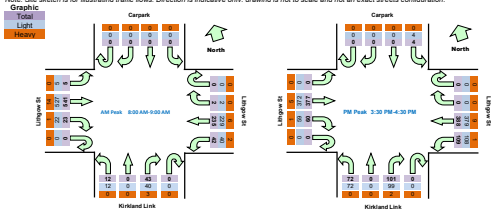
### Pedestrians Crossing

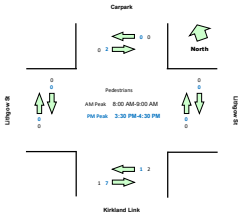
| Time | | North Approach Carpark | | East Approach Lithgow St | | South Approach Kirkland Link | | West Approach Lithgow St | | Hourly Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Eastbound | Westbound | Northbound | Southbound | Eastbound | Westbound | Northbound | Southbound | |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 |
| 06:45 | 07:00 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 6 |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 07:30 | 07:45 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 15:30 | 15:45 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 10 |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 12 |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 13 |
| 16:15 | 16:30 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 15 |
| 16:30 | 16:45 | 2 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 13 |
| 16:45 | 17:00 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 10 |
| 17:00 | 17:15 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 6 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 17:30 | 17:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 18:15 | 18:30 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 6 |
| 18:30 | 18:45 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 5 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |

| Peak Time | | North Approach Carpark | | East Approach Lithgow St | | South Approach Kirkland Link | | West Approach Lithgow St | | Peak hour total |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Eastbound | Westbound | Northbound | Southbound | Eastbound | Westbound | Northbound | Southbound | |
| 08:00 | 09:00 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 3 |
| 15:30 | 16:30 | 0 | 2 | 0 | 0 | 1 | 7 | 0 | 0 | 10 |

*Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.*

Graphic: Total / Light / Heavy




### Light Vehicles

| Time | | North Approach Carpark | | | | East Approach Lithgow St | | | | South Approach Kirkland Link | | | | West Approach Lithgow St | | | | Hourly Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | Hour |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 12 | 0 | |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 2 | 0 | 2 | 0 | 4 | 17 | 0 | |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 28 | 0 | |
| 06:45 | 07:00 | 0 | 0 | 0 | 1 | 0 | 0 | 17 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 32 | 0 | |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 34 | 0 | |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 1 | 0 | 4 | 0 | 3 | 0 | 0 | 25 | 1 | |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 1 | 0 | 5 | 0 | 0 | 0 | 3 | 26 | 3 | |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 1 | 0 | 3 | 0 | 0 | 0 | 1 | 65 | 3 | |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 3 | 0 | 6 | 0 | 1 | 0 | 2 | 70 | 2 | |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 1 | 38 | 3 | 0 | 8 | 0 | 0 | 0 | 4 | 101 | 1 | |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 12 | 0 | 10 | 0 | 4 | 0 | 9 | 163 | 2 | |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 0 | 1 | 102 | 22 | 0 | 16 | 0 | 7 | 0 | 7 | 193 | 0 | |
| 15:30 | 15:45 | 0 | 0 | 0 | 1 | 0 | 0 | 106 | 25 | 0 | 26 | 0 | 15 | 0 | 24 | 101 | 0 | |
| 15:45 | 16:00 | 0 | 0 | 0 | 3 | 0 | 0 | 96 | 23 | 0 | 24 | 0 | 23 | 0 | 10 | 99 | 0 | |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 34 | 0 | 27 | 0 | 11 | 0 | 10 | 83 | 0 | |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 88 | 26 | 0 | 22 | 0 | 23 | 0 | 15 | 89 | 0 | |
| 16:30 | 16:45 | 0 | 0 | 0 | 1 | 0 | 0 | 102 | 23 | 0 | 14 | 0 | 17 | 0 | 8 | 67 | 0 | |
| 16:45 | 17:00 | 0 | 0 | 0 | 1 | 0 | 0 | 84 | 22 | 0 | 28 | 0 | 16 | 0 | 13 | 73 | 0 | |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 21 | 0 | 15 | 0 | 20 | 0 | 8 | 78 | 0 | |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 14 | 0 | 17 | 0 | 12 | 0 | 4 | 64 | 0 | |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 83 | 6 | 0 | 20 | 0 | 2 | 0 | 7 | 79 | 0 | |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 12 | 0 | 8 | 0 | 8 | 0 | 5 | 55 | 0 | |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 14 | 0 | 13 | 0 | 3 | 0 | 4 | 42 | 0 | |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 9 | 0 | 15 | 0 | 7 | 0 | 3 | 36 | 0 | |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 13 | 0 | 5 | 0 | 6 | 0 | 2 | 41 | 0 | |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 6 | 0 | 5 | 0 | 7 | 0 | 3 | 24 | 0 | |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 5 | 0 | 4 | 0 | 4 | 0 | 3 | 32 | 0 | |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 5 | 0 | 2 | 0 | 5 | 0 | 1 | 21 | 0 | |

| Peak Time | | North Approach Carpark | | | | East Approach Lithgow St | | | | South Approach Kirkland Link | | | | West Approach Lithgow St | | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | |
| 08:00 | 09:00 | 0 | 0 | 0 | 0 | 0 | 2 | 229 | 40 | 0 | 40 | 0 | 12 | 0 | 22 | 527 | 5 | 877 |
| 15:30 | 16:30 | 0 | 0 | 0 | 4 | 0 | 0 | 379 | 108 | 0 | 99 | 0 | 72 | 0 | 59 | 372 | 0 | 1093 |

### Heavy Vehicles

| Time | | North Approach Carpark | | | | East Approach Lithgow St | | | | South Approach Kirkland Link | | | | West Approach Lithgow St | | | | Hourly Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | Hour |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | |
| 15:30 | 15:45 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | |

| Peak Time | | North Approach Carpark | | | | East Approach Lithgow St | | | | South Approach Kirkland Link | | | | West Approach Lithgow St | | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | |
| 08:00 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 2 | 0 | 3 | 0 | 0 | 0 | 1 | 14 | 0 | 26 |
| 15:30 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 5 | 0 | 18 |

# TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY traffictsurvey.com.au

## Intersection of Kirkland Link and Valley Dr, Lithgow

| | |
|---|---|
| GPS | -33.487767, 150.151639 |
| Date: | Wed 23/07/25 |
| Weather: | Fine |
| Suburban: | Lithgow |
| Customer: | EMM |

| | |
|---|---|
| North: | Kirkland Link |
| East: | Valley Dr |
| South: | Kirkland Link |
| West: | N/A |

| | | |
|---|---|---|
| Survey Period | AM: | 6:00 AM-9:00 AM |
| | PM: | 3:30 PM-7:30 PM |
| Traffic Peak | AM: | 8:00 AM-9:00 AM |
| | PM: | 3:30 PM-4:30 PM |

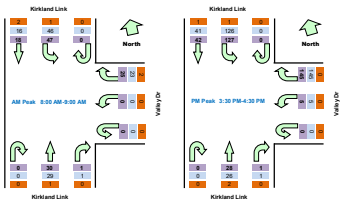
### All Vehicles

| Time | | North Approach Kirkland Lin | | | East Approach Valley Dr | | | South Approach Kirkland Lin | | | Hourly Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | Hour | Peak |
| 06:00 | 06:15 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 3 | 28 | |
| 06:15 | 06:30 | 0 | 1 | 4 | 0 | 2 | 0 | 0 | 0 | 4 | 25 | |
| 06:30 | 06:45 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 24 | |
| 06:45 | 07:00 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 3 | 30 | |
| 07:00 | 07:15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 29 | |
| 07:15 | 07:30 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 6 | 40 | |
| 07:30 | 07:45 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 4 | 46 | |
| 07:45 | 08:00 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 75 | |
| 08:00 | 08:15 | 0 | 3 | 3 | 0 | 3 | 0 | 0 | 0 | 6 | 121 | Peak |
| 08:15 | 08:30 | 0 | 3 | 5 | 0 | 1 | 0 | 0 | 0 | 7 | | |
| 08:30 | 08:45 | 0 | 4 | 18 | 0 | 5 | 0 | 0 | 1 | 10 | | |
| 08:45 | 09:00 | 0 | 8 | 21 | 0 | 16 | 0 | 0 | 0 | 7 | | |
| 15:30 | 15:45 | 0 | 12 | 37 | 0 | 32 | 0 | 0 | 1 | 9 | 348 | Peak |
| 15:45 | 16:00 | 0 | 8 | 26 | 0 | 40 | 2 | 0 | 0 | 8 | 329 | |
| 16:00 | 16:15 | 0 | 11 | 33 | 0 | 35 | 0 | 0 | 0 | 4 | 325 | |
| 16:15 | 16:30 | 0 | 11 | 31 | 0 | 38 | 3 | 0 | 0 | 7 | 307 | |
| 16:30 | 16:45 | 0 | 8 | 25 | 0 | 30 | 5 | 0 | 1 | 3 | 269 | |
| 16:45 | 17:00 | 0 | 9 | 26 | 0 | 36 | 1 | 0 | 0 | 8 | 235 | |
| 17:00 | 17:15 | 0 | 11 | 18 | 0 | 29 | 0 | 0 | 0 | 7 | 190 | |
| 17:15 | 17:30 | 0 | 6 | 14 | 0 | 26 | 1 | 0 | 2 | 3 | 160 | |
| 17:30 | 17:45 | 0 | 5 | 8 | 0 | 15 | 1 | 0 | 1 | 8 | 146 | |
| 17:45 | 18:00 | 0 | 8 | 9 | 0 | 12 | 0 | 0 | 1 | 5 | 134 | |
| 18:00 | 18:15 | 0 | 5 | 14 | 0 | 10 | 0 | 0 | 0 | 6 | 121 | |
| 18:15 | 18:30 | 0 | 6 | 7 | 0 | 20 | 1 | 0 | 1 | 3 | 102 | |
| 18:30 | 18:45 | 0 | 6 | 9 | 0 | 8 | 0 | 0 | 0 | 3 | 78 | |
| 18:45 | 19:00 | 0 | 2 | 7 | 0 | 9 | 1 | 0 | 0 | 3 | | |
| 19:00 | 19:15 | 0 | 4 | 4 | 0 | 6 | 0 | 0 | 0 | 2 | | |
| 19:15 | 19:30 | 0 | 2 | 4 | 0 | 6 | 0 | 0 | 0 | 2 | | |

| Peak Time | | North Approach Kirkland Lin | | | East Approach Valley Dr | | | South Approach Kirkland Lin | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | |
| 08:00 | 09:00 | 0 | 18 | 47 | 0 | 25 | 0 | 0 | 1 | 30 | 121 |
| 15:30 | 16:30 | 0 | 42 | 127 | 0 | 145 | 5 | 0 | 1 | 28 | 348 |

*Note: Site sketch is for illustratino traffic flows. Direction is indicative only. drawing is not to scale and not an exact streets configuration.*

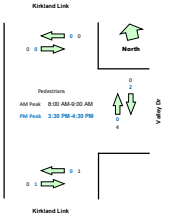
Graphic
Total
Light
Heavy




### Pedestrians Crossing

| Time | | North Approach Kirkland Link | | East Approach Valley Dr | | South Approach Kirkland Link | | Hourly Total |
|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Eastbound | Westbound | Southbound | Northbound | Eastbound | Westbound | |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 06:45 | 07:00 | 0 | 0 | 5 | 0 | 0 | 0 | 6 |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 07:30 | 07:45 | 0 | 0 | 1 | 0 | 0 | 0 | 3 |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 08:15 | 08:30 | 0 | 0 | 0 | 1 | 1 | 0 | |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:45 | 09:00 | 0 | 0 | 0 | 3 | 0 | 0 | |
| 15:30 | 15:45 | 0 | 0 | 2 | 0 | 0 | 1 | 3 |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 16:30 | 16:45 | 0 | 0 | 0 | 1 | 1 | 0 | 3 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 1 | 1 | 5 |
| 17:45 | 18:00 | 0 | 0 | 1 | 0 | 0 | 1 | 3 |
| 18:00 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 18:15 | 18:30 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | |

| Peak Time | | North Approach Kirkland Link | | East Approach Valley Dr | | South Approach Kirkland Link | | Peak total |
|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | Eastbound | Westbound | Southbound | Northbound | Eastbound | Westbound | |
| 08:00 | 09:00 | 0 | 0 | 0 | 4 | 1 | 0 | 5 |
| 15:30 | 16:30 | 0 | 0 | 2 | 0 | 0 | 1 | 3 |




### Light Vehicles

| Time | | North Approach Kirkland Lin | | | East Approach Valley Dr | | | South Approach Kirkland Lin | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB |
| 06:00 | 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 06:15 | 06:30 | 0 | 1 | 4 | 0 | 1 | 0 | 0 | 0 | 3 |
| 06:30 | 06:45 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| 06:45 | 07:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| 07:00 | 07:15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 |
| 07:15 | 07:30 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 5 |
| 07:30 | 07:45 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 4 |
| 07:45 | 08:00 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| 08:00 | 08:15 | 0 | 2 | 3 | 0 | 2 | 0 | 0 | 0 | 5 |
| 08:15 | 08:30 | 0 | 3 | 4 | 0 | 1 | 0 | 0 | 0 | 7 |
| 08:30 | 08:45 | 0 | 3 | 18 | 0 | 4 | 0 | 0 | 1 | 10 |
| 08:45 | 09:00 | 0 | 8 | 21 | 0 | 16 | 0 | 0 | 0 | 7 |
| 15:30 | 15:45 | 0 | 12 | 37 | 0 | 32 | 0 | 0 | 1 | 9 |
| 15:45 | 16:00 | 0 | 7 | 26 | 0 | 40 | 2 | 0 | 0 | 7 |
| 16:00 | 16:15 | 0 | 11 | 33 | 0 | 35 | 0 | 0 | 0 | 3 |
| 16:15 | 16:30 | 0 | 11 | 30 | 0 | 38 | 3 | 0 | 0 | 7 |
| 16:30 | 16:45 | 0 | 6 | 25 | 0 | 28 | 5 | 0 | 1 | 3 |
| 16:45 | 17:00 | 0 | 9 | 26 | 0 | 36 | 1 | 0 | 0 | 8 |
| 17:00 | 17:15 | 0 | 11 | 18 | 0 | 29 | 0 | 0 | 0 | 6 |
| 17:15 | 17:30 | 0 | 5 | 13 | 0 | 26 | 1 | 0 | 2 | 3 |
| 17:30 | 17:45 | 0 | 5 | 8 | 0 | 14 | 1 | 0 | 1 | 8 |
| 17:45 | 18:00 | 0 | 8 | 9 | 0 | 12 | 0 | 0 | 1 | 4 |
| 18:00 | 18:15 | 0 | 4 | 14 | 0 | 10 | 0 | 0 | 0 | 6 |
| 18:15 | 18:30 | 0 | 5 | 7 | 0 | 20 | 1 | 0 | 1 | 2 |
| 18:30 | 18:45 | 0 | 6 | 9 | 0 | 8 | 0 | 0 | 0 | 3 |
| 18:45 | 19:00 | 0 | 2 | 7 | 0 | 9 | 1 | 0 | 0 | 3 |
| 19:00 | 19:15 | 0 | 4 | 4 | 0 | 6 | 0 | 0 | 0 | 2 |
| 19:15 | 19:30 | 0 | 2 | 4 | 0 | 6 | 0 | 0 | 0 | 1 |

| Peak Time | | North Approach Kirkland Lin | | | East Approach Valley Dr | | | South Approach Kirkland Lin | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | |
| 08:00 | 09:00 | 0 | 16 | 46 | 0 | 23 | 0 | 0 | 1 | 29 | 115 |
| 15:30 | 16:30 | 0 | 41 | 126 | 0 | 145 | 5 | 0 | 1 | 26 | 344 |

### Heavy Vehicles

| Time | | North Approach Kirkland Lin | | | East Approach Valley Dr | | | South Approach Kirkland Lin | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB |
| 06:00 | 06:15 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 |
| 06:15 | 06:30 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 06:30 | 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:45 | 07:00 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 | 08:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 | 08:15 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 08:15 | 08:30 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 | 08:45 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 08:45 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:30 | 15:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:45 | 16:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 16:15 | 16:30 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:30 | 16:45 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 17:15 | 17:30 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 18:00 | 18:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:15 | 18:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 18:30 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:45 | 19:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19:00 | 19:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19:15 | 19:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

| Peak Time | | North Approach Kirkland Lin | | | East Approach Valley Dr | | | South Approach Kirkland Lin | | | Peak total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Period Start | Period End | U | SB | L | U | R | L | U | R | NB | |
| 08:00 | 09:00 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 6 |
| 15:30 | 16:30 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 4 |

# Annexure B

Traffic survey data (tube counts)

EMM
creating opportunities

# TRANS TRAFFIC SURVEY

trafficsurvey.com.au

T. 1300 82 88 82 - F. 1300 83 88 83 - E. traffic@trafficsurvey.com.au - W. www.trafficsurvey.com.au

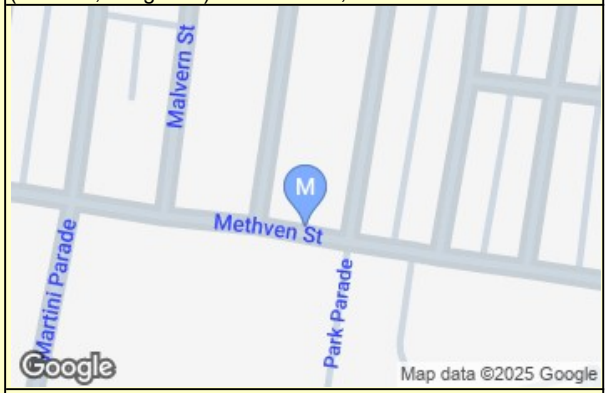
## AUTOMATIC COUNT SUMMARY

| | | | |
|---|---|---|---|
| **Street Name :** | Methven St | **Location :** | Outside Property 2 |
| **Suburb :** | Lithgow | **Start Date :** | 00:00 Tue 22/July/2025 |
| **Machine ID:** | YY491ZHN | **Finish Date :** | 00:00 Tue 29/July/2025 |
| **Site ID:** | 4065 | **Speed Zone :** | 50 km/h |
| **Prepared By :** | Vo Son Binh | **Email:** | binh@trafficsurvey.com.au |

| GPS information | | | Direction of Travel | | |
|---|---|---|---|---|---|
| | Lat | 33° 29' 14.79 South | | | |
| | Long | 150° 8' 35.25 East | **Both directions** | **Westbound** | **Eastbound** |
| **Traffic Volume :** | | Weekdays Average | 7,676 | 4,023 | 3,653 |
| **(Vehicles/Day)** | | 7 Day Average | 6,883 | 3,582 | 3,301 |
| **Weekday** | **AM** | 08:00 | 743 | 498 | 245 |
| **Peak hour start** | **PM** | 15:00 | 928 | 439 | 489 |
| **Speeds :** | | 85th Percentile | 56.7 | 56.6 | 56.8 |
| **(Km/Hr)** | | Average | 51.4 | 51.4 | 51.5 |
| **Classification % :** | | Light Vehicles up to 5.5m | 86.7% | 86.9% | 86.6% |

## Location

| | |
|---|---|
| **GPS Information** | Load Google Map (internet required) |
| (Latitude, Longitude) | -33.487442, 150.143124 |




| | | |
|---|---|---|
| Speed Data | Speed Graph | Speed Bin |
| Volume Data | Volume Graph | Classification |

QUALITY SYSTEM CERTIFICATION DNV ISO 9001

SAFETY SYSTEM CERTIFICATION DNV ISO 45001

ENVIRONMENTAL SYSTEM CERTIFICATION DNV ISO 14001

**QUALITY ASSURED COMPANY BY ISO 9001:2015**
**OH&S SYSTEM CERTIFIED TO ISO 4801:2001**
**ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015**

# Annexure C

SIDRA results

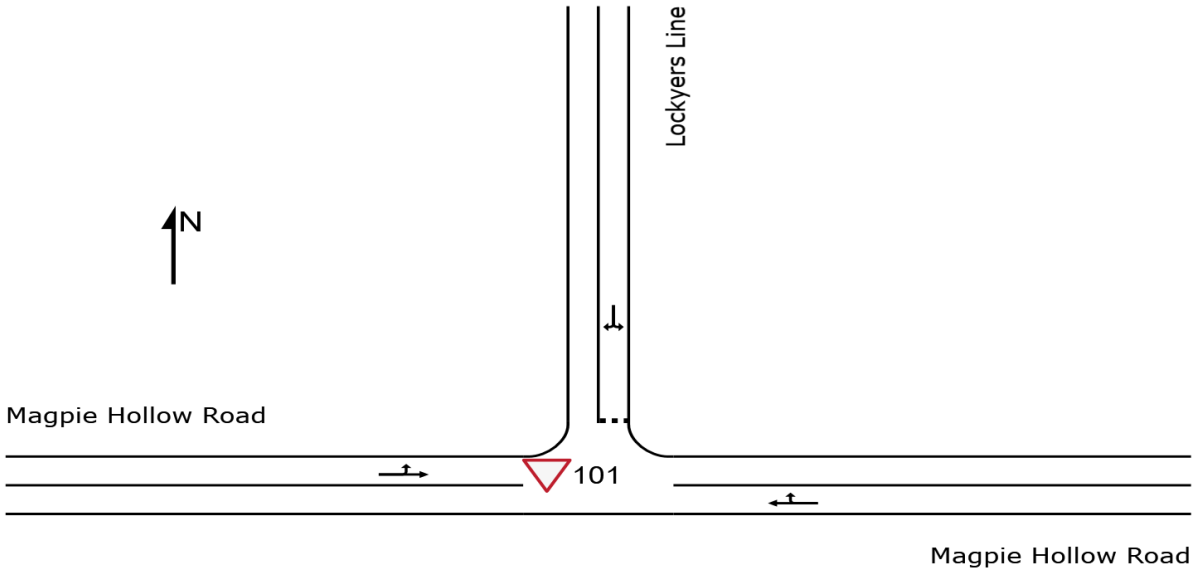
EMM
creating opportunities

# SITE LAYOUT

## Site: [101] 1. Magpie Hollow Road/Lockyers Line - 2025 AM Baseline (2025 AM Baseline )

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

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





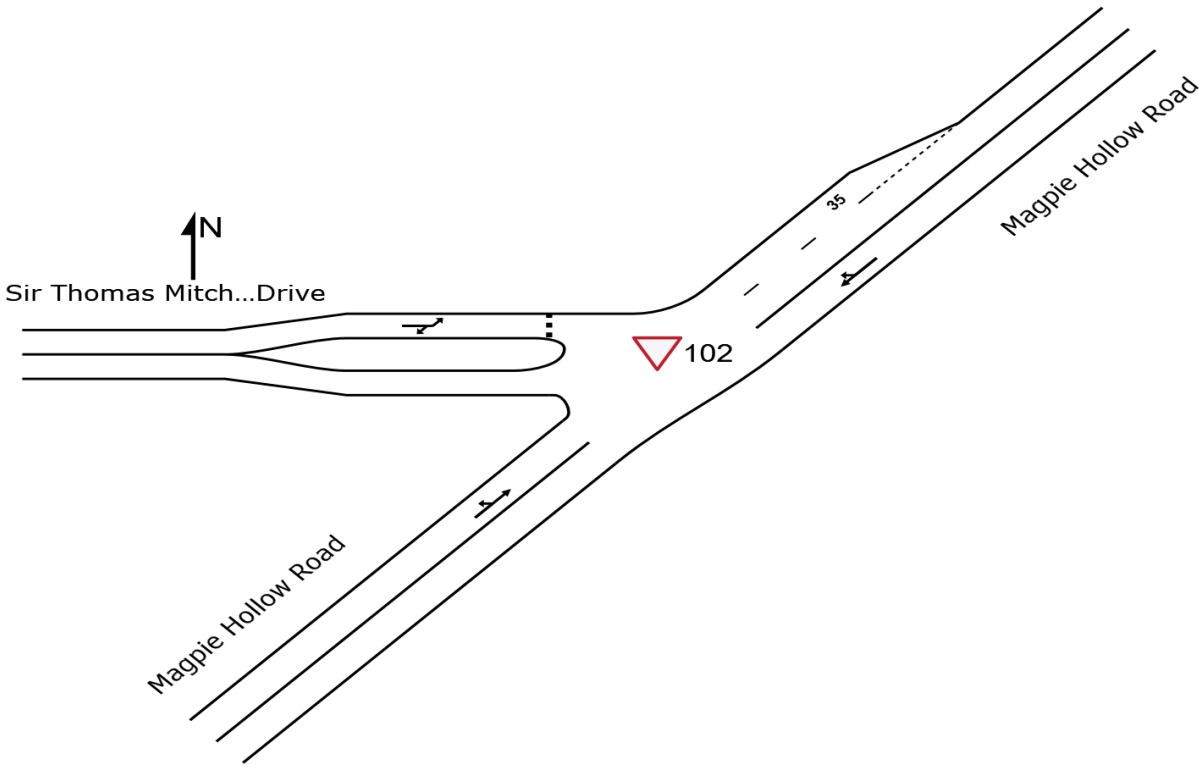
Organisation: EMM CONSULTING | Licence: NETWORK / 1PC | Created: Tuesday, 30 September 2025 15:30:39
Project: C:\Users\janmuller\OneDrive - EMM Consulting\Documents\E221111 - Lake Lyell PHES EIS\SIDRA\E221111_SIDRA_v8 (revised priorities).sipx

# SITE LAYOUT

## Site: [102] 2. Magpie Hollow Road/Sir Thomas Mitchell Drive - 2025 AM Baseline (2025 AM Baseline )

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

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





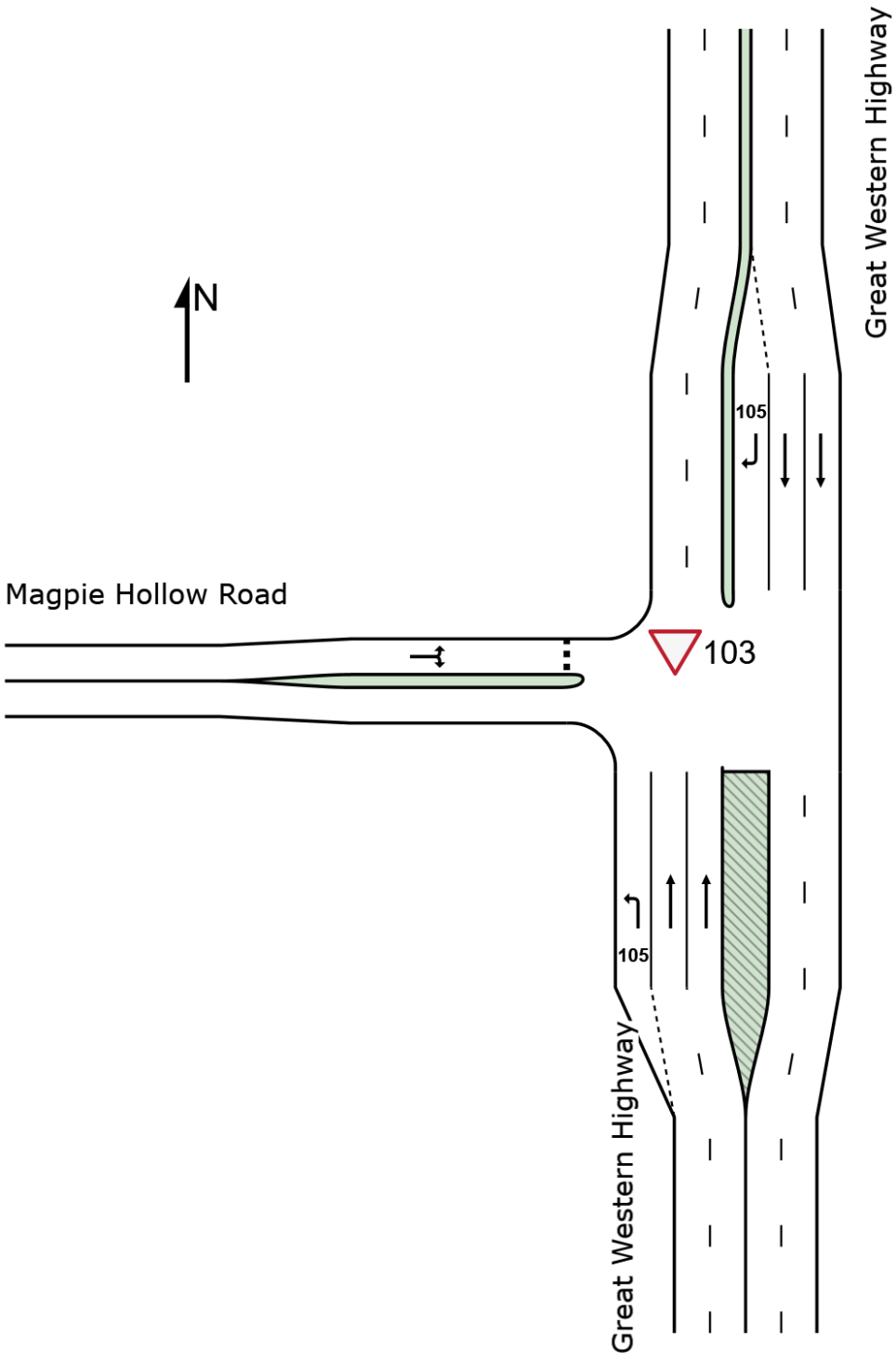
Organisation: EMM CONSULTING | Licence: NETWORK / 1PC | Created: Tuesday, 30 September 2025 15:30:40
Project: C:\Users\janmuller\OneDrive - EMM Consulting\Documents\E221111 - Lake Lyell PHES EIS\SIDRA\E221111_SIDRA_v8 (revised priorities).sipx

# SITE LAYOUT

## Site: [103] 3. Great Western Highway/Magpie Hollow Road - 2025 AM Baseline (2025 AM Baseline )

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

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



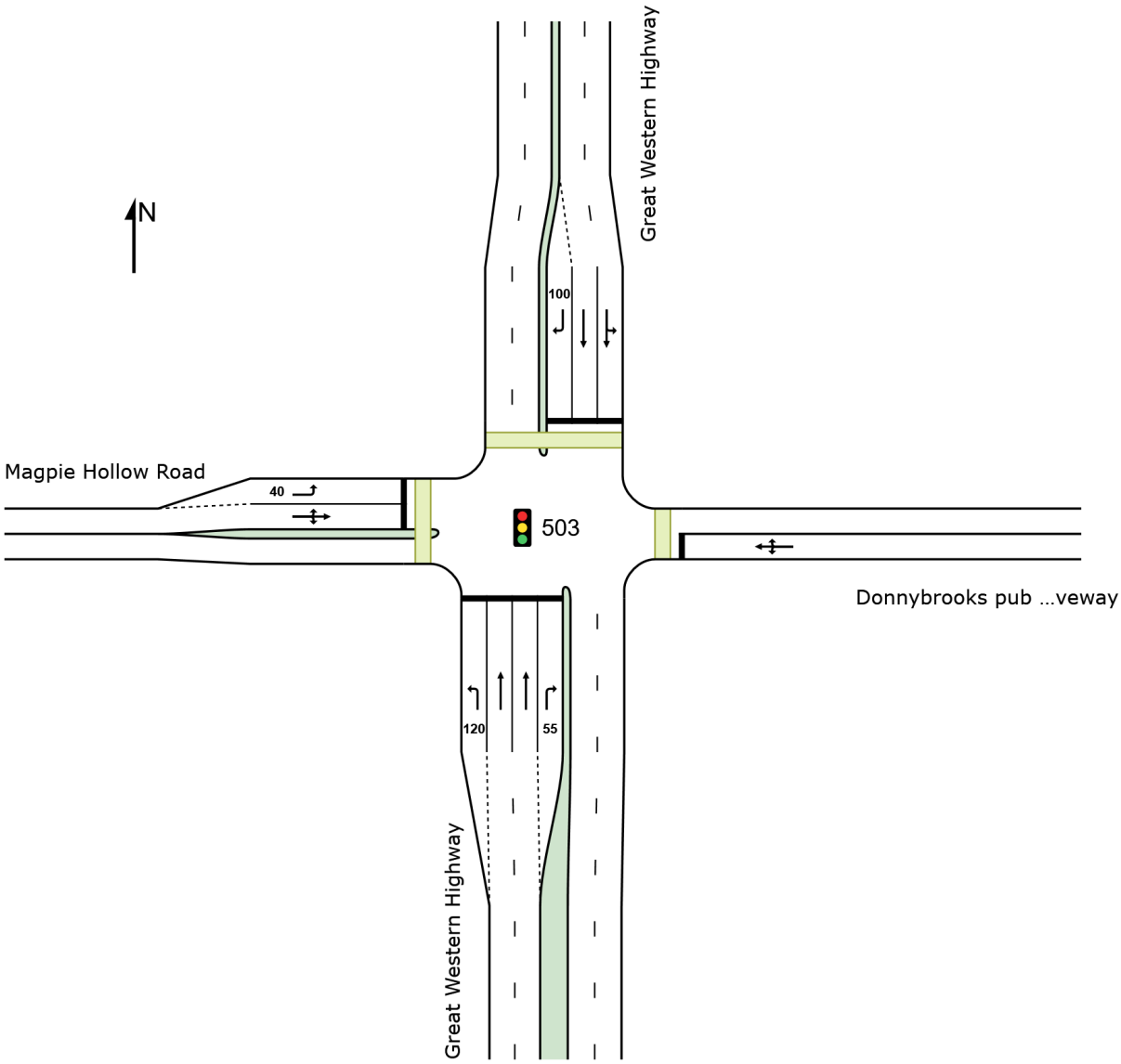
Organisation: EMM CONSULTING | Licence: NETWORK / 1PC | Created: Tuesday, 30 September 2025 15:30:40
Project: C:\Users\janmuller\OneDrive - EMM Consulting\Documents\E221111 - Lake Lyell PHES EIS\SIDRA\E221111_SIDRA_v8 (revised priorities).sipx

# SITE LAYOUT

## Site: [503] 3. Great Western Highway/Magpie Hollow Road - 2030 AM Project Scenario 1 (2030 AM Project Scenario 1)

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
**Site Scenario: 1 | Local Volumes**

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

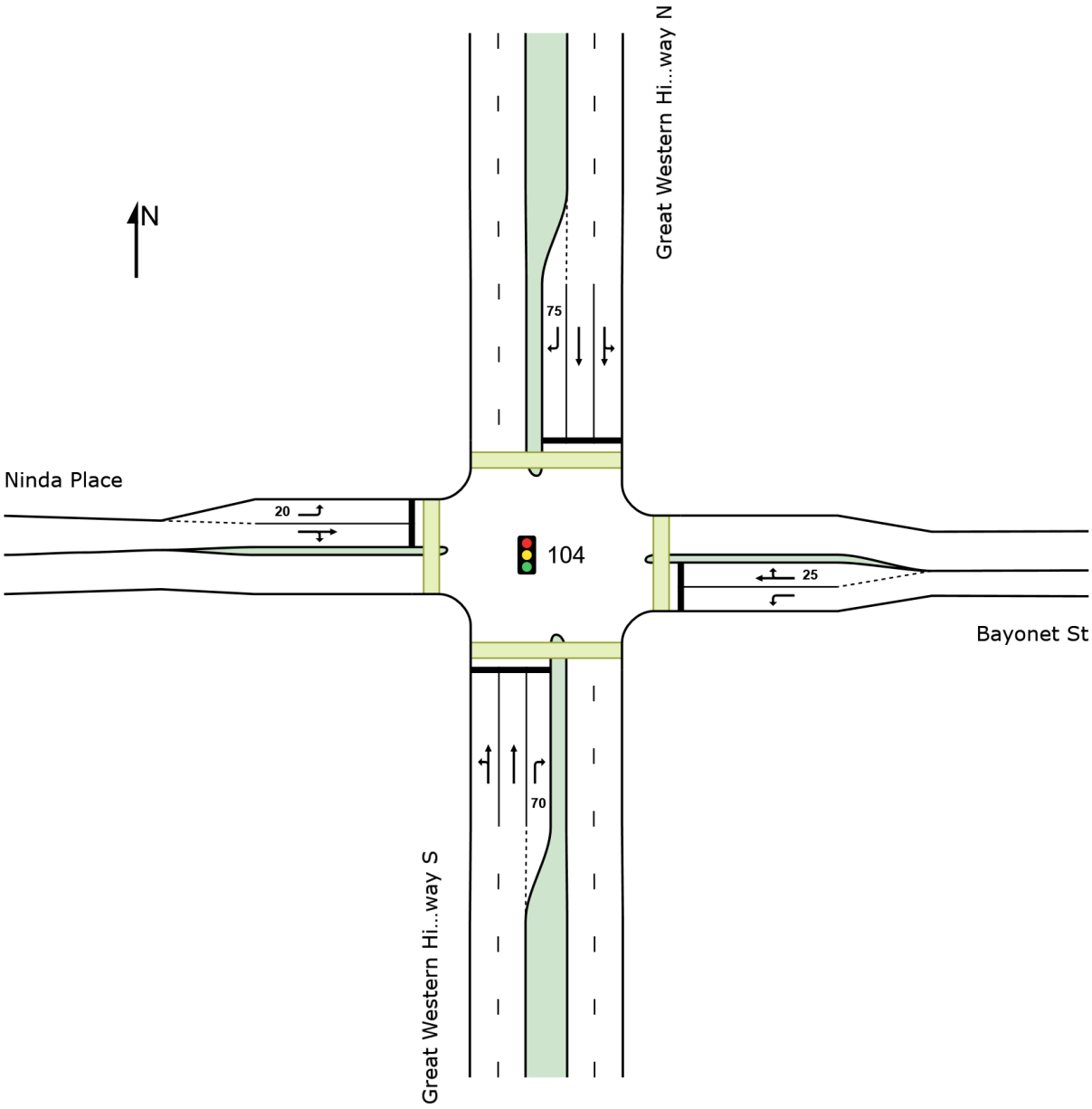


# SITE LAYOUT

## Site: [104] 4. Great Western Highway/Bayonet Street/Ninda Place - 2025 AM Baseline (2025 AM Baseline )

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
**Site Scenario: 1 | Local Volumes**

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





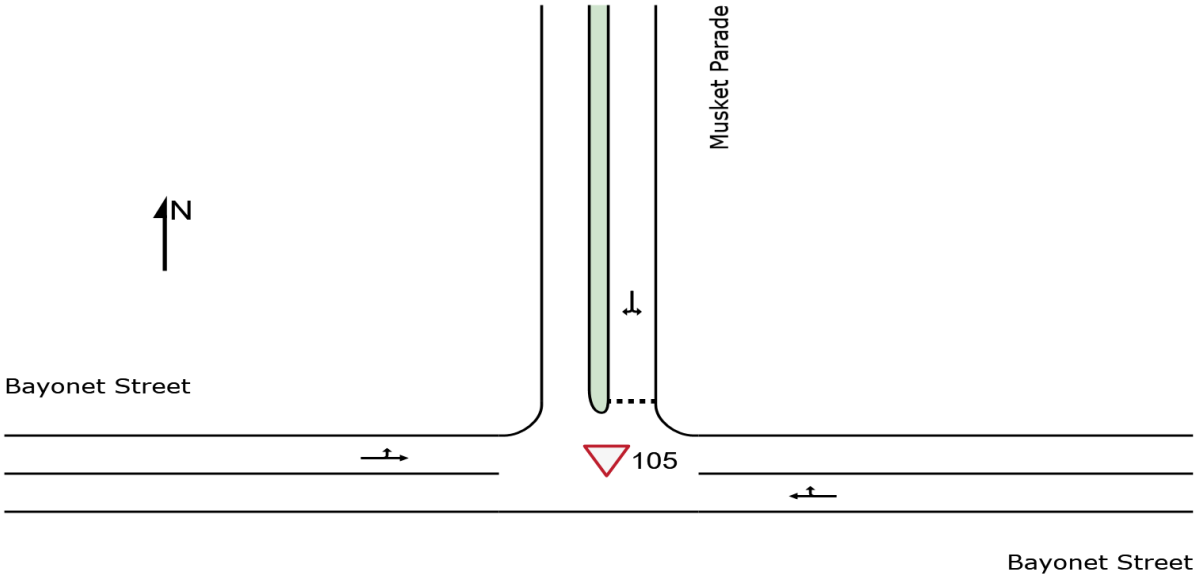
Organisation: EMM CONSULTING | Licence: NETWORK / 1PC | Created: Tuesday, 30 September 2025 15:30:41
Project: C:\Users\janmuller\OneDrive - EMM Consulting\Documents\E221111 - Lake Lyell PHES EIS\SIDRA\E221111_SIDRA_v8 (revised priorities).sipx

# SITE LAYOUT

## Site: [105] 5. Bayonet Street/Musket Parade - 2025 AM Baseline (2025 AM Baseline )

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

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





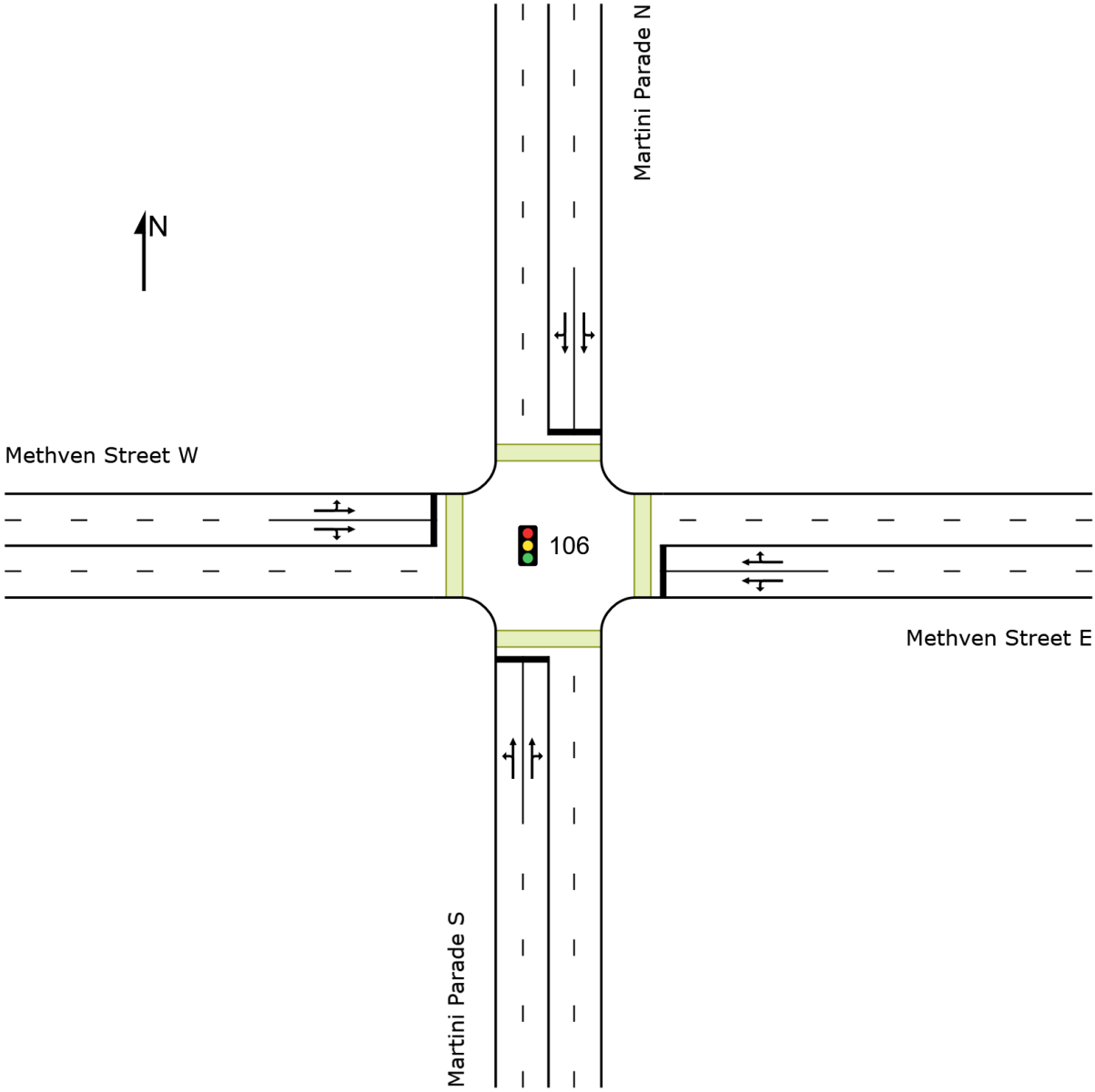
Organisation: EMM CONSULTING | Licence: NETWORK / 1PC | Created: Tuesday, 30 September 2025 15:30:41
Project: C:\Users\janmuller\OneDrive - EMM Consulting\Documents\E221111 - Lake Lyell PHES EIS\SIDRA\E221111_SIDRA_v8 (revised priorities).sipx

# SITE LAYOUT

## Site: [106] 6. Martini Parade/Methven Street - 2025 AM Baseline (2025 AM Baseline )

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
**Site Scenario: 1 | Local Volumes**

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

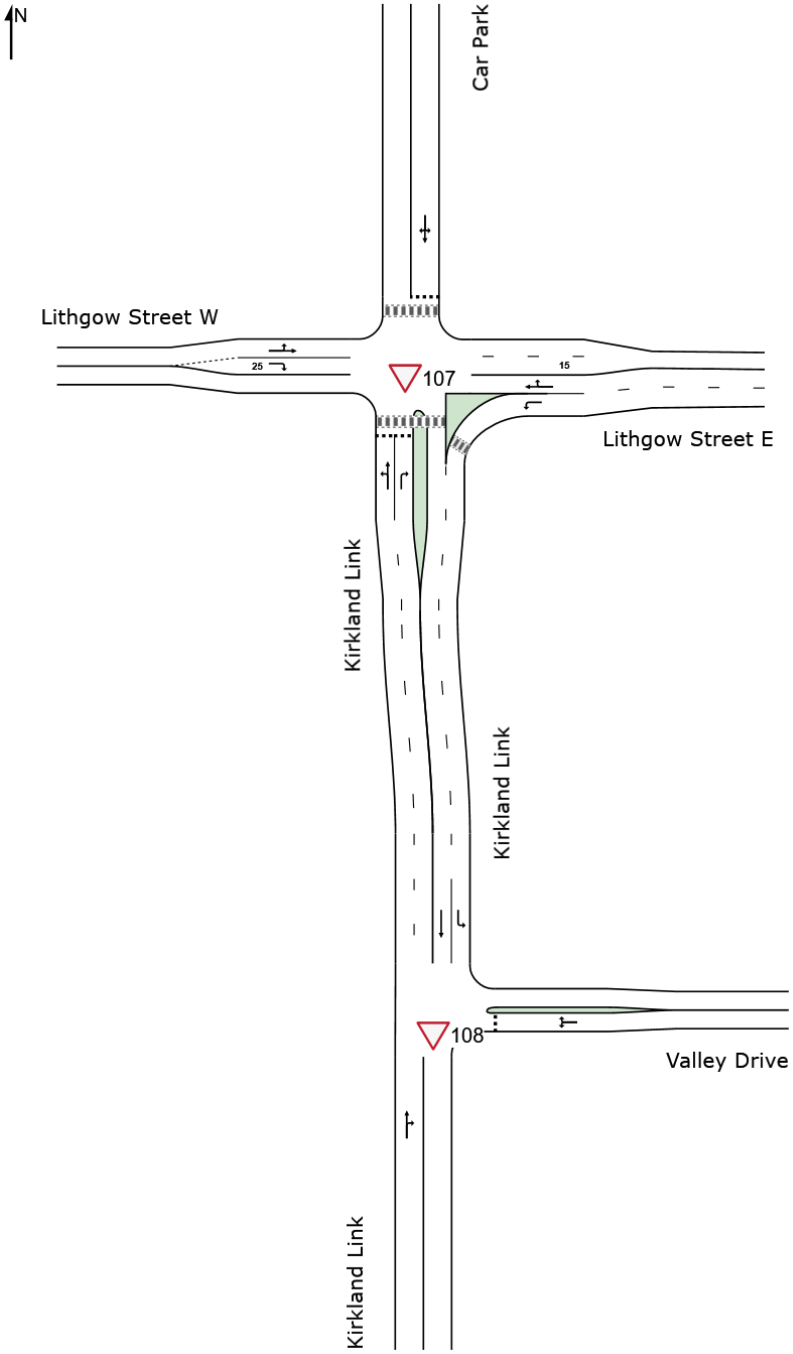


# NETWORK LAYOUT

## Network: [101] 2025 AM Baseline (Folder1)

New Network
Network Category: (None)
**Network Scenario: 1 | Local Volumes**

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




| SITES IN NETWORK | | |
|---|---|---|
| **Site ID** | **CCG ID** | **Site Name** |
| ▽107 | NA | 7. Lithgow Street/Kirkland Link - 2025 AM Baseline |
| ▽108 | NA | 8. Kirkland Link/Valley Drive - 2025 AM Baseline |

Organisation: EMM CONSULTING | Licence: NETWORK / 1PC | Created: Tuesday, 30 September 2025 15:33:04
Project: C:\Users\janmuller\OneDrive - EMM Consulting\Documents\E221111 - Lake Lyell PHES EIS\SIDRA\E221111_SIDRA_v8 (revised priorities).sipx

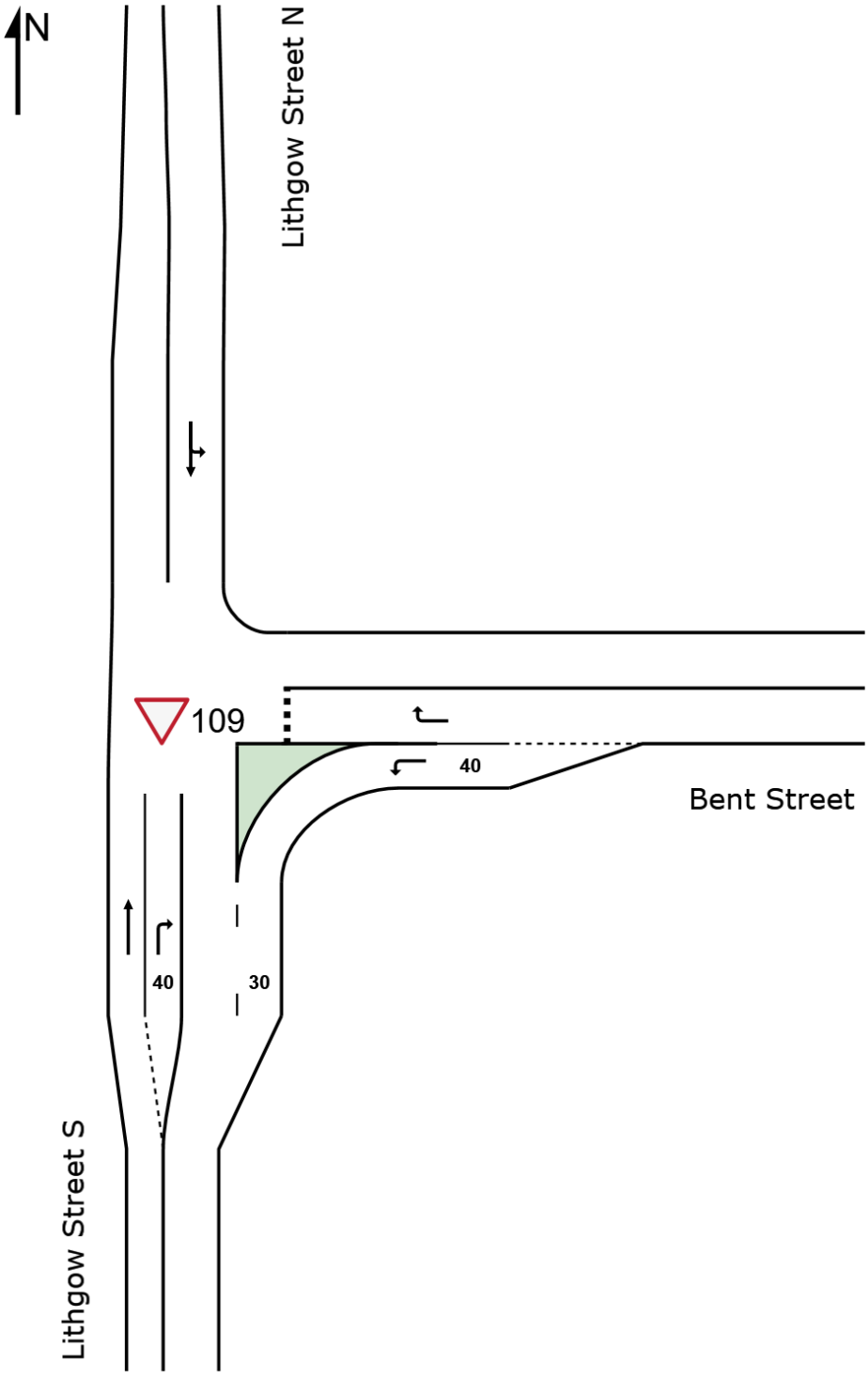
# SITE LAYOUT

## Site: [109] 9. Lithgow Street/Bent Street - 2025 AM Baseline

(2025 AM Baseline )

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

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



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# MOVEMENT SUMMARY

## Site: [101] 1. Magpie Hollow Road/Lockyers Line - 2025 AM Baseline (2025 AM Baseline )

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 20 | 15.8 | 20 | 15.8 | 0.012 | 0.0 | LOS A | 0.0 | 0.0 | 0.01 | 0.03 | 0.01 | 98.6 |
| 6 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.012 | 7.4 | LOS A | 0.0 | 0.0 | 0.01 | 0.03 | 0.01 | 63.7 |
| Approach | | | 21 | 15.0 | 21 | 15.0 | 0.012 | 0.4 | NA | 0.0 | 0.0 | 0.01 | 0.03 | 0.01 | 96.0 |
| North: Lockyers Line | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.002 | 4.7 | LOS A | 0.0 | 0.1 | 0.13 | 0.51 | 0.13 | 55.5 |
| 9 | R2 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.002 | 5.9 | LOS A | 0.0 | 0.1 | 0.13 | 0.51 | 0.13 | 39.5 |
| Approach | | | 2 | 50.0 | 2 | 50.0 | 0.002 | 5.3 | LOS A | 0.0 | 0.1 | 0.13 | 0.51 | 0.13 | 46.1 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.020 | 7.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 86.9 |
| 11 | T1 | All MCs | 37 | 5.7 | 37 | 5.7 | 0.020 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 99.4 |
| Approach | | | 38 | 5.6 | 38 | 5.6 | 0.020 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 99.0 |
| All Vehicles | | | 61 | 10.3 | 61 | 10.3 | 0.020 | 0.4 | NA | 0.0 | 0.1 | 0.01 | 0.04 | 0.01 | 94.2 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [102] 2. Magpie Hollow Road/Sir Thomas Mitchell Drive - 2025 AM Baseline (2025 AM Baseline )

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NorthEast: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 25 | T1 | All MCs | 19 | 16.7 | 19 | 16.7 | 0.013 | 6.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 61.1 |
| 26a | R1 | All MCs | 3 | 0.0 | 3 | 0.0 | 0.013 | 6.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 66.2 |
| Approach | | | 22 | 14.3 | 22 | 14.3 | 0.013 | 6.0 | NA | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 61.8 |
| West: Sir Thomas Mitchell Drive | | | | | | | | | | | | | | | |
| 10a | L1 | All MCs | 3 | 0.0 | 3 | 0.0 | 0.003 | 7.1 | LOS A | 0.0 | 0.1 | 0.11 | 0.62 | 0.11 | 69.2 |
| 12b | R3 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.003 | 8.6 | LOS A | 0.0 | 0.1 | 0.11 | 0.62 | 0.11 | 69.0 |
| Approach | | | 4 | 0.0 | 4 | 0.0 | 0.003 | 7.5 | LOS A | 0.0 | 0.1 | 0.11 | 0.62 | 0.11 | 69.1 |
| SouthWest: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 30b | L3 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.020 | 8.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 65.8 |
| 31 | T1 | All MCs | 37 | 5.7 | 37 | 5.7 | 0.020 | 5.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 64.4 |
| Approach | | | 38 | 5.6 | 38 | 5.6 | 0.020 | 5.9 | NA | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 64.4 |
| All Vehicles | | | 64 | 8.2 | 64 | 8.2 | 0.020 | 6.0 | NA | 0.0 | 0.1 | 0.01 | 0.61 | 0.01 | 63.8 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [103] 3. Great Western Highway/Magpie Hollow Road - 2025 AM Baseline (2025 AM Baseline )

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 43 | 9.8 | 43 | 9.8 | 0.026 | 6.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 56.2 |
| 2 | T1 | All MCs | 421 | 13.0 | 421 | 13.0 | 0.122 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | | | 464 | 12.7 | 464 | 12.7 | 0.122 | 0.6 | NA | 0.0 | 0.0 | 0.00 | 0.06 | 0.00 | 68.4 |
| North: Great Western Highway | | | | | | | | | | | | | | | |
| 8 | T1 | All MCs | 342 | 13.5 | 342 | 13.5 | 0.100 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| 9 | R2 | All MCs | 40 | 18.4 | 40 | 18.4 | 0.083 | 11.3 | LOS A | 0.3 | 2.2 | 0.51 | 0.77 | 0.51 | 50.4 |
| Approach | | | 382 | 14.0 | 382 | 14.0 | 0.100 | 1.2 | NA | 0.3 | 2.2 | 0.05 | 0.08 | 0.05 | 67.2 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 42 | 5.0 | 42 | 5.0 | 0.145 | 7.4 | LOS A | 0.5 | 3.4 | 0.57 | 0.69 | 0.57 | 51.5 |
| 12 | R2 | All MCs | 15 | 21.4 | 15 | 21.4 | 0.145 | 32.4 | LOS C | 0.5 | 3.4 | 0.57 | 0.69 | 0.57 | 48.4 |
| Approach | | | 57 | 9.3 | 57 | 9.3 | 0.145 | 13.9 | LOS A | 0.5 | 3.4 | 0.57 | 0.69 | 0.57 | 50.7 |
| All Vehicles | | | 903 | 13.1 | 903 | 13.1 | 0.145 | 1.7 | NA | 0.5 | 3.4 | 0.06 | 0.11 | 0.06 | 66.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [104] 4. Great Western Highway/Bayonet Street/Ninda Place - 2025 AM Baseline (2025 AM Baseline )

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 100.0 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
**Site Scenario: 1 | Local Volumes**

### Vehicle Movement Performance

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.332 | 18.0 | LOS B | 7.7 | 58.5 | 0.76 | 1.03 | 0.76 | 33.5 |
| 2 | T1 | All MCs | 433 | 11.2 | 433 | 11.2 | 0.332 | 24.3 | LOS B | 7.7 | 58.8 | 0.76 | 0.83 | 0.76 | 42.2 |
| 3 | R2 | All MCs | 204 | 2.1 | 204 | 2.1 | *0.663 | 50.0 | LOS D | 9.7 | 69.1 | 0.99 | 0.83 | 1.02 | 27.0 |
| Approach | | | 645 | 8.2 | 645 | 8.2 | 0.663 | 32.4 | LOS C | 9.7 | 69.1 | 0.83 | 0.83 | 0.84 | 37.2 |
| East: Bayonet St | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 83 | 0.0 | 83 | 0.0 | *0.194 | 21.9 | LOS B | 2.0 | 14.3 | 0.83 | 1.09 | 0.83 | 31.1 |
| 5 | T1 | All MCs | 13 | 0.0 | 13 | 0.0 | 0.185 | 44.1 | LOS D | 1.6 | 12.6 | 0.93 | 0.71 | 0.93 | 25.4 |
| 6 | R2 | All MCs | 23 | 18.2 | 23 | 18.2 | 0.185 | 48.6 | LOS D | 1.6 | 12.6 | 0.93 | 0.71 | 0.93 | 27.1 |
| Approach | | | 119 | 3.5 | 119 | 3.5 | 0.194 | 29.5 | LOS C | 2.0 | 14.3 | 0.86 | 0.98 | 0.86 | 29.5 |
| North: Great Western Highway N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 11 | 20.0 | 11 | 20.0 | *0.660 | 21.0 | LOS B | 5.9 | 47.1 | 0.98 | 1.01 | 1.01 | 27.2 |
| 8 | T1 | All MCs | 415 | 16.0 | 415 | 16.0 | *0.660 | 22.1 | LOS B | 6.0 | 47.5 | 0.98 | 1.01 | 1.01 | 36.4 |
| 9 | R2 | All MCs | 17 | 12.5 | 17 | 12.5 | 0.147 | 56.4 | LOS D | 0.8 | 6.3 | 0.97 | 0.70 | 0.97 | 30.4 |
| Approach | | | 442 | 16.0 | 442 | 16.0 | 0.660 | 23.4 | LOS B | 6.0 | 47.5 | 0.98 | 1.00 | 1.01 | 35.9 |
| West: Ninda Place | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 18 | 0.0 | 18 | 0.0 | *0.077 | 26.5 | LOS B | 0.5 | 3.4 | 0.90 | 1.05 | 0.90 | 28.1 |
| 11 | T1 | All MCs | 29 | 0.0 | 29 | 0.0 | 0.193 | 44.8 | LOS D | 1.8 | 12.5 | 0.94 | 0.70 | 0.94 | 25.7 |
| 12 | R2 | All MCs | 9 | 0.0 | 9 | 0.0 | 0.193 | 49.3 | LOS D | 1.8 | 12.5 | 0.94 | 0.70 | 0.94 | 32.8 |
| Approach | | | 57 | 0.0 | 57 | 0.0 | 0.193 | 39.7 | LOS C | 1.8 | 12.5 | 0.93 | 0.81 | 0.93 | 27.8 |
| All Vehicles | | | 1263 | 10.1 | 1263 | 10.1 | 0.663 | 29.3 | LOS C | 9.7 | 69.1 | 0.89 | 0.90 | 0.91 | 35.6 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

### Pedestrian Movement Performance

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE [ Ped | Dist ] | Prop. Qued | Eff. Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | |
| P1 Full | 3 | 3 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.0 | 200.0 | 1.01 |
| East: Bayonet St | | | | | | | | | | | |
| P2 Full | 1 | 1 | 20.3 | LOS C | 0.0 | 0.0 | 0.88 | 0.88 | 174.2 | 200.0 | 1.15 |
| North: Great Western Highway N | | | | | | | | | | | |
| P3 Full | 1 | 1 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.0 | 200.0 | 1.01 |
| West: Ninda Place | | | | | | | | | | | |
| P4 Full | 1 | 1 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.0 | 200.0 | 1.01 |
| All Pedestrians | 6 | 6 | 40.2 | LOS E | 0.0 | 0.0 | 0.93 | 0.93 | 194.1 | 200.0 | 1.03 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [105] 5. Bayonet Street/Musket Parade - 2025 AM

**Baseline** (2025 AM Baseline )

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Bayonet Street | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 33 | 6.5 | 33 | 6.5 | 0.022 | 0.2 | LOS A | 0.1 | 0.4 | 0.16 | 0.17 | 0.16 | 48.3 |
| 6 | R2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.022 | 5.3 | LOS A | 0.1 | 0.4 | 0.16 | 0.17 | 0.16 | 47.7 |
| Approach | | | 41 | 5.1 | 41 | 5.1 | 0.022 | 1.3 | NA | 0.1 | 0.4 | 0.16 | 0.17 | 0.16 | 48.1 |
| North: Musket Parade | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 3 | 33.3 | 3 | 33.3 | 0.091 | 5.0 | LOS A | 0.3 | 2.2 | 0.23 | 0.52 | 0.23 | 45.0 |
| 9 | R2 | All MCs | 97 | 2.2 | 97 | 2.2 | 0.091 | 5.2 | LOS A | 0.3 | 2.2 | 0.23 | 0.52 | 0.23 | 43.3 |
| Approach | | | 100 | 3.2 | 100 | 3.2 | 0.091 | 5.2 | LOS A | 0.3 | 2.2 | 0.23 | 0.52 | 0.23 | 43.3 |
| West: Bayonet Street | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 222 | 1.9 | 222 | 1.9 | 0.124 | 4.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.48 | 0.00 | 44.3 |
| 11 | T1 | All MCs | 22 | 9.5 | 22 | 9.5 | 0.124 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.48 | 0.00 | 46.0 |
| Approach | | | 244 | 2.6 | 244 | 2.6 | 0.124 | 4.2 | NA | 0.0 | 0.0 | 0.00 | 0.48 | 0.00 | 44.5 |
| All Vehicles | | | 385 | 3.0 | 385 | 3.0 | 0.124 | 4.1 | NA | 0.3 | 2.2 | 0.08 | 0.46 | 0.08 | 44.6 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [106] 6. Martini Parade/Methven Street - 2025 AM

**Baseline** (2025 AM Baseline )

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 40.0 seconds (Site Practical Cycle Time)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 2 | 0.0 | 2 | 0.0 | 0.053 | 15.7 | LOS B | 0.5 | 3.4 | 0.66 | 0.50 | 0.66 | 36.0 |
| 2 | T1 | All MCs | 34 | 9.4 | 34 | 9.4 | 0.053 | 8.5 | LOS A | 0.5 | 3.4 | 0.66 | 0.50 | 0.66 | 36.4 |
| 3 | R2 | All MCs | 215 | 5.4 | 215 | 5.4 | 0.523 | 18.4 | LOS B | 3.9 | 28.4 | 0.91 | 0.79 | 0.91 | 32.9 |
| Approach | | | 251 | 5.9 | 251 | 5.9 | 0.523 | 17.1 | LOS B | 3.9 | 28.4 | 0.87 | 0.75 | 0.87 | 33.4 |
| East: Methven Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 118 | 1.8 | 118 | 1.8 | * 0.349 | 19.8 | LOS B | 2.2 | 15.3 | 0.91 | 0.75 | 0.91 | 32.6 |
| 5 | T1 | All MCs | 100 | 5.3 | 100 | 5.3 | 0.194 | 11.3 | LOS A | 1.6 | 11.6 | 0.77 | 0.61 | 0.77 | 35.5 |
| 6 | R2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.194 | 17.0 | LOS B | 1.6 | 11.6 | 0.77 | 0.61 | 0.77 | 35.1 |
| Approach | | | 224 | 3.3 | 224 | 3.3 | 0.349 | 15.9 | LOS B | 2.2 | 15.3 | 0.84 | 0.69 | 0.84 | 33.9 |
| North: Martini Parade N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 37 | 0.0 | 37 | 0.0 | * 0.076 | 15.8 | LOS B | 0.6 | 3.9 | 0.78 | 0.67 | 0.78 | 33.8 |
| 8 | T1 | All MCs | 39 | 0.0 | 39 | 0.0 | 0.064 | 8.4 | LOS A | 0.6 | 4.0 | 0.65 | 0.51 | 0.65 | 36.5 |
| 9 | R2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.064 | 12.2 | LOS A | 0.6 | 4.0 | 0.65 | 0.51 | 0.65 | 36.1 |
| Approach | | | 82 | 0.0 | 82 | 0.0 | 0.076 | 12.0 | LOS A | 0.6 | 4.0 | 0.71 | 0.59 | 0.71 | 35.2 |
| West: Methven Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.266 | 19.7 | LOS B | 2.4 | 16.8 | 0.80 | 0.64 | 0.80 | 35.0 |
| 11 | T1 | All MCs | 287 | 1.5 | 287 | 1.5 | 0.266 | 11.8 | LOS A | 2.4 | 16.8 | 0.80 | 0.65 | 0.80 | 35.3 |
| 12 | R2 | All MCs | 6 | 16.7 | 6 | 16.7 | 0.266 | 22.3 | LOS B | 2.3 | 16.3 | 0.80 | 0.65 | 0.80 | 34.8 |
| Approach | | | 300 | 1.8 | 300 | 1.8 | 0.266 | 12.2 | LOS A | 2.4 | 16.8 | 0.80 | 0.65 | 0.80 | 35.3 |
| All Vehicles | | | 857 | 3.2 | 857 | 3.2 | 0.523 | 14.6 | LOS B | 3.9 | 28.4 | 0.83 | 0.68 | 0.83 | 34.3 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

**Pedestrian Movement Performance**

| Mov ID | Crossing | Input Vol. ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Ped ped | Dist ] m | Prop. Qued | Eff. Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | |
| P1 | Full | 2 | 2 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| East: Methven Street E | | | | | | | | | | | | |
| P2 | Full | 2 | 2 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| North: Martini Parade N | | | | | | | | | | | | |
| P3 | Full | 3 | 3 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| West: Methven Street W | | | | | | | | | | | | |
| P4 | Full | 4 | 4 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| All Pedestrians | | 11 | 12 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [107] 7. Lithgow Street/Kirkland Link - 2025 AM Baseline (2025 AM Baseline )

**Network: [101] 2025 AM Baseline** (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Network Scenario: 1 | Local Volumes** **Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 13 | 0.0 | 13 | 0.0 | 0.013 | 3.9 | LOS A | 0.0 | 0.3 | 0.37 | 0.51 | 0.37 | 43.0 |
| 2 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.013 | 12.7 | LOS A | 0.0 | 0.3 | 0.37 | 0.51 | 0.37 | 20.2 |
| 3 | R2 | All MCs | 45 | 7.0 | 45 | 7.0 | 0.194 | 18.8 | LOS B | 0.6 | 4.8 | 0.80 | 0.91 | 0.83 | 33.0 |
| Approach | | | 59 | 5.4 | 59 | 5.4 | 0.194 | 15.5 | LOS B | 0.6 | 4.8 | 0.70 | 0.82 | 0.72 | 34.3 |
| East: Lithgow Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 44 | 4.8 | 44 | 4.8 | 0.030 | 4.6 | LOS A | 0.1 | 0.8 | 0.00 | 0.46 | 0.00 | 44.9 |
| 5 | T1 | All MCs | 247 | 2.6 | 247 | 2.6 | 0.132 | 0.0 | LOS A | 0.0 | 0.2 | 0.01 | 0.01 | 0.01 | 49.9 |
| 6 | R2 | All MCs | 2 | 0.0 | 2 | 0.0 | 0.132 | 6.0 | LOS A | 0.0 | 0.2 | 0.01 | 0.01 | 0.01 | 28.8 |
| Approach | | | 294 | 2.9 | 294 | 2.9 | 0.132 | 0.7 | NA | 0.1 | 0.8 | 0.01 | 0.08 | 0.01 | 49.2 |
| North: Car Park | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.008 | 2.2 | LOS A | 0.0 | 0.2 | 0.67 | 0.54 | 0.67 | 26.4 |
| 8 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.008 | 9.5 | LOS A | 0.0 | 0.2 | 0.67 | 0.54 | 0.67 | 18.5 |
| 9 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.008 | 11.3 | LOS A | 0.0 | 0.2 | 0.67 | 0.54 | 0.67 | 26.4 |
| Approach | | | 3 | 0.0 | 3 | 0.0 | 0.008 | 7.7 | LOS A | 0.0 | 0.2 | 0.67 | 0.54 | 0.67 | 24.3 |
| West: Lithgow Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 5 | 0.0 | 5 | 0.0 | 0.302 | 4.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 48.6 |
| 11 | T1 | All MCs | 569 | 2.6 | 569 | 2.6 | 0.302 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 49.8 |
| 12 | R2 | All MCs | 24 | 4.3 | 24 | 4.3 | 0.017 | 5.4 | LOS A | 0.1 | 0.5 | 0.34 | 0.52 | 0.34 | 43.1 |
| Approach | | | 599 | 2.6 | 599 | 2.6 | 0.302 | 0.4 | NA | 0.1 | 0.5 | 0.01 | 0.03 | 0.01 | 49.7 |
| All Vehicles | | | 955 | 2.9 | 955 | 2.9 | 0.302 | 1.4 | NA | 0.6 | 4.8 | 0.06 | 0.09 | 0.06 | 48.6 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [108] 8. Kirkland Link/Valley Drive - 2025 AM Baseline

(2025 AM Baseline )

**Network: [101] 2025 AM Baseline** (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Network Scenario: 1 | Local Volumes** **Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 32 | 3.3 | 32 | 3.3 | 0.016 | 0.0 | LOS A | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 49.7 |
| 3 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.016 | 4.6 | LOS A | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 48.6 |
| Approach | | | 33 | 3.2 | 33 | 3.2 | 0.016 | 0.2 | NA | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 49.6 |
| East: Valley Drive | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.026 | 4.6 | LOS A | 0.1 | 0.7 | 0.18 | 0.51 | 0.18 | 45.6 |
| 6 | R2 | All MCs | 26 | 8.0 | 26 | 8.0 | 0.026 | 5.1 | LOS A | 0.1 | 0.7 | 0.18 | 0.51 | 0.18 | 43.8 |
| Approach | | | 27 | 7.7 | 27 | 7.7 | 0.026 | 5.0 | LOS A | 0.1 | 0.7 | 0.18 | 0.51 | 0.18 | 43.9 |
| North: Kirkland Link | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 49 | 2.1 | 49 | 2.1 | 0.027 | 3.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.50 | 0.00 | 44.3 |
| 8 | T1 | All MCs | 19 | 11.1 | 19 | 11.1 | 0.011 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 50.0 |
| Approach | | | 68 | 4.6 | 68 | 4.6 | 0.027 | 2.3 | NA | 0.0 | 0.0 | 0.00 | 0.36 | 0.00 | 45.7 |
| All Vehicles | | | 128 | 4.9 | 128 | 4.9 | 0.027 | 2.3 | NA | 0.1 | 0.7 | 0.04 | 0.31 | 0.04 | 46.2 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [109] 9. Lithgow Street/Bent Street - 2025 AM Baseline

(2025 AM Baseline )

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Lithgow Street S | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 296 | 2.5 | 296 | 2.5 | 0.155 | 1.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.22 | 0.00 | 48.9 |
| 3 | R2 | All MCs | 258 | 4.1 | 258 | 4.1 | 0.182 | 5.5 | LOS A | 0.9 | 6.4 | 0.37 | 0.55 | 0.37 | 41.0 |
| Approach | | | 554 | 3.2 | 554 | 3.2 | 0.182 | 3.3 | NA | 0.9 | 6.4 | 0.17 | 0.37 | 0.17 | 44.9 |
| East: Bent Street | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 124 | 1.7 | 124 | 1.7 | 0.068 | 2.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.36 | 0.00 | 38.6 |
| 6 | R2 | All MCs | 6 | 16.7 | 6 | 16.7 | 0.017 | 11.2 | LOS A | 0.1 | 0.4 | 0.65 | 0.72 | 0.65 | 35.3 |
| Approach | | | 131 | 2.4 | 131 | 2.4 | 0.068 | 3.3 | LOS A | 0.1 | 0.4 | 0.03 | 0.38 | 0.03 | 38.4 |
| North: Lithgow Street N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 69 | 4.5 | 69 | 4.5 | 0.115 | 3.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.14 | 0.00 | 39.1 |
| 8 | T1 | All MCs | 162 | 3.2 | 162 | 3.2 | 0.115 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.14 | 0.00 | 39.5 |
| Approach | | | 232 | 3.6 | 232 | 3.6 | 0.115 | 1.1 | NA | 0.0 | 0.0 | 0.00 | 0.14 | 0.00 | 39.4 |
| All Vehicles | | | 916 | 3.2 | 916 | 3.2 | 0.182 | 2.7 | NA | 0.9 | 6.4 | 0.11 | 0.32 | 0.11 | 42.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [201] 1. Magpie Hollow Road/Lockyers Line - 2025 PM Baseline (2025 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 43 | 0.0 | 43 | 0.0 | 0.023 | 0.0 | LOS A | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 99.2 |
| 6 | R2 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.023 | 10.2 | LOS A | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 61.0 |
| Approach | | | 44 | 2.4 | 44 | 2.4 | 0.023 | 0.2 | NA | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 97.7 |
| North: Lockyers Line | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.002 | 4.6 | LOS A | 0.0 | 0.1 | 0.12 | 0.51 | 0.12 | 55.5 |
| 9 | R2 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.002 | 6.0 | LOS A | 0.0 | 0.1 | 0.12 | 0.51 | 0.12 | 39.5 |
| Approach | | | 2 | 50.0 | 2 | 50.0 | 0.002 | 5.3 | LOS A | 0.0 | 0.1 | 0.12 | 0.51 | 0.12 | 46.1 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.015 | 7.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 87.9 |
| 11 | T1 | All MCs | 29 | 0.0 | 29 | 0.0 | 0.015 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 99.3 |
| Approach | | | 31 | 0.0 | 31 | 0.0 | 0.015 | 0.3 | NA | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 98.8 |
| All Vehicles | | | 77 | 2.7 | 77 | 2.7 | 0.023 | 0.4 | NA | 0.0 | 0.1 | 0.01 | 0.03 | 0.01 | 95.2 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [202] 2. Magpie Hollow Road/Sir Thomas Mitchell Drive - 2025 PM Baseline (2025 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NorthEast: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 25 | T1 | All MCs | 43 | 2.4 | 43 | 2.4 | 0.027 | 5.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 65.5 |
| 26a | R1 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.027 | 6.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 66.2 |
| Approach | | | 52 | 2.0 | 52 | 2.0 | 0.027 | 5.8 | NA | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 65.6 |
| West: Sir Thomas Mitchell Drive | | | | | | | | | | | | | | | |
| 10a | L1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.002 | 7.1 | LOS A | 0.0 | 0.1 | 0.13 | 0.61 | 0.13 | 66.9 |
| 12b | R3 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.002 | 11.8 | LOS A | 0.0 | 0.1 | 0.13 | 0.61 | 0.13 | 42.6 |
| Approach | | | 2 | 50.0 | 2 | 50.0 | 0.002 | 9.5 | LOS A | 0.0 | 0.1 | 0.13 | 0.61 | 0.13 | 52.0 |
| SouthWest: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 30b | L3 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.015 | 8.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 65.8 |
| 31 | T1 | All MCs | 28 | 0.0 | 28 | 0.0 | 0.015 | 5.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 66.2 |
| Approach | | | 29 | 0.0 | 29 | 0.0 | 0.015 | 5.8 | NA | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 66.2 |
| All Vehicles | | | 83 | 2.5 | 83 | 2.5 | 0.027 | 5.9 | NA | 0.0 | 0.1 | 0.00 | 0.61 | 0.00 | 65.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [203] 3. Great Western Highway/Magpie Hollow Road - 2025 PM Baseline (2025 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 28 | 0.0 | 28 | 0.0 | 0.015 | 6.4 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 59.0 |
| 2 | T1 | All MCs | 413 | 13.0 | 413 | 13.0 | 0.120 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | | | 441 | 12.2 | 441 | 12.2 | 0.120 | 0.4 | NA | 0.0 | 0.0 | 0.00 | 0.04 | 0.00 | 69.1 |
| North: Great Western Highway | | | | | | | | | | | | | | | |
| 8 | T1 | All MCs | 487 | 9.5 | 487 | 9.5 | 0.137 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| 9 | R2 | All MCs | 56 | 1.9 | 56 | 1.9 | 0.096 | 9.9 | LOS A | 0.3 | 2.3 | 0.49 | 0.75 | 0.49 | 55.3 |
| Approach | | | 543 | 8.7 | 543 | 8.7 | 0.137 | 1.0 | NA | 0.3 | 2.3 | 0.05 | 0.08 | 0.05 | 68.1 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 22 | 4.8 | 22 | 4.8 | 0.128 | 7.4 | LOS A | 0.4 | 2.9 | 0.66 | 0.75 | 0.66 | 49.7 |
| 12 | R2 | All MCs | 17 | 0.0 | 17 | 0.0 | 0.128 | 28.6 | LOS C | 0.4 | 2.9 | 0.66 | 0.75 | 0.66 | 50.9 |
| Approach | | | 39 | 2.7 | 39 | 2.7 | 0.128 | 16.5 | LOS B | 0.4 | 2.9 | 0.66 | 0.75 | 0.66 | 50.2 |
| All Vehicles | | | 1023 | 10.0 | 1023 | 10.0 | 0.137 | 1.4 | NA | 0.4 | 2.9 | 0.05 | 0.09 | 0.05 | 67.6 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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Project: C:\Users\janmuller\OneDrive - EMM Consulting\Documents\E221111 - Lake Lyell PHES EIS\SIDRA\E221111_SIDRA_v7 (revised routing).sipx

# MOVEMENT SUMMARY

## Site: [204] 4. Great Western Highway/Bayonet Street/Ninda Place - 2025 PM Baseline (2025 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
**Site Scenario: 1 | Local Volumes**

### Vehicle Movement Performance

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 14 | 0.0 | 14 | 0.0 | 0.387 | 19.9 | LOS B | 8.6 | 66.0 | 0.81 | 1.03 | 0.81 | 32.5 |
| 2 | T1 | All MCs | 452 | 11.9 | 452 | 11.9 | 0.387 | 27.4 | LOS B | 8.6 | 66.4 | 0.81 | 0.85 | 0.81 | 40.8 |
| 3 | R2 | All MCs | 147 | 4.3 | 147 | 4.3 | *0.611 | 52.3 | LOS D | 7.1 | 51.4 | 0.99 | 0.81 | 1.01 | 26.4 |
| Approach | | | 613 | 9.8 | 613 | 9.8 | 0.611 | 33.2 | LOS C | 8.6 | 66.4 | 0.85 | 0.85 | 0.86 | 37.0 |
| East: Bayonet St | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 203 | 1.6 | 203 | 1.6 | *0.560 | 25.0 | LOS B | 5.5 | 39.1 | 0.95 | 1.03 | 0.95 | 29.1 |
| 5 | T1 | All MCs | 40 | 0.0 | 40 | 0.0 | 0.380 | 45.5 | LOS D | 3.6 | 27.0 | 0.96 | 0.75 | 0.96 | 25.3 |
| 6 | R2 | All MCs | 37 | 17.1 | 37 | 17.1 | 0.380 | 50.0 | LOS D | 3.6 | 27.0 | 0.96 | 0.75 | 0.96 | 27.0 |
| Approach | | | 280 | 3.4 | 280 | 3.4 | 0.560 | 31.2 | LOS C | 5.5 | 39.1 | 0.95 | 0.95 | 0.95 | 28.2 |
| North: Great Western Highway N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 13 | 16.7 | 13 | 16.7 | *0.611 | 19.3 | LOS B | 6.6 | 50.4 | 0.95 | 1.00 | 0.95 | 28.1 |
| 8 | T1 | All MCs | 468 | 9.7 | 468 | 9.7 | *0.611 | 20.5 | LOS B | 6.7 | 50.8 | 0.95 | 1.00 | 0.95 | 37.4 |
| 9 | R2 | All MCs | 21 | 0.0 | 21 | 0.0 | 0.114 | 52.0 | LOS D | 1.0 | 6.8 | 0.94 | 0.70 | 0.94 | 31.5 |
| Approach | | | 502 | 9.4 | 502 | 9.4 | 0.611 | 21.8 | LOS B | 6.7 | 50.8 | 0.95 | 0.99 | 0.95 | 36.9 |
| West: Ninda Place | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 11 | 0.0 | 11 | 0.0 | *0.036 | 24.2 | LOS B | 0.3 | 1.8 | 0.86 | 1.07 | 0.86 | 28.9 |
| 11 | T1 | All MCs | 28 | 0.0 | 28 | 0.0 | 0.265 | 44.9 | LOS D | 2.5 | 17.7 | 0.95 | 0.73 | 0.95 | 25.4 |
| 12 | R2 | All MCs | 25 | 4.2 | 25 | 4.2 | 0.265 | 49.4 | LOS D | 2.5 | 17.7 | 0.95 | 0.73 | 0.95 | 32.1 |
| Approach | | | 64 | 1.6 | 64 | 1.6 | 0.265 | 43.3 | LOS D | 2.5 | 17.7 | 0.93 | 0.79 | 0.93 | 28.8 |
| All Vehicles | | | 1459 | 8.1 | 1459 | 8.1 | 0.611 | 29.4 | LOS C | 8.6 | 66.4 | 0.91 | 0.91 | 0.91 | 35.0 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

### Pedestrian Movement Performance

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE [ Ped | Dist ] | Prop. Qued | Eff. Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | |
| P1 Full | 3 | 3 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.0 | 200.0 | 1.01 |
| East: Bayonet St | | | | | | | | | | | |
| P2 Full | 1 | 1 | 20.4 | LOS C | 0.0 | 0.0 | 0.88 | 0.88 | 174.2 | 200.0 | 1.15 |
| North: Great Western Highway N | | | | | | | | | | | |
| P3 Full | 2 | 2 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.0 | 200.0 | 1.01 |
| West: Ninda Place | | | | | | | | | | | |
| P4 Full | 3 | 3 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.0 | 200.0 | 1.01 |
| All Pedestrians | 9 | 9 | 41.5 | LOS E | 0.0 | 0.0 | 0.93 | 0.93 | 195.4 | 200.0 | 1.02 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [205] 5. Bayonet Street/Musket Parade - 2025 PM

**Baseline** (2025 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Bayonet Street | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 57 | 14.8 | 57 | 14.8 | 0.041 | 0.2 | LOS A | 0.1 | 0.8 | 0.14 | 0.16 | 0.14 | 48.3 |
| 6 | R2 | All MCs | 16 | 0.0 | 16 | 0.0 | 0.041 | 5.1 | LOS A | 0.1 | 0.8 | 0.14 | 0.16 | 0.14 | 47.7 |
| Approach | | | 73 | 11.6 | 73 | 11.6 | 0.041 | 1.3 | NA | 0.1 | 0.8 | 0.14 | 0.16 | 0.14 | 48.1 |
| North: Musket Parade | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.242 | 4.7 | LOS A | 0.9 | 6.7 | 0.28 | 0.54 | 0.28 | 45.3 |
| 9 | R2 | All MCs | 255 | 2.9 | 255 | 2.9 | 0.242 | 5.4 | LOS A | 0.9 | 6.7 | 0.28 | 0.54 | 0.28 | 43.1 |
| Approach | | | 263 | 2.8 | 263 | 2.8 | 0.242 | 5.4 | LOS A | 0.9 | 6.7 | 0.28 | 0.54 | 0.28 | 43.2 |
| West: Bayonet Street | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 163 | 3.9 | 163 | 3.9 | 0.097 | 4.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.46 | 0.00 | 44.5 |
| 11 | T1 | All MCs | 25 | 8.3 | 25 | 8.3 | 0.097 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.46 | 0.00 | 46.1 |
| Approach | | | 188 | 4.5 | 188 | 4.5 | 0.097 | 4.0 | NA | 0.0 | 0.0 | 0.00 | 0.46 | 0.00 | 44.7 |
| All Vehicles | | | 524 | 4.6 | 524 | 4.6 | 0.242 | 4.3 | NA | 0.9 | 6.7 | 0.16 | 0.46 | 0.16 | 44.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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Project: C:\Users\janmuller\OneDrive - EMM Consulting\Documents\E221111 - Lake Lyell PHES EIS\SIDRA\E221111_SIDRA_v7 (revised routing).sipx

# MOVEMENT SUMMARY

## Site: [206] 6. Martini Parade/Methven Street - 2025 PM

**Baseline** (2025 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 40.0 seconds (Site Practical Cycle Time)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 3 | 0.0 | 3 | 0.0 | * 0.057 | 17.4 | LOS B | 0.5 | 3.4 | 0.71 | 0.54 | 0.71 | 35.5 |
| 2 | T1 | All MCs | 33 | 0.0 | 33 | 0.0 | 0.057 | 9.8 | LOS A | 0.5 | 3.4 | 0.71 | 0.54 | 0.71 | 35.9 |
| 3 | R2 | All MCs | 173 | 0.6 | 173 | 0.6 | 0.425 | 18.4 | LOS B | 3.1 | 21.6 | 0.89 | 0.77 | 0.89 | 32.9 |
| Approach | | | 208 | 0.5 | 208 | 0.5 | 0.425 | 17.1 | LOS B | 3.1 | 21.6 | 0.86 | 0.73 | 0.86 | 33.4 |
| East: Methven Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 162 | 4.5 | 162 | 4.5 | * 0.400 | 18.5 | LOS B | 2.9 | 20.8 | 0.89 | 0.77 | 0.89 | 33.0 |
| 5 | T1 | All MCs | 255 | 0.8 | 255 | 0.8 | 0.391 | 10.8 | LOS A | 4.0 | 28.0 | 0.79 | 0.66 | 0.79 | 35.7 |
| 6 | R2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.391 | 15.8 | LOS B | 4.0 | 28.0 | 0.79 | 0.66 | 0.79 | 35.3 |
| Approach | | | 423 | 2.2 | 423 | 2.2 | 0.400 | 13.8 | LOS A | 4.0 | 28.0 | 0.83 | 0.70 | 0.83 | 34.6 |
| North: Martini Parade N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 16 | 6.7 | 16 | 6.7 | 0.055 | 17.9 | LOS B | 0.4 | 2.7 | 0.79 | 0.63 | 0.79 | 33.9 |
| 8 | T1 | All MCs | 31 | 0.0 | 31 | 0.0 | 0.055 | 9.7 | LOS A | 0.4 | 3.1 | 0.72 | 0.58 | 0.72 | 35.4 |
| 9 | R2 | All MCs | 11 | 0.0 | 11 | 0.0 | 0.055 | 13.3 | LOS A | 0.4 | 3.1 | 0.69 | 0.56 | 0.69 | 35.4 |
| Approach | | | 57 | 1.9 | 57 | 1.9 | 0.055 | 12.7 | LOS A | 0.4 | 3.1 | 0.74 | 0.59 | 0.74 | 35.0 |
| West: Methven Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 4 | 0.0 | 4 | 0.0 | 0.168 | 17.6 | LOS B | 1.5 | 11.0 | 0.73 | 0.58 | 0.73 | 35.6 |
| 11 | T1 | All MCs | 209 | 2.5 | 209 | 2.5 | 0.168 | 10.0 | LOS A | 1.5 | 11.0 | 0.73 | 0.58 | 0.73 | 35.9 |
| 12 | R2 | All MCs | 3 | 0.0 | 3 | 0.0 | 0.168 | 20.8 | LOS B | 1.5 | 10.8 | 0.73 | 0.58 | 0.73 | 35.5 |
| Approach | | | 217 | 2.4 | 217 | 2.4 | 0.168 | 10.3 | LOS A | 1.5 | 11.0 | 0.73 | 0.58 | 0.73 | 35.9 |
| All Vehicles | | | 905 | 1.9 | 905 | 1.9 | 0.425 | 13.7 | LOS A | 4.0 | 28.0 | 0.81 | 0.67 | 0.81 | 34.7 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

**Pedestrian Movement Performance**

| Mov ID | Crossing | Input Vol. ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Ped ped | Dist ] m | Prop. Qued | Eff. Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | |
| P1 | Full | 7 | 7 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| East: Methven Street E | | | | | | | | | | | | |
| P2 | Full | 3 | 3 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| North: Martini Parade N | | | | | | | | | | | | |
| P3 | Full | 7 | 7 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| West: Methven Street W | | | | | | | | | | | | |
| P4 | Full | 6 | 6 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| All Pedestrians | | 23 | 24 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [207] 7. Lithgow Street/Kirkland Link - 2025 PM Baseline (2025 PM Baseline)

**Network: [102] 2025 PM Baseline** (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Network Scenario: 1 | Local Volumes** **Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 76 | 0.0 | 76 | 0.0 | 0.072 | 4.7 | LOS A | 0.3 | 1.9 | 0.44 | 0.61 | 0.44 | 42.8 |
| 2 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.072 | 13.9 | LOS A | 0.3 | 1.9 | 0.44 | 0.61 | 0.44 | 20.1 |
| 3 | R2 | All MCs | 106 | 2.0 | 106 | 2.0 | 0.431 | 22.4 | LOS B | 1.8 | 13.0 | 0.85 | 1.02 | 1.15 | 31.1 |
| Approach | | | 183 | 1.1 | 183 | 1.1 | 0.431 | 15.1 | LOS B | 1.8 | 13.0 | 0.68 | 0.85 | 0.85 | 34.9 |
| East: Lithgow Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 115 | 0.9 | 115 | 0.9 | 0.074 | 4.4 | LOS A | 0.3 | 2.0 | 0.00 | 0.47 | 0.00 | 44.9 |
| 5 | T1 | All MCs | 408 | 2.3 | 408 | 2.3 | 0.215 | 0.0 | LOS A | 0.0 | 0.1 | 0.00 | 0.00 | 0.00 | 50.0 |
| 6 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.215 | 4.7 | LOS A | 0.0 | 0.1 | 0.00 | 0.00 | 0.00 | 28.8 |
| Approach | | | 524 | 2.0 | 524 | 2.0 | 0.215 | 1.0 | NA | 0.3 | 2.0 | 0.00 | 0.10 | 0.00 | 49.2 |
| North: Car Park | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 4 | 0.0 | 4 | 0.0 | 0.011 | 1.3 | LOS A | 0.0 | 0.3 | 0.59 | 0.40 | 0.59 | 27.0 |
| 8 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.011 | 10.7 | LOS A | 0.0 | 0.3 | 0.59 | 0.40 | 0.59 | 19.0 |
| 9 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.011 | 12.7 | LOS A | 0.0 | 0.3 | 0.59 | 0.40 | 0.59 | 27.0 |
| Approach | | | 6 | 0.0 | 6 | 0.0 | 0.011 | 4.8 | LOS A | 0.0 | 0.3 | 0.59 | 0.40 | 0.59 | 26.0 |
| West: Lithgow Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.207 | 4.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 48.7 |
| 11 | T1 | All MCs | 397 | 1.3 | 397 | 1.3 | 0.207 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 49.9 |
| 12 | R2 | All MCs | 63 | 1.7 | 63 | 1.7 | 0.053 | 6.1 | LOS A | 0.2 | 1.6 | 0.46 | 0.61 | 0.46 | 42.6 |
| Approach | | | 461 | 1.4 | 461 | 1.4 | 0.207 | 0.9 | NA | 0.2 | 1.6 | 0.06 | 0.08 | 0.06 | 49.3 |
| All Vehicles | | | 1175 | 1.6 | 1175 | 1.6 | 0.431 | 3.2 | NA | 1.8 | 13.0 | 0.13 | 0.21 | 0.16 | 47.1 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [208] 8. Kirkland Link/Valley Drive - 2025 PM Baseline

(2025 PM Baseline)

**Network: [102] 2025 PM Baseline** (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Network Scenario: 1 | Local Volumes** **Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 29 | 7.1 | 29 | 7.1 | 0.016 | 0.0 | LOS A | 0.0 | 0.1 | 0.03 | 0.03 | 0.03 | 49.6 |
| 3 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.016 | 5.0 | LOS A | 0.0 | 0.1 | 0.03 | 0.03 | 0.03 | 48.5 |
| Approach | | | 31 | 6.9 | 31 | 6.9 | 0.016 | 0.2 | NA | 0.0 | 0.1 | 0.03 | 0.03 | 0.03 | 49.5 |
| East: Valley Drive | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 5 | 0.0 | 5 | 0.0 | 0.152 | 4.7 | LOS A | 0.6 | 4.5 | 0.28 | 0.54 | 0.28 | 45.3 |
| 6 | R2 | All MCs | 153 | 0.0 | 153 | 0.0 | 0.152 | 5.4 | LOS A | 0.6 | 4.5 | 0.28 | 0.54 | 0.28 | 43.4 |
| Approach | | | 158 | 0.0 | 158 | 0.0 | 0.152 | 5.4 | LOS A | 0.6 | 4.5 | 0.28 | 0.54 | 0.28 | 43.5 |
| North: Kirkland Link | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 134 | 0.8 | 134 | 0.8 | 0.073 | 3.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.50 | 0.00 | 44.3 |
| 8 | T1 | All MCs | 44 | 2.4 | 44 | 2.4 | 0.023 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 50.0 |
| Approach | | | 178 | 1.2 | 178 | 1.2 | 0.073 | 2.4 | NA | 0.0 | 0.0 | 0.00 | 0.38 | 0.00 | 45.6 |
| All Vehicles | | | 366 | 1.1 | 366 | 1.1 | 0.152 | 3.5 | NA | 0.6 | 4.5 | 0.12 | 0.42 | 0.12 | 45.0 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [209] 9. Lithgow Street/Bent Street - 2025 PM Baseline

(2025 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Lithgow Street S | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 414 | 1.8 | 414 | 1.8 | 0.216 | 1.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.22 | 0.00 | 48.9 |
| 3 | R2 | All MCs | 81 | 1.3 | 81 | 1.3 | 0.058 | 5.4 | LOS A | 0.3 | 1.8 | 0.35 | 0.53 | 0.35 | 41.1 |
| Approach | | | 495 | 1.7 | 495 | 1.7 | 0.216 | 2.0 | NA | 0.3 | 1.8 | 0.06 | 0.27 | 0.06 | 47.4 |
| East: Bent Street | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 221 | 1.0 | 221 | 1.0 | 0.120 | 3.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.37 | 0.00 | 38.5 |
| 6 | R2 | All MCs | 15 | 0.0 | 15 | 0.0 | 0.031 | 9.3 | LOS A | 0.1 | 0.8 | 0.62 | 0.73 | 0.62 | 35.9 |
| Approach | | | 236 | 0.9 | 236 | 0.9 | 0.120 | 3.4 | LOS A | 0.1 | 0.8 | 0.04 | 0.39 | 0.04 | 38.4 |
| North: Lithgow Street N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 39 | 0.0 | 39 | 0.0 | 0.125 | 3.4 | LOS A | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.3 |
| 8 | T1 | All MCs | 214 | 4.9 | 214 | 4.9 | 0.125 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.7 |
| Approach | | | 253 | 4.2 | 253 | 4.2 | 0.125 | 0.6 | NA | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.7 |
| All Vehicles | | | 983 | 2.1 | 983 | 2.1 | 0.216 | 2.0 | NA | 0.3 | 1.8 | 0.04 | 0.25 | 0.04 | 42.8 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [301] 1. Magpie Hollow Road/Lockyers Line - 2030 AM

**Baseline** (2030 AM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 21 | 15.0 | 21 | 15.0 | 0.013 | 0.0 | LOS A | 0.0 | 0.0 | 0.01 | 0.03 | 0.01 | 98.7 |
| 6 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.013 | 7.4 | LOS A | 0.0 | 0.0 | 0.01 | 0.03 | 0.01 | 63.8 |
| Approach | | | 22 | 14.3 | 22 | 14.3 | 0.013 | 0.4 | NA | 0.0 | 0.0 | 0.01 | 0.03 | 0.01 | 96.2 |
| North: Lockyers Line | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.002 | 4.7 | LOS A | 0.0 | 0.1 | 0.13 | 0.51 | 0.13 | 55.5 |
| 9 | R2 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.002 | 5.9 | LOS A | 0.0 | 0.1 | 0.13 | 0.51 | 0.13 | 39.5 |
| Approach | | | 2 | 50.0 | 2 | 50.0 | 0.002 | 5.3 | LOS A | 0.0 | 0.1 | 0.13 | 0.51 | 0.13 | 46.1 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.021 | 7.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 86.9 |
| 11 | T1 | All MCs | 38 | 5.6 | 38 | 5.6 | 0.021 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 99.4 |
| Approach | | | 39 | 5.4 | 39 | 5.4 | 0.021 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 99.0 |
| All Vehicles | | | 63 | 10.0 | 63 | 10.0 | 0.021 | 0.4 | NA | 0.0 | 0.1 | 0.01 | 0.04 | 0.01 | 94.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [302] 2. Magpie Hollow Road/Sir Thomas Mitchell Drive - 2030 AM Baseline (2030 AM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NorthEast: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 25 | T1 | All MCs | 20 | 15.8 | 20 | 15.8 | 0.013 | 6.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 61.4 |
| 26a | R1 | All MCs | 3 | 0.0 | 3 | 0.0 | 0.013 | 6.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 66.2 |
| Approach | | | 23 | 13.6 | 23 | 13.6 | 0.013 | 6.0 | NA | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 62.0 |
| West: Sir Thomas Mitchell Drive | | | | | | | | | | | | | | | |
| 10a | L1 | All MCs | 3 | 0.0 | 3 | 0.0 | 0.003 | 7.1 | LOS A | 0.0 | 0.1 | 0.11 | 0.62 | 0.11 | 69.2 |
| 12b | R3 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.003 | 8.6 | LOS A | 0.0 | 0.1 | 0.11 | 0.62 | 0.11 | 69.0 |
| Approach | | | 4 | 0.0 | 4 | 0.0 | 0.003 | 7.5 | LOS A | 0.0 | 0.1 | 0.11 | 0.62 | 0.11 | 69.1 |
| SouthWest: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 30b | L3 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.021 | 8.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 65.8 |
| 31 | T1 | All MCs | 38 | 5.6 | 38 | 5.6 | 0.021 | 5.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 64.5 |
| Approach | | | 39 | 5.4 | 39 | 5.4 | 0.021 | 5.9 | NA | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 64.5 |
| All Vehicles | | | 66 | 7.9 | 66 | 7.9 | 0.021 | 6.0 | NA | 0.0 | 0.1 | 0.01 | 0.61 | 0.01 | 63.9 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [303] 3. Great Western Highway/Magpie Hollow Road - 2030 AM Baseline (2030 AM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 44 | 9.5 | 44 | 9.5 | 0.026 | 6.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 56.3 |
| 2 | T1 | All MCs | 446 | 13.0 | 446 | 13.0 | 0.129 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | | | 491 | 12.7 | 491 | 12.7 | 0.129 | 0.6 | NA | 0.0 | 0.0 | 0.00 | 0.05 | 0.00 | 68.4 |
| North: Great Western Highway | | | | | | | | | | | | | | | |
| 8 | T1 | All MCs | 363 | 13.6 | 363 | 13.6 | 0.106 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| 9 | R2 | All MCs | 41 | 17.9 | 41 | 17.9 | 0.089 | 11.7 | LOS A | 0.3 | 2.3 | 0.52 | 0.79 | 0.52 | 50.3 |
| Approach | | | 404 | 14.1 | 404 | 14.1 | 0.106 | 1.2 | NA | 0.3 | 2.3 | 0.05 | 0.08 | 0.05 | 67.3 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 44 | 4.8 | 44 | 4.8 | 0.162 | 7.5 | LOS A | 0.5 | 3.7 | 0.60 | 0.70 | 0.60 | 51.0 |
| 12 | R2 | All MCs | 15 | 21.4 | 15 | 21.4 | 0.162 | 36.4 | LOS C | 0.5 | 3.7 | 0.60 | 0.70 | 0.60 | 47.9 |
| Approach | | | 59 | 8.9 | 59 | 8.9 | 0.162 | 14.7 | LOS B | 0.5 | 3.7 | 0.60 | 0.70 | 0.60 | 50.2 |
| All Vehicles | | | 954 | 13.0 | 954 | 13.0 | 0.162 | 1.7 | NA | 0.5 | 3.7 | 0.06 | 0.11 | 0.06 | 66.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [304] 4. Great Western Highway/Bayonet Street/Ninda Place - 2030 AM Baseline (2030 AM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 100.0 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
**Site Scenario: 1 | Local Volumes**

### Vehicle Movement Performance

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.361 | 18.7 | LOS B | 8.2 | 63.0 | 0.78 | 1.03 | 0.78 | 33.0 |
| 2 | T1 | All MCs | 451 | 11.2 | 451 | 11.2 | 0.361 | 25.7 | LOS B | 8.2 | 63.2 | 0.78 | 0.84 | 0.78 | 41.5 |
| 3 | R2 | All MCs | 213 | 2.0 | 213 | 2.0 | *0.718 | 52.0 | LOS D | 10.4 | 74.2 | 1.00 | 0.86 | 1.08 | 26.4 |
| Approach | | | 672 | 8.2 | 672 | 8.2 | 0.718 | 34.0 | LOS C | 10.4 | 74.2 | 0.85 | 0.85 | 0.88 | 36.5 |
| East: Bayonet St | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 86 | 0.0 | 86 | 0.0 | *0.198 | 21.7 | LOS B | 2.1 | 14.7 | 0.83 | 1.09 | 0.83 | 31.3 |
| 5 | T1 | All MCs | 13 | 0.0 | 13 | 0.0 | 0.174 | 42.9 | LOS D | 1.7 | 12.7 | 0.92 | 0.71 | 0.92 | 25.7 |
| 6 | R2 | All MCs | 24 | 17.4 | 24 | 17.4 | 0.174 | 47.4 | LOS D | 1.7 | 12.7 | 0.92 | 0.71 | 0.92 | 27.5 |
| Approach | | | 123 | 3.4 | 123 | 3.4 | 0.198 | 28.9 | LOS C | 2.1 | 14.7 | 0.86 | 0.98 | 0.86 | 29.8 |
| North: Great Western Highway N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 11 | 20.0 | 11 | 20.0 | *0.716 | 22.0 | LOS B | 6.6 | 52.3 | 0.99 | 1.03 | 1.07 | 26.6 |
| 8 | T1 | All MCs | 432 | 16.1 | 432 | 16.1 | *0.716 | 23.9 | LOS B | 6.6 | 52.8 | 0.99 | 1.03 | 1.07 | 35.6 |
| 9 | R2 | All MCs | 18 | 11.8 | 18 | 11.8 | 0.154 | 56.3 | LOS D | 0.9 | 6.7 | 0.97 | 0.70 | 0.97 | 30.4 |
| Approach | | | 460 | 16.0 | 460 | 16.0 | 0.716 | 25.1 | LOS B | 6.6 | 52.8 | 0.99 | 1.02 | 1.07 | 35.2 |
| West: Ninda Place | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 19 | 0.0 | 19 | 0.0 | *0.079 | 25.9 | LOS B | 0.5 | 3.5 | 0.90 | 1.05 | 0.90 | 28.3 |
| 11 | T1 | All MCs | 31 | 0.0 | 31 | 0.0 | 0.191 | 44.3 | LOS D | 1.8 | 12.8 | 0.94 | 0.70 | 0.94 | 25.8 |
| 12 | R2 | All MCs | 9 | 0.0 | 9 | 0.0 | 0.191 | 48.8 | LOS D | 1.8 | 12.8 | 0.94 | 0.70 | 0.94 | 32.9 |
| Approach | | | 59 | 0.0 | 59 | 0.0 | 0.191 | 39.1 | LOS C | 1.8 | 12.8 | 0.93 | 0.82 | 0.93 | 27.9 |
| All Vehicles | | | 1314 | 10.1 | 1314 | 10.1 | 0.718 | 30.6 | LOS C | 10.4 | 74.2 | 0.91 | 0.92 | 0.95 | 35.0 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

### Pedestrian Movement Performance

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE [ Ped | Dist ] | Prop. Qued | Eff. Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | |
| P1 Full | 6 | 6 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.0 | 200.0 | 1.01 |
| East: Bayonet St | | | | | | | | | | | |
| P2 Full | 2 | 2 | 20.4 | LOS C | 0.0 | 0.0 | 0.88 | 0.88 | 174.3 | 200.0 | 1.15 |
| North: Great Western Highway N | | | | | | | | | | | |
| P3 Full | 2 | 2 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.0 | 200.0 | 1.01 |
| West: Ninda Place | | | | | | | | | | | |
| P4 Full | 2 | 2 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.0 | 200.0 | 1.01 |
| All Pedestrians | 12 | 13 | 40.2 | LOS E | 0.0 | 0.0 | 0.93 | 0.93 | 194.1 | 200.0 | 1.03 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [305] 5. Bayonet Street/Musket Parade - 2030 AM

**Baseline** (2030 AM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Bayonet Street | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 34 | 6.2 | 34 | 6.2 | 0.023 | 0.2 | LOS A | 0.1 | 0.4 | 0.16 | 0.17 | 0.16 | 48.3 |
| 6 | R2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.023 | 5.3 | LOS A | 0.1 | 0.4 | 0.16 | 0.17 | 0.16 | 47.8 |
| Approach | | | 42 | 5.0 | 42 | 5.0 | 0.023 | 1.3 | NA | 0.1 | 0.4 | 0.16 | 0.17 | 0.16 | 48.2 |
| North: Musket Parade | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 3 | 33.3 | 3 | 33.3 | 0.095 | 5.0 | LOS A | 0.3 | 2.3 | 0.24 | 0.53 | 0.24 | 44.9 |
| 9 | R2 | All MCs | 101 | 2.1 | 101 | 2.1 | 0.095 | 5.3 | LOS A | 0.3 | 2.3 | 0.24 | 0.53 | 0.24 | 43.2 |
| Approach | | | 104 | 3.0 | 104 | 3.0 | 0.095 | 5.3 | LOS A | 0.3 | 2.3 | 0.24 | 0.53 | 0.24 | 43.3 |
| West: Bayonet Street | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 231 | 1.8 | 231 | 1.8 | 0.128 | 4.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.48 | 0.00 | 44.3 |
| 11 | T1 | All MCs | 23 | 9.1 | 23 | 9.1 | 0.128 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.48 | 0.00 | 46.0 |
| Approach | | | 254 | 2.5 | 254 | 2.5 | 0.128 | 4.2 | NA | 0.0 | 0.0 | 0.00 | 0.48 | 0.00 | 44.5 |
| All Vehicles | | | 400 | 2.9 | 400 | 2.9 | 0.128 | 4.1 | NA | 0.3 | 2.3 | 0.08 | 0.46 | 0.08 | 44.6 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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Project: C:\Users\janmuller\OneDrive - EMM Consulting\Documents\E221111 - Lake Lyell PHES EIS\SIDRA\E221111_SIDRA_v7 (revised routing).sipx

# MOVEMENT SUMMARY

## Site: [307] 7. Lithgow Street/Kirkland Link - 2030 AM Baseline (2030 AM Baseline)

**Network: [103] 2030 AM Baseline** (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Network Scenario: 1 | Local Volumes** **Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 13 | 0.0 | 13 | 0.0 | 0.013 | 4.0 | LOS A | 0.0 | 0.3 | 0.38 | 0.52 | 0.38 | 42.9 |
| 2 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.013 | 13.5 | LOS A | 0.0 | 0.3 | 0.38 | 0.52 | 0.38 | 20.2 |
| 3 | R2 | All MCs | 47 | 6.7 | 47 | 6.7 | 0.218 | 20.7 | LOS B | 0.7 | 5.4 | 0.82 | 0.93 | 0.88 | 32.0 |
| Approach | | | 61 | 5.2 | 61 | 5.2 | 0.218 | 17.1 | LOS B | 0.7 | 5.4 | 0.72 | 0.83 | 0.77 | 33.4 |
| East: Lithgow Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 46 | 4.5 | 46 | 4.5 | 0.030 | 4.4 | LOS A | 0.1 | 0.8 | 0.00 | 0.46 | 0.00 | 44.9 |
| 5 | T1 | All MCs | 257 | 2.5 | 257 | 2.5 | 0.137 | 0.0 | LOS A | 0.0 | 0.2 | 0.01 | 0.01 | 0.01 | 49.9 |
| 6 | R2 | All MCs | 2 | 0.0 | 2 | 0.0 | 0.137 | 6.1 | LOS A | 0.0 | 0.2 | 0.01 | 0.01 | 0.01 | 28.8 |
| Approach | | | 305 | 2.8 | 305 | 2.8 | 0.137 | 0.7 | NA | 0.1 | 0.8 | 0.01 | 0.08 | 0.01 | 49.2 |
| North: Car Park | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.009 | 2.4 | LOS A | 0.0 | 0.2 | 0.69 | 0.57 | 0.69 | 26.3 |
| 8 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.009 | 10.3 | LOS A | 0.0 | 0.2 | 0.69 | 0.57 | 0.69 | 18.4 |
| 9 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.009 | 12.3 | LOS A | 0.0 | 0.2 | 0.69 | 0.57 | 0.69 | 26.3 |
| Approach | | | 3 | 0.0 | 3 | 0.0 | 0.009 | 8.3 | LOS A | 0.0 | 0.2 | 0.69 | 0.57 | 0.69 | 24.2 |
| West: Lithgow Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 5 | 0.0 | 5 | 0.0 | 0.315 | 4.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 48.6 |
| 11 | T1 | All MCs | 593 | 2.7 | 593 | 2.7 | 0.315 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 49.8 |
| 12 | R2 | All MCs | 25 | 4.2 | 25 | 4.2 | 0.018 | 5.4 | LOS A | 0.1 | 0.6 | 0.35 | 0.53 | 0.35 | 43.1 |
| Approach | | | 623 | 2.7 | 623 | 2.7 | 0.315 | 0.4 | NA | 0.1 | 0.6 | 0.01 | 0.03 | 0.01 | 49.6 |
| All Vehicles | | | 993 | 2.9 | 993 | 2.9 | 0.315 | 1.5 | NA | 0.7 | 5.4 | 0.06 | 0.09 | 0.06 | 48.5 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [306] 6. Martini Parade/Methven Street - 2030 AM

**Baseline** (2030 AM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 40.0 seconds (Site Practical Cycle Time)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 2 | 0.0 | 2 | 0.0 | 0.051 | 14.9 | LOS B | 0.4 | 3.4 | 0.64 | 0.48 | 0.64 | 36.3 |
| 2 | T1 | All MCs | 35 | 9.1 | 35 | 9.1 | 0.051 | 7.8 | LOS A | 0.4 | 3.4 | 0.64 | 0.48 | 0.64 | 36.7 |
| 3 | R2 | All MCs | 223 | 5.2 | 223 | 5.2 | * 0.505 | 17.5 | LOS B | 3.9 | 28.6 | 0.89 | 0.78 | 0.89 | 33.2 |
| Approach | | | 260 | 5.7 | 260 | 5.7 | 0.505 | 16.2 | LOS B | 3.9 | 28.6 | 0.85 | 0.74 | 0.85 | 33.7 |
| East: Methven Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 122 | 1.7 | 122 | 1.7 | * 0.416 | 21.0 | LOS B | 2.3 | 16.5 | 0.94 | 0.76 | 0.94 | 32.2 |
| 5 | T1 | All MCs | 104 | 5.1 | 104 | 5.1 | 0.219 | 12.3 | LOS A | 1.7 | 12.6 | 0.80 | 0.64 | 0.80 | 35.2 |
| 6 | R2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.219 | 18.1 | LOS B | 1.7 | 12.6 | 0.80 | 0.64 | 0.80 | 34.8 |
| Approach | | | 233 | 3.2 | 233 | 3.2 | 0.416 | 17.0 | LOS B | 2.3 | 16.5 | 0.87 | 0.70 | 0.87 | 33.5 |
| North: Martini Parade N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 38 | 0.0 | 38 | 0.0 | 0.071 | 14.9 | LOS B | 0.6 | 3.9 | 0.75 | 0.67 | 0.75 | 34.0 |
| 8 | T1 | All MCs | 40 | 0.0 | 40 | 0.0 | 0.062 | 7.7 | LOS A | 0.6 | 3.9 | 0.63 | 0.50 | 0.63 | 36.7 |
| 9 | R2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.062 | 11.5 | LOS A | 0.6 | 3.9 | 0.63 | 0.50 | 0.63 | 36.3 |
| Approach | | | 84 | 0.0 | 84 | 0.0 | 0.071 | 11.2 | LOS A | 0.6 | 3.9 | 0.68 | 0.57 | 0.68 | 35.4 |
| West: Methven Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.300 | 20.9 | LOS B | 2.6 | 18.2 | 0.83 | 0.67 | 0.83 | 34.7 |
| 11 | T1 | All MCs | 299 | 1.4 | 299 | 1.4 | 0.300 | 12.7 | LOS A | 2.6 | 18.2 | 0.83 | 0.67 | 0.83 | 35.0 |
| 12 | R2 | All MCs | 6 | 16.7 | 6 | 16.7 | 0.300 | 23.7 | LOS B | 2.5 | 17.7 | 0.83 | 0.67 | 0.83 | 34.5 |
| Approach | | | 312 | 1.7 | 312 | 1.7 | 0.300 | 13.1 | LOS A | 2.6 | 18.2 | 0.83 | 0.67 | 0.83 | 35.0 |
| All Vehicles | | | 888 | 3.1 | 888 | 3.1 | 0.505 | 14.9 | LOS B | 3.9 | 28.6 | 0.84 | 0.69 | 0.84 | 34.2 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

**Pedestrian Movement Performance**

| Mov ID | Crossing | Input Vol. ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Ped ped | Dist ] m | Prop. Qued | Eff. Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | |
| P1 | Full | 2 | 2 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| East: Methven Street E | | | | | | | | | | | | |
| P2 | Full | 2 | 2 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| North: Martini Parade N | | | | | | | | | | | | |
| P3 | Full | 3 | 3 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| West: Methven Street W | | | | | | | | | | | | |
| P4 | Full | 4 | 4 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| All Pedestrians | | 11 | 12 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [308] 8. Kirkland Link/Valley Drive - 2030 AM Baseline

(2030 AM Baseline)

**Network: [103] 2030 AM Baseline** (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Network Scenario: 1 | Local Volumes** **Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 33 | 3.2 | 33 | 3.2 | 0.017 | 0.0 | LOS A | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 49.7 |
| 3 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.017 | 4.6 | LOS A | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 48.6 |
| Approach | | | 34 | 3.1 | 34 | 3.1 | 0.017 | 0.1 | NA | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 49.6 |
| East: Valley Drive | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.027 | 4.6 | LOS A | 0.1 | 0.8 | 0.18 | 0.51 | 0.18 | 45.5 |
| 6 | R2 | All MCs | 27 | 7.7 | 27 | 7.7 | 0.027 | 5.1 | LOS A | 0.1 | 0.8 | 0.18 | 0.51 | 0.18 | 43.7 |
| Approach | | | 28 | 7.4 | 28 | 7.4 | 0.027 | 5.1 | LOS A | 0.1 | 0.8 | 0.18 | 0.51 | 0.18 | 43.9 |
| North: Kirkland Link | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 52 | 2.0 | 52 | 2.0 | 0.028 | 3.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.50 | 0.00 | 44.3 |
| 8 | T1 | All MCs | 20 | 10.5 | 20 | 10.5 | 0.011 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 50.0 |
| Approach | | | 72 | 4.4 | 72 | 4.4 | 0.028 | 2.3 | NA | 0.0 | 0.0 | 0.00 | 0.36 | 0.00 | 45.7 |
| All Vehicles | | | 134 | 4.7 | 134 | 4.7 | 0.028 | 2.3 | NA | 0.1 | 0.8 | 0.04 | 0.31 | 0.04 | 46.2 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [309] 9. Lithgow Street/Bent Street - 2030 AM Baseline

(2030 AM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Lithgow Street S | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 307 | 2.4 | 307 | 2.4 | 0.161 | 1.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.22 | 0.00 | 48.9 |
| 3 | R2 | All MCs | 267 | 3.9 | 267 | 3.9 | 0.191 | 5.5 | LOS A | 0.9 | 6.8 | 0.38 | 0.55 | 0.38 | 41.0 |
| Approach | | | 575 | 3.1 | 575 | 3.1 | 0.191 | 3.3 | NA | 0.9 | 6.8 | 0.18 | 0.38 | 0.18 | 44.9 |
| East: Bent Street | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 129 | 1.6 | 129 | 1.6 | 0.071 | 2.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.36 | 0.00 | 38.6 |
| 6 | R2 | All MCs | 6 | 16.7 | 6 | 16.7 | 0.018 | 11.7 | LOS A | 0.1 | 0.5 | 0.66 | 0.74 | 0.66 | 35.1 |
| Approach | | | 136 | 2.3 | 136 | 2.3 | 0.071 | 3.4 | LOS A | 0.1 | 0.5 | 0.03 | 0.38 | 0.03 | 38.4 |
| North: Lithgow Street N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 73 | 4.3 | 73 | 4.3 | 0.119 | 3.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.14 | 0.00 | 39.1 |
| 8 | T1 | All MCs | 168 | 3.1 | 168 | 3.1 | 0.119 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.14 | 0.00 | 39.5 |
| Approach | | | 241 | 3.5 | 241 | 3.5 | 0.119 | 1.1 | NA | 0.0 | 0.0 | 0.00 | 0.14 | 0.00 | 39.4 |
| All Vehicles | | | 952 | 3.1 | 952 | 3.1 | 0.191 | 2.7 | NA | 0.9 | 6.8 | 0.11 | 0.32 | 0.11 | 42.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [401] 1. Magpie Hollow Road/Lockyers Line - 2030 PM Baseline (2030 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 45 | 0.0 | 45 | 0.0 | 0.024 | 0.0 | LOS A | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 99.2 |
| 6 | R2 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.024 | 10.2 | LOS A | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 61.0 |
| Approach | | | 46 | 2.3 | 46 | 2.3 | 0.024 | 0.2 | NA | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 97.8 |
| North: Lockyers Line | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.002 | 4.6 | LOS A | 0.0 | 0.1 | 0.12 | 0.51 | 0.12 | 55.5 |
| 9 | R2 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.002 | 6.0 | LOS A | 0.0 | 0.1 | 0.12 | 0.51 | 0.12 | 39.5 |
| Approach | | | 2 | 50.0 | 2 | 50.0 | 0.002 | 5.3 | LOS A | 0.0 | 0.1 | 0.12 | 0.51 | 0.12 | 46.1 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.016 | 7.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 87.9 |
| 11 | T1 | All MCs | 31 | 0.0 | 31 | 0.0 | 0.016 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 99.3 |
| Approach | | | 32 | 0.0 | 32 | 0.0 | 0.016 | 0.3 | NA | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 98.9 |
| All Vehicles | | | 80 | 2.6 | 80 | 2.6 | 0.024 | 0.4 | NA | 0.0 | 0.1 | 0.01 | 0.03 | 0.01 | 95.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [402] 2. Magpie Hollow Road/Sir Thomas Mitchell Drive - 2030 PM Baseline (2030 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NorthEast: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 25 | T1 | All MCs | 45 | 2.3 | 45 | 2.3 | 0.028 | 5.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 65.5 |
| 26a | R1 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.028 | 6.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 66.2 |
| Approach | | | 54 | 2.0 | 54 | 2.0 | 0.028 | 5.8 | NA | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 65.6 |
| West: Sir Thomas Mitchell Drive | | | | | | | | | | | | | | | |
| 10a | L1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.002 | 7.1 | LOS A | 0.0 | 0.1 | 0.13 | 0.61 | 0.13 | 66.8 |
| 12b | R3 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.002 | 11.8 | LOS A | 0.0 | 0.1 | 0.13 | 0.61 | 0.13 | 42.6 |
| Approach | | | 2 | 50.0 | 2 | 50.0 | 0.002 | 9.5 | LOS A | 0.0 | 0.1 | 0.13 | 0.61 | 0.13 | 52.0 |
| SouthWest: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 30b | L3 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.015 | 8.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 65.8 |
| 31 | T1 | All MCs | 29 | 0.0 | 29 | 0.0 | 0.015 | 5.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 66.2 |
| Approach | | | 31 | 0.0 | 31 | 0.0 | 0.015 | 5.8 | NA | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 66.2 |
| All Vehicles | | | 86 | 2.4 | 86 | 2.4 | 0.028 | 5.9 | NA | 0.0 | 0.1 | 0.00 | 0.61 | 0.00 | 65.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [403] 3. Great Western Highway/Magpie Hollow Road - 2030 PM Baseline (2030 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 29 | 0.0 | 29 | 0.0 | 0.016 | 6.4 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 59.0 |
| 2 | T1 | All MCs | 437 | 13.0 | 437 | 13.0 | 0.127 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | | | 466 | 12.2 | 466 | 12.2 | 0.127 | 0.4 | NA | 0.0 | 0.0 | 0.00 | 0.04 | 0.00 | 69.1 |
| North: Great Western Highway | | | | | | | | | | | | | | | |
| 8 | T1 | All MCs | 517 | 9.6 | 517 | 9.6 | 0.145 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| 9 | R2 | All MCs | 58 | 1.8 | 58 | 1.8 | 0.103 | 10.2 | LOS A | 0.3 | 2.5 | 0.50 | 0.77 | 0.50 | 55.0 |
| Approach | | | 575 | 8.8 | 575 | 8.8 | 0.145 | 1.1 | NA | 0.3 | 2.5 | 0.05 | 0.08 | 0.05 | 68.1 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 23 | 4.5 | 23 | 4.5 | 0.150 | 7.5 | LOS A | 0.5 | 3.4 | 0.70 | 0.77 | 0.70 | 48.7 |
| 12 | R2 | All MCs | 18 | 0.0 | 18 | 0.0 | 0.150 | 31.9 | LOS C | 0.5 | 3.4 | 0.70 | 0.77 | 0.70 | 49.8 |
| Approach | | | 41 | 2.6 | 41 | 2.6 | 0.150 | 18.1 | LOS B | 0.5 | 3.4 | 0.70 | 0.77 | 0.70 | 49.2 |
| All Vehicles | | | 1082 | 10.0 | 1082 | 10.0 | 0.150 | 1.4 | NA | 0.5 | 3.4 | 0.05 | 0.09 | 0.05 | 67.5 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [404] 4. Great Western Highway/Bayonet Street/Ninda Place - 2030 PM Baseline (2030 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 100.0 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 15 | 0.0 | 15 | 0.0 | 0.413 | 20.1 | LOS B | 9.1 | 70.0 | 0.82 | 1.03 | 0.82 | 32.1 |
| 2 | T1 | All MCs | 469 | 11.9 | 469 | 11.9 | 0.413 | 28.3 | LOS B | 9.1 | 70.5 | 0.82 | 0.86 | 0.82 | 40.3 |
| 3 | R2 | All MCs | 153 | 4.1 | 153 | 4.1 | * 0.668 | 54.0 | LOS D | 7.5 | 54.5 | 1.00 | 0.83 | 1.07 | 25.9 |
| Approach | | | 637 | 9.8 | 637 | 9.8 | 0.668 | 34.3 | LOS C | 9.1 | 70.5 | 0.87 | 0.86 | 0.88 | 36.6 |
| East: Bayonet St | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 212 | 1.5 | 212 | 1.5 | * 0.574 | 25.1 | LOS B | 5.9 | 41.5 | 0.95 | 1.03 | 0.95 | 29.1 |
| 5 | T1 | All MCs | 42 | 0.0 | 42 | 0.0 | 0.362 | 44.2 | LOS D | 3.7 | 27.6 | 0.95 | 0.75 | 0.95 | 25.6 |
| 6 | R2 | All MCs | 38 | 16.7 | 38 | 16.7 | 0.362 | 48.7 | LOS D | 3.7 | 27.6 | 0.95 | 0.75 | 0.95 | 27.4 |
| Approach | | | 292 | 3.2 | 292 | 3.2 | 0.574 | 30.9 | LOS C | 5.9 | 41.5 | 0.95 | 0.95 | 0.95 | 28.3 |
| North: Great Western Highway N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 13 | 16.7 | 13 | 16.7 | * 0.668 | 19.9 | LOS B | 7.3 | 55.6 | 0.97 | 1.01 | 0.99 | 27.4 |
| 8 | T1 | All MCs | 487 | 9.7 | 487 | 9.7 | * 0.668 | 22.0 | LOS B | 7.4 | 56.0 | 0.97 | 1.01 | 0.99 | 36.7 |
| 9 | R2 | All MCs | 22 | 0.0 | 22 | 0.0 | 0.133 | 53.3 | LOS D | 1.0 | 7.2 | 0.95 | 0.71 | 0.95 | 31.2 |
| Approach | | | 522 | 9.5 | 522 | 9.5 | 0.668 | 23.3 | LOS B | 7.4 | 56.0 | 0.97 | 1.00 | 0.99 | 36.2 |
| West: Ninda Place | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 11 | 0.0 | 11 | 0.0 | * 0.037 | 24.1 | LOS B | 0.3 | 1.8 | 0.86 | 1.07 | 0.86 | 29.0 |
| 11 | T1 | All MCs | 29 | 0.0 | 29 | 0.0 | 0.259 | 44.1 | LOS D | 2.6 | 18.1 | 0.94 | 0.73 | 0.94 | 25.6 |
| 12 | R2 | All MCs | 26 | 4.0 | 26 | 4.0 | 0.259 | 48.6 | LOS D | 2.6 | 18.1 | 0.94 | 0.73 | 0.94 | 32.3 |
| Approach | | | 66 | 1.6 | 66 | 1.6 | 0.259 | 42.7 | LOS D | 2.6 | 18.1 | 0.93 | 0.78 | 0.93 | 29.1 |
| All Vehicles | | | 1517 | 8.0 | 1517 | 8.0 | 0.668 | 30.2 | LOS C | 9.1 | 70.5 | 0.92 | 0.92 | 0.93 | 34.6 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

**Pedestrian Movement Performance**

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE [ Ped | Dist ] | Prop. Qued | Eff. Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | |
| P1 Full | 6 | 6 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.0 | 200.0 | 1.01 |
| East: Bayonet St | | | | | | | | | | | |
| P2 Full | 2 | 2 | 20.8 | LOS C | 0.0 | 0.0 | 0.88 | 0.88 | 174.6 | 200.0 | 1.15 |
| North: Great Western Highway N | | | | | | | | | | | |
| P3 Full | 4 | 4 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.0 | 200.0 | 1.01 |
| West: Ninda Place | | | | | | | | | | | |
| P4 Full | 6 | 6 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.0 | 200.0 | 1.01 |
| All Pedestrians | 18 | 19 | 41.6 | LOS E | 0.0 | 0.0 | 0.93 | 0.93 | 195.4 | 200.0 | 1.02 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [405] 5. Bayonet Street/Musket Parade - 2030 PM

**Baseline** (2030 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Bayonet Street | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 59 | 14.3 | 59 | 14.3 | 0.042 | 0.2 | LOS A | 0.1 | 0.8 | 0.15 | 0.17 | 0.15 | 48.2 |
| 6 | R2 | All MCs | 17 | 0.0 | 17 | 0.0 | 0.042 | 5.2 | LOS A | 0.1 | 0.8 | 0.15 | 0.17 | 0.15 | 47.7 |
| Approach | | | 76 | 11.1 | 76 | 11.1 | 0.042 | 1.3 | NA | 0.1 | 0.8 | 0.15 | 0.17 | 0.15 | 48.0 |
| North: Musket Parade | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.252 | 4.7 | LOS A | 1.0 | 7.0 | 0.29 | 0.54 | 0.29 | 45.3 |
| 9 | R2 | All MCs | 264 | 2.8 | 264 | 2.8 | 0.252 | 5.5 | LOS A | 1.0 | 7.0 | 0.29 | 0.54 | 0.29 | 43.0 |
| Approach | | | 273 | 2.7 | 273 | 2.7 | 0.252 | 5.5 | LOS A | 1.0 | 7.0 | 0.29 | 0.54 | 0.29 | 43.1 |
| West: Bayonet Street | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 169 | 3.7 | 169 | 3.7 | 0.101 | 4.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.46 | 0.00 | 44.5 |
| 11 | T1 | All MCs | 26 | 8.0 | 26 | 8.0 | 0.101 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.46 | 0.00 | 46.1 |
| Approach | | | 196 | 4.3 | 196 | 4.3 | 0.101 | 4.0 | NA | 0.0 | 0.0 | 0.00 | 0.46 | 0.00 | 44.7 |
| All Vehicles | | | 544 | 4.4 | 544 | 4.4 | 0.252 | 4.4 | NA | 1.0 | 7.0 | 0.16 | 0.46 | 0.16 | 44.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [406] 6. Martini Parade/Methven Street - 2030 PM

**Baseline** (2030 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 40.0 seconds (Site Practical Cycle Time)
**Site Scenario: 1 | Local Volumes**

### Vehicle Movement Performance

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 3 | 0.0 | 3 | 0.0 | * 0.058 | 17.4 | LOS B | 0.5 | 3.5 | 0.71 | 0.54 | 0.71 | 35.5 |
| 2 | T1 | All MCs | 34 | 0.0 | 34 | 0.0 | 0.058 | 9.8 | LOS A | 0.5 | 3.5 | 0.71 | 0.54 | 0.71 | 35.9 |
| 3 | R2 | All MCs | 180 | 0.6 | 180 | 0.6 | 0.447 | 18.6 | LOS B | 3.2 | 22.7 | 0.90 | 0.77 | 0.90 | 32.9 |
| Approach | | | 217 | 0.5 | 217 | 0.5 | 0.447 | 17.2 | LOS B | 3.2 | 22.7 | 0.87 | 0.73 | 0.87 | 33.4 |
| East: Methven Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 168 | 4.4 | 168 | 4.4 | * 0.415 | 18.5 | LOS B | 3.0 | 21.7 | 0.89 | 0.77 | 0.89 | 32.9 |
| 5 | T1 | All MCs | 265 | 0.8 | 265 | 0.8 | 0.406 | 10.9 | LOS A | 4.2 | 29.4 | 0.80 | 0.67 | 0.80 | 35.7 |
| 6 | R2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.406 | 15.9 | LOS B | 4.2 | 29.4 | 0.80 | 0.67 | 0.80 | 35.3 |
| Approach | | | 440 | 2.2 | 440 | 2.2 | 0.415 | 13.9 | LOS A | 4.2 | 29.4 | 0.84 | 0.71 | 0.84 | 34.6 |
| North: Martini Parade N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 17 | 6.2 | 17 | 6.2 | 0.057 | 17.9 | LOS B | 0.4 | 2.8 | 0.80 | 0.64 | 0.80 | 33.9 |
| 8 | T1 | All MCs | 32 | 0.0 | 32 | 0.0 | 0.057 | 9.7 | LOS A | 0.5 | 3.2 | 0.72 | 0.58 | 0.72 | 35.4 |
| 9 | R2 | All MCs | 11 | 0.0 | 11 | 0.0 | 0.057 | 13.4 | LOS A | 0.5 | 3.2 | 0.69 | 0.56 | 0.69 | 35.4 |
| Approach | | | 59 | 1.8 | 59 | 1.8 | 0.057 | 12.7 | LOS A | 0.5 | 3.2 | 0.74 | 0.59 | 0.74 | 35.0 |
| West: Methven Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 4 | 0.0 | 4 | 0.0 | 0.175 | 17.6 | LOS B | 1.6 | 11.5 | 0.73 | 0.58 | 0.73 | 35.6 |
| 11 | T1 | All MCs | 218 | 2.4 | 218 | 2.4 | 0.175 | 10.0 | LOS A | 1.6 | 11.5 | 0.73 | 0.58 | 0.73 | 35.9 |
| 12 | R2 | All MCs | 3 | 0.0 | 3 | 0.0 | 0.175 | 21.0 | LOS B | 1.6 | 11.2 | 0.74 | 0.58 | 0.74 | 35.5 |
| Approach | | | 225 | 2.3 | 225 | 2.3 | 0.175 | 10.3 | LOS A | 1.6 | 11.5 | 0.73 | 0.58 | 0.73 | 35.9 |
| All Vehicles | | | 941 | 1.8 | 941 | 1.8 | 0.447 | 13.7 | LOS A | 4.2 | 29.4 | 0.81 | 0.68 | 0.81 | 34.6 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

### Pedestrian Movement Performance

| Mov ID | Crossing | Input Vol. ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Ped ped | Dist ] m | Prop. Qued | Eff. Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | |
| P1 | Full | 7 | 7 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| East: Methven Street E | | | | | | | | | | | | |
| P2 | Full | 3 | 3 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| North: Martini Parade N | | | | | | | | | | | | |
| P3 | Full | 7 | 7 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| West: Methven Street W | | | | | | | | | | | | |
| P4 | Full | 6 | 6 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| All Pedestrians | | 23 | 24 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [407] 7. Lithgow Street/Kirkland Link - 2030 PM Baseline (2030 PM Baseline)

**Network: [104] 2030 PM Baseline** (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Network Scenario: 1 | Local Volumes** **Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 79 | 0.0 | 79 | 0.0 | 0.076 | 4.8 | LOS A | 0.3 | 2.0 | 0.45 | 0.62 | 0.45 | 42.7 |
| 2 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.076 | 14.8 | LOS B | 0.3 | 2.0 | 0.45 | 0.62 | 0.45 | 20.1 |
| 3 | R2 | All MCs | 111 | 1.9 | 111 | 1.9 | 0.480 | 25.0 | LOS B | 2.1 | 14.8 | 0.87 | 1.05 | 1.24 | 29.9 |
| Approach | | | 191 | 1.1 | 191 | 1.1 | 0.480 | 16.6 | LOS B | 2.1 | 14.8 | 0.69 | 0.87 | 0.91 | 34.0 |
| East: Lithgow Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 119 | 0.9 | 119 | 0.9 | 0.077 | 4.4 | LOS A | 0.3 | 2.0 | 0.00 | 0.47 | 0.00 | 44.9 |
| 5 | T1 | All MCs | 424 | 2.2 | 424 | 2.2 | 0.223 | 0.0 | LOS A | 0.0 | 0.1 | 0.00 | 0.00 | 0.00 | 50.0 |
| 6 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.223 | 4.8 | LOS A | 0.0 | 0.1 | 0.00 | 0.00 | 0.00 | 28.8 |
| Approach | | | 544 | 1.9 | 544 | 1.9 | 0.223 | 1.0 | NA | 0.3 | 2.0 | 0.00 | 0.10 | 0.00 | 49.2 |
| North: Car Park | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 4 | 0.0 | 4 | 0.0 | 0.012 | 1.4 | LOS A | 0.0 | 0.3 | 0.60 | 0.42 | 0.60 | 26.9 |
| 8 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.012 | 11.6 | LOS A | 0.0 | 0.3 | 0.60 | 0.42 | 0.60 | 18.9 |
| 9 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.012 | 13.8 | LOS A | 0.0 | 0.3 | 0.60 | 0.42 | 0.60 | 26.9 |
| Approach | | | 6 | 0.0 | 6 | 0.0 | 0.012 | 5.2 | LOS A | 0.0 | 0.3 | 0.60 | 0.42 | 0.60 | 25.9 |
| West: Lithgow Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.215 | 4.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 48.7 |
| 11 | T1 | All MCs | 413 | 1.3 | 413 | 1.3 | 0.215 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 49.9 |
| 12 | R2 | All MCs | 65 | 1.6 | 65 | 1.6 | 0.056 | 6.2 | LOS A | 0.2 | 1.7 | 0.47 | 0.61 | 0.47 | 42.6 |
| Approach | | | 479 | 1.3 | 479 | 1.3 | 0.215 | 0.9 | NA | 0.2 | 1.7 | 0.06 | 0.08 | 0.06 | 49.3 |
| All Vehicles | | | 1220 | 1.6 | 1220 | 1.6 | 0.480 | 3.4 | NA | 2.1 | 14.8 | 0.14 | 0.22 | 0.17 | 46.9 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [408] 8. Kirkland Link/Valley Drive - 2030 PM Baseline

(2030 PM Baseline)

**Network: [104] 2030 PM Baseline** (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Network Scenario: 1 | Local Volumes** **Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 31 | 6.9 | 31 | 6.9 | 0.016 | 0.0 | LOS A | 0.0 | 0.1 | 0.03 | 0.03 | 0.03 | 49.6 |
| 3 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.016 | 5.0 | LOS A | 0.0 | 0.1 | 0.03 | 0.03 | 0.03 | 48.5 |
| Approach | | | 32 | 6.7 | 32 | 6.7 | 0.016 | 0.2 | NA | 0.0 | 0.1 | 0.03 | 0.03 | 0.03 | 49.6 |
| East: Valley Drive | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 5 | 0.0 | 5 | 0.0 | 0.159 | 4.7 | LOS A | 0.7 | 4.8 | 0.29 | 0.54 | 0.29 | 45.3 |
| 6 | R2 | All MCs | 159 | 0.0 | 159 | 0.0 | 0.159 | 5.5 | LOS A | 0.7 | 4.8 | 0.29 | 0.54 | 0.29 | 43.3 |
| Approach | | | 164 | 0.0 | 164 | 0.0 | 0.159 | 5.4 | LOS A | 0.7 | 4.8 | 0.29 | 0.54 | 0.29 | 43.4 |
| North: Kirkland Link | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 139 | 0.8 | 139 | 0.8 | 0.075 | 3.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.50 | 0.00 | 44.3 |
| 8 | T1 | All MCs | 46 | 2.3 | 46 | 2.3 | 0.024 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 50.0 |
| Approach | | | 185 | 1.1 | 185 | 1.1 | 0.075 | 2.4 | NA | 0.0 | 0.0 | 0.00 | 0.38 | 0.00 | 45.6 |
| All Vehicles | | | 381 | 1.1 | 381 | 1.1 | 0.159 | 3.5 | NA | 0.7 | 4.8 | 0.13 | 0.42 | 0.13 | 44.9 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [409] 9. Lithgow Street/Bent Street - 2030 PM Baseline

(2030 PM Baseline)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Lithgow Street S | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 429 | 1.7 | 429 | 1.7 | 0.224 | 1.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.22 | 0.00 | 48.9 |
| 3 | R2 | All MCs | 84 | 1.2 | 84 | 1.2 | 0.060 | 5.4 | LOS A | 0.3 | 1.9 | 0.36 | 0.54 | 0.36 | 41.1 |
| Approach | | | 514 | 1.6 | 514 | 1.6 | 0.224 | 2.0 | NA | 0.3 | 1.9 | 0.06 | 0.27 | 0.06 | 47.4 |
| East: Bent Street | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 229 | 0.9 | 229 | 0.9 | 0.125 | 3.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.37 | 0.00 | 38.5 |
| 6 | R2 | All MCs | 16 | 0.0 | 16 | 0.0 | 0.035 | 9.7 | LOS A | 0.1 | 0.9 | 0.63 | 0.75 | 0.63 | 35.8 |
| Approach | | | 245 | 0.9 | 245 | 0.9 | 0.125 | 3.4 | LOS A | 0.1 | 0.9 | 0.04 | 0.39 | 0.04 | 38.4 |
| North: Lithgow Street N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 40 | 0.0 | 40 | 0.0 | 0.129 | 3.4 | LOS A | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.3 |
| 8 | T1 | All MCs | 222 | 4.7 | 222 | 4.7 | 0.129 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.7 |
| Approach | | | 262 | 4.0 | 262 | 4.0 | 0.129 | 0.6 | NA | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.7 |
| All Vehicles | | | 1021 | 2.1 | 1021 | 2.1 | 0.224 | 2.0 | NA | 0.3 | 1.9 | 0.04 | 0.25 | 0.04 | 42.8 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [501] 1. Magpie Hollow Road/Lockyers Line - 2030 AM

**Project Scenario 1** (2030 AM Project Scenario 1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 21 | 15.0 | 21 | 15.0 | 0.057 | 0.2 | LOS A | 0.3 | 2.6 | 0.14 | 0.47 | 0.14 | 88.8 |
| 6 | R2 | All MCs | 54 | 60.8 | 54 | 60.8 | 0.057 | 9.3 | LOS A | 0.3 | 2.6 | 0.14 | 0.47 | 0.14 | 57.9 |
| Approach | | | 75 | 47.9 | 75 | 47.9 | 0.057 | 6.7 | NA | 0.3 | 2.6 | 0.14 | 0.47 | 0.14 | 64.2 |
| North: Lockyers Line | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 238 | 27.9 | 238 | 27.9 | 0.173 | 5.0 | LOS A | 0.8 | 6.9 | 0.13 | 0.50 | 0.13 | 50.5 |
| 9 | R2 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.173 | 6.8 | LOS A | 0.8 | 6.9 | 0.13 | 0.50 | 0.13 | 39.7 |
| Approach | | | 239 | 28.2 | 239 | 28.2 | 0.173 | 5.0 | LOS A | 0.8 | 6.9 | 0.13 | 0.50 | 0.13 | 50.4 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.021 | 7.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 86.9 |
| 11 | T1 | All MCs | 38 | 5.6 | 38 | 5.6 | 0.021 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 99.4 |
| Approach | | | 39 | 5.4 | 39 | 5.4 | 0.021 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 99.0 |
| All Vehicles | | | 353 | 29.9 | 353 | 29.9 | 0.173 | 4.8 | NA | 0.8 | 6.9 | 0.12 | 0.44 | 0.12 | 56.0 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [601] 1. Magpie Hollow Road/Lockyers Line - 2030 PM

**Project Scenario 1** (2030 PM Project Scenario 1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 45 | 0.0 | 45 | 0.0 | 0.186 | 0.1 | LOS A | 1.0 | 8.3 | 0.13 | 0.54 | 0.13 | 85.1 |
| 6 | R2 | All MCs | 239 | 28.2 | 239 | 28.2 | 0.186 | 8.3 | LOS A | 1.0 | 8.3 | 0.13 | 0.54 | 0.13 | 57.1 |
| Approach | | | 284 | 23.7 | 284 | 23.7 | 0.186 | 7.0 | NA | 1.0 | 8.3 | 0.13 | 0.54 | 0.13 | 60.3 |
| North: Lockyers Line | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 53 | 62.0 | 53 | 62.0 | 0.046 | 5.3 | LOS A | 0.2 | 2.0 | 0.11 | 0.49 | 0.11 | 45.2 |
| 9 | R2 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.046 | 9.0 | LOS A | 0.2 | 2.0 | 0.11 | 0.49 | 0.11 | 39.7 |
| Approach | | | 54 | 62.7 | 54 | 62.7 | 0.046 | 5.3 | LOS A | 0.2 | 2.0 | 0.11 | 0.49 | 0.11 | 45.0 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.016 | 7.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 87.9 |
| 11 | T1 | All MCs | 31 | 0.0 | 31 | 0.0 | 0.016 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 99.3 |
| Approach | | | 32 | 0.0 | 32 | 0.0 | 0.016 | 0.3 | NA | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 98.9 |
| All Vehicles | | | 369 | 27.4 | 369 | 27.4 | 0.186 | 6.2 | NA | 1.0 | 8.3 | 0.11 | 0.49 | 0.11 | 59.3 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [901] 1. Magpie Hollow Road/Lockyers Line - 2030 AM

**Project Scenario 3** (2030 AM Project Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 21 | 15.0 | 21 | 15.0 | 0.013 | 0.0 | LOS A | 0.0 | 0.0 | 0.01 | 0.03 | 0.01 | 98.7 |
| 6 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.013 | 7.4 | LOS A | 0.0 | 0.0 | 0.01 | 0.03 | 0.01 | 63.8 |
| Approach | | | 22 | 14.3 | 22 | 14.3 | 0.013 | 0.4 | NA | 0.0 | 0.0 | 0.01 | 0.03 | 0.01 | 96.2 |
| North: Lockyers Line | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.002 | 4.7 | LOS A | 0.0 | 0.1 | 0.13 | 0.51 | 0.13 | 55.5 |
| 9 | R2 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.002 | 5.9 | LOS A | 0.0 | 0.1 | 0.13 | 0.51 | 0.13 | 39.5 |
| Approach | | | 2 | 50.0 | 2 | 50.0 | 0.002 | 5.3 | LOS A | 0.0 | 0.1 | 0.13 | 0.51 | 0.13 | 46.1 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.021 | 7.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 86.9 |
| 11 | T1 | All MCs | 38 | 5.6 | 38 | 5.6 | 0.021 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 99.4 |
| Approach | | | 39 | 5.4 | 39 | 5.4 | 0.021 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 99.0 |
| All Vehicles | | | 63 | 10.0 | 63 | 10.0 | 0.021 | 0.4 | NA | 0.0 | 0.1 | 0.01 | 0.04 | 0.01 | 94.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [1001] 1. Magpie Hollow Road/Lockyers Line - 2030 PM

**Project Scenario 3** (2030 PM Project Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 45 | 0.0 | 45 | 0.0 | 0.024 | 0.0 | LOS A | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 99.2 |
| 6 | R2 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.024 | 10.2 | LOS A | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 61.0 |
| Approach | | | 46 | 2.3 | 46 | 2.3 | 0.024 | 0.2 | NA | 0.0 | 0.1 | 0.01 | 0.02 | 0.01 | 97.8 |
| North: Lockyers Line | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.002 | 4.6 | LOS A | 0.0 | 0.1 | 0.12 | 0.51 | 0.12 | 55.5 |
| 9 | R2 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.002 | 6.0 | LOS A | 0.0 | 0.1 | 0.12 | 0.51 | 0.12 | 39.5 |
| Approach | | | 2 | 50.0 | 2 | 50.0 | 0.002 | 5.3 | LOS A | 0.0 | 0.1 | 0.12 | 0.51 | 0.12 | 46.1 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.016 | 7.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 87.9 |
| 11 | T1 | All MCs | 31 | 0.0 | 31 | 0.0 | 0.016 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 99.3 |
| Approach | | | 32 | 0.0 | 32 | 0.0 | 0.016 | 0.3 | NA | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 98.9 |
| All Vehicles | | | 80 | 2.6 | 80 | 2.6 | 0.024 | 0.4 | NA | 0.0 | 0.1 | 0.01 | 0.03 | 0.01 | 95.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [502] 2. Magpie Hollow Road/Sir Thomas Mitchell Drive - 2030 AM Project Scenario 1 (2030 AM Project Scenario 1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NorthEast: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 25 | T1 | All MCs | 24 | 21.7 | 24 | 21.7 | 0.138 | 6.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 59.5 |
| 26a | R1 | All MCs | 229 | 4.6 | 229 | 4.6 | 0.138 | 6.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 64.4 |
| Approach | | | 254 | 6.2 | 254 | 6.2 | 0.138 | 6.1 | NA | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 63.9 |
| West: Sir Thomas Mitchell Drive | | | | | | | | | | | | | | | |
| 10a | L1 | All MCs | 14 | 76.9 | 14 | 76.9 | 0.125 | 9.3 | LOS A | 0.4 | 4.7 | 0.40 | 0.67 | 0.40 | 45.6 |
| 12b | R3 | All MCs | 51 | 60.4 | 51 | 60.4 | 0.125 | 15.3 | LOS B | 0.4 | 4.7 | 0.40 | 0.67 | 0.40 | 48.0 |
| Approach | | | 64 | 63.9 | 64 | 63.9 | 0.125 | 14.1 | LOS A | 0.4 | 4.7 | 0.40 | 0.67 | 0.40 | 47.5 |
| SouthWest: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 30b | L3 | All MCs | 234 | 27.5 | 234 | 27.5 | 0.203 | 8.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.65 | 0.00 | 56.0 |
| 31 | T1 | All MCs | 42 | 10.0 | 42 | 10.0 | 0.203 | 5.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.65 | 0.00 | 61.3 |
| Approach | | | 276 | 24.8 | 276 | 24.8 | 0.203 | 8.1 | NA | 0.0 | 0.0 | 0.00 | 0.65 | 0.00 | 56.7 |
| All Vehicles | | | 594 | 21.1 | 594 | 21.1 | 0.203 | 7.9 | NA | 0.4 | 4.7 | 0.04 | 0.63 | 0.04 | 58.3 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [602] 2. Magpie Hollow Road/Sir Thomas Mitchell Drive - 2030 PM Project Scenario 1 (2030 PM Project Scenario 1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NorthEast: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 25 | T1 | All MCs | 49 | 6.4 | 49 | 6.4 | 0.042 | 5.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 64.2 |
| 26a | R1 | All MCs | 19 | 55.6 | 19 | 55.6 | 0.042 | 7.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 51.6 |
| Approach | | | 68 | 20.0 | 68 | 20.0 | 0.042 | 6.2 | NA | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 60.1 |
| West: Sir Thomas Mitchell Drive | | | | | | | | | | | | | | | |
| 10a | L1 | All MCs | 227 | 4.6 | 227 | 4.6 | 0.427 | 7.3 | LOS A | 2.3 | 18.6 | 0.23 | 0.62 | 0.23 | 66.6 |
| 12b | R3 | All MCs | 235 | 27.4 | 235 | 27.4 | 0.427 | 10.6 | LOS A | 2.3 | 18.6 | 0.23 | 0.62 | 0.23 | 58.9 |
| Approach | | | 462 | 16.2 | 462 | 16.2 | 0.427 | 9.0 | LOS A | 2.3 | 18.6 | 0.23 | 0.62 | 0.23 | 62.4 |
| SouthWest: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 30b | L3 | All MCs | 49 | 61.7 | 49 | 61.7 | 0.066 | 9.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 49.1 |
| 31 | T1 | All MCs | 34 | 6.2 | 34 | 6.2 | 0.066 | 5.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 63.4 |
| Approach | | | 83 | 39.2 | 83 | 39.2 | 0.066 | 7.8 | NA | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 54.0 |
| All Vehicles | | | 614 | 19.7 | 614 | 19.7 | 0.427 | 8.5 | NA | 2.3 | 18.6 | 0.17 | 0.62 | 0.17 | 60.9 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [902] 2. Magpie Hollow Road/Sir Thomas Mitchell Drive - 2030 AM Project Scenario 3 (2030 AM Project Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NorthEast: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 25 | T1 | All MCs | 22 | 14.3 | 22 | 14.3 | 0.291 | 6.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 61.5 |
| 26a | R1 | All MCs | 463 | 16.1 | 463 | 16.1 | 0.291 | 6.4 | LOS A | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 60.8 |
| Approach | | | 485 | 16.1 | 485 | 16.1 | 0.291 | 6.4 | NA | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 60.9 |
| West: Sir Thomas Mitchell Drive | | | | | | | | | | | | | | | |
| 10a | L1 | All MCs | 62 | 66.1 | 62 | 66.1 | 0.057 | 8.9 | LOS A | 0.2 | 2.5 | 0.14 | 0.63 | 0.14 | 50.6 |
| 12b | R3 | All MCs | 2 | 0.0 | 2 | 0.0 | 0.057 | 12.3 | LOS A | 0.2 | 2.5 | 0.14 | 0.63 | 0.14 | 69.1 |
| Approach | | | 64 | 63.9 | 64 | 63.9 | 0.057 | 9.1 | LOS A | 0.2 | 2.5 | 0.14 | 0.63 | 0.14 | 51.0 |
| SouthWest: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 30b | L3 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.022 | 8.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 65.8 |
| 31 | T1 | All MCs | 40 | 5.3 | 40 | 5.3 | 0.022 | 5.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 64.5 |
| Approach | | | 41 | 5.1 | 41 | 5.1 | 0.022 | 5.9 | NA | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 64.6 |
| All Vehicles | | | 591 | 20.5 | 591 | 20.5 | 0.291 | 6.6 | NA | 0.2 | 2.5 | 0.02 | 0.60 | 0.02 | 59.9 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [1002] 2. Magpie Hollow Road/Sir Thomas Mitchell Drive - 2030 PM Project Scenario 3 (2030 PM Project Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NorthEast: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 25 | T1 | All MCs | 47 | 2.2 | 47 | 2.2 | 0.081 | 5.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 65.4 |
| 26a | R1 | All MCs | 67 | 60.9 | 67 | 60.9 | 0.081 | 7.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 50.5 |
| Approach | | | 115 | 36.7 | 115 | 36.7 | 0.081 | 6.5 | NA | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 55.8 |
| West: Sir Thomas Mitchell Drive | | | | | | | | | | | | | | | |
| 10a | L1 | All MCs | 461 | 16.2 | 461 | 16.2 | 0.315 | 7.6 | LOS A | 1.7 | 13.5 | 0.13 | 0.61 | 0.13 | 63.7 |
| 12b | R3 | All MCs | 1 | 100.0 | 1 | 100.0 | 0.315 | 13.8 | LOS A | 1.7 | 13.5 | 0.13 | 0.61 | 0.13 | 43.6 |
| Approach | | | 462 | 16.4 | 462 | 16.4 | 0.315 | 7.6 | LOS A | 1.7 | 13.5 | 0.13 | 0.61 | 0.13 | 63.6 |
| SouthWest: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 30b | L3 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.016 | 8.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 65.8 |
| 31 | T1 | All MCs | 32 | 0.0 | 32 | 0.0 | 0.016 | 5.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 66.2 |
| Approach | | | 33 | 0.0 | 33 | 0.0 | 0.016 | 5.8 | NA | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 66.2 |
| All Vehicles | | | 609 | 19.3 | 609 | 19.3 | 0.315 | 7.3 | NA | 1.7 | 13.5 | 0.10 | 0.61 | 0.10 | 62.1 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [103 (2)] 3. Great Western Highway/Magpie Hollow Road - 2030 AM Project Scenario 1 (2030 AM Project Scenario 1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 221 | 7.6 | 221 | 7.6 | 0.129 | 6.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 56.8 |
| 2 | T1 | All MCs | 446 | 13.0 | 446 | 13.0 | 0.129 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | | | 667 | 11.2 | 667 | 11.2 | 0.129 | 2.2 | NA | 0.0 | 0.0 | 0.00 | 0.20 | 0.00 | 64.9 |
| North: Great Western Highway | | | | | | | | | | | | | | | |
| 8 | T1 | All MCs | 363 | 13.6 | 363 | 13.6 | 0.106 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| 9 | R2 | All MCs | 95 | 7.8 | 95 | 7.8 | 0.239 | 14.2 | LOS A | 0.8 | 6.3 | 0.65 | 0.88 | 0.71 | 50.6 |
| Approach | | | 458 | 12.4 | 458 | 12.4 | 0.239 | 3.0 | NA | 0.8 | 6.3 | 0.14 | 0.18 | 0.15 | 64.8 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 44 | 4.8 | 44 | 4.8 | 0.589 | 16.9 | LOS B | 2.3 | 19.7 | 0.95 | 1.07 | 1.60 | 34.7 |
| 12 | R2 | All MCs | 29 | 53.6 | 29 | 53.6 | 0.589 | 96.6 | LOS F | 2.3 | 19.7 | 0.95 | 1.07 | 1.60 | 30.5 |
| Approach | | | 74 | 24.3 | 74 | 24.3 | 0.589 | 48.8 | LOS D | 2.3 | 19.7 | 0.95 | 1.07 | 1.60 | 32.9 |
| All Vehicles | | | 1199 | 12.5 | 1199 | 12.5 | 0.589 | 5.3 | NA | 2.3 | 19.7 | 0.11 | 0.25 | 0.15 | 61.2 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [103 (3)] 3. Great Western Highway/Magpie Hollow Road - 2030 PM Project Scenario 1 (2030 PM Project Scenario 1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 44 | 28.6 | 44 | 28.6 | 0.031 | 6.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 51.6 |
| 2 | T1 | All MCs | 437 | 13.0 | 437 | 13.0 | 0.127 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | | | 481 | 14.4 | 481 | 14.4 | 0.127 | 0.6 | NA | 0.0 | 0.0 | 0.00 | 0.06 | 0.00 | 67.7 |
| North: Great Western Highway | | | | | | | | | | | | | | | |
| 8 | T1 | All MCs | 517 | 9.6 | 517 | 9.6 | 0.145 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| 9 | R2 | All MCs | 58 | 1.8 | 58 | 1.8 | 0.106 | 10.4 | LOS A | 0.4 | 2.5 | 0.51 | 0.78 | 0.51 | 54.8 |
| Approach | | | 575 | 8.8 | 575 | 8.8 | 0.145 | 1.1 | NA | 0.4 | 2.5 | 0.05 | 0.08 | 0.05 | 68.0 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 77 | 1.4 | 77 | 1.4 | 1.773 | 709.3 | LOS F | 78.2 | 571.1 | 1.00 | 4.69 | 14.79 | 7.7 |
| 12 | R2 | All MCs | 195 | 6.5 | 195 | 6.5 | 1.773 | 750.4 | LOS F | 78.2 | 571.1 | 1.00 | 4.69 | 14.79 | 7.7 |
| Approach | | | 272 | 5.0 | 272 | 5.0 | 1.773 | 738.8 | LOS F | 78.2 | 571.1 | 1.00 | 4.69 | 14.79 | 7.7 |
| All Vehicles | | | 1327 | 10.1 | 1327 | 10.1 | 1.773 | 151.9 | NA | 78.2 | 571.1 | 0.23 | 1.01 | 3.05 | 26.1 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [103 (4)] 3. Great Western Highway/Magpie Hollow Road - 2030 AM Project Scenario 2 (2030 AM Project Scenario 2)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 98 | 4.3 | 98 | 4.3 | 0.055 | 6.4 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 57.7 |
| 2 | T1 | All MCs | 446 | 13.0 | 446 | 13.0 | 0.129 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | | | 544 | 11.4 | 544 | 11.4 | 0.129 | 1.2 | NA | 0.0 | 0.0 | 0.00 | 0.11 | 0.00 | 67.3 |
| North: Great Western Highway | | | | | | | | | | | | | | | |
| 8 | T1 | All MCs | 363 | 13.6 | 363 | 13.6 | 0.106 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| 9 | R2 | All MCs | 218 | 9.2 | 218 | 9.2 | 0.467 | 14.9 | LOS B | 2.4 | 17.9 | 0.67 | 0.96 | 0.98 | 49.9 |
| Approach | | | 581 | 12.0 | 581 | 12.0 | 0.467 | 5.6 | NA | 2.4 | 17.9 | 0.25 | 0.36 | 0.37 | 60.7 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 59 | 25.0 | 59 | 25.0 | 0.266 | 8.9 | LOS A | 0.9 | 7.5 | 0.69 | 0.76 | 0.79 | 44.3 |
| 12 | R2 | All MCs | 15 | 21.4 | 15 | 21.4 | 0.266 | 62.2 | LOS E | 0.9 | 7.5 | 0.69 | 0.76 | 0.79 | 45.1 |
| Approach | | | 74 | 24.3 | 74 | 24.3 | 0.266 | 19.6 | LOS B | 0.9 | 7.5 | 0.69 | 0.76 | 0.79 | 44.4 |
| All Vehicles | | | 1199 | 12.5 | 1199 | 12.5 | 0.467 | 4.5 | NA | 2.4 | 17.9 | 0.16 | 0.27 | 0.23 | 62.1 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [103 (5)] 3. Great Western Highway/Magpie Hollow Road - 2030 PM Project Scenario 2 (2030 PM Project Scenario 2)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 29 | 0.0 | 29 | 0.0 | 0.016 | 6.4 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 59.0 |
| 2 | T1 | All MCs | 437 | 13.0 | 437 | 13.0 | 0.127 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | | | 466 | 12.2 | 466 | 12.2 | 0.127 | 0.4 | NA | 0.0 | 0.0 | 0.00 | 0.04 | 0.00 | 69.1 |
| North: Great Western Highway | | | | | | | | | | | | | | | |
| 8 | T1 | All MCs | 517 | 9.6 | 517 | 9.6 | 0.145 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| 9 | R2 | All MCs | 73 | 18.8 | 73 | 18.8 | 0.152 | 11.6 | LOS A | 0.5 | 4.1 | 0.53 | 0.80 | 0.53 | 50.1 |
| Approach | | | 589 | 10.7 | 589 | 10.7 | 0.152 | 1.5 | NA | 0.5 | 4.1 | 0.07 | 0.10 | 0.07 | 66.7 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 200 | 6.8 | 200 | 6.8 | 0.729 | 16.8 | LOS B | 7.3 | 53.1 | 0.94 | 1.14 | 2.04 | 42.6 |
| 12 | R2 | All MCs | 72 | 0.0 | 72 | 0.0 | 0.729 | 59.8 | LOS E | 7.3 | 53.1 | 0.94 | 1.14 | 2.04 | 43.8 |
| Approach | | | 272 | 5.0 | 272 | 5.0 | 0.729 | 28.2 | LOS B | 7.3 | 53.1 | 0.94 | 1.14 | 2.04 | 42.9 |
| All Vehicles | | | 1327 | 10.1 | 1327 | 10.1 | 0.729 | 6.6 | NA | 7.3 | 53.1 | 0.22 | 0.29 | 0.45 | 60.5 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [103 (6)] 3. Great Western Highway/Magpie Hollow Road - 2030 AM Project Scenario 3 (2030 AM Project Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 217 | 6.8 | 217 | 6.8 | 0.125 | 6.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 57.0 |
| 2 | T1 | All MCs | 446 | 13.0 | 446 | 13.0 | 0.129 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | | | 663 | 11.0 | 663 | 11.0 | 0.129 | 2.1 | NA | 0.0 | 0.0 | 0.00 | 0.20 | 0.00 | 65.1 |
| North: Great Western Highway | | | | | | | | | | | | | | | |
| 8 | T1 | All MCs | 363 | 13.6 | 363 | 13.6 | 0.147 | 0.9 | LOS A | 1.0 | 7.4 | 0.23 | 0.19 | 0.23 | 68.5 |
| 9 | R2 | All MCs | 328 | 21.8 | 328 | 21.8 | 0.967 | 54.6 | LOS D | 14.3 | 118.7 | 0.98 | 1.93 | 4.41 | 31.3 |
| Approach | | | 692 | 17.5 | 692 | 17.5 | 0.967 | 26.4 | NA | 14.3 | 118.7 | 0.58 | 1.02 | 2.21 | 43.8 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 93 | 35.2 | 93 | 35.2 | 1.282 | 282.4 | LOS F | 20.7 | 194.0 | 1.00 | 3.06 | 6.99 | 9.4 |
| 12 | R2 | All MCs | 25 | 54.2 | 25 | 54.2 | 1.282 | 517.6 | LOS F | 20.7 | 194.0 | 1.00 | 3.06 | 6.99 | 9.3 |
| Approach | | | 118 | 39.3 | 118 | 39.3 | 1.282 | 332.8 | LOS F | 20.7 | 194.0 | 1.00 | 3.06 | 6.99 | 9.4 |
| All Vehicles | | | 1473 | 16.3 | 1473 | 16.3 | 1.282 | 40.0 | NA | 20.7 | 194.0 | 0.35 | 0.81 | 1.60 | 38.2 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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Project: C:\Users\janmuller\OneDrive - EMM Consulting\Documents\E221111 - Lake Lyell PHES EIS\SIDRA\E221111_SIDRA_v7 (revised routing).sipx

# MOVEMENT SUMMARY

## Site: [103 (7)] 3. Great Western Highway/Magpie Hollow Road - 2030 PM Project Scenario 3 (2030 PM Project Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 40 | 26.3 | 40 | 26.3 | 0.028 | 6.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 52.1 |
| 2 | T1 | All MCs | 437 | 13.0 | 437 | 13.0 | 0.127 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | | | 477 | 14.1 | 477 | 14.1 | 0.127 | 0.6 | NA | 0.0 | 0.0 | 0.00 | 0.05 | 0.00 | 68.0 |
| North: Great Western Highway | | | | | | | | | | | | | | | |
| 8 | T1 | All MCs | 517 | 9.6 | 517 | 9.6 | 0.145 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| 9 | R2 | All MCs | 106 | 29.7 | 106 | 29.7 | 0.250 | 13.4 | LOS A | 0.9 | 8.0 | 0.58 | 0.85 | 0.63 | 46.9 |
| Approach | | | 623 | 13.0 | 623 | 13.0 | 0.250 | 2.3 | NA | 0.9 | 8.0 | 0.10 | 0.15 | 0.11 | 64.5 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 311 | 21.0 | 311 | 21.0 | 2.200 | 1091.6 | LOS F | 175.8 | 1390.5 | 1.00 | 6.91 | 20.03 | 5.6 |
| 12 | R2 | All MCs | 191 | 5.5 | 191 | 5.5 | 2.200 | 1152.1 | LOS F | 175.8 | 1390.5 | 1.00 | 6.91 | 20.03 | 5.6 |
| Approach | | | 501 | 15.1 | 501 | 15.1 | 2.200 | 1114.6 | LOS F | 175.8 | 1390.5 | 1.00 | 6.91 | 20.03 | 5.6 |
| All Vehicles | | | 1601 | 14.0 | 1601 | 14.0 | 2.200 | 349.9 | NA | 175.8 | 1390.5 | 0.35 | 2.23 | 6.31 | 15.0 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [103 (8)] 3. Great Western Highway/Magpie Hollow Road - 2030 AM Project Scenario 4 (2030 AM Project Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 98 | 4.3 | 98 | 4.3 | 0.055 | 6.4 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 57.7 |
| 2 | T1 | All MCs | 446 | 13.0 | 446 | 13.0 | 0.129 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | | | 544 | 11.4 | 544 | 11.4 | 0.129 | 1.2 | NA | 0.0 | 0.0 | 0.00 | 0.11 | 0.00 | 67.3 |
| North: Great Western Highway | | | | | | | | | | | | | | | |
| 8 | T1 | All MCs | 363 | 13.6 | 363 | 13.6 | 0.140 | 0.9 | LOS A | 0.9 | 6.9 | 0.23 | 0.18 | 0.23 | 68.5 |
| 9 | R2 | All MCs | 447 | 18.4 | 447 | 18.4 | 1.052 | 89.8 | LOS F | 30.4 | 246.3 | 1.00 | 2.64 | 6.66 | 25.1 |
| Approach | | | 811 | 16.2 | 811 | 16.2 | 1.052 | 50.0 | NA | 30.4 | 246.3 | 0.66 | 1.54 | 3.78 | 35.0 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 103 | 41.8 | 103 | 41.8 | 0.659 | 17.4 | LOS B | 3.2 | 30.4 | 0.97 | 1.07 | 1.87 | 33.8 |
| 12 | R2 | All MCs | 15 | 21.4 | 15 | 21.4 | 0.659 | 198.9 | LOS F | 3.2 | 30.4 | 0.97 | 1.07 | 1.87 | 36.1 |
| Approach | | | 118 | 39.3 | 118 | 39.3 | 0.659 | 40.1 | LOS C | 3.2 | 30.4 | 0.97 | 1.07 | 1.87 | 34.1 |
| All Vehicles | | | 1473 | 16.3 | 1473 | 16.3 | 1.052 | 31.1 | NA | 30.4 | 246.3 | 0.44 | 0.97 | 2.23 | 42.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [103 (9)] 3. Great Western Highway/Magpie Hollow Road - 2030 PM Project Scenario 4 (2030 PM Project Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 29 | 0.0 | 29 | 0.0 | 0.016 | 6.4 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 59.0 |
| 2 | T1 | All MCs | 437 | 13.0 | 437 | 13.0 | 0.127 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | | | 466 | 12.2 | 466 | 12.2 | 0.127 | 0.4 | NA | 0.0 | 0.0 | 0.00 | 0.04 | 0.00 | 69.1 |
| North: Great Western Highway | | | | | | | | | | | | | | | |
| 8 | T1 | All MCs | 517 | 9.6 | 517 | 9.6 | 0.145 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| 9 | R2 | All MCs | 117 | 36.0 | 117 | 36.0 | 0.281 | 14.0 | LOS A | 1.1 | 9.9 | 0.58 | 0.86 | 0.67 | 45.5 |
| Approach | | | 634 | 14.5 | 634 | 14.5 | 0.281 | 2.6 | NA | 1.1 | 9.9 | 0.11 | 0.16 | 0.12 | 63.6 |
| West: Magpie Hollow Road | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 429 | 17.6 | 429 | 17.6 | 1.053 | 87.4 | LOS F | 42.5 | 336.0 | 1.00 | 2.66 | 5.84 | 22.9 |
| 12 | R2 | All MCs | 72 | 0.0 | 72 | 0.0 | 1.053 | 169.6 | LOS F | 42.5 | 336.0 | 1.00 | 2.66 | 5.84 | 23.7 |
| Approach | | | 501 | 15.1 | 501 | 15.1 | 1.053 | 99.2 | LOS F | 42.5 | 336.0 | 1.00 | 2.66 | 5.84 | 23.0 |
| All Vehicles | | | 1601 | 14.0 | 1601 | 14.0 | 1.053 | 32.2 | NA | 42.5 | 336.0 | 0.36 | 0.91 | 1.88 | 41.5 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


Organisation: EMM CONSULTING | Licence: NETWORK / 1PC | Processed: Wednesday, 20 August 2025 16:26:19
Project: C:\Users\janmuller\OneDrive - EMM Consulting\Documents\E221111 - Lake Lyell PHES EIS\SIDRA\E221111_SIDRA_v7 (revised routing).sipx

# MOVEMENT SUMMARY

## Site: [904] 4. Great Western Highway/Bayonet Street/Ninda Place - 2030 AM Project Scenario 3 (2030 AM Project Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 110.0 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
**Site Scenario: 1 | Local Volumes**

### Vehicle Movement Performance

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.345 | 19.5 | LOS B | 8.9 | 67.8 | 0.76 | 1.03 | 0.76 | 33.0 |
| 2 | T1 | All MCs | 459 | 11.2 | 459 | 11.2 | 0.345 | 26.2 | LOS B | 8.9 | 68.0 | 0.76 | 0.83 | 0.76 | 41.4 |
| 3 | R2 | All MCs | 261 | 13.3 | 261 | 13.3 | *0.803 | 57.5 | LOS E | 14.6 | 114.1 | 1.00 | 0.91 | 1.15 | 25.0 |
| Approach | | | 728 | 11.8 | 728 | 11.8 | 0.803 | 37.3 | LOS C | 14.6 | 114.1 | 0.84 | 0.86 | 0.90 | 35.1 |
| East: Bayonet St | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 320 | 20.1 | 320 | 20.1 | *0.765 | 37.0 | LOS C | 10.6 | 87.2 | 0.97 | 1.05 | 1.05 | 26.3 |
| 5 | T1 | All MCs | 13 | 0.0 | 13 | 0.0 | 0.163 | 55.0 | LOS D | 1.8 | 13.7 | 0.91 | 0.71 | 0.91 | 24.9 |
| 6 | R2 | All MCs | 24 | 17.4 | 24 | 17.4 | 0.163 | 59.5 | LOS E | 1.8 | 13.7 | 0.91 | 0.71 | 0.91 | 26.6 |
| Approach | | | 357 | 19.2 | 357 | 19.2 | 0.765 | 39.1 | LOS C | 10.6 | 87.2 | 0.96 | 1.02 | 1.03 | 23.9 |
| North: Great Western Highway N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 11 | 20.0 | 11 | 20.0 | *0.805 | 26.3 | LOS B | 8.5 | 66.7 | 1.00 | 1.07 | 1.16 | 25.2 |
| 8 | T1 | All MCs | 494 | 14.3 | 494 | 14.3 | *0.805 | 28.9 | LOS C | 8.5 | 67.2 | 1.00 | 1.07 | 1.16 | 33.9 |
| 9 | R2 | All MCs | 18 | 11.8 | 18 | 11.8 | 0.141 | 60.0 | LOS E | 0.9 | 7.2 | 0.96 | 0.70 | 0.96 | 29.5 |
| Approach | | | 522 | 14.3 | 522 | 14.3 | 0.805 | 29.9 | LOS C | 8.5 | 67.2 | 1.00 | 1.05 | 1.15 | 33.6 |
| West: Ninda Place | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 19 | 0.0 | 19 | 0.0 | *0.078 | 28.2 | LOS B | 0.6 | 3.9 | 0.90 | 1.05 | 0.90 | 27.8 |
| 11 | T1 | All MCs | 31 | 0.0 | 31 | 0.0 | 0.209 | 49.8 | LOS D | 2.0 | 14.2 | 0.95 | 0.71 | 0.95 | 24.4 |
| 12 | R2 | All MCs | 9 | 0.0 | 9 | 0.0 | 0.209 | 54.4 | LOS D | 2.0 | 14.2 | 0.95 | 0.71 | 0.95 | 31.4 |
| Approach | | | 59 | 0.0 | 59 | 0.0 | 0.209 | 43.6 | LOS D | 2.0 | 14.2 | 0.93 | 0.82 | 0.93 | 26.8 |
| All Vehicles | | | 1666 | 13.8 | 1666 | 13.8 | 0.805 | 35.6 | LOS C | 14.6 | 114.1 | 0.92 | 0.95 | 1.01 | 31.8 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

### Pedestrian Movement Performance

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE [ Ped | Dist ] | Prop. Qued | Eff. Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | |
| P1 Full | 6 | 6 | 49.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 203.0 | 200.0 | 0.99 |
| East: Bayonet St | | | | | | | | | | | |
| P2 Full | 2 | 2 | 22.4 | LOS C | 0.0 | 0.0 | 0.89 | 0.89 | 176.3 | 200.0 | 1.13 |
| North: Great Western Highway N | | | | | | | | | | | |
| P3 Full | 2 | 2 | 49.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 203.0 | 200.0 | 0.99 |
| West: Ninda Place | | | | | | | | | | | |
| P4 Full | 2 | 2 | 49.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 203.0 | 200.0 | 0.99 |
| All Pedestrians | 12 | 13 | 44.7 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.6 | 200.0 | 1.01 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [1004] 4. Great Western Highway/Bayonet Street/Ninda Place - 2030 PM Project Scenario 3 (2030 PM Project Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 130.0 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
**Site Scenario: 1 | Local Volumes**

### Vehicle Movement Performance

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 15 | 0.0 | 15 | 0.0 | 0.466 | 15.8 | LOS B | 8.1 | 61.7 | 0.82 | 1.02 | 0.82 | 34.5 |
| 2 | T1 | All MCs | 533 | 10.7 | 533 | 10.7 | 0.466 | 30.1 | LOS C | 12.8 | 97.5 | 0.84 | 0.89 | 0.84 | 39.2 |
| 3 | R2 | All MCs | 386 | 18.3 | 386 | 18.3 | * 0.848 | 44.2 | LOS D | 18.4 | 148.6 | 1.00 | 1.06 | 1.14 | 21.9 |
| Approach | | | 934 | 13.6 | 934 | 13.6 | 0.848 | 35.7 | LOS C | 18.4 | 148.6 | 0.91 | 0.96 | 0.96 | 30.9 |
| East: Bayonet St | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 260 | 13.0 | 260 | 13.0 | * 0.459 | 15.9 | LOS B | 4.7 | 36.5 | 0.81 | 1.10 | 0.81 | 27.2 |
| 5 | T1 | All MCs | 42 | 0.0 | 42 | 0.0 | 0.449 | 60.8 | LOS E | 4.9 | 36.9 | 0.98 | 0.77 | 0.98 | 21.8 |
| 6 | R2 | All MCs | 38 | 16.7 | 38 | 16.7 | 0.449 | 65.3 | LOS E | 4.9 | 36.9 | 0.98 | 0.77 | 0.98 | 23.0 |
| Approach | | | 340 | 11.8 | 340 | 11.8 | 0.459 | 27.0 | LOS B | 4.9 | 36.9 | 0.85 | 1.02 | 0.85 | 25.9 |
| North: Great Western Highway N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 13 | 16.7 | 13 | 16.7 | * 0.836 | 34.6 | LOS C | 12.0 | 91.1 | 1.00 | 1.07 | 1.17 | 23.0 |
| 8 | T1 | All MCs | 497 | 9.7 | 497 | 9.7 | * 0.836 | 38.8 | LOS C | 12.1 | 92.1 | 1.00 | 1.07 | 1.17 | 31.4 |
| 9 | R2 | All MCs | 22 | 0.0 | 22 | 0.0 | 0.052 | 27.2 | LOS B | 0.6 | 4.1 | 0.81 | 1.12 | 0.81 | 31.0 |
| Approach | | | 532 | 9.5 | 532 | 9.5 | 0.836 | 38.2 | LOS C | 12.1 | 92.1 | 0.99 | 1.08 | 1.16 | 31.2 |
| West: Ninda Place | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 11 | 0.0 | 11 | 0.0 | 0.019 | 21.3 | LOS B | 0.3 | 1.9 | 0.71 | 1.14 | 0.71 | 31.1 |
| 11 | T1 | All MCs | 29 | 0.0 | 29 | 0.0 | * 0.527 | 67.8 | LOS E | 3.7 | 26.0 | 1.00 | 0.76 | 1.00 | 20.5 |
| 12 | R2 | All MCs | 26 | 4.0 | 26 | 4.0 | 0.527 | 72.3 | LOS F | 3.7 | 26.0 | 1.00 | 0.76 | 1.00 | 26.8 |
| Approach | | | 66 | 1.6 | 66 | 1.6 | 0.527 | 62.2 | LOS E | 3.7 | 26.0 | 0.95 | 0.82 | 0.96 | 24.8 |
| All Vehicles | | | 1872 | 11.7 | 1872 | 11.7 | 0.848 | 35.8 | LOS C | 18.4 | 148.6 | 0.92 | 1.00 | 1.00 | 29.9 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

### Pedestrian Movement Performance

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE [ Ped | Dist ] | Prop. Qued | Eff. Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | |
| P1 Full | 6 | 6 | 59.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 213.0 | 200.0 | 0.94 |
| East: Bayonet St | | | | | | | | | | | |
| P2 Full | 2 | 2 | 30.2 | LOS D | 0.0 | 0.0 | 0.91 | 0.91 | 184.0 | 200.0 | 1.09 |
| North: Great Western Highway N | | | | | | | | | | | |
| P3 Full | 4 | 4 | 59.1 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 213.0 | 200.0 | 0.94 |
| West: Ninda Place | | | | | | | | | | | |
| P4 Full | 6 | 6 | 59.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 213.0 | 200.0 | 0.94 |
| All Pedestrians | 18 | 19 | 55.9 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 209.8 | 200.0 | 0.95 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [1104] 4. Great Western Highway/Bayonet Street/Ninda Place - 2030 AM Project Scenario 4 (2030 AM Project Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 110.0 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
**Site Scenario: 1 | Local Volumes**

### Vehicle Movement Performance

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.366 | 20.1 | LOS B | 9.3 | 71.9 | 0.77 | 1.03 | 0.77 | 32.7 |
| 2 | T1 | All MCs | 469 | 13.2 | 469 | 13.2 | 0.366 | 27.0 | LOS B | 9.3 | 72.0 | 0.77 | 0.84 | 0.77 | 41.0 |
| 3 | R2 | All MCs | 261 | 13.3 | 261 | 13.3 | * 0.883 | 66.3 | LOS E | 16.0 | 125.1 | 1.00 | 0.99 | 1.30 | 22.9 |
| Approach | | | 739 | 13.1 | 739 | 13.1 | 0.883 | 40.8 | LOS C | 16.0 | 125.1 | 0.85 | 0.89 | 0.96 | 33.8 |
| East: Bayonet St | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 320 | 20.1 | 320 | 20.1 | * 0.834 | 43.7 | LOS D | 11.9 | 97.6 | 1.00 | 1.08 | 1.18 | 24.7 |
| 5 | T1 | All MCs | 13 | 0.0 | 13 | 0.0 | 0.170 | 56.6 | LOS E | 1.8 | 13.8 | 0.92 | 0.71 | 0.92 | 24.8 |
| 6 | R2 | All MCs | 24 | 17.4 | 24 | 17.4 | 0.170 | 61.1 | LOS E | 1.8 | 13.8 | 0.92 | 0.71 | 0.92 | 26.4 |
| Approach | | | 357 | 19.2 | 357 | 19.2 | 0.834 | 45.3 | LOS D | 11.9 | 97.6 | 0.99 | 1.04 | 1.15 | 22.5 |
| North: Great Western Highway N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 11 | 20.0 | 11 | 20.0 | * 0.870 | 30.7 | LOS C | 11.7 | 91.3 | 1.00 | 1.11 | 1.24 | 24.1 |
| 8 | T1 | All MCs | 613 | 13.2 | 613 | 13.2 | * 0.870 | 33.3 | LOS C | 11.8 | 91.7 | 1.00 | 1.11 | 1.24 | 32.6 |
| 9 | R2 | All MCs | 18 | 11.8 | 18 | 11.8 | 0.121 | 58.0 | LOS E | 0.9 | 7.1 | 0.95 | 0.70 | 0.95 | 30.0 |
| Approach | | | 641 | 13.3 | 641 | 13.3 | 0.870 | 33.9 | LOS C | 11.8 | 91.7 | 1.00 | 1.09 | 1.23 | 32.4 |
| West: Ninda Place | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 19 | 0.0 | 19 | 0.0 | * 0.071 | 27.3 | LOS B | 0.5 | 3.8 | 0.89 | 1.06 | 0.89 | 28.0 |
| 11 | T1 | All MCs | 31 | 0.0 | 31 | 0.0 | 0.209 | 49.8 | LOS D | 2.0 | 14.2 | 0.95 | 0.71 | 0.95 | 24.4 |
| 12 | R2 | All MCs | 9 | 0.0 | 9 | 0.0 | 0.209 | 54.4 | LOS D | 2.0 | 14.2 | 0.95 | 0.71 | 0.95 | 31.4 |
| Approach | | | 59 | 0.0 | 59 | 0.0 | 0.209 | 43.3 | LOS D | 2.0 | 14.2 | 0.93 | 0.82 | 0.93 | 26.9 |
| All Vehicles | | | 1796 | 14.0 | 1796 | 14.0 | 0.883 | 39.3 | LOS C | 16.0 | 125.1 | 0.93 | 0.99 | 1.09 | 30.7 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

### Pedestrian Movement Performance

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE [ Ped | Dist ] | Prop. Qued | Eff. Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | |
| P1 Full | 6 | 6 | 49.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 203.0 | 200.0 | 0.99 |
| East: Bayonet St | | | | | | | | | | | |
| P2 Full | 2 | 2 | 22.5 | LOS C | 0.0 | 0.0 | 0.89 | 0.89 | 176.4 | 200.0 | 1.13 |
| North: Great Western Highway N | | | | | | | | | | | |
| P3 Full | 2 | 2 | 49.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 203.0 | 200.0 | 0.99 |
| West: Ninda Place | | | | | | | | | | | |
| P4 Full | 2 | 2 | 49.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 203.0 | 200.0 | 0.99 |
| All Pedestrians | 12 | 13 | 44.7 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.6 | 200.0 | 1.01 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [1204] 4. Great Western Highway/Bayonet Street/Ninda Place - 2030 PM Project Scenario 4 (2030 PM Project Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 130.0 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
**Site Scenario: 1 | Local Volumes**

### Vehicle Movement Performance

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 15 | 0.0 | 15 | 0.0 | *0.584 | 18.0 | LOS B | 11.6 | 88.2 | 0.87 | 1.05 | 0.87 | 32.7 |
| 2 | T1 | All MCs | 652 | 10.3 | 652 | 10.3 | 0.584 | 33.6 | LOS C | 16.2 | 123.7 | 0.89 | 0.92 | 0.89 | 37.5 |
| 3 | R2 | All MCs | 386 | 18.3 | 386 | 18.3 | *0.863 | 44.7 | LOS D | 19.0 | 153.4 | 1.00 | 1.06 | 1.16 | 21.6 |
| Approach | | | 1053 | 13.1 | 1053 | 13.1 | 0.863 | 37.5 | LOS C | 19.0 | 153.4 | 0.93 | 0.98 | 0.99 | 30.8 |
| East: Bayonet St | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 260 | 13.0 | 260 | 13.0 | *0.461 | 16.0 | LOS B | 4.6 | 35.8 | 0.81 | 1.10 | 0.81 | 27.1 |
| 5 | T1 | All MCs | 42 | 0.0 | 42 | 0.0 | 0.449 | 60.8 | LOS E | 4.9 | 36.9 | 0.98 | 0.77 | 0.98 | 21.8 |
| 6 | R2 | All MCs | 38 | 16.7 | 38 | 16.7 | 0.449 | 65.3 | LOS E | 4.9 | 36.9 | 0.98 | 0.77 | 0.98 | 23.0 |
| Approach | | | 340 | 11.8 | 340 | 11.8 | 0.461 | 27.0 | LOS B | 4.9 | 36.9 | 0.85 | 1.02 | 0.85 | 25.8 |
| North: Great Western Highway N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 13 | 16.7 | 13 | 16.7 | *0.860 | 37.4 | LOS C | 12.9 | 99.7 | 1.00 | 1.09 | 1.21 | 22.3 |
| 8 | T1 | All MCs | 507 | 11.6 | 507 | 11.6 | *0.860 | 41.9 | LOS C | 13.1 | 100.8 | 1.00 | 1.09 | 1.21 | 30.5 |
| 9 | R2 | All MCs | 22 | 0.0 | 22 | 0.0 | 0.050 | 26.6 | LOS B | 0.6 | 4.0 | 0.80 | 1.12 | 0.80 | 31.2 |
| Approach | | | 542 | 11.3 | 542 | 11.3 | 0.860 | 41.2 | LOS C | 13.1 | 100.8 | 0.99 | 1.09 | 1.19 | 30.4 |
| West: Ninda Place | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 11 | 0.0 | 11 | 0.0 | 0.019 | 20.8 | LOS B | 0.3 | 1.9 | 0.70 | 1.14 | 0.70 | 31.3 |
| 11 | T1 | All MCs | 29 | 0.0 | 29 | 0.0 | 0.527 | 67.8 | LOS E | 3.7 | 26.0 | 1.00 | 0.76 | 1.00 | 20.5 |
| 12 | R2 | All MCs | 26 | 4.0 | 26 | 4.0 | 0.527 | 72.3 | LOS F | 3.7 | 26.0 | 1.00 | 0.76 | 1.00 | 26.8 |
| Approach | | | 66 | 1.6 | 66 | 1.6 | 0.527 | 62.1 | LOS E | 3.7 | 26.0 | 0.95 | 0.82 | 0.95 | 24.8 |
| All Vehicles | | | 2001 | 12.0 | 2001 | 12.0 | 0.863 | 37.5 | LOS C | 19.0 | 153.4 | 0.93 | 1.01 | 1.02 | 29.7 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

### Pedestrian Movement Performance

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE [ Ped | Dist ] | Prop. Qued | Eff. Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | |
| P1 Full | 6 | 6 | 59.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 213.0 | 200.0 | 0.94 |
| East: Bayonet St | | | | | | | | | | | |
| P2 Full | 2 | 2 | 31.1 | LOS D | 0.0 | 0.0 | 0.91 | 0.91 | 184.9 | 200.0 | 1.08 |
| North: Great Western Highway N | | | | | | | | | | | |
| P3 Full | 4 | 4 | 59.1 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 213.0 | 200.0 | 0.94 |
| West: Ninda Place | | | | | | | | | | | |
| P4 Full | 6 | 6 | 59.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 213.0 | 200.0 | 0.94 |
| All Pedestrians | 18 | 19 | 56.0 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 209.9 | 200.0 | 0.95 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [1704] 4. Great Western Highway/Bayonet Street/Ninda Place - 2030 AM Cumulative Scenario 3 (2030 AM Cumulative Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 110.0 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.342 | 19.4 | LOS B | 8.8 | 67.4 | 0.75 | 1.03 | 0.75 | 33.1 |
| 2 | T1 | All MCs | 459 | 11.2 | 459 | 11.2 | 0.342 | 25.9 | LOS B | 8.8 | 67.6 | 0.75 | 0.83 | 0.75 | 41.5 |
| 3 | R2 | All MCs | 264 | 13.1 | 264 | 13.1 | *0.802 | 57.2 | LOS E | 14.8 | 115.1 | 1.00 | 0.91 | 1.15 | 25.0 |
| Approach | | | 732 | 11.8 | 732 | 11.8 | 0.802 | 37.1 | LOS C | 14.8 | 115.1 | 0.84 | 0.86 | 0.90 | 35.1 |
| East: Bayonet St | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 323 | 19.9 | 323 | 19.9 | *0.779 | 38.0 | LOS C | 11.0 | 89.8 | 0.98 | 1.06 | 1.07 | 26.1 |
| 5 | T1 | All MCs | 13 | 0.0 | 13 | 0.0 | 0.181 | 55.8 | LOS D | 2.0 | 14.9 | 0.92 | 0.72 | 0.92 | 24.7 |
| 6 | R2 | All MCs | 27 | 15.4 | 27 | 15.4 | 0.181 | 60.3 | LOS E | 2.0 | 14.9 | 0.92 | 0.72 | 0.92 | 26.4 |
| Approach | | | 363 | 18.8 | 363 | 18.8 | 0.779 | 40.3 | LOS C | 11.0 | 89.8 | 0.97 | 1.02 | 1.05 | 23.7 |
| North: Great Western Highway N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 14 | 15.4 | 14 | 15.4 | *0.803 | 26.4 | LOS B | 8.4 | 66.4 | 1.00 | 1.06 | 1.16 | 25.2 |
| 8 | T1 | All MCs | 494 | 14.3 | 494 | 14.3 | *0.803 | 28.7 | LOS C | 8.5 | 67.1 | 1.00 | 1.06 | 1.15 | 34.0 |
| 9 | R2 | All MCs | 18 | 11.8 | 18 | 11.8 | 0.140 | 59.8 | LOS E | 0.9 | 7.2 | 0.96 | 0.70 | 0.96 | 29.5 |
| Approach | | | 525 | 14.2 | 525 | 14.2 | 0.803 | 29.7 | LOS C | 8.5 | 67.1 | 1.00 | 1.05 | 1.15 | 33.6 |
| West: Ninda Place | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 19 | 0.0 | 19 | 0.0 | *0.078 | 28.2 | LOS B | 0.6 | 3.9 | 0.90 | 1.05 | 0.90 | 27.8 |
| 11 | T1 | All MCs | 31 | 0.0 | 31 | 0.0 | 0.209 | 49.8 | LOS D | 2.0 | 14.2 | 0.95 | 0.71 | 0.95 | 24.4 |
| 12 | R2 | All MCs | 9 | 0.0 | 9 | 0.0 | 0.209 | 54.4 | LOS D | 2.0 | 14.2 | 0.95 | 0.71 | 0.95 | 31.4 |
| Approach | | | 59 | 0.0 | 59 | 0.0 | 0.209 | 43.6 | LOS D | 2.0 | 14.2 | 0.93 | 0.82 | 0.93 | 26.8 |
| All Vehicles | | | 1679 | 13.7 | 1679 | 13.7 | 0.803 | 35.7 | LOS C | 14.8 | 115.1 | 0.92 | 0.95 | 1.01 | 31.8 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

**Pedestrian Movement Performance**

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | Prop. Qued | Eff. Stop | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | [ Ped | Dist ] | | Rate | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
| South: Great Western Highway S | | | | | | | | | | | |
| P1 Full | 6 | 6 | 49.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 203.0 | 200.0 | 0.99 |
| East: Bayonet St | | | | | | | | | | | |
| P2 Full | 2 | 2 | 22.4 | LOS C | 0.0 | 0.0 | 0.89 | 0.89 | 176.2 | 200.0 | 1.13 |
| North: Great Western Highway N | | | | | | | | | | | |
| P3 Full | 2 | 2 | 49.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 203.0 | 200.0 | 0.99 |
| West: Ninda Place | | | | | | | | | | | |
| P4 Full | 2 | 2 | 49.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 203.0 | 200.0 | 0.99 |
| All Pedestrians | 12 | 13 | 44.7 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.6 | 200.0 | 1.01 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.


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Project: C:\Users\janmuller\OneDrive - EMM Consulting\Documents\E221111 - Lake Lyell PHES EIS\SIDRA\E221111_SIDRA_v7 (revised routing).sipx

# MOVEMENT SUMMARY

## Site: [1804] 4. Great Western Highway/Bayonet Street/Ninda Place - 2030 PM Cumulative Scenario 3 (2030 PM Cumulative Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 130.0 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 15 | 0.0 | 15 | 0.0 | 0.466 | 15.8 | LOS B | 8.1 | 61.8 | 0.82 | 1.02 | 0.82 | 34.5 |
| 2 | T1 | All MCs | 533 | 10.7 | 533 | 10.7 | 0.466 | 30.3 | LOS C | 12.8 | 97.5 | 0.84 | 0.89 | 0.84 | 39.2 |
| 3 | R2 | All MCs | 393 | 18.0 | 393 | 18.0 | *0.860 | 46.6 | LOS D | 19.0 | 153.4 | 1.00 | 1.07 | 1.15 | 21.4 |
| Approach | | | 940 | 13.5 | 940 | 13.5 | 0.860 | 36.9 | LOS C | 19.0 | 153.4 | 0.91 | 0.97 | 0.97 | 30.5 |
| East: Bayonet St | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 266 | 12.6 | 266 | 12.6 | *0.469 | 16.0 | LOS B | 4.8 | 37.5 | 0.82 | 1.10 | 0.82 | 27.2 |
| 5 | T1 | All MCs | 42 | 0.0 | 42 | 0.0 | 0.483 | 61.1 | LOS E | 5.4 | 39.8 | 0.99 | 0.77 | 0.99 | 21.7 |
| 6 | R2 | All MCs | 44 | 14.3 | 44 | 14.3 | 0.483 | 65.6 | LOS E | 5.4 | 39.8 | 0.99 | 0.77 | 0.99 | 23.0 |
| Approach | | | 353 | 11.3 | 353 | 11.3 | 0.483 | 27.6 | LOS B | 5.4 | 39.8 | 0.86 | 1.02 | 0.86 | 25.8 |
| North: Great Western Highway N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 19 | 11.1 | 19 | 11.1 | *0.847 | 36.2 | LOS C | 12.2 | 92.9 | 1.00 | 1.09 | 1.19 | 22.6 |
| 8 | T1 | All MCs | 497 | 9.7 | 497 | 9.7 | *0.847 | 40.2 | LOS C | 12.5 | 94.8 | 1.00 | 1.08 | 1.19 | 31.0 |
| 9 | R2 | All MCs | 22 | 0.0 | 22 | 0.0 | 0.052 | 27.2 | LOS B | 0.6 | 4.1 | 0.81 | 1.12 | 0.81 | 31.0 |
| Approach | | | 538 | 9.4 | 538 | 9.4 | 0.847 | 39.6 | LOS C | 12.5 | 94.8 | 0.99 | 1.09 | 1.17 | 30.7 |
| West: Ninda Place | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 11 | 0.0 | 11 | 0.0 | 0.019 | 21.3 | LOS B | 0.3 | 1.9 | 0.71 | 1.14 | 0.71 | 31.1 |
| 11 | T1 | All MCs | 29 | 0.0 | 29 | 0.0 | *0.527 | 67.8 | LOS E | 3.7 | 26.0 | 1.00 | 0.76 | 1.00 | 20.5 |
| 12 | R2 | All MCs | 26 | 4.0 | 26 | 4.0 | 0.527 | 72.3 | LOS F | 3.7 | 26.0 | 1.00 | 0.76 | 1.00 | 26.8 |
| Approach | | | 66 | 1.6 | 66 | 1.6 | 0.527 | 62.2 | LOS E | 3.7 | 26.0 | 0.95 | 0.82 | 0.96 | 24.8 |
| All Vehicles | | | 1897 | 11.5 | 1897 | 11.5 | 0.860 | 36.8 | LOS C | 19.0 | 153.4 | 0.92 | 1.01 | 1.01 | 29.5 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

**Pedestrian Movement Performance**

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | Prop. Qued | Eff. Stop | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | [ Ped | Dist ] | | Rate | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
| South: Great Western Highway S | | | | | | | | | | | |
| P1 Full | 6 | 6 | 59.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 213.0 | 200.0 | 0.94 |
| East: Bayonet St | | | | | | | | | | | |
| P2 Full | 2 | 2 | 30.2 | LOS D | 0.0 | 0.0 | 0.91 | 0.91 | 184.0 | 200.0 | 1.09 |
| North: Great Western Highway N | | | | | | | | | | | |
| P3 Full | 4 | 4 | 59.1 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 213.0 | 200.0 | 0.94 |
| West: Ninda Place | | | | | | | | | | | |
| P4 Full | 6 | 6 | 59.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 213.0 | 200.0 | 0.94 |
| All Pedestrians | 18 | 19 | 55.9 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 209.8 | 200.0 | 0.95 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.


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# MOVEMENT SUMMARY

## Site: [1904] 4. Great Western Highway/Bayonet Street/Ninda Place - 2030 AM Cumulative Scenario 4 (2030 AM Cumulative Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 110.0 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.366 | 20.1 | LOS B | 9.3 | 71.9 | 0.77 | 1.03 | 0.77 | 32.7 |
| 2 | T1 | All MCs | 469 | 13.2 | 469 | 13.2 | 0.366 | 27.0 | LOS B | 9.3 | 72.0 | 0.77 | 0.84 | 0.77 | 41.0 |
| 3 | R2 | All MCs | 264 | 13.1 | 264 | 13.1 | * 0.891 | 67.3 | LOS E | 16.4 | 127.8 | 1.00 | 1.00 | 1.32 | 22.7 |
| Approach | | | 742 | 13.0 | 742 | 13.0 | 0.891 | 41.3 | LOS C | 16.4 | 127.8 | 0.85 | 0.90 | 0.97 | 33.6 |
| East: Bayonet St | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 323 | 19.9 | 323 | 19.9 | 0.841 | 44.6 | LOS D | 12.2 | 99.9 | 1.00 | 1.09 | 1.19 | 24.5 |
| 5 | T1 | All MCs | 13 | 0.0 | 13 | 0.0 | 0.183 | 56.9 | LOS E | 2.0 | 14.9 | 0.92 | 0.72 | 0.92 | 24.7 |
| 6 | R2 | All MCs | 27 | 15.4 | 27 | 15.4 | 0.183 | 61.4 | LOS E | 2.0 | 14.9 | 0.92 | 0.72 | 0.92 | 26.4 |
| Approach | | | 363 | 18.8 | 363 | 18.8 | 0.841 | 46.3 | LOS D | 12.2 | 99.9 | 0.99 | 1.05 | 1.16 | 22.3 |
| North: Great Western Highway N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 14 | 15.4 | 14 | 15.4 | * 0.878 | 31.6 | LOS C | 11.9 | 93.0 | 1.00 | 1.11 | 1.26 | 23.8 |
| 8 | T1 | All MCs | 613 | 13.2 | 613 | 13.2 | 0.878 | 34.2 | LOS C | 12.0 | 93.7 | 1.00 | 1.11 | 1.26 | 32.3 |
| 9 | R2 | All MCs | 18 | 11.8 | 18 | 11.8 | 0.121 | 58.0 | LOS E | 0.9 | 7.1 | 0.95 | 0.70 | 0.95 | 30.0 |
| Approach | | | 644 | 13.2 | 644 | 13.2 | 0.878 | 34.9 | LOS C | 12.0 | 93.7 | 1.00 | 1.10 | 1.25 | 32.1 |
| West: Ninda Place | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 19 | 0.0 | 19 | 0.0 | * 0.072 | 27.4 | LOS B | 0.5 | 3.8 | 0.89 | 1.06 | 0.89 | 28.0 |
| 11 | T1 | All MCs | 31 | 0.0 | 31 | 0.0 | 0.209 | 49.8 | LOS D | 2.0 | 14.2 | 0.95 | 0.71 | 0.95 | 24.4 |
| 12 | R2 | All MCs | 9 | 0.0 | 9 | 0.0 | 0.209 | 54.4 | LOS D | 2.0 | 14.2 | 0.95 | 0.71 | 0.95 | 31.4 |
| Approach | | | 59 | 0.0 | 59 | 0.0 | 0.209 | 43.3 | LOS D | 2.0 | 14.2 | 0.93 | 0.82 | 0.93 | 26.9 |
| All Vehicles | | | 1808 | 13.9 | 1808 | 13.9 | 0.891 | 40.1 | LOS C | 16.4 | 127.8 | 0.94 | 1.00 | 1.10 | 30.5 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

**Pedestrian Movement Performance**

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | Prop. Qued | Eff. Stop | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | [ Ped | Dist ] | | Rate | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
| South: Great Western Highway S | | | | | | | | | | | |
| P1 Full | 6 | 6 | 49.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 203.0 | 200.0 | 0.99 |
| East: Bayonet St | | | | | | | | | | | |
| P2 Full | 2 | 2 | 22.5 | LOS C | 0.0 | 0.0 | 0.89 | 0.89 | 176.4 | 200.0 | 1.13 |
| North: Great Western Highway N | | | | | | | | | | | |
| P3 Full | 2 | 2 | 49.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 203.0 | 200.0 | 0.99 |
| West: Ninda Place | | | | | | | | | | | |
| P4 Full | 2 | 2 | 49.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 203.0 | 200.0 | 0.99 |
| All Pedestrians | 12 | 13 | 44.7 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 198.6 | 200.0 | 1.01 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.


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# MOVEMENT SUMMARY

## Site: [2004] 4. Great Western Highway/Bayonet Street/Ninda Place - 2030 PM Cumulative Scenario 4 (2030 PM Cumulative Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 130.0 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Great Western Highway S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 15 | 0.0 | 15 | 0.0 | *0.583 | 18.0 | LOS B | 11.6 | 88.2 | 0.87 | 1.05 | 0.87 | 32.7 |
| 2 | T1 | All MCs | 652 | 10.3 | 652 | 10.3 | 0.583 | 33.9 | LOS C | 16.2 | 123.7 | 0.89 | 0.92 | 0.89 | 37.5 |
| 3 | R2 | All MCs | 393 | 18.0 | 393 | 18.0 | *0.878 | 47.7 | LOS D | 19.8 | 160.3 | 1.00 | 1.07 | 1.18 | 21.0 |
| Approach | | | 1059 | 13.0 | 1059 | 13.0 | 0.878 | 38.8 | LOS C | 19.8 | 160.3 | 0.93 | 0.98 | 1.00 | 30.3 |
| East: Bayonet St | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 266 | 12.6 | 266 | 12.6 | *0.470 | 16.0 | LOS B | 4.7 | 36.7 | 0.82 | 1.10 | 0.82 | 27.1 |
| 5 | T1 | All MCs | 42 | 0.0 | 42 | 0.0 | 0.483 | 61.1 | LOS E | 5.4 | 39.8 | 0.99 | 0.77 | 0.99 | 21.7 |
| 6 | R2 | All MCs | 44 | 14.3 | 44 | 14.3 | 0.483 | 65.6 | LOS E | 5.4 | 39.8 | 0.99 | 0.77 | 0.99 | 23.0 |
| Approach | | | 353 | 11.3 | 353 | 11.3 | 0.483 | 27.6 | LOS B | 5.4 | 39.8 | 0.86 | 1.02 | 0.86 | 25.7 |
| North: Great Western Highway N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 19 | 11.1 | 19 | 11.1 | *0.875 | 39.5 | LOS C | 13.3 | 102.2 | 1.00 | 1.11 | 1.24 | 21.7 |
| 8 | T1 | All MCs | 507 | 11.6 | 507 | 11.6 | *0.875 | 44.1 | LOS D | 13.5 | 104.2 | 1.00 | 1.11 | 1.23 | 29.9 |
| 9 | R2 | All MCs | 22 | 0.0 | 22 | 0.0 | 0.050 | 26.6 | LOS B | 0.6 | 4.0 | 0.80 | 1.12 | 0.80 | 31.2 |
| Approach | | | 548 | 11.1 | 548 | 11.1 | 0.875 | 43.3 | LOS D | 13.5 | 104.2 | 0.99 | 1.11 | 1.22 | 29.7 |
| West: Ninda Place | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 11 | 0.0 | 11 | 0.0 | 0.019 | 20.8 | LOS B | 0.3 | 1.9 | 0.70 | 1.14 | 0.70 | 31.3 |
| 11 | T1 | All MCs | 29 | 0.0 | 29 | 0.0 | 0.527 | 67.8 | LOS E | 3.7 | 26.0 | 1.00 | 0.76 | 1.00 | 20.5 |
| 12 | R2 | All MCs | 26 | 4.0 | 26 | 4.0 | 0.527 | 72.3 | LOS F | 3.7 | 26.0 | 1.00 | 0.76 | 1.00 | 26.8 |
| Approach | | | 66 | 1.6 | 66 | 1.6 | 0.527 | 62.1 | LOS E | 3.7 | 26.0 | 0.95 | 0.82 | 0.95 | 24.8 |
| All Vehicles | | | 2026 | 11.8 | 2026 | 11.8 | 0.878 | 38.8 | LOS C | 19.8 | 160.3 | 0.94 | 1.02 | 1.03 | 29.2 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

**Pedestrian Movement Performance**

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | Prop. Qued | Eff. Stop | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | [ Ped | Dist ] | | Rate | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
| South: Great Western Highway S | | | | | | | | | | | |
| P1 Full | 6 | 6 | 59.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 213.0 | 200.0 | 0.94 |
| East: Bayonet St | | | | | | | | | | | |
| P2 Full | 2 | 2 | 31.1 | LOS D | 0.0 | 0.0 | 0.91 | 0.91 | 184.9 | 200.0 | 1.08 |
| North: Great Western Highway N | | | | | | | | | | | |
| P3 Full | 4 | 4 | 59.1 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 213.0 | 200.0 | 0.94 |
| West: Ninda Place | | | | | | | | | | | |
| P4 Full | 6 | 6 | 59.2 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 213.0 | 200.0 | 0.94 |
| All Pedestrians | 18 | 19 | 56.0 | LOS E | 0.0 | 0.0 | 0.95 | 0.95 | 209.9 | 200.0 | 0.95 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.


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# MOVEMENT SUMMARY

## Site: [1705] 5. Bayonet Street/Musket Parade - 2030 AM

**Cumulative Scenario 3** (2030 AM Cumulative Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Bayonet Street | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 34 | 6.2 | 34 | 6.2 | 0.023 | 0.3 | LOS A | 0.1 | 0.5 | 0.19 | 0.19 | 0.19 | 48.2 |
| 6 | R2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.023 | 5.6 | LOS A | 0.1 | 0.5 | 0.19 | 0.19 | 0.19 | 47.7 |
| Approach | | | 42 | 5.0 | 42 | 5.0 | 0.023 | 1.4 | NA | 0.1 | 0.5 | 0.19 | 0.19 | 0.19 | 48.1 |
| North: Musket Parade | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 3 | 33.3 | 3 | 33.3 | 0.364 | 5.0 | LOS A | 1.6 | 12.7 | 0.37 | 0.58 | 0.37 | 44.6 |
| 9 | R2 | All MCs | 341 | 19.4 | 341 | 19.4 | 0.364 | 6.2 | LOS A | 1.6 | 12.7 | 0.37 | 0.58 | 0.37 | 41.7 |
| Approach | | | 344 | 19.6 | 344 | 19.6 | 0.364 | 6.2 | LOS A | 1.6 | 12.7 | 0.37 | 0.58 | 0.37 | 41.7 |
| West: Bayonet Street | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 285 | 12.2 | 285 | 12.2 | 0.172 | 4.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.49 | 0.00 | 44.1 |
| 11 | T1 | All MCs | 23 | 9.1 | 23 | 9.1 | 0.172 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.49 | 0.00 | 45.9 |
| Approach | | | 308 | 11.9 | 308 | 11.9 | 0.172 | 4.3 | NA | 0.0 | 0.0 | 0.00 | 0.49 | 0.00 | 44.2 |
| All Vehicles | | | 695 | 15.3 | 695 | 15.3 | 0.364 | 5.1 | NA | 1.6 | 12.7 | 0.20 | 0.51 | 0.20 | 43.2 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [1805] 5. Bayonet Street/Musket Parade - 2030 PM

**Cumulative Scenario 3** (2030 PM Cumulative Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Bayonet Street | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 59 | 14.3 | 59 | 14.3 | 0.046 | 0.7 | LOS A | 0.1 | 1.1 | 0.25 | 0.27 | 0.25 | 47.8 |
| 6 | R2 | All MCs | 17 | 0.0 | 17 | 0.0 | 0.046 | 6.4 | LOS A | 0.1 | 1.1 | 0.25 | 0.27 | 0.25 | 47.4 |
| Approach | | | 76 | 11.1 | 76 | 11.1 | 0.046 | 1.9 | NA | 0.1 | 1.1 | 0.25 | 0.27 | 0.25 | 47.6 |
| North: Musket Parade | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.376 | 4.9 | LOS A | 1.8 | 13.8 | 0.43 | 0.63 | 0.48 | 44.7 |
| 9 | R2 | All MCs | 324 | 11.7 | 324 | 11.7 | 0.376 | 7.1 | LOS A | 1.8 | 13.8 | 0.43 | 0.63 | 0.48 | 41.6 |
| Approach | | | 333 | 11.4 | 333 | 11.4 | 0.376 | 7.0 | LOS A | 1.8 | 13.8 | 0.43 | 0.63 | 0.48 | 41.7 |
| West: Bayonet Street | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 415 | 17.0 | 415 | 17.0 | 0.256 | 4.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.49 | 0.00 | 43.9 |
| 11 | T1 | All MCs | 26 | 8.0 | 26 | 8.0 | 0.256 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.49 | 0.00 | 45.8 |
| Approach | | | 441 | 16.5 | 441 | 16.5 | 0.256 | 4.4 | NA | 0.0 | 0.0 | 0.00 | 0.49 | 0.00 | 44.0 |
| All Vehicles | | | 849 | 14.0 | 849 | 14.0 | 0.376 | 5.2 | NA | 1.8 | 13.8 | 0.19 | 0.53 | 0.21 | 43.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [1905] 5. Bayonet Street/Musket Parade - 2030 AM

**Cumulative Scenario 4** (2030 AM Cumulative Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Bayonet Street | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 34 | 6.2 | 34 | 6.2 | 0.023 | 0.3 | LOS A | 0.1 | 0.5 | 0.19 | 0.19 | 0.19 | 48.2 |
| 6 | R2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.023 | 5.6 | LOS A | 0.1 | 0.5 | 0.19 | 0.19 | 0.19 | 47.7 |
| Approach | | | 42 | 5.0 | 42 | 5.0 | 0.023 | 1.4 | NA | 0.1 | 0.5 | 0.19 | 0.19 | 0.19 | 48.1 |
| North: Musket Parade | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 3 | 33.3 | 3 | 33.3 | 0.364 | 5.0 | LOS A | 1.6 | 12.7 | 0.37 | 0.58 | 0.37 | 44.6 |
| 9 | R2 | All MCs | 341 | 19.4 | 341 | 19.4 | 0.364 | 6.2 | LOS A | 1.6 | 12.7 | 0.37 | 0.58 | 0.37 | 41.7 |
| Approach | | | 344 | 19.6 | 344 | 19.6 | 0.364 | 6.2 | LOS A | 1.6 | 12.7 | 0.37 | 0.58 | 0.37 | 41.7 |
| West: Bayonet Street | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 285 | 12.2 | 285 | 12.2 | 0.172 | 4.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.49 | 0.00 | 44.1 |
| 11 | T1 | All MCs | 23 | 9.1 | 23 | 9.1 | 0.172 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.49 | 0.00 | 45.9 |
| Approach | | | 308 | 11.9 | 308 | 11.9 | 0.172 | 4.3 | NA | 0.0 | 0.0 | 0.00 | 0.49 | 0.00 | 44.2 |
| All Vehicles | | | 695 | 15.3 | 695 | 15.3 | 0.364 | 5.1 | NA | 1.6 | 12.7 | 0.20 | 0.51 | 0.20 | 43.2 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


Organisation: EMM CONSULTING | Licence: NETWORK / 1PC | Processed: Wednesday, 20 August 2025 12:33:14
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# MOVEMENT SUMMARY

## Site: [2005] 5. Bayonet Street/Musket Parade - 2030 PM

**Cumulative Scenario 4** (2030 PM Cumulative Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Bayonet Street | | | | | | | | | | | | | | | |
| 5 | T1 | All MCs | 59 | 14.3 | 59 | 14.3 | 0.046 | 0.7 | LOS A | 0.1 | 1.1 | 0.25 | 0.27 | 0.25 | 47.8 |
| 6 | R2 | All MCs | 17 | 0.0 | 17 | 0.0 | 0.046 | 6.4 | LOS A | 0.1 | 1.1 | 0.25 | 0.27 | 0.25 | 47.4 |
| Approach | | | 76 | 11.1 | 76 | 11.1 | 0.046 | 1.9 | NA | 0.1 | 1.1 | 0.25 | 0.27 | 0.25 | 47.6 |
| North: Musket Parade | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 8 | 0.0 | 8 | 0.0 | 0.376 | 4.9 | LOS A | 1.8 | 13.8 | 0.43 | 0.63 | 0.48 | 44.7 |
| 9 | R2 | All MCs | 324 | 11.7 | 324 | 11.7 | 0.376 | 7.1 | LOS A | 1.8 | 13.8 | 0.43 | 0.63 | 0.48 | 41.6 |
| Approach | | | 333 | 11.4 | 333 | 11.4 | 0.376 | 7.0 | LOS A | 1.8 | 13.8 | 0.43 | 0.63 | 0.48 | 41.7 |
| West: Bayonet Street | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 415 | 17.0 | 415 | 17.0 | 0.256 | 4.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.49 | 0.00 | 43.9 |
| 11 | T1 | All MCs | 26 | 8.0 | 26 | 8.0 | 0.256 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.49 | 0.00 | 45.8 |
| Approach | | | 441 | 16.5 | 441 | 16.5 | 0.256 | 4.4 | NA | 0.0 | 0.0 | 0.00 | 0.49 | 0.00 | 44.0 |
| All Vehicles | | | 849 | 14.0 | 849 | 14.0 | 0.376 | 5.2 | NA | 1.8 | 13.8 | 0.19 | 0.53 | 0.21 | 43.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [1706] 6. Martini Parade/Methven Street - 2030 AM

**Cumulative Scenario 3** (2030 AM Cumulative Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 40.0 seconds (Site Practical Cycle Time)
**Site Scenario: 1 | Local Volumes**

### Vehicle Movement Performance

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 2 | 0.0 | 2 | 0.0 | 0.056 | 16.0 | LOS B | 0.5 | 3.6 | 0.67 | 0.51 | 0.67 | 36.0 |
| 2 | T1 | All MCs | 35 | 9.1 | 35 | 9.1 | 0.056 | 8.7 | LOS A | 0.5 | 3.6 | 0.67 | 0.51 | 0.67 | 36.4 |
| 3 | R2 | All MCs | 229 | 5.0 | 229 | 5.0 | * 0.579 | 19.2 | LOS B | 4.3 | 31.4 | 0.93 | 0.82 | 0.97 | 32.7 |
| Approach | | | 266 | 5.5 | 266 | 5.5 | 0.579 | 17.8 | LOS B | 4.3 | 31.4 | 0.90 | 0.78 | 0.93 | 33.2 |
| East: Methven Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 128 | 1.6 | 128 | 1.6 | * 0.555 | 21.4 | LOS B | 4.0 | 30.2 | 0.93 | 0.79 | 0.95 | 33.1 |
| 5 | T1 | All MCs | 349 | 19.9 | 349 | 19.9 | 0.555 | 12.9 | LOS A | 4.7 | 38.6 | 0.89 | 0.75 | 0.90 | 34.5 |
| 6 | R2 | All MCs | 13 | 0.0 | 13 | 0.0 | 0.555 | 19.8 | LOS B | 4.7 | 38.6 | 0.88 | 0.74 | 0.88 | 34.6 |
| Approach | | | 491 | 14.6 | 491 | 14.6 | 0.555 | 15.3 | LOS B | 4.7 | 38.6 | 0.90 | 0.76 | 0.91 | 34.1 |
| North: Martini Parade N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 44 | 0.0 | 44 | 0.0 | 0.094 | 16.1 | LOS B | 0.7 | 4.8 | 0.79 | 0.68 | 0.79 | 33.7 |
| 8 | T1 | All MCs | 40 | 0.0 | 40 | 0.0 | 0.067 | 8.6 | LOS A | 0.6 | 4.1 | 0.66 | 0.52 | 0.66 | 36.4 |
| 9 | R2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.067 | 12.4 | LOS A | 0.6 | 4.1 | 0.66 | 0.52 | 0.66 | 36.0 |
| Approach | | | 91 | 0.0 | 91 | 0.0 | 0.094 | 12.5 | LOS A | 0.7 | 4.8 | 0.72 | 0.60 | 0.72 | 35.0 |
| West: Methven Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.345 | 20.0 | LOS B | 3.0 | 22.7 | 0.81 | 0.67 | 0.81 | 35.0 |
| 11 | T1 | All MCs | 359 | 9.7 | 359 | 9.7 | 0.345 | 11.9 | LOS A | 3.0 | 22.7 | 0.82 | 0.67 | 0.82 | 35.3 |
| 12 | R2 | All MCs | 6 | 16.7 | 6 | 16.7 | 0.345 | 23.6 | LOS B | 2.9 | 22.1 | 0.82 | 0.67 | 0.82 | 34.8 |
| Approach | | | 372 | 9.6 | 372 | 9.6 | 0.345 | 12.3 | LOS A | 3.0 | 22.7 | 0.82 | 0.67 | 0.82 | 35.3 |
| All Vehicles | | | 1219 | 10.0 | 1219 | 10.0 | 0.579 | 14.7 | LOS B | 4.7 | 38.6 | 0.86 | 0.72 | 0.87 | 34.3 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

### Pedestrian Movement Performance

| Mov ID | Crossing | Input Vol. ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Ped ped | Dist ] m | Prop. Qued | Eff. Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | |
| P1 | Full | 2 | 2 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| East: Methven Street E | | | | | | | | | | | | |
| P2 | Full | 2 | 2 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| North: Martini Parade N | | | | | | | | | | | | |
| P3 | Full | 3 | 3 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| West: Methven Street W | | | | | | | | | | | | |
| P4 | Full | 4 | 4 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| All Pedestrians | | 11 | 12 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [1806] 6. Martini Parade/Methven Street - 2030 PM

**Cumulative Scenario 3** (2030 PM Cumulative Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 40.0 seconds (Site Practical Cycle Time)
**Site Scenario: 1 | Local Volumes**

### Vehicle Movement Performance

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 3 | 0.0 | 3 | 0.0 | 0.058 | 17.4 | LOS B | 0.5 | 3.5 | 0.71 | 0.54 | 0.71 | 35.5 |
| 2 | T1 | All MCs | 34 | 0.0 | 34 | 0.0 | 0.058 | 9.8 | LOS A | 0.5 | 3.5 | 0.71 | 0.54 | 0.71 | 35.9 |
| 3 | R2 | All MCs | 192 | 0.5 | 192 | 0.5 | 0.517 | 19.7 | LOS B | 3.6 | 25.1 | 0.93 | 0.79 | 0.93 | 32.6 |
| Approach | | | 228 | 0.5 | 228 | 0.5 | 0.517 | 18.2 | LOS B | 3.6 | 25.1 | 0.90 | 0.75 | 0.90 | 33.1 |
| East: Methven Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 180 | 4.1 | 180 | 4.1 | * 0.526 | 19.5 | LOS B | 4.1 | 29.8 | 0.92 | 0.78 | 0.92 | 33.1 |
| 5 | T1 | All MCs | 337 | 9.7 | 337 | 9.7 | 0.526 | 11.6 | LOS A | 5.1 | 38.3 | 0.86 | 0.73 | 0.86 | 35.1 |
| 6 | R2 | All MCs | 18 | 0.0 | 18 | 0.0 | 0.526 | 19.3 | LOS B | 5.1 | 38.3 | 0.85 | 0.72 | 0.85 | 35.0 |
| Approach | | | 535 | 7.5 | 535 | 7.5 | 0.526 | 14.5 | LOS B | 5.1 | 38.3 | 0.88 | 0.75 | 0.88 | 34.4 |
| North: Martini Parade N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 28 | 3.7 | 28 | 3.7 | * 0.073 | 17.4 | LOS B | 0.5 | 3.3 | 0.82 | 0.68 | 0.82 | 33.3 |
| 8 | T1 | All MCs | 32 | 0.0 | 32 | 0.0 | 0.070 | 9.6 | LOS A | 0.6 | 4.0 | 0.70 | 0.56 | 0.70 | 35.9 |
| 9 | R2 | All MCs | 11 | 0.0 | 11 | 0.0 | 0.070 | 13.4 | LOS A | 0.6 | 4.0 | 0.70 | 0.56 | 0.70 | 35.5 |
| Approach | | | 71 | 1.5 | 71 | 1.5 | 0.073 | 13.3 | LOS A | 0.6 | 4.0 | 0.75 | 0.60 | 0.75 | 34.7 |
| West: Methven Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 4 | 0.0 | 4 | 0.0 | 0.409 | 19.1 | LOS B | 3.8 | 29.7 | 0.80 | 0.67 | 0.80 | 35.3 |
| 11 | T1 | All MCs | 475 | 14.6 | 475 | 14.6 | 0.409 | 11.0 | LOS A | 3.8 | 29.7 | 0.80 | 0.67 | 0.80 | 35.6 |
| 12 | R2 | All MCs | 3 | 0.0 | 3 | 0.0 | 0.409 | 23.1 | LOS B | 3.7 | 29.2 | 0.80 | 0.67 | 0.80 | 35.2 |
| Approach | | | 482 | 14.4 | 482 | 14.4 | 0.409 | 11.2 | LOS A | 3.8 | 29.7 | 0.80 | 0.67 | 0.80 | 35.6 |
| All Vehicles | | | 1316 | 8.5 | 1316 | 8.5 | 0.526 | 13.9 | LOS A | 5.1 | 38.3 | 0.85 | 0.71 | 0.85 | 34.6 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

### Pedestrian Movement Performance

| Mov ID | Crossing | Input Vol. ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Ped ped | Dist ] m | Prop. Qued | Eff. Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | |
| P1 | Full | 7 | 7 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| East: Methven Street E | | | | | | | | | | | | |
| P2 | Full | 3 | 3 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| North: Martini Parade N | | | | | | | | | | | | |
| P3 | Full | 7 | 7 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| West: Methven Street W | | | | | | | | | | | | |
| P4 | Full | 6 | 6 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| All Pedestrians | | 23 | 24 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [1106] 6. Martini Parade/Methven Street - 2030 AM Project

**Scenario 4** (2030 AM Project Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 50.0 seconds (Site User-Given Cycle Time)
**Site Scenario: 1 | Local Volumes**

### Vehicle Movement Performance

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 2 | 0.0 | 2 | 0.0 | 0.050 | 16.4 | LOS B | 0.5 | 4.1 | 0.63 | 0.48 | 0.63 | 35.7 |
| 2 | T1 | All MCs | 35 | 9.1 | 35 | 9.1 | 0.050 | 9.5 | LOS A | 0.5 | 4.1 | 0.63 | 0.48 | 0.63 | 36.1 |
| 3 | R2 | All MCs | 223 | 5.2 | 223 | 5.2 | * 0.485 | 19.5 | LOS B | 4.7 | 34.2 | 0.86 | 0.78 | 0.86 | 32.6 |
| Approach | | | 260 | 5.7 | 260 | 5.7 | 0.485 | 18.2 | LOS B | 4.7 | 34.2 | 0.83 | 0.74 | 0.83 | 33.1 |
| East: Methven Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 122 | 1.7 | 122 | 1.7 | * 0.466 | 22.6 | LOS B | 4.6 | 35.0 | 0.88 | 0.76 | 0.88 | 32.7 |
| 5 | T1 | All MCs | 338 | 20.6 | 338 | 20.6 | 0.466 | 14.5 | LOS A | 5.0 | 41.0 | 0.85 | 0.72 | 0.85 | 34.1 |
| 6 | R2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.466 | 21.6 | LOS B | 5.0 | 41.0 | 0.83 | 0.70 | 0.83 | 34.1 |
| Approach | | | 466 | 15.3 | 466 | 15.3 | 0.466 | 16.7 | LOS B | 5.0 | 41.0 | 0.85 | 0.73 | 0.85 | 33.7 |
| North: Martini Parade N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 38 | 0.0 | 38 | 0.0 | 0.065 | 16.4 | LOS B | 0.7 | 4.6 | 0.72 | 0.66 | 0.72 | 33.6 |
| 8 | T1 | All MCs | 40 | 0.0 | 40 | 0.0 | 0.061 | 9.4 | LOS A | 0.7 | 4.8 | 0.62 | 0.50 | 0.62 | 36.1 |
| 9 | R2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.061 | 13.2 | LOS A | 0.7 | 4.8 | 0.62 | 0.50 | 0.62 | 35.7 |
| Approach | | | 84 | 0.0 | 84 | 0.0 | 0.065 | 12.8 | LOS A | 0.7 | 4.8 | 0.67 | 0.57 | 0.67 | 34.9 |
| West: Methven Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.311 | 21.3 | LOS B | 3.4 | 26.1 | 0.78 | 0.64 | 0.78 | 34.4 |
| 11 | T1 | All MCs | 347 | 10.0 | 347 | 10.0 | 0.311 | 13.6 | LOS A | 3.4 | 26.1 | 0.79 | 0.65 | 0.79 | 34.7 |
| 12 | R2 | All MCs | 6 | 16.7 | 6 | 16.7 | 0.311 | 25.5 | LOS B | 3.3 | 25.3 | 0.79 | 0.65 | 0.79 | 34.2 |
| Approach | | | 360 | 9.9 | 360 | 9.9 | 0.311 | 14.0 | LOS A | 3.4 | 26.1 | 0.79 | 0.65 | 0.79 | 34.7 |
| All Vehicles | | | 1171 | 10.4 | 1171 | 10.4 | 0.485 | 15.9 | LOS B | 5.0 | 41.0 | 0.81 | 0.69 | 0.81 | 33.9 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

### Pedestrian Movement Performance

| Mov ID | Crossing | Input Vol. ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Ped ped | Dist ] m | Prop. Qued | Eff. Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | |
| P1 | Full | 2 | 2 | 19.4 | LOS B | 0.0 | 0.0 | 0.88 | 0.88 | 173.2 | 200.0 | 1.15 |
| East: Methven Street E | | | | | | | | | | | | |
| P2 | Full | 2 | 2 | 19.4 | LOS B | 0.0 | 0.0 | 0.88 | 0.88 | 173.2 | 200.0 | 1.15 |
| North: Martini Parade N | | | | | | | | | | | | |
| P3 | Full | 3 | 3 | 19.4 | LOS B | 0.0 | 0.0 | 0.88 | 0.88 | 173.2 | 200.0 | 1.15 |
| West: Methven Street W | | | | | | | | | | | | |
| P4 | Full | 4 | 4 | 19.4 | LOS B | 0.0 | 0.0 | 0.88 | 0.88 | 173.2 | 200.0 | 1.15 |
| All Pedestrians | | 11 | 12 | 19.4 | LOS B | 0.0 | 0.0 | 0.88 | 0.88 | 173.2 | 200.0 | 1.15 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [1206] 6. Martini Parade/Methven Street - 2030 PM Project

**Scenario 4** (2030 PM Project Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 40.0 seconds (Site Practical Cycle Time)
**Site Scenario: 1 | Local Volumes**

### Vehicle Movement Performance

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 3 | 0.0 | 3 | 0.0 | * 0.058 | 17.4 | LOS B | 0.5 | 3.5 | 0.71 | 0.54 | 0.71 | 35.5 |
| 2 | T1 | All MCs | 34 | 0.0 | 34 | 0.0 | 0.058 | 9.8 | LOS A | 0.5 | 3.5 | 0.71 | 0.54 | 0.71 | 35.9 |
| 3 | R2 | All MCs | 180 | 0.6 | 180 | 0.6 | 0.447 | 18.6 | LOS B | 3.2 | 22.7 | 0.90 | 0.77 | 0.90 | 32.9 |
| Approach | | | 217 | 0.5 | 217 | 0.5 | 0.447 | 17.2 | LOS B | 3.2 | 22.7 | 0.87 | 0.73 | 0.87 | 33.4 |
| East: Methven Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 168 | 4.4 | 168 | 4.4 | * 0.475 | 19.2 | LOS B | 3.6 | 26.2 | 0.90 | 0.77 | 0.90 | 33.1 |
| 5 | T1 | All MCs | 314 | 10.4 | 314 | 10.4 | 0.475 | 11.3 | LOS A | 4.6 | 34.9 | 0.83 | 0.70 | 0.83 | 35.3 |
| 6 | R2 | All MCs | 6 | 0.0 | 6 | 0.0 | 0.475 | 18.7 | LOS B | 4.6 | 34.9 | 0.82 | 0.69 | 0.82 | 35.2 |
| Approach | | | 488 | 8.2 | 488 | 8.2 | 0.475 | 14.1 | LOS A | 4.6 | 34.9 | 0.86 | 0.73 | 0.86 | 34.5 |
| North: Martini Parade N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 17 | 6.2 | 17 | 6.2 | 0.057 | 17.9 | LOS B | 0.4 | 2.8 | 0.80 | 0.64 | 0.80 | 33.9 |
| 8 | T1 | All MCs | 32 | 0.0 | 32 | 0.0 | 0.057 | 9.7 | LOS A | 0.5 | 3.2 | 0.72 | 0.58 | 0.72 | 35.4 |
| 9 | R2 | All MCs | 11 | 0.0 | 11 | 0.0 | 0.057 | 13.4 | LOS A | 0.5 | 3.2 | 0.69 | 0.56 | 0.69 | 35.4 |
| Approach | | | 59 | 1.8 | 59 | 1.8 | 0.057 | 12.7 | LOS A | 0.5 | 3.2 | 0.74 | 0.59 | 0.74 | 35.0 |
| West: Methven Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 4 | 0.0 | 4 | 0.0 | 0.392 | 19.0 | LOS B | 3.6 | 28.2 | 0.80 | 0.66 | 0.80 | 35.3 |
| 11 | T1 | All MCs | 452 | 15.4 | 452 | 15.4 | 0.392 | 11.0 | LOS A | 3.6 | 28.2 | 0.80 | 0.66 | 0.80 | 35.7 |
| 12 | R2 | All MCs | 3 | 0.0 | 3 | 0.0 | 0.392 | 22.7 | LOS B | 3.5 | 27.8 | 0.80 | 0.66 | 0.80 | 35.3 |
| Approach | | | 459 | 15.1 | 459 | 15.1 | 0.392 | 11.1 | LOS A | 3.6 | 28.2 | 0.80 | 0.66 | 0.80 | 35.7 |
| All Vehicles | | | 1223 | 9.1 | 1223 | 9.1 | 0.475 | 13.5 | LOS A | 4.6 | 34.9 | 0.83 | 0.70 | 0.83 | 34.7 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

### Pedestrian Movement Performance

| Mov ID | Crossing | Input Vol. ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Ped ped | Dist ] m | Prop. Qued | Eff. Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Martini Parade S | | | | | | | | | | | | |
| P1 | Full | 7 | 7 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| East: Methven Street E | | | | | | | | | | | | |
| P2 | Full | 3 | 3 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| North: Martini Parade N | | | | | | | | | | | | |
| P3 | Full | 7 | 7 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| West: Methven Street W | | | | | | | | | | | | |
| P4 | Full | 6 | 6 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| All Pedestrians | | 23 | 24 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [1107] 7. Lithgow Street/Kirkland Link - 2030 AM Project

**Scenario 4** (2030 AM Project Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 182 | 0.0 | 182 | 0.0 | 0.159 | 4.6 | LOS A | 0.7 | 4.6 | 0.43 | 0.61 | 0.43 | 42.9 |
| 2 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.159 | 20.5 | LOS B | 0.7 | 4.6 | 0.43 | 0.61 | 0.43 | 20.2 |
| 3 | R2 | All MCs | 49 | 6.4 | 49 | 6.4 | 0.320 | 30.9 | LOS C | 1.1 | 7.8 | 0.88 | 0.99 | 1.05 | 27.5 |
| Approach | | | 233 | 1.4 | 233 | 1.4 | 0.320 | 10.2 | LOS A | 1.1 | 7.8 | 0.53 | 0.69 | 0.56 | 38.2 |
| East: Lithgow Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 48 | 4.3 | 48 | 4.3 | 0.032 | 4.4 | LOS A | 0.1 | 0.8 | 0.00 | 0.46 | 0.00 | 44.0 |
| 5 | T1 | All MCs | 321 | 22.0 | 321 | 22.0 | 0.203 | 0.0 | LOS A | 0.0 | 0.2 | 0.01 | 0.01 | 0.01 | 49.9 |
| 6 | R2 | All MCs | 2 | 0.0 | 2 | 0.0 | 0.203 | 6.0 | LOS A | 0.0 | 0.2 | 0.01 | 0.01 | 0.01 | 28.8 |
| Approach | | | 372 | 19.5 | 372 | 19.5 | 0.203 | 0.6 | NA | 0.1 | 0.8 | 0.01 | 0.07 | 0.01 | 49.2 |
| North: Car Park | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.013 | 2.7 | LOS A | 0.0 | 0.3 | 0.79 | 0.71 | 0.79 | 25.3 |
| 8 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.013 | 14.6 | LOS B | 0.0 | 0.3 | 0.79 | 0.71 | 0.79 | 17.9 |
| 9 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.013 | 24.5 | LOS B | 0.0 | 0.3 | 0.79 | 0.71 | 0.79 | 25.3 |
| Approach | | | 3 | 0.0 | 3 | 0.0 | 0.013 | 13.9 | LOS A | 0.0 | 0.3 | 0.79 | 0.71 | 0.79 | 23.2 |
| West: Lithgow Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 5 | 0.0 | 5 | 0.0 | 0.346 | 4.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 48.6 |
| 11 | T1 | All MCs | 623 | 7.4 | 623 | 7.4 | 0.346 | 0.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 49.8 |
| 12 | R2 | All MCs | 43 | 2.4 | 43 | 2.4 | 0.034 | 5.8 | LOS A | 0.1 | 1.0 | 0.42 | 0.57 | 0.42 | 41.7 |
| Approach | | | 672 | 7.1 | 672 | 7.1 | 0.346 | 0.6 | NA | 0.1 | 1.0 | 0.03 | 0.04 | 0.03 | 49.4 |
| All Vehicles | | | 1279 | 9.6 | 1279 | 9.6 | 0.346 | 2.4 | NA | 1.1 | 7.8 | 0.11 | 0.17 | 0.12 | 47.7 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [1207] 7. Lithgow Street/Kirkland Link - 2030 PM Project

**Scenario 4** (2030 PM Project Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 97 | 0.0 | 97 | 0.0 | 0.100 | 5.1 | LOS A | 0.4 | 2.7 | 0.49 | 0.66 | 0.49 | 42.4 |
| 2 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.100 | 24.7 | LOS B | 0.4 | 2.7 | 0.49 | 0.66 | 0.49 | 20.0 |
| 3 | R2 | All MCs | 113 | 1.9 | 113 | 1.9 | 0.890 | 85.0 | LOS F | 5.3 | 38.0 | 0.98 | 1.43 | 2.53 | 15.7 |
| Approach | | | 211 | 1.0 | 211 | 1.0 | 0.890 | 47.9 | LOS D | 5.3 | 38.0 | 0.75 | 1.07 | 1.58 | 22.1 |
| East: Lithgow Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 121 | 0.9 | 121 | 0.9 | 0.078 | 4.4 | LOS A | 0.3 | 2.1 | 0.00 | 0.47 | 0.00 | 44.1 |
| 5 | T1 | All MCs | 455 | 8.8 | 455 | 8.8 | 0.255 | 0.0 | LOS A | 0.0 | 0.1 | 0.00 | 0.00 | 0.00 | 50.0 |
| 6 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.255 | 4.9 | LOS A | 0.0 | 0.1 | 0.00 | 0.00 | 0.00 | 28.8 |
| Approach | | | 577 | 7.1 | 577 | 7.1 | 0.255 | 0.9 | NA | 0.3 | 2.1 | 0.00 | 0.10 | 0.00 | 49.1 |
| North: Car Park | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 4 | 0.0 | 4 | 0.0 | 0.019 | 1.9 | LOS A | 0.1 | 0.4 | 0.70 | 0.56 | 0.70 | 26.1 |
| 8 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.019 | 21.5 | LOS B | 0.1 | 0.4 | 0.70 | 0.56 | 0.70 | 18.6 |
| 9 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.019 | 27.3 | LOS B | 0.1 | 0.4 | 0.70 | 0.56 | 0.70 | 26.1 |
| Approach | | | 6 | 0.0 | 6 | 0.0 | 0.019 | 9.4 | LOS A | 0.1 | 0.4 | 0.70 | 0.56 | 0.70 | 25.1 |
| West: Lithgow Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.281 | 4.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 48.6 |
| 11 | T1 | All MCs | 477 | 14.6 | 477 | 14.6 | 0.281 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 49.8 |
| 12 | R2 | All MCs | 235 | 0.4 | 235 | 0.4 | 0.211 | 6.7 | LOS A | 1.0 | 6.8 | 0.53 | 0.69 | 0.53 | 41.3 |
| Approach | | | 713 | 9.9 | 713 | 9.9 | 0.281 | 2.3 | NA | 1.0 | 6.8 | 0.18 | 0.23 | 0.18 | 47.8 |
| All Vehicles | | | 1506 | 7.5 | 1506 | 7.5 | 0.890 | 8.2 | NA | 5.3 | 38.0 | 0.19 | 0.30 | 0.31 | 43.5 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [1707] 7. Lithgow Street/Kirkland Link - 2030 AM

**Cumulative Scenario 3** (2030 AM Cumulative Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 205 | 0.0 | 205 | 0.0 | 0.179 | 4.6 | LOS A | 0.7 | 5.2 | 0.44 | 0.61 | 0.44 | 42.9 |
| 2 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.179 | 22.0 | LOS B | 0.7 | 5.2 | 0.44 | 0.61 | 0.44 | 20.2 |
| 3 | R2 | All MCs | 73 | 4.3 | 73 | 4.3 | 0.478 | 36.1 | LOS C | 1.8 | 12.8 | 0.91 | 1.05 | 1.24 | 25.7 |
| Approach | | | 279 | 1.1 | 279 | 1.1 | 0.478 | 12.9 | LOS A | 1.8 | 12.8 | 0.56 | 0.73 | 0.64 | 36.4 |
| East: Lithgow Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 72 | 2.9 | 72 | 2.9 | 0.047 | 4.4 | LOS A | 0.2 | 1.2 | 0.00 | 0.47 | 0.00 | 44.0 |
| 5 | T1 | All MCs | 321 | 22.0 | 321 | 22.0 | 0.203 | 0.0 | LOS A | 0.0 | 0.2 | 0.01 | 0.01 | 0.01 | 49.9 |
| 6 | R2 | All MCs | 2 | 0.0 | 2 | 0.0 | 0.203 | 6.0 | LOS A | 0.0 | 0.2 | 0.01 | 0.01 | 0.01 | 28.8 |
| Approach | | | 395 | 18.4 | 395 | 18.4 | 0.203 | 0.8 | NA | 0.2 | 1.2 | 0.01 | 0.09 | 0.01 | 49.0 |
| North: Car Park | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.015 | 2.7 | LOS A | 0.0 | 0.3 | 0.80 | 0.73 | 0.80 | 25.1 |
| 8 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.015 | 16.0 | LOS B | 0.0 | 0.3 | 0.80 | 0.73 | 0.80 | 17.7 |
| 9 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.015 | 26.9 | LOS B | 0.0 | 0.3 | 0.80 | 0.73 | 0.80 | 25.1 |
| Approach | | | 3 | 0.0 | 3 | 0.0 | 0.015 | 15.2 | LOS B | 0.0 | 0.3 | 0.80 | 0.73 | 0.80 | 23.0 |
| West: Lithgow Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 5 | 0.0 | 5 | 0.0 | 0.346 | 4.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 48.6 |
| 11 | T1 | All MCs | 623 | 7.4 | 623 | 7.4 | 0.346 | 0.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 49.8 |
| 12 | R2 | All MCs | 66 | 1.6 | 66 | 1.6 | 0.052 | 5.8 | LOS A | 0.2 | 1.6 | 0.42 | 0.58 | 0.42 | 41.6 |
| Approach | | | 695 | 6.8 | 695 | 6.8 | 0.346 | 0.7 | NA | 0.2 | 1.6 | 0.04 | 0.06 | 0.04 | 49.3 |
| All Vehicles | | | 1372 | 9.0 | 1372 | 9.0 | 0.478 | 3.3 | NA | 1.8 | 12.8 | 0.14 | 0.21 | 0.16 | 46.9 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

**Site: [17071] 7. Lithgow Street/Kirkland Link - 2030 AM**
**Cumulative Scenario 3 - Signalisation** (2030 AM Cumulative Scenario 3)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 40.0 seconds (Site User-Given Cycle Time)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 205 | 0.0 | 205 | 0.0 | 0.678 | 22.6 | LOS B | 4.3 | 30.0 | 0.99 | 0.88 | 1.16 | 30.9 |
| 2 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | *0.678 | 22.7 | LOS B | 4.3 | 30.0 | 0.99 | 0.88 | 1.16 | 17.1 |
| 3 | R2 | All MCs | 73 | 4.3 | 73 | 4.3 | 0.224 | 20.2 | LOS B | 1.3 | 9.6 | 0.90 | 0.73 | 0.90 | 32.3 |
| Approach | | | 279 | 1.1 | 279 | 1.1 | 0.678 | 22.0 | LOS B | 4.3 | 30.0 | 0.97 | 0.84 | 1.10 | 31.2 |
| East: Lithgow Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 72 | 2.9 | 72 | 2.9 | 0.047 | 4.4 | LOS A | 0.1 | 0.8 | 0.00 | 0.47 | 0.00 | 44.0 |
| 5 | T1 | All MCs | 321 | 22.0 | 321 | 22.0 | 0.382 | 6.1 | LOS A | 3.8 | 31.8 | 0.63 | 0.54 | 0.63 | 46.1 |
| 6 | R2 | All MCs | 2 | 0.0 | 2 | 0.0 | 0.382 | 19.5 | LOS B | 3.8 | 31.8 | 0.63 | 0.54 | 0.63 | 27.5 |
| Approach | | | 395 | 18.4 | 395 | 18.4 | 0.382 | 5.8 | LOS A | 3.8 | 31.8 | 0.51 | 0.52 | 0.51 | 45.7 |
| North: Car Park | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.014 | 16.4 | LOS B | 0.1 | 0.4 | 0.91 | 0.56 | 0.91 | 24.6 |
| 8 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.014 | 16.4 | LOS B | 0.1 | 0.4 | 0.91 | 0.56 | 0.91 | 17.3 |
| 9 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.014 | 20.7 | LOS B | 0.1 | 0.4 | 0.91 | 0.56 | 0.91 | 24.6 |
| Approach | | | 3 | 0.0 | 3 | 0.0 | 0.014 | 17.8 | LOS B | 0.1 | 0.4 | 0.91 | 0.56 | 0.91 | 22.6 |
| West: Lithgow Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 5 | 0.0 | 5 | 0.0 | 0.678 | 14.9 | LOS B | 9.6 | 71.2 | 0.78 | 0.72 | 0.82 | 27.1 |
| 11 | T1 | All MCs | 623 | 7.4 | 623 | 7.4 | *0.678 | 10.3 | LOS A | 9.6 | 71.2 | 0.78 | 0.72 | 0.82 | 45.0 |
| 12 | R2 | All MCs | 66 | 1.6 | 66 | 1.6 | 0.126 | 14.8 | LOS B | 0.8 | 5.9 | 0.64 | 0.69 | 0.64 | 36.8 |
| Approach | | | 695 | 6.8 | 695 | 6.8 | 0.678 | 10.7 | LOS A | 9.6 | 71.2 | 0.77 | 0.72 | 0.80 | 43.1 |
| All Vehicles | | | 1372 | 9.0 | 1372 | 9.0 | 0.678 | 11.6 | LOS A | 9.6 | 71.2 | 0.74 | 0.69 | 0.78 | 41.7 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

**Pedestrian Movement Performance**

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE [ Ped | Dist ] | Prop. Qued | Eff. Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | |
| P1 Full | 3 | 3 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| East: Lithgow Street E | | | | | | | | | | | |
| P2 Full | 3 | 3 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| North: Car Park | | | | | | | | | | | |
| P3 Full | 1 | 1 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| All Pedestrians | 7 | 7 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.


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Project: C:\Users\janmuller\OneDrive - EMM Consulting\Documents\E221111 - Lake Lyell PHES EIS\SIDRA\E221111_SIDRA_v7 (revised routing).sipx

# MOVEMENT SUMMARY

## Site: [1807] 7. Lithgow Street/Kirkland Link - 2030 PM

**Cumulative Scenario 3** (2030 PM Cumulative Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 143 | 0.0 | 143 | 0.0 | 0.146 | 5.2 | LOS A | 0.6 | 4.0 | 0.50 | 0.67 | 0.50 | 42.3 |
| 2 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.146 | 28.6 | LOS C | 0.6 | 4.0 | 0.50 | 0.67 | 0.50 | 20.0 |
| 3 | R2 | All MCs | 159 | 1.3 | 159 | 1.3 | 1.407 | 428.2 | LOS F | 32.9 | 232.8 | 1.00 | 3.21 | 8.95 | 5.6 |
| Approach | | | 303 | 0.7 | 303 | 0.7 | 1.407 | 227.1 | LOS F | 32.9 | 232.8 | 0.76 | 2.01 | 4.93 | 9.5 |
| East: Lithgow Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 167 | 0.6 | 167 | 0.6 | 0.108 | 4.4 | LOS A | 0.4 | 2.9 | 0.00 | 0.47 | 0.00 | 44.1 |
| 5 | T1 | All MCs | 455 | 8.8 | 455 | 8.8 | 0.255 | 0.0 | LOS A | 0.0 | 0.1 | 0.00 | 0.00 | 0.00 | 50.0 |
| 6 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.255 | 4.9 | LOS A | 0.0 | 0.1 | 0.00 | 0.00 | 0.00 | 28.8 |
| Approach | | | 623 | 6.6 | 623 | 6.6 | 0.255 | 1.2 | NA | 0.4 | 2.9 | 0.00 | 0.13 | 0.00 | 48.8 |
| North: Car Park | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 4 | 0.0 | 4 | 0.0 | 0.022 | 1.9 | LOS A | 0.1 | 0.5 | 0.73 | 0.59 | 0.73 | 25.8 |
| 8 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.022 | 25.5 | LOS B | 0.1 | 0.5 | 0.73 | 0.59 | 0.73 | 18.4 |
| 9 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.022 | 32.8 | LOS C | 0.1 | 0.5 | 0.73 | 0.59 | 0.73 | 25.8 |
| Approach | | | 6 | 0.0 | 6 | 0.0 | 0.022 | 11.0 | LOS A | 0.1 | 0.5 | 0.73 | 0.59 | 0.73 | 24.8 |
| West: Lithgow Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.281 | 4.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 48.6 |
| 11 | T1 | All MCs | 477 | 14.6 | 477 | 14.6 | 0.281 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 49.8 |
| 12 | R2 | All MCs | 281 | 0.4 | 281 | 0.4 | 0.253 | 6.7 | LOS A | 1.2 | 8.3 | 0.55 | 0.69 | 0.55 | 41.2 |
| Approach | | | 759 | 9.3 | 759 | 9.3 | 0.281 | 2.6 | NA | 1.2 | 8.3 | 0.20 | 0.26 | 0.20 | 47.4 |
| All Vehicles | | | 1692 | 6.7 | 1692 | 6.7 | 1.407 | 42.3 | NA | 32.9 | 232.8 | 0.23 | 0.52 | 0.98 | 32.1 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

**Site: [18071] 7. Lithgow Street/Kirkland Link - 2030 PM**
**Cumulative Scenario 3 - Signalisation** (2030 PM Cumulative Scenario 3)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated  Cycle Time = 40.0 seconds (Site User-Given Cycle Time)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 1 | L2 | All MCs | 143 | 0.0 | 143 | 0.0 | 0.476 | 21.0 | LOS B | 2.8 | 19.4 | 0.95 | 0.78 | 0.95 | 31.7 |
| 2 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.476 | 21.0 | LOS B | 2.8 | 19.4 | 0.95 | 0.78 | 0.95 | 17.3 |
| 3 | R2 | All MCs | 159 | 1.3 | 159 | 1.3 | * 0.500 | 21.2 | LOS B | 3.1 | 21.7 | 0.96 | 0.78 | 0.96 | 31.8 |
| Approach | | | 303 | 0.7 | 303 | 0.7 | 0.500 | 21.1 | LOS B | 3.1 | 21.7 | 0.95 | 0.78 | 0.95 | 31.7 |
| East: Lithgow Street E | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 167 | 0.6 | 167 | 0.6 | 0.108 | 4.4 | LOS A | 0.3 | 1.9 | 0.00 | 0.47 | 0.00 | 44.1 |
| 5 | T1 | All MCs | 455 | 8.8 | 455 | 8.8 | 0.475 | 6.4 | LOS A | 5.7 | 42.9 | 0.66 | 0.58 | 0.66 | 46.0 |
| 6 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.475 | 17.6 | LOS B | 5.7 | 42.9 | 0.66 | 0.58 | 0.66 | 27.4 |
| Approach | | | 623 | 6.6 | 623 | 6.6 | 0.475 | 5.9 | LOS A | 5.7 | 42.9 | 0.49 | 0.55 | 0.49 | 45.6 |
| North: Car Park | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 4 | 0.0 | 4 | 0.0 | 0.022 | 16.0 | LOS B | 0.1 | 0.8 | 0.88 | 0.57 | 0.88 | 24.9 |
| 8 | T1 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.022 | 15.9 | LOS B | 0.1 | 0.8 | 0.88 | 0.57 | 0.88 | 17.5 |
| 9 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.022 | 18.7 | LOS B | 0.1 | 0.8 | 0.88 | 0.57 | 0.88 | 24.9 |
| Approach | | | 6 | 0.0 | 6 | 0.0 | 0.022 | 16.4 | LOS B | 0.1 | 0.8 | 0.88 | 0.57 | 0.88 | 23.9 |
| West: Lithgow Street W | | | | | | | | | | | | | | | |
| 10 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.560 | 11.9 | LOS A | 6.4 | 50.4 | 0.71 | 0.62 | 0.71 | 27.3 |
| 11 | T1 | All MCs | 477 | 14.6 | 477 | 14.6 | 0.560 | 7.3 | LOS A | 6.4 | 50.4 | 0.71 | 0.62 | 0.71 | 45.7 |
| 12 | R2 | All MCs | 281 | 0.4 | 281 | 0.4 | * 0.627 | 17.4 | LOS B | 5.0 | 34.9 | 0.86 | 0.84 | 0.94 | 34.0 |
| Approach | | | 759 | 9.3 | 759 | 9.3 | 0.627 | 11.1 | LOS A | 6.4 | 50.4 | 0.77 | 0.70 | 0.79 | 41.9 |
| All Vehicles | | | 1692 | 6.7 | 1692 | 6.7 | 0.627 | 11.0 | LOS A | 6.4 | 50.4 | 0.70 | 0.66 | 0.71 | 41.5 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

**Pedestrian Movement Performance**

| Mov ID | Crossing | Input Vol. | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE [ Ped | Dist ] | Prop. Qued | Eff. Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | ped/h | ped/h | sec | | ped | m | | | sec | m | m/sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | |
| P1 Full | 8 | 8 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| East: Lithgow Street E | | | | | | | | | | | |
| P2 Full | 8 | 8 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| North: Car Park | | | | | | | | | | | |
| P3 Full | 2 | 2 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |
| All Pedestrians | 18 | 19 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 | 168.3 | 200.0 | 1.19 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: [908] 8. Kirkland Link/Valley Drive - 2030 AM Project

**Scenario 3** (2030 AM Project Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 33 | 3.2 | 33 | 3.2 | 0.017 | 0.0 | LOS A | 0.0 | 0.1 | 0.02 | 0.02 | 0.02 | 49.7 |
| 3 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.017 | 4.7 | LOS A | 0.0 | 0.1 | 0.02 | 0.02 | 0.02 | 48.6 |
| Approach | | | 34 | 3.1 | 34 | 3.1 | 0.017 | 0.2 | NA | 0.0 | 0.1 | 0.02 | 0.02 | 0.02 | 49.7 |
| East: Valley Drive | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.185 | 4.6 | LOS A | 0.8 | 5.8 | 0.23 | 0.52 | 0.23 | 45.4 |
| 6 | R2 | All MCs | 199 | 1.1 | 199 | 1.1 | 0.185 | 5.1 | LOS A | 0.8 | 5.8 | 0.23 | 0.52 | 0.23 | 25.2 |
| Approach | | | 200 | 1.1 | 200 | 1.1 | 0.185 | 5.1 | LOS A | 0.8 | 5.8 | 0.23 | 0.52 | 0.23 | 25.3 |
| North: Kirkland Link | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 72 | 1.5 | 72 | 1.5 | 0.039 | 3.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.50 | 0.00 | 44.3 |
| 8 | T1 | All MCs | 20 | 10.5 | 20 | 10.5 | 0.011 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 50.0 |
| Approach | | | 92 | 3.4 | 92 | 3.4 | 0.039 | 2.5 | NA | 0.0 | 0.0 | 0.00 | 0.39 | 0.00 | 45.4 |
| All Vehicles | | | 325 | 1.9 | 325 | 1.9 | 0.185 | 3.9 | NA | 0.8 | 5.8 | 0.14 | 0.43 | 0.14 | 30.7 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [1009] 8. Kirkland Link/Valley Drive - 2030 PM Project

**Scenario 3** (2030 PM Project Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 31 | 6.9 | 31 | 6.9 | 0.016 | 0.1 | LOS A | 0.0 | 0.1 | 0.04 | 0.04 | 0.04 | 49.6 |
| 3 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.016 | 6.1 | LOS A | 0.0 | 0.1 | 0.04 | 0.04 | 0.04 | 48.5 |
| Approach | | | 32 | 6.7 | 32 | 6.7 | 0.016 | 0.3 | NA | 0.0 | 0.1 | 0.04 | 0.04 | 0.04 | 49.5 |
| East: Valley Drive | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 5 | 0.0 | 5 | 0.0 | 0.198 | 4.7 | LOS A | 0.9 | 6.0 | 0.38 | 0.59 | 0.38 | 45.1 |
| 6 | R2 | All MCs | 179 | 0.0 | 179 | 0.0 | 0.198 | 6.1 | LOS A | 0.9 | 6.0 | 0.38 | 0.59 | 0.38 | 25.0 |
| Approach | | | 184 | 0.0 | 184 | 0.0 | 0.198 | 6.1 | LOS A | 0.9 | 6.0 | 0.38 | 0.59 | 0.38 | 25.6 |
| North: Kirkland Link | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 311 | 0.3 | 311 | 0.3 | 0.168 | 3.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.50 | 0.00 | 44.3 |
| 8 | T1 | All MCs | 46 | 2.3 | 46 | 2.3 | 0.024 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 50.0 |
| Approach | | | 357 | 0.6 | 357 | 0.6 | 0.168 | 2.8 | NA | 0.0 | 0.0 | 0.00 | 0.44 | 0.00 | 45.0 |
| All Vehicles | | | 573 | 0.7 | 573 | 0.7 | 0.198 | 3.7 | NA | 0.9 | 6.0 | 0.12 | 0.46 | 0.12 | 36.2 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [1708] 8. Kirkland Link/Valley Drive - 2030 AM

**Cumulative Scenario 3** (2030 AM Cumulative Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 33 | 3.2 | 33 | 3.2 | 0.017 | 0.0 | LOS A | 0.0 | 0.1 | 0.02 | 0.02 | 0.02 | 49.7 |
| 3 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.017 | 4.8 | LOS A | 0.0 | 0.1 | 0.02 | 0.02 | 0.02 | 48.5 |
| Approach | | | 34 | 3.1 | 34 | 3.1 | 0.017 | 0.2 | NA | 0.0 | 0.1 | 0.02 | 0.02 | 0.02 | 49.6 |
| East: Valley Drive | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.233 | 4.6 | LOS A | 1.1 | 7.6 | 0.28 | 0.53 | 0.28 | 45.3 |
| 6 | R2 | All MCs | 245 | 0.9 | 245 | 0.9 | 0.233 | 5.3 | LOS A | 1.1 | 7.6 | 0.28 | 0.53 | 0.28 | 25.1 |
| Approach | | | 246 | 0.9 | 246 | 0.9 | 0.233 | 5.3 | LOS A | 1.1 | 7.6 | 0.28 | 0.53 | 0.28 | 25.2 |
| North: Kirkland Link | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 118 | 0.9 | 118 | 0.9 | 0.064 | 3.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.50 | 0.00 | 44.3 |
| 8 | T1 | All MCs | 20 | 10.5 | 20 | 10.5 | 0.011 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 50.0 |
| Approach | | | 138 | 2.3 | 138 | 2.3 | 0.064 | 2.7 | NA | 0.0 | 0.0 | 0.00 | 0.43 | 0.00 | 45.0 |
| All Vehicles | | | 418 | 1.5 | 418 | 1.5 | 0.233 | 4.1 | NA | 1.1 | 7.6 | 0.16 | 0.46 | 0.16 | 31.0 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [1808] 8. Kirkland Link/Valley Drive - 2030 PM

**Cumulative Scenario 3** (2030 PM Cumulative Scenario 3)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Kirkland Link | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 31 | 6.9 | 31 | 6.9 | 0.017 | 0.1 | LOS A | 0.0 | 0.1 | 0.05 | 0.05 | 0.05 | 49.5 |
| 3 | R2 | All MCs | 1 | 0.0 | 1 | 0.0 | 0.017 | 6.6 | LOS A | 0.0 | 0.1 | 0.05 | 0.05 | 0.05 | 48.5 |
| Approach | | | 32 | 6.7 | 32 | 6.7 | 0.017 | 0.3 | NA | 0.0 | 0.1 | 0.05 | 0.05 | 0.05 | 49.5 |
| East: Valley Drive | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 5 | 0.0 | 5 | 0.0 | 0.316 | 4.7 | LOS A | 1.5 | 10.4 | 0.46 | 0.62 | 0.46 | 44.8 |
| 6 | R2 | All MCs | 272 | 0.0 | 272 | 0.0 | 0.316 | 6.7 | LOS A | 1.5 | 10.4 | 0.46 | 0.62 | 0.46 | 24.8 |
| Approach | | | 277 | 0.0 | 277 | 0.0 | 0.316 | 6.7 | LOS A | 1.5 | 10.4 | 0.46 | 0.62 | 0.46 | 25.2 |
| North: Kirkland Link | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 403 | 0.3 | 403 | 0.3 | 0.218 | 3.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.50 | 0.00 | 44.3 |
| 8 | T1 | All MCs | 46 | 2.3 | 46 | 2.3 | 0.024 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 50.0 |
| Approach | | | 449 | 0.5 | 449 | 0.5 | 0.218 | 2.9 | NA | 0.0 | 0.0 | 0.00 | 0.45 | 0.00 | 44.8 |
| All Vehicles | | | 758 | 0.6 | 758 | 0.6 | 0.316 | 4.2 | NA | 1.5 | 10.4 | 0.17 | 0.50 | 0.17 | 34.9 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [1109] 9. Lithgow Street/Bent Street - 2030 AM Project

**Scenario 4** (2030 AM Project Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Lithgow Street S | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 309 | 2.4 | 309 | 2.4 | 0.162 | 1.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.22 | 0.00 | 48.9 |
| 3 | R2 | All MCs | 298 | 13.8 | 298 | 13.8 | 0.228 | 5.8 | LOS A | 1.1 | 8.9 | 0.41 | 0.56 | 0.41 | 40.9 |
| Approach | | | 607 | 8.0 | 607 | 8.0 | 0.228 | 3.5 | NA | 1.1 | 8.9 | 0.20 | 0.39 | 0.20 | 44.6 |
| East: Bent Street | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 194 | 34.2 | 194 | 34.2 | 0.143 | 3.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.34 | 0.00 | 38.5 |
| 6 | R2 | All MCs | 8 | 37.5 | 8 | 37.5 | 0.033 | 16.0 | LOS B | 0.1 | 0.9 | 0.73 | 0.83 | 0.73 | 33.7 |
| Approach | | | 202 | 34.4 | 202 | 34.4 | 0.143 | 3.7 | LOS A | 0.1 | 0.9 | 0.03 | 0.36 | 0.03 | 38.3 |
| North: Lithgow Street N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 75 | 7.0 | 75 | 7.0 | 0.123 | 3.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.14 | 0.00 | 39.1 |
| 8 | T1 | All MCs | 171 | 3.1 | 171 | 3.1 | 0.123 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.14 | 0.00 | 39.5 |
| Approach | | | 245 | 4.3 | 245 | 4.3 | 0.123 | 1.1 | NA | 0.0 | 0.0 | 0.00 | 0.14 | 0.00 | 39.4 |
| All Vehicles | | | 1055 | 12.2 | 1055 | 12.2 | 0.228 | 3.0 | NA | 1.1 | 8.9 | 0.12 | 0.33 | 0.12 | 42.0 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [1209] 9. Lithgow Street/Bent Street - 2030 PM Project

**Scenario 4** (2030 PM Project Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Lithgow Street S | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 432 | 1.7 | 432 | 1.7 | 0.225 | 1.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.22 | 0.00 | 48.9 |
| 3 | R2 | All MCs | 148 | 44.0 | 148 | 44.0 | 0.139 | 6.5 | LOS A | 0.6 | 6.1 | 0.43 | 0.58 | 0.43 | 40.8 |
| Approach | | | 580 | 12.5 | 580 | 12.5 | 0.225 | 2.7 | NA | 0.6 | 6.1 | 0.11 | 0.31 | 0.11 | 46.5 |
| East: Bent Street | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 260 | 12.6 | 260 | 12.6 | 0.159 | 3.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.36 | 0.00 | 38.5 |
| 6 | R2 | All MCs | 18 | 11.8 | 18 | 11.8 | 0.055 | 13.2 | LOS A | 0.2 | 1.4 | 0.71 | 0.84 | 0.71 | 34.6 |
| Approach | | | 278 | 12.5 | 278 | 12.5 | 0.159 | 3.7 | LOS A | 0.2 | 1.4 | 0.05 | 0.39 | 0.05 | 38.2 |
| North: Lithgow Street N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 42 | 5.0 | 42 | 5.0 | 0.133 | 3.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.3 |
| 8 | T1 | All MCs | 224 | 4.7 | 224 | 4.7 | 0.133 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.7 |
| Approach | | | 266 | 4.7 | 266 | 4.7 | 0.133 | 0.6 | NA | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.7 |
| All Vehicles | | | 1124 | 10.7 | 1124 | 10.7 | 0.225 | 2.4 | NA | 0.6 | 6.1 | 0.07 | 0.27 | 0.07 | 42.5 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

## Site: [1909] 9. Lithgow Street/Bent Street - 2030 AM

**Cumulative Scenario 4** (2030 AM Cumulative Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Lithgow Street S | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 321 | 2.3 | 321 | 2.3 | 0.168 | 1.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.22 | 0.00 | 48.9 |
| 3 | R2 | All MCs | 309 | 13.3 | 309 | 13.3 | 0.239 | 5.9 | LOS A | 1.2 | 9.4 | 0.42 | 0.57 | 0.42 | 40.9 |
| Approach | | | 631 | 7.7 | 631 | 7.7 | 0.239 | 3.6 | NA | 1.2 | 9.4 | 0.21 | 0.39 | 0.21 | 44.6 |
| East: Bent Street | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 205 | 32.3 | 205 | 32.3 | 0.149 | 3.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.34 | 0.00 | 38.5 |
| 6 | R2 | All MCs | 8 | 37.5 | 8 | 37.5 | 0.035 | 17.0 | LOS B | 0.1 | 1.0 | 0.74 | 0.86 | 0.74 | 33.4 |
| Approach | | | 214 | 32.5 | 214 | 32.5 | 0.149 | 3.7 | LOS A | 0.1 | 1.0 | 0.03 | 0.36 | 0.03 | 38.2 |
| North: Lithgow Street N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 75 | 7.0 | 75 | 7.0 | 0.128 | 3.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.13 | 0.00 | 39.1 |
| 8 | T1 | All MCs | 182 | 2.9 | 182 | 2.9 | 0.128 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.13 | 0.00 | 39.6 |
| Approach | | | 257 | 4.1 | 257 | 4.1 | 0.128 | 1.1 | NA | 0.0 | 0.0 | 0.00 | 0.13 | 0.00 | 39.4 |
| All Vehicles | | | 1101 | 11.7 | 1101 | 11.7 | 0.239 | 3.0 | NA | 1.2 | 9.4 | 0.12 | 0.33 | 0.12 | 42.0 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# MOVEMENT SUMMARY

## Site: [2009] 9. Lithgow Street/Bent Street - 2030 PM

**Cumulative Scenario 4** (2030 PM Cumulative Scenario 4)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
**Site Scenario: 1 | Local Volumes**

**Vehicle Movement Performance**

| Mov ID | Turn | Mov Class | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh. veh | Dist ] m | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Lithgow Street S | | | | | | | | | | | | | | | |
| 2 | T1 | All MCs | 455 | 1.6 | 455 | 1.6 | 0.237 | 1.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.22 | 0.00 | 48.9 |
| 3 | R2 | All MCs | 172 | 38.0 | 172 | 38.0 | 0.161 | 6.5 | LOS A | 0.7 | 6.9 | 0.45 | 0.59 | 0.45 | 40.8 |
| Approach | | | 626 | 11.6 | 626 | 11.6 | 0.237 | 2.8 | NA | 0.7 | 6.9 | 0.12 | 0.32 | 0.12 | 46.4 |
| East: Bent Street | | | | | | | | | | | | | | | |
| 4 | L2 | All MCs | 283 | 11.5 | 283 | 11.5 | 0.171 | 3.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.36 | 0.00 | 38.5 |
| 6 | R2 | All MCs | 18 | 11.8 | 18 | 11.8 | 0.062 | 14.8 | LOS B | 0.2 | 1.5 | 0.74 | 0.86 | 0.74 | 34.1 |
| Approach | | | 301 | 11.5 | 301 | 11.5 | 0.171 | 3.8 | LOS A | 0.2 | 1.5 | 0.04 | 0.39 | 0.04 | 38.2 |
| North: Lithgow Street N | | | | | | | | | | | | | | | |
| 7 | L2 | All MCs | 42 | 5.0 | 42 | 5.0 | 0.143 | 3.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.3 |
| 8 | T1 | All MCs | 247 | 4.3 | 247 | 4.3 | 0.143 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.7 |
| Approach | | | 289 | 4.4 | 289 | 4.4 | 0.143 | 0.6 | NA | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.7 |
| All Vehicles | | | 1217 | 9.9 | 1217 | 9.9 | 0.237 | 2.5 | NA | 0.7 | 6.9 | 0.07 | 0.28 | 0.07 | 42.4 |

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.


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# Annexure D

## OSOM route assessment

EMM
creating opportunities

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# LAKE LYELL PUMPED HYDRO PROJECT

## OSOM Route Study

| | |
|---|---|
| Date: | April 2024 |
| Client: | Lauren Bentley<br>Acciona |
| Type: | Desktop Survey |
| Rev: | 0 |

# Table of Contents



## Revision History

| Revision | Date | Details | Prepared | Checked | Approved |
|---|---|---|---|---|---|
| 0 | 15/04/2024 | First issue | ICW | ICW | JJM |
| | | | | | |
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## Disclaimer

This report has been prepared for advisory purposes only. Information provided within the report is based on data provided by the Client as well as publicly available information and, to the best of ARES Project Services Pty Ltd's knowledge and experience, is accurate at the time of publication. All proposed routes, methodologies and schedules described in this report are subject to approval and issue of permits from the relevant stakeholders. Transport equipment is based on ARES Project Services Pty Ltd vehicles and trailers, and swept path analysis results may differ if using equipment by third parties.

ARES Project Services Pty Ltd accepts no responsibility or liability for the use of this report by any third party. The disclosure or distribution of this report to third parties is not permitted unless written approval is granted by ARES Project Services Pty Ltd.

# Introduction

Lake Lyell Pumped Hydro is a proposed renewable energy development located in New South Wales. The project is located approximately 150km west of Sydney and 10km south west of the town of Lithgow in the Central Tablelands. The project is planned to generate 335MW of power for a duration of 8 hours, and will include a new dam, a number of tunnels/portals and an associated switchyard.

Ares have been tasked by our customer, Acciona, to undertake an Oversize Overmass (OSOM) Route Survey to site. The purpose of the study is to determine the pinch points along the route(s) and give best estimates of modifications and works required to enable OSOM cargo to be brought to site.

The study is designed for those involved in the project that have a limited knowledge of transportation, including a comprehensive outline of the routes and actions required to achieve delivery.

**Murra Warra WF**

Murra Warra Stage 1 components had to be transported over 250km from the Port of Portland to site. Cargo included 5.8m diameter towers such as these pictured.

# 01

## Overview

# Project Overview

The Lake Lyell Pumped Hydro project is a renewable energy development in the Central Tablelands of New South Wales currently in the feasibility study stage.

## Scope of Survey

Lake Lyell Pumped Hydro is located in the Central Tablelands of New South Wales, 150km west of Sydney in the City of Lithgow local government area. The project will require the delivery of a number of indivisible oversize, overmass components to site.

ARES has been tasked with surveying the transport routes from the various origin points to the construction site. The survey includes everything from the loading area, road transport from origin to site, and an assessment of the local roads leading into the site entrance.

This is a desktop study only, with aerial data and measurements taken from sources such as Google, SIX Maps and Nearmaps. The route has not been physically driven and examined. We recommend that a physical study be commissioned at a later date, once project details, timings and component sizes are firmer, to validate the findings of this study.

No initial engagement has been undertaken with the transport authority (Transport for NSW) as the project is still in the early stages of planning. We highly recommend engaging with TfNSW as soon as possible to firm up OSOM transport and permit requirements.

## Cargo Origin

OSOM cargo will be imported and will arrive via Port Kembla. Break bulk import cargo typically comes into the AAT terminal at Port Kembla. Given the expected volumes, storage will not be an issue. Movements within the port must follow the vehicle management plans (VMP) which are issued daily. Exiting the port is straightforward and the Hume Hwy is only approximately 1 hr away.

## Site

The construction site will be located off Sir Thomas Mitchell Dr in South Bowenfels. As the design is still in conceptual stages, the exact delivery points are not yet clear so we have assumed a single delivery and offload point at the switchyard (in orange on site plan to the right) for all components.

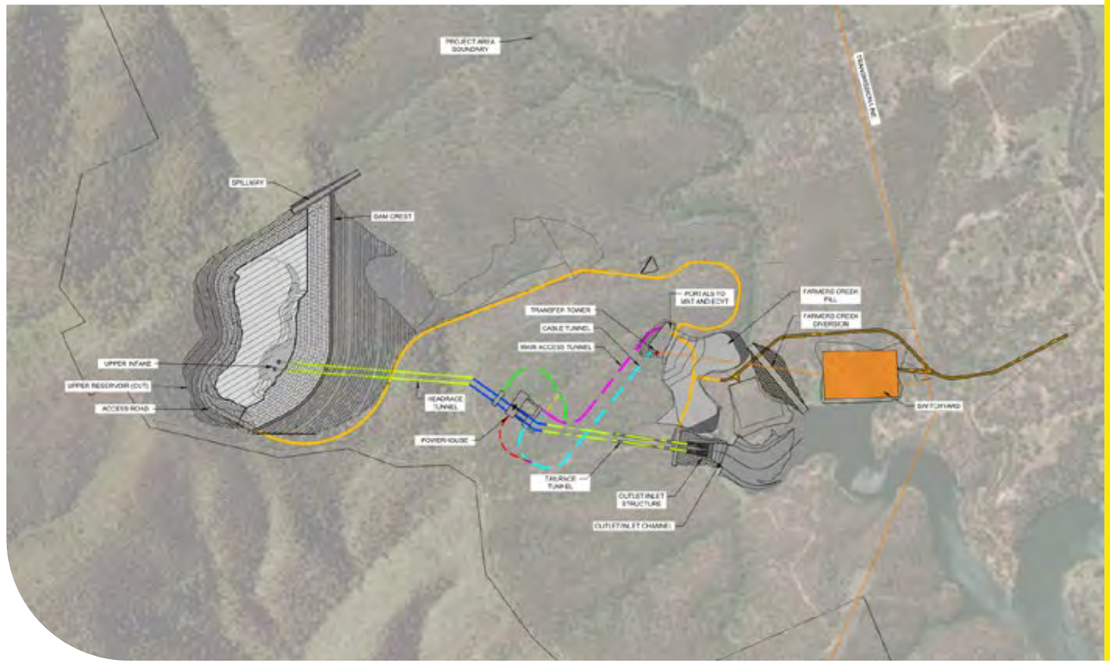
Magie Hollow Rd has approximately 6.0m wide paved surface and is suitable for transport of all components with no modifications. For the steel cans (5.04m wide), pilot cars will have to scout ahead and ensure that any oncoming cars pull over completely to allow the load to pass.

Sir Thomas Mitchell Dr will require upgrades to accommodate the anticipated volume of construction and heavy vehicle traffic for the project. ARES have provided information in this report on general requirements for OSOM vehicles.





**Above:** AAT Port Kembla aerial view. **Below:** Conceptual site plan at Lake Lyell Pumped Hydro (source: Acciona).



# Transport Methodology

Specialised cargo requires specialised transport solutions.

## Cargo Dimensions

The OSOM cargo to be transported for this project includes the following:

- Transformers: 8.5mL, 3.8mW, 3.6mH, 180T
- Steel Cans: 5.04mL, 5.04mW, 3.0mH, 35T

The transformers, while relatively small in size, are heavy due to being prefilled with oil. If the oil were to be removed and only filled once the transformers are landed at the destination switchyard, the empty transformers at 120T could be transported on much simpler equipment such as shown at top right.

The steel cans are the widest components, but at 5.0m wide can be transported with no issues along all routes.

## Equipment

The transformers will require a multi-axle platform trailer with drop frame to minimise the overall height. This is a custom trailer and frame design tailored for heavy high loads such as transformers.

The alternative is to use a beam set which is another common method of transporting large and heavy transformers (see example photo on right). These units require significantly more set up time and add a lot more gross mass and length to the overall trailer combination. This has a cascading effect on the number of pilot vehicles and police escorts required. Due to the sheer number of vehicles and logistics involved in such a move, these tend to be much more high profile and public moves.

The principal advantages of the beamset are its ability to scale up and carry very heavy weights, as well as its relatively good manoeuvrability due to the points of articulation. However, the transformers under consideration for this project are relatively light at 180T and at the bottom end of a beam set's capabitilities. Manoeuvrability is also not a major concern. For these reasons we have assumed using the simpler solution of a platform trailer with drop deck to transport the transformer units.

The steel cans are relatively straightforward cargo by OSOM standards and can be transported on quad axle low loaders, which are commonly used in the heavy haulage industry.

We have provided an equipment schematic showing the cargo mocked up on the proposed transport equipment, along with a turning circle diagram for the longest load, which is the transformer, on the following pages.



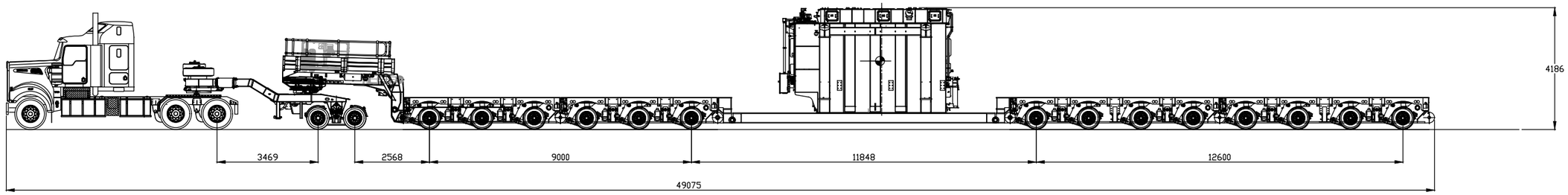


Above: ARES delivering 125T power transformer (without oil) to Flyers Creek Wind Farm on 8R8 Platform trailer.

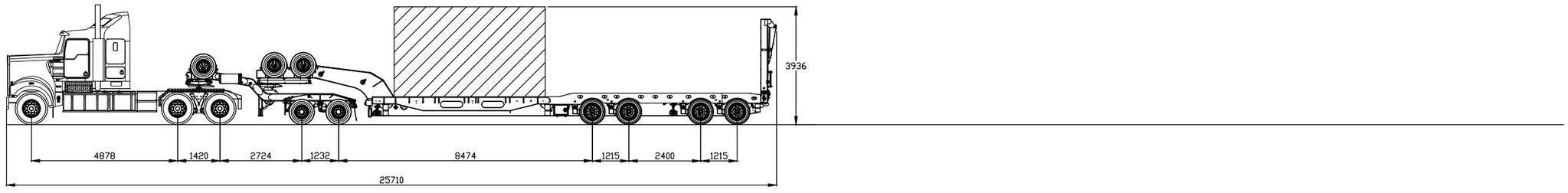
Above: Example of beam set used for large power transformer transport.

# Equipment Schematic

14R8 & 2R8 DOLLY (WITH DROP DECK)
16.45T PER ROW - MAX P/L: 180T




STEEL CANS - 4R8 & 2R8 DOLLY
35T PAYLOAD

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**DRAWING NOTES:**

ALL DIMENSIONS ARE IN mm UNLESS NOTED OTHERWISE (UNO) ALL WEIGHTS ARE IN t (METRIC TONNES) UNO ALL DETAILS ARE PROVISIONAL AND SUBJECT TO CONFIRMATION LASHINGS CALCULATIONS AS PER RESTRAINT GUIDELINES

**TECHNICAL NOTES:**

WEIGHT, DIMENSIONS AND COG POSITION TO BE CONFIRMED BY CLIENT STRUCTURAL INTEGRITY TO BE CHECKED BY CLIENT OPERATIONAL DIAGRAMS AND MANUAL MUST BE OBSERVED HYDRAULIC STABILITY REFERS TO STATIC LOAD ONLY STABILITY PROVISIONAL UNTIL COG CONFIRMED



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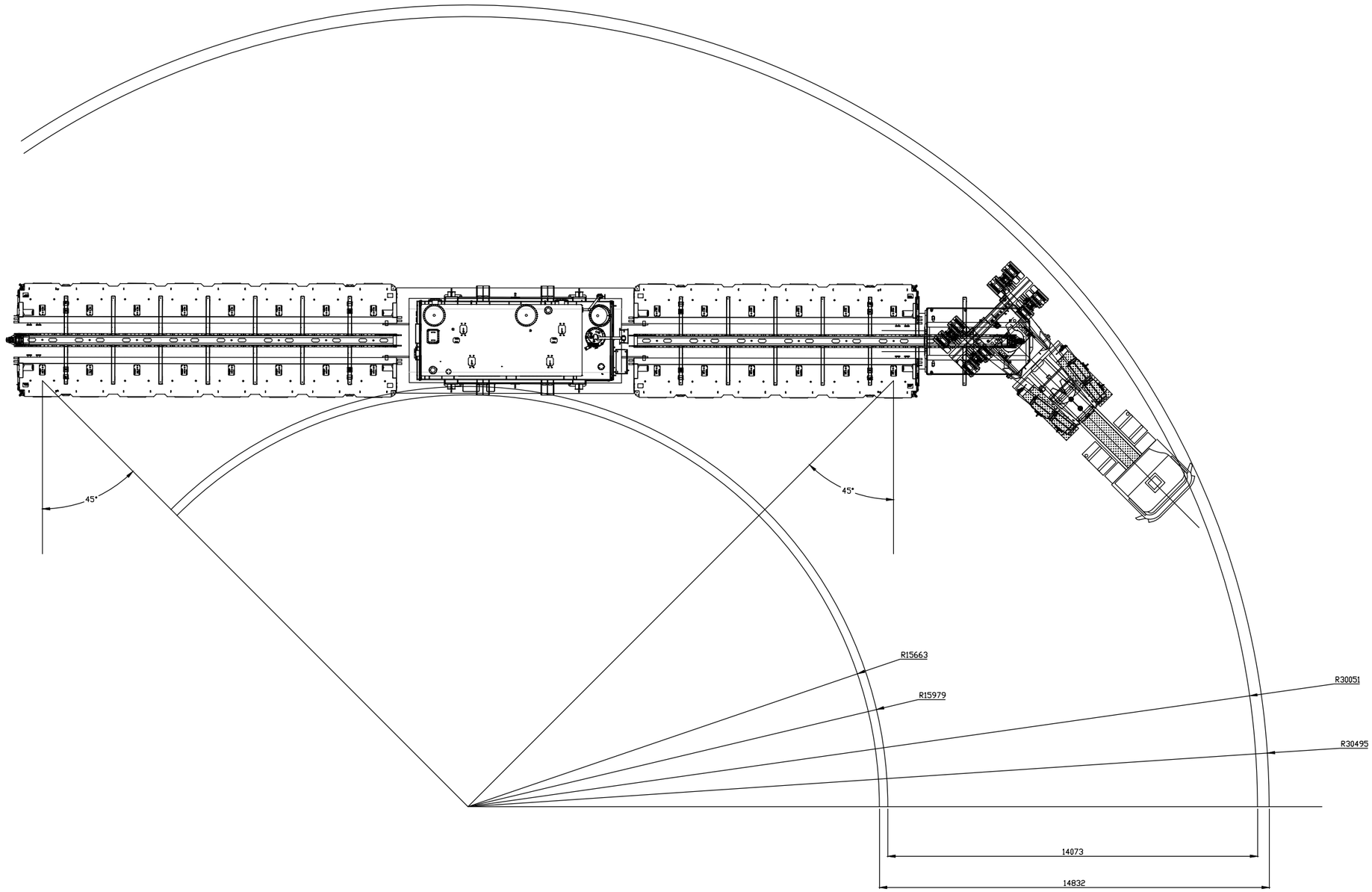
# Turning Circle Diagram

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**DRAWING NOTES:**

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**TECHNICAL NOTES:**

WEIGHT, DIMENSIONS AND COG POSITION TO BE CONFIRMED BY CLIENT STRUCTURAL INTEGRITY TO BE CHECKED BY CLIENT OPERATIONAL DIAGRAMS AND MANUAL MUST BE OBSERVED HYDRAULIC STABILITY REFERS TO STATIC LOAD ONLY STABILITY PROVISIONAL UNTIL COG CONFIRMED



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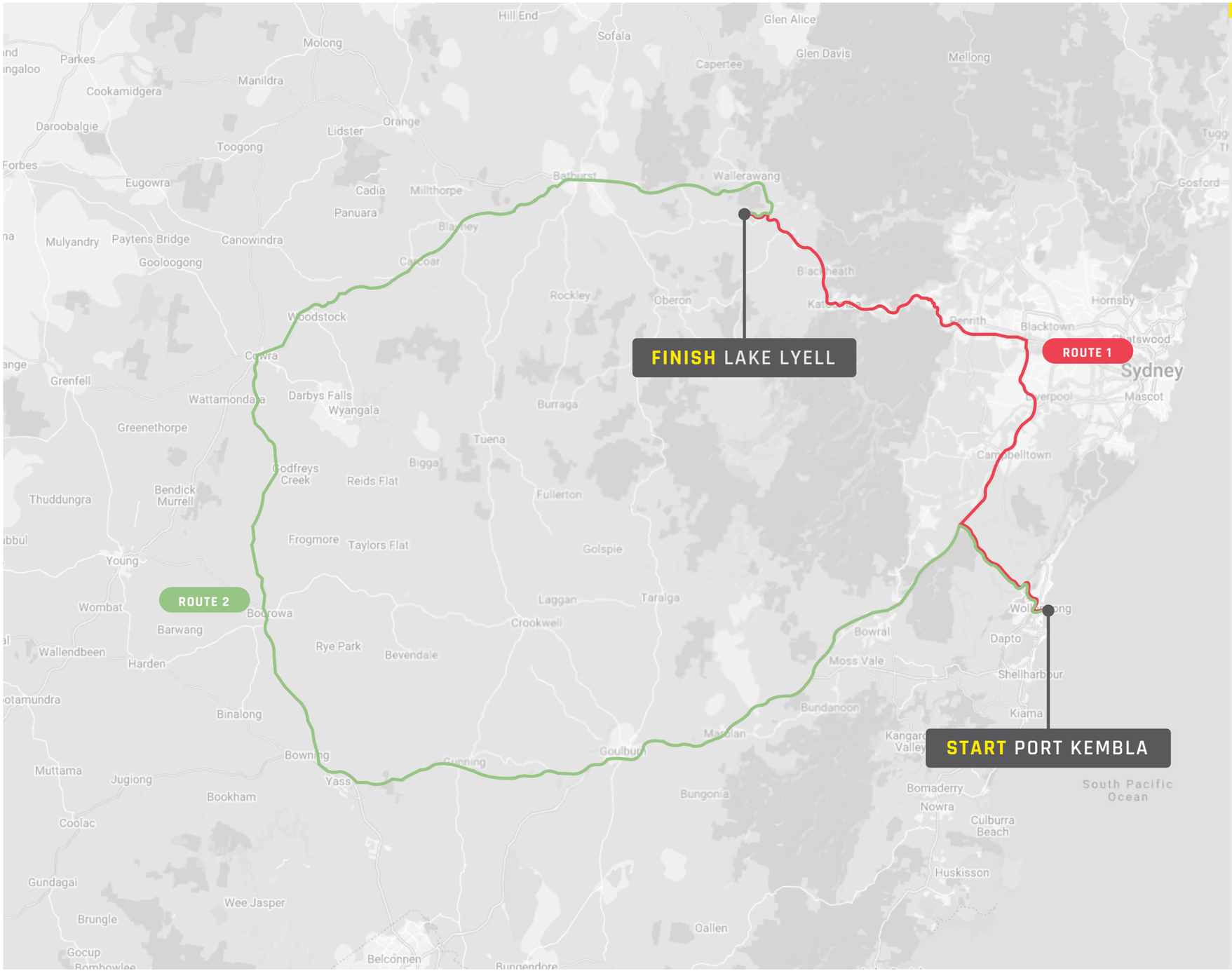
# Route Options




There are two options available to transport components to site:

**Route 1** is the most direct route, taking the Hume Hwy up to Sydney and then turning onto the Great Western Hwy and going through the Blue Mountains before arriving at Lake Lyell.

This route traverses the densely populated area of the Blue Mountains and will likely require close consultation and planning with Transport for NSW, as well as potentially extra pilot vehicles and police escorts. The gradients and sharp bends of the Great Western Hwy will also be more challenging for transport equipment and require additional block trucks.

Travel through metropolitan Sydney and the Blue Mountains will be restricted to night time only to reduce the impact to fellow road users.

**Route 2** takes a more circuitous route, using the Hume Hwy westbound to Yass and then turning up Lachlan Valley Way through Boorowa and Cowra. The route then takes the Mid Western Hwy to Bathurst, and then the Great Western Hwy to site.

Whilst considerably lengthier than the first route option, this route stays clear of the sensitive populated areas of Sydney and the Blue Mountains. The loads will have to pass through the regional towns of Cowra and Bathurst.

Google My Maps interactive map

# Port Kembla to Lake Lyell

General Route Notes (for both routes)

## Road Quality

The transport routes are mainly along state maintained highways and roads, which are generally designed to a higher specification and able to handle heavier and higher volumes of traffic.

Both routes are almost entirely paved except the very last section of Sir Thomas Mitchell Dr and the road surface is generally in good to very good condition.

## Overhead Structures and Powerlines

With a maximum loaded height of 4.2m, overhead structures and lines should not be an issue for this project.

High load permits are only required at over 5.2m loaded height. We do not expect any issues with power line clearances. However, an overhead powerline survey (performed by the power authority) is still recommended in case there are unidentified or new low lines on the routes.

Route 1 traverses through the Essential Energy and Ausgrid distribution networks. Route 2 goes through the Essential Energy and Endeavour Energy areas.

## Bridges and Culverts

Bridges and other structures such as culverts have not been assessed in this report. We recommend consulting Transport for New South Wales once component weights and a transport route are confirmed. TfNSW will advise of any assessments required along the state roads on the route.

For any structures on local roads, the local council will need to be contacted - in this case Lithgow City Council.

## Rail Crossings

There is one rail level crossing (currently disused) along the route as noted below. Permissions will be required from rail authorities to travel through these crossings. Other measures such as track protection officers may also be required - these will be specified by the rail authorities on the permits.

Mid Western Hwy Level Crossing, Blayney
Rail Authority: Transport Asset Holding Entity
GPS: https://maps.app.goo.gl/7YiqTqLWsU3xfEu56

## Roadworks

There are no significant roadworks or known road upgrade projects planned along the route at the time of writing. It is recommended that close liaison with TfNSW is maintained throughout the project planning phase to keep abreast of any planned and/or unplanned works along the transport route(s).

## Approvals

All OSOM loads will require NHVR Permits prior to travel. The permits will state the approved route(s), vehicles and any special conditions which apply to travel.

Any moves classified as "high risk" moves by TfNSW and will require an approved OSOM Transport Management Plan in addition to a Permit.

Modifications to State Roads in NSW will require a Works Authorisation Deed (WAD), with designs to be approved by TfNSW.






**Above:** Visualisation of new site access road to be built off Sir Thomas Mitchell Dr, also showing switchyard location. (Source: EnergyAustralia)

Third party approvals required include the port authority, rail authorities, and utility providers such as electricity and telecommunications.

Special approvals will be required from TfNSW and NSW Police for the transport of OSOM loads through the Blue Mountains (Route 1). There will very likely be strict conditions for travel including additional police and pilot vehicles, backup vehicles, curfews, etc.

## Site Road Requirements

Sir Thomas Mitchell Dr is paved for the first 2.8km with the remaining section to site unpaved gravel. The road width is currently around 5.0m and will require widening to accommodate the widest loads at 5.0m wide, as well as to improve visibility and cater for higher traffic volumes.

A new site access road leading down to the switchyard and tunnel portals will be constructed off Sir Thomas Mitchell Dr, as shown in the conceptual figure above.

From an OSOM transport perspective, this road should preferably be paved for better traction, with gradients kept to less than 15% (preferably 12%). Steeper slopes are possible but would require more push/pull trucks to assist the heavy transformer loads up and downhill. Minimum vertical curvature is recommended to be R300, and road width should be minimum 5.5m.

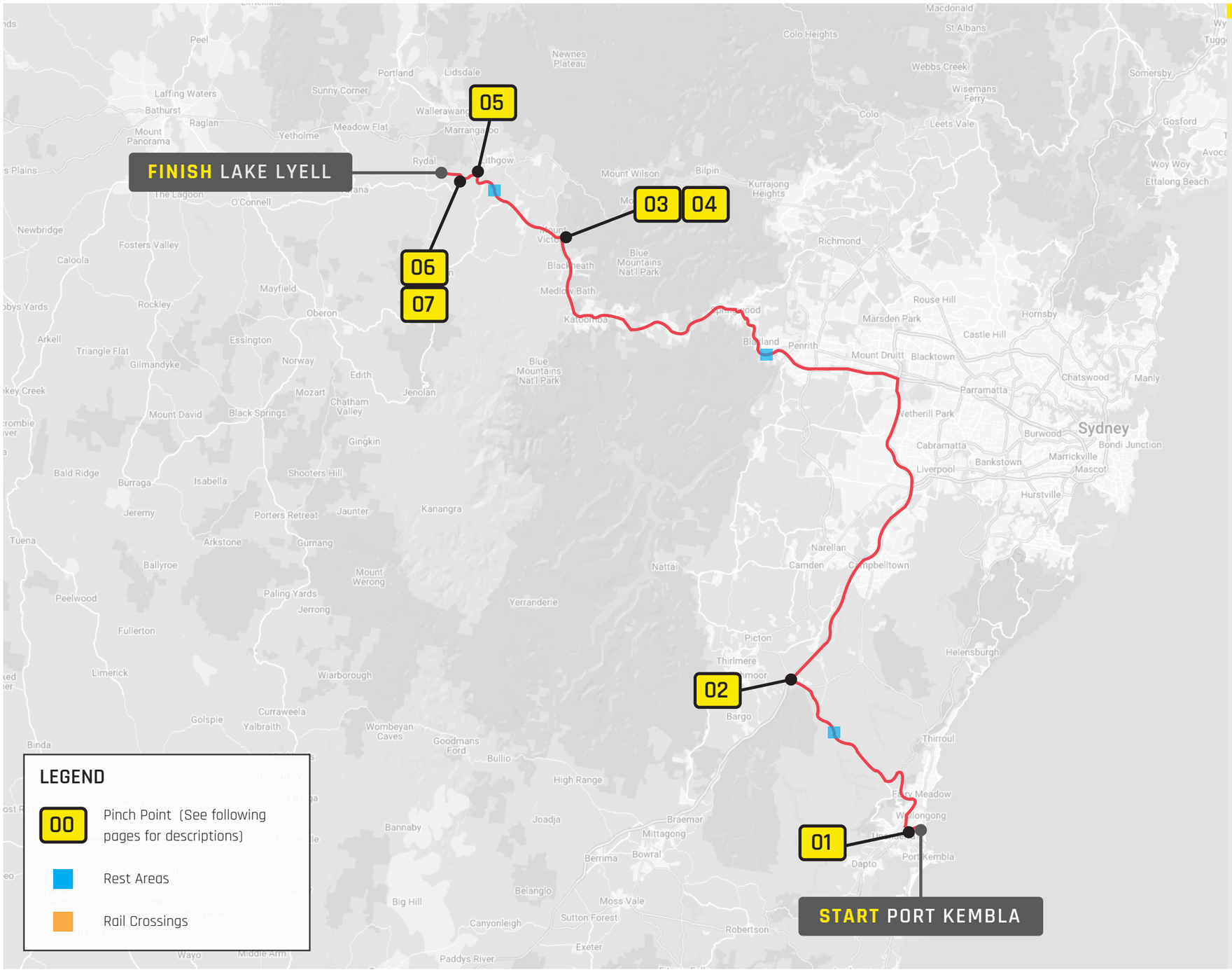
At the offloading point, sufficient space will need to be allowed for cranes to unload the cargo. In the case of the transformer, a jack and skate system will most likely be used so room for the trailer will have to be made adjacent to the final position of the transformer.

Turnaround space will need to be provided for the trailers. We have provided a turning circle and dimensions for the transport equipment proposed which can be used for the design of the turnaround area.

# 02

## Route 1 - Port Kembla to Lake Lyell via Sydney

# Route 1 - Overview




**LEGEND**

- 00 — Pinch Point (See following pages for descriptions)
- Rest Areas
- Rail Crossings

**ROUTE 1**

| | |
|---|---|
| | **START - Port Kembla** |
| 0.0 KM | Tom Thumb Rd |
| 0.7 KM | Springhill Rd |
| 1.8 KM | Masters Rd |
| 2.7 KM | Princes Mwy (M1) |
| 14.1 KM | Picton Rd |
| 41.2 KM | Hume Mwy |
| 78.2 KM | S Western Fwy |
| 78.9 KM | M7 Mwy |
| 97.9 KM | M4 Mwy |
| 120.0 KM | Great Western Hwy |
| 198.6 KM | Magpie Hollow Rd |
| 200.6 KM | Sir Thomas Mitchell Dr |
| **205.4 KM** | **FINISH - Lake Lyell** |

This route is suitable for all components.

**Rest Stops**

Picton Rd Parking - KP 29.5
GPS: https://maps.app.goo.gl/N3TeKy9yGizfoNy98

Glenbrook Rest Area - KP 122
GPS: https://maps.app.goo.gl/fMhJtG4E2G74WMXF7

River Lett Hill Rest Area - KP 193
GPS: https://maps.app.goo.gl/P6jY1HqM37wnyXPQ8

Pinch Point

# 01

LEFT TURN

Tom Thumb Rd
& Springhill Rd

**ROUTE 1** **ROUTE 2**

Loads exiting AAT Port Kembla via Tom Thumb Rd will turn left onto Springhill Rd. Due to the length of the load, the combination will need to cross onto the opposite side of the road briefly. Escorts will need to hold traffic whilst the manoeuvre is being undertaken.

No modifications are required at this intersection.




**DRAWING NOTES:**

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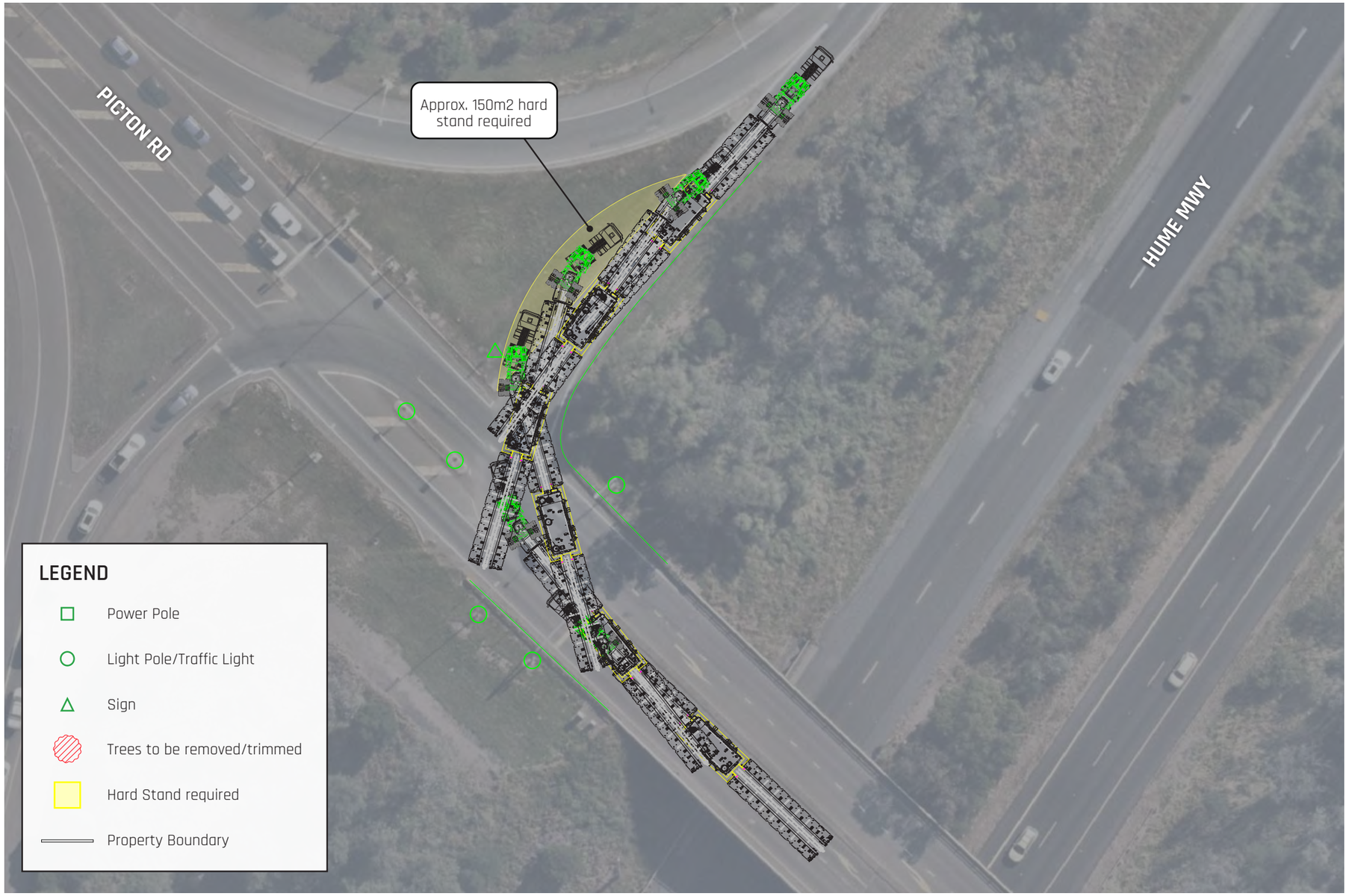
Pinch Point

# 02

RIGHT TURN
Picton Rd &
Hume Mwy

**ROUTE 1**

The right turn onto the Hume Motorway northbound onramp can be taken conventionally, although some hard stand material will need to be laid down as shown.



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Pinch Point

# 03

HAIRPIN TURN

Great Western Hwy,
Mt Victoria

**ROUTE 1**

The hairpin at Mt Victoria can be taken by the transformer combination. Due to tight clearances on both the inside and outside, the turn will need to be taken very slowly and carefully.

Some remediation works were recently undertaken on the hill to the south, this will need to be physically checked to see if there are any new impediments to the move.




**DRAWING NOTES:**

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Pinch Point

# 04

HAIRPIN TURN

Great Western Hwy,
Mt Victoria

**ROUTE 1**

The secon hairpin at Mt Victoria is much wider and will not pose any issues.  No modifications are required.




**DRAWING NOTES:**

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Pinch Point

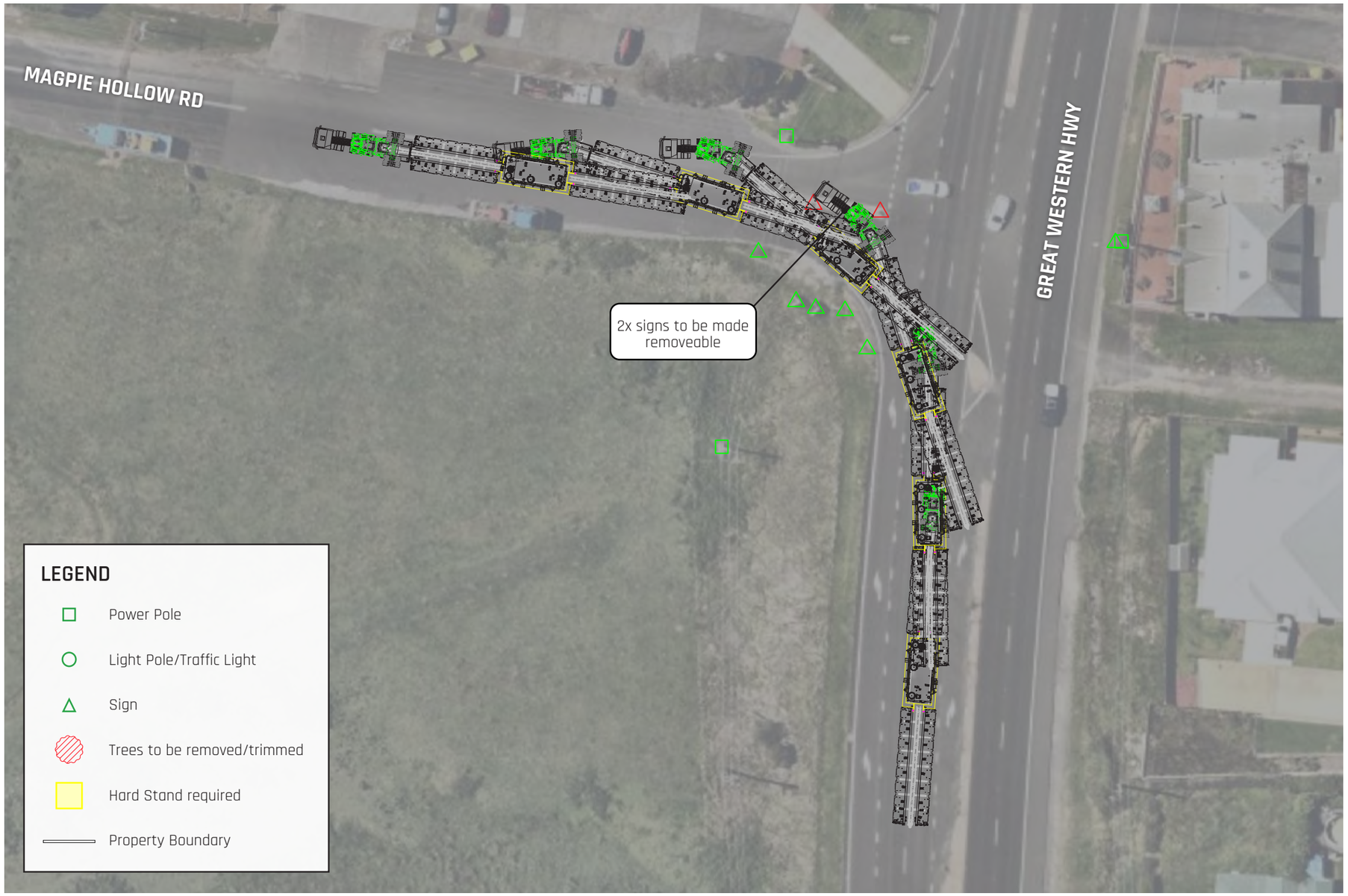
# 05

LEFT TURN

Great Western Hwy
& Magpie Hollow Rd

**ROUTE 1**

This left turn can be taken with the platform staying on the correct side of Great Western Hwy at all times. The trailer combination will need to use the full width of Magpie Hollow Rd, crossing over the traffic island. Two signs will need to be made removeable.



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Pinch Point

# 06

RIGHT TURN

Sir Thomas Mitchell Dr,
~600m from turn-in

**ROUTE 1** **ROUTE 2**

Sir Thomas Mitchell Dr will generally require widening to accommodate oversized loads. There are several corners which will require additional treatment as shown.




**DRAWING NOTES:**

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Pinch Point

# 07

LEFT TURN

Sir Thomas Mitchell Dr,
~800m from turn-in

**ROUTE 1** **ROUTE 2**

Sir Thomas Mitchell Dr will generally require widening to accommodate oversized loads. There are several corners which will require additional treatment as shown.




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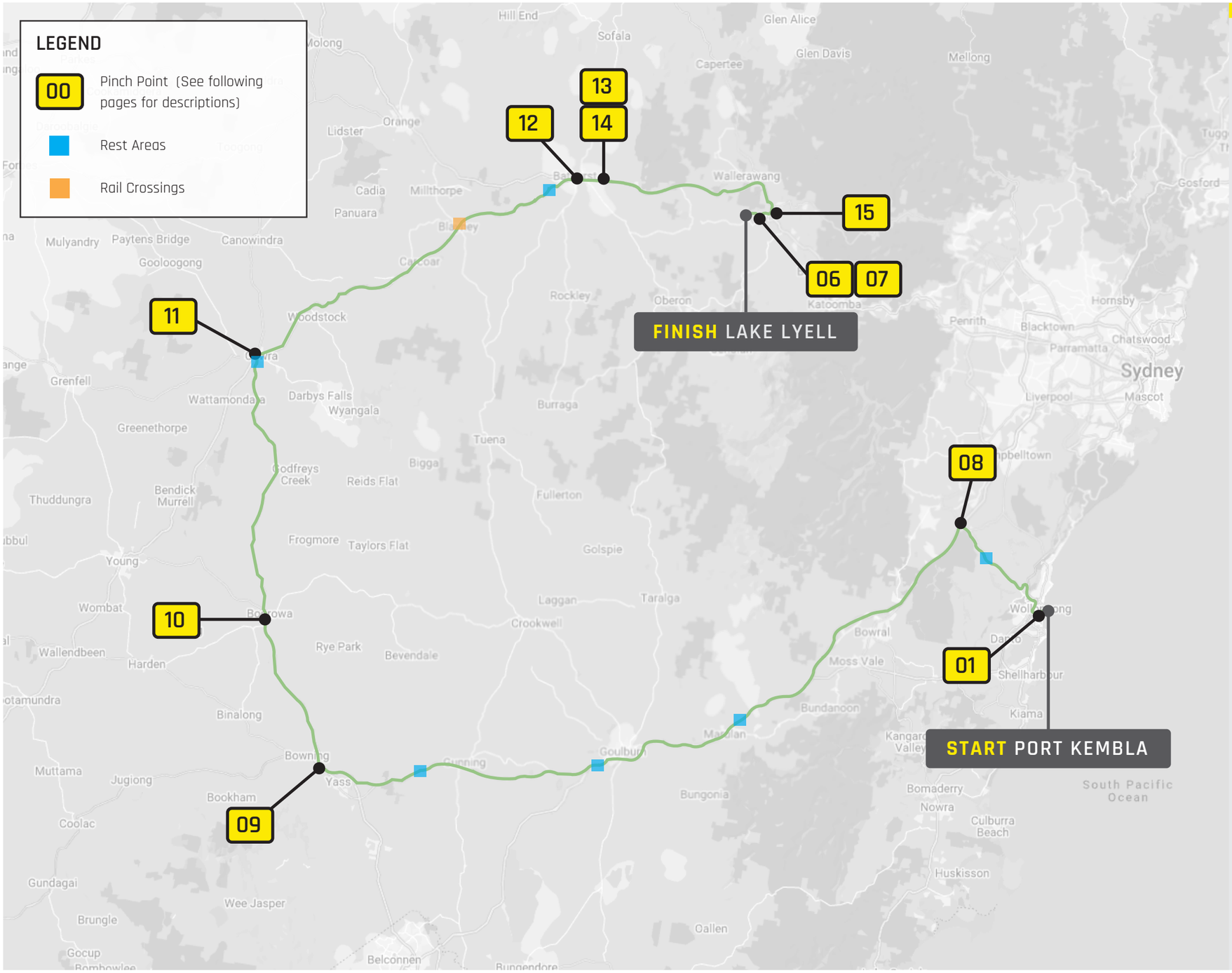
# 03

## Route 2 - Port Kembla to Lake Lyell via Cowra

# Route 2 - Overview




## ROUTE 2

| | |
|---|---|
| | **START - Port Kembla** |
| 0.0 KM | Tom Thumb Rd |
| 0.7 KM | Springhill Rd |
| 1.8 KM | Masters Rd |
| 2.7 KM | Princes Mwy (M1) |
| 14.1 KM | Picton Rd |
| 40.9 KM | Hume Mwy |
| 244.7 KM | Lachlan Valley Way |
| 364.1 KM | Mid Western Hwy |
| 470.6 KM | Great Western Hwy |
| 533.6 KM | Magpie Hollow Rd |
| 535.6 KM | Sir Thomas Mitchell Dr |
| **540.4 KM** | **FINISH - Lake Lyell** |

This route is suitable for all components.

**Rest Stops**

Picton Rd Parking - KP 29.5
GPS: https://maps.app.goo.gl/N3TeKy9yGizfoNy98

Logbook Hill Rest Area - KP 123
GPS: https://maps.app.goo.gl/RzSNahrDanQMDJD7A

Truck Parking opposite French VC - KP 165
GPS: https://maps.app.goo.gl/2EHd3idqvrHE6LM59

Truck Parking Bay, Oolong - KP 210
GPS: https://maps.app.goo.gl/7WdZSukykwDY6Zok8

Cowra Parking Area - KP 364
GPS: https://maps.app.goo.gl/HgqhBYc9HukWaCMZ8

Robin Hill Rest Area - KP 465
GPS: https://maps.app.goo.gl/gB56oLEZ3LDg8RaB6

Pinch Point

# 08

LEFT TURN
Picton Rd
& Hume Mwy

**ROUTE 2**

The left turn onto the southbound Hume Motorway on-ramp is gradual and will not require any modifications.

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Pinch Point

# 09

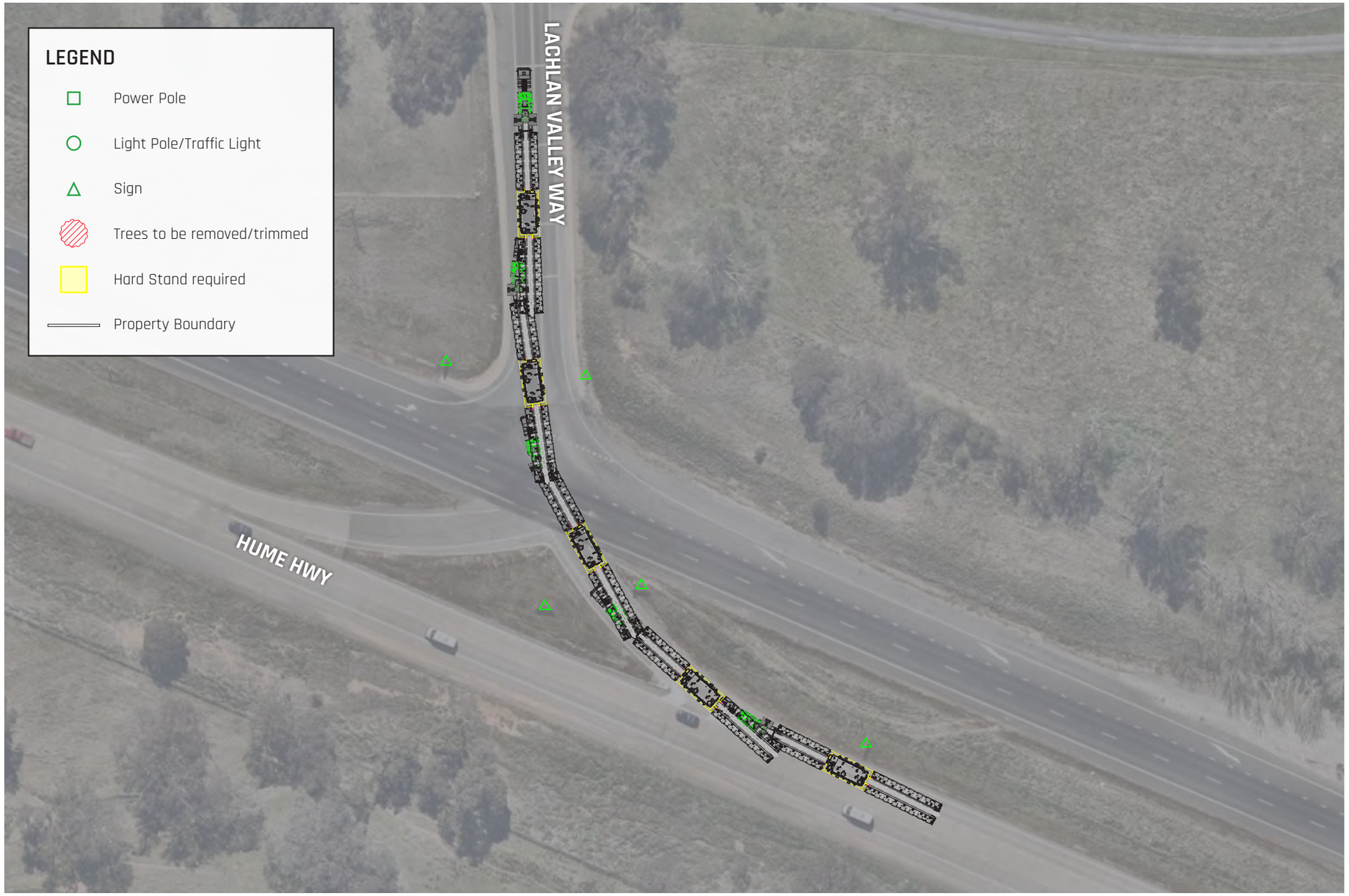
RIGHT TURN

## Hume Hwy & Lachlan Valley Way

**ROUTE 2**

The transformer load can use the existing slip lane to turn onto Lachlan Valley Way.  Due to the 110km/h speed limit, escorts will need to proceed further down the Hume Hwy to warn oncoming traffic to slow and stop well in advance of reaching the intersection.

No modifications are required at this corner.



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Pinch Point

# 10

ROUNDABOUT
Lachlan Valley Way,
Boorowa

**ROUTE 2**

Lachlan Valley Way passes through the middle of the town of Boorowa. There is one roundabout which is too tight for the transformer trailer to go around and will require modification, including the addition of hardstand on the western side as well as the shifting or removal of some decorative rocks.




**DRAWING NOTES:**

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Pinch Point

# 11

RIGHT TURN

## Lachlan Valley Way & Mid Western Hwy

**ROUTE 2**

This turn is very wide and will require no modifications. However, the trailer will need to use the full width of the road. Escorts will need to stop traffic in all directions whilst the turn is being undertaken.




**DRAWING NOTES:**

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Pinch Point

# 12

RIGHT TURN

Stewart St &
Durham St

**ROUTE 2**

The Great Western Hwy takes a right angled right turn in Bathurst. With slow and careful manoeuvring, the platform trailer is able to take this corner without affecting any of the road infrastructure.

Escorts will need to hold traffic in all directions whilst the turn is undertaken.




**DRAWING NOTES:**

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Pinch Point

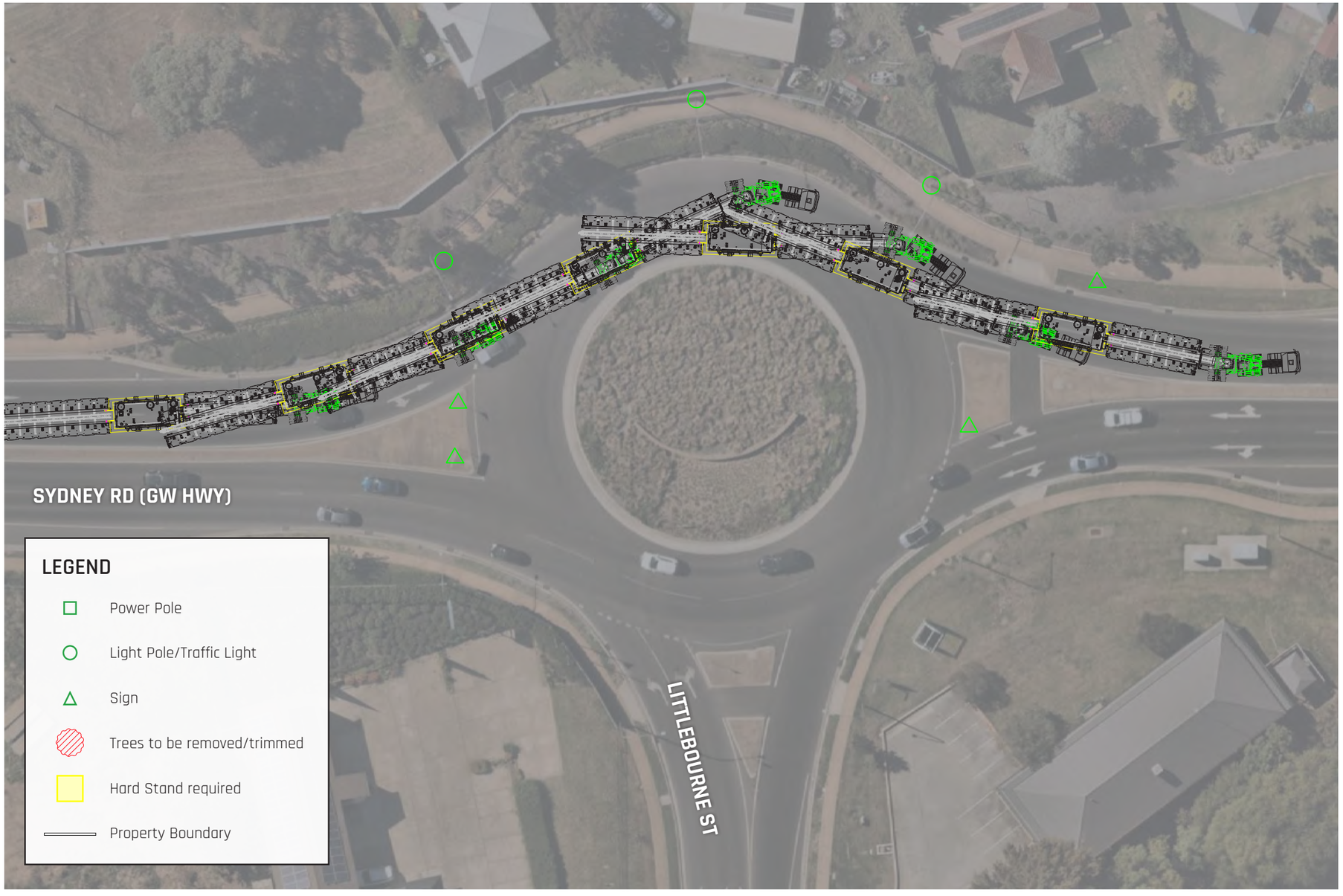
# 13

ROUNDABOUT

Sydney Rd &
Littlebourne St

**ROUTE 2**

The first roundabout exiting Bathurst can be taken at slow pace with no modifications.



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Pinch Point

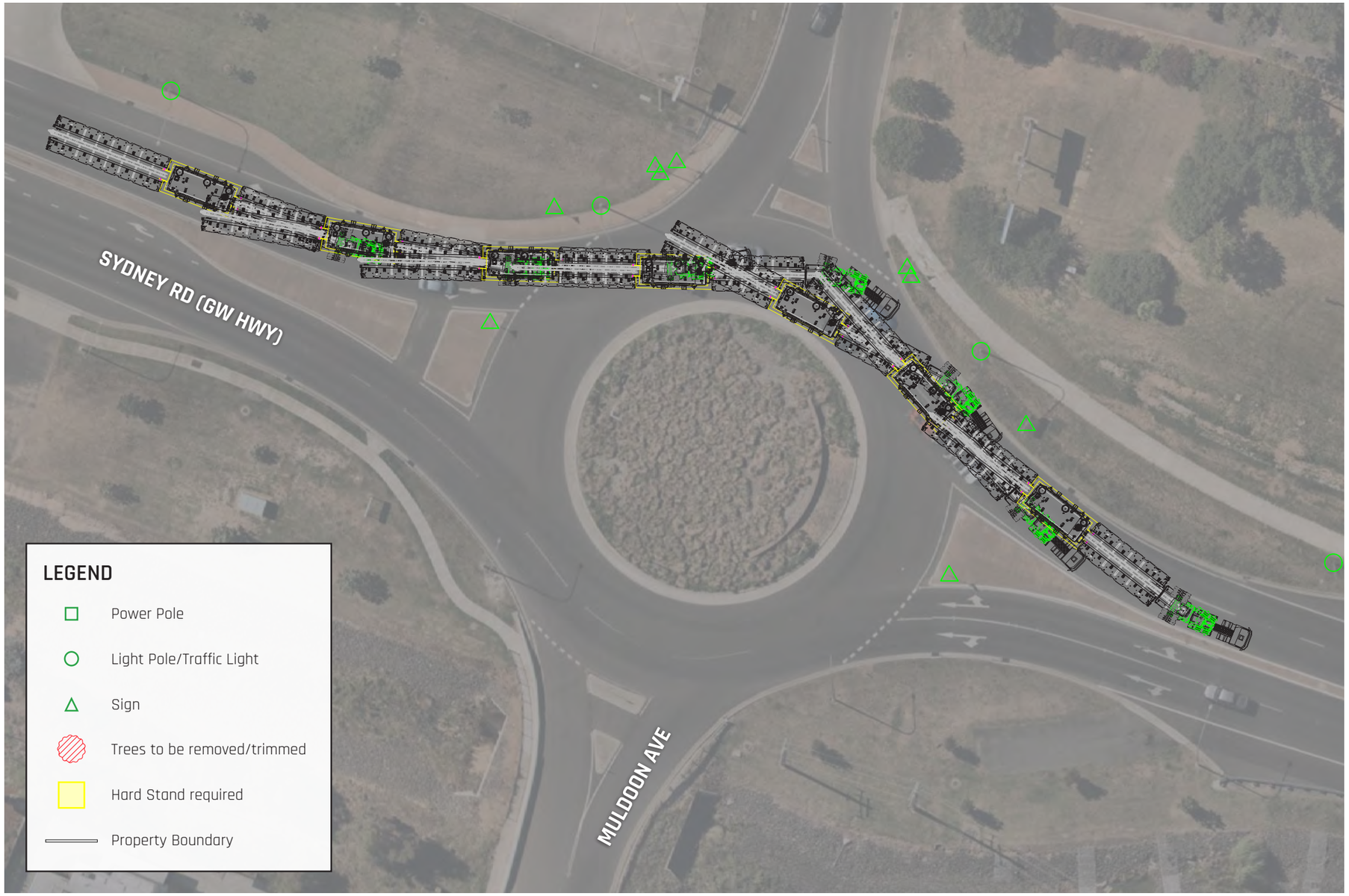
# 14

ROUNDABOUT

Sydney Rd &
Muldoon Ave

**ROUTE 2**

The second roundabout exiting Bathurst can also be taken at slow pace with no modifications.



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| PROJECT: | Lake Lyell Pumped Hydro | SCALE NTS |
| DRAWING TITLE: | SWEPT PATH DRAWING | SHEET NO: |
| DRAWING NAME: | Route Survey | REV |

ARES PROJECT SERVICES PTY LTD - ABN: 45 643 587 115

Pinch Point

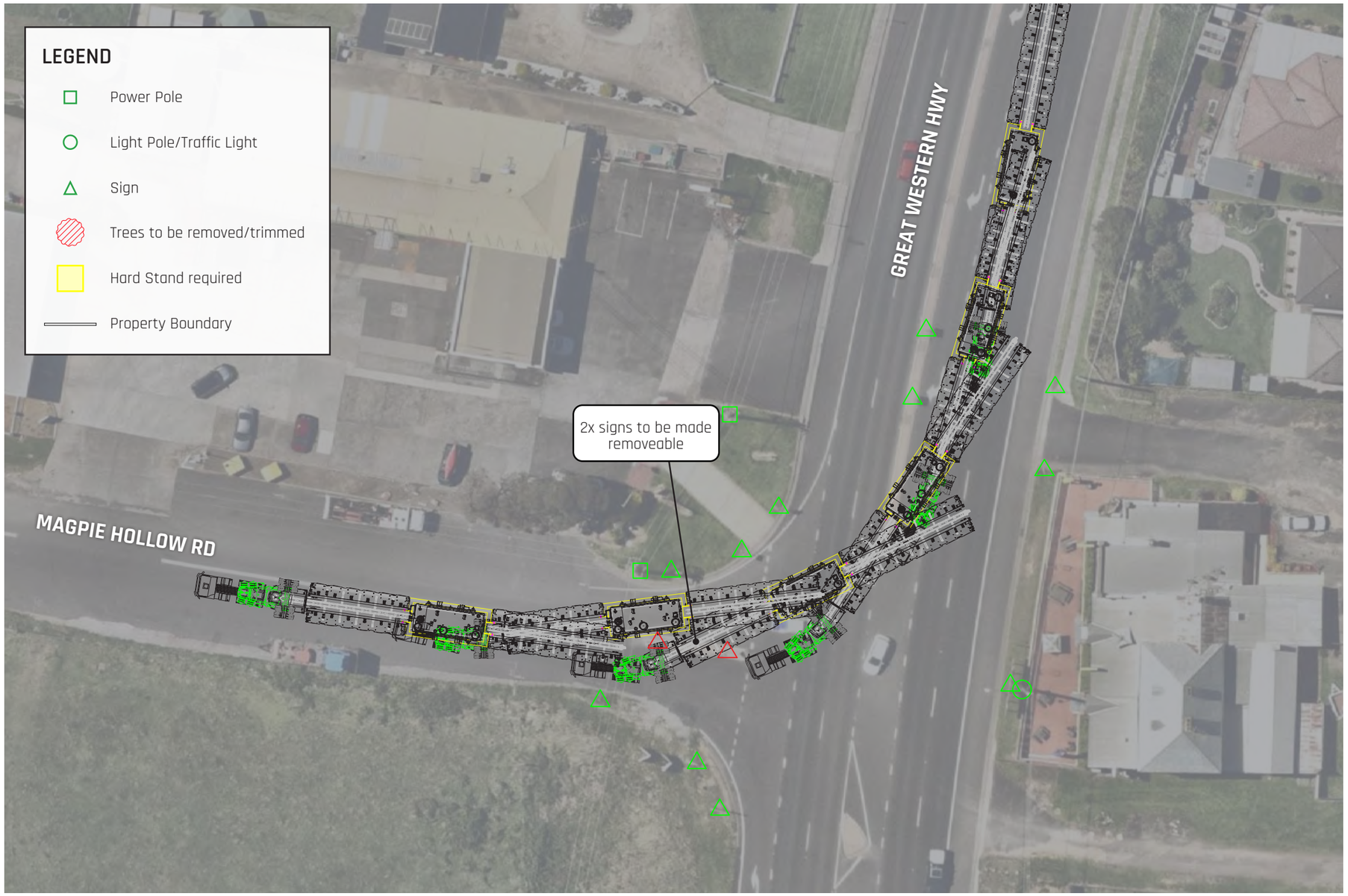
# 15

RIGHT TURN

## Great Western Hwy & Magpie Hollow Rd

**ROUTE 2**

Turning right into Magpie Hollow Rd requires two signs on the traffic island to be made removeable, but otherwise is straightforward to execute.






**DRAWING NOTES:**

ALL DIMENSIONS ARE IN mm UNLESS NOTED OTHERWISE (UNO) ALL WEIGHTS ARE IN t (METRIC TONNES) UNO ALL DETAILS ARE PROVISIONAL AND SUBJECT TO CONFIRMATION LASHINGS CALCULATIONS AS PER RESTRAINT GUIDELINES

ARES www.aresgroup.com.au

| | |
|---|---|
| DRAWN BY: | |
| DRAWN DATE: | |
| CHECKED BY: | |

| | | |
|---|---|---|
| CUSTOMER: | Acciona | SIZE: |
| PROJECT: | Lake Lyell Pumped Hydro | SCALE NTS |
| DRAWING TITLE: | SWEPT PATH DRAWING | SHEET NO: |
| DRAWING NAME: | Route Survey | REV |

ARES PROJECT SERVICES PTY LTD - ABN: 45 643 587 115


# 04

# Conclusion

# Conclusion

A brief outline of the report's major findings and any recommendations for actions.

> ...transport of OSOM components to Lake Lyell is feasible.

## Summary

Following our desktop survey and analysis, ARES believe that transport of the oversize overmass (OSOM) components (including 180t transformer) for the Lake Lyell Pumped Hydro project from the **Port of Port Kembla** is feasible with appropriate modifications made to the route as noted in this report.

We have assessed and presented two route options in this report, each with its advantages and disadvantages and both being feasible options subject to approval from the relevant authorities.

**Route 1** goes through the Sydney motorways and then on the Great Western Hwy through the Blue Mountains. This is the shortest route, but will likely require special assessment and approval from Transport for NSW. Very few modifications are required along the route.

**Route 2** takes a longer route using the Hume Hwy to Yass, Lachlan Valley Way to Cowra and Mid Western Hwy to Bathurst. This way avoids having to to through the Blue Mountains but goes through the centre of a few regional towns and requires slightly more modifications.

We have also provided guidance in this report for the design parameters of the site access roads, being Sir Thomas Mitchell Dr and the new road to be constructed down to the switchyard and tunnel portal area. Sir Thomas Mitchell Dr will need to be widened and upgraded for heavy vehicles as well as the increased volumes of construction traffic. Gradients will need to be surveyed and reviewed for suitability.

## Next Steps

To progress the OSOM transport scope further from here, the following steps are recommended:

- Early engagement with transport authorities (TfNSW) and local councils (Lithgow City Council) to obtain feedback and approval of proposed route, proposed modifications and any special conditions, especially regarding Route 1 through the Blue Mountains
- Early engagement of third parties such as electrical, rail authorities, telco etc.
- Confirmation of final OSOM cargo weights and dimensions
- Provide designs for upgrades of Sir Thomas Mitchell Dr and new site access road for review

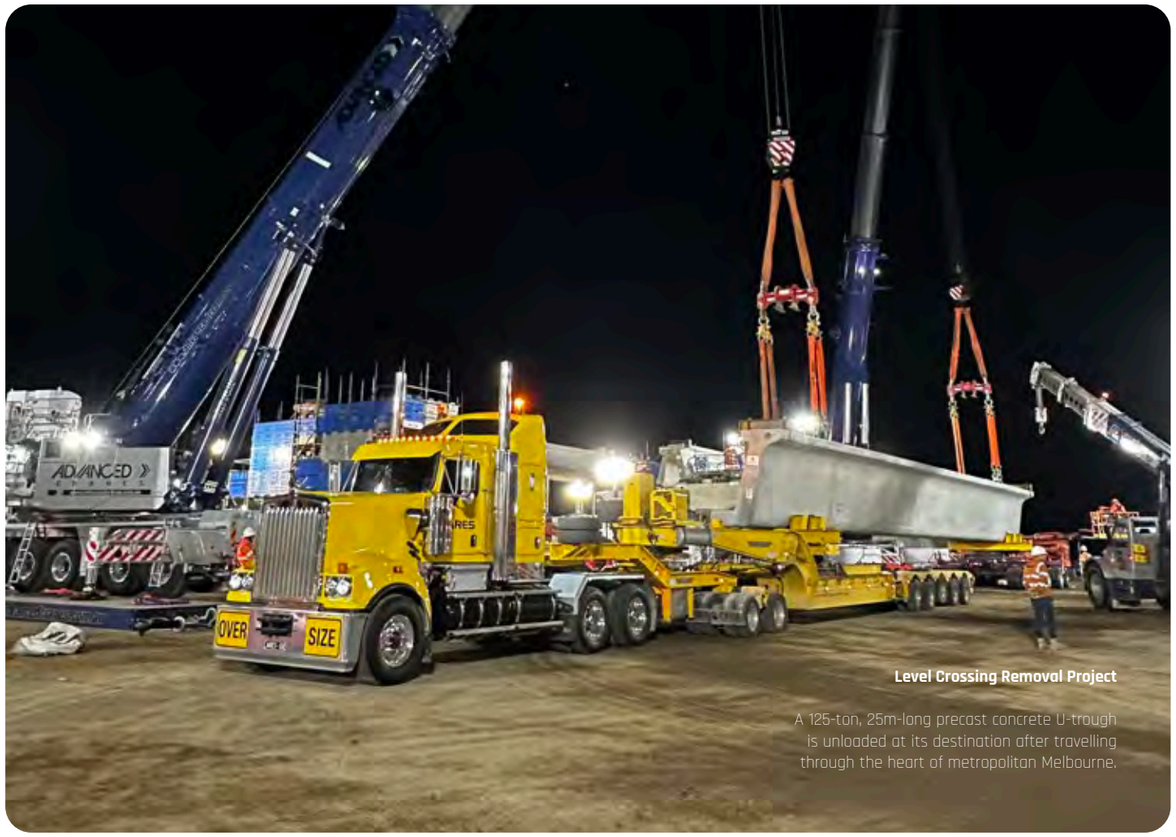




## Summary of Road Modifications

The following table lists all required modifications to allow transport of components to take place.

| Pinch Point | Road/Intersection | Modifications Required | Risk |
|---|---|---|---|
| 02 | Picton Rd & Hume Mwy | Temporary hardstand to be laid down (approx. 150m2) | Medium |
| 05 | Great Western Hwy & Magpie Hollow Rd | 2x signs to be made removeable | Low |
| 06 | Sir Thomas Mitchell Dr | Road requires widening | High |
| 07 | Sir Thomas Mitchell Dr | Temporary hardstand to be laid down (approx. 300m2), 2x signs to be made removeable | Medium |
| 10 | Lachlan Valley Way, Boorowa | Temporary hardstand to be laid down on roundabout (approx. 20m2), decorative rocks to be shifted or temporarily removed | Medium |
| 15 | Great Western Hwy & Magpie Hollow Rd | 2x signs to be made removeable | Low |

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# Annexure E

Concept plans for local intersection upgrades

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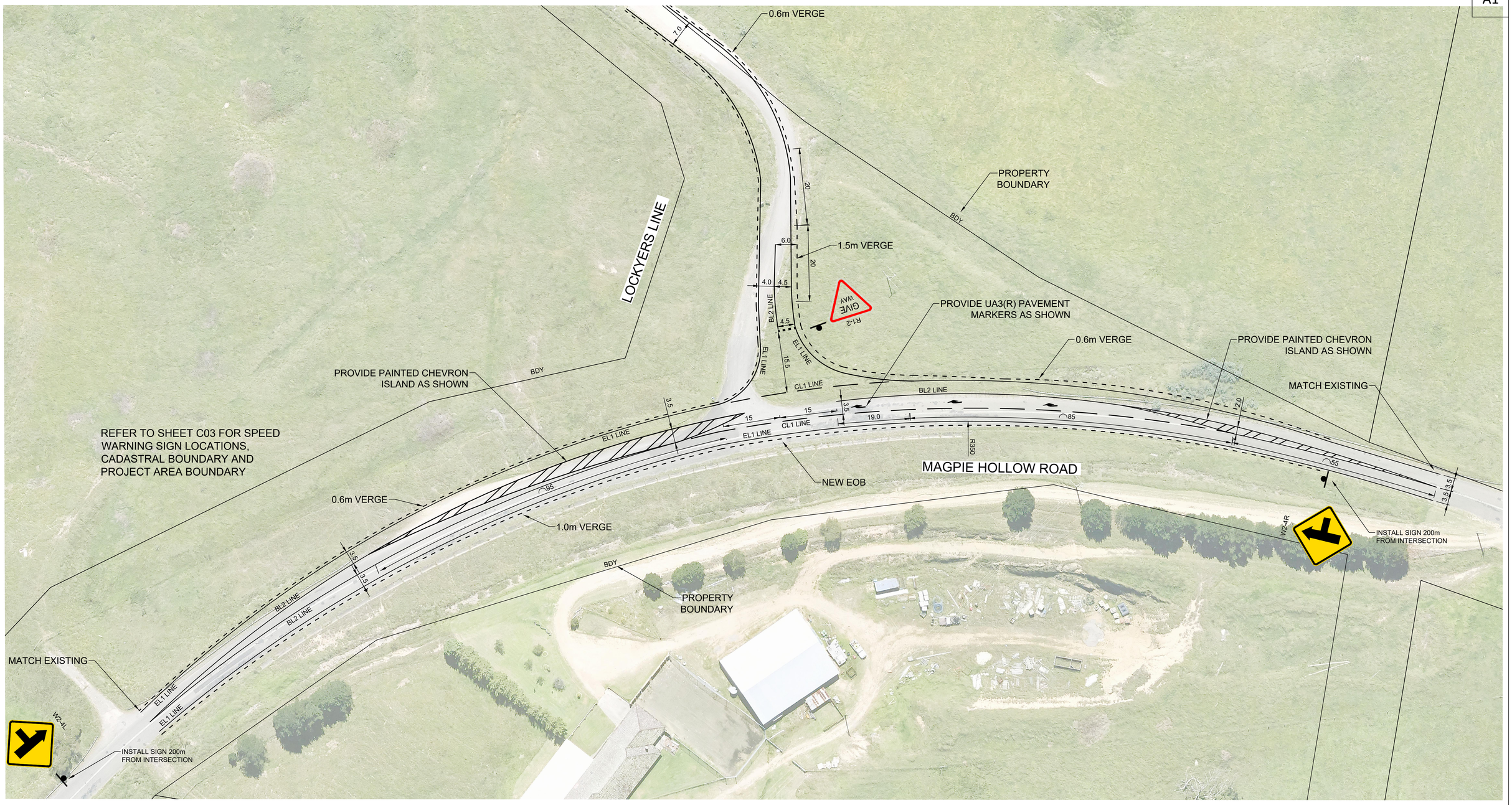
A1




## SHEET INDEX

| SHEET No | DESCRIPTION | REV |
|---|---|---|
| EMM - C01 | CONCEPT PLAN | - |
| EMM - C02 | 19m SEMI TRAILER, B85 PASSENGER VEHICLE - SWEPT PATHS | - |
| EMM - C03 | SAFE INTERSECTION SIGHT DISTANCE (SISD) PLAN | - |

PLAN
SCALE 1:500

LEGEND
- PROPOSED SIGN
- EXISTING SIGN

NOTES:
1. The BAL and CHRs turn treatments have been designed based on and in accordance with Austroads guides to traffic engineering practice.
2. Design speed is 110km/h and through lanes typically 3.5m wide.
3. The CHRs Provides for storage for a 19m long vehicle. Taper length 30m, A = length of lateral movement from table 7.1 Part 4A Guide to Road Design 95m, Deceleration length 85m.
4. The BAL treatment from Lockyers Line, C = length required from centre line of road to edge of pavement @ 6m. Based on a design speed of 90km/h for the approach road, P = Minimum length of parallel widened shoulder 20m.
5. A = Taper from the formula is 20m where F = 1.5m Formation carriageway widening.
6. The safe intersection sight distance is 300m based on a 2.5m/sec reaction time.
7. The existing radius of the road is approximately 300m. The proposal has increased the radius of the curve to 350m, improving the current situation.
8. Additionally advance warning signs will be provided of the upcoming intersection. Advance warning signs will also be provided in relation to reducing speed for the upcoming curve in the road.

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| REV | DATE | COMMENT | DRAWN | REVIEWED |
|---|---|---|---|---|
| - | 4/11/25 | CONCEPT | C.J. | A.U. |

PROJECT:
LAKE LYELL PUMP HYDRO ENERGY STORAGE

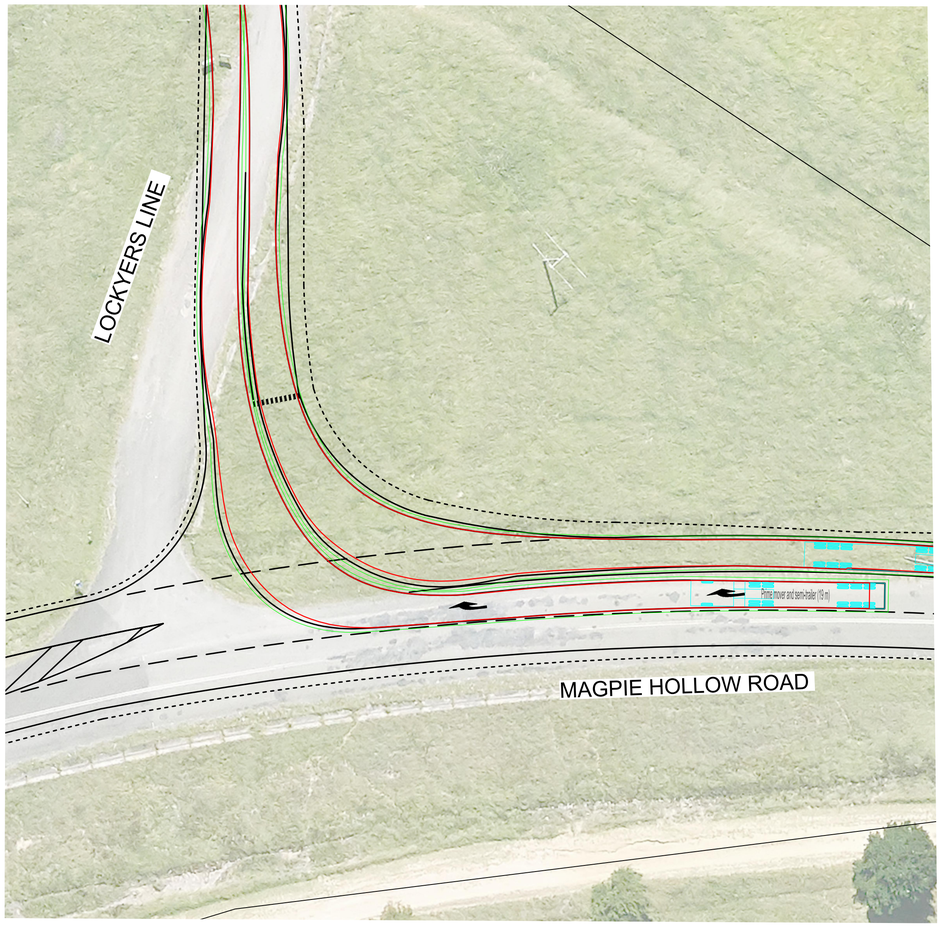
-33.521249, 150.087636

DRAWING TITLE:
MAGPIE HOLLOW ROAD/LOCKYERS LINE, INTERSECTION - CONCEPT PLAN

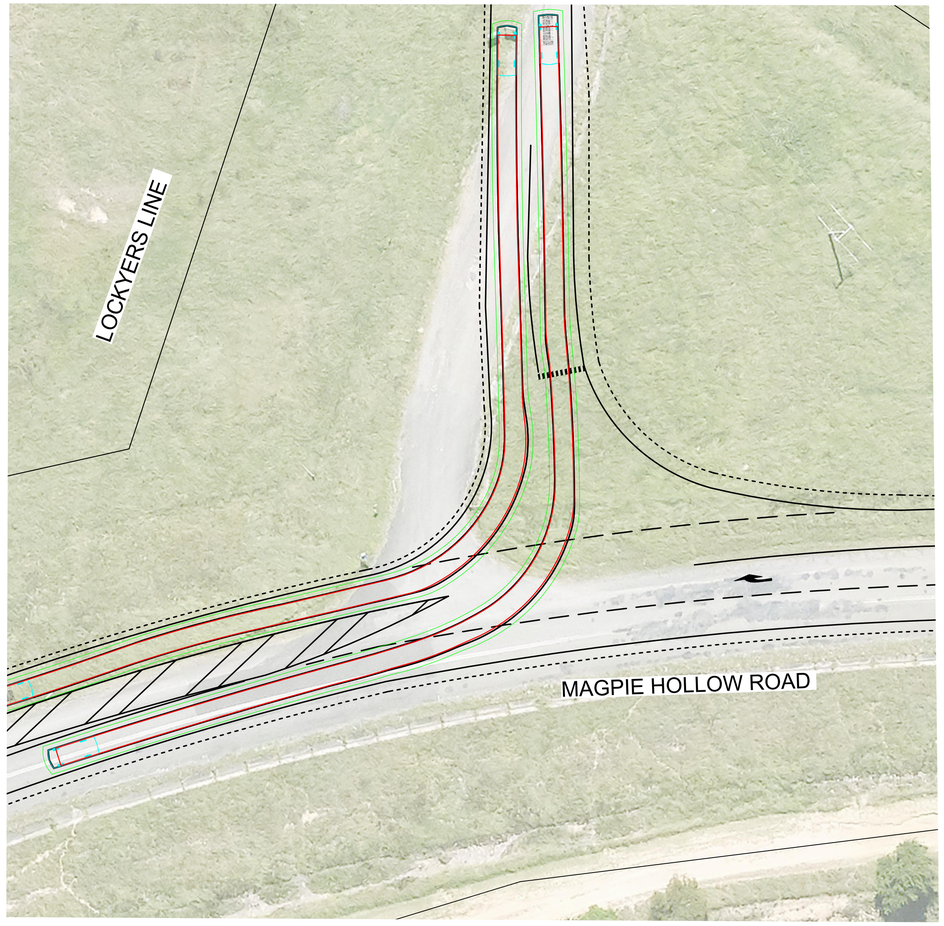
CLIENT: ENERGY AUSTRALIA
DRG. #: EMM - C01
PROJECT #: E221111
SCALE: AS SHOWN

REV: -

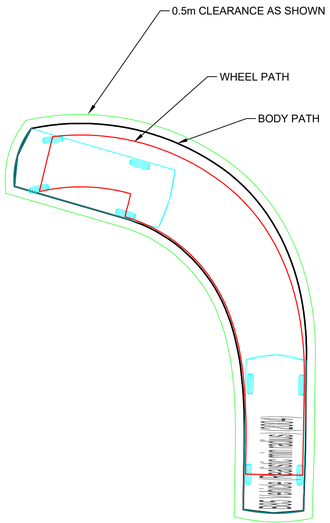
A1

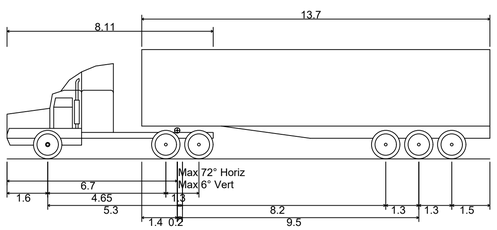



PLAN-19m SEMI TRAILER
SCALE 1:300

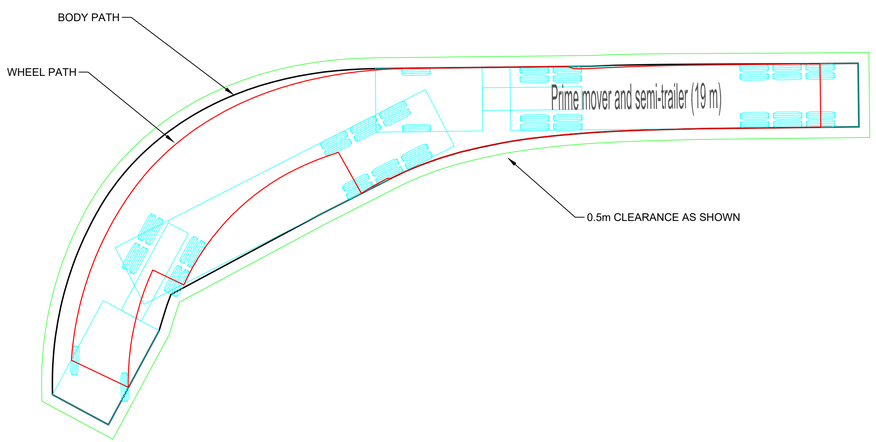


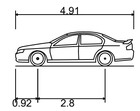

PLAN-B85 PASSENGER VEHICLE
SCALE 1:300




| Prime mover and semi-trailer (19 m) | |
|---|---|
| Overall Length | 19.000m |
| Overall Width | 2.500m |
| Overall Body Height | 4.300m |
| Min Body Ground Clearance | 0.540m |
| Track Width | 2.500m |
| Lock-to-lock time | 6.00s |
| Curb to Curb Turning Radius | 12.500m |




| B85 Vehicle (Realistic min radius) (2004) | |
|---|---|
| Overall Length | 4.910m |
| Overall Width | 1.870m |
| Overall Body Height | 1.421m |
| Min Body Ground Clearance | 0.159m |
| Track Width | 1.770m |
| Lock-to-lock time | 4.00s |
| Curb to Curb Turning Radius | 5.750m |

The turning paths illustrated in this drawing have been prepared using the Autotrack vehicle modelling software in conjunction with AutoCAD. The vehicle model was prepared by Analytico Pty Ltd based upon vehicle data provided by Austroads. While this modelling represents a conservative assessment of the vehicles ability, it is not possible to account for all vehicle types/characteristics or driver ability. Vehicular speed 15km/h.

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| REV | DATE | COMMENT | DRAWN | REVIEWED |
|---|---|---|---|---|
| - | 4/11/25 | CONCEPT | C.J. | A.U. |

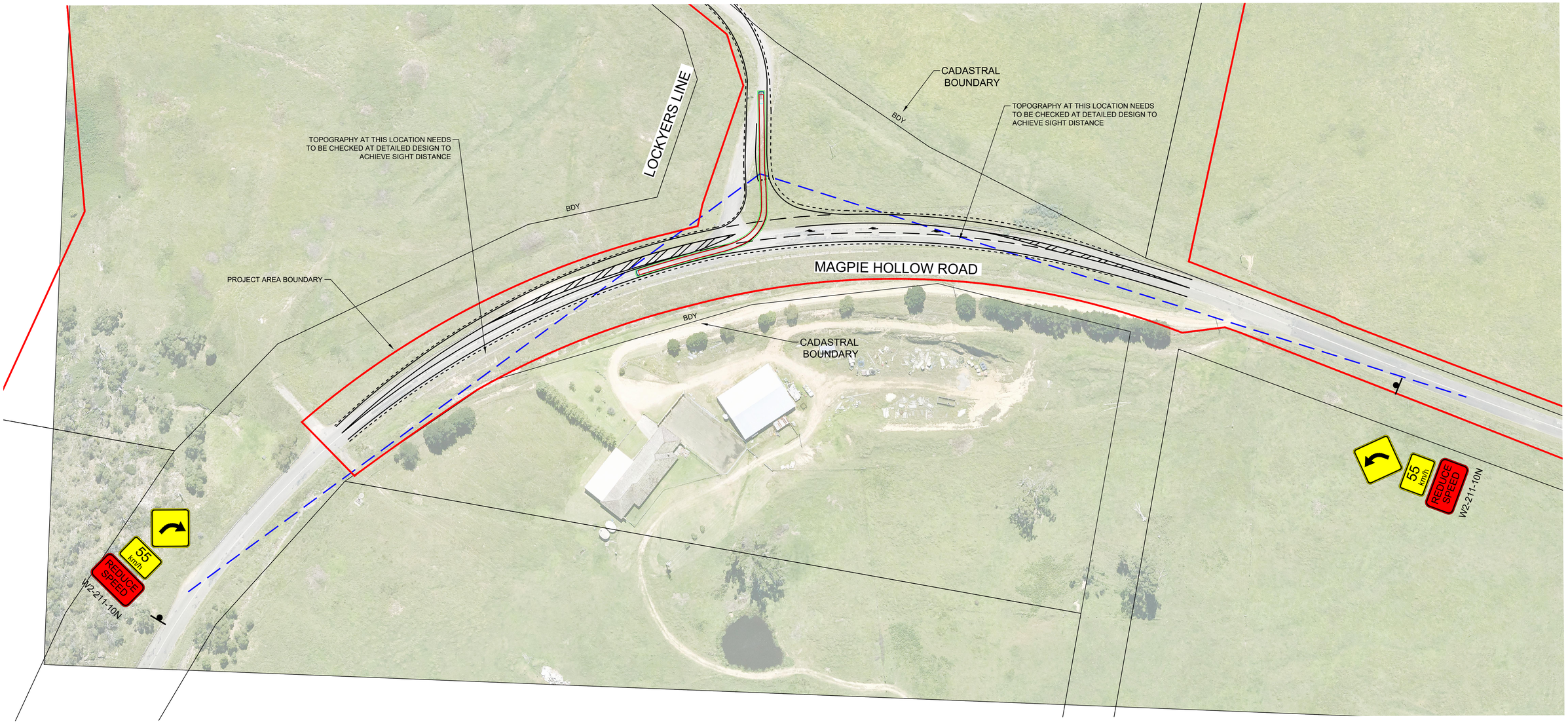
PROJECT:
LAKE LYELL PUMP HYDRO ENERGY STORAGE
-33.521249, 150.087636

DRAWING TITLE:
19m SEMI TRAILER, B85 PASSENGER VEHICLE - SWEPT PATHS

CLIENT: ENERGY AUSTRALIA
DRG. #: EMM - C02
PROJECT #: E221111
SCALE: AS SHOWN

REV: -

A1




PLAN
SCALE 1:800

LEGEND

- SIGHT LINE SISD 300m
- PROJECT AREA BOUNDARY
- BDY — CADASTRAL BOUNDARY
- PROPOSED SIGN
- EXISTING SIGN

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|---|---|---|---|---|---|---|---|---|---|
| - | 4/11/25 | CONCEPT | C.J. | A.U. | | | | | |

PROJECT:
LAKE LYELL PUMP HYDRO ENERGY STORAGE

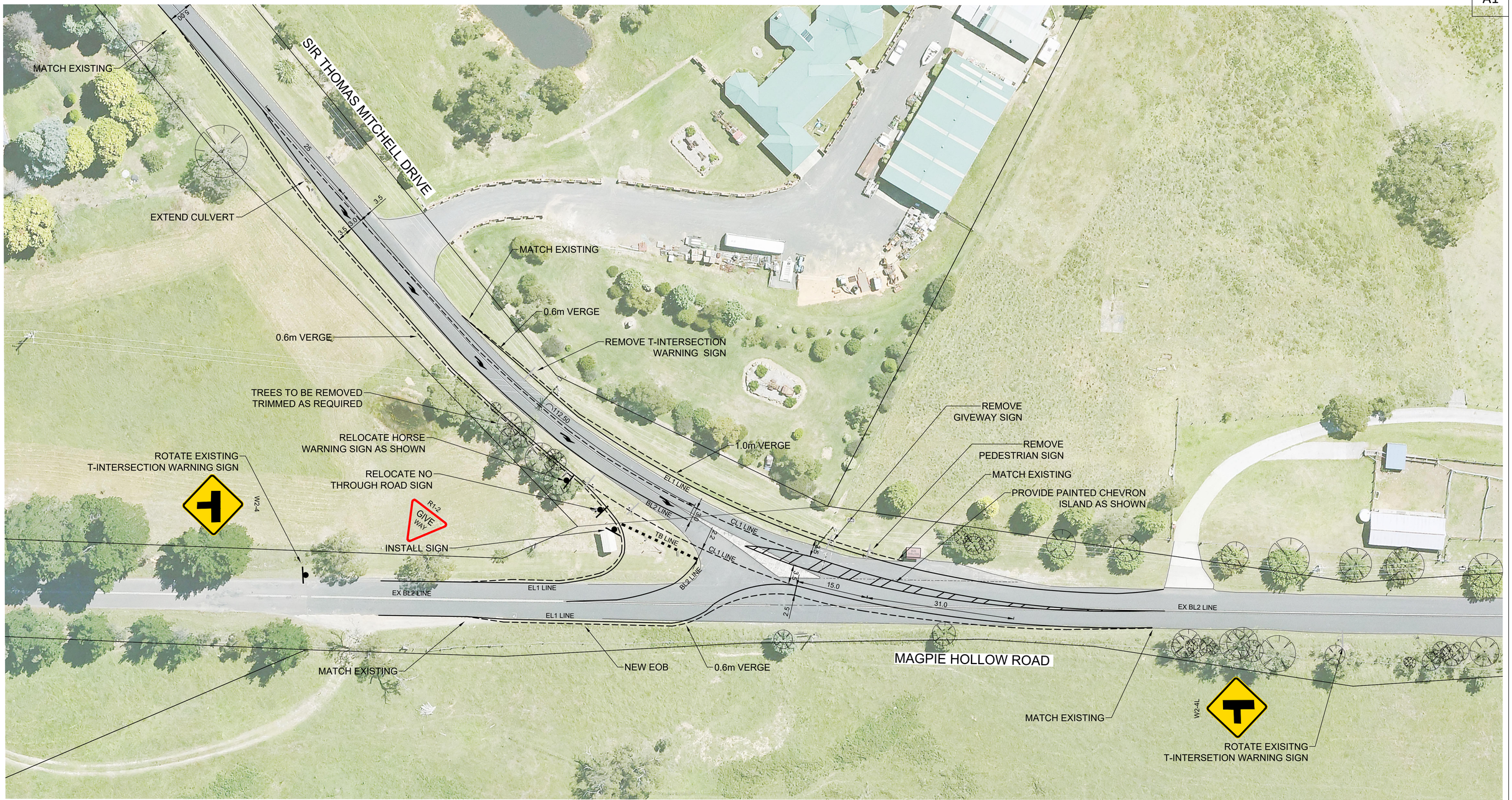
-33.521249, 150.087636

DRAWING TITLE:
SAFE INTERSECTION SIGHT DISTANCE (SISD) PLAN

CLIENT: ENERGY AUSTRALIA
DRG. #: EMM - C03
PROJECT #: E221111
SCALE: AS SHOWN

REV: -

A1




## SHEET INDEX

| SHEET No | DESCRIPTION | REV |
|---|---|---|
| EMM - C01 | CONCEPT PLAN | - |
| EMM - C02 | 12.5m SINGLE UNIT BUS/TRUCK 25m B-DOUBLE SWEPT PATHS | - |
| EMM - C03 | OVER SIZE OVER MASS (OSOM) SWEPT PATHS | - |
| EMM - C04 | SAFE INTERSECTION SIGHT DISTANCE (SISD) PLAN | - |

PLAN
SCALE 1:250

LEGEND
- PROPOSED SIGN
- EXISTING SIGN

NOTES:
1. The BAL and CHR turn treatments have been designed based on and in accordance with Austroads guides to traffic engineering practice.
2. Design speed is 90km/h and through lanes typically 3.5m wide.
3. The CHR Provides for storage for a 12.5m (S) long vehicle. Taper length A = 25m Where Formation widening F = 3m. Total width of formation C = 6.5.
4. D = Deceleration lane length from Table 5.2 where reaction time = 2.5m/s is 125m. S = storage length at 12.5m. Therefore total deceleration lane length is 137.5m
5. The BAL treatment, C = length required from centre line to edge of pavement @ 6m. Based on a design speed of 90km/h for the approach road, P = Minimum length 15m. Table 8.1 Part 4A.
6. A = Taper from the formula is 31m where F = 2.5m Formation carriageway widening.
7. The safe intersection sight distance is 226m based on a 2.5m/sec reaction time.

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|---|---|---|---|---|---|---|---|---|---|
| - | 4/11/25 | CONCEPT | C.J. | A.U. | | | | | |

PROJECT:
LAKE LYELL PUMP HYDRO ENERGY STORAGE - INTERIM TREATMENT CONCEPT PLAN

-33.509710, 150.106631

DRAWING TITLE:
MAGPIE HOLLOW ROAD/SIR THOMAS DRIVE, INTERSECTION - INTERIM TREATMENT CONCEPT PLAN

CLIENT: ENERGY AUSTRALIA

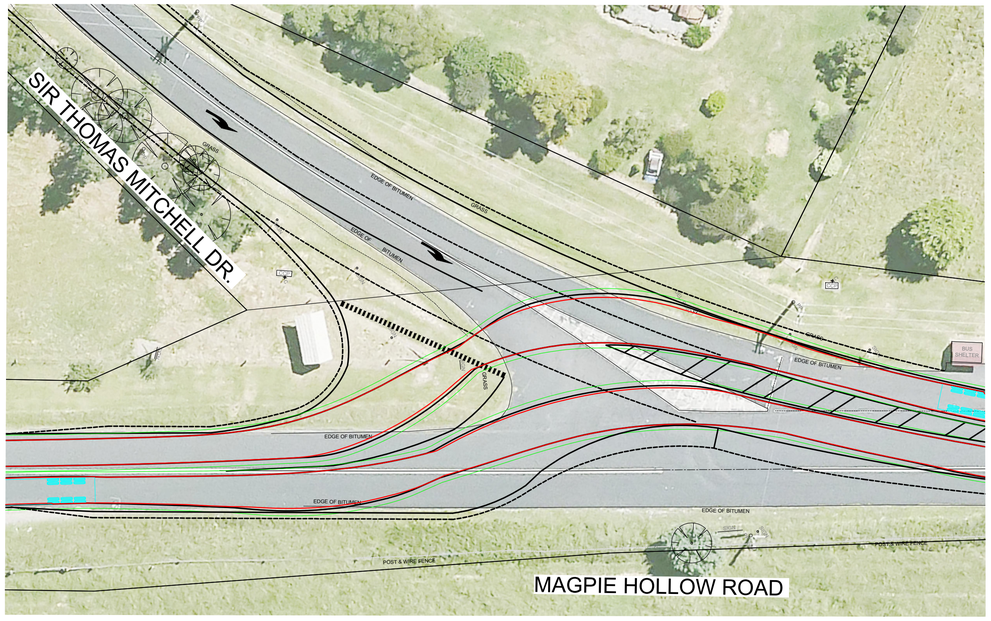
DRG. #: EMM - C01

PROJECT #: E221111

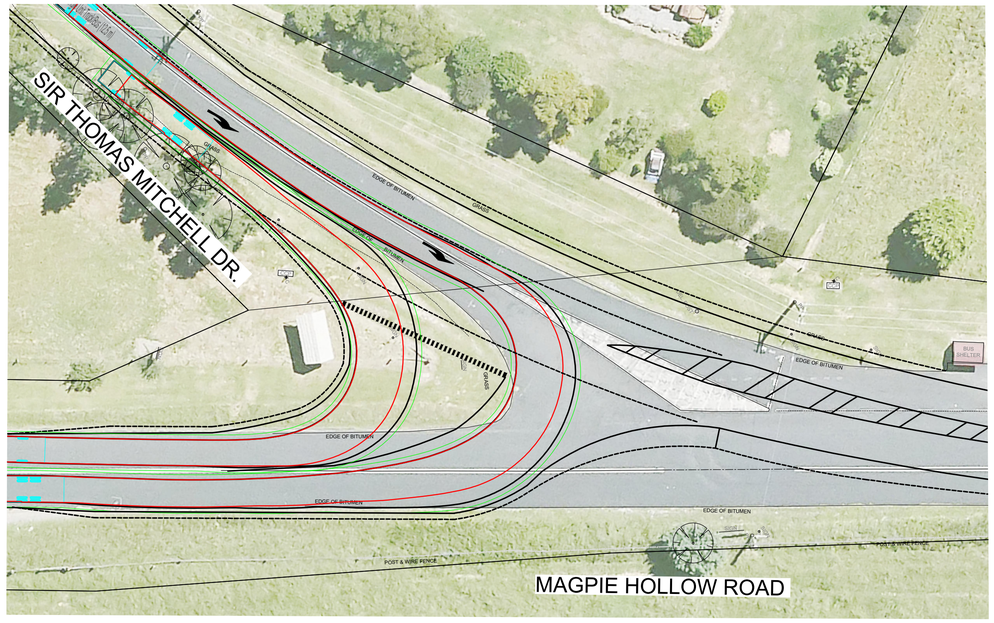
SCALE: AS SHOWN

REV: -

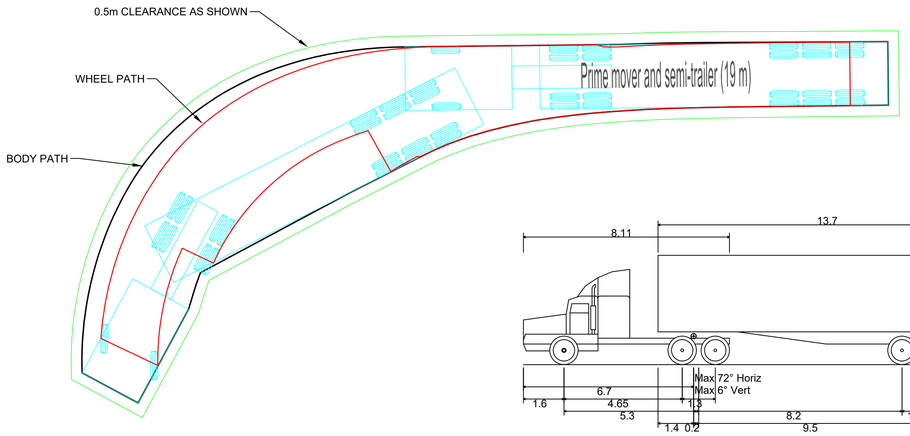
A1

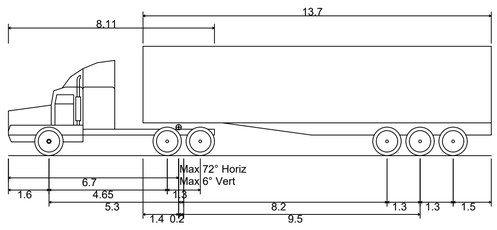



PLAN-19m SEMI TRAILER
SCALE 1:300



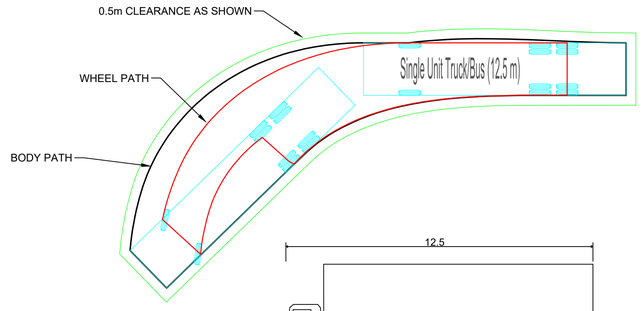

PLAN-12.5m SINGLE UNIT BUS/TRUCK
SCALE 1:300

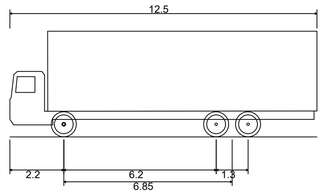



Prime mover and semi-trailer (19 m)

| | |
|---|---|
| Overall Length | 19.000m |
| Overall Width | 2.500m |
| Overall Body Height | 4.300m |
| Min Body Ground Clearance | 0.540m |
| Track Width | 2.500m |
| Lock-to-lock time | 6.00s |
| Curb to Curb Turning Radius | 12.500m |




Single Unit Truck/Bus (12.5 m)

| | |
|---|---|
| Overall Length | 12.500m |
| Overall Width | 2.500m |
| Overall Body Height | 4.300m |
| Min Body Ground Clearance | 0.490m |
| Track Width | 2.500m |
| Lock-to-lock time | 6.00s |
| Curb to Curb Turning Radius | 12.500m |

The turning paths illustrated in this drawing have been prepared using the Autotrack vehicle modelling software in conjunction with AutoCAD. The vehicle model was prepared by Analytico Pty Ltd based upon vehicle data provided by Austroads. While this modelling represents a conservative assessment of the vehicles ability, it is not possible to account for all vehicle types/characteristics or driver ability. Vehicular speed 15km/h.

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| REV | DATE | COMMENT | DRAWN | REVIEWED |
|---|---|---|---|---|
| - | 4/11/25 | CONCEPT | C.J. | A.U. |

PROJECT:
LAKE LYELL PUMP HYDRO ENERGY STORAGE - INTERIM TREATMENT CONCEPT PLAN

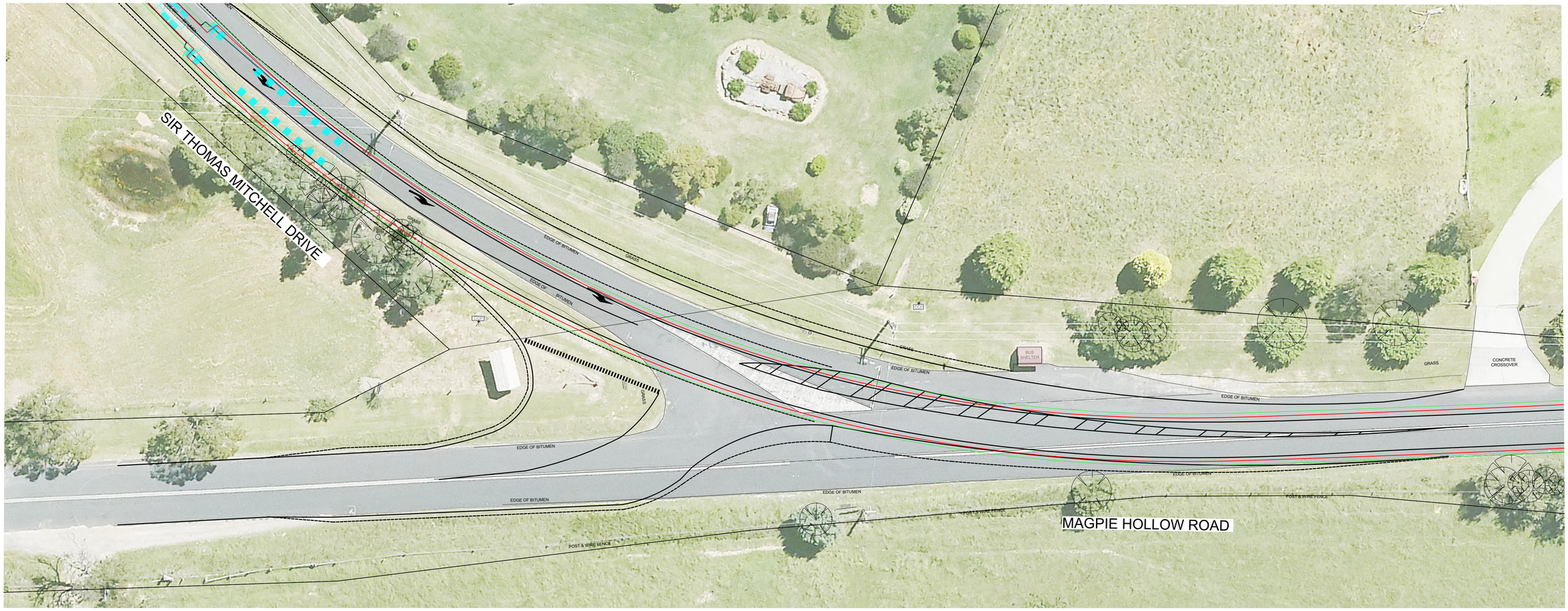
-33.509710, 150.106631

DRAWING TITLE:
12.5m SINGLE UNIT TRUCK/BUS AND 19m SEMI TRAILER - SWEPT PATHS

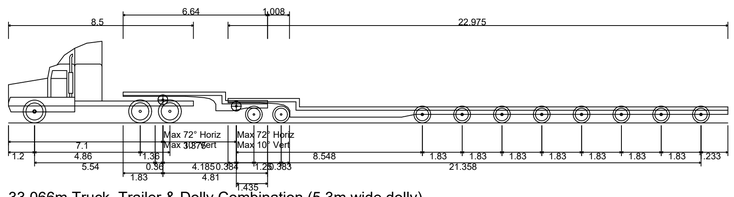
CLIENT: ENERGY AUSTRALIA
DRG. #: EMM - C02
PROJECT #: E221111
SCALE: AS SHOWN

REV: -

A1

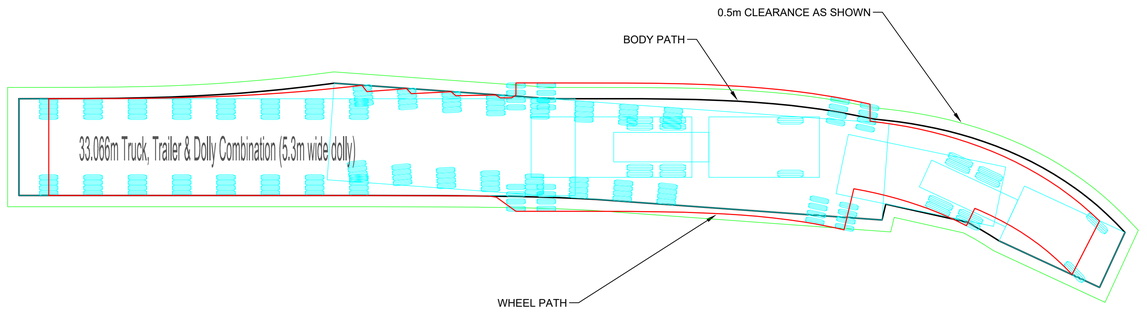



PLAN-OSOM
SCALE 1:250




33.066m Truck, Trailer & Dolly Combination (5.3m wide dolly)

| | |
|---|---|
| Overall Length | 33.066m |
| Overall Width | 4.000m |
| Overall Body Height | 3.755m |
| Min Body Ground Clearance | 0.267m |
| Max Track Width | 5.300m |
| Lock-to-lock time | 6.00s |
| Wall to Wall Turning Radius | 17.877m |




The turning paths illustrated in this drawing have been prepared using the Autotrack vehicle modelling software in conjunction with AutoCAD. The vehicle model was prepared by Analytico Pty Ltd based upon vehicle data provided by Austroads. While this modelling represents a conservative assessment of the vehicles ability, it is not possible to account for all vehicle types/characteristics or driver ability. Vehicular speed 15km/h.

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| REV | DATE | COMMENT | DRAWN | REVIEWED |
|---|---|---|---|---|
| - | 4/11/25 | CONCEPT | C.J. | A.U. |

PROJECT:
LAKE LYELL PUMP HYDRO ENERGY STORAGE - INTERIM TREATMENT CONCEPT PLAN

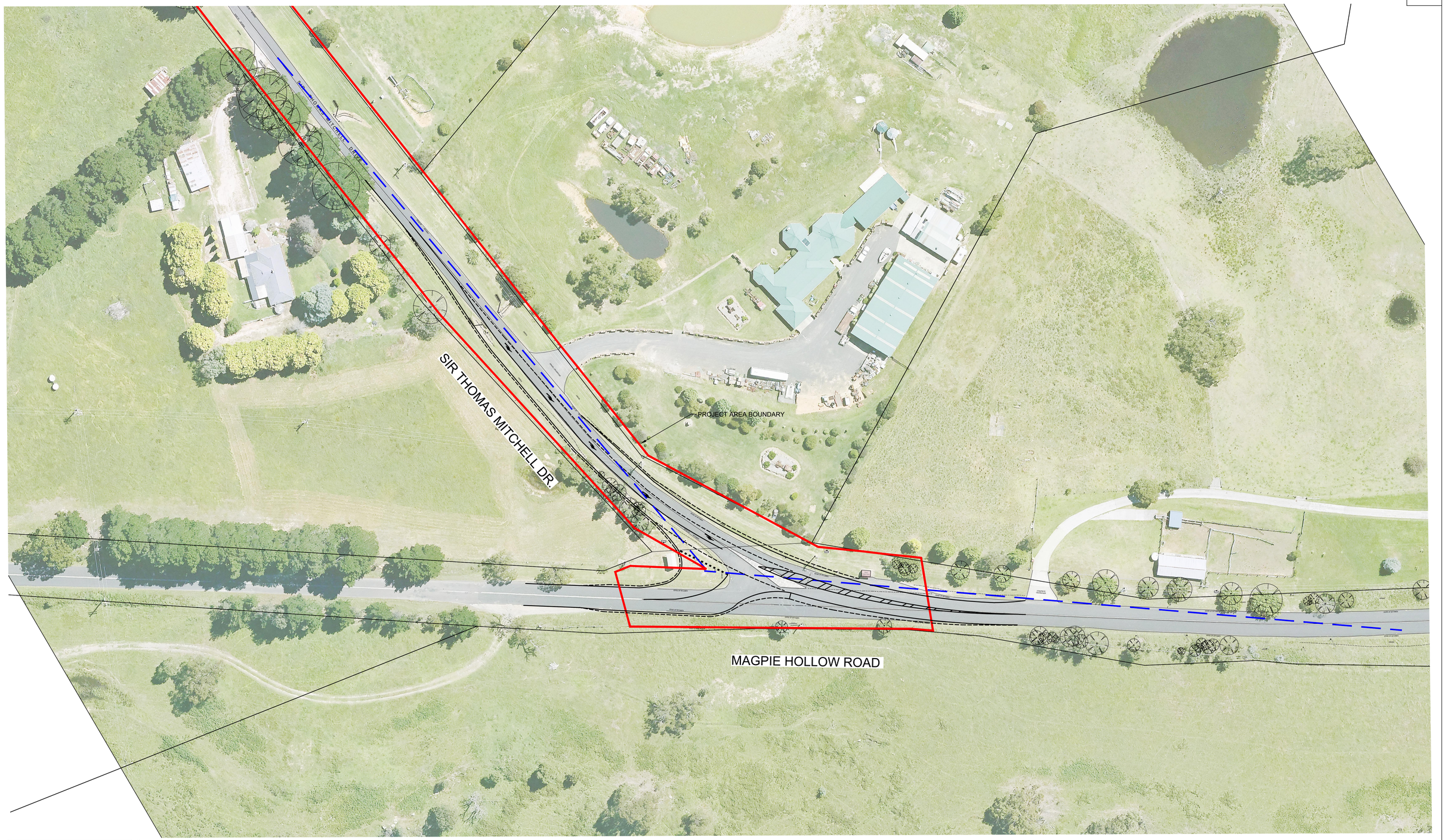
-33.509710, 150.106631

DRAWING TITLE:
OVER SIZE OVER MASS (OSOM) - SWEPT PATHS

CLIENT: ENERGY AUSTRALIA
DRG. #: EMM - C03
PROJECT #: E221111
SCALE: AS SHOWN

REV: -

A1




PLAN
SCALE 1:600

LEGEND
SIGHT LINE SISD 226m
PROJECT AREA BOUNDARY

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| REV | DATE | COMMENT | DRAWN | REVIEWED | REV | DATE | COMMENT | DRAWN | REVIEWED |
|---|---|---|---|---|---|---|---|---|---|
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| | | | | | | | | | |
| | | | | | | | | | |
| - | 4/11/25 | CONCEPT | C.J. | A.U. | | | | | |

PROJECT:
LAKE LYELL PUMP HYDRO ENERGY STORAGE - INTERIM TREATMENT CONCEPT PLAN

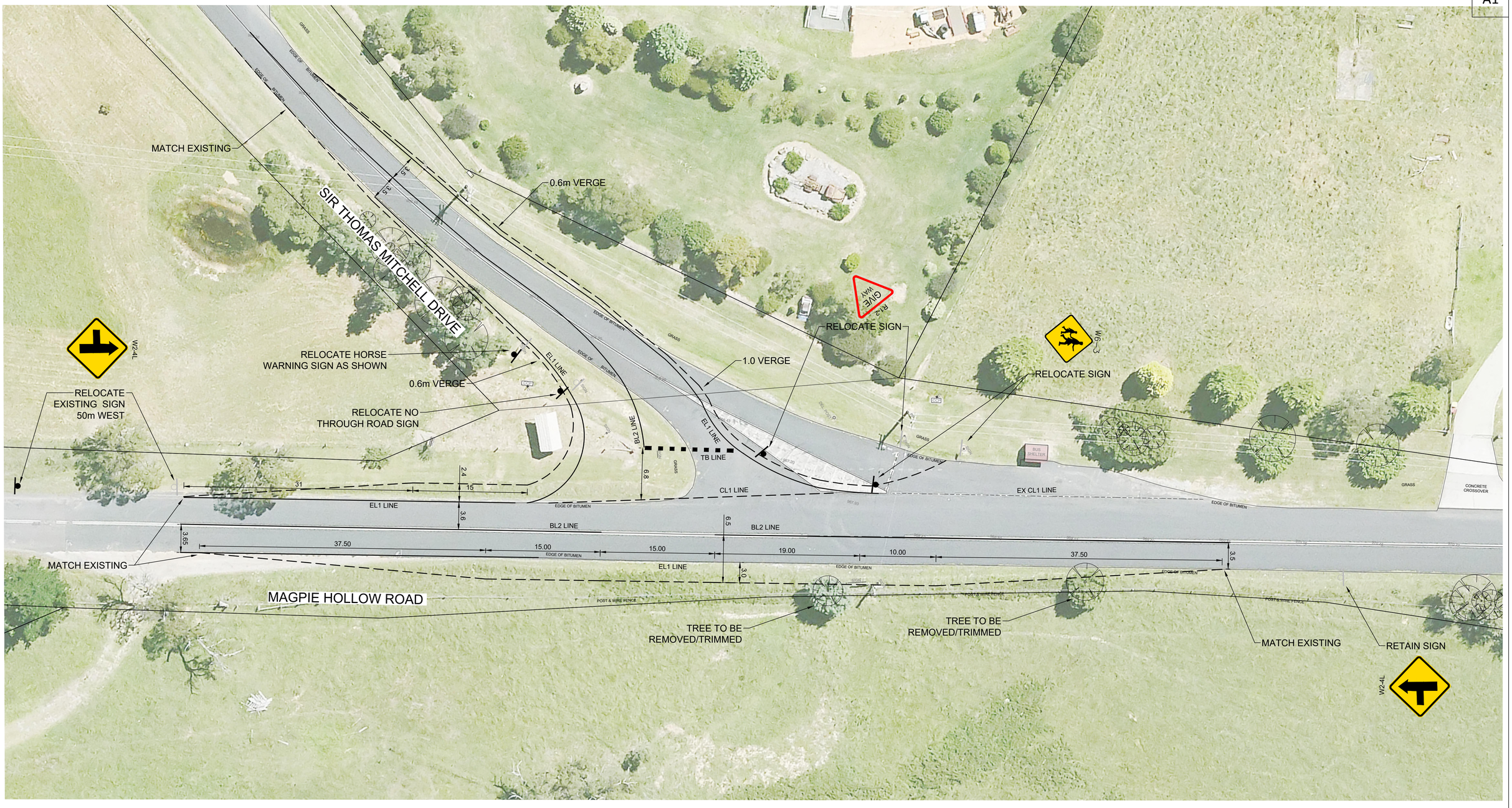
-33.509710, 150.106631

DRAWING TITLE:
SAFE INTERSECTION SIGHT DISTANCE (SISD) PLAN

CLIENT: ENERGY AUSTRALIA
DRG. #: EMM - C04
PROJECT #: E221111
SCALE: AS SHOWN

REV: -

A1




## SHEET INDEX

| SHEET No | DESCRIPTION | REV |
|---|---|---|
| EMM - C01 | CONCEPT PLAN | - |
| EMM - C02 | 19m SEMI TRAILER, 12.5m SINGLE UNIT TRUCK BUS - SWEPT PATHS | - |
| EMM - C03 | SAFE INTERSECTION SIGHT DISTANCE (SISD) PLAN | - |

PLAN
SCALE 1:250

LEGEND
- PROPOSED SIGN
- EXISTING SIGN

NOTES:
1. The BAL and BAR turn treatments have been designed based on and in accordance with Austroads guides to traffic engineering practice.
2. Design speed is 90km/h and through lanes typically 3.5m wide.
3. The BAR Provides for storage for a 19m (S) long vehicle. Taper length A = 37.5m Where Formation widening F = 3m. Total width of formation C = 6.5
4. The BAL treatment, C = length required from centre line road to edge of pavement @ 6m. Based on a design speed of 90km/h for the approach road, P = Minimum length of parallel widened shoulder 15m. Table 8.1 Part 4A.
5. A = Taper from the formula is 31m where F = 2.5m Formation carriageway widening.
6. The safe intersection sight distance is 226m based on a 2.5m/sec reaction time.

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|---|---|---|---|---|---|---|---|---|---|
| - | 4/11/25 | CONCEPT | C.J. | A.U. | | | | | |

PROJECT:
LAKE LYELL PUMP HYDRO ENERGY STORAGE - ULTIMATE TREATMENT CONCEPT PLAN

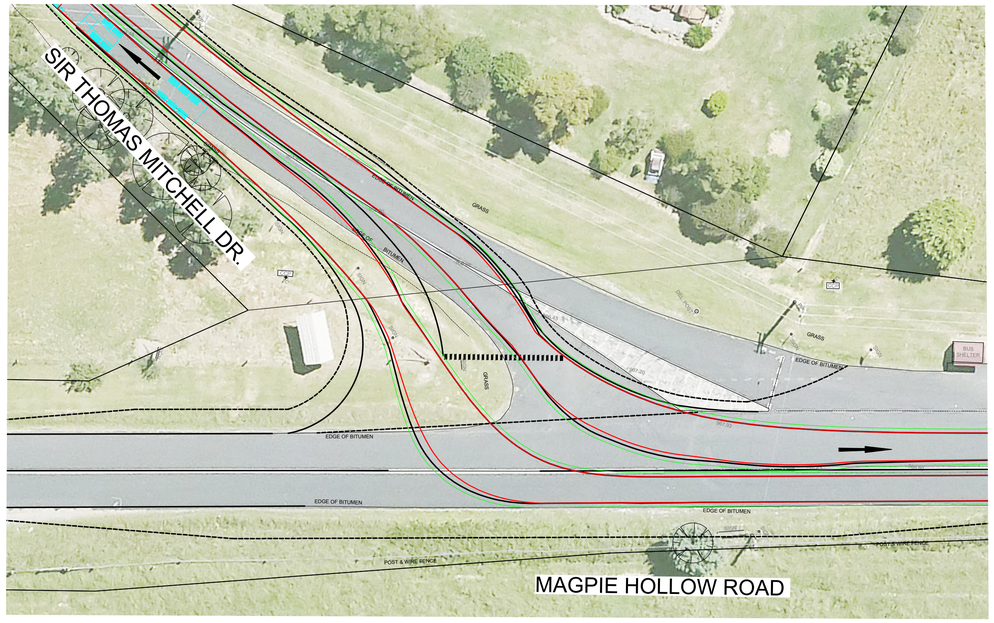
-33.509710, 150.106631

DRAWING TITLE:
MAGPIE HOLLOW ROAD/SIR THOMAS DRIVE, INTERSECTION - CONCEPT PLAN

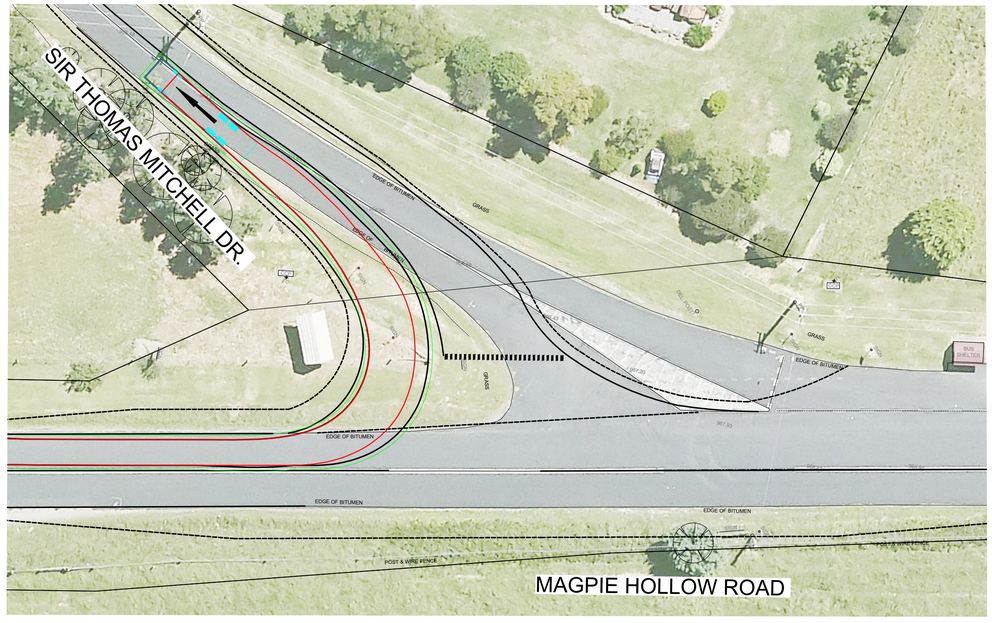
CLIENT: ENERGY AUSTRALIA
DRG. #: EMM - C01
PROJECT #: E221111
SCALE: AS SHOWN

REV: -

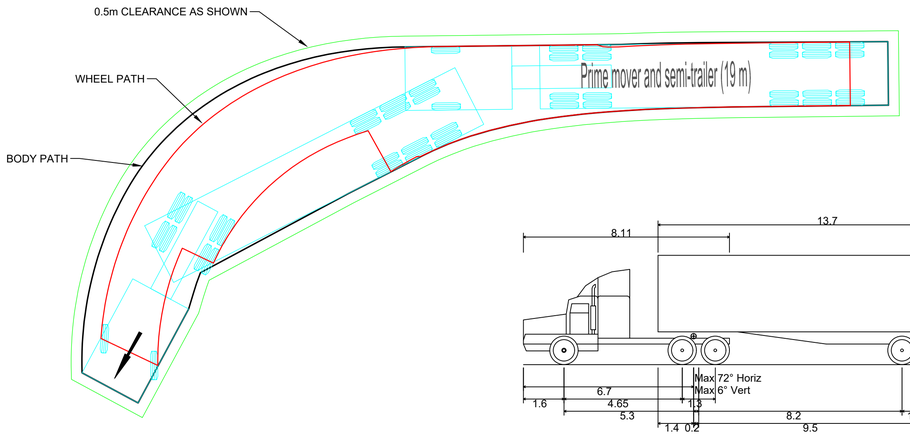
A1

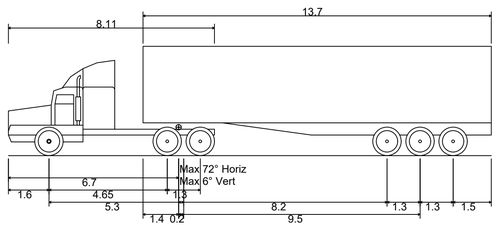



PLAN-19m SEMI TRAILER
SCALE 1:300



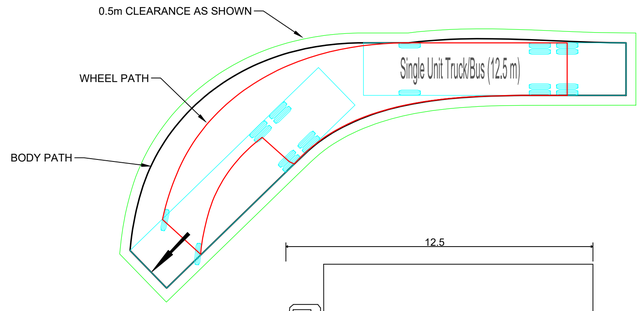

PLAN-12.5m SINGLE UNIT BUS/TRUCK
SCALE 1:300

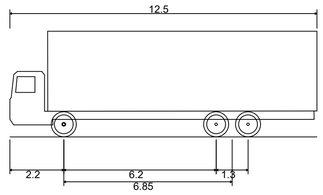



Prime mover and semi-trailer (19 m)

| | |
|---|---|
| Overall Length | 19.000m |
| Overall Width | 2.500m |
| Overall Body Height | 4.300m |
| Min Body Ground Clearance | 0.540m |
| Track Width | 2.500m |
| Lock-to-lock time | 6.00s |
| Curb to Curb Turning Radius | 12.500m |




Single Unit Truck/Bus (12.5 m)

| | |
|---|---|
| Overall Length | 12.500m |
| Overall Width | 2.500m |
| Overall Body Height | 4.300m |
| Min Body Ground Clearance | 0.490m |
| Track Width | 2.500m |
| Lock-to-lock time | 6.00s |
| Curb to Curb Turning Radius | 12.500m |

The turning paths illustrated in this drawing have been prepared using the Autotrack vehicle modelling software in conjunction with AutoCAD. The vehicle model was prepared by Analytico Pty Ltd based upon vehicle data provided by Austroads. While this modelling represents a conservative assessment of the vehicles ability, it is not possible to account for all vehicle types/characteristics or driver ability. Vehicular speed 15km/h.

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|---|---|---|---|---|---|---|---|---|---|
| - | 4/11/25 | CONCEPT | C.J. | A.U. | | | | | |

PROJECT:
LAKE LYELL PUMP HYDRO ENERGY STORAGE - ULTIMATE TREATMENT CONCEPT PLAN

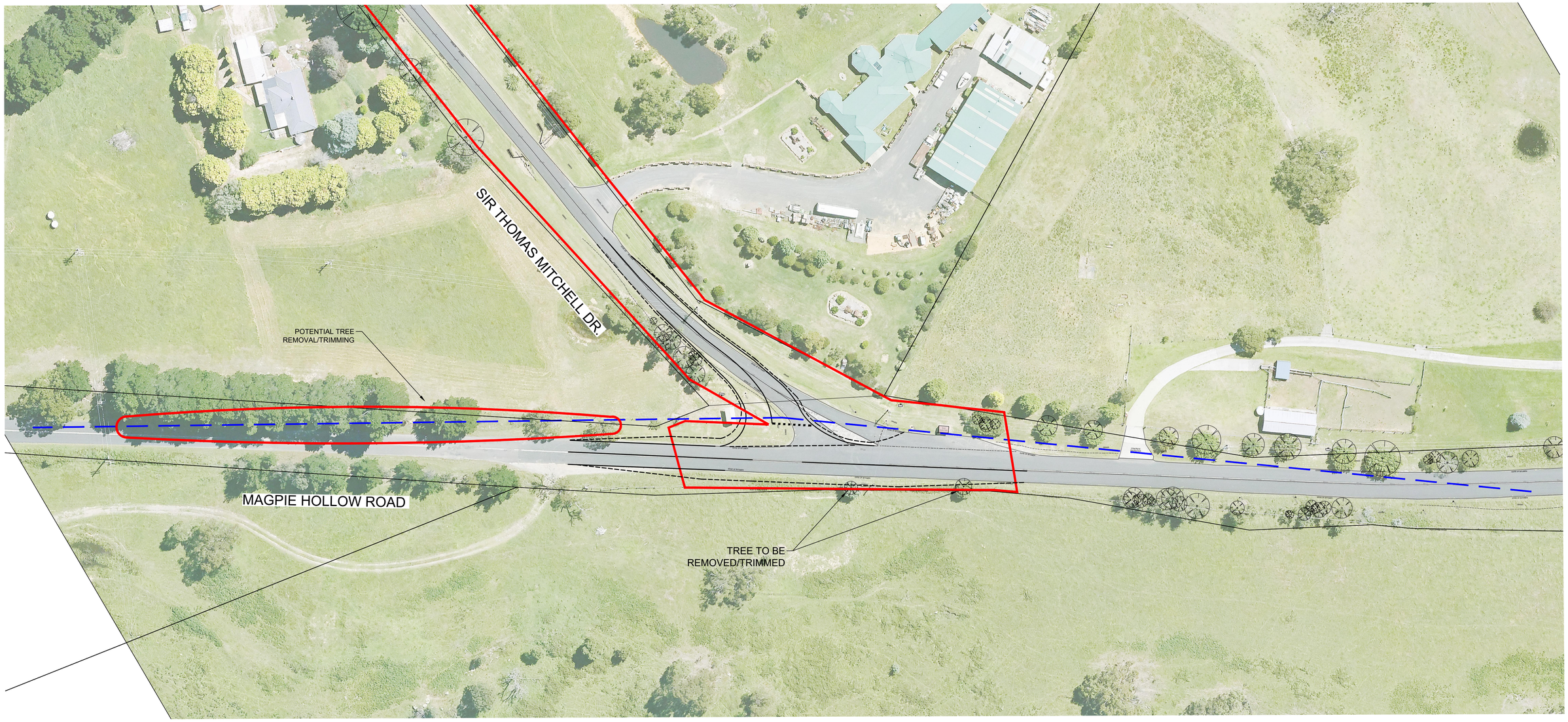
-33.509710, 150.106631

DRAWING TITLE:
12.5m SINGLE UNIT TRUCK/BUS AND 19m SEMI TRAILER - SWEPT PATHS

CLIENT: ENERGY AUSTRALIA
DRG. #: EMM - C02
PROJECT #: E221111
SCALE: AS SHOWN

REV: -

A1




PLAN
SCALE 1:600

LEGEND

SIGHT LINE SISD 226m

PROJECT AREA BOUNDARY

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|---|---|---|---|---|---|---|---|---|---|
| - | 4/11/25 | CONCEPT | C.J. | A.U. | | | | | |

PROJECT:
LAKE LYELL PUMP HYDRO ENERGY STORAGE - ULTIMATE TREATMENT CONCEPT PLAN

-33.509710, 150.106631

DRAWING TITLE:
SAFE INTERSECTION SIGHT DISTANCE (SISD) PLAN

CLIENT: ENERGY AUSTRALIA

DRG. #: EMM - C03

PROJECT #: E221111

SCALE: AS SHOWN

REV: -

# Annexure F

Sight distance assessment

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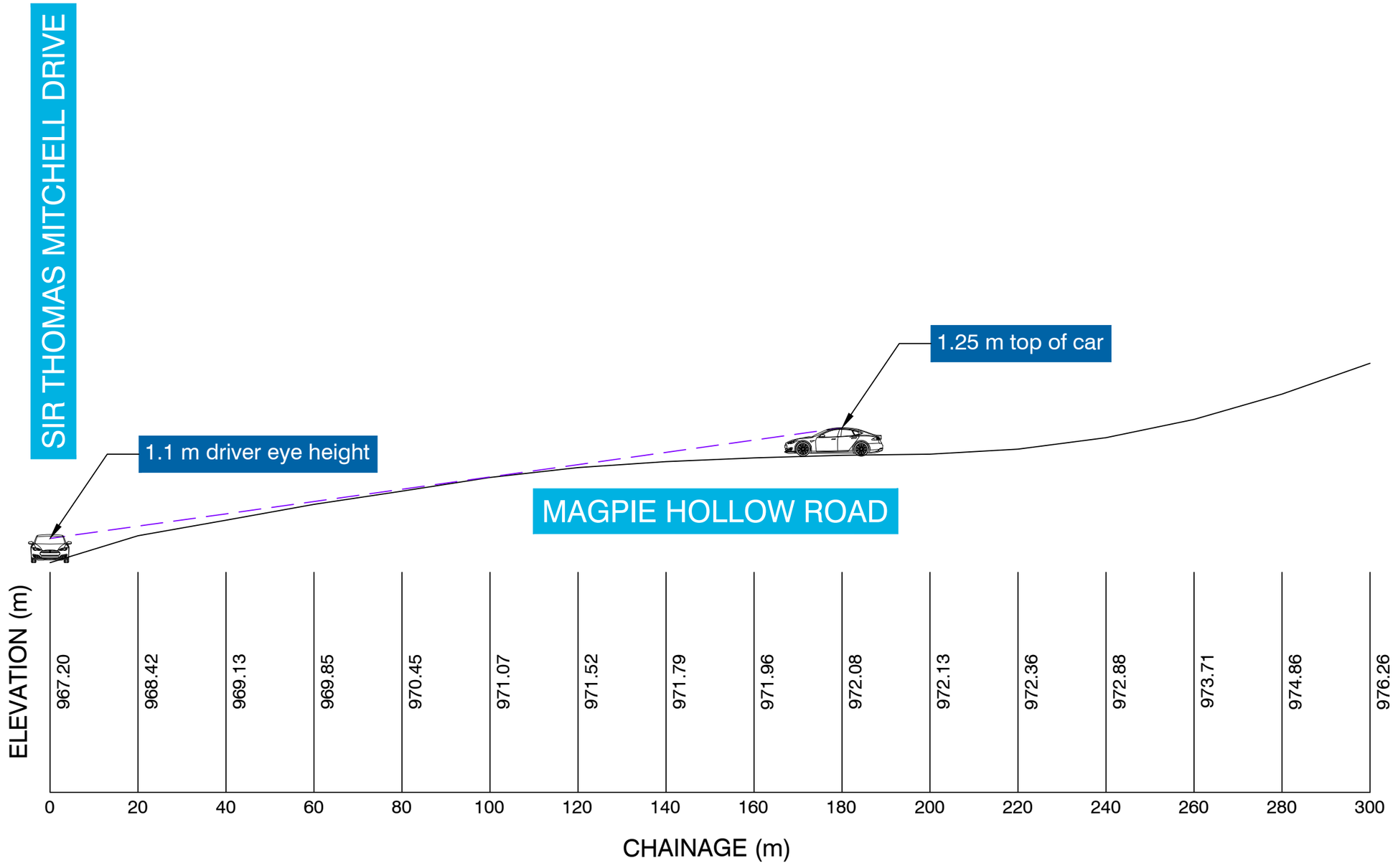
COMMENTS

A3




Note:

Vertical scale is exaggerated 5 times compared to the horizontal scale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| REV | DATE | COMMENT | DRAWN | REVIEWED |
|---|---|---|---|---|

PROJECT:
Lake Lyell PHES

DRAWING TITLE:
Sight distance analysis of Magpie Hollow Road looking left from Sir Thomas Mitchell Drive

CLIENT: Energy Australia
DRG. #: EMM-001
PROJECT #: E221111
SCALE: As shown

REV: 1

# Annexure G

## Draft signal control plan

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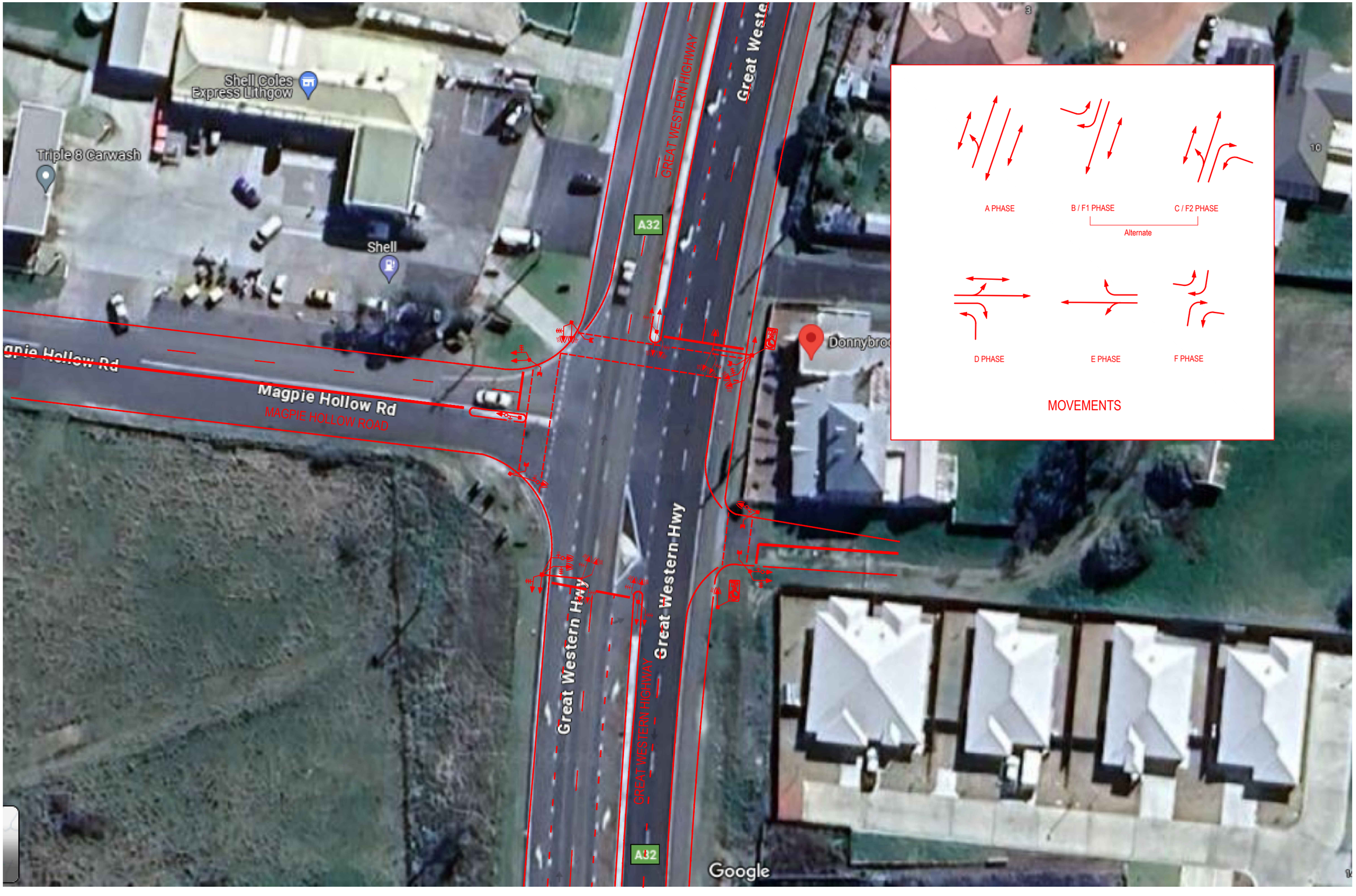
Shell Coles Express Lithgow
Triple 8 Carwash
Shell
Magpie Hollow Rd
MAGPIE HOLLOW ROAD
GREAT WESTERN HIGHWAY
Great Weste
A32
Donnybroo
Great Western Hwy
GREAT WESTERN HIGHWAY
Great Western Hwy
A32
A PHASE
B / F1 PHASE
C / F2 PHASE
Alternate
D PHASE
E PHASE
F PHASE
MOVEMENTS
Google

# Annexure H

## Concept design of intersection upgrades

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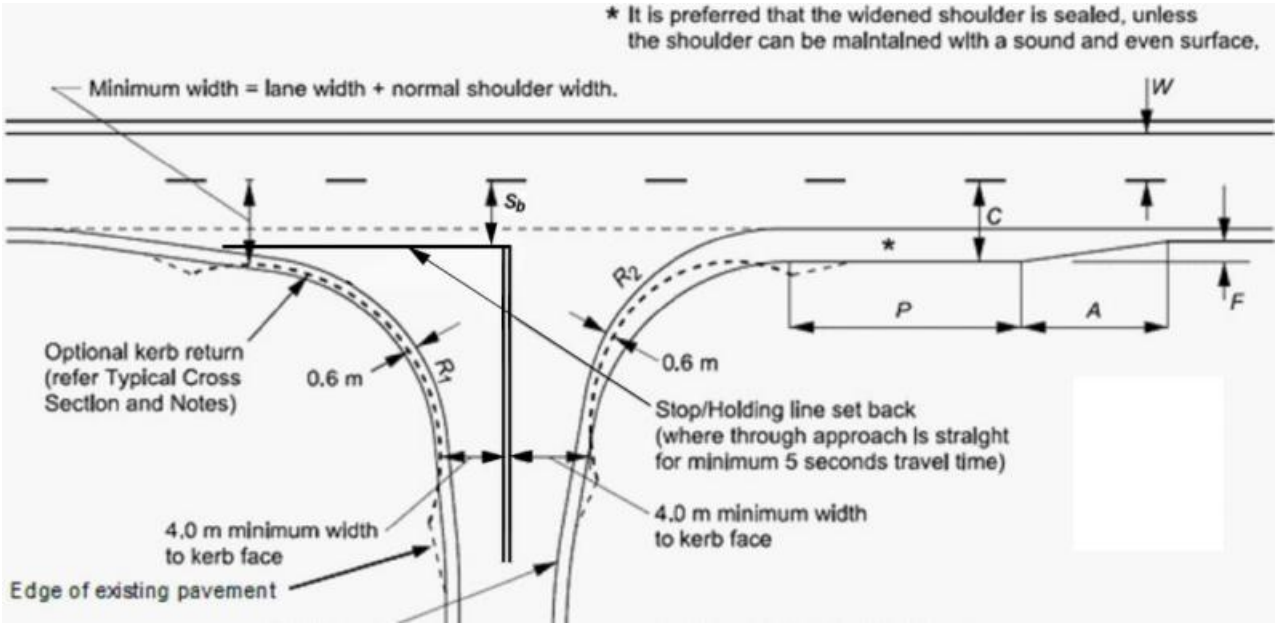
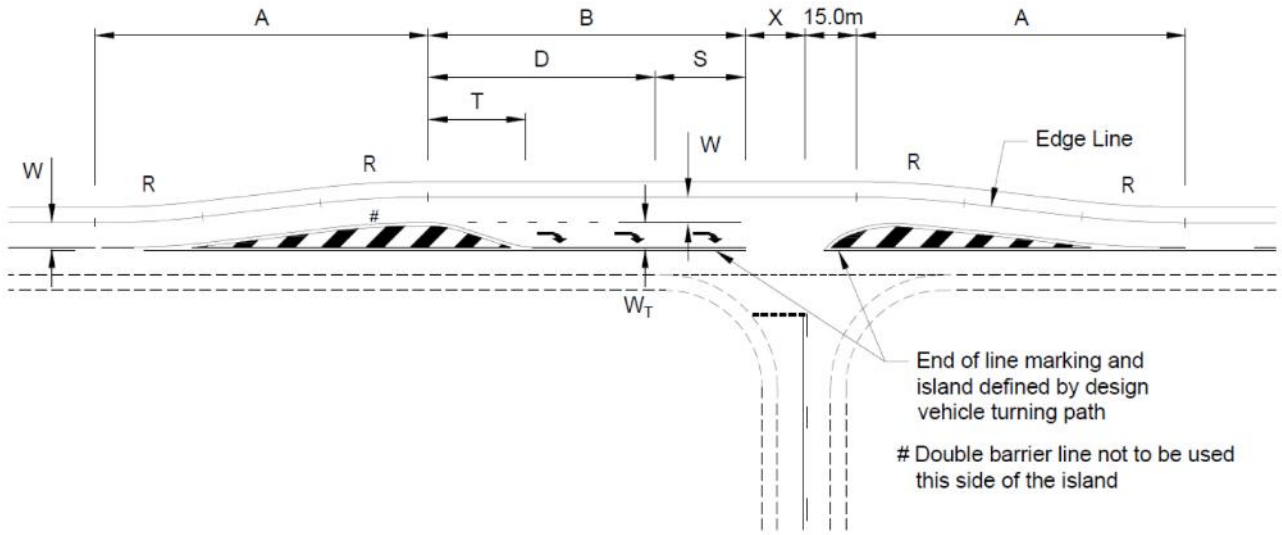


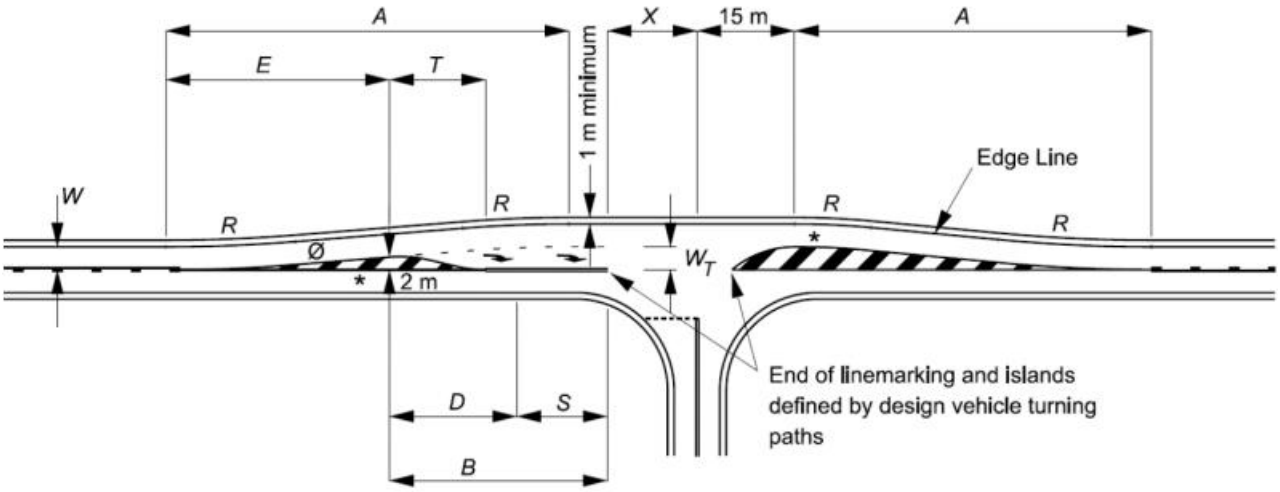

Source: Austroads

**Figure H.1 Austroads BAL turn treatment**




Source: Austroads

**Figure H.2 Austroads CHR turn treatment**




Source: Austroads

**Figure H.3 Austroads CHR(s) turn treatment**

# Annexure I

Observed queue lengths (signalised intersections)

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## I.1 Great Western Highway / Bayonet Street intersection (AM Peak)

### I.1.1 North approach: Great Western Highway


**Photograph I.1 Queue on Great Western Highway (north approach) at 8.45 am**

**Photograph I.2 Queue on Great Western Highway (north approach) at 8.47 am**

## I.2 Great Western Highway / Bayonet Street intersection (AM Peak)

### I.2.1 South approach: Great Western Highway

**Photograph I.3 Queue on Great Western Highway (south approach) at 8.33 am**

**Photograph I.4 Queue on Great Western Highway (south approach) at 8.51 am**

## I.3 Great Western Highway / Bayonet Street intersection (AM Peak)

### I.3.1 East approach: Bayonet Street

**Photograph I.5 Queue on Bayonet Street (east approach) at 8.27 am**

**Photograph I.6 Queue on Bayonet Street (east approach) at 8.53 am**

## I.4 Great Western Highway / Bayonet Street intersection (AM Peak)

### I.4.1 West approach: Flint McClelland Avenue

**Photograph I.7 Queue on Flint McClelland Avenue (west approach) 8.37 am**

**Photograph I.8 Queue on Flint McClelland Avenue (west approach) 8.38 am**

## I.5 Great Western Highway / Bayonet Street intersection (PM Peak)

### I.5.1 North approach: Great Western Highway

**Photograph I.9 Queue on Great Western Highway (north approach) at 4.16 pm**

**Photograph I.10 Queue on Great Western Highway (north approach) at 4.48 pm**

## I.6 Great Western Highway / Bayonet Street intersection (PM Peak)

### I.6.1 South approach: Great Western Highway

**Photograph I.11 Queue on Great Western Highway (south approach) at 4.09 pm**


**Photograph I.12 Queue on Great Western Highway (south approach) at 4.43 pm**

## I.7 Great Western Highway / Bayonet Street intersection (PM Peak)

### I.7.1 East approach: Bayonet Street


**Photograph I.13 Queue on Bayonet Street (east approach) at 4.06 pm**


**Photograph I.14 Queue on Bayonet Street (east approach) at 4.55 pm**

## I.8 Great Western Highway / Bayonet Street intersection (PM Peak)

### I.8.1 West approach: Flint McClelland Avenue

**Photograph I.15 Queue on Flint McClelland Avenue (west approach) 4.16 pm**

**Photograph I.16 Queue on Flint McClelland Avenue (west approach) 4.35 pm**

## I.9 Methven Street / Martini Parade intersection (AM Peak)

### I.9.1 North approach: Martini Parade

**Photograph I.17 Queue on Martini Parade (north approach) at 8.12 am**

**Photograph I.18 Queue on Martini Parade (north approach) at 8.20 am**

## I.10 Methven Street / Martini Parade intersection (AM Peak)

### I.10.1 South approach: Martini Parade

**Photograph I.19 Queue on Martini Parade (south approach) 8.15 am**

**Photograph I.20 Queue on Martini Parade (south approach) 8.15 am**

## I.11 Methven Street / Martini Parade intersection (AM Peak)

### I.11.1 East approach: Methven Street

**Photograph I.21 Queue on Methven Street (east approach) at 8.13 am**

**Photograph I.22 Queue on Methven Street (east approach) at 8.14 am**

## I.12 Methven Street / Martini Parade intersection (AM Peak)

### I.12.1 West approach: Methven Street

**Photograph I.23 Queue on Methven Street (west approach) at 8.16 am**

**Photograph I.24 Queue on Methven Street (west approach) at 8.18 am**

## I.13 Methven Street / Martini Parade intersection (PM Peak)

### I.13.1 North approach: Martini Parade

**Photograph I.25 Queue on Martini Parade (north approach) at 2.50 pm**

**Photograph I.26 Queue on Martini Parade (north approach) at 4.02 pm**

## I.14 Methven Street / Martini Parade intersection (PM Peak)

### I.14.1 South approach: Martini Parade

**Photograph I.27 Queue on Martini Parade (south approach) 2.53 pm**

**Photograph I.28 Queue on Martini Parade (south approach) 3.52 pm**

## I.15 Methven Street / Martini Parade intersection (PM Peak)

### I.15.1 East approach: Methven Street

**Photograph I.29 Queue on Methven Street (east approach) 2.52 pm**

**Photograph I.30 Queue on Methven Street (east approach) 3.56 pm**

## I.16 Methven Street / Martini Parade intersection (PM Peak)

### I.16.1 West approach: Methven Street

**Photograph I.31 Queue on Methven Street (west approach) 2.54 pm**

**Photograph I.32 Queue on Methven Street (west approach) 3.51 pm**

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