Cape Peron Transport Needs Study

Transport Report

Prepared for: City of Rockingham

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Revision Schedule

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1. Introduction

1.1 Overview

Stantec has been engaged by the City of Rockingham to undertake a Transport Needs Study ("the Study") for Cape Peron. This study was undertaken in response to Recommendation No. 5 from the Cape Peron (including Mangles Bay) Planning Investigation Area, as endorsed by the Minister for Planning in August 2021.

The Study involved a literature review of previous reports and assessments for Cape Peron, a review of the proposed Long Term Cycle Network (LTCN) for the area, a review of existing parking provisions, a review of the crash history covering the past 5 years for the study, the results of an extensive traffic modelling exercise for the area, as well as proposed cross-sections for each of the roads within the area. Below is a summary of the structure of the report:

- Section 1 – Introduction (this section)
- Section 2 – Literature Review
- Section 3 – Cycling Network
- Section 4 – Consultation with Department of Planning, Lands and Heritage (DPLH), Water Corporation (WC) and Department of Defence (DoD)
- Section 5 – Crash History Review
- Section 6 – Parking Provisions
- Section 7 – Traffic Modelling
- Section 8 – Summary, Conclusions and Recommendations

1.2 Study Area

The study area is bounded by Hymus Street and Safety Bay Road to the east and Boundary Road to the south. Mangles Bay and Cockburn Sound are north of the study area. A causeway connects the study area to the HMAS Stirling Naval Base on Garden Island to the north. Since Garden Island houses the Royal Australian Navy base, access is restricted to this area.

The established residential areas of Rockingham and Shoalwater are situated immediately east and south of the study area respectively. Lake Richmond is located directly to the east, on the opposite side of Safety Bay Road.

Figure 1 Study Area

Source: Nearmap

1.3 Scope

The Cape Peron Transport Needs Study aims to provide recommendations to:

- Examine the local road network within the Cape Peron study area and external connections (including implications of any informal road closures);
- Scenarios with and without the Garden Island Highway being built as part of the regional road network and:
  - Forecast future anticipated traffic demand for all external and internal roads;
  - Investigate potential network issues on the ultimate year traffic scenarios at intersections/interchanges and mid-block level;
  - Recommend road network and intersection improvements to assist with the proposed network scenarios;
- Identify improved pedestrian network connections and cycle paths according to the vision of the City's Long Term Cycle Network by taking into consideration planned projects;

- Review and recommend parking provision at key destinations; and
- Examine the potential impact on the alignment and road reserve width of Point Peron Road to cater for future growth for the scenarios mentioned in point 1 and 2 as well as the potential land area requirements for the Fishing and Yacht Clubs, subject to further investigations as per Recommendation 6 (further detail specified below under clause 2.2.2.6). Note, any potential realignment will require consideration of Water Corporation infrastructure located on the southern side of Point Peron Road, the existing MRS reserve for Garden Island Highway and potential impacts on environmental values.

2. Literature Review

2.1 State Planning Framework

2.1.1 Metropolitan Region Scheme (MRS)

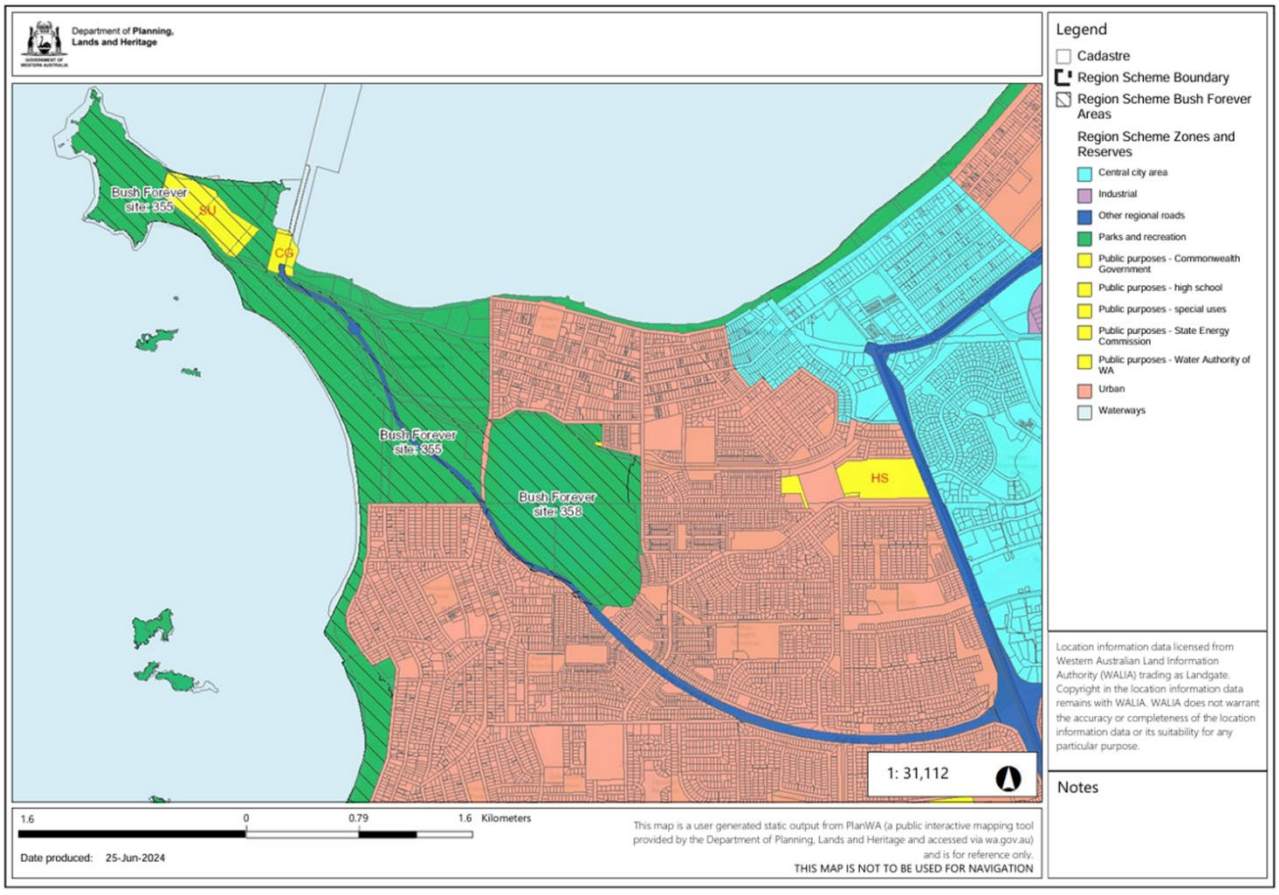
The Study Area comprises mostly State-owned land with a complex tenure arrangement and is mostly reserved under the Metropolitan Region Scheme (MRS) for 'Parks and Recreation' as shown in **Figure 2**.

All other land within the Study Area is reserved under the MRS for the following purposes:

- 'Public Purposes - Special Uses' (Fairbridge camp)
- 'Public Purposes – WSD' (Wastewater Treatment Plant)
- 'Public Purposes – Commonwealth Government'; and
- 'Other Regional Road' (i.e., Garden Island Highway).

It is noted that while Garden Island Highway is identified as a 'Other Regional Road', it is not a dedicated public road.

Figure 2 Metropolitan Region Scheme Map



Source: Department of Planning, Lands and Heritage (2024)

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2.1.2 Bush Forever Area

Bush Forever reserves include significant bushland that represent a critical component of the regional ecosystem. As such, any proposals or decision-making processes regarding the use of these reserves should prioritise the protection and preservation of these areas. Given the importance of the Bush Forever reserves, there is a general presumption against any development that could potentially harm or degrade the bushland.

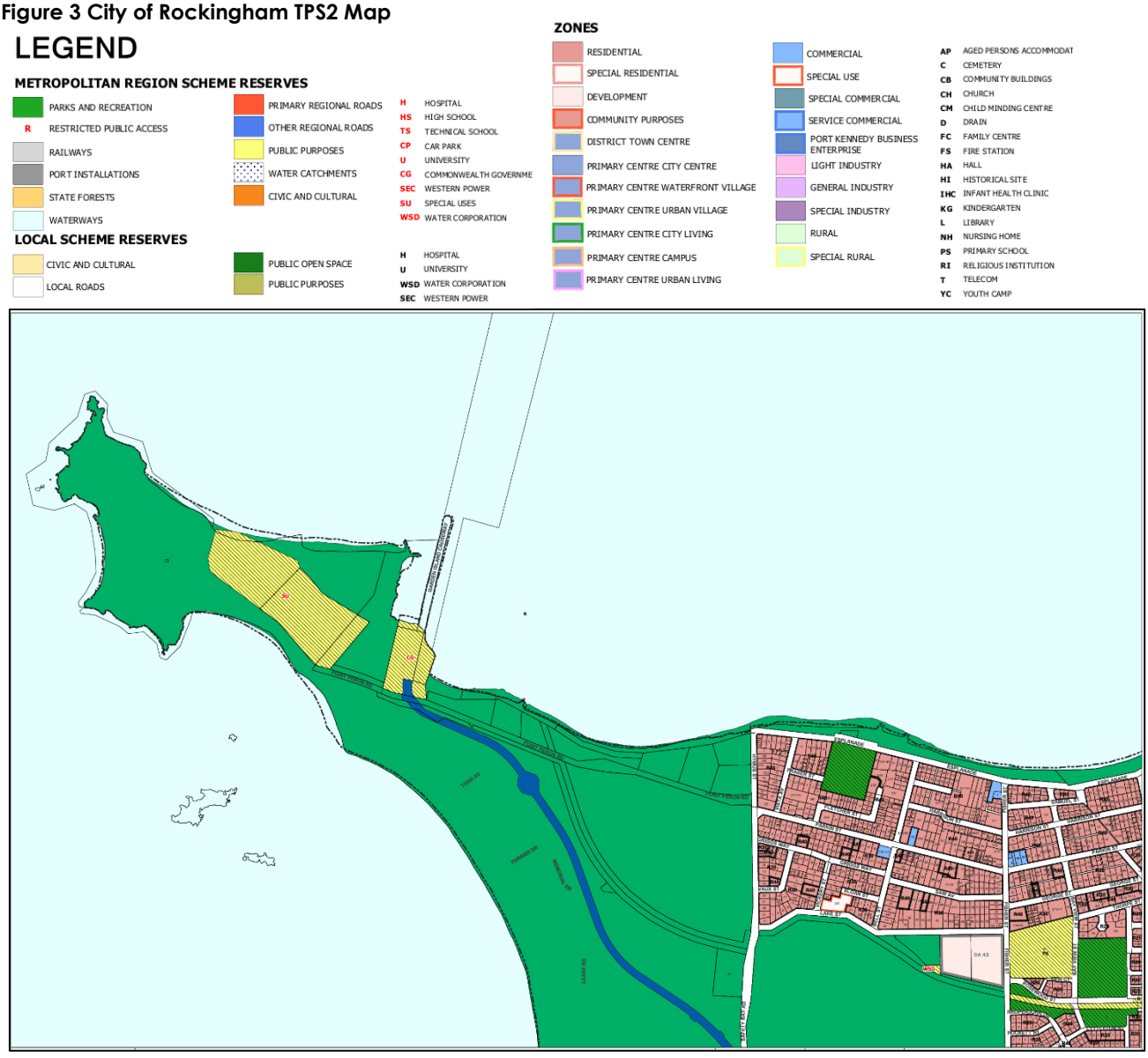
Development plans that impact these reserves, such as the proposed conversion of bushland to parking on Cape Peron, require careful consideration and planning to ensure that any impact is minimised, and appropriate land for development is identified and utilised.

2.2 Local Planning Framework

2.2.1 City of Rockingham Town Planning Scheme No. 2 (TPS2)

The zoning of land within the City of Rockingham TPS2 is mostly consistent with the MRS, as shown in **Figure 3**. There are no local reserves within the Study Area.

Figure 3 City of Rockingham TPS2 Map



Source: City of Rockingham (2023)

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2.2.2 Department of Planning, Lands and Heritage Cape Peron (including Mangles Bay) Planning Investigation Area Brochure (2018)

A Working Group comprising representatives of State Government agencies and the City of Rockingham was established to determine whether any land use changes were appropriate and to make recommendations to State Government about the future of Cape Peron.

The recommendations, which have been endorsed by the State Government, are outlined in the following sections.

2.2.2.1 Class A reserve

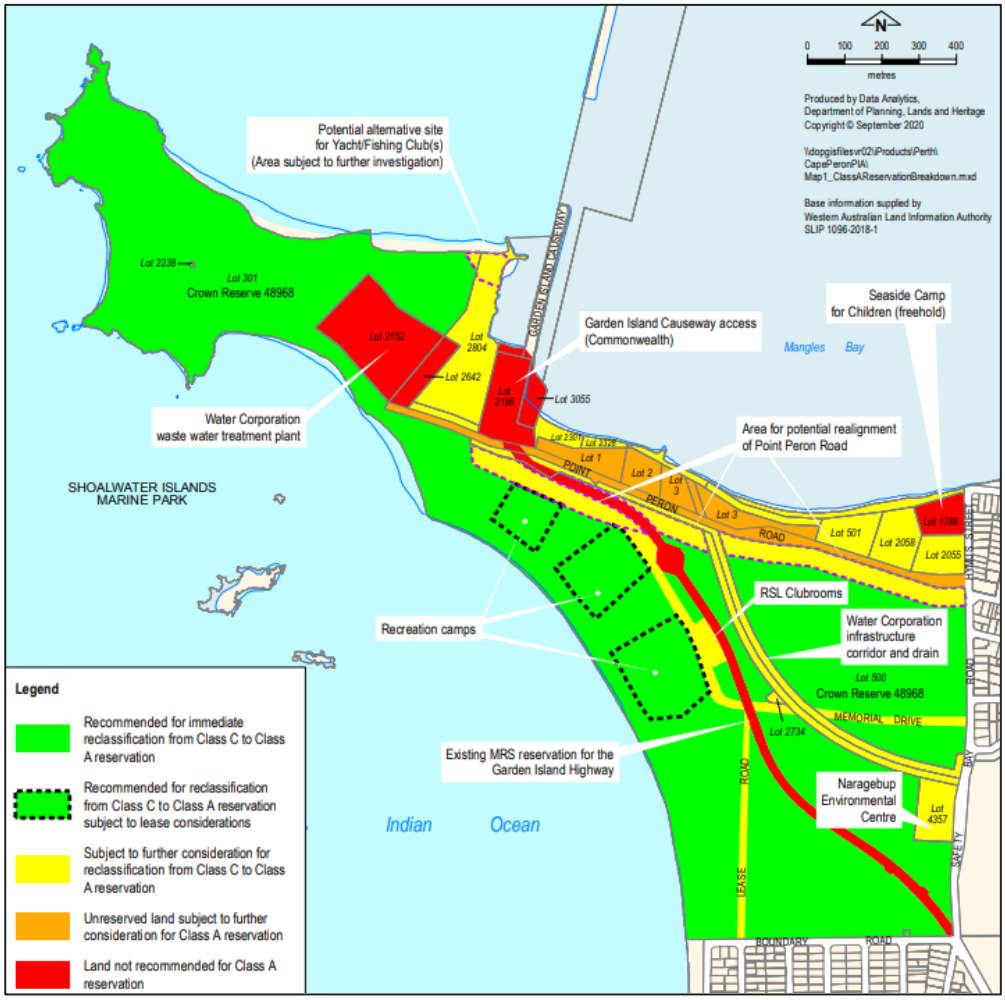
Most of Cape Peron will be designated as one or more Class A reserves, converted from their existing Class C reservation, to provide the Cape the greatest degree of protection as illustrated in **Figure 4**.

Stage 1 of reclassification which occurred in 2023 did not include:

- Memorial Drive;
- Lease Road;
- the MRS Other Regional Road reserve for Garden Island Highway (GIH);
- an area extending approximately 50 metres south of Point Peron Road (to allow for further investigation as alternative location for the fishing and yacht clubs;
- the existing recreation camp sites;
- the RSL club room; and
- an existing cleared area north of the wastewater treatment plant (under investigation as an alternative location for the fishing and yacht clubs).

These sites will be considered for a Class A reserve designation once there is more certainty about the remaining existing and future land uses.

Figure 4 Class A Reservation Breakdown



Source: Department of Planning, Lands and Heritage (2021)

2.2.2.2 MRS Amendment

The Department of Planning, Lands and Heritage (DPLH) prepared an amendment to the MRS that transferred land at Mangles Bay from the 'Port Installations' reserve to Parks and recreation reservation and Public purposes reservation - Commonwealth Government.

2.2.2.3 Precincts

The Working Group identified three precincts which will inform land use and tenure desirability:

- Coastal Nature Park – Fairbridge Camp, Naragebup environmental centre.
- Mangles Bay – Defence (Commonwealth) land, wastewater treatment plant, public boat ramps, Rockingham Sea Rescue, Naval, Fishing and Yacht Clubs, Seaside Camp and vacant RSL caravan park.
- Shoalwater Bay – Four recreation camps, RSL clubrooms, vacant recreation camp sites.

2.2.2.4 Garden Island Highway

The alignment and design of GIH (identified as an 'Other Regional Roads' reservation in the MRS as shown in **Figure 2**) will be considered, in consultation with the Department of Planning, Lands and Heritage and other key stakeholders, and cognisant of the environmental values of Cape Peron and Lake Richmond. It should be noted that while Garden Island Highway is identified as a 'Other Regional Road', it is not a dedicated public road. **It is noted that the road reservation allocated to the Highway currently resides with the City of Rockingham.**

2.2.2.5 Transport Needs

A Transport Needs Study for Cape Peron will be conducted to provide better public access with improved amenities and facilities, which forms the basis of this Project.

2.2.2.6 The Cruising Yacht Club and Mangles Bay Fishing Club

Further investigation will be undertaken to confirm the long-term location(s) of the Clubs, considering environmental, accessibility and Point Peron Road alignment impacts.

2.2.2.7 Recreation Camps

The Department of Biodiversity, Conservation and Attractions (DBCA) will prepare a policy for the long-term management of the remaining recreation camps, with options including their potential transition to short-term accommodation or publicly accessible recreation areas.

2.2.2.8 Regional Park Management

DBCA will consider the investigations and recommendations of the Working Group as part of any updated Recreation Masterplan for Cape Peron/Lake Richmond and any review of the Rockingham Lakes Regional Park Management Plan.

2.2.2.9 Governance

A governance structure will be created to oversee the implementation of the nine recommendations of the Working Group.

The State Government has since established the Cape Peron Implementation Committee comprising of technical officers from the DPLH, City of Rockingham, DCBA, and the Department of Transport (DoT) to oversee the recommendations.

2.2.3 City of Rockingham Long-Term Cycling Network (LTCN)

The LTCN provides a hierarchy of routes which correspond to a particular function. The LTCN identifies several Primary Routes and one Local Route through the Study Area, as shown in **Figure 5**. DoT identifies the role of Primary Routes as high demand corridors that connect major destinations of regional importance. Local routes are identified as low demand routes that provide a connection to Primary and Secondary Routes, local amenities and recreational spaces.

A detailed assessment of pedestrian and cycle access is provided in Section 3 of this report.

Figure 5 Long-Term Cycling Network

Source: Department of Transport (2023)

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3. Cycling Network

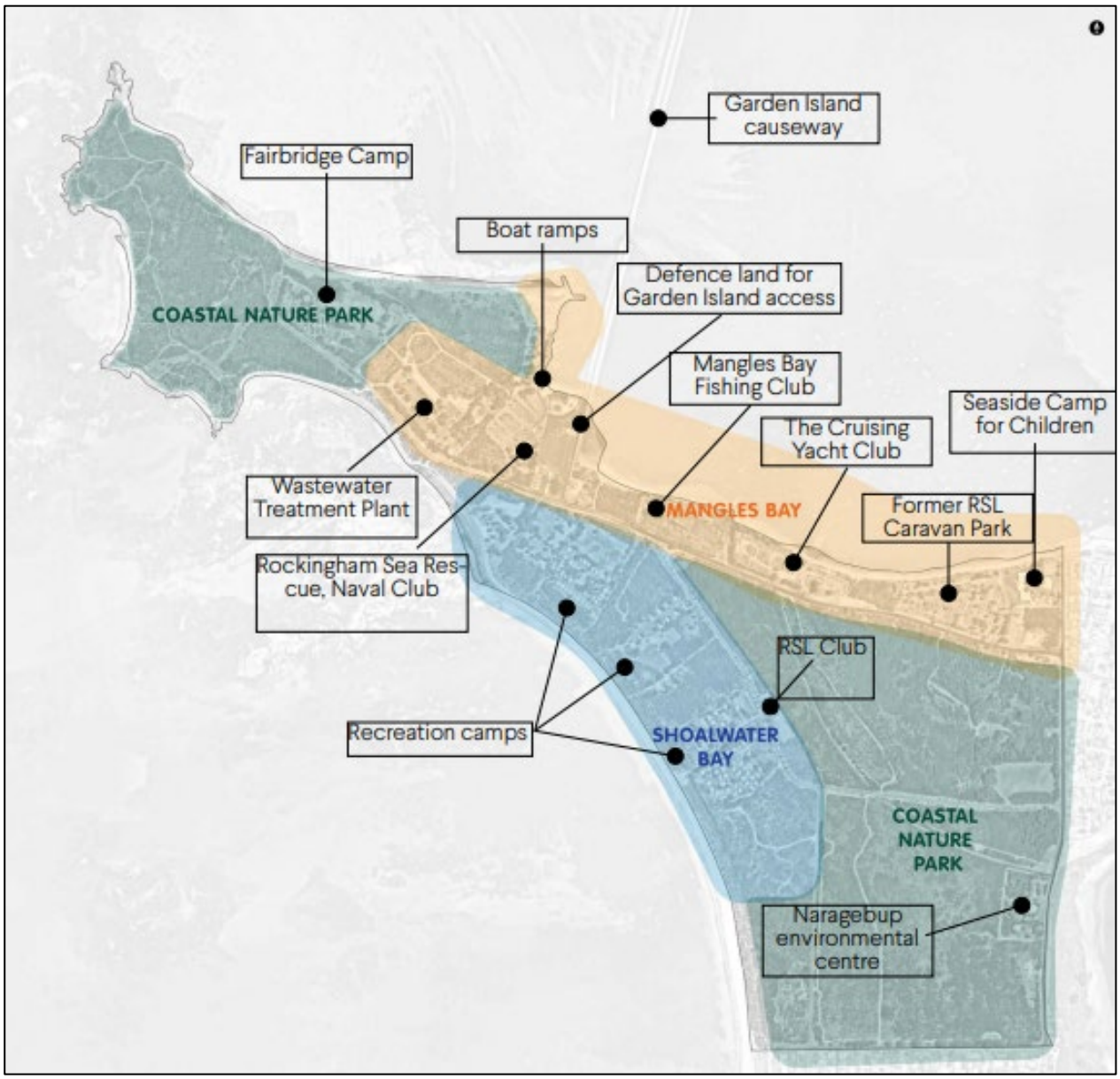
3.1 Existing Pedestrian/Cycle Infrastructure

There is limited cycle and pedestrian infrastructure provided within the Study Area. The existing infrastructure will be discussed in the following precincts:

- Coastal Nature Park Precinct
- Mangles Bay Precinct
- Shoalwater Bay Precinct

The Precincts are shown in **Figure 6**.

Figure 6 Precincts Map



Source: Cape Peron (including Mangles Bay) Planning Investigation Area (2021)

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3.1.1 Coastal Nature Park Precinct

On the western end of the Cape, there are two shared paths (see **Figure 7**):

- Point Peron Road has a 40m long shared path on the northern side that connects Point Peron Camp School to the first of four car parks; and
- The car parks provide a shared path on the western side continues for 170 m before deviating off road (in the form of walking trails) in multiple directions.

The walking trails lead to three additional Cape Peron car parks and several interest points located on Cape Peron, such as the Cape Peron Lookout Bridge, Rockingham Viewpoint and John Point Beach (See **Figure 8** and **Figure 9**).

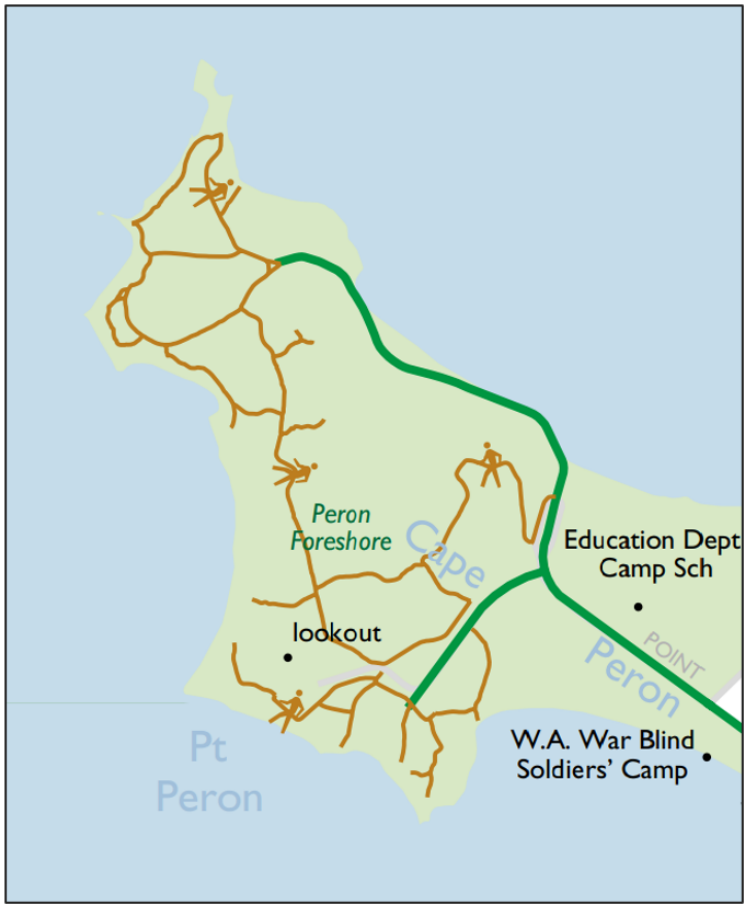
Figure 7 Pedestrian/Cycle Infrastructure in Coastal Nature Park Precinct

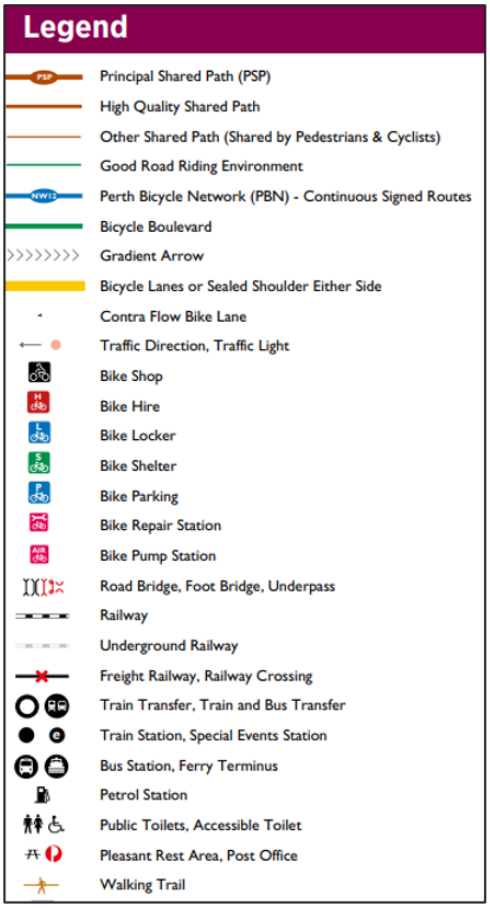
Source: Metromap (2023)

Figure 8 Pedestrian/Cycle Infrastructure in Coastal Nature Park Precinct

Source: Metromap (2023)

Figure 9 Nature Trails





Source: Department of Transport (2016)

The shared paths connecting the four car parks are built to a high quality (See **Figure 10**). The walking trails vary in form, width and condition, ranging from wide, smooth asphalt paths (See **Figure 11**) to narrow, uneven gravel paths (See **Figure 12**).

Figure 10 Quality of Pedestrian/Cycle Infrastructure in Coastal Nature Park Precinct

Source: Metromap (2023)

Figure 11 High-Quality Walking Trail in Coastal Nature Park Precinct

Source: Metromap (2023)

Figure 12 Low-Quality Walking Trail in Coastal Nature Park Precinct

Source: Metromap (2023)

There is limited pedestrian infrastructure within the eastern area of the Cape, generally south of Point Peron Road and east of Memorial Drive / Lease Road intersection. There is, however, a 2.3 – 2.4 m path on one shoulder of Boundary Road and a 1.5 – 2.0 m path on Safety Bay Road / Hymus Street. These are located on the boundary of the Study Area to the south and east respectively, as shown in **Figure 13**.

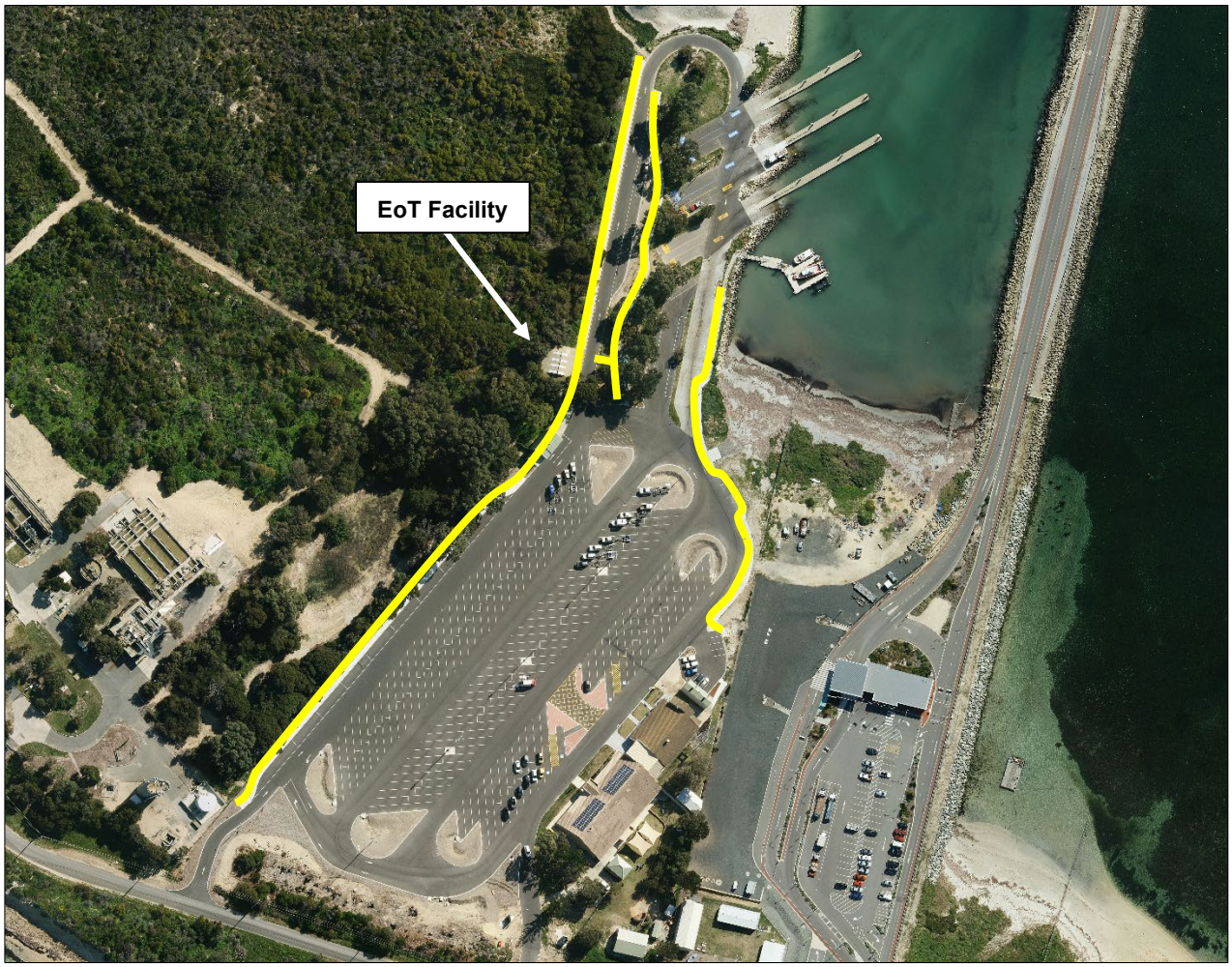
Figure 13 Pedestrian/Cycle Infrastructure in Coastal Nature Park Precinct

Source: Metromap (2023)

3.1.2 Mangles Bay Precinct

The Mangles Bay Precinct contains the Point Peron Boat Ramp. It underwent expansion in late 2021, and a series of 2.2m shared paths were installed as part of the project. An End of Trip (EoT) facility, including a public toilet and showers/changing cubicles is located at the boat ramp, accessible via the shared paths (see **Figure 14**).

Figure 14 Pedestrian/Cycle Infrastructure in Mangles Bay Precinct



Source: Metromap (2023)

3.1.3 Shoalwater Bay Precinct

No pedestrian infrastructure is provided within the Shoalwater Bay Precinct.

3.2 Long Term Cycling Network

The Long-Term Cycling Network (LTCN) provides a hierarchy of routes, which correspond to a particular function. The network within the Study Area is limited and serves a varied recreational and employment catchment. The current LTCN identifies several Primary Routes and one Local Route through the Study Area, which suggests a higher standard of provision (See **Figure 15**).

Figure 15 Long Term Cycling Network

Source: Department of Transport (2023)

Table 1 LTCN Road Classifications

Road	Classification
Safety Bay Road	Primary Route
Hymus Street	Primary Route
Boundary Road	Primary Route
Lease Road	Primary Route
Point Peron Road	Primary Route
Memorial Drive	Primary Route Local Route

REF: \\AU2011-NTAP01_CIFS02\SHARED_PROJECTS\304900950\5_TECHNICAL\TRAFFIC\REPORTING\003_TRANSPORT REPORT\REV C\CW1200595_304900950-TR-R003-C-TRANSPORT_REPORT_DRAFT_V5.DOCX

3.3 Road Infrastructure

3.3.1 Safety Bay Road

Safety Bay Road is classified as a Distributor A under Main Roads Information Mapping System. It has a single lane of travel in each direction, a posted speed limit of 60 km/hr and is approximately 12.0 m wide (including 2.0 m sealed shoulders on either side). A typical cross-section of Safety Bay Road is shown in **Figure 16**.

Figure 16 Safety Bay Road

Source: MetroMap (2023)

3.3.2 Hymus Street

Hymus Street is classified as a Local Distributor under Main Roads Information Mapping System. It has a single lane of travel in each direction, a posted speed limit of 50 km/hr and is approximately 8.0 m wide. A typical cross-section for Hymus Street is shown in **Figure 17**.

Figure 17 Hymus Street

Source: MetroMap (2023)

3.3.3 Boundary Road

Boundary Road is classified as a Local Distributor under Main Roads Information Mapping System. It has a single lane of travel in each direction, a posted speed limit of 50 km/hr and is approximately 7.0 m wide. A typical cross-section for Boundary Road is shown in **Figure 18**.

Figure 18 Boundary Road

Source: MetroMap (2023)

3.3.4 Lease Road

Lease Road is classified as an Access Road under Main Roads Information Mapping System. It has a single lane of travel in each direction, a posted speed limit of 50 km/hr and is approximately 5.5 m wide. Typical cross-sections for Lease Road are shown in **Figure 19**.

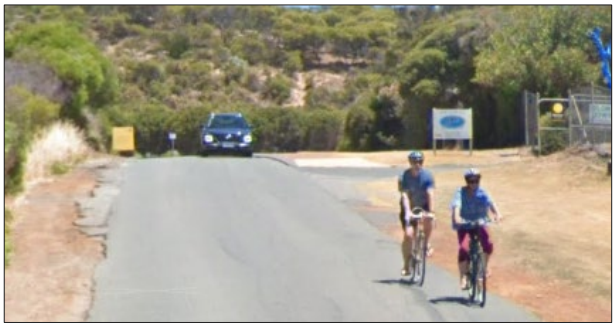
Figure 19 Lease Road

Source: MetroMap (2023)

3.3.5 Point Peron Road

Point Peron Road is classified as an Access Road under Main Roads Information Mapping System. It has a single lane of travel in each direction, a posted speed limit of 60 km/hr and is approximately 9.0 m wide. Typical cross-sections for Point Peron Road are shown in **Figure 20**.

Figure 20 Point Peron Road



Source: MetroMap (2023)

3.3.6 Memorial Drive

Memorial Drive is classified as an Access Road under Main Roads Information Mapping System. It has a single lane of travel in each direction, a posted speed limit of 50 km/hr and is approximately 5.0 m wide between the intersections of Memorial Drive / Safety Bay Road and Memorial Drive / Lease Road and 6.0 m wide between the intersections of Memorial Drive / Lease Road and Memorial Drive / Point Peron Road. Typical cross-sections for Memorial Drive are shown in **Figure 21** and **Figure 22**.

Figure 21 Memorial Drive (Memorial Drive / Safety Bay Road and Memorial Drive / Lease Road)

Source: MetroMap (2023)

Figure 22 Memorial Drive (Memorial Drive / Lease Road and Memorial Drive / Point Peron Road)

Source: MetroMap (2023)

3.3.7 Existing Gaps in Cycle Network

As described in the previous sections, there is no pedestrian or cycling infrastructure on Lease Road, Point Peron Road or Memorial Drive, which have all been identified as Primary or Local Routes in the LTCN. This indicates a discrepancy between the roads' existing infrastructure and the infrastructure expected of their identified network hierarchies.

Despite pedestrian and cycling infrastructure existing on Boundary Road, Safety Bay Road and Hymus Street, their form and function do not align with that expected of a Primary Route and potential improvements have been identified and described in the following section.

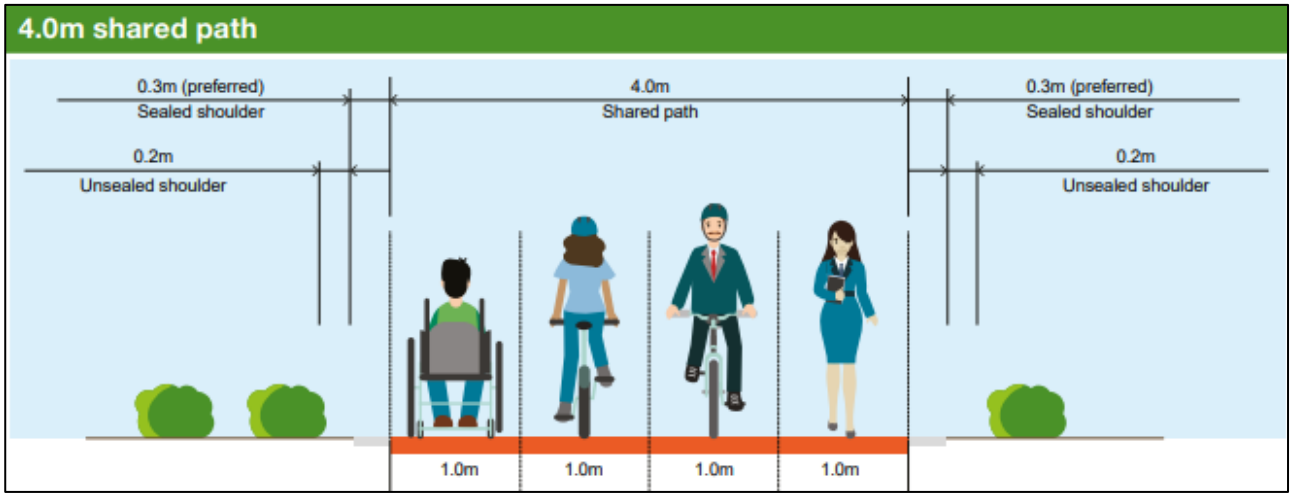
3.4 Long-Term Cycle Network Form and Function

The form of new shared paths in WA is required to correspond with its desired function, reflected by the route's classification in accordance with the Western Australian Cycling Network Hierarchy.

3.4.1 Primary Route Form and Function

Primary Routes are high demand corridors that form the backbone of the metropolitan cycle network, typically located adjacent to major roads, rail corridors, rivers and ocean foreshores. They provide high quality, safe, convenient and uninterrupted routes to major destinations. In terms of built form, Primary Routes predominantly consist of high-quality shared paths that are at least 3.0 m wide, but desirably 4.0 m wide with a 2.0 m clearance, allowing for passing to occur in both directions, as shown in **Figure 23**.

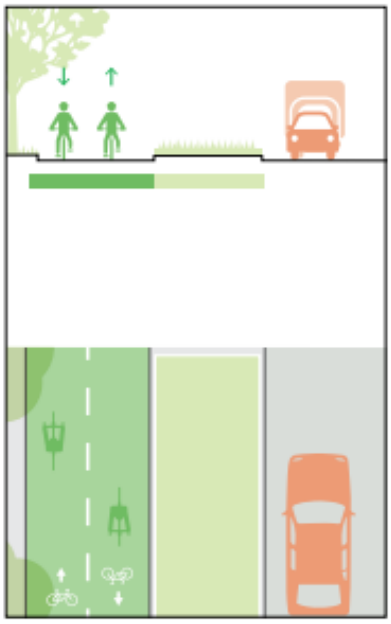
Figure 23 Primary Route Desirable Form



Source: Planning and Designing for Bike Riding in WA

Primary routes are ideally grade separated to reduce conflict between pedestrians/cyclists and motorised traffic, as shown in **Figure 24**. To ensure high levels of rideability and legibility, red or green asphalt is the preferred surface treatment; the colouration acting as a form of passive wayfinding, directing pedestrians and bike riders to safer routes.

Figure 24 Primary Route Treatment Options – Full Separation



Source: City of Fremantle Bike Plan 2019-2024

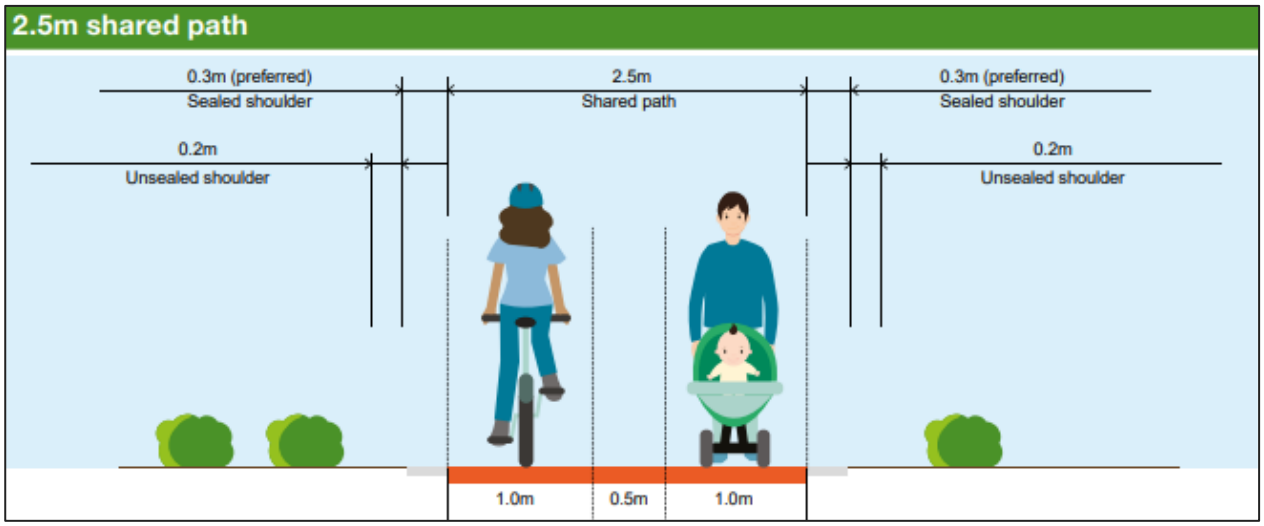
3.4.2 Local Route Function and Form

Local Routes are low demand routes that provide access to secondary and primary routes, local amenities, schools and recreational spaces. In terms of built form, a local route may consist of a combination of two or more types of treatments, such as:

- Low speed streets, e.g., 30 km/h safe active streets which adopt “self-explaining street” and “filtered permeability” urban design principles;
- Low traffic suburban streets communicated using sharrows and other signage or way finding.
- Sections of shared path (normally linking two or more quiet streets together); and
- On-road protected bike lanes.

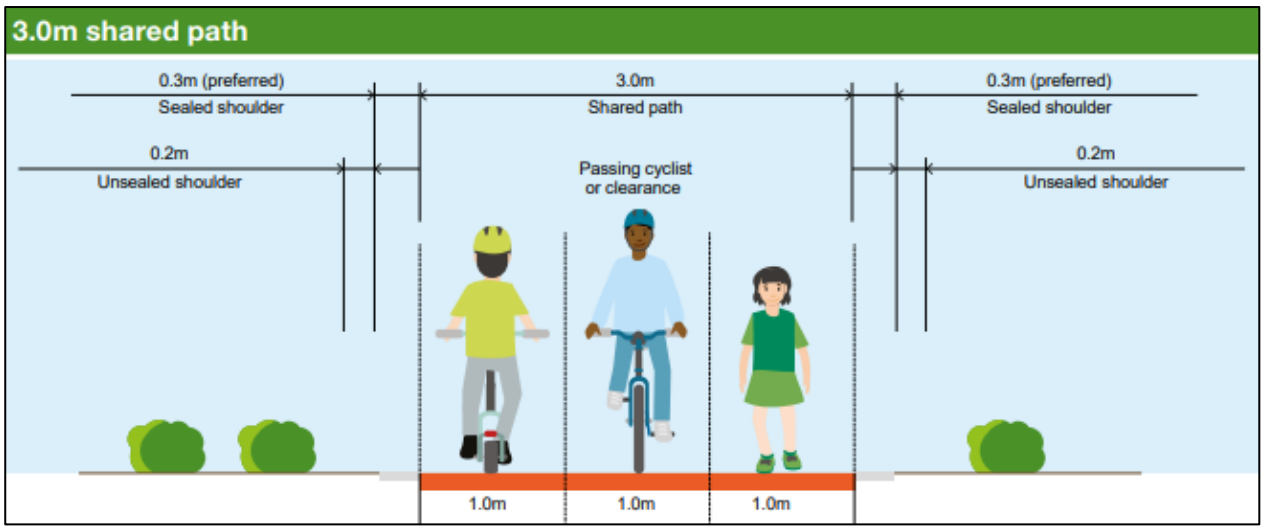
Shared paths on Local Routes are at least 2.5 m wide, as shown in **Figure 25**. However, it is desirable that new shared paths and particularly those that serve a recreational function be 3.0 m wide with a 1.0 m clearance to allow passing and meetings to occur simultaneously, as shown in **Figure 26**. Examples of built form are shown in **Figure 27**.

Figure 25 Local Route Minimum Required Form



Source: Planning and Designing for Bike Riding in WA

Figure 26 Local Route Desirable Form



Source: Planning and Designing for Bike Riding in WA

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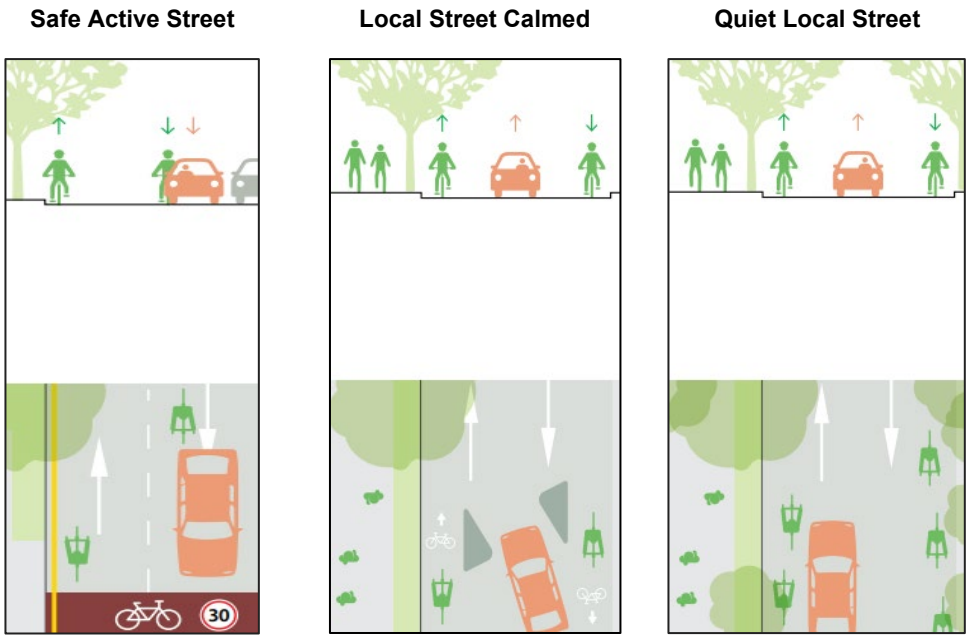
Figure 27 Local Route Treatment Options



Source: City of Fremantle Bike Plan 2019-2024

3.5 Proposed Infrastructure for Existing Roads

3.5.1 Safety Bay Road

The existing footpath infrastructure is in good condition and has a wide 2.0m average buffer between the road and path, fully separating it from vehicular traffic. However, the path is significantly narrower than desired. While the width is considered sufficient for a footpath, it would need to be widened to a minimum of 3.0m if it was to be converted to a shared path.

3.5.2 Hymus Street

The existing footpath infrastructure is in good condition. While it is physically separated from traffic, there is no buffer between the path and the traffic lanes. As the infrastructure is existing, the 1.5m shared path is not required to be fully separated and 3.0 m wide but ideally should be to align with its desired function.

3.5.3 Boundary Road

The existing footpath infrastructure is in good condition. While it is physically separated from traffic, there is no buffer between the path and the traffic lanes. As the infrastructure is existing, the 2.3 – 2.4m shared path is not required to be fully separated and 3.0 m wide but ideally should be to align with its desired function.

3.5.4 Lease Road

There is no existing infrastructure on the road, therefore, any new shared path infrastructure must comply with the minimum requirements set out in Planning and Designing for Bike Riding in WA. Any new shared paths must have a minimum width of 3.0m, ideally be fully separated from vehicular traffic, and surfaced in red asphalt.

3.5.5 Point Peron Road

There is no existing infrastructure on the road, therefore, any new shared path infrastructure must comply with the minimum requirements set out in Planning and Designing for Bike Riding in WA. The shared path must be a minimum 3.0 m wide and ideally fully separated from vehicular traffic, surfaced in red asphalt.

3.5.6 Memorial Drive

Memorial Drive between the intersections of Memorial Drive / Lease Road and Memorial Drive / Point Peron Road has been identified as a Primary Route. There is no existing infrastructure on the road, therefore, any new shared path infrastructure must comply with the minimum requirements set out in Planning and Designing for Bike Riding in WA. Any new shared path must be a minimum 3.0 m wide and ideally fully separated from vehicular traffic, surfaced in red asphalt.

3.5.7 Memorial Drive

Memorial Drive, between the intersections of Memorial Drive / Safety Bay Road and Memorial Drive / Lease Road, has been identified as a Local Route in the LTCN. There is no existing infrastructure on this section of Memorial Drive. Therefore, any new shared path infrastructure must comply with the minimum requirements set out in Planning and Designing for Bike Riding in WA, which includes a minimum width of 2.5m and ideally fully separated from vehicular traffic and surfaced in red asphalt.

3.6 Proposed Infrastructure for Alternative Road Arrangement

Figure 28 depicts an alternative road network layout as per the Metropolitan Region Scheme, in which Garden Island Highway is extended to Point Peron Road. Future construction of Garden Island Highway would need to provide Primary Route standard of provision for cyclists and pedestrians. As the proposed road is a highway intended to carry a relatively high volume of traffic, it is expected that the Primary Route be delivered to Principal Shared Path (PSP) standard, with 4.0 m minimum paths and sufficient lighting. Appropriate cycling and pedestrian crossings would need to be provided at the future intersections, with the crossings at the existing roundabout at Safety Bay Road / Boundary Road to be in accordance with Austroads Guide to Road Design Part 4B – Roundabouts.

Figure 28 Garden Island Highway (outlined in blue)

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4. Consultation

4.1 Department of Planning, Lands and Heritage – Garden Island Highway

As a gazetted road reserve exists for the Garden Island Highway (GIH), Stantec contacted the DPLH to confirm if any detailed designs had been prepared for the GIH and whether the interface between GIH and the existing roads had been investigated. The advice from DPLH was that apart from the road reserve for GIH, no further design has been prepared and therefore no consideration had been given to how GIH would tie into the existing network.

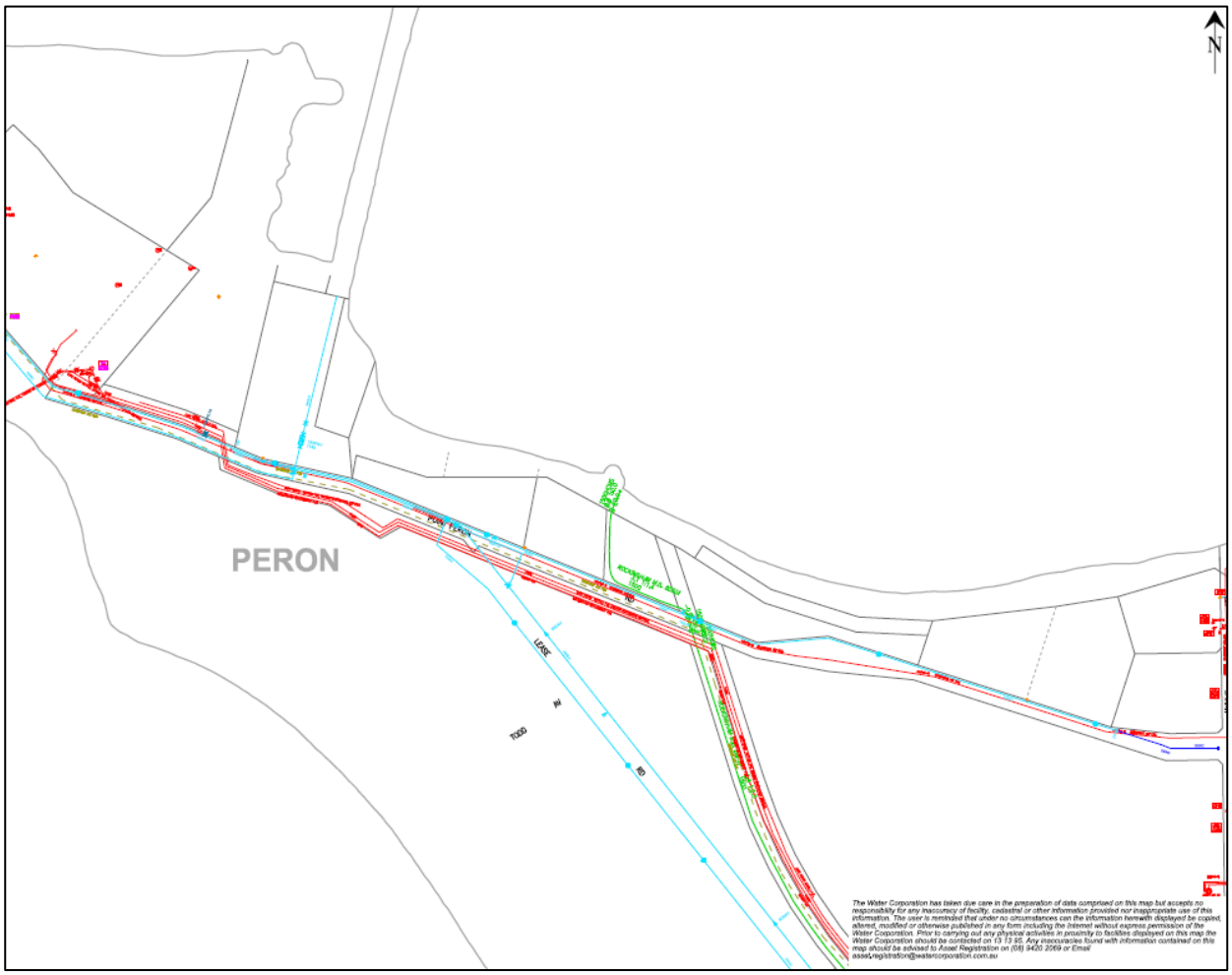
This Study was prepared in consultation with DPLH, in line with Minister endorsed Recommendation No.5.

4.2 Water Corporation

4.2.1 Existing Assets

Water Corporation has a number of major strategic assets within the Cape Peron area. Plans showing the alignment of these existing assets are shown in **Figure 29**, with detailed plans included in **Appendix A.** Water Corporation advised that any road realignments or intersection upgrades will need to consider these strategic assets, to ensure they will be located on the correct alignment within the road reserves.

Figure 29 Locations of Major Strategic Water Corporation Assets



Source: Water Corporation, February 2023

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4.2.2 Planned Assets

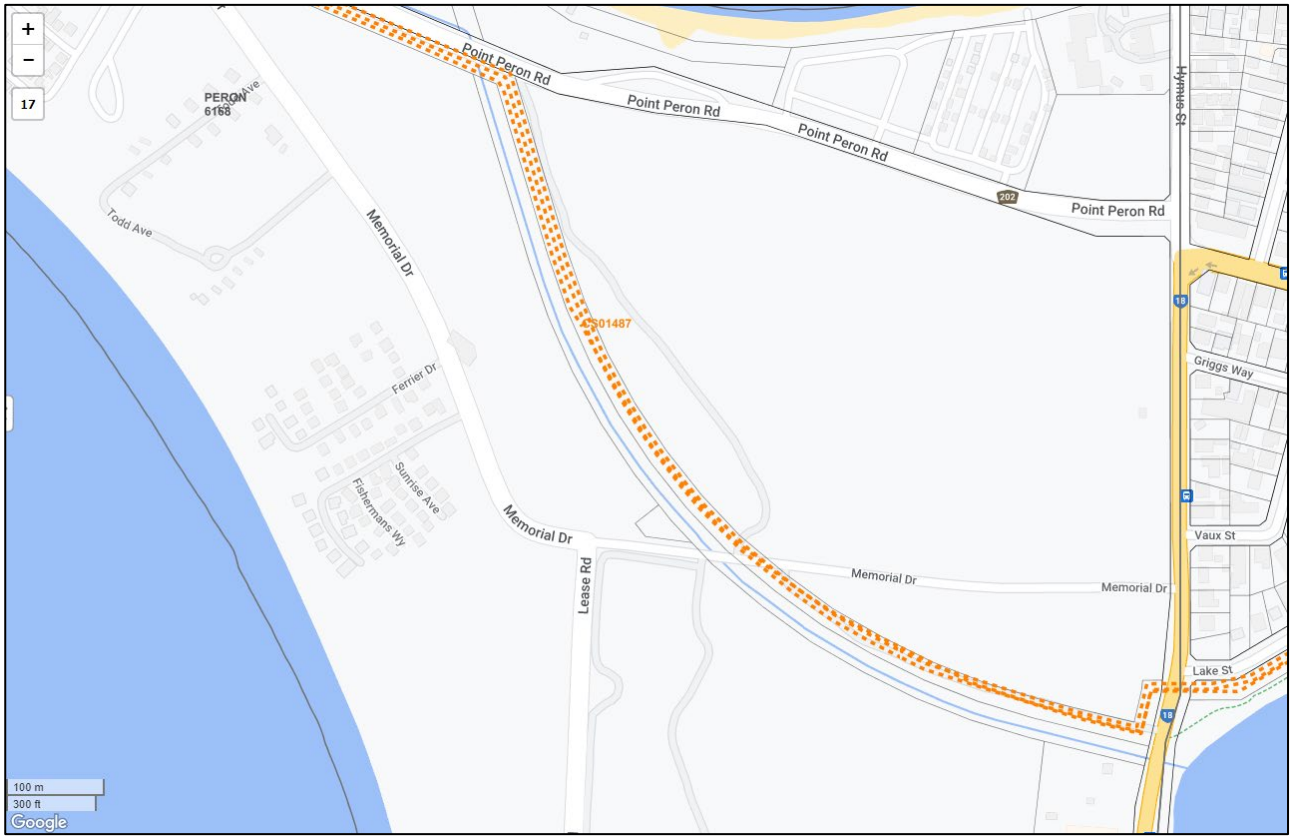
Three major projects are planned but are mostly planned to be constructed within Water Corporation existing reserves in the future. The proposed alignments of these water mains are shown in **Figure 30** and **Figure 31**.

Any road realignments or intersection upgrades will need to consider where these proposed mains will intersect and be designed accordingly.

Figure 30 Locations of Planned Water Corporation Assets (Cape Peron, west)

Source: Water Corporation, February 2023

Figure 31 Locations of Planned Water Corporation Assets (Cape Peron, east)



Source: Water Corporation, February 2023

4.3 Department of Defence

Stantec liaised with the DoD at the commencement of the project to source the future population projections for Garden Island. While DoD provided the requested population forecast, they noted that a strategic review was underway and that the population forecasts would likely change as a result of the review.

Upon completion of the draft (Rev A) of this report, the City provided a copy of the draft report to DoD for review and comment. DoD provided a letter with feedback and comments on 27th November 2023, which also included revised Garden Island base population projections following completion of the strategic review. The revised projections have been adopted in the traffic modelling scenarios described in **Section 7** of this report.

DoD also requested that no physical median be proposed for the Garden Island Highway cross-section to ensure that there would be no limitations to over-sized heavy vehicles potentially using Garden Island Highway in the future. The requested change to the Garden Island Highway cross-section has been incorporated in **Appendix G** of this report.

The project team met with DoD to discuss findings and recommendations of the draft Study iterations on two occasions, being in September 2023 and April 2024.

This Study was prepared in consultation with DoD, in line with Minister endorsed Recommendation No.5.

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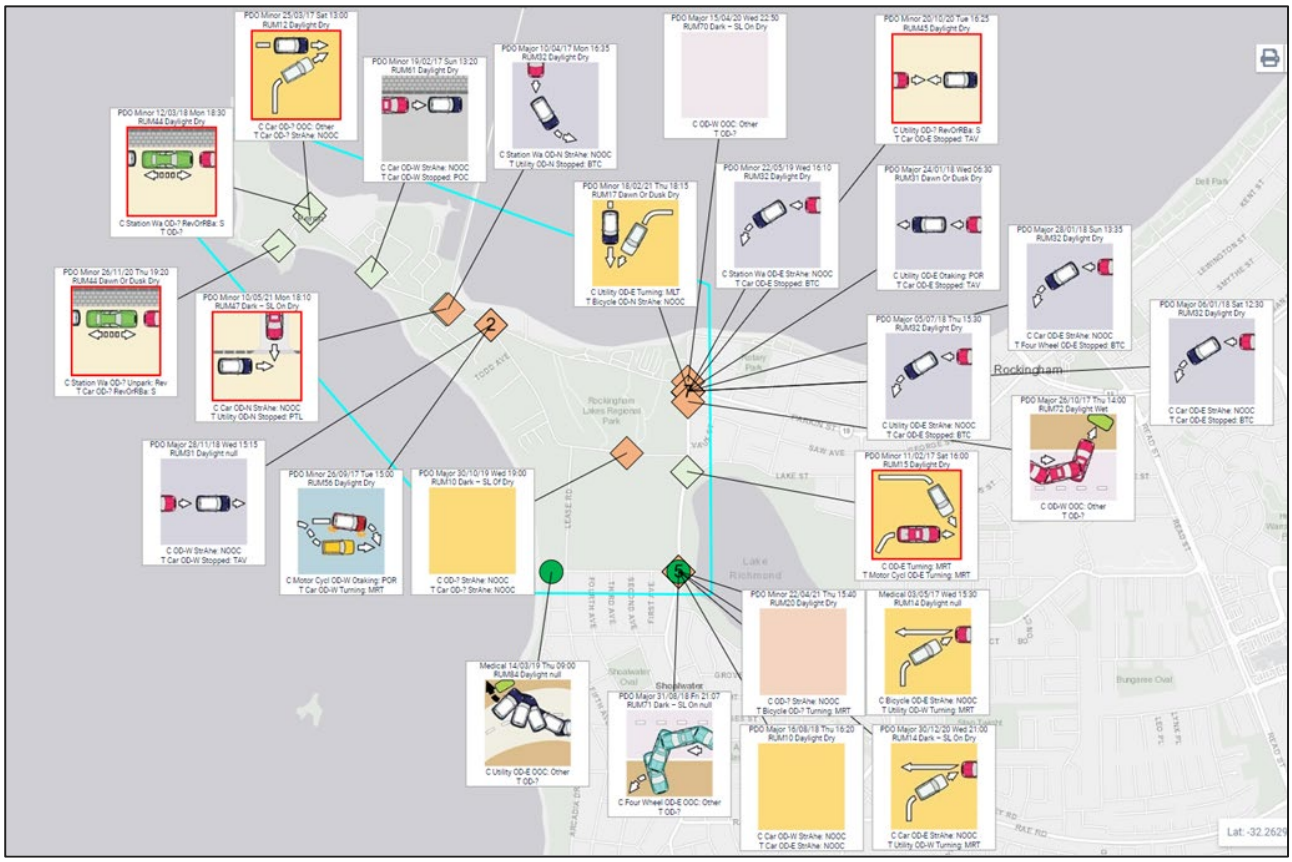
5. Crash History Review

Stantec sourced the crash data for the Cape Peron area for a 5-year period from January 2018 to December 2022 from the Main Roads database. During this time period, there were a number of crashes recorded around the Safety Bay Road / Parkin Street intersection, with the majority of these being rear-end crashes resulting in property damage.

Five (5) crashes were recorded at the Safety Bay Road / Boundary Road roundabout, of which 2 involved cyclists. Based on the available crash data, this intersection would quality for Blackspot funding from the WA state.

As this intersection forms part of the Safety Bay Road and Boundary Road primary routes under the LTCN, it is recommended that any modifications or upgrades of this intersection as part of the Garden Island Highway should include appropriate cycling and pedestrian crossings.

Figure 32 Crash History



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6. Parking Provisions

Car parking is a necessary component of modern life, providing private vehicles access to recreational and employment destinations in Cape Peron; however, there are inherent costs associated with parking, including capital expenses and land clearance. Moreover, Cape Peron faces significant environmental constraints, further complicating provision.

6.1 Existing Parking Situation

6.1.1 Statutory Parking Requirements

Cape Peron is predominantly zoned as 'Parks and Recreation' with a small portion zoned 'Public Purposes (Special Uses)' under the Metropolitan Region Scheme. The City of Rockingham Town Planning Scheme No. 2 does not define any parking requirements for either of these zones.

6.1.2 Existing Parking Bays

There are several existing car parks in Cape Peron:

- Four small car parks at the end of Point Peron Road with a total of 95 bays including 4 ACROD bays;
- Designated parallel parking bays providing space for up to 8 vehicles; and
- Point Peron Boat Ramp car park with 230 trailer bays including 3 ACROD bays.

Parking in Cape Peron been observed to operate at an average 80% occupancy which indicates that there is a high demand for parking. As shown in **Figure 33**, the current car parks often reach full capacity during peak times, which has led to vehicles parking informally on the verges. To address the demand for parking, potential locations for additional bays are explored in the following Sections.

Figure 33 Example of Insufficient Parking Supply during Peak Times

Source: Metromap (image date: 16/01/2022)

6.2 Potential Additional Parking Locations

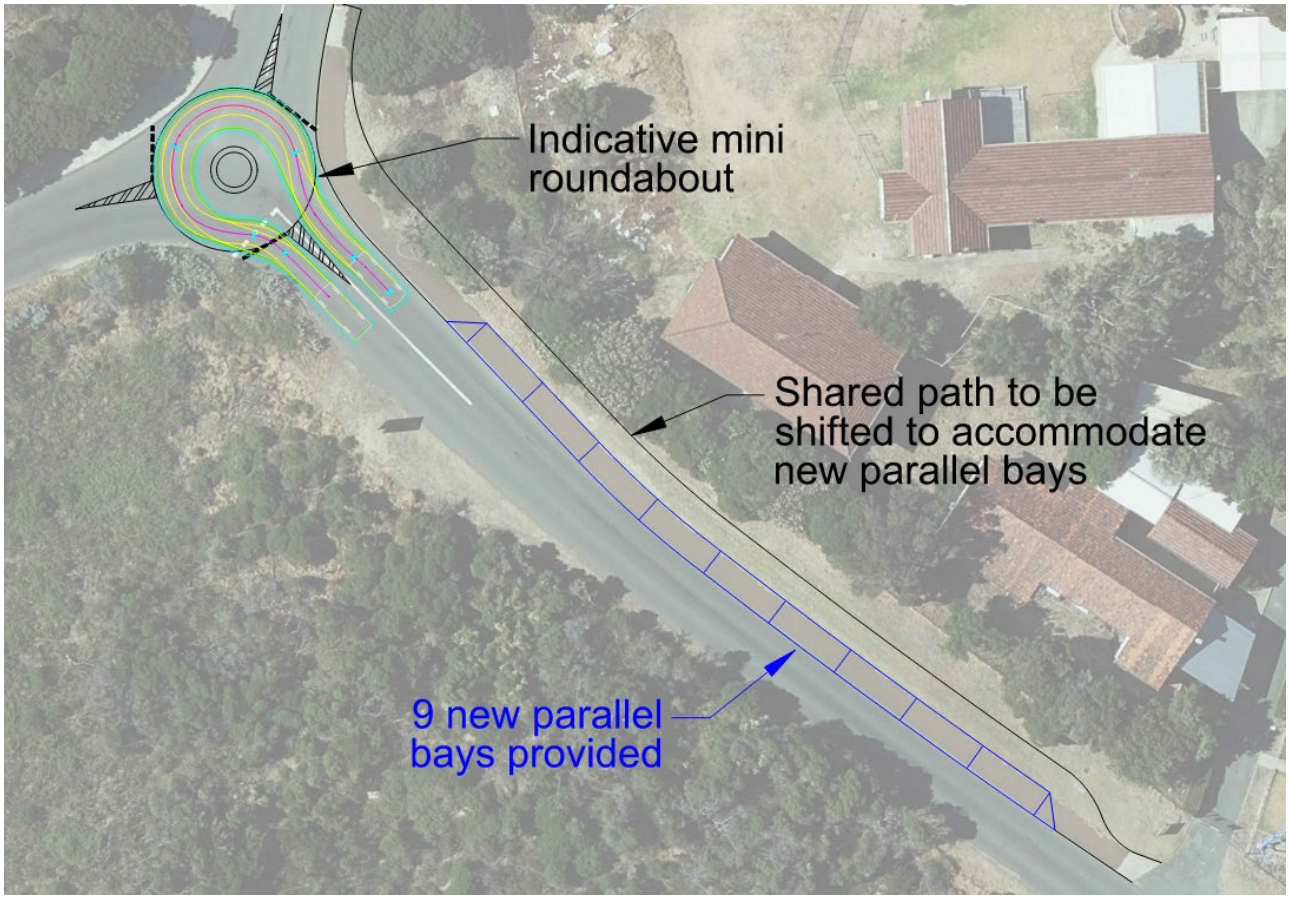
Cape Peron faces significant limitations in terms of land availability for parking development due to its status as a Bush Forever site with regionally significant vegetation. Additionally, most of the western end of Point Peron Road remains un-gazetted and is unlikely to change in the foreseeable future. As a result, there are few opportunities to create additional formal parking in this area.

However, through careful design, it may be possible to mitigate some of the limitations. One potential option for additional parking where informal parking has already been observed, situated across from the existing formal verge parking. This area has limited vegetation and could be suitable for the development of 7 additional parallel parking bays, as shown in **Figure 34**.

Figure 34 Potential Parking Location 1

There is also the potential to move the current shared path north of Point Peron Road to accommodate new parallel bays along the eastbound side. However, as vehicles entering the area will come from the eastern side, a U-turn facility will be required for the vehicles to turn around and access the parking bays. The additional parallel parking bays are shown in **Figure 35**, with a mini roundabout suggested as the U-turn facility. The mini roundabout is proposed to include a solid central island or raised dome to prevent vehicles illegally driving through the centre of the roundabout.

Figure 35 Potential Parking Location 2



Note: The diagrams provided above are only provided for illustrative purposes and are subject to detailed design drawing if construction is progressed.

Any parking improvements in this area are at the discretion of Department of Biodiversity, Conservation and Attractions.

In addition to the suggested locations for additional parking bays, Stantec suggested that some of the existing boat-trailer parking bays at the Point Peron Boat Launching Facility are converted to standard car parking bays as these bays appeared to be under-utilised for the majority of the year. However, the City advised that as there is insufficient trailer parking at Palm Beach Boat Ramps, Bent Street Boat Ramp, Donald Drive Boat Ramp and Carlisle Street Boat Ramp, and that one of the City's strategies to manage this shortfall is to advise boaters to utilise the Point Peron Boat Ramp Facility as it has the number of ramp lanes and trailer parking to meet peak demand. As such, this option was not pursued further.

7. Traffic Modelling

7.1 Introduction

7.1.1 Overview

Stantec undertook a traffic modelling exercise utilising the Cape Peron Aimsun micro-simulation model (refer to **Appendix C**) to assess the operational impacts associated with the future traffic demands, in conjunction with SIDRA intersection models, for a number of potential road network and intersection options within the study area. The Aimsun models were prepared for daily, AM peak and PM peak time periods, while the SIDRA models were only developed for the AM and PM peak hours.

7.1.2 Model Details

The Cape Peron Aimsun micro-simulation model extents and time periods are outlined in this section, noting further details on the base model development can be found in **Appendix C**.

7.1.2.1 Model Extents

The model extents for traffic modelling is illustrated in **Figure 36** and **Figure 37.**

Figure 36 Base Study Area

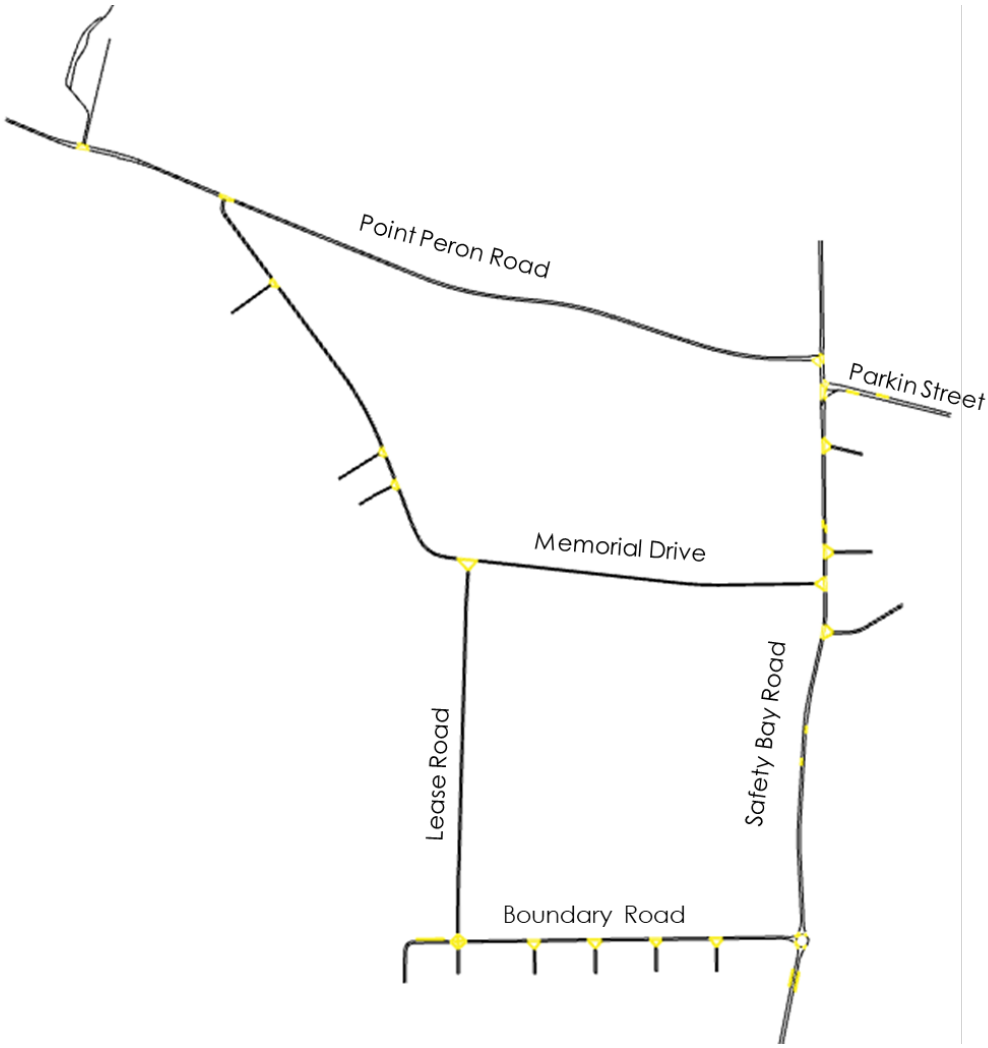


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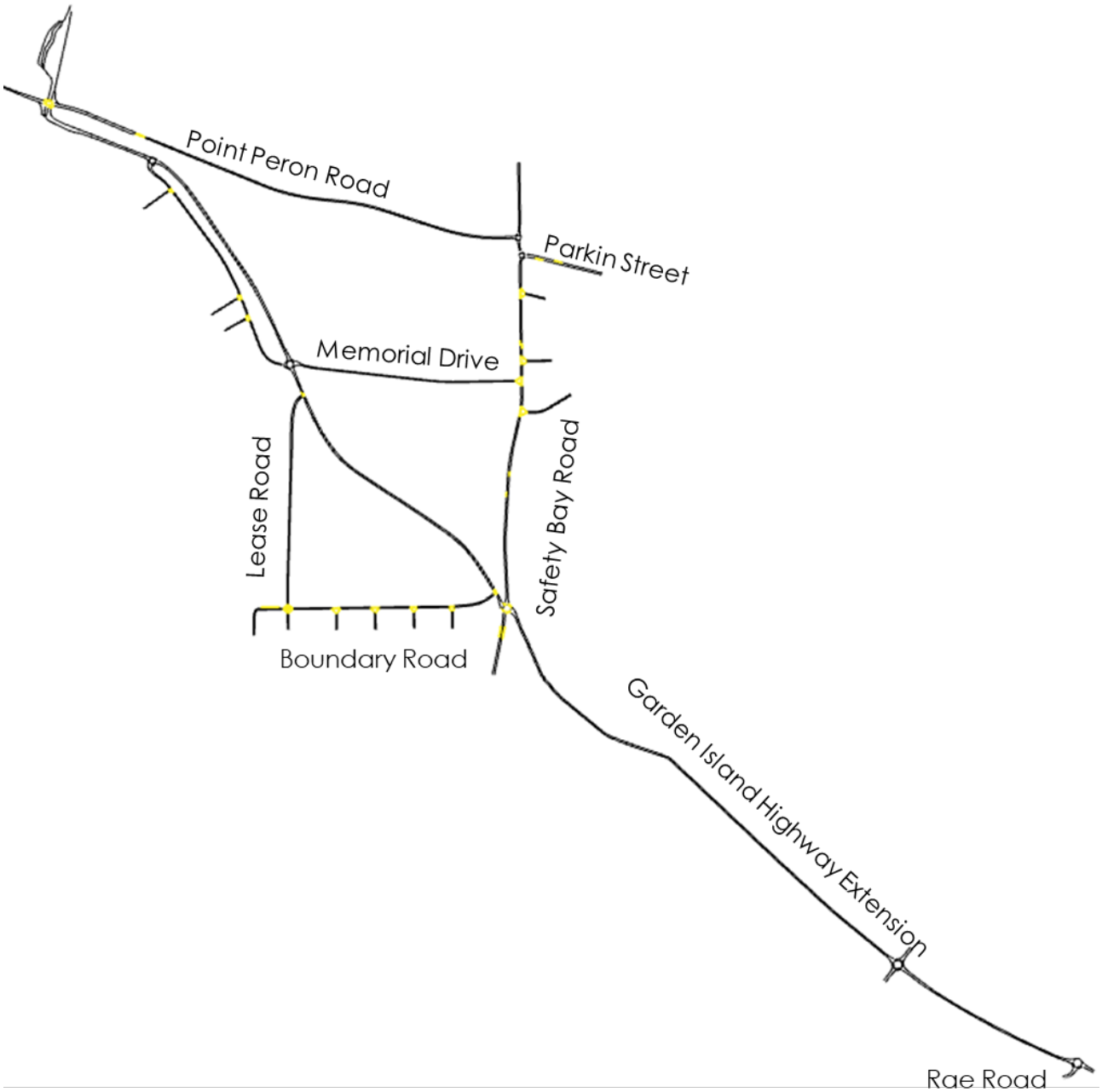
Figure 37 With Garden Island Highway Extension Study Area



7.1.2.2 Safety Bay Road / Boundary Road / Garden Island Highway Extension Connection

The purpose of the modelling for these scenarios is to investigate the traffic impacts of introducing the Garden Island Highway Extension. The concept layouts shown in this section have been prepared on a conceptual basis to inform future decisions.

The proposed Garden Island Highway Extension is to intersect with the existing Safety Bay Road / Boundary Road roundabout which exhibits some constraints. The addition of the Garden Island Highway connections to the existing roundabout will result in an undesirable 5 legs; 5 legs will require a larger intersection layout and as per the Austroads *Guide to Traffic Management: Part 6* more than 4 legs to a multi lane roundabout can cause driver confusion for the appropriate lane choice. Furthermore, the road reservation and 'Class A' reserve surrounding the intersection limits a proposed intersection layout.

For this study the following layouts have been assumed for the Garden Island Highway Extension single lane and dual lane scenarios in **Figure 38** and **Figure 39** respectively. **Figure 38** and **Figure 39** provide a 4 leg roundabout for the Garden Island Highway and Safety Bay Road, with Boundary Road connecting to the Garden Island Highway via a priority controlled intersection. The proposed layouts are noted to encroach onto the 'Class A' reserve with the Boundary Road connection to the north-west as well as the residential land in **Figure 39** to the south-west.

The detailed design of each proposed connection is to be explored and undertaken separately, as it is outside the scope of the Cape Peron Transport Needs Study to do so.

To advance the next stages of the project, the following observations are made to the proposed layouts identified in **Figure 38** and **Figure 39**:

- Adjusting Boundary Road to become one-way in the westbound direction between First Avenue and Safety Bay Road has the potential to reduce the intersection layout footprint with minimal traffic impacts. With the one way road creating an additional exit lane at the Garden Island Highway / Safety Bay Road roundabout removing the unsignalised T-intersection with Garden Island Highway.
- If maintaining the layout presented is preferred, it is recommended to explore potential lane rezoning for the encroaching areas – which will be subject to a detailed design.

Figure 38 Safety Bay Road / Boundary Road / Garden Island Highway Extension (single lane) Connection

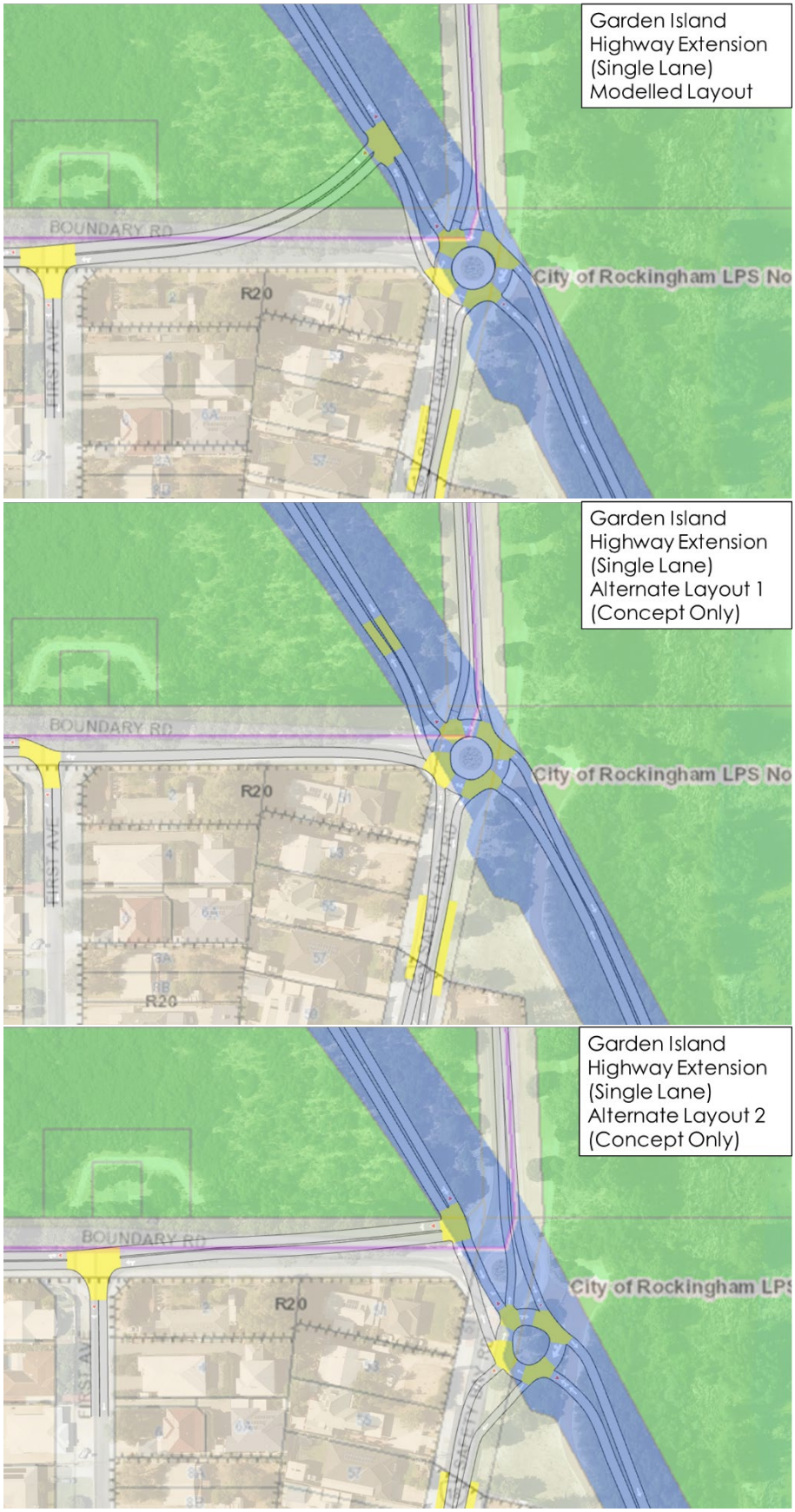
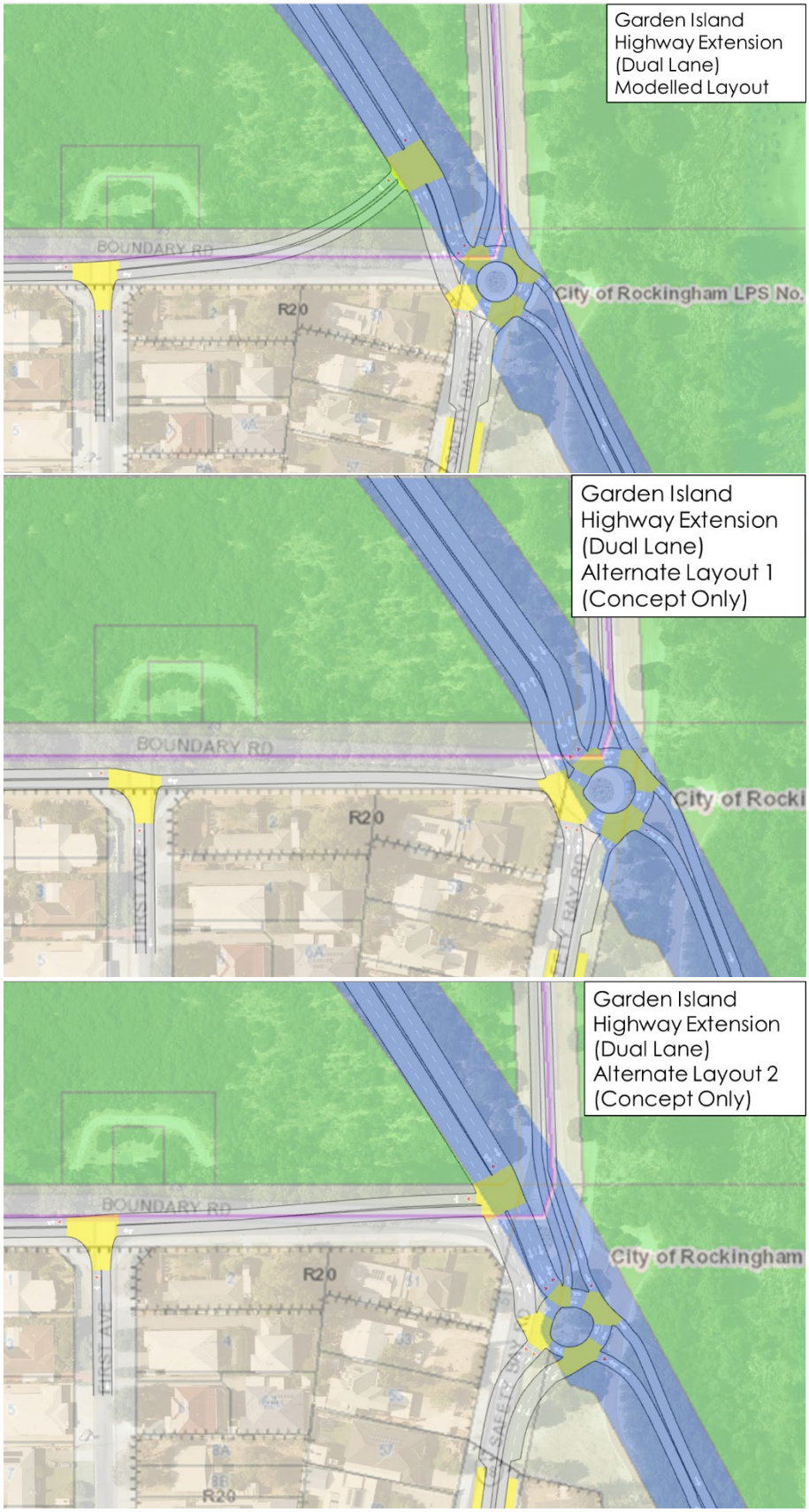


Figure 39 Safety Bay Road / Boundary Road / Garden Island Highway Extension (dual lane) Connection



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Given the close proximity of the Boundary Road connection with the Garden Island Highway / Safety Bay Road roundabout it is suggested to close Boundary Road between First Avenue and Safety Bay Road. The small volume of trips utilising this link can be re-routed via First Avenue, Fifth Avenue and Liverpool Street as well as other local roads.

7.1.2.3 Time Period

Three modelling time periods were assessed in this study: Whole day weekday, Weekday AM peak and Weekday PM peak. For the whole day weekday model, the time period considered was 23 hours as Aimsun only allows model time periods within the same day. It is noted that the traffic counts for 23:00 – 24:00 represent less than 1% of the total daily traffic volumes and therefore only have a negligible impact on the model.

For each peak period, a 'warm-up' period of 30 minutes was added before the modelled peak period and a 'cooldown' period of 30 mins after the peak period, with overall modelled periods as follows.

- Whole Day Weekday 00:00 to 23:00
- Weekday AM
  - AM warm-up 06:00 to 06:30
  - AM peak period 06:30 to 07:30
  - AM cooldown 07:30 to 08:00
- Weekday PM
  - PM warm-up 14:45 to 15:15
  - PM peak period 15:15 to 16:15
  - PM cooldown 16:15 to 16:45

7.1.3 Modelled Scenarios

The modelled scenarios centre around options with and without the Garden Island Highway extension, proposed alignment illustrated in **Figure 4**, with associated mitigation measures adopted to accommodate future year demands. A summary of the modelled scenarios is detailed in **Table 2**.

Table 2 Scenario Summary

Scenario No.		Garden Island Highway	Year	GIH / Point Peron Road / HMAS Stirling entrance intersection	Point Peron Road / Safety Bay Road / Hymus Street and Parkin Street / Safety Bay Road	HMAS Stirling Entry	HMAS Stirling Causeway
1.0		Without	2023	Priority controlled T-intersection	Priority controlled staggered T-intersections	2 entry gates	Single lane
2.	0		2030	Priority controlled T-intersection	Priority controlled staggered T-intersections	2 entry gates	Single lane
2.	3a			3-way roundabout	Dual staggered roundabouts	3 entry gates	Single lane
2.	3b			3-way roundabout	Single 4-way roundabout	3 entry gates	Single lane
3.	0		2040	Priority controlled T-intersection	Priority controlled staggered T-intersections	2 entry gates	Single lane

Scenario No.		Garden Island Highway	Year	GIH / Point Peron Road / HMAS Stirling entrance intersection	Point Peron Road / Safety Bay Road / Hymus Street and Parkin Street / Safety Bay Road	HMAS Stirling Entry	HMAS Stirling Causeway
3.	3a			3-way roundabout	Dual staggered roundabouts	4 entry gates	Dual Lane
3.	3b			3-way roundabout	Single 4-way roundabout	4 entry gates	Dual Lane
2.	1a	Single Lane	2030	4-way roundabout	Dual staggered roundabouts	3 entry gates	Single lane
2.	1b			4-way roundabout	Single 4-way roundabout	3 entry gates	Single lane
2.	2a			4-way signalised intersection	Dual staggered roundabouts	3 entry gates	Single lane
2.	2b			4-way signalised intersection	Single 4-way roundabout	3 entry gates	Single lane
3.	1a	Dual Lane	2040	4-way roundabout	Dual staggered roundabouts	4 entry gates	Dual Lane
3.	1b			4-way roundabout	Single 4-way roundabout	4 entry gates	Dual Lane
3.	2a			4-way signalised intersection	Dual staggered roundabouts	4 entry gates	Dual Lane
3.	2b			4-way signalised intersection	Single 4-way roundabout	4 entry gates	Dual Lane

7.1.4 Transport Modelling Reporting Outline

The suite of options modelled for the Cape Peron Transport Needs Study has been reported in the following format.

- **Section 7.2 - Without Garden Island Highway Extension (1.0, 2.0, 2.3a, 2.3b, 3.0, 3.3a and 3.3b):** Base Scenario, Do Nothing and Do Nothing with mitigation measures (2023, 2030 and 2040 design years)
- **Section 7.3 - With Garden Island Highway single lane carriageway (2.1a, 2.1b, 2.2a and 2.2b):** 2030 design year
- **Section 7.4 - With Garden Island Highway dual lane carriageway (3.1a, 3.1b, 3.2a and 3.2b):** 2040 design year

7.1.5 Modelled Demands

The modelled demands are based on the estimated increase in HMAS Stirling base population, as provided by DoD, with the demands summarised in **Table 3.**

Table 3 Scenario Demands Summary

Scenario No.	Year	Garden Island Base Population	Increase from Base (2023)
2	2030	8,000	63%
3	2040	10,500	113%

The HMAS Stirling demands have been assigned to the network based on the base demand distributions. The trip distribution is summarised in **Table 4**:

Table 4 HMAS Trip Distribution Summary – Base Scenario

Type	Peak/ Direction	Entry %	Exit%
Entry/ Exit Movements	AM	92%	8%
	PM	7%	93%
Heavy Vehicle Percentage	AM	2%	
	PM	2%	
AM Trip Distribution	South (Safety Bay Road)	57%	67%
	East (Parkin Street)	43%	33%
PM Trip Distribution	South (Safety Bay Road)	50%	39%
	East (Parkin Street)	50%	61%

It is noted that the trip distribution has been adjusted for network changes based on Main Roads' Regional Operations Model (ROM24) outputs. ROM24 is Main Roads Western Australia's strategic transport model that covers the entire Perth metropolitan region from Yanchep to Mandurah. ROM24 is used to project travel demand patterns in Perth under different land use, transport and pricing scenarios. The trip distribution adjustments are detailed in each section accordingly.

7.1.6 Heavy Vehicle Impact

The heavy vehicle growth modelled in this assessment has been based on the HMAS Stirling base population increase, as per **Table 3,** with heavy vehicles accessing HMAS Stirling currently required to enter via local streets (Parkin Street and Safety Bay Road). Increase in heavy vehicle traffic along these local routes are likely to have a greater impact to the local amenity which is not captured in the modelling. Furthermore, the HMAS Stirling base population is derived from significant development on the site which will require additional heavy vehicles to facilitate the developments during construction.

The Garden Island Highway Extension provides an alternative route for heavy vehicle traffic away from local roads, as part of this assessment it has been assumed that 100% of heavy vehicles will be re-routed onto Garden Island Highway. However, as noted the local amenity impact will not be captured in this assessment.

7.1.7 Methodology

The traffic modelling for the Cape Peron study area was completed through the following two stages:

- **Aimsun Micro-simulation Assessment**: Each option was modelled in the Aimsun micro-simulation model to assess the network operational performance with a particular focus on the level of queuing observed throughout the simulation. The modelled scenarios adopted the same assumptions and parameters outlined in the Aimsun Base Model Development Report (**Appendix C**),noting that the following traffic assignment type process has been followed:
  - Static equilibrium (MACRO) assignment using static traffic model
  - Dynamic User Equilibrium (DUE) assignment using the mesoscopic simulator
  - Stochastic assignment using microscopic simulator
- **SIDRA Intersection Analysis**: Key intersections within the Cape Peron study area were analysed in SIDRA utilising the volume outputs from the Aimsun micro-simulation model in stage 1. The SIDRA outputs focused on the Level of Service; the key intersections assessed were as follows:
  - Point Peron Road / HMAS Stirling entrance intersection
  - Memorial Drive / Point Peron Road intersection

- Safety Bay Road / Point Peron Road intersection
- Safety Bay Road / Parkin Street intersection
- Safety Bay Road / Memorial Drive intersection
- Lease Road / Memorial Drive intersection
- Lease Road / Boundary Road intersection
- Safety Bay Road / Boundary Road intersection

7.1.8 Performance Metrics

7.1.8.1 Network Average Speed Plots (Aimsun Assessment)

Average speed plots for the key peak hour in each peak have been illustrated to visualise the general network operation. These are useful in understanding the propagation of queues and delays that are expected on the road network, as well as identifying areas that may experience high levels of congestion.

It is noted that the plots reflect the average speed (in km/h) of all road sections across the reported peak hour and based on the colour scale outlined in **Table 5**.

Table 5 Average Speed Classification

Colour	Average Speed (km/h)	Definition
	0km/h to 10km/h	Queues formed (standstill and rolling)
	10km/h to 20km/h	
	20km/h to 30km/h	
	30km/h to 40km/h	
	40km/h to 50km/h	
	50km/h to 60km/h	
	60km/h to 80km/h	
	80km/h to 100km/h	
	Greater than 100km/h	Free flow conditions

7.1.8.2 Network Statistics (Aimsun Assessment)

Network performance results have been extracted from the model which represent the overall network operating performance across all roads and links in the model network. As such, this enables an understanding of the overall performance impacts of future year traffic across the broader road network.

The following key network performance metrics have been extracted from the model for comparative purposes:

- Vehicle Kilometres Travelled – VKT (km) – total travelled distance of all vehicles during the simulation period.
- Vehicle Hours Travelled – VHT (h) – total travel time of all vehicles during the simulation period.
- Average Speed (km/h) – average speed of all vehicles during the simulation period.
- Delay (sec/km) – average delay of all vehicles during simulation period per unit distance.
- Vehicles Outside (vehicles) – completed vehicles trips.

- Average Journey Time (s) – average journey time of completed vehicle trips within study area (VHT/completed trips).
- Total Traffic Demand (vehicles) – all vehicle trip demands for peak period.
- Latent Demand (vehicles) – represents unreleased demand into the network at the end of the simulation period.

7.1.8.3 Intersection Level of Service Performance Criteria (SIDRA Assessment)

The intersection Level of Service (LOS) is a qualitative measure describing operational conditions within a traffic stream and perception by motorists and/or passengers. The different levels of service can generally be described as shown in **Table 6**. The LOS of key intersections were compared during the assessment of the various scenarios to aid in determining the effects of the options.

Table 6 LOS Performance Criteria

LOS	Description	Signalised Intersection	Roundabouts	Unsignalised Intersection
A	No or minimal delays (best condition). Queues are rarely more than one vehicle	≤10 sec	≤10 sec	≤10 sec
B	Short traffic delays. Occasionally more than one queued vehicle.	10-20 sec	10-20 sec	10-15 sec
C	Average traffic delays. Often more than one queued.	20-35 sec	20-35 sec	15-25 sec
D	Long traffic delays. Regularly more than one queued vehicle.	35-55 sec	35-50 sec	25-35 sec
E	Very long traffic delays. Traffic demand is near or equal to the practical capacity of the intersection. Almost always more than one queued vehicle.	55-80 sec	50-70 sec	35-50 sec
F	Forced flow conditions with extensive delays caused by geometric and/or operational constraints external to the intersection.	≥80 sec	≥70 sec	≥50 sec

Source: Highway Capacity Manual, 1997

The weighted average of the delays computed from all the turns was used as the basis of the intersection LOS of signalised intersections and roundabout while the weighted average of the delays computed from yielding/stopping turns was used as the basis of the intersection LOS of priority and stop controlled intersections.

7.1.9 Additional Modelling Assumptions

- All Aimsun results presented in this report are the average of 5 seeds scenario runs.
- Trip redistribution due to the introduction of the Garden Island Highway has been based on the percentage shifts calculated from the ROM24, as supplied by MRWA. The details of the demand shift is detailed in **Section 7.3** and **Section 7.4**.
- As part of the SIDRA base model development, adjustments were made to the Parkin Street / Safety Bay Road intersection gap acceptance parameters to calibrate the intersection to the observed level of queuing. The default setting changes were applied in accordance with the MRWA Operational Modelling Guidelines with the following settings adjusted:
  - 'Apply TWSC Calibration' = turned off for the Parkin Street approach
  - Parkin Street right turn settings:
    i. 'Critical Gap' = 6 seconds
    ii. 'Follow-up Headway' = 3 seconds

- Volumes input into SIDRA from Aimsun were based on the final mitigation scenario to ensure the appropriate throughput through an intersection to accurately model the operation in SIDRA.

7.2 Without Garden Island Highway Extension

7.2.1 Overview

The Without Garden Island Highway Extension Scenarios encompass the 2023, 2030 / 2040 Do Nothing and 2030 / 2040 Do Nothing with Mitigation scenarios – as summarised in **Table 7**.

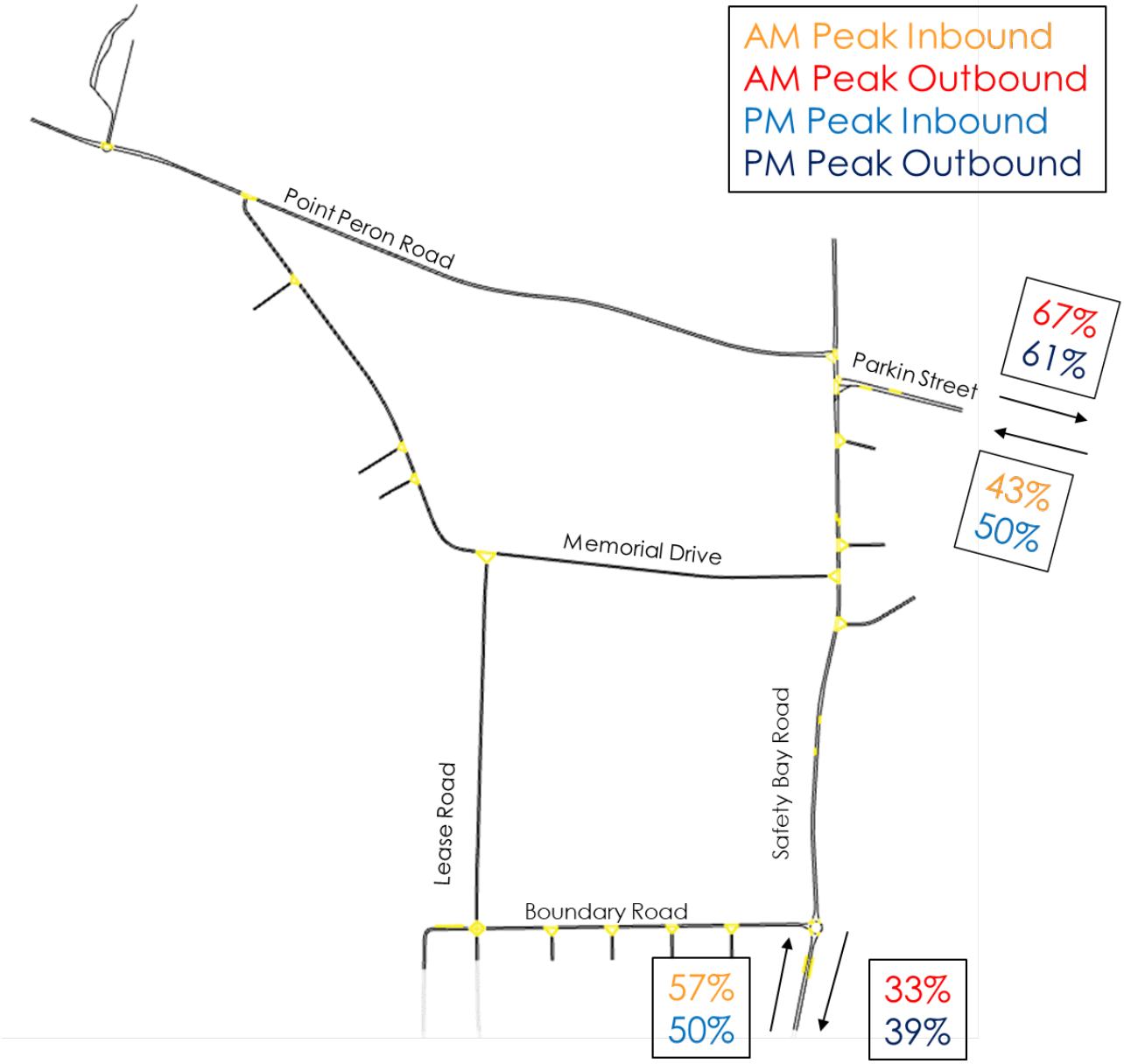
Table 7 Without Garden Island Highway Extension Scenario Summary

Scenario No.		Year	GIH / Point Peron Road / HMAS Stirling entrance intersection	Point Peron Road / Safety Bay Road / Hymus Street and Parkin Street / Safety Bay Road	Garden Island Highway	HMAS Stirling Entry	HMAS Stirling Causeway
1.0		2023	Priority controlled T-intersection	Priority controlled staggered T-intersections	-	2 entry gates	Single lane
2.	0	2030	Priority controlled T-intersection	Priority controlled staggered T-intersections	-	2 entry gates	Single lane
	3a		3-way roundabout	Dual staggered roundabouts	-	3 entry gates	Single lane
	3b		3-way roundabout	Single 4-way roundabout	-	3 entry gates	Single lane
3.	0	2040	Priority controlled T-intersection	Priority controlled staggered T-intersections	-	2 entry gates	Single lane
	3a		3-way roundabout	Dual staggered roundabouts	-	4 entry gates	Dual Lane
	3b		3-way roundabout	Single 4-way roundabout	-	4 entry gates	Dual Lane

7.2.2 Trip Distribution

The trip distribution for the HMAS Stirling development traffic has been based on the existing distribution as per **Figure 40**.

Figure 40 HMAS Stirling Trip Distribution



7.2.3 Do Nothing Scenarios (1.0, 2.0 and 3.0)

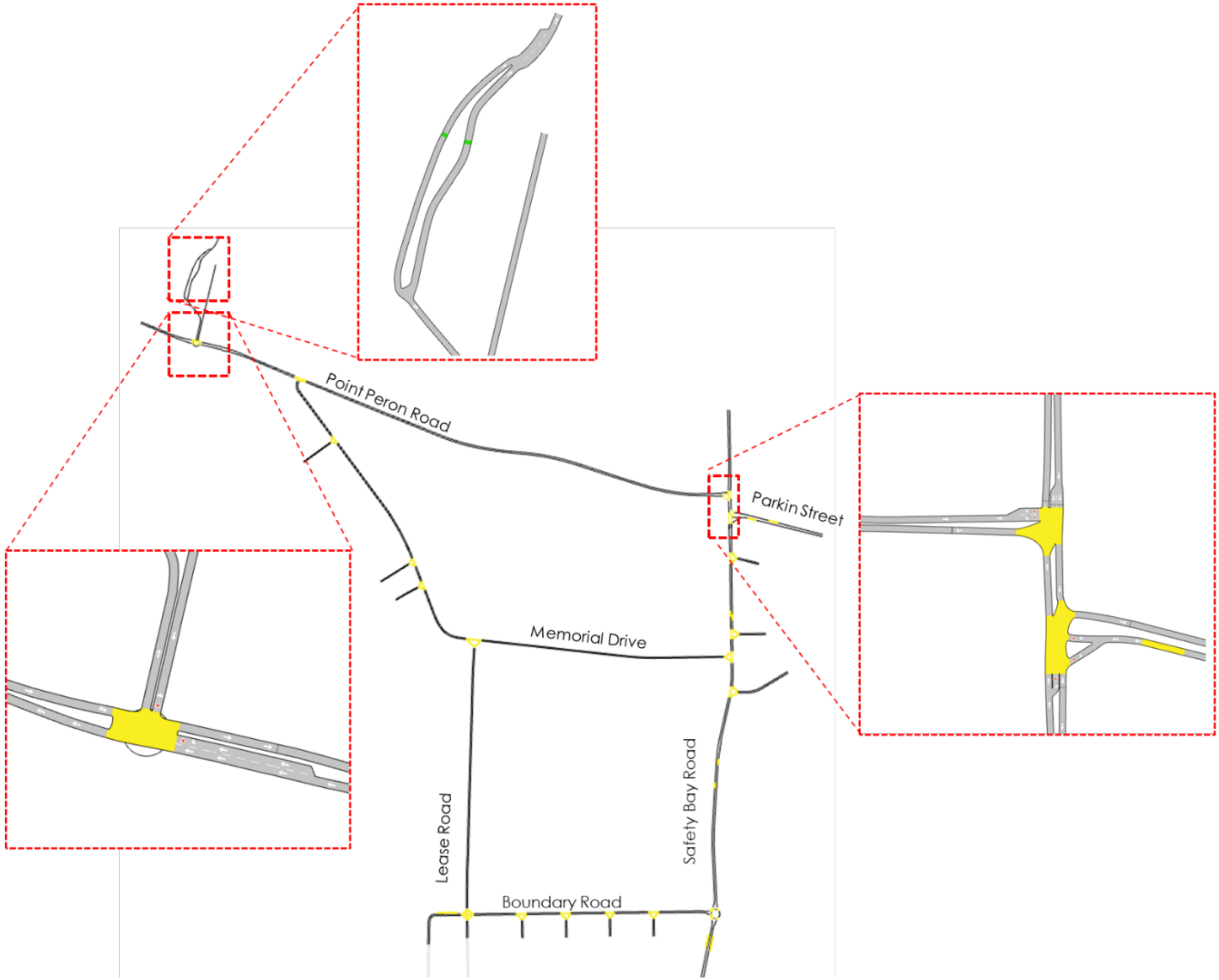
7.2.3.1 Aimsun Assessment

Model Layout

The modelled layout for the Do Nothing Scenarios, as outlined in **Table 7**, is illustrated in **Figure 41**.

REF: \\AU2011-NTAP01_CIFS02\SHARED_PROJECTS\304900950\5_TECHNICAL\TRAFFIC\REPORTING\003_TRANSPORT REPORT\REV C\CW1200595_304900950-TR-R003-C-TRANSPORT_REPORT_DRAFT_V5.DOCX

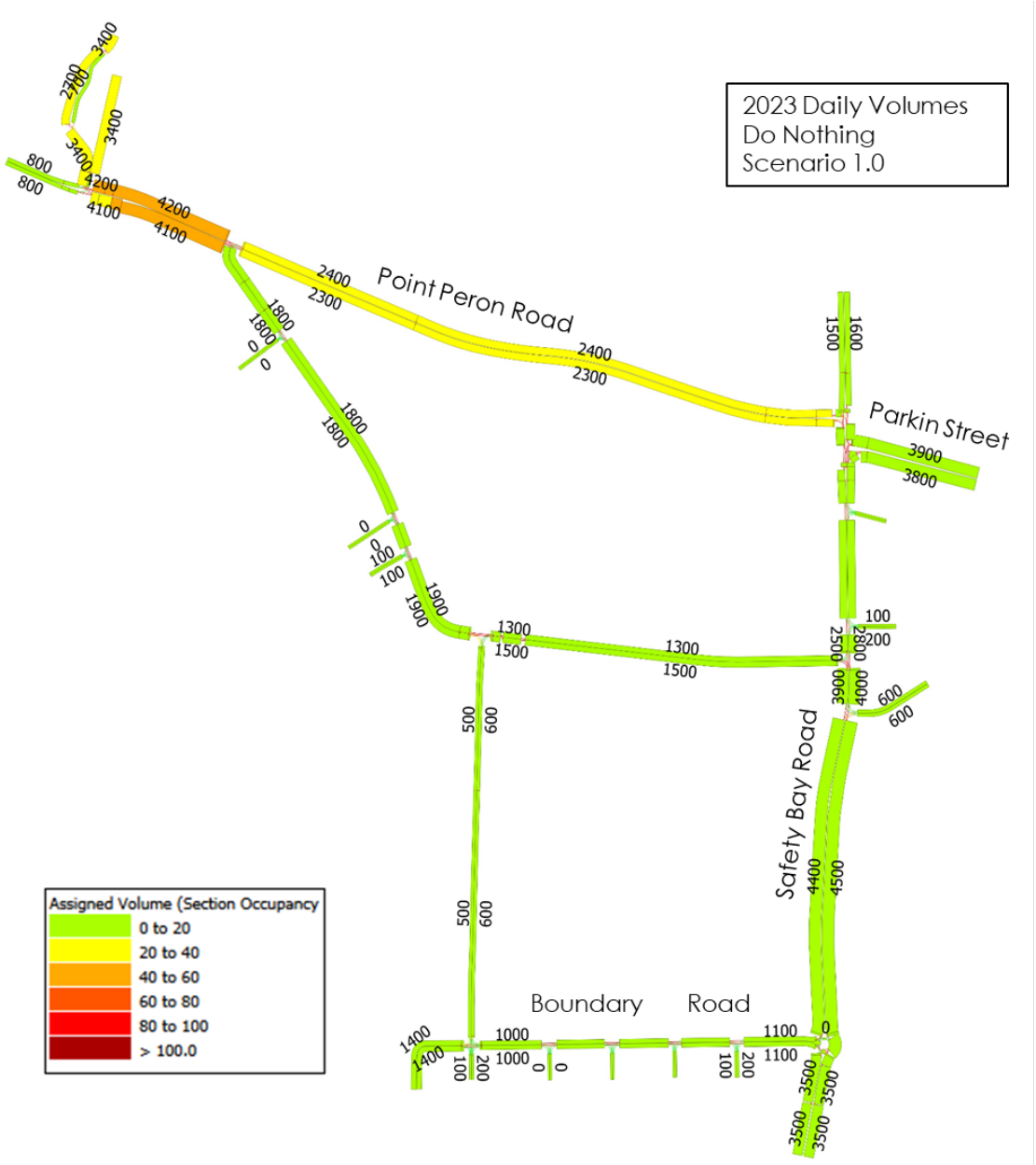
Figure 41 Do Nothing Layout



Daily Volume Plots

The Daily Volume plots for the Do Nothing scenarios are presented in **Figure 42** – Figure 44.

Figure 42 2023 Do Nothing Daily Volume Plot



REF: \\AU2011-NTAP01_CIFS02\SHARED_PROJECTS\304900950\5_TECHNICAL\TRAFFIC\REPORTING\003_TRANSPORT REPORT\REV C\CW1200595_304900950-TR-R003-C-TRANSPORT_REPORT_DRAFT_V5.DOCX

Figure 43 2030 Do Nothing Daily Volume Plot

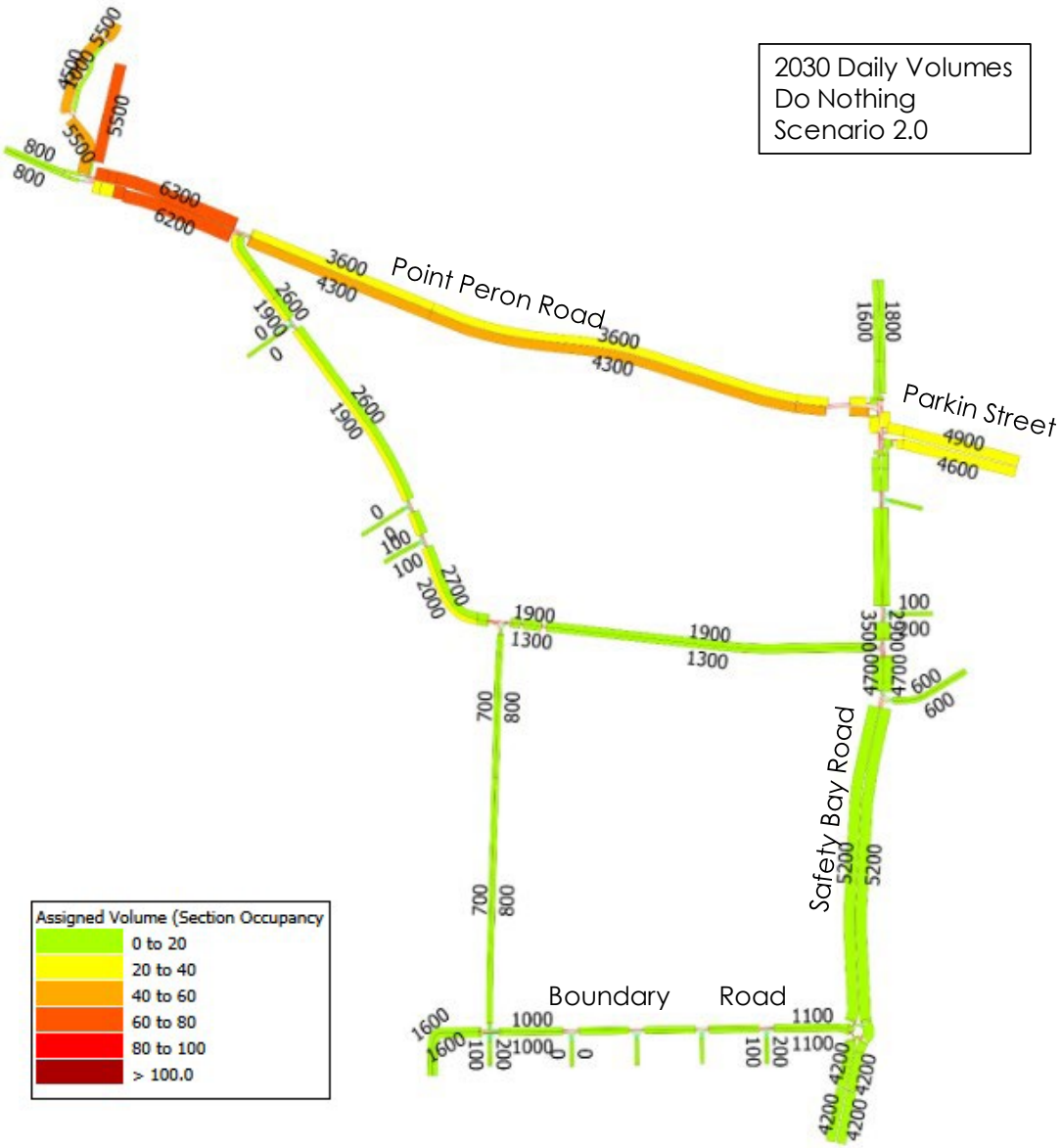


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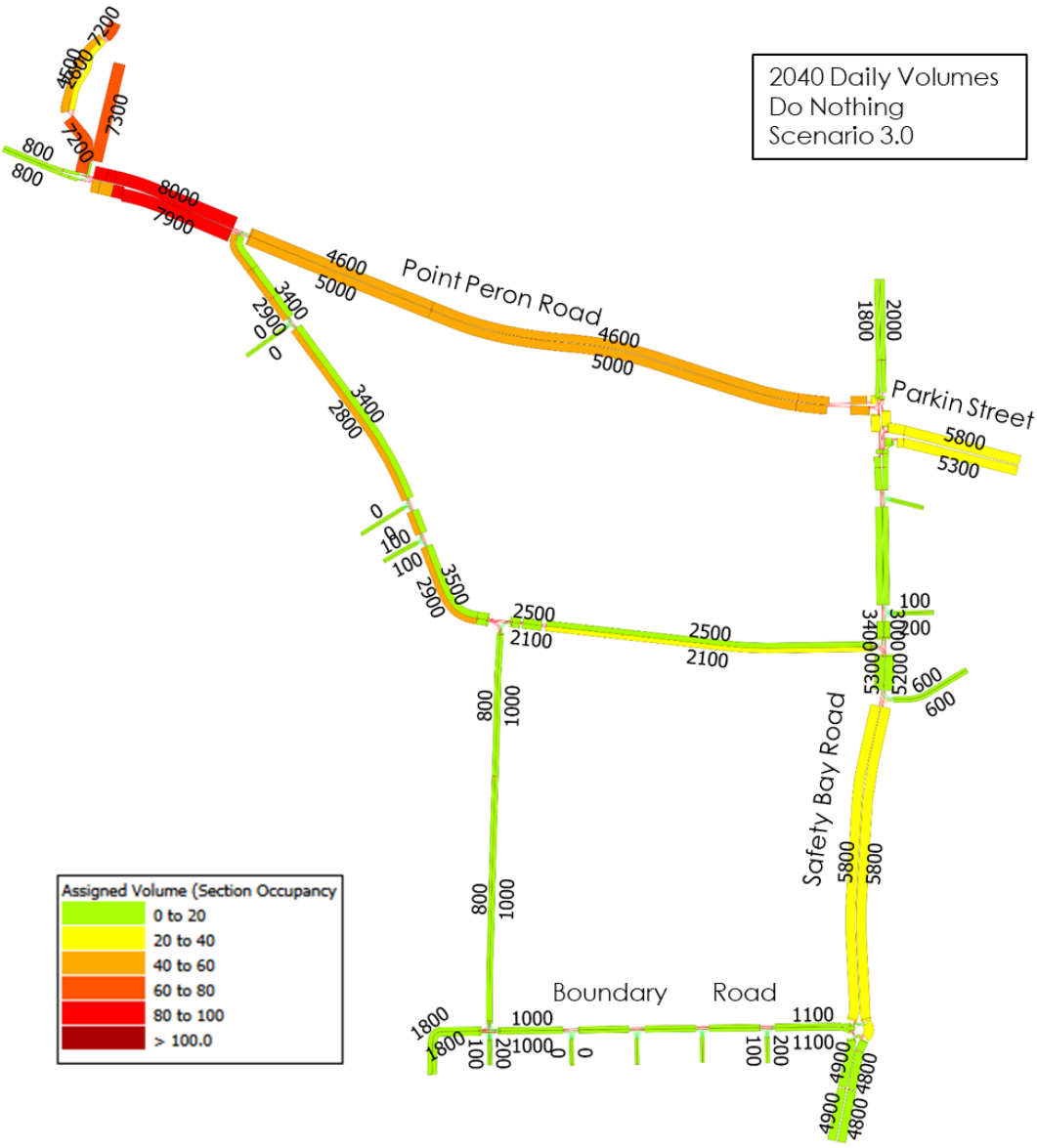
Figure 44 2040 Do Nothing Daily Volume Plot



REF: \\AU2011-NTAP01_CIFS02\SHARED_PROJECTS\304900950\5_TECHNICAL\TRAFFIC\REPORTING\003_TRANSPORT REPORT\REV C\CW1200595_304900950-TR-R003-C-TRANSPORT_REPORT_DRAFT_V5.DOCX

Average Speed Plots

The network average speed plots for the Do Nothing scenarios are presented in **Figure 45** - **Figure 47**.

Figure 45 AM and PM Peak Average Speed Plots – 2023 Do Nothing

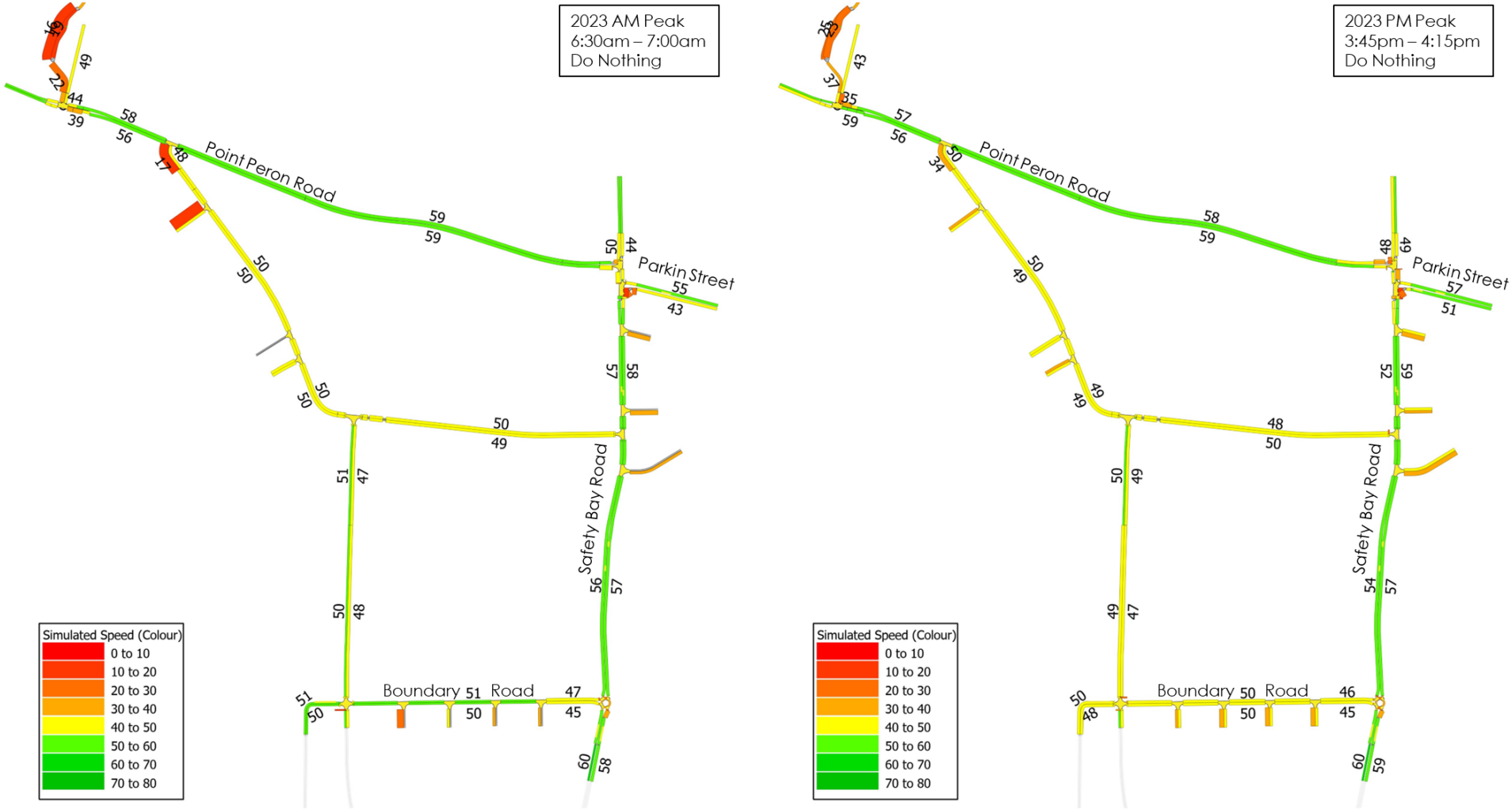


Figure 46 AM and PM Peak Average Speed Plots – 2030 Do Nothing

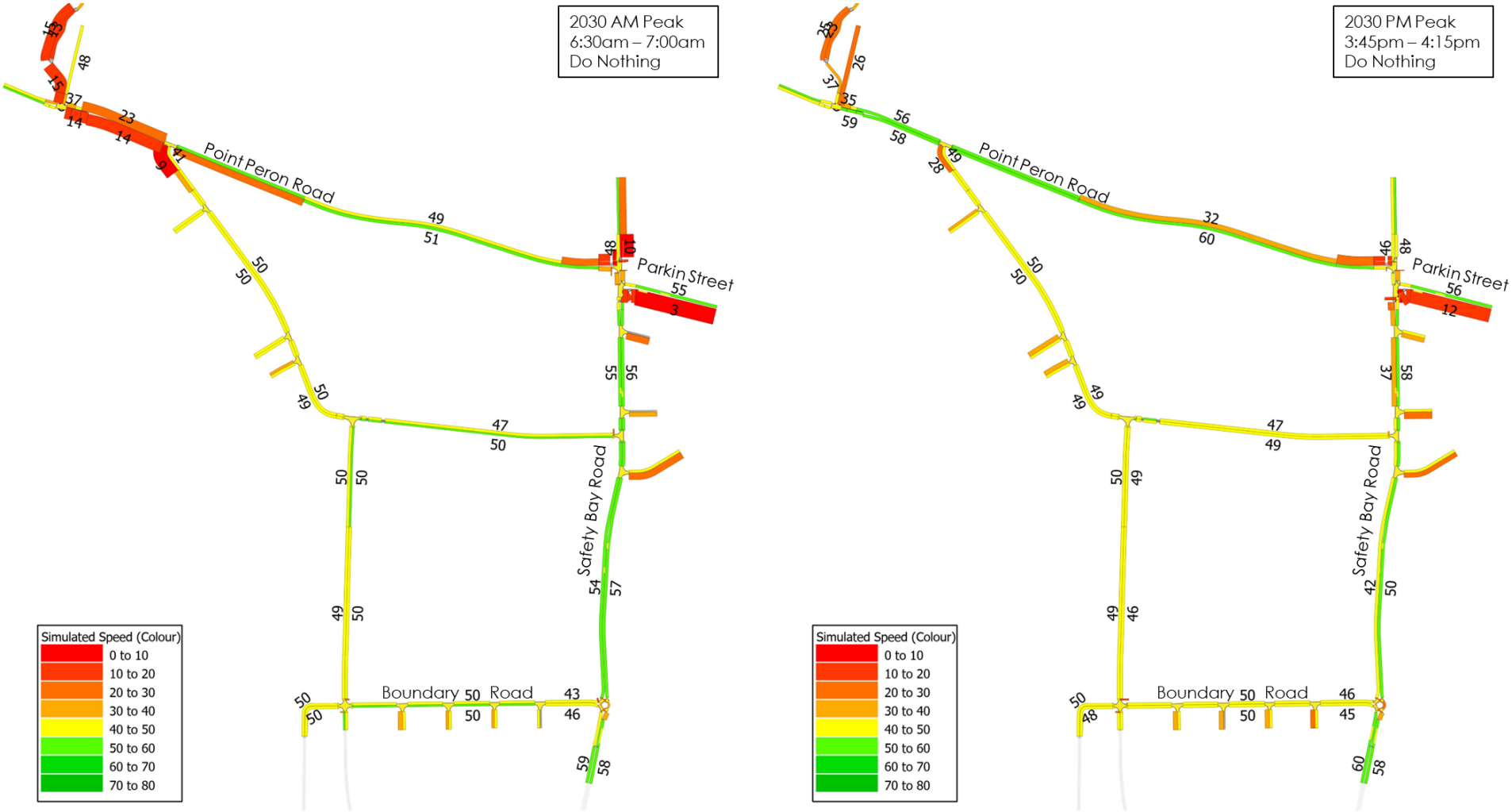
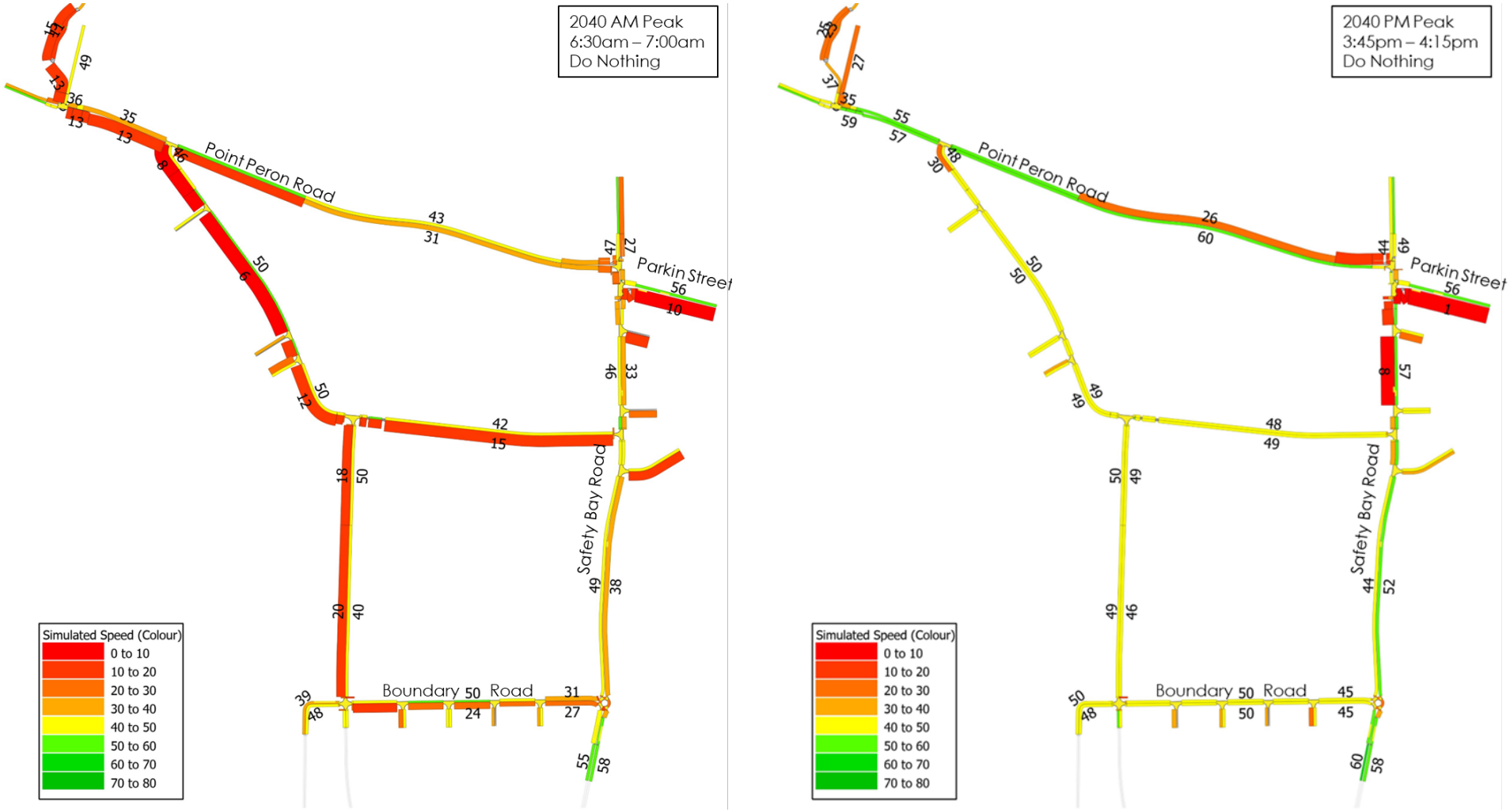


Figure 47 AM and PM Peak Average Speed Plots – 2040 Do Nothing



The key takeaways from the Average Speed plots are as follows:

- AM Peak:
  - In the 2023 Do Nothing scenario slow average speeds (43km/h) are recorded for the Parkin Street westbound movement onto Safety Bay Road. Memorial Drive also experiences slower speed with some queuing observed for vehicles accessing Point Peron Road.
  - The 2030 Do Nothing scenario demonstrates a strong increase in congestion resulting in slower speeds across the network, most notably:
    i. Parkin Street westbound movement onto Safety Bay Road (5km/h)
    ii. Memorial Drive entry onto Point Peron Road (1km/h)
    iii. Point Peron Road entry into HMAS Stirling (13km/h)
  - The 2040 Do Nothing scenario demonstrates further congestion building upon the 2030 scenario. Slow speeds are demonstrated to extend from the HMAS Stirling access back to Boundary Road and Safety Bay Road with the entire network impacted by the future year demands.
- PM Peak:
  - The 2023 Do Nothing scenario demonstrates minimal congestion, with average speeds recorded close to the posted speed limits.
  - The 2030 Do Nothing scenario demonstrates an increase in congestion surrounding the Point Peron Road / Safey Bay Road / Park Street intersections resulting in slower speeds across the immediate surrounding road network most notably:
    i. Point Peron Road westbound movement (32km/h)
    ii. Safety Bay Road northbound movement (37km/h)
    iii. Parkin Street westbound movement onto Safety Bay Road (12km/h)
  - The 2040 Do Nothing scenario exacerbates the congestion areas shown in the 2030 scenario with the average speeds expected to reduce further on key roads, most notably:
    i. Point Peron Road westbound movement (26km/h)
    ii. Safety Bay Road northbound movement (8km/h)
    iii. Parkin Street westbound movement onto Safety Bay Road (1km/h)

Network Statistics

The key network performance metrics have been summarised in **Table 8** and **Table 9** for the weekday AM and PM peak hours respectively. The definition of each performance metric has been included in **Section 7.1.8.2**.

Table 8 Weekday AM Peak Network Performance Results – Do Nothing Scenarios

Metric		2023 Do Nothing	2030 Do Nothing	2040 Do Nothing
Total Travelled Distance (VKT)	km	2,592	3,044	2,804
Total Travel Time (VHT)	h	61	121	184
Average Speed	km/h	43.6	31.4	24.9
Average Delay	sec	21	86	173
Completed Trips	no.	1,255	1,372	1,212
Average Journey Time	sec	176	317	547
Vehicles Waiting to Enter	no.	1	354	842

Table 9 Weekday PM Peak Network Performance Results – Do Nothing Scenarios

Metric		2023 Do Nothing	2030 Do Nothing	2040 Do Nothing
Total Travelled Distance (VKT)	km	2,738	3,634	2,978
Total Travel Time (VHT)	h	56	131	115
Average Speed	km/h	50.0	38.5	37.0
Average Delay	sec	7	72	88
Completed Trips	no.	1,521	1,911	1,556
Average Journey Time	sec	132	247	265
Vehicles Waiting to Enter	no.	0	106	687

The key takeaways from the network performance results as follows:

- AM Peak:
  - Significant reduction in network average speeds in 2030 (31.4km/h) and 2040 (24.9km/h) compared to the 2023 scenario (43.6km/h) - indicating increased levels of congestion.
  - The Completed Trips is demonstrated to increase from 2023 to 2030 by 118 vehicles; however, an overall reduction is observed in 2040 (-43 from 2023). This indicates that the 2040 scenario is operating well above capacity with vehicles stuck in the network and unable to complete their trip.
  - The Vehicles Waiting to Enter is recorded to increase from 1 in 2023 to 354 in 2030 to 842 in 2040. The increase demonstrates that the network is operating above capacity with an increasing number of vehicles unable to enter the network to due queueing and congestion.
- PM Peak:
  - A reduction in network average speeds in 2030 (38.5km/h) and 2040 (37.0km/h) compared to the 2023 scenario (50.0km/h) - indicating increased levels of congestion.
  - The Completed Trips is demonstrated to increase from 2023 to 2030 by 390 vehicles; however, only a slight increase observed in 2040 (35 from 2023). This indicates that the 2040 scenario is operating well above capacity with vehicles stuck in the network and unable to complete their trip.
  - The Vehicles Waiting to Enter is recorded to increase from 0 in 2023 to 106 in 2030 to 687 in 2040. The increase demonstrates that the network is operating above capacity with an increasing number of vehicles unable to enter the network to due queueing and congestion.

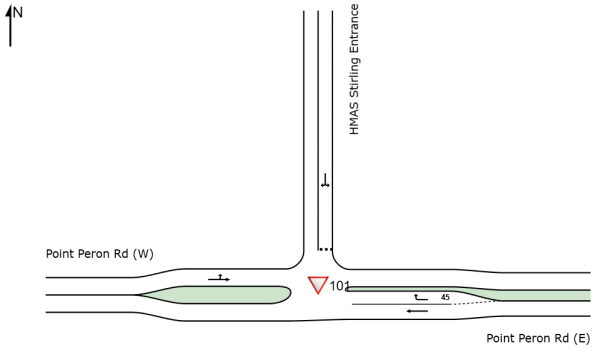
7.2.3.2 SIDRA Assessment

Model Layouts

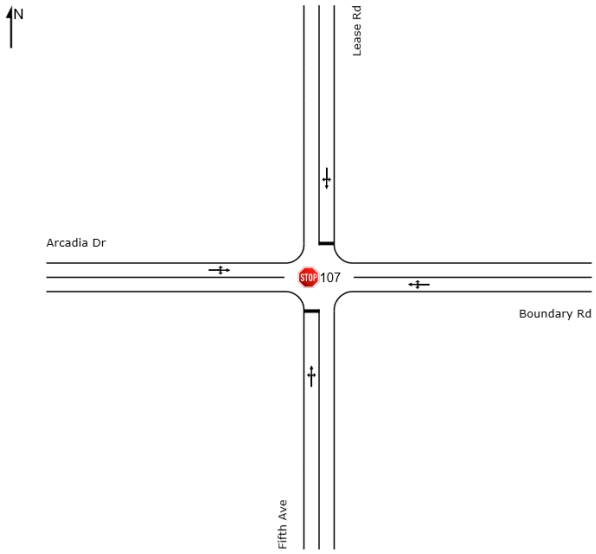
The Do Nothing SIDRA layouts are illustrated in **Figure 48**.

REF: \\AU2011-NTAP01_CIFS02\SHARED_PROJECTS\304900950\5_TECHNICAL\TRAFFIC\REPORTING\003_TRANSPORT REPORT\REV C\CW1200595_304900950-TR-R003-C-TRANSPORT_REPORT_DRAFT_V5.DOCX

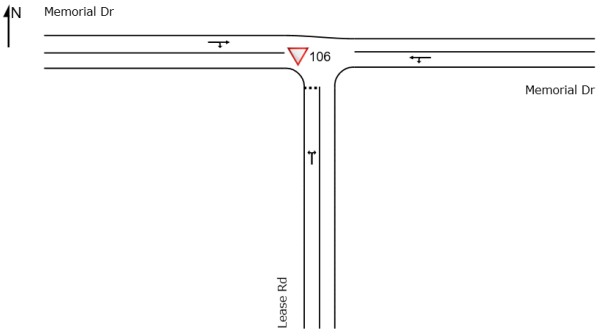
Figure 48 Do Nothing SIDRA Layouts



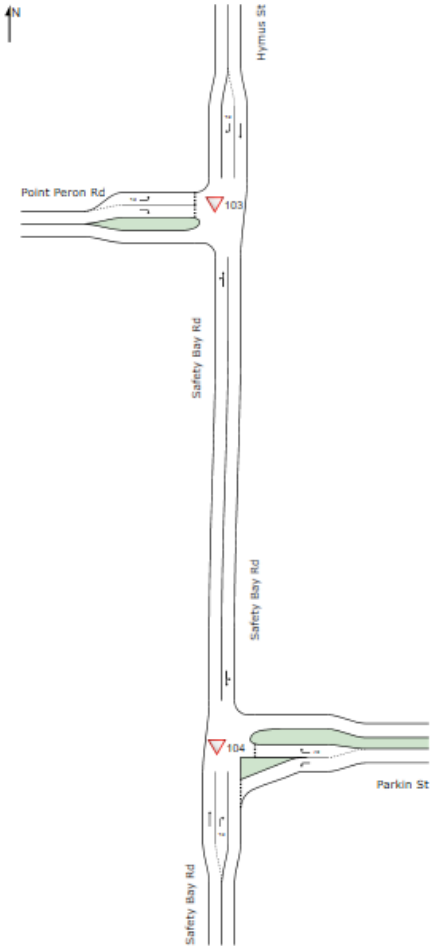
Point Peron Road / HMAS Stirling Entrance

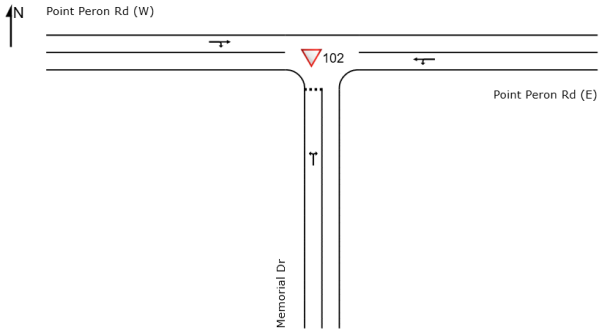


Boundary Road / Lease Road



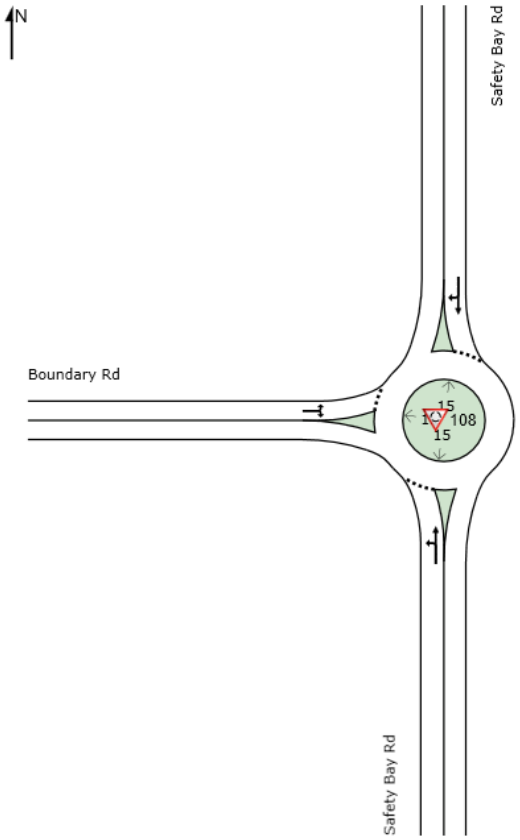
Memorial Drive / Lease Road



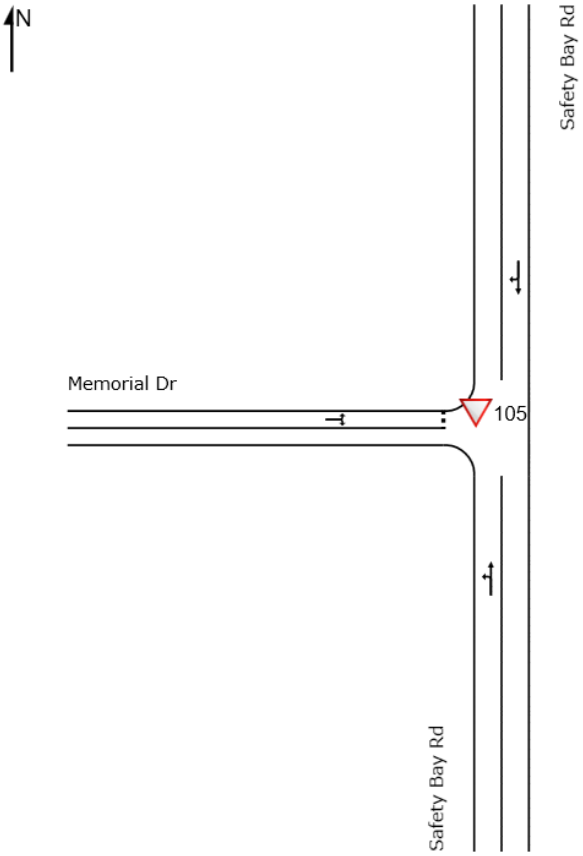


- Point Peron Road / Safety Bay Road / Hymus Street
- Safety Bay Road / Parkin Street

Memorial Drive / Point Peron Road



Safety Bay Road / Boundary Road



Memorial Drive / Safety Bay Road

Model Results

The Do Nothing AM and PM peak results for each scenario are presented in **Table 10** and **Table 11** respectively.

Table 10 Do Nothing SIDRA Results Summary – AM Peak

Intersection Name	2023 Do Nothing	2030 Do Nothing	2040 Do Nothing
Point Peron Road / HMAS Stirling Entrance	A	A	F
Point Peron Road / Safety Bay Road / Hymus Street[1]	B	B	C
Safety Bay Road / Parkin Street[1]	D	F	F
Safety Bay Road / Boundary Road	A	A	A
Boundary Road / Lease Road	A	A	A
Memorial Drive / Lease Road[1]	A	A	A
Memorial Drive / Point Peron Road	B	F	F
Safety Bay Road / Memorial Drive	A	B	C

REF: \\AU2011-NTAP01_CIFS02\SHARED_PROJECTS\304900950\5_TECHNICAL\TRAFFIC\REPORTING\003_TRANSPORT REPORT\REV C\CW1200595_304900950-TR-R003-C-TRANSPORT_REPORT_DRAFT_V5.DOCX

Table 11 Do Nothing SIDRA Results Summary – PM Peak

Intersection Name	2023 Do Nothing	2030 Do Nothing	2040 Do Nothing
Point Peron Road / HMAS Stirling Entrance	A	B	F
Point Peron Road / Safety Bay Road / Hymus Street[1]	B	F	F
Safety Bay Road / Parkin Street[1]	B	C	B
Safety Bay Road / Boundary Road	A	A	A
Boundary Road / Lease Road	A	A	A
Memorial Drive / Lease Road[1]	A	A	A
Memorial Drive / Point Peron Road	A	A	A
Safety Bay Road / Memorial Drive	A	B	A

1 These intersections were modelled as a network with the nearest intersection. The remaining intersections were modelled as isolated sites.

The SIDRA results indicate the following key takeaways:

- AM Peak
  - In 2023, all intersections are performing well however the Parkin Street right turn movement for the Safety Bay Road / Parkin Street intersection is observed to be operating close to capacity at LOS E with a 95th percentile queue of 114m.
  - In 2030, the Safety Bay Road / Parkin Street and Memorial Drive / Point Peron Road intersections are demonstrated to operate above capacity recording an LOS F.
  - In 2040, building on the 2030 Do Nothing scenario the Point Peron Road / HMAS Stirling Entrance is shown to exceed its capacity with LOS F recorded.
- PM Peak
  - In 2023, each intersection is recorded to perform well.
  - In 2030, the increased volume of traffic travelling eastbound from HMAS Stirling is shown to push the Point Peron Road / Safety Bay Road / Hymus Street intersection above its operating capacity recording a LOS F.
  - In 2040, building on the 2030 Do Nothing scenario the Point Peron Road / HMAS Stirling Entrance is shown to exceed its capacity with LOS F recorded.

It is recognised that as part of this study the queuing along Parkin Street is a prominent issue, **Table 12** summarises the recorded SIDRA 95th percentile queuing for the Do Nothing scenarios. The results demonstrates an exponential increase in queuing in the AM peak recording over 2,000m in 2030 and around 3,500m in 2040. In the PM peak queues are demonstrated to increase to over 200m and over 300m in 2030 and 2040 respectively.

Table 12 Do Nothing 95th Percentile Queing

95th Percentile Queue Lengths (m)	AM Peak			PM Peak		
	2023 Do Nothing	2030 Do Nothing	2040 Do Nothing	2023 Do Nothing	2030 Do Nothing	2040 Do Nothing
Safety Bay Road / Parkin Street east approach (Parkin Street)	114	2,266	3,499	6	211	318

REF: \\AU2011-NTAP01_CIFS02\SHARED_PROJECTS\304900950\5_TECHNICAL\TRAFFIC\REPORTING\003_TRANSPORT REPORT\REV C\CW1200595_304900950-TR-R003-C-TRANSPORT_REPORT_DRAFT_V5.DOCX

Summary

The Aimsun and SIDRA results presented in this section indicate the following:

- AM Peak:
  - The 2023 Do Nothing scenario demonstrates that the network operates well with some queuing and delays experienced on Parkin Street accessing Safety Bay Road.
  - The 2030 Do Nothing scenario is demonstrated to exceed the network capacity with increased congestion / queueing observed throughout the network (most notably Parkin Street, Point Peron Road and Memorial Drive) with queueing shown to cause vehicles to be unable to enter the network. The following intersections are recorded to fail (LOS F):
    i. Safety Bay Road / Parkin Street
    ii. Memorial Drive / Point Peron Road
  - The 2040 Do Nothing scenario experiences significant congestion across the network exacerbating the congestion experienced in the 2030 Do Nothing. Increased congestion, queueing and Vehicles waiting to enter the network are all shown with the following intersections recording a LOS F:
    i. Safety Bay Road / Parkin Street
    ii. Memorial Drive / Point Peron Road
    iii. Point Peron Road / HMAS Stirling Entrance
- PM Peak
  - The 2023 Do Nothing scenario demonstrates that the network operates well.
  - The 2030 Do Nothing scenario is demonstrated to exceed the network capacity with increased congestion / queueing observed on Point Peron Road with the key pinch point being the connection with Safety Bay Road and Parkin Street. The following intersections are recorded to fail (LOS F):
    i. Point Peron Road / Safety Bay Road / Hymus Street
  - The 2040 Do Nothing scenario experiences significant congestion across the network exacerbating the congestion experienced in the 2030 Do Nothing. Congestion, queueing and vehicles waiting to enter the network are all shown to increase with the following intersections recording a LOS F:
    i. Point Peron Road / Safety Bay Road / Hymus Street
    ii. Point Peron Road / HMAS Stirling Entrance

7.2.4 2030 Do Nothing with Mitigation Scenarios (2.3a and 2.3b)

As outlined in **Section 7.1.2**, significant congestion is observed in the Do Nothing scenarios in 2030. As such, mitigation measures have been implemented to accommodate the future year demands. The mitigation measures were developed based on an iterative process based on model operation.

7.2.4.1 Aimsun Assessment

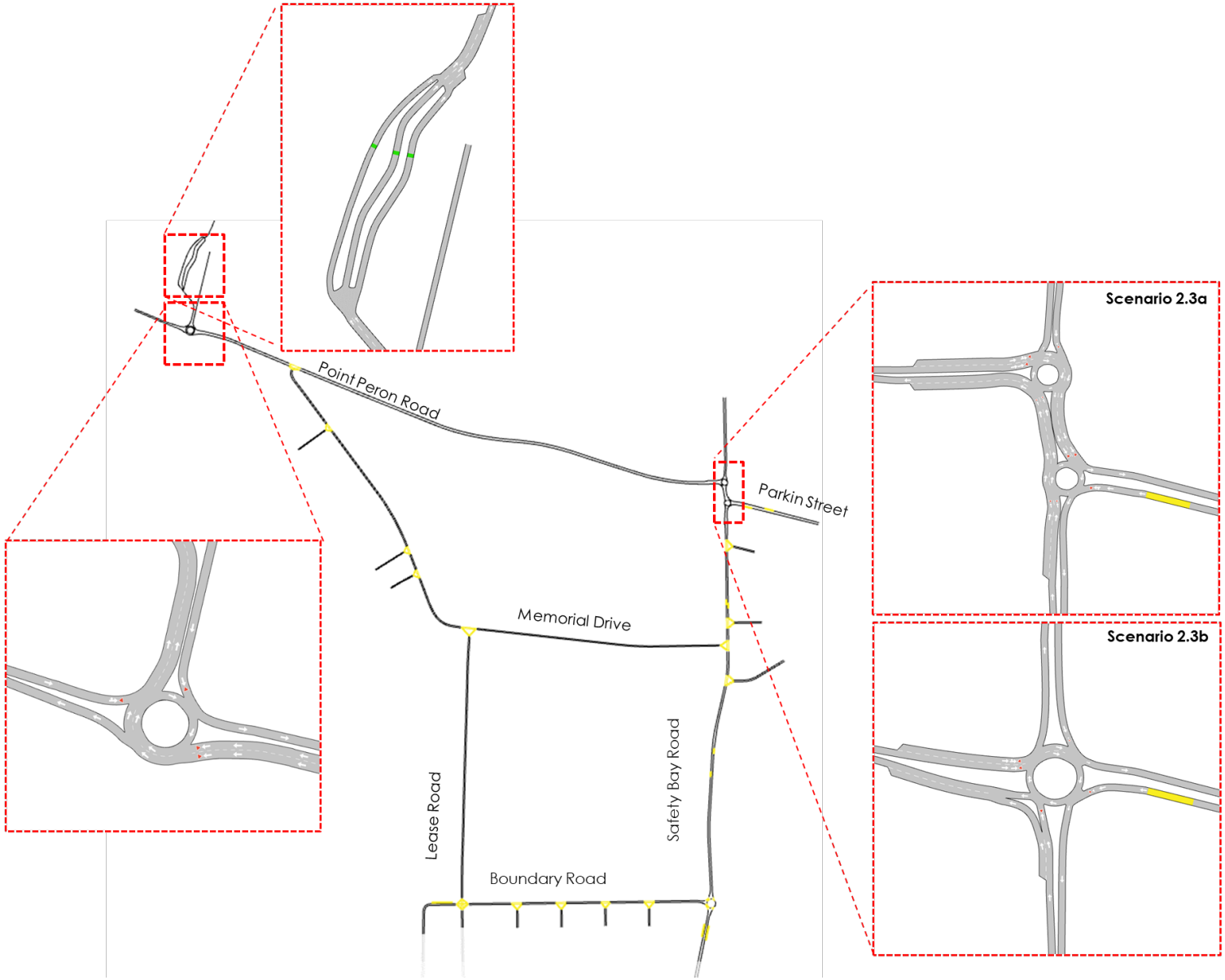
Model Layout

The modelled layout for the 2030 Do Nothing with Mitigation Scenarios, as outlined in **Table 7**, is illustrated in **Figure 49**. The following mitigation measures have been applied to the 2030 Do Nothing Scenario:

- Point Peron Road / HMAS Stirling Access Point intersection upgraded to a roundabout with 2 circulating lanes from Point Peron Road into HMAS Stirling with 2 lanes exiting the roundabout.
- HMAS Stirling Access upgraded to 3 entry points.
- The Parkin Street / Safety Bay Road / Point Peron Road intersection:

- Scenario 2.3a: The dual staggered roundabout option requires duplication for the southbound and northbound circulating lanes with an additional left turn pocket on the south approach of Safety Bay Road.
- Scenario 2.3b: The single 4-way roundabout requires an additional eastbound circulating lane as well as an additional south approach slip lane from Safety Bay Road onto Point Peron Road.

Figure 49 2030 Do Nothing with Mitigation Scenarios Layout



Average Speed Plots

The network average speed plots for the Do Nothing with Mitigation scenarios are presented in **Figure 50** and **Figure 51** for Option 2.3a and Option 2.3b respectively.

Figure 50 AM and PM Peak Average Speed Plots – 2030 Do Nothing with Mitigation – Option 2.3a (Staggered Roundabouts)

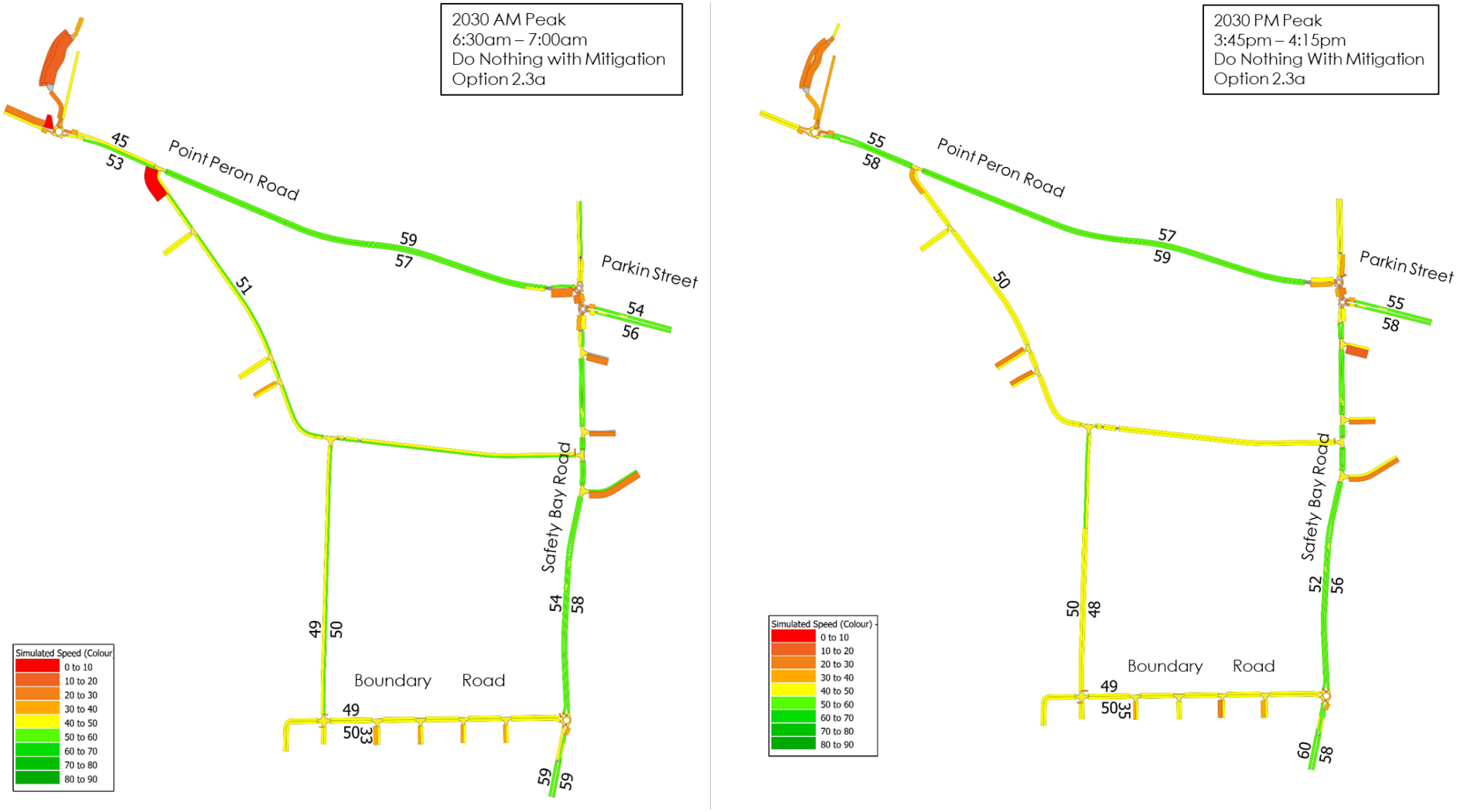
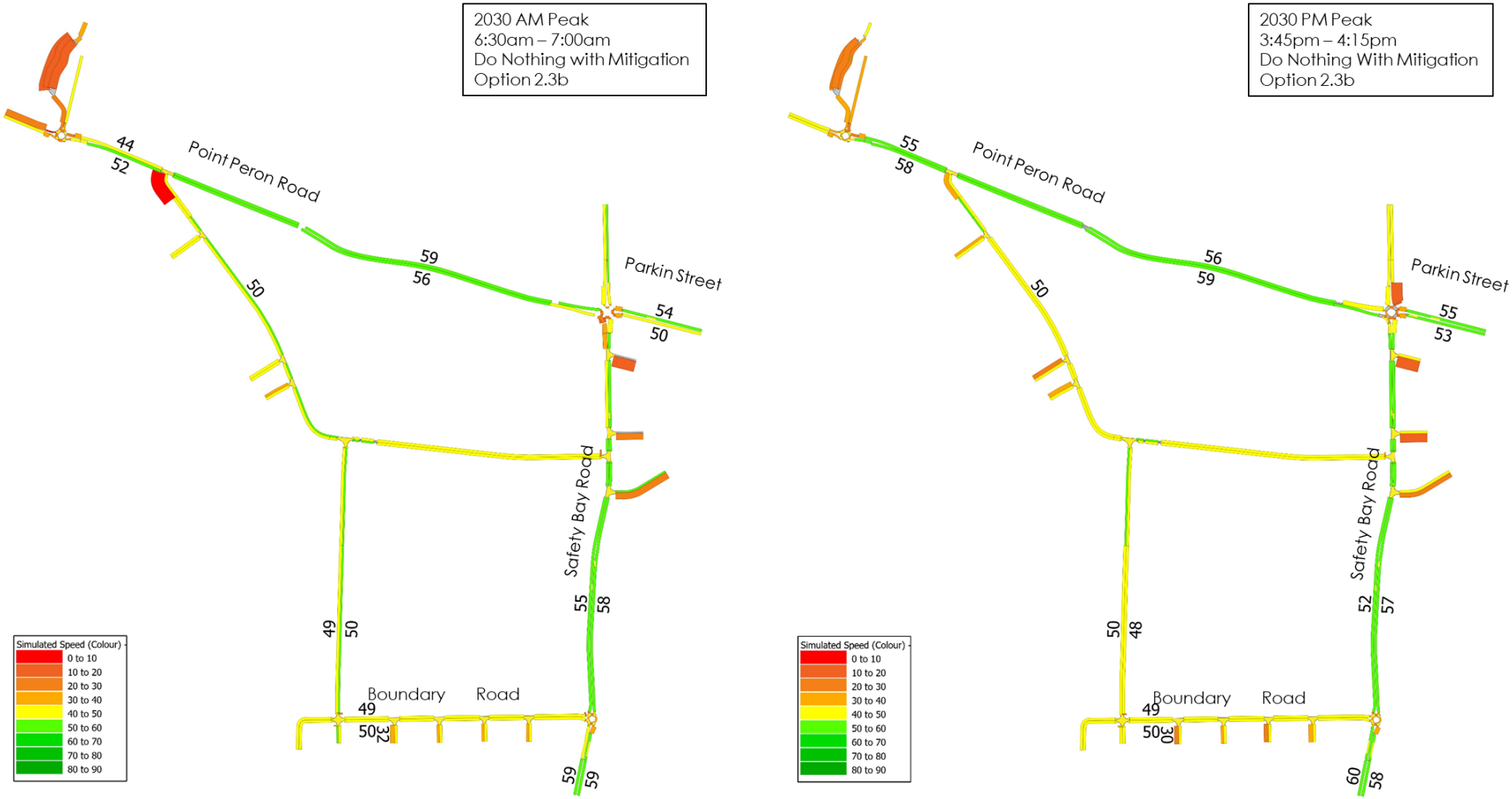


Figure 51 AM and PM Peak Average Speed Plots – 2030 Do Nothing with Mitigation – Option 2.3b (Single Roundabout)



The key takeaways from the Average Speed plots are as follows:

- AM Peak:
  - Option 2.3a and Option 2.3b both demonstrate significant improvement to operational performance. The congestion demonstrated on Parkin Street, Point Peron Road and Memorial Drive is expected to be alleviated with the proposed mitigation measures.
- PM Peak:
  - Similar to AM peak, both Option 2.3a and Option 2.3b demonstrate significant improvement to operational performance. The congestion demonstrated at the key Point Peron Road / Safety Bay Road / Parkin Street intersections in the Do Nothing scenario is shown to be alleviated with the proposed mitigation measures.

Network Statistics

The key network performance metrics have been summarised in **Table 13** and **Table 14** for the weekday AM and PM peak hours respectively. The definition of each performance metric has been included in **Section 7.1.8.2**. Noting the 2030 Do Nothing statistics have been included for direct comparison.

Table 13 Weekday AM Peak Network Performance Results – 2030 Do Nothing with Mitigation Scenarios

Metric		2030 Do Nothing	2030 Option 2.3a	2030 Option 2.3b
Total Travelled Distance (VKT)	km	3,044	3,992	3,935
Total Travel Time (VHT)	h	121	109	114
Average Speed	km/h	31.4	39.6	38.4
Average Delay	sec	86	32	38
Completed Trips	no.	1,372	1,859	1,851
Average Journey Time	sec	317	211	221
Vehicles Waiting to Enter	no.	354	1	1

Table 14 Weekday PM Peak Network Performance Results – 2030 Do Nothing with Mitigation Scenarios

Metric		2030 Do Nothing	2030 Option 2.3a	2030 Option 2.3b
Total Travelled Distance (VKT)	km	3,634	3,833	3,806
Total Travel Time (VHT)	h	131	78	79
Average Speed	km/h	38.5	49.2	48.4
Average Delay	sec	72	9	11
Completed Trips	no.	1,911	2,026	2,026
Average Journey Time	sec	247	139	140
Vehicles Waiting to Enter	no.	106	44	44

The key takeaways from the network performance results are as follows:

- AM Peak:
  - Significant increase in network average speeds recorded in Option 2.3a (39.6km/h) and Option 2.3b (38.4km/h) compared to the Do Nothing scenario (31.4km/h).

- The Completed Trips is demonstrated to increase Option 2.3a (+487 trips) and Option 2.3b (+479 trips) in the peak hour compared to the Do Nothing scenario.
- The Vehicles Waiting to Enter is demonstrated to reduce to 1 in Option 2.3a and Option 2.3b.

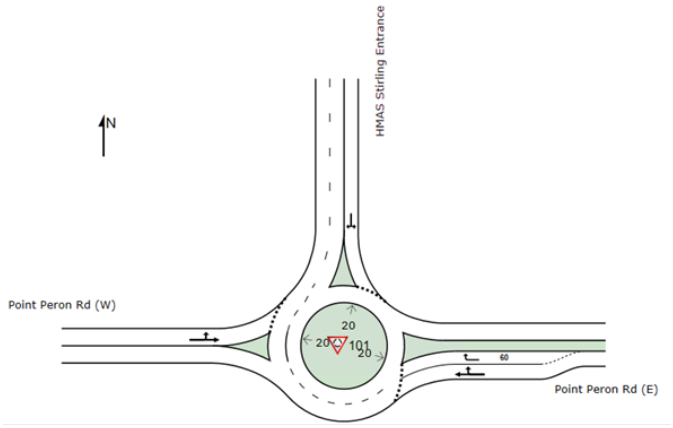
- PM Peak:
  - Improved network average speeds are recorded in Option 2.3a (49.2km/h) and Option 2.3b (48.4km/h) compared to the Do Nothing scenario (38.5km/h).
  - The Completed Trips is demonstrated to increase Option 2.3a (+115 trips) and Option 2.3b (+115 trips) in the peak hour compared to the Do Nothing scenario.
  - The Vehicles Waiting to Enter is demonstrated to reduce to 44 in both options.

7.2.4.2 SIDRA Assessment

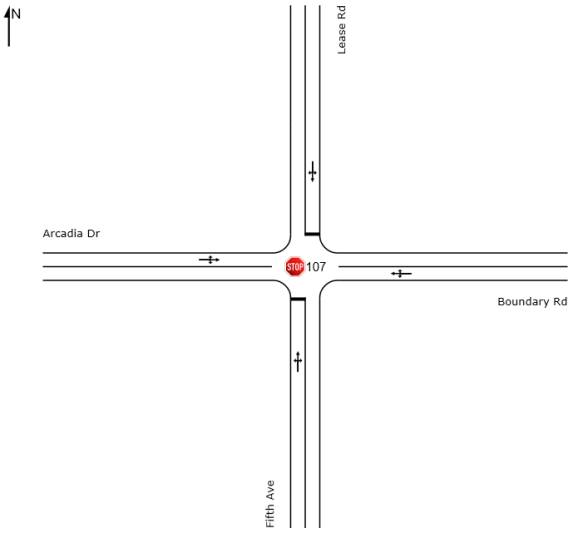
Model layouts

The Do Nothing with Mitigation SIDRA Layouts are illustrated in **Figure 52.**

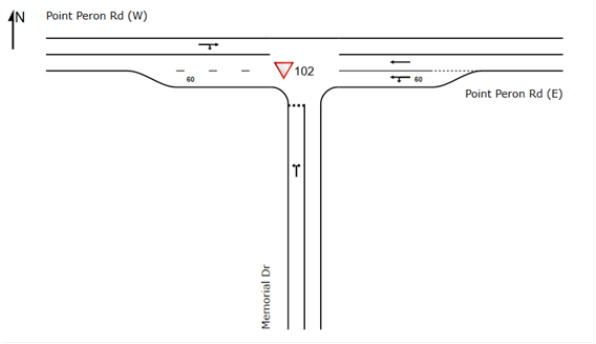
Figure 52: 2030 Do Nothing with Mitigation SIDRA Layouts



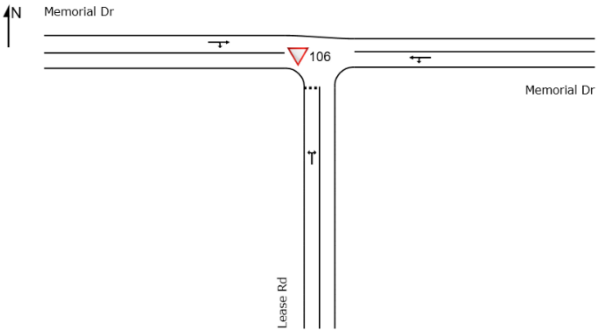
Point Peron Road / HMAS Stirling Entrance



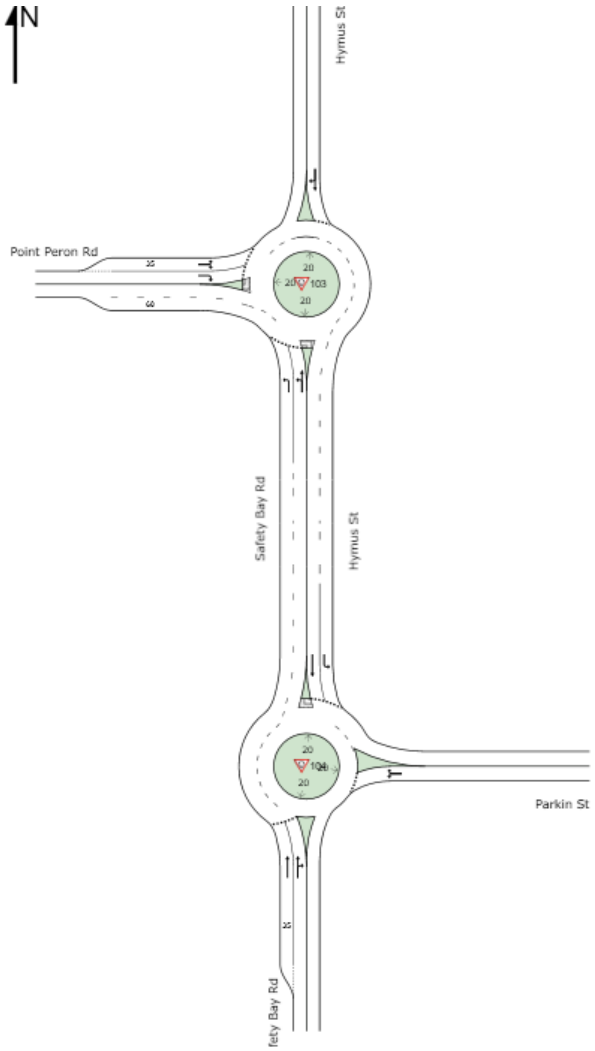
Boundary Road / Lease Road



Memorial Drive / Point Peron Road

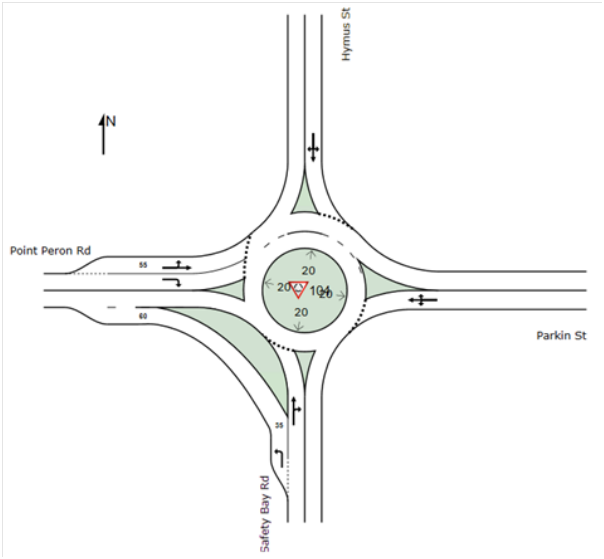


Memorial Drive / Lease Road



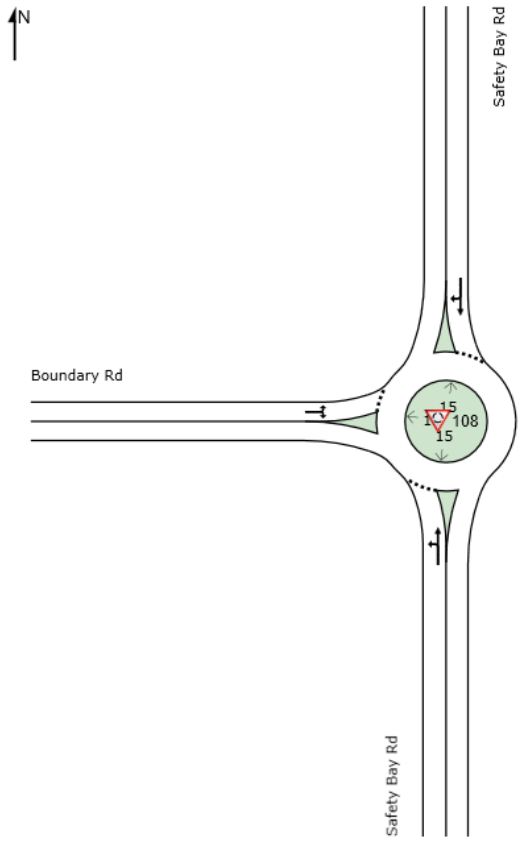
Option 2.3a

- Point Peron Road / Safety Bay Road / Hymus Street
- Safety Bay Road / Parkin Street

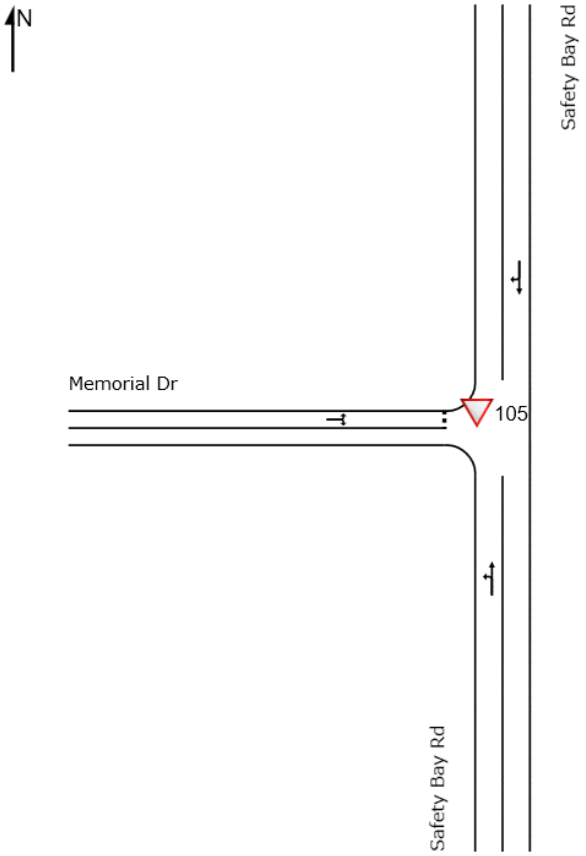


Option 2.3b

- Point Peron Road / Safety Bay Road / Hymus Street / Parkin Street



Safety Bay Road / Boundary Road



Memorial Drive / Safety Bay Road

The Do Nothing with Mitigation AM and PM peak results for each scenario are presented in **Table 15** and **Table 16** respectively, noting the 2030 Do Nothing has been included for comparison.

Table 15: Do Nothing with Mitigation SIDRA Results Summary – AM Peak

Intersection Name	2030 Do Nothing	2030 Option 2.3a	2030 Option 2.3b
Point Peron Road / HMAS Stirling Entrance	A	A	A
Point Peron Road / Safety Bay Road / Hymus Street[1]	B	A	A
Safety Bay Road / Parkin Street[1]	F	A	
Safety Bay Road / Boundary Road	A	A	A
Boundary Road / Lease Road	A	A	A
Memorial Drive / Lease Road[1]	A	A	A
Memorial Drive / Point Peron Road	F	C	C
Safety Bay Road / Memorial Drive	B	B	B

Table 16: Do Nothing with Mitigation SIDRA Results Summary – PM Peak

Intersection Name	2030 Do Nothing	2030 Option 2.3a	2030 Option 2.3b
Point Peron Road / HMAS Stirling Entrance	B	B	B
Point Peron Road / Safety Bay Road / Hymus Street[1]	F	A	A
Safety Bay Road / Parkin Street[1]	C	A	
Safety Bay Road / Boundary Road	A	A	A
Boundary Road / Lease Road	A	A	A
Memorial Drive / Lease Road[1]	A	A	A
Memorial Drive / Point Peron Road	A	A	A
Safety Bay Road / Memorial Drive	B	B	B
Point Peron Road / HMAS Stirling Entrance	A	A	A

1 These intersections were modelled as a network with the nearest intersection. The remaining intersections were modelled as isolated sites.

The SIDRA results indicate the following key takeaways:

- AM Peak
  - The critical area of Safety Bay Road / Parkin Street / Hymus Street / Point Peron is expected to improve from LOS F to LOS A for both Option 2.3a and Option 2.3b, with the mitigation measures demonstrating strong improvement to accommodate the 2030 demands.
  - The Memorial Drive / Point Peron Road intersection is recorded to improve to LOS C in both options from an LOS F in the 2030 Do Nothing scenario.
- PM Peak
  - The critical area of Safety Bay Road / Parkin Street / Hymus Street / Point Peron is expected to improve from LOS F to LOS A for both Option 2.3a and Option 2.3b, with the mitigation measures demonstrating strong improvement to accommodate the 2030 demands.

Table 17 summarises the recorded SIDRA 95th percentile queuing for the Do Nothing with mitigation scenarios. The results demonstrate significant improvement in the AM Peak reducing to 39m and 32m in Options 3.3a and Option 3.3b respectively. The PM peak also demonstrates reductions to 15m in both options.

Table 17 Do Nothing with Mitigation 95th Percentile Queing

95th Percentile Queue Lengths (m)	AM Peak			PM Peak		
	2030 Do Nothing	2030 Option 2.3a	2030 Option 2.3b	2030 Do Nothing	2030 Option 2.3a	2030 Option 2.3b
Safety Bay Road / Parkin Street east approach (Parkin Street)	2,266	39	32	211	15	15

Summary

The Aimsun and SIDRA results presented in this section indicate the following:

- AM Peak:

  Option 2.3a and Option 2.3b both demonstrate significant improvement with the proposed mitigation measures in both options shown to alleviate the congested areas present in the 2030 Do Nothing scenario.

- PM Peak

  - Similar to AM Peak, Option 2.3a and Option 2.3b both demonstrate significant improvement with the proposed mitigation measures in both options shown to alleviate the congested areas present in the 2030 Do Nothing scenario.

7.2.5 2040 Do Nothing with Mitigation Scenarios (3.3a and 3.3b)

As outlined in **Section 7.2.3,** significant congestion is observed in the Do Nothing scenarios in 2040. As such, mitigation measures have been implemented to accommodate the future year demands. The mitigation measures were developed based on an iterative process based on model operation.

7.2.5.1 Aimsun Assessment

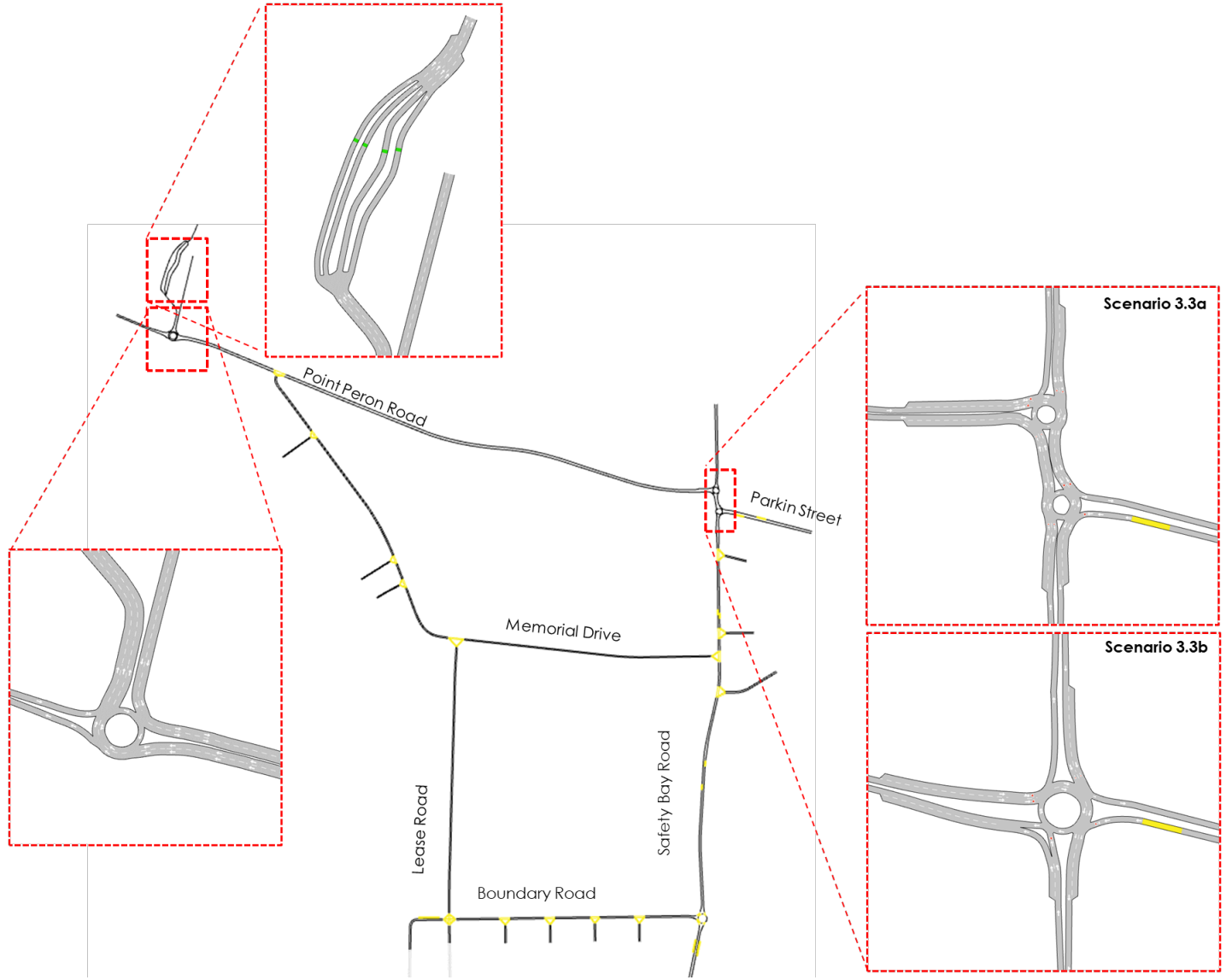
Model Layout

The modelled layout for the 2040 Do Nothing with Mitigation Scenarios, as outlined in **Table 7,** is illustrated in **Figure 53.** The following mitigation measures have been applied to the 2040 Do Nothing Scenario:

- Point Peron Road / HMAS Stirling Access Point intersection upgraded to a roundabout with 2 circulating lanes from Point Peron Road into HMAS Stirling with 3 lanes exiting the roundabout. Plus 2 lanes exiting HMAS Stirling onto Point Peron Road.
- HMAS Stirling Access upgraded to 4 entry points.
- The Parkin Street / Safety Bay Road / Point Peron Road intersection:
  - Scenario 3.3a: The dual staggered roundabout option requires duplication for the southbound and northbound circulating lanes. Plus, short lanes added to the Safety Bay Road north and south approach entries and south approach exit.
  - Scenario 3.3b: The single 4-way roundabout requires an additional eastbound circulating lane as well as south approach slip lane from Safety Bay Road onto Point Peron Road. Plus, an additional southbound circulating lane and short lanes on the north approach and south exit of Safety Bay Road.

It is the noted that layouts modelled in this assessment are to determine the feasibility of the potential design options and will require further detailed design once an option is chosen to be designed in accordance with the Austroads guidelines.

Figure 53: 2040 Do Nothing with Mitigation Scenarios Layout



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Average Speed Plots

The network average speed plots for the Do Nothing with Mitigation scenarios are presented in **Figure 54** and **Figure 55** for Option 3.3a and Option 3.3b respectively.

Figure 54: AM and PM Peak Average Speed Plots – 2040 Do Nothing with Mitigation – Option 3.3a (Staggered Roundabouts)

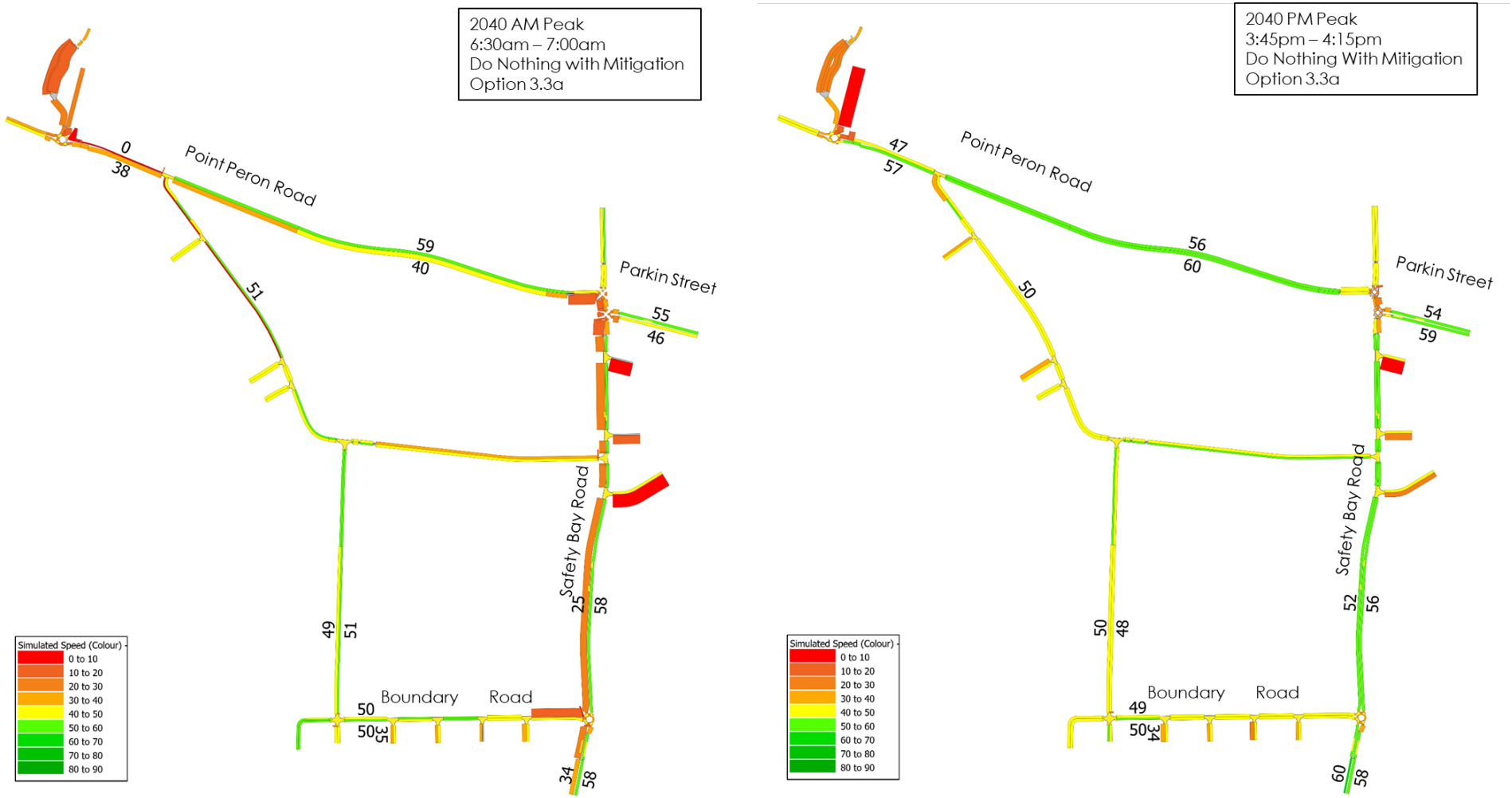
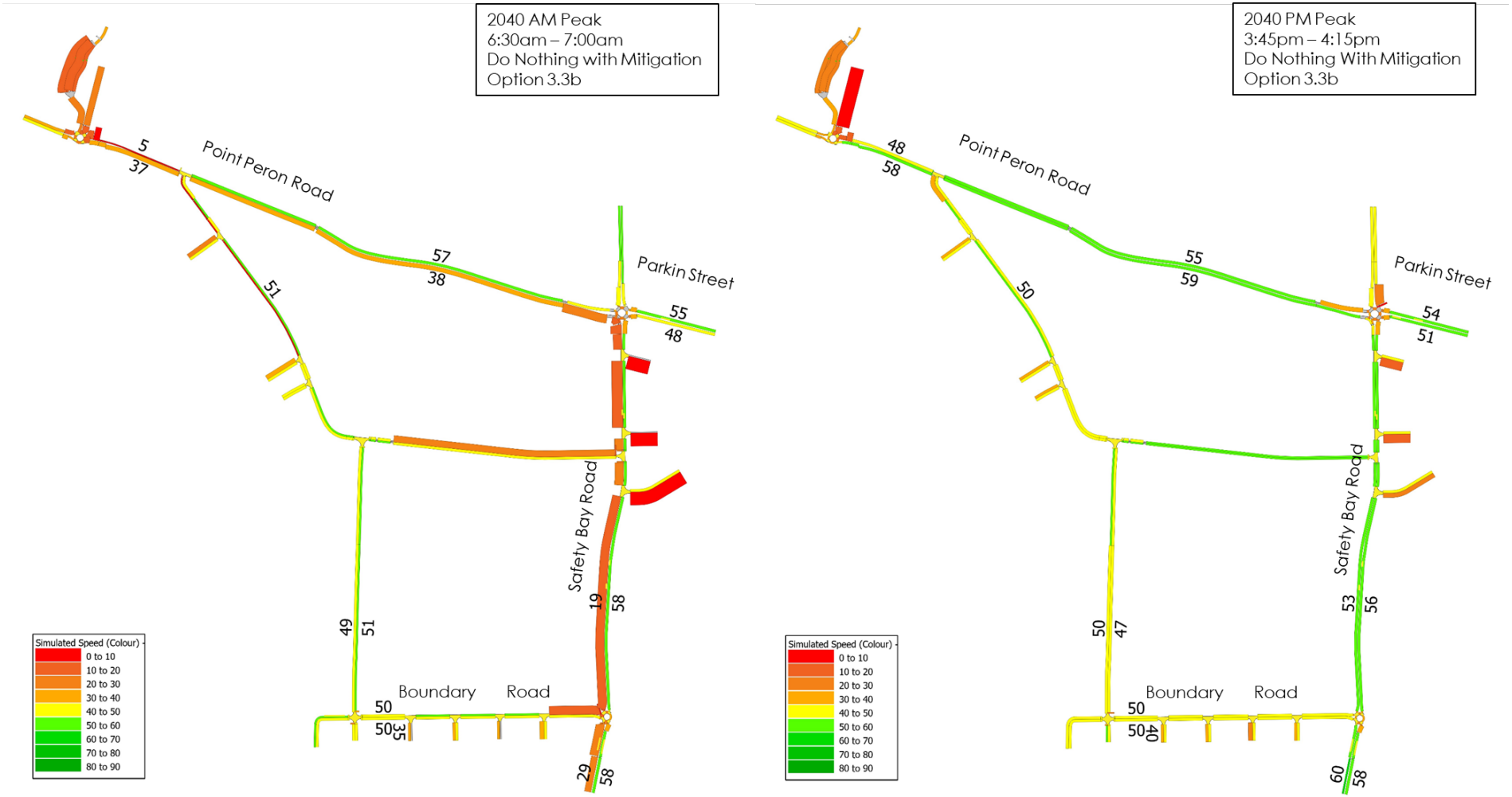


Figure 55: AM and PM Peak Average Speed Plots – 2040 Do Nothing with Mitigation – Option 3.3b (Single Roundabout)



The key takeaways from the Average Speed plots are as follows:

- AM Peak:
  - Option 3.3a and Option 3.3b both demonstrate improvement to operational performance compared to the Do Nothing scenario. However, queuing and delays remain on Point Peron Road entering HMAS Stirling with single lane carriageway struggling to accommodate the 2040 demands. The delays and queueing are also shown to impact the Safety Bay Road / Parkin Street / Point Peron Road intersection with queues extending on the Safety Bay Road south approach.
- PM Peak:
  - Both Option 3.3a and Option 3.3b demonstrate significant improvement to operational performance. The congestion demonstrated at the key Point Peron Road / Safety Bay Road / Parkin Street intersections in the Do Nothing scenario is shown to be reduced with some queueing / slower speeds remaining on Point Peron Road accessing Safety Bay Road, with Option 3.3b experiencing a higher level of queuing.

Network Statistics

The key network performance metrics have been summarised in **Table 18** and **Table 19** for the weekday AM and PM peak hours respectively. The definition of each performance metric has been included in Section 7.1.6.2,noting the 2040 Do Nothing statistics have been included for direct comparison.

Table 18: Weekday AM Peak Network Performance Results – Do Nothing Scenarios

Metric		2040 Do Nothing	2040 Option 3.3a	2040 Option 3.3b
Total Travelled Distance (VKT)	km	2,804	4,097	3,961
Total Travel Time (VHT)	h	184	175	176
Average Speed	km/h	24.9	28.5	28.3
Average Delay	sec	173	84	90
Completed Trips	no.	1,212	1,898	1,860
Average Journey Time	sec	547	331	341
Vehicles Waiting to Enter	no.	842	172	213

Table 19: Weekday PM Peak Network Performance Results – Do Nothing Scenarios

Metric		2040 Do Nothing	2040 Option 3.3a	2040 Option 3.3b
Total Travelled Distance (VKT)	km	2,978	4,466	4,411
Total Travel Time (VHT)	h	115	109	111
Average Speed	km/h	37.0	42.7	41.3
Average Delay	sec	88	22	26
Completed Trips	no.	1,556	2,343	2,331
Average Journey Time	sec	265	168	172
Vehicles Waiting to Enter	no.	687	133	137

The key takeaways from the network performance:

- AM Peak:
  - An increase in network average speeds recorded in Option 3.3a (28.5km/h) and Option 3.3b (28.3km/h) compared to the Do Nothing scenario (24.9km/h).
  - The Completed Trips is demonstrated to increase Option 3.3a (+686 trips) and Option 3.3b (+648 trips) in the peak hour compared to the Do Nothing scenario.

- The Vehicles Waiting to Enter is demonstrated to reduce to 172 and 213 in Option 3.3a and Option 3.3b respectively.

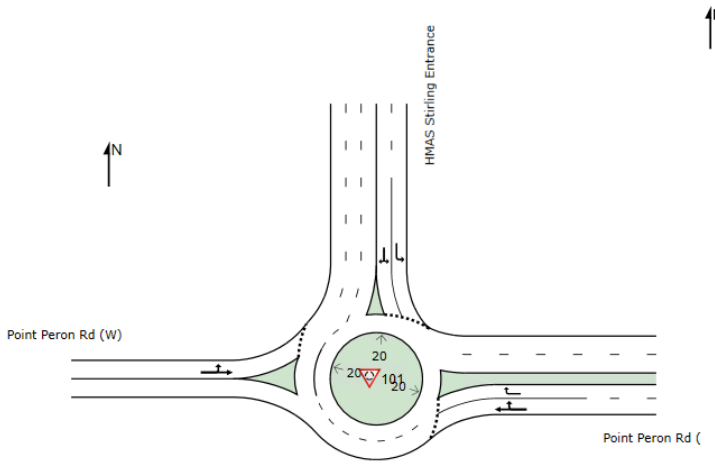
- PM Peak:
  - Improved network average speeds are recorded in Option 3.3a (42.7km/h) and Option 3.3b (41.3km/h) compared to the Do Nothing scenario (37.0km/h).
  - The Completed Trips is demonstrated to increase Option 3.3a (+787 trips) and Option 3.3b (+775 trips) in the peak hour compared to the Do Nothing scenario.
  - The Vehicles Waiting to Enter is demonstrated to reduce to 133 and 137 in Option 3.3a and Option 3.3b respectively.

7.2.5.2 SIDRA Assessment

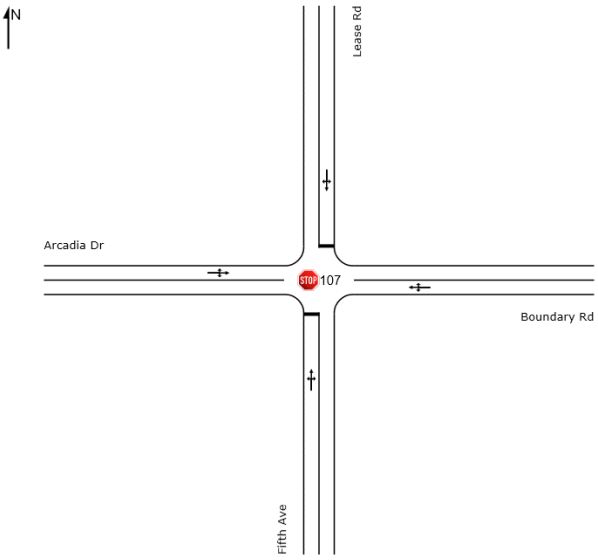
Model Layouts

The Do Nothing with Mitigation SIDRA Layouts are illustrated in **Figure 56**.

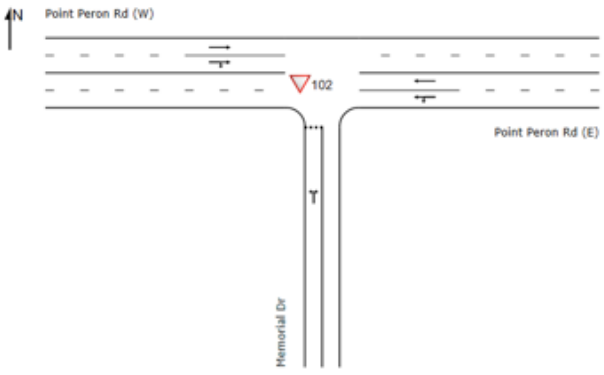
Figure 56 2040 Do Nothing with Mitigation SIDRA Layouts



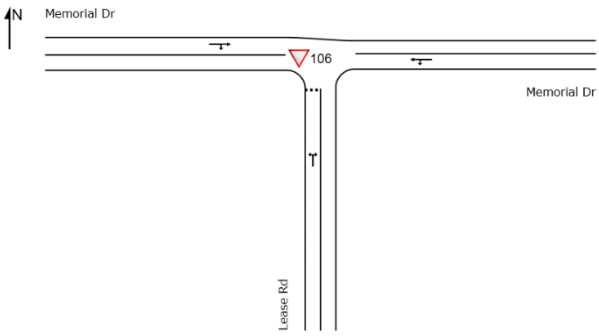
Point Peron Road / HMAS Stirling Entrance



Boundary Road / Lease Road

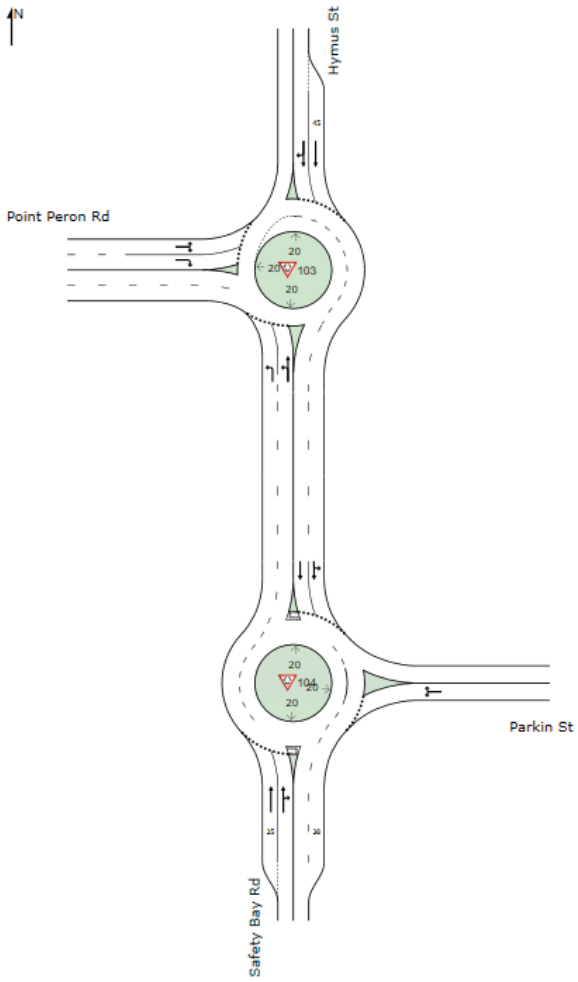


Memorial Drive / Point Peron Road



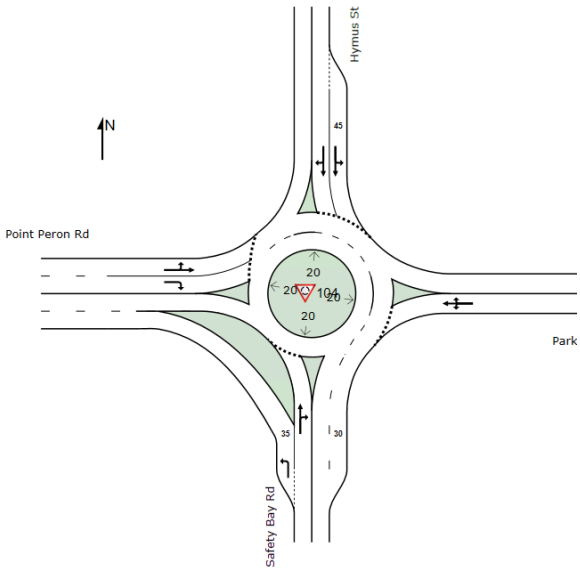
Memorial Drive / Lease Road

REF: \\AU2011-NTAP01_CIFS02\SHARED_PROJECTS\304900950\5_TECHNICAL\TRAFFIC\REPORTING\003_TRANSPORT REPORT\REV C\CW1200595_304900950-TR-R003-C-TRANSPORT_REPORT_DRAFT_V5.DOCX



Option 3.3a

- Point Peron Road / Safety Bay Road / Hymus Street
- Safety Bay Road / Parkin Street



Option 3.3b

- Point Peron Road / Safety Bay Road / Hymus Street / Parkin Street

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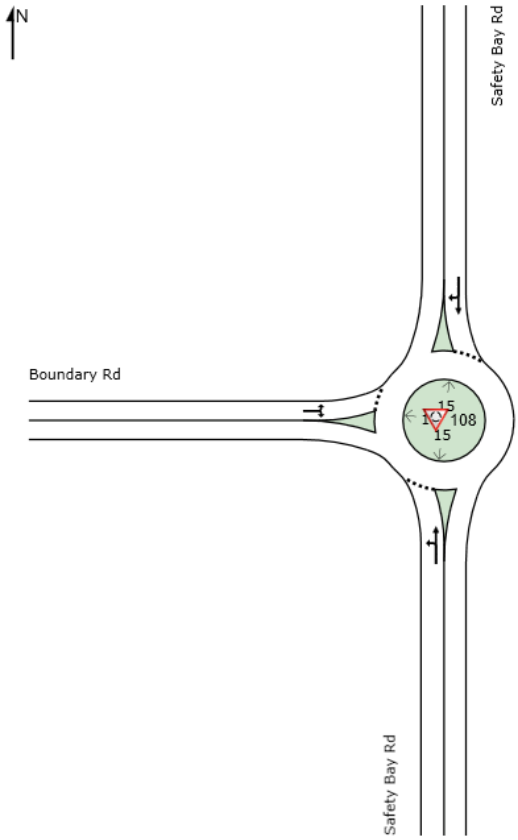
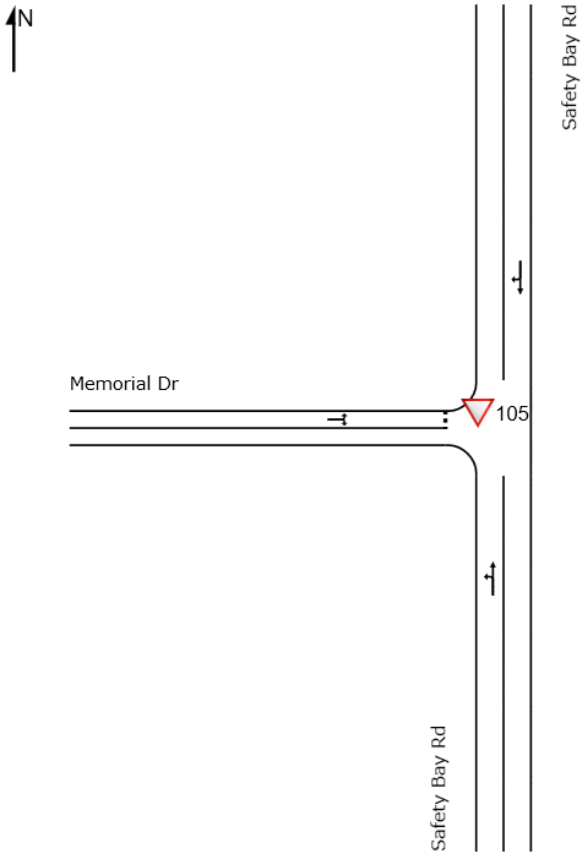


Safety Bay Road / Boundary Road



Memorial Drive / Safety Bay Road

The Do Nothing with Mitigation AM and PM peak results for each scenario are presented in **Table 20** and **Table 21** respectively, noting the 2039 Do Nothing has been included for comparison.

Table 20 2040 Do Nothing with Mitigation SIDRA Results Summary – AM Peak

Intersection Name	2040 Do Nothing	2040 Option 3.3a	2040 Option 3.3b
Point Peron Road / HMAS Stirling Entrance	F	A	A
Point Peron Road / Safety Bay Road / Hymus Street[1]	C	A	A
Safety Bay Road / Parkin Street[1]	F	F	
Safety Bay Road / Boundary Road[1]	A	A	A
Boundary Road / Lease Road	A	A	A
Memorial Drive / Lease Road[1]	A	A	A
Memorial Drive / Point Peron Road	F	F	F
Safety Bay Road / Memorial Drive	C	C	C

REF: \\AU2011-NTAP01_CIFS02\SHARED_PROJECTS\304900950\5_TECHNICAL\TRAFFIC\REPORTING\003_TRANSPORT REPORT\REV C\CW1200595_304900950-TR-R003-C-TRANSPORT_REPORT_DRAFT_V5.DOCX

Table 21 2040 Do Nothing with Mitigation SIDRA Results Summary – PM Peak

Intersection Name	2040 Do Nothing	2040 Option 3.3a	2040 Option 3.3b
Point Peron Road / HMAS Stirling Entrance	F	F	F
Point Peron Road / Safety Bay Road / Hymus Street[1]	F	A	A
Safety Bay Road / Parkin Street[1]	B	A	
Safety Bay Road / Boundary Road[1]	A	A	A
Boundary Road / Lease Road	A	A	A
Memorial Drive / Lease Road[1]	A	A	A
Memorial Drive / Point Peron Road	A	A	B
Safety Bay Road / Memorial Drive	A	A	A

1 These intersections were modelled as a network with the nearest intersection. The remaining intersections were modelled as isolated sites.

The SIDRA results indicate the following key takeaways:

- AM Peak
  - The critical area of Safety Bay Road / Parkin Street / Hymus Street / Point Peron is expected to remain at LOS F Option 3.3a and improve to LOS A in Option 3.3b, demonstrating that the single roundabout in Option 3.3b can accommodate the demand when modelled in isolation.
  - The Memorial Drive / Point Peron Road intersection is recorded to remain at LOS F in Option 3.3a and Option 3.3b with the right turn into Memorial shown to exhibit significant delays crossing Point Peron Road.
  - The HMAS Stirling Entrance / Point Peron intersection is demonstrated to improve from a LOS F in the Do Nothing scenario to a LOS A in both options.
- PM Peak
  - The critical area of Safety Bay Road / Parkin Street / Hymus Street / Point Peron is expected to improve from LOS F to LOS A / B for both Option 3.3a and Option 3.3b, with the mitigation measures demonstrating strong improvement to accommodate the 2040 demands.
  - The HMAS Stirling Entrance / Point Peron intersection is demonstrated to remain at LOS F with vehicles exiting HMAS Stirling experiencing significant delays.

Table 22 summarises the recorded SIDRA 95th percentile queuing for the Do Nothing with mitigation scenarios. The results demonstrate significant improvement in the AM Peak reducing to 193m and 61m in Options 3.3a and Option 3.3b respectively. The PM peak also demonstrates reductions to 15m and 20m respectively.

Table 22 Do Nothing with Mitigation 95th Percentile Queing

95th Percentile Queue Lengths (m)	AM Peak			PM Peak		
	2040 Do Nothing	2040 Option 3.3a	2040 Option 3.3b	2040 Do Nothing	2040 Option 3.3a	2040 Option 3.3b
Safety Bay Road / Parkin Street east approach (Parkin Street)	3,499	193	61	318	15	20

Summary

The Aimsun and SIDRA results presented in this section indicate the following:

- AM Peak:
  - Option 3.3a and Option 3.3b both demonstrate improvements with the proposed mitigation measures in both options shown to alleviate some of the congestion present in the 2040 Do Nothing scenario.
  - Of the 2 options, Option 3.3b is shown to have higher capacity when modelled in isolation,
- PM Peak
  - Option 3.3a and Option 3.3b both demonstrate significant improvement with the proposed mitigation measures in both options shown to alleviate the congested areas present in the 2040 Do Nothing scenario.

7.3 With Garden Island Highway Extension (Single Lane)

The With Garden Island Highway Extension (Single Lane) Scenarios encompass the 2030 design year as summarised in **Table 23**.

Table 23 With Garden Island Highway Extension (Single Lane) Scenario Summary

Scenario No.		Year	GIH / Point Peron Road / HMAS Stirling entrance intersection	Point Peron Road / Safety Bay Road / Hymus Street and Parkin Street / Safety Bay Road	Garden Island Highway	HMAS Stirling Entry	HMAS Stirling Causeway
2.	1a	2030	4-way roundabout	Dual staggered roundabouts	Single lane	3 entry gates	Single lane
	1b		4-way roundabout	Single 4-way roundabout	Single lane	3 entry gates	Single lane
	2a		4-way signalised intersection	Dual staggered roundabouts	Single lane	3 entry gates	Single lane
	2b		4-way signalised intersection	Single 4-way roundabout	Single lane	3 entry gates	Single lane

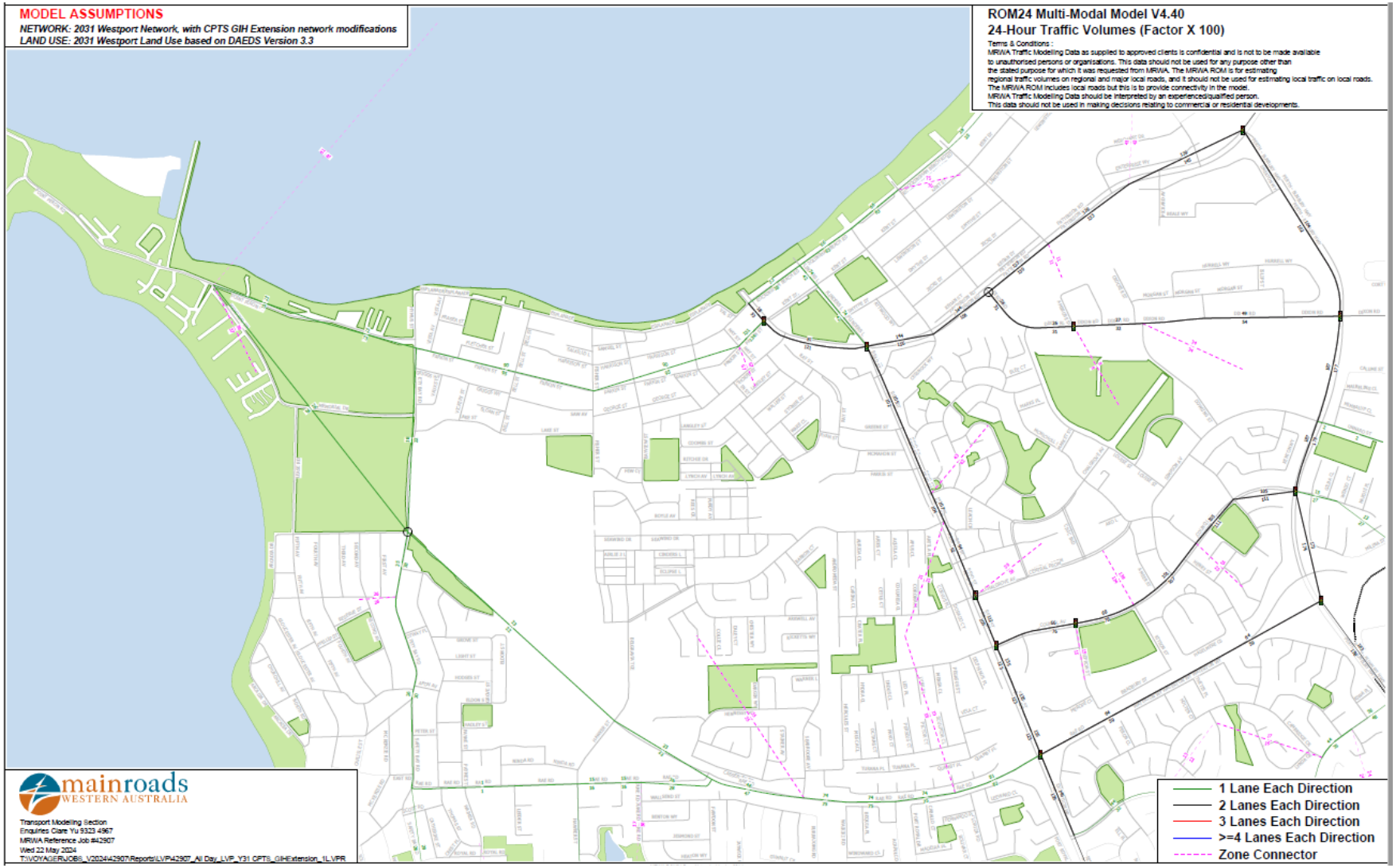
7.3.1 Trip Distribution

The trip distribution for the HMAS Stirling development traffic has been based on ROM24 outputs, as provided my MRWA, which cater for the proposed Garden Island Highway Extension with a single lane configuration in each direction. The ROM24 network modelled for input into the 2030 scenarios is illustrated in **Figure 57.** The daily volumes summarised for the with and without Garden Island Highway Extension is presented in **Table 28.**

Table 24 2031 ROM24 Daily Volume Summary

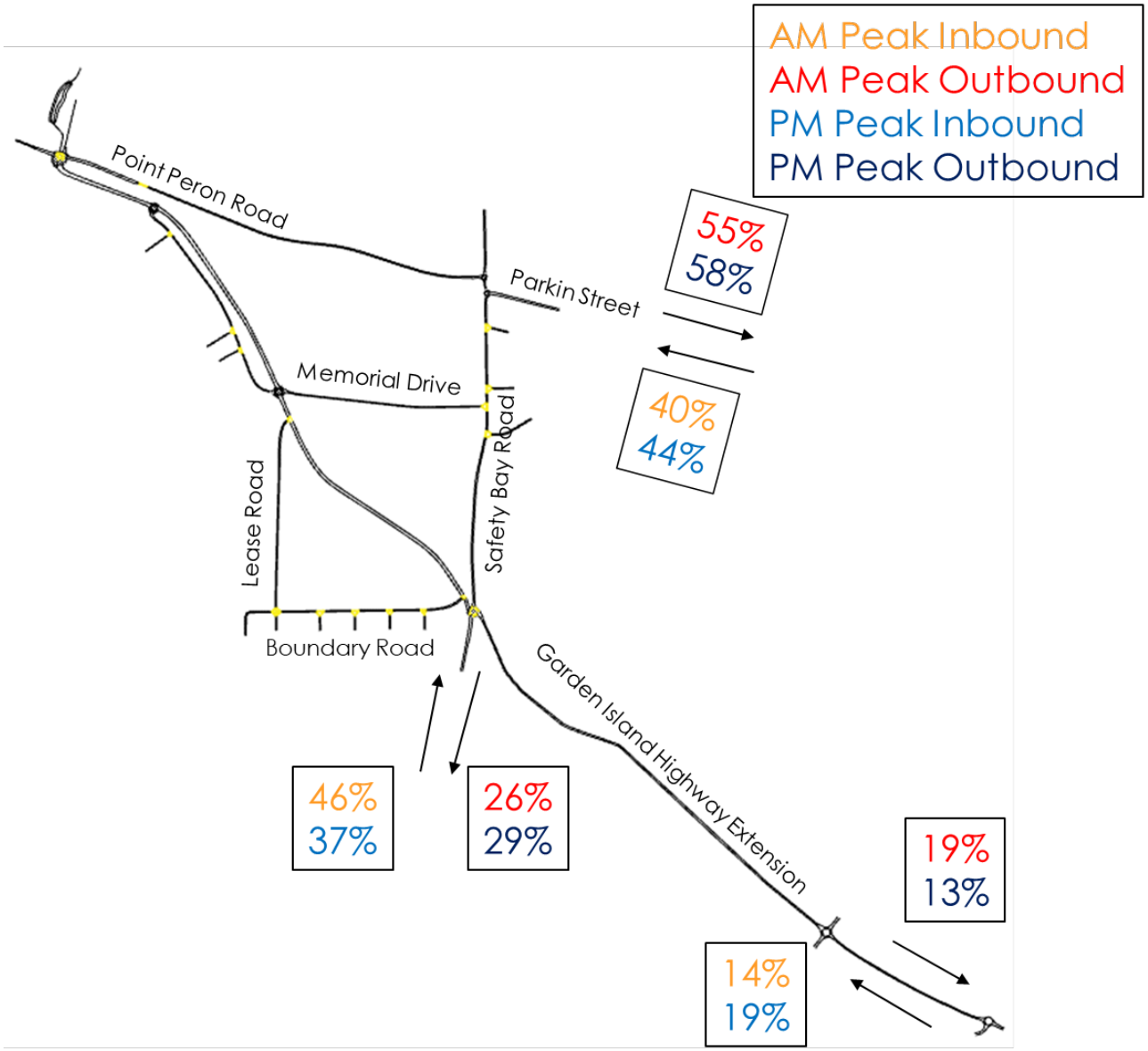
	Direction	Do Nothing	GIH	Change (%)
Parkin Street	EB	9,400	9,000	-4%
	WB	10,100	9,500	-6%
Safety Bay Road	NB	4,200	3,500	-17%
	SB	4,800	3,800	-21%
Rae Road (East)	EB	3,500	4,600	31%
	WB	3,400	4,700	38%
GIH	EB	0	2,300	
	WB	0	2,200	

Figure 57 ROM24 2031 Network with Garden Island Highway Extension (single lane)



The resultant traffic redistribution due to the introduction of the Garden Island Highway Extension per the ROM24 outputs are illustrated in **Figure 58** and carried forward into the Aimsun modelling assessment.

Figure 58 HMAS Stirling Trip Distribution – Garden Island Highway Extension (single lane)



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7.3.2 2030 Garden Island Scenarios (2.1a, 2.1b, 2.2a, 2.2b)

As outlined in **Section 7.2.3**, significant congestion is observed in the Do Nothing scenarios in 2030. As such, mitigation measures have been implemented to accommodate the future year demands. This includes in the Garden Island Highway Extension as well as other additional mitigations developed based on an iterative process based on model operation.

7.3.2.1 Aimsun Assessment

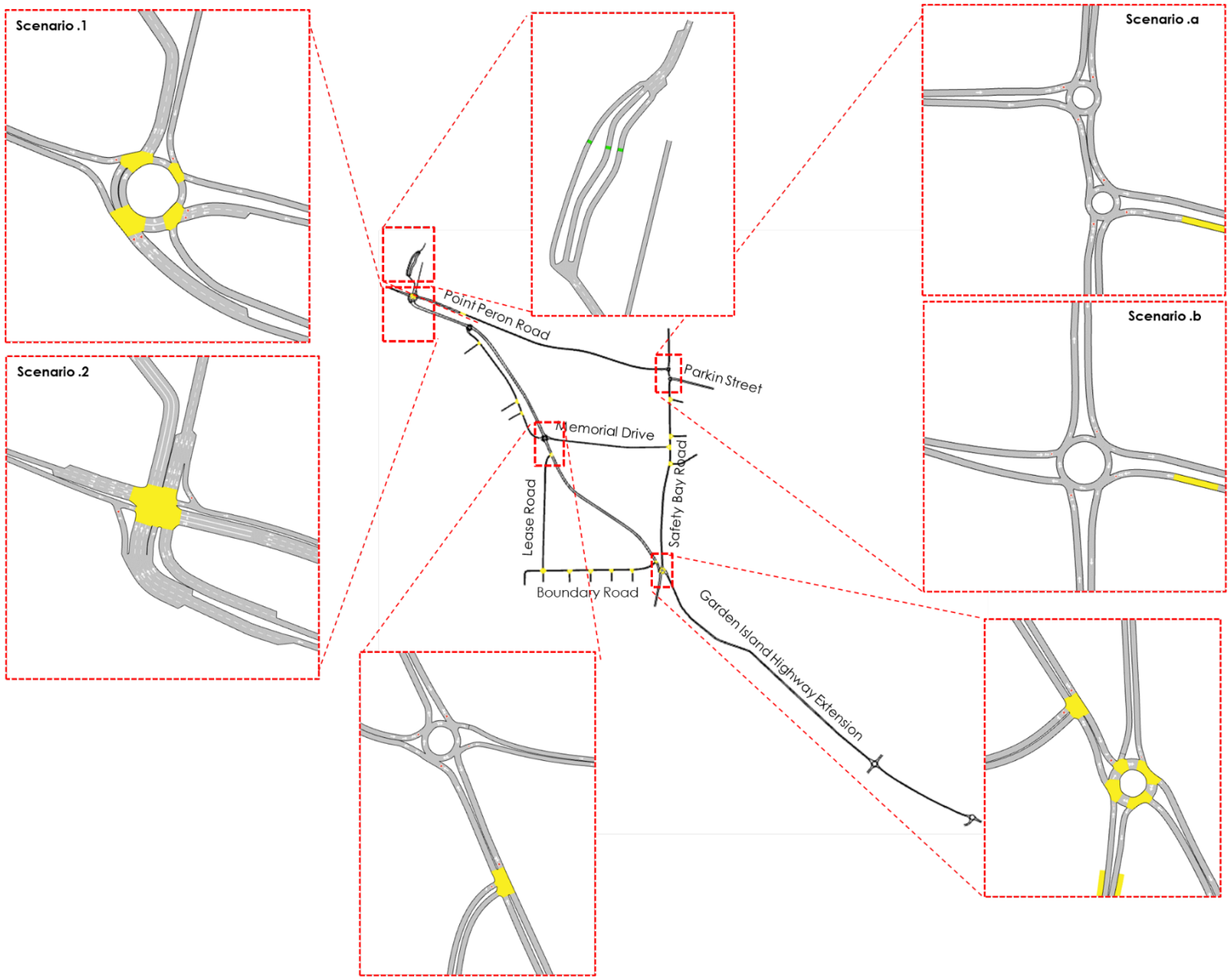
Model Layout

The modelled layout for the 2030 with Garden Island Highway Scenario, as outlined in **Table 23**, is illustrated in **Figure 59.** Noting the key layouts below:

- Point Peron Road / HMAS Stirling Access Point configuration.
    - Scenario .**1**: 4 way roundabout with dual circulating lane into HMAS Stirling
    - Scenario .**2**: Signalised intersection configuration with 3 lanes entering HMAS Stirling.
- HMAS Stirling Access upgraded to 3 entry points.
- The Parkin Street / Safety Bay Road / Point Peron Road intersection:
    - Scenario .**a**: The dual staggered roundabout option.
    - Scenario .**b**: The single 4-way roundabout option.

It is the noted that the layouts modelled in this assessment are to determine the feasibility of the potential design options and will require further detailed design once an option is chosen to be designed in accordance with the Austroads guidelines.

Figure 59 2030 With Garden Island Highway Extension (single lane) Scenarios Layout



Daily Volume Plots

The Daily Volume plots for the 2030 Garden Island Highway Extension scenarios are presented in **Figure 60 - Figure 64.**

Figure 60 2030 Garden Island Highway Extension Daily Volume Plot - Scenario 2.1a and Scenario 2.1b

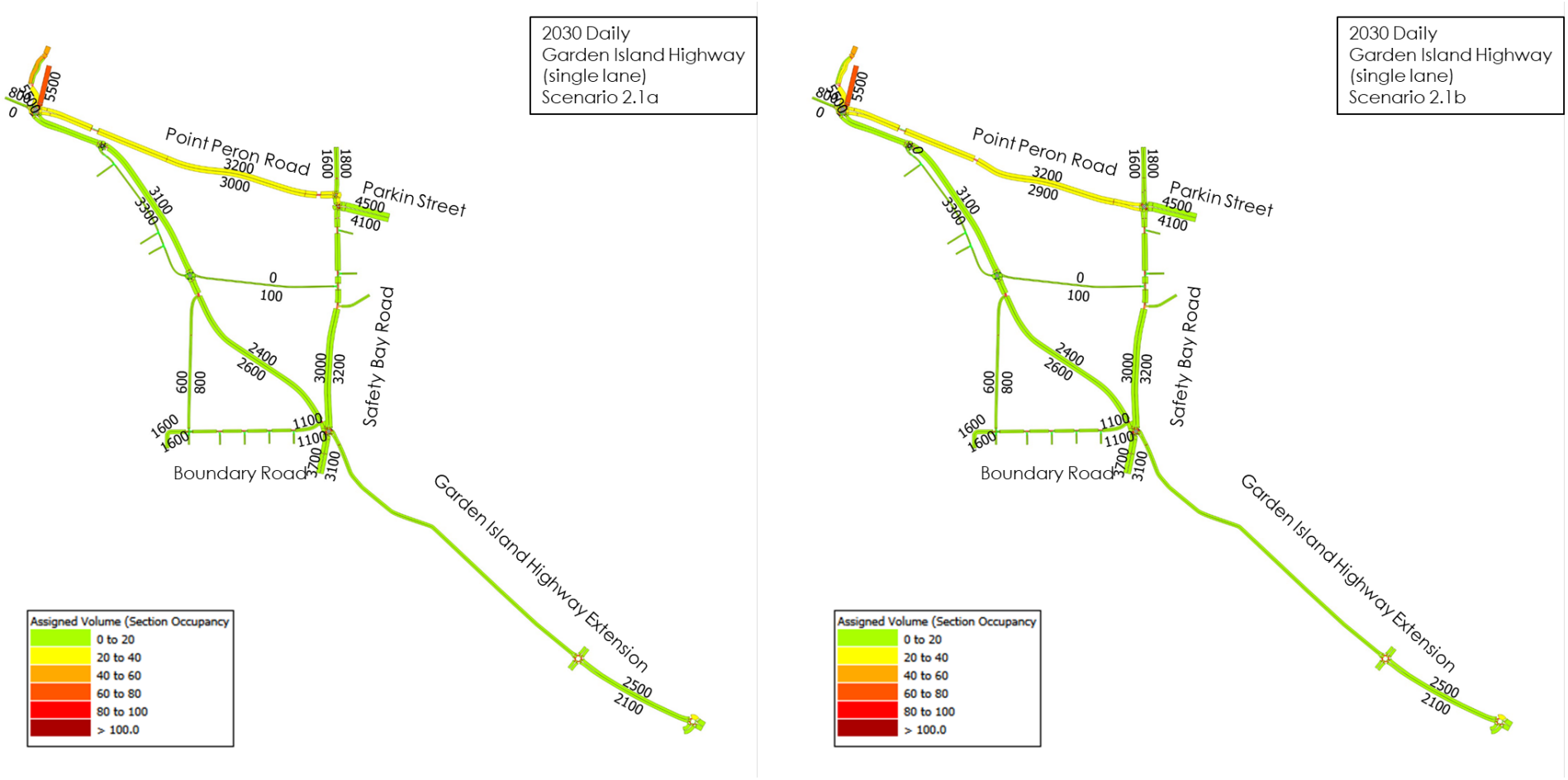
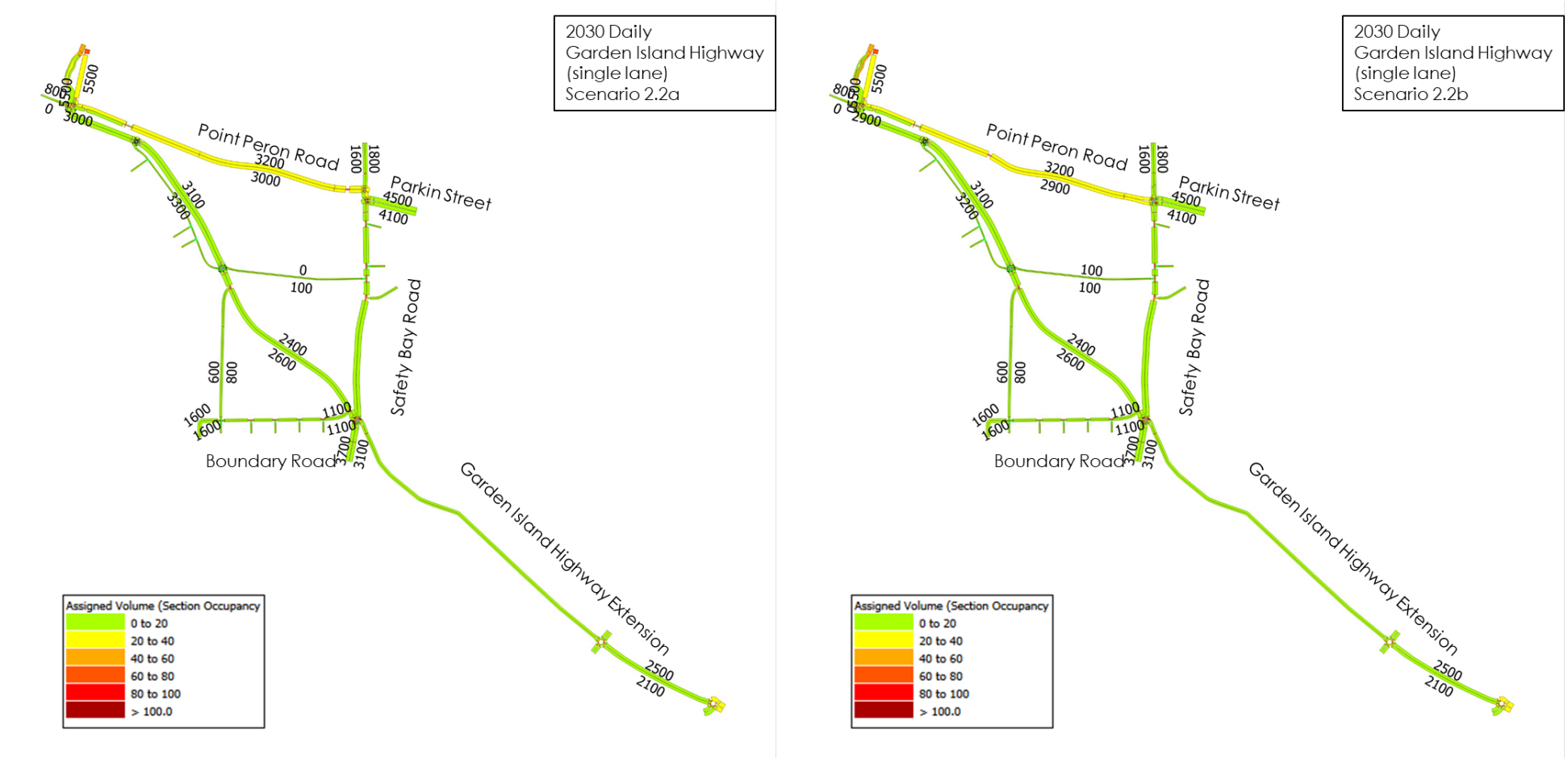


Figure 61 2030 Garden Island Highway Extension Daily Volume Plot - Scenario 2.2a and Scenario 2.2b



Average Speed Plots

The network average speed plots for the Do Nothing with Mitigation scenarios are presented in **Figure 62 - Figure 65.**

Figure 62 AM and PM Peak Average Speed Plots – 2030 With Garden Island Highway Extension (single lane) – Option 2.1a

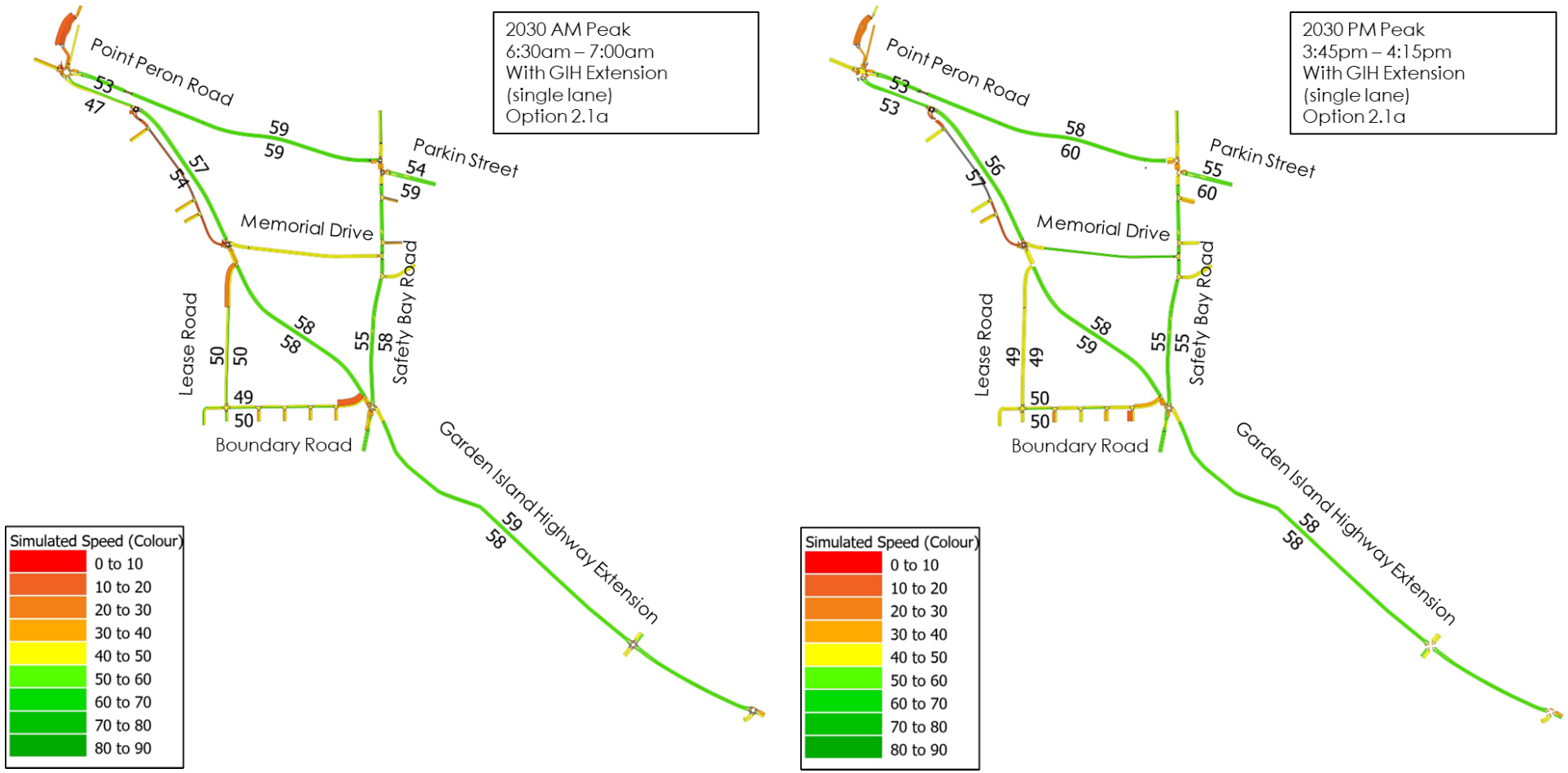


Figure 63 AM and PM Peak Average Speed Plots 2030 With Garden Island Highway Extension (single lane) – Option 2.1b

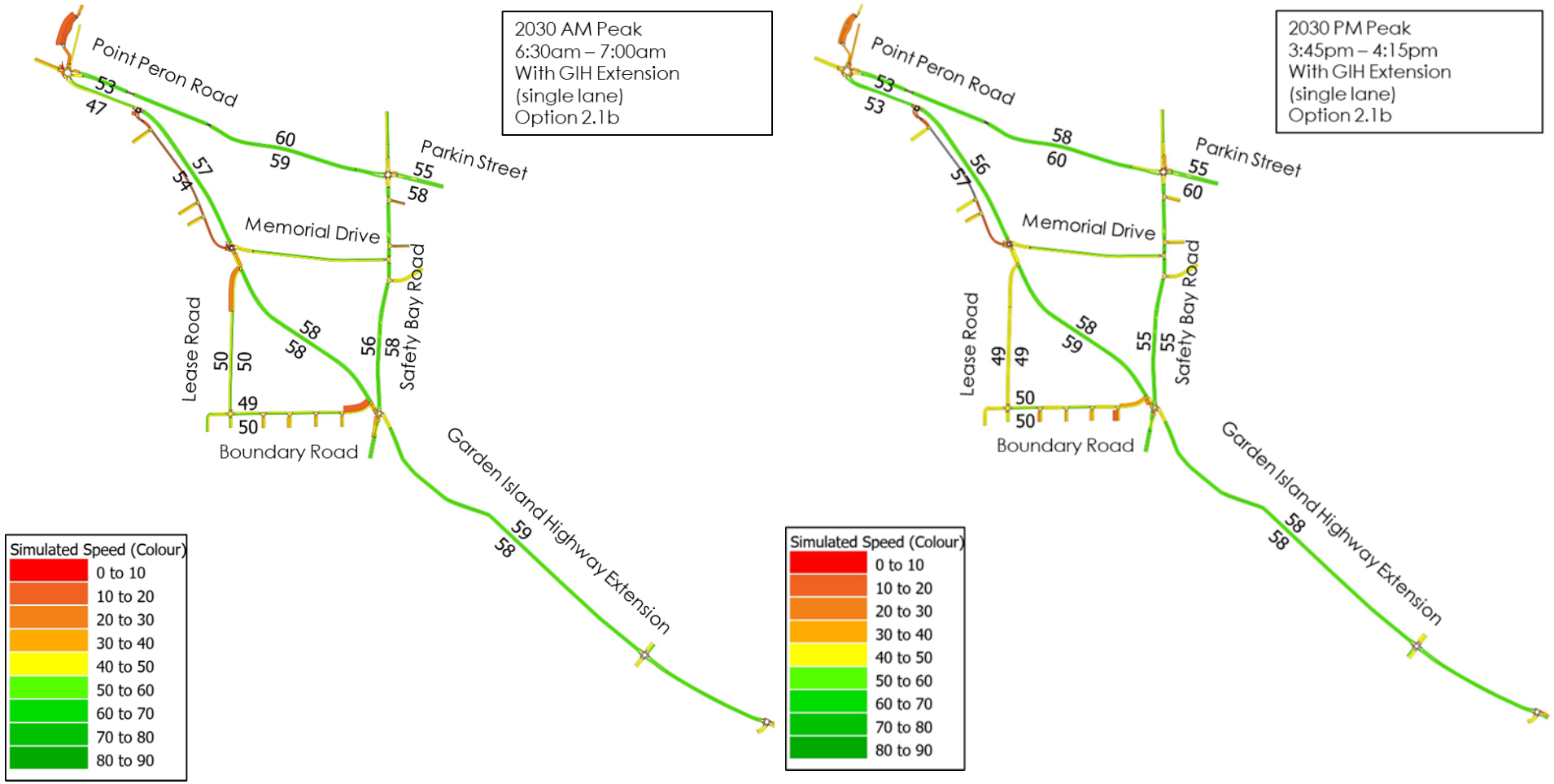


Figure 64 AM and PM Peak Average Speed Plots – 2030 With Garden Island Highway Extension (single lane) – Option 2.2a

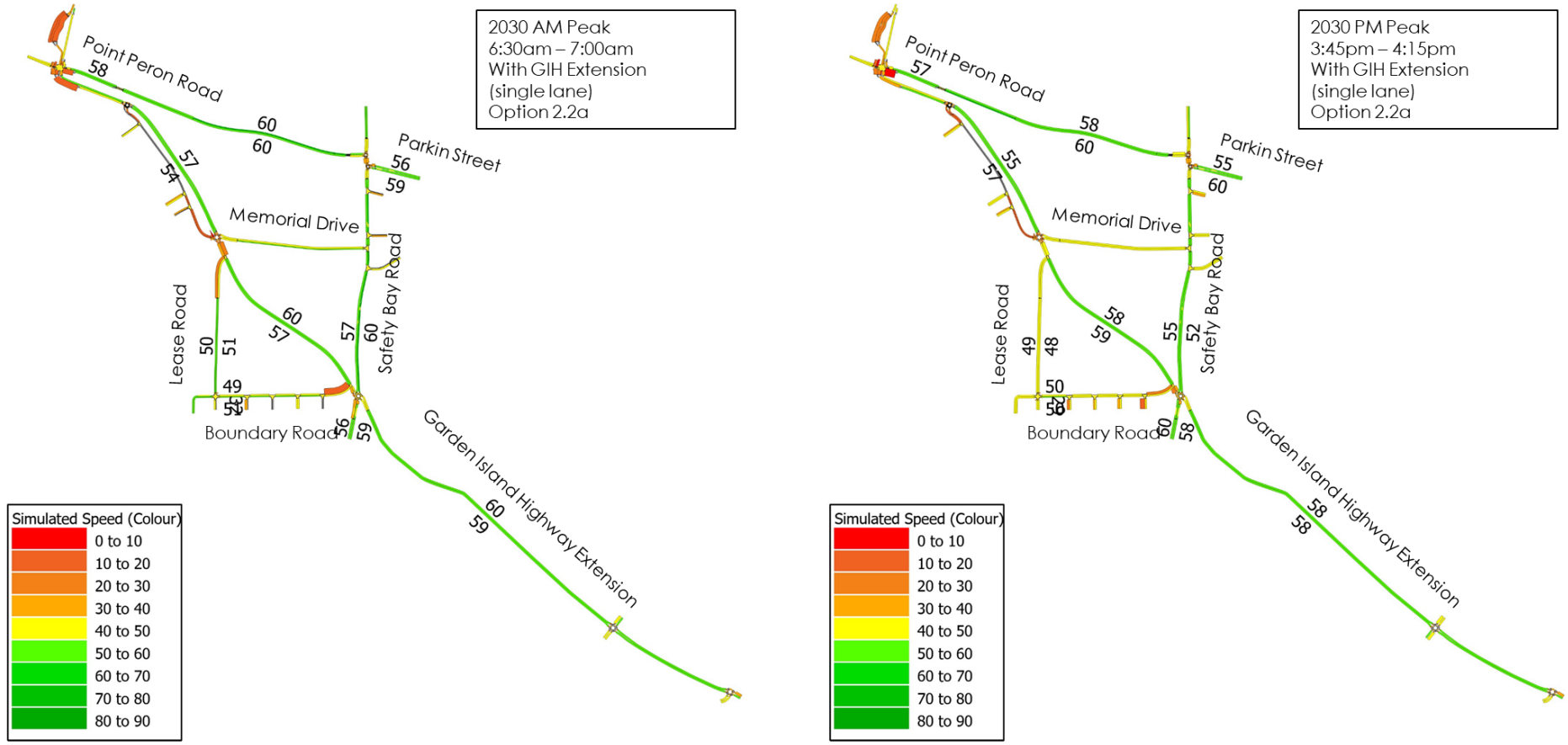
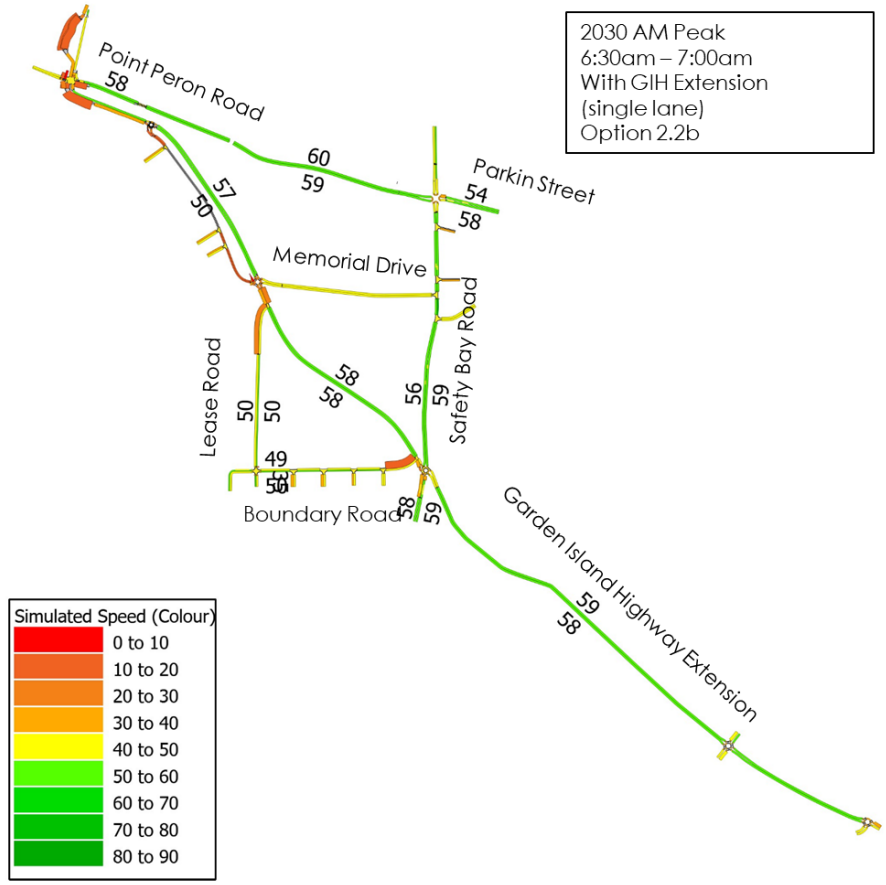
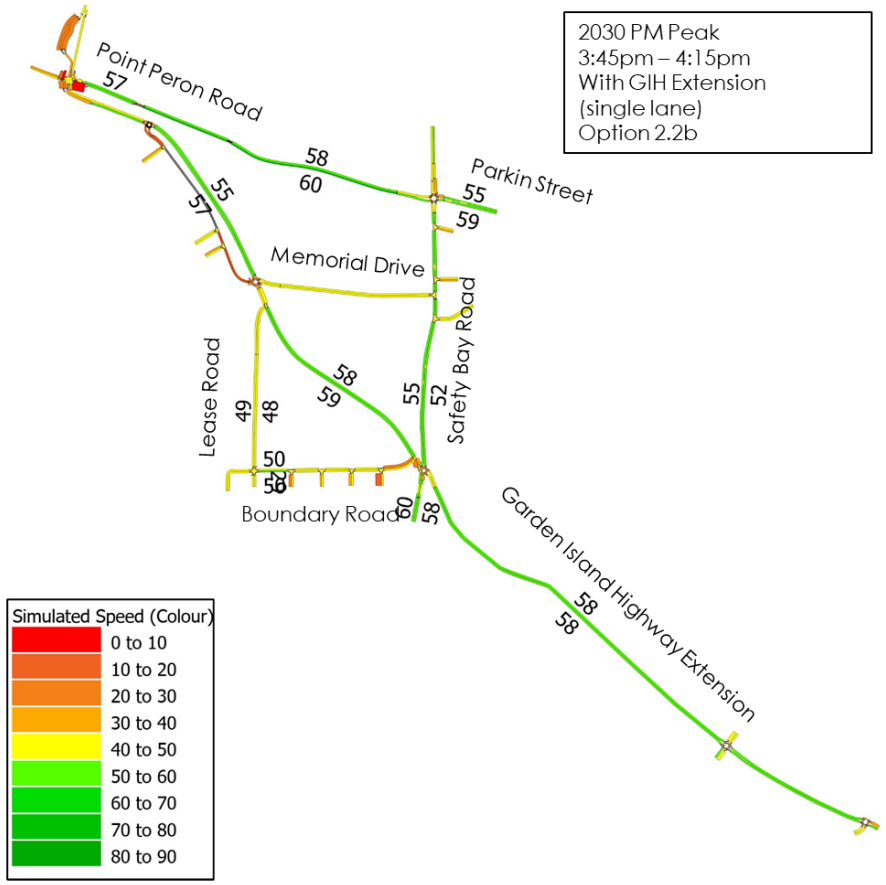


Figure 65 AM and PM Peak Average Speed Plots – 2030 With Garden Island Highway Extension (single lane) – Option 2.2b





The key takeaways from the Average Speed plots are as follows:

- AM Peak:
  - Option 2.1a and Option 2.1b both demonstrate a well operating network with high average speeds and minimal queues observed.
  - Option 2.2a and Option 2.2b experiences some delays at the Garden Island Highway / Point Peron Road / HMAS Stirling Road signalised intersection as expected due to the implementation of the signals where Aimsun is capturing the vehicles reducing its speed / stopping while waiting for the green light.
- PM Peak:
  - All scenarios are shown to perform well in the PM peak.

Network Statistics

The key network performance metrics have been summarised in **Table 25 and Table 26** for the weekday AM and PM peak hours respectively. The definition of each performance metric has been included in **Section 7.1.8.2**. with the 2030 Do Nothing statistics included for direct comparison.

Table 25 Weekday AM Peak Network Performance Results – 2030 With Garden Island Highway Extension (single lane)

Metric		2030 Do Nothing	2030 Option 2.1a	2030 Option 2.1b	2030 Option 2.2a	2030 Option 2.2b
Total Travelled Distance (VKT)	km	3,044	4,362	4,358	4,277	4,293
Total Travel Time (VHT)	h	121	105	105	120	120
Average Speed	km/h	31.4	42.0	41.9	38.3	38.4
Average Delay	sec	86	19	19	30	30
Completed Trips	no.	1,372	2,540	2,540	2,504	2,509
Average Journey Time	sec	317	148	149	172	172
Vehicles Waiting to Enter	no.	354	0	0	0	0

Table 26 Weekday PM Peak Network Performance Results – Do Nothing Scenarios

Metric		2030 Do Nothing	2030 Option 2.1a	2030 Option 2.1b	2030 Option 2.2a	2030 Option 2.2b
Total Travelled Distance (VKT)	km	3,634	4,266	4,291	4,449	4,463
Total Travel Time (VHT)	h	131	86	87	94	96
Average Speed	km/h	38.5	46.9	46.7	45.8	45.7
Average Delay	sec	72	10	10	12	13
Completed Trips	no.	1,911	3,030	3,030	3,034	3,034

Metric		2030 Do Nothing	2030 Option 2.1a	2030 Option 2.1b	2030 Option 2.2a	2030 Option 2.2b
Average Journey Time	sec	247	103	104	112	114
Vehicles Waiting to Enter	no.	106	42	42	21	21

The key takeaways from the network performance:

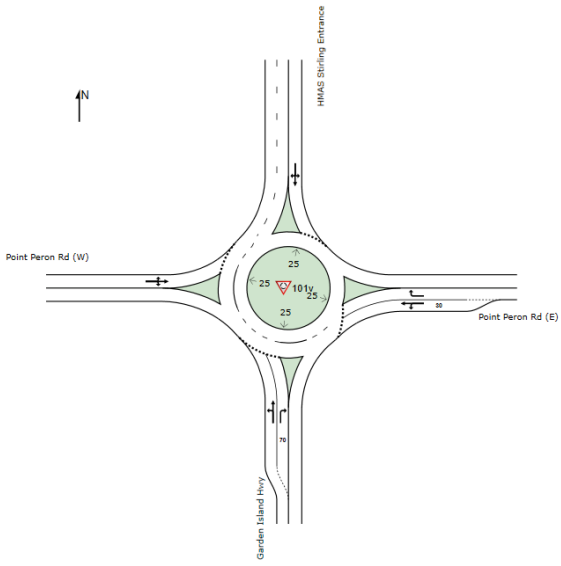
- AM Peak:
  - Option 2.1a and Option 2.1b both demonstrate high performing results with an average speed of approximately 42km/h.
  - Option 2.2a and Option 2.2b experiences a reduction in performance compared to Option 2.1a and Option 2.1b with an average network speed approximately 38km/h (-4km/h) and a higher average journey across the network by approximately 22-23 seconds.
- PM Peak:
  - Similar to the AM peak, Option 2.1a and Option 2.1b both demonstrate high performing results with an average speed of approximately 47km/h.
  - Option 2.2a and Option 2.2b experiences a reduction in performance compared to Option 2.1a and Option 2.1b with an average network speed approximately 46km/h (-1km/h) and a higher average journey across the network by approximately 10 seconds.

7.3.2.2 SIDRA Assessment

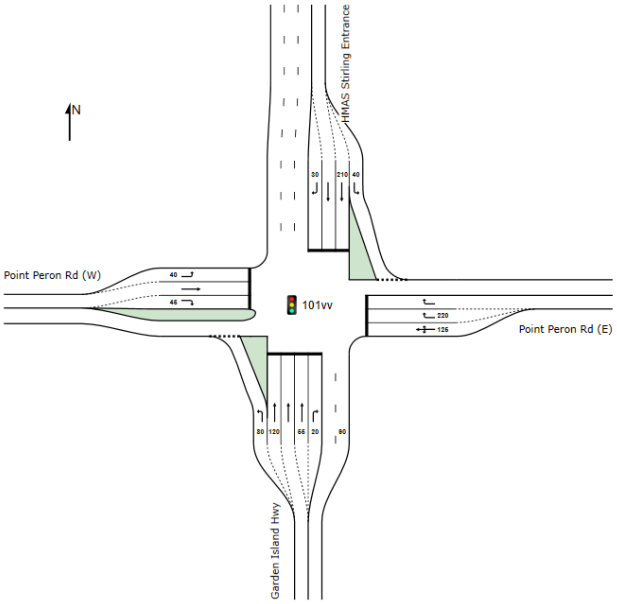
Model Layouts

The 2030 With Garden Island Highway Extension (single lane) SIDRA Layouts are illustrated in **Figure 66**.

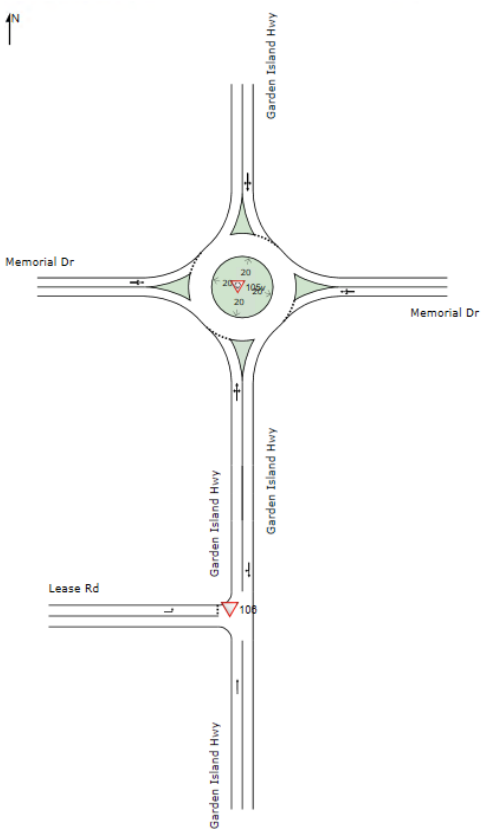
Figure 66 2030 With Garden Island Highway Extension (single lane)



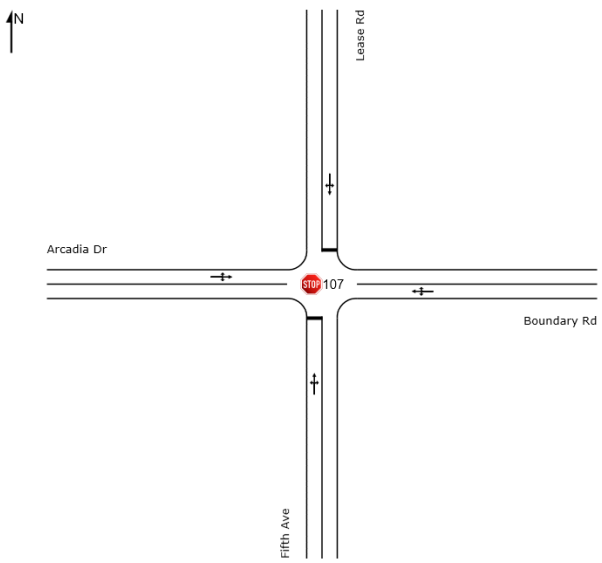
Option .1: Point Peron Road / HMAS Stirling Entrance / Garden Island Highway roundabout



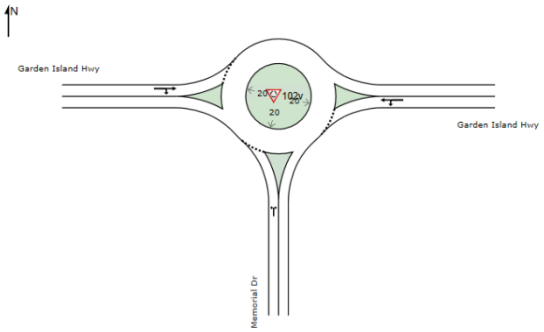
Option .2: Point Peron Road / HMAS Stirling Entrance / Garden Island Highway signalised intersection



Garden Island Highway / Memorial Drive / Lease Road



Boundary Road / Lease Road



Memorial Drive (S) / Garden Island Highway

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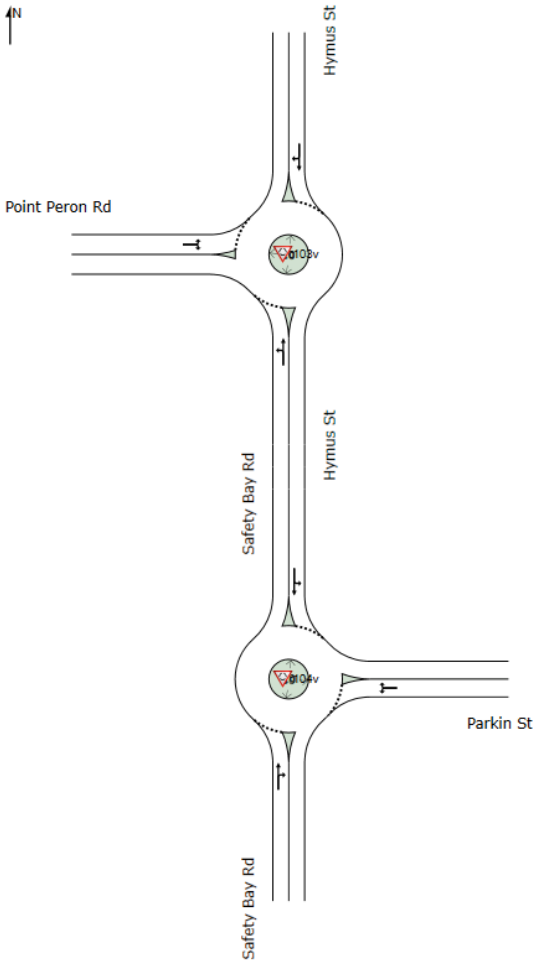
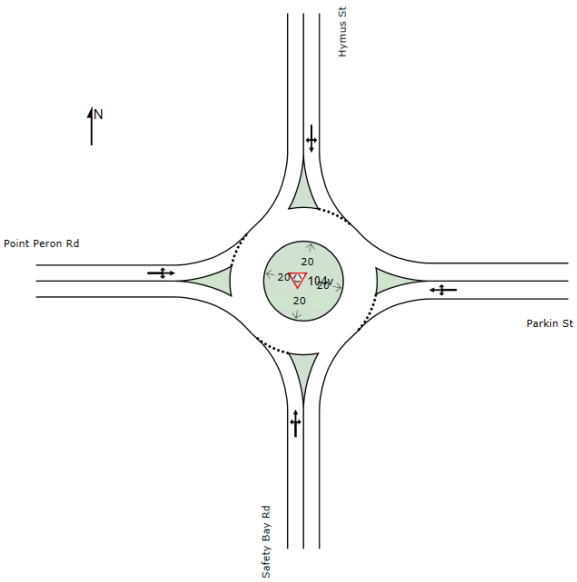


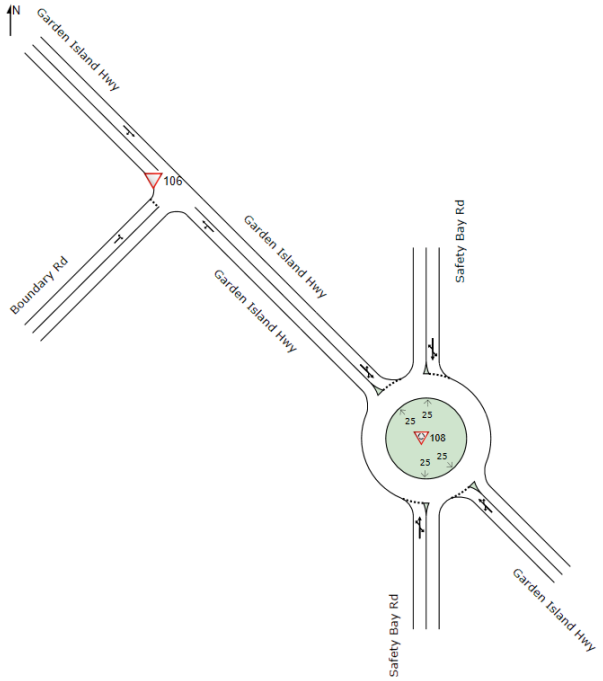


Option .a

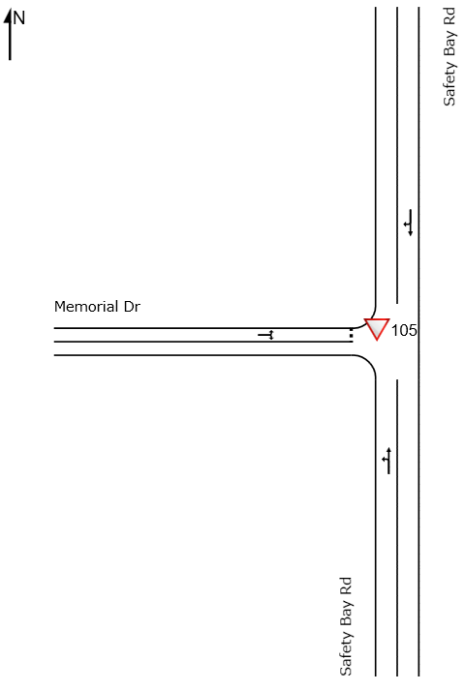
- Point Peron Road / Safety Bay Road / Hymus Street
- Safety Bay Road / Parkin Street

Option .b

- Point Peron Road / Safety Bay Road / Hymus Street / Parkin Street



Safety Bay Road / Boundary Road / Garden Island Highway



Memorial Drive / Safety Bay Road

The Do Nothing with Mitigation AM and PM peak results for each scenario are presented in **Table 27 and Table 28** respectively, noting the 2030 Do Nothing has been included for comparison.

Table 27 2030 With Garden Island Highway Extension (single lane) SIDRA Results Summary – AM Peak

Intersection Name	2030 Do Nothing	2030 Option 2.1a	2030 Option 2.1b	2030 Option 2.2a	2030 Option 2.2b
Point Peron Road / HMAS Stirling Entrance / Garden Island Highway	A	D	D	C	C
Point Peron Road / Safety Bay Road / Hymus Street[1]	B	A	A	A	A
Safety Bay Road / Parkin Street[1]	F	A		A	
Safety Bay Road / Garden Island Highway / Boundary Road[1]	A	B	B	B	B
Boundary Road / Lease Road[1]	A	A	A	A	A
Memorial Drive / Lease Road	A				
Memorial Drive / Point Peron Road	F				
Safety Bay Road / Memorial Drive	B	A	A	A	A
Garden Island Highway / Memorial Drive[1]		A	A	A	A
Garden Island Highway / Lease Road[1]		A	A	A	A
Garden Island Highway / Memorial Drive (S)		A	A	A	A

Table 28 2030 With Garden Island Highway Extension (single lane) SIDRA Results Summary – PM Peak

Intersection Name	2030 Do Nothing	2030 Option 2.1a	2030 Option 2.1b	2030 Option 2.2a	2030 Option 2.2b
Point Peron Road / HMAS Stirling Entrance / Garden Island Highway	B	A	A	B	B
Point Peron Road / Safety Bay Road / Hymus Street[1]	F	A	A	A	A
Safety Bay Road / Parkin Street[1]	C	A		A	
Safety Bay Road / Garden Island Highway / Boundary Road[1]	A	B	B	A	A
Boundary Road / Lease Road[1]	A	A	A	A	A
Memorial Drive / Lease Road	A				
Memorial Drive / Point Peron Road	A				
Safety Bay Road / Memorial Drive	B	A	A	A	A
Garden Island Highway / Memorial Drive[1]		A	A	A	A
Garden Island Highway / Lease Road[1]		A	A	A	A
Garden Island Highway / Memorial Drive (S)		A	A	A	A

1 These intersections were modelled as a network with the nearest intersection. The remaining intersections were modelled as isolated sites.

The SIDRA results indicate the following key takeaways:

- AM Peak
  - All intersection perform well under all scenarios.
  - The Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection is demonstrated to perform better at LOS C for Option 2.2a and Option 2.2b compared to at LOS D for Option 2.1a and Option 2.1b.
- PM Peak
  - All intersections are demonstrated to operate at LOS A or LOS B.

Table 29 summarises the recorded SIDRA 95th percentile queuing for the with Garden Island Highway (single lane). The results demonstrate significant improvement in both peaks compared to the Do Nothing scenario.

Table 29 Garden Island Highway (single lane) 95th Percentile Queing

95th Percentile Queue Lengths (m)	AM Peak					PM Peak				
	2030 Do Nothing	2030 Option 2.1a	2030 Option 2.1b	2030 Option 2.2a	2030 Option 2.2b	2030 Do Nothing	2030 Option 2.1a	2030 Option 2.1b	2030 Option 2.2a	2030 Option 2.2b
Safety Bay Road / Parkin Street east approach (Parkin Street)	2,266	20	24	21	24	211	8	8	8	8

Summary

The Aimsun and SIDRA results presented in this section indicate the following:

- AM Peak:
  - Option 2.1a and Option 2.1b both demonstrate a high performing network with the recorded results indicating minimal queuing and congestion from the Aimsun models. Though with slightly higher delays on Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection from the SIDRA models, the intersection still performs well.
  - Option 2.2a and Option 2.2b while also performing well, do record slightly worse results in the Aimsun model compared to Option 2.1a and Option 2.1b with some queuing and delays on the Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection which are expected due to the introduction of signals where Aimsun captures the vehicles slowing down / stopping while waiting for the green light. Aside from this, it should be noted that the signal timings are better optimised in the SIDRA model.
  - Based on the SIDRA models, all intersections are performing well in all scenarios.
- PM Peak
  - Similar to AM Peak, Option 2.1a and Option 2.1b both demonstrate a high performing network with the recorded results indicating minimal queuing and congestion.
  - Option 2.2a and Option 2.2b while also performing well, do record slightly worse results compared to Option 2.1a and Option 2.1b with some queuing and delays on the Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection which are expected due to the introduction of signals where Aimsun captures the vehicles slowing down / stopping while waiting for the green light. Aside from this, it should be noted that the signal timings are better optimised in the SIDRA model.
  - Based on the SIDRA models, all intersections are performing well in all scenarios.

7.4 With Garden Island Highway Extension (Dual Lane)

The With Garden Island Highway Extension (Dual Lane) Scenarios encompass the 2040 design year as summarised in **Table 30**.

Table 30 With Garden Island Highway Extension (Dual Lane) Scenario Summary

Scenario No.		Year	GIH / Point Peron Road / HMAS Stirling entrance intersection	Point Peron Road / Safety Bay Road / Hymus Street and Parkin Street / Safety Bay Road	Garden Island Highway	HMAS Stirling Entry	HMAS Stirling Causeway
3.	1a	2040	4-way roundabout	Dual staggered roundabouts	Dual Lane	4 entry gates	Dual Lane
	1b		4-way roundabout	Single 4-way roundabout	Dual Lane	4 entry gates	Dual Lane
	2a		4-way signalised intersection	Dual staggered roundabouts	Dual Lane	4 entry gates	Dual Lane
	2b		4-way signalised intersection	Single 4-way roundabout	Dual Lane	4 entry gates	Dual Lane

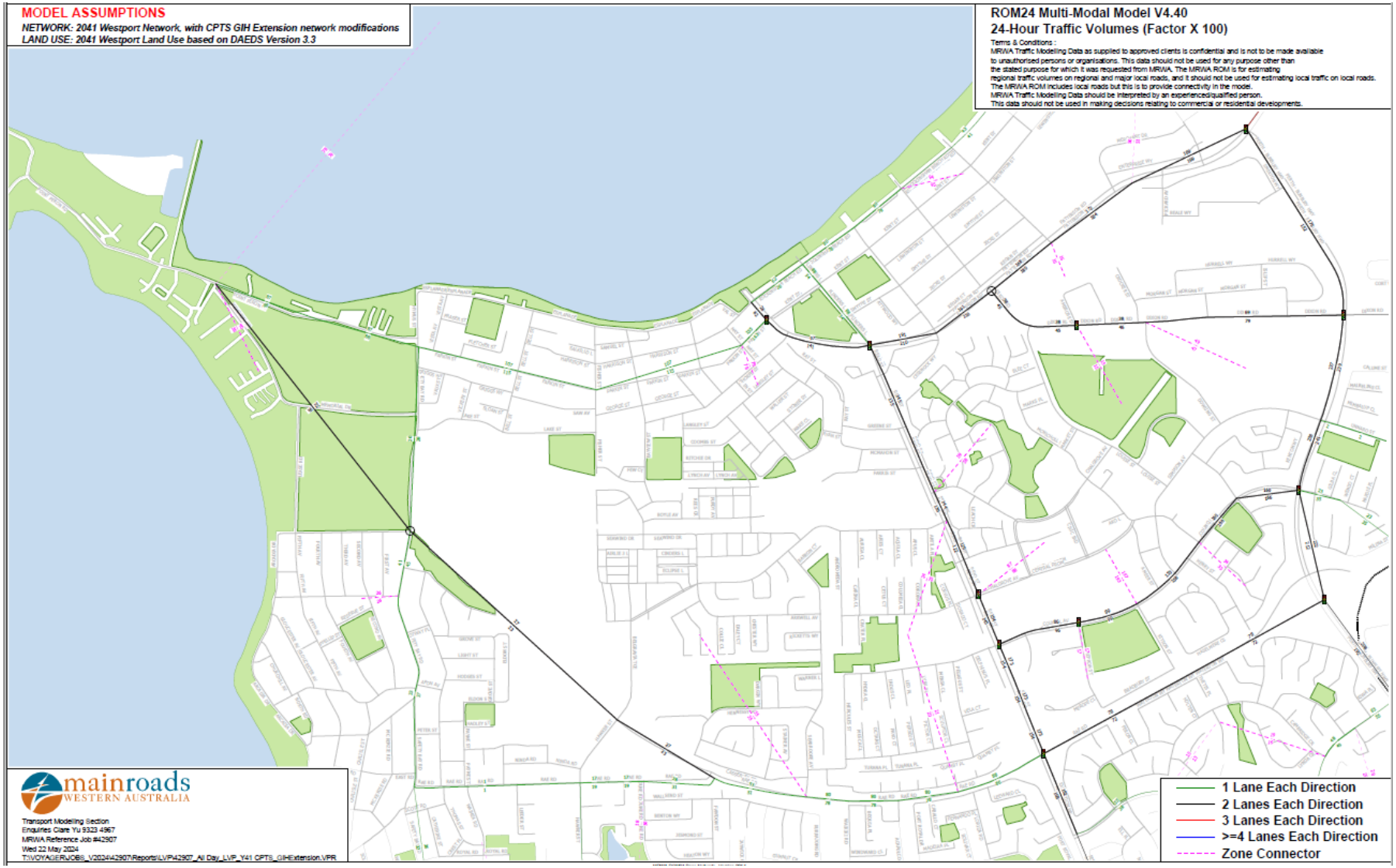
7.4.1 Trip Distribution

The trip distribution for the HMAS Stirling development traffic has been based on ROM24 outputs, as provided my MRWA, which cater for the proposed Garden Island Highway Extension with a dual lane configuration in each direction. The ROM24 network modelled for input into the 2040 scenarios is illustrated in **Figure 67.** The daily volumes summarised for the with and without Garden Island Highway Extension is presented in **Table 31.**

Table 31 2041 ROM24 Daily Volume Summary

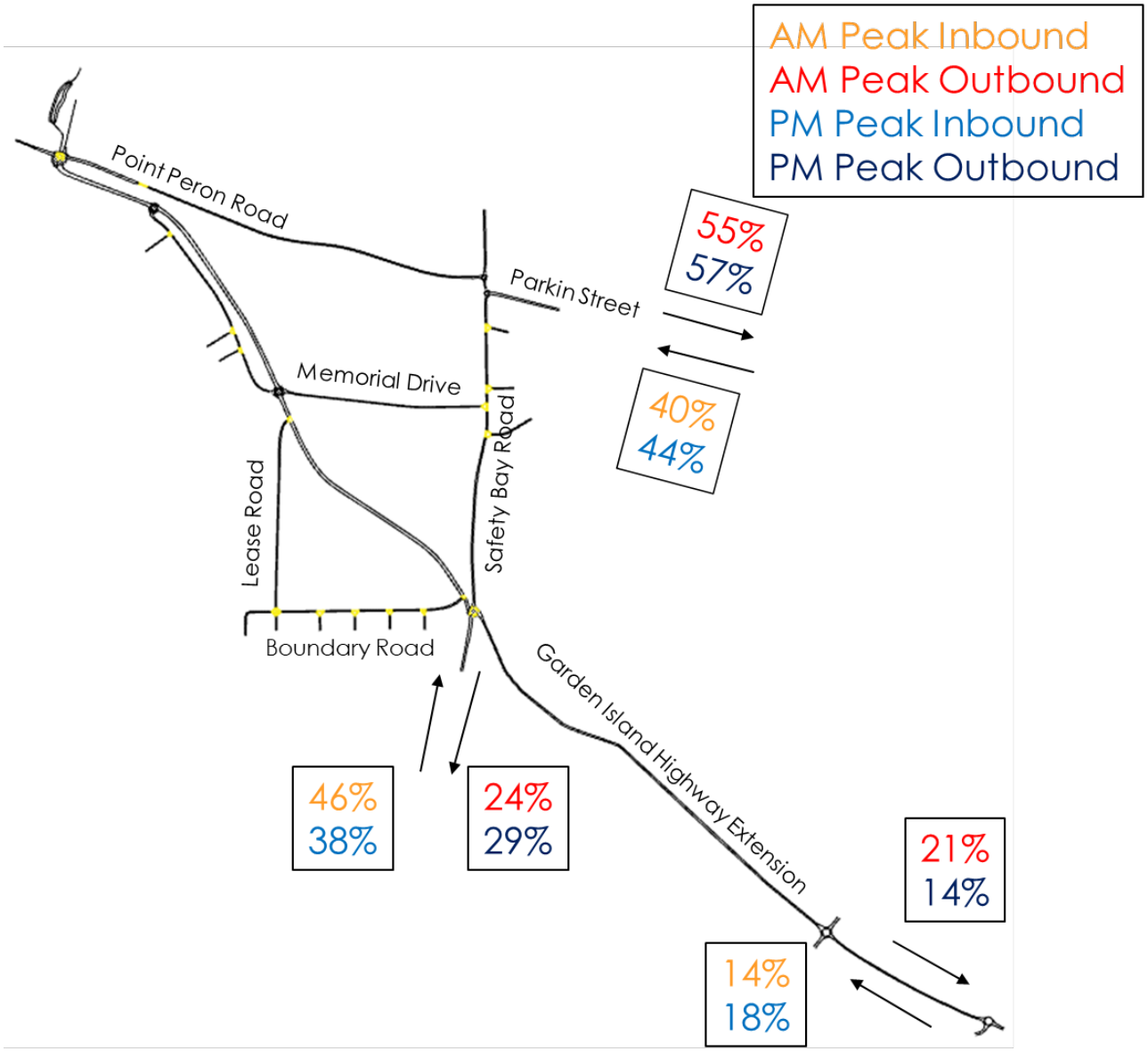
	Direction	Do Nothing	GIH	Change (%)
Parkin Street	EB	11,300	10,700	-5%
	WB	12,100	11,500	-5%
Safety Bay Road	NB	4,900	4,100	-16%
	SB	5,800	4,500	-22%
Rae Road (East)	EB	4,000	2,800	-30%
	WB	3,800	3,100	-18%
GIH	EB	0	2,700	
	WB	0	2,300	

Figure 67 ROM24 2041 Network with Garden Island Highway Extension (dual lane)



The resultant traffic redistribution due to the introduction of the Garden Island Highway Extension per the ROM24 outputs are illustrated in **Figure 68** and carried forward into the Aimsun modelling assessment.

Figure 68 HMAS Stirling Trip Distribution – Garden Island Highway Extension (dual lane)



7.4.2 2040 Garden Island Scenarios (3.1a, 3.1b, 3.2a, 3.2b)

As outlined in **Section 7.2.3**, significant congestion is observed in the Do Nothing scenarios in 2040. As such, mitigation measures have been implemented to accommodate the future year demands. This includes in the Garden Island Highway Extension as well as other additional mitigations developed based on an iterative process based on model operation.

7.4.2.1 Aimsun Assessment

Model Layout

The modelled layout for the 2040 with Garden Island Highway Scenario, as outlined in **Table 23**, is illustrated in **Figure 69.** Noting the key layouts below:

- Point Peron Road / HMAS Stirling Access Point configuration.

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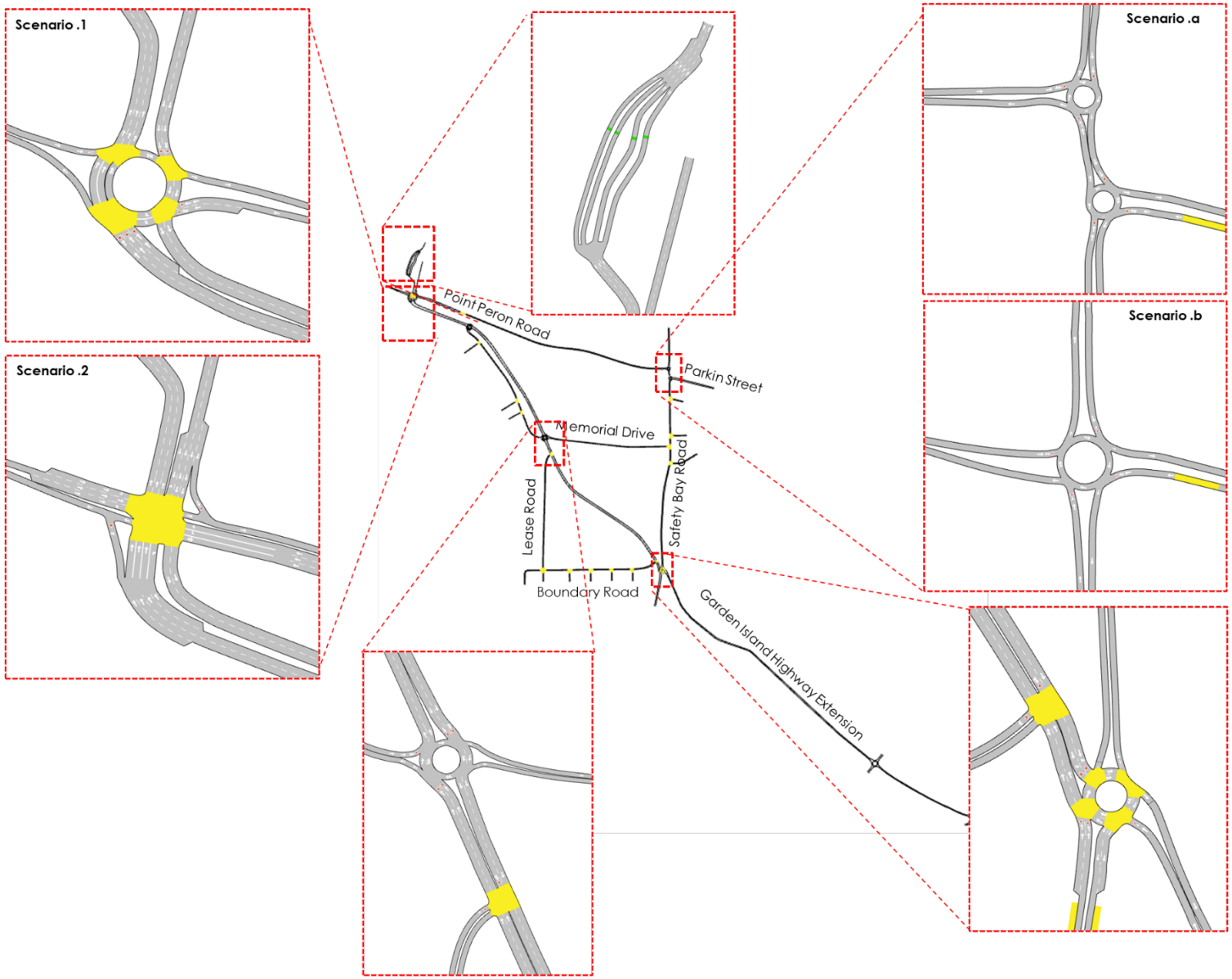
- Scenario .**1**: 4 way roundabout with two circulating lanes on the south and three circulating lanes on the west as well as three lanes on entering HMAS Stirling and two lanes existing HMAS Stirling.
- Scenario .**2**: Signalised intersection configuration with three lanes entering HMAS Stirling and two lanes exiting HMAS Stirling.

- HMAS Stirling Access upgraded to 3 entry points.
- The Parkin Street / Safety Bay Road / Point Peron Road intersection:
  - Scenario .**a**: The dual staggered roundabout option.
  - Scenario .**b**: The single 4-way roundabout option.

It is the noted that layouts modelled in this assessment are to determine the feasibility of the potential design options and will require further detailed design once an option is chosen to be designed in accordance with the Austroads guidelines.

Figure 69 2040 With Garden Island Highway Extension (dual lane) Scenarios Layout



Daily Volume Plots

The Daily Volume plots for the 2040 Garden Island Highway Extension are presented in **Figure 70.**

Figure 70 2040 Garden Island Highway Extension Daily Volume Plot – Scenario 3.1a and Scenario 3.1b

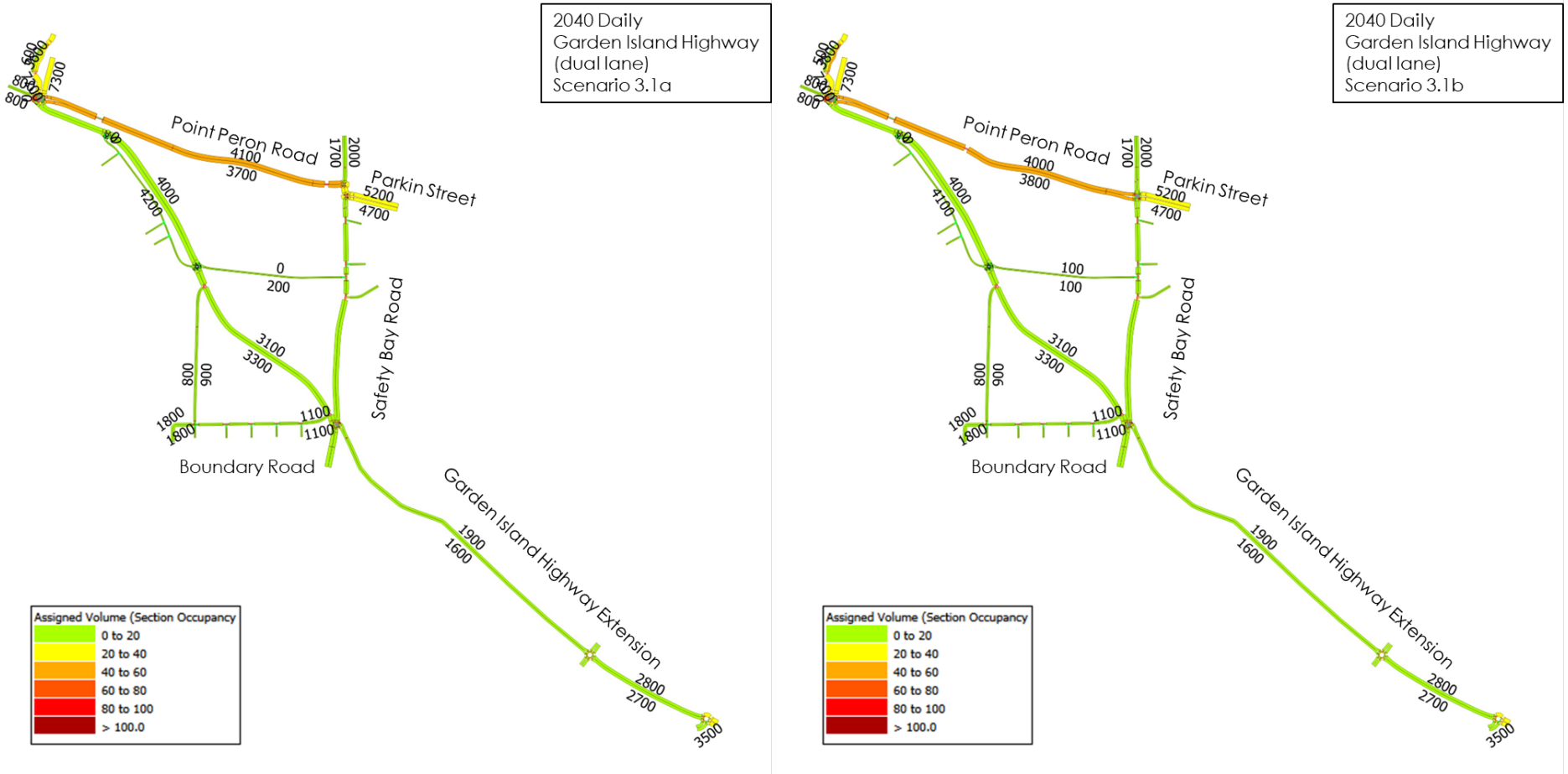
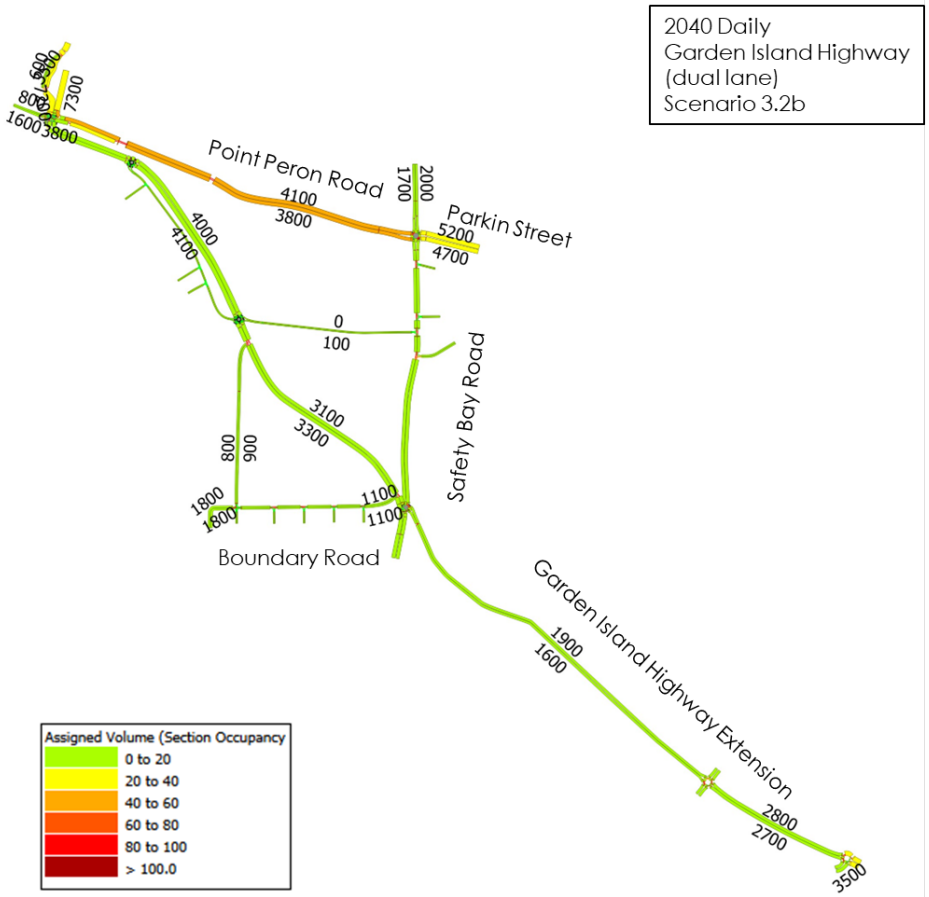


Figure 71 2040 Garden Island Highway Extension Daily Volume Plot – Scenario 3.2a and Scenario 3.2b



Average Speed Plots

The network average speed plots for the Do Nothing with Mitigation scenarios are presented in **Figure 72 - Figure 75.**

Figure 72 AM and PM Peak Average Speed Plots – 2040 Do Nothing with Mitigation – Option 3.1a

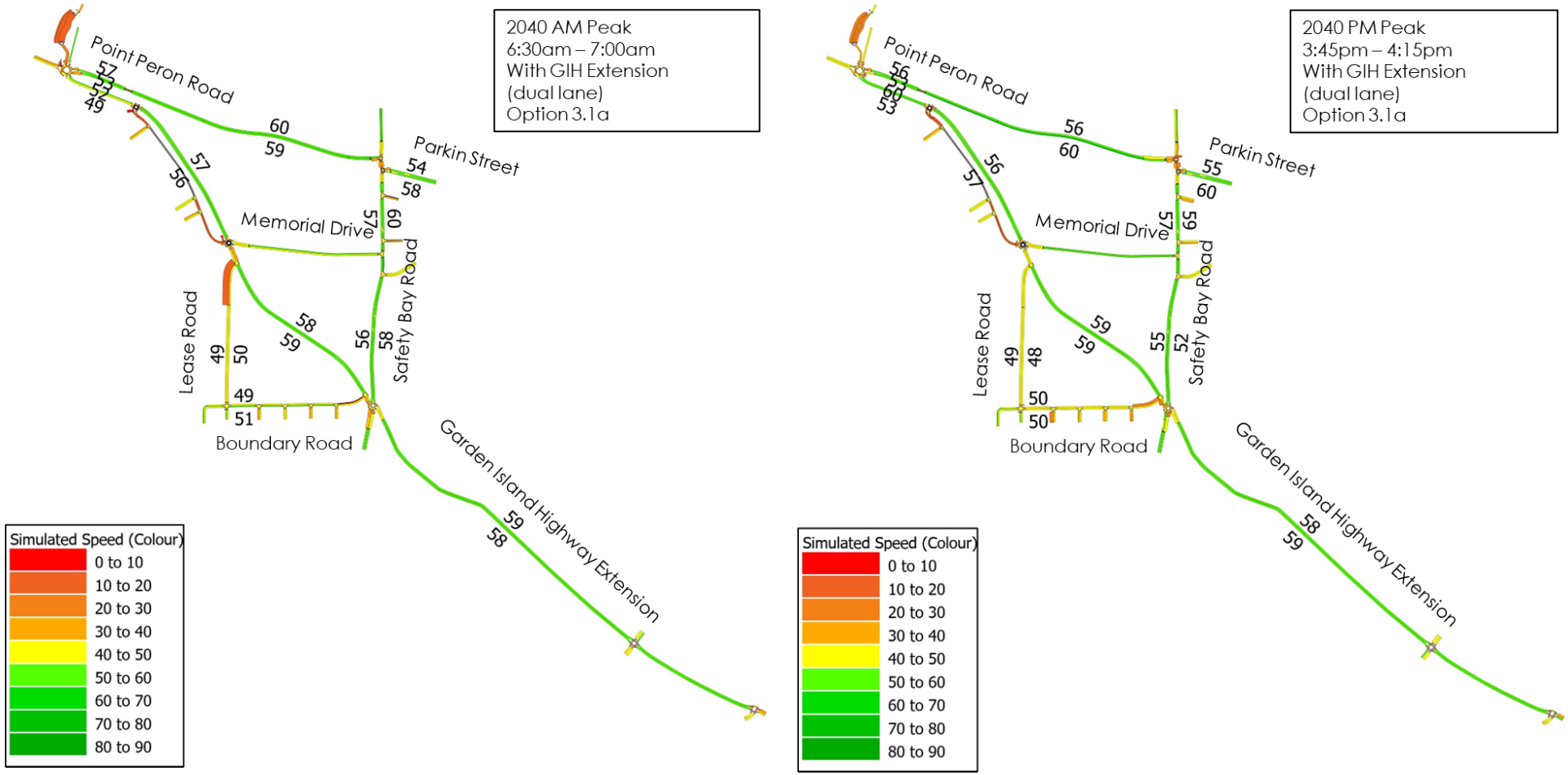


Figure 73 AM and PM Peak Average Speed Plots – 2040 Do Nothing with Mitigation – Option 3.1b

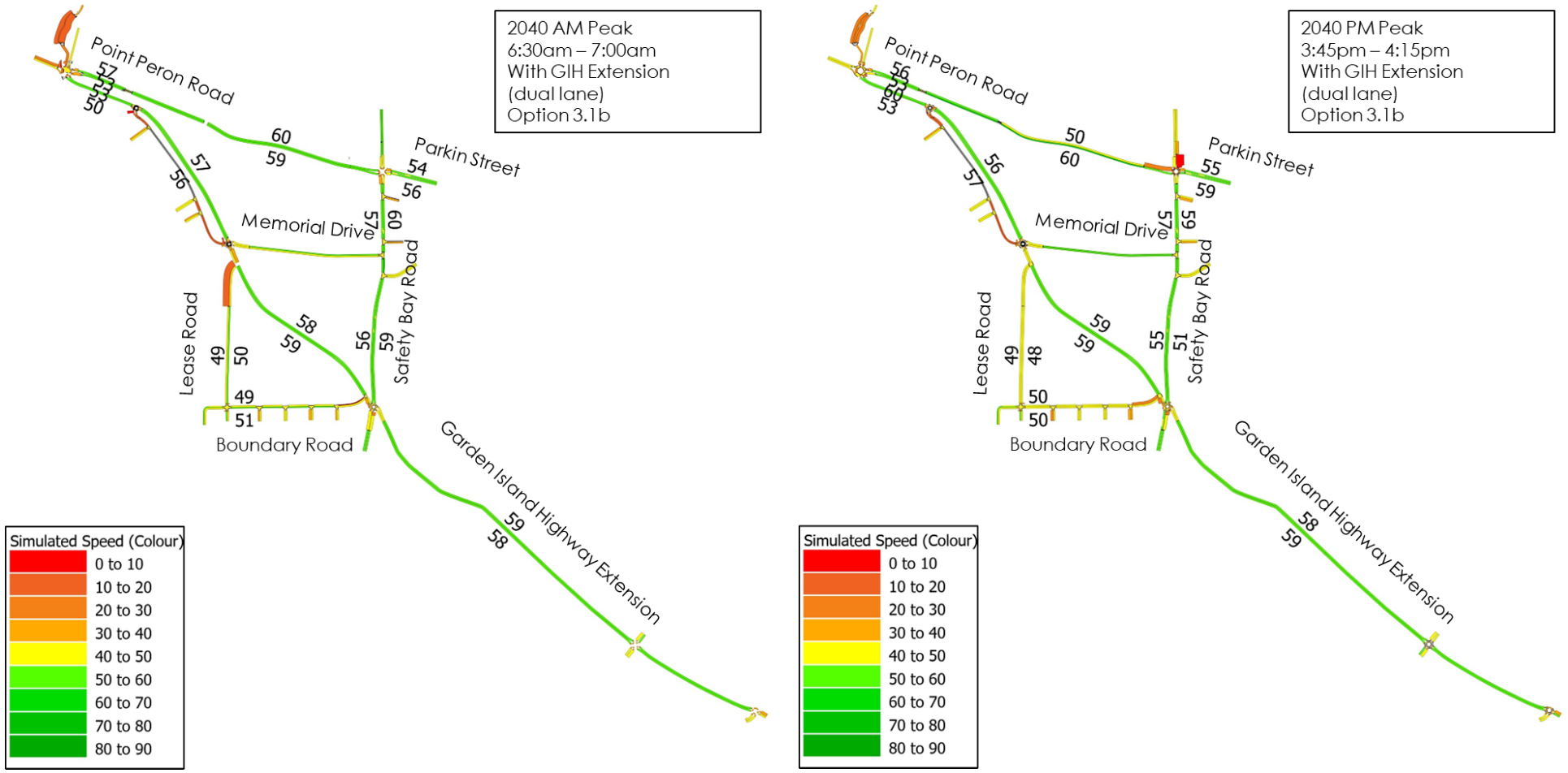


Figure 74 AM and PM Peak Average Speed Plots – 2040 Do Nothing with Mitigation – Option 3.2a

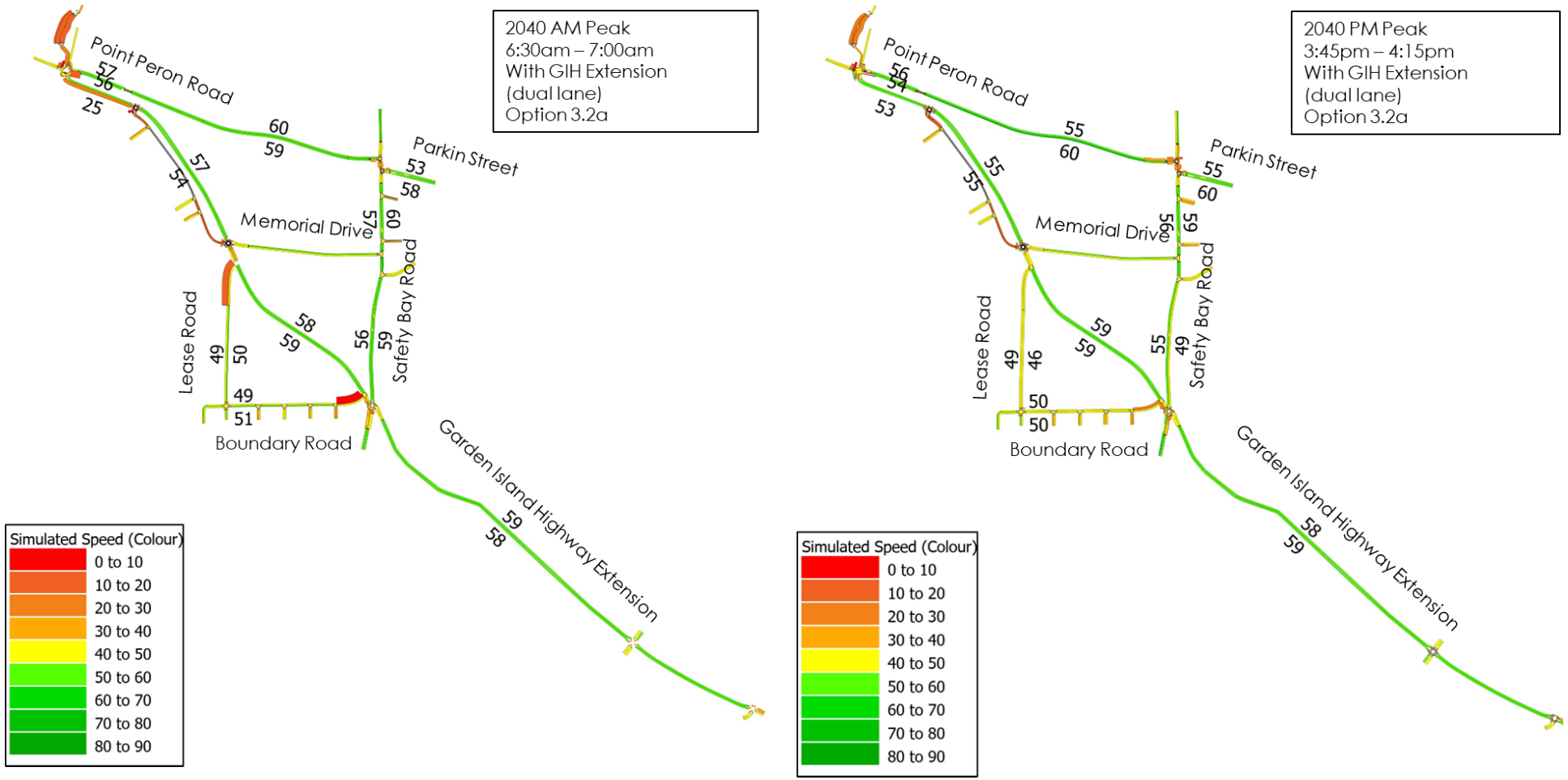
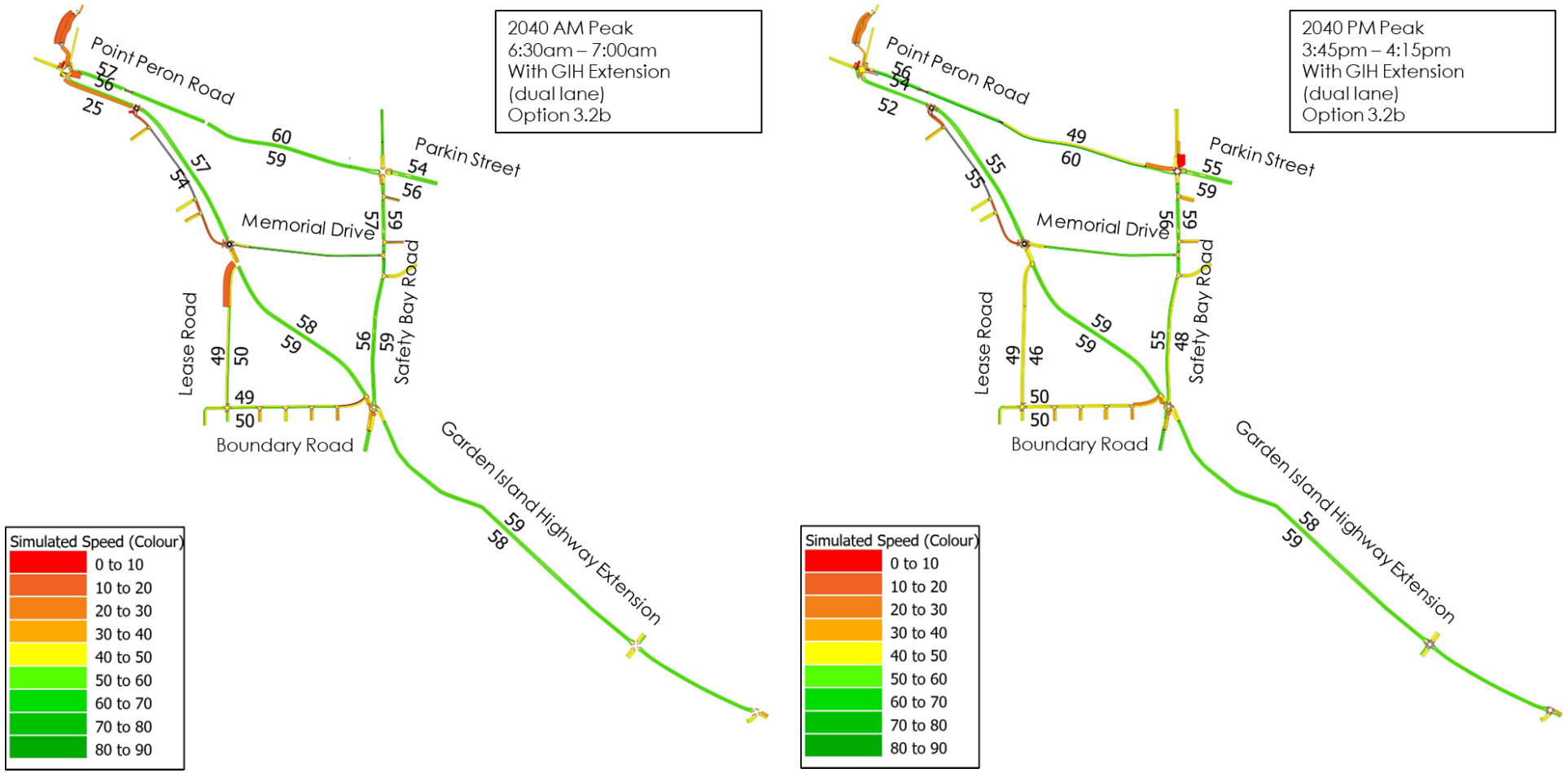


Figure 75 AM and PM Peak Average Speed Plots – 2040 Do Nothing with Mitigation – Option 3.2b



The key takeaways from the Average Speed plots are as follows:

- AM Peak:
  - Option 3.1a and Option 3.1b both demonstrate a well operating network with high average speeds and minimal queues observed.
  - Option 3.2a and Option 3.2b experience some delays at the Garden Island Highway / Point Peron Road / HMAS Stirling Road intersection as expected due to the implementation of the signals where Aimsun is capturing the vehicles reducing its speed / stopping while waiting for the green light.
- PM Peak:
  - All scenarios are shown to perform well in the PM peak though there are some slight delays for the north approach of Point Peron Road / Safety Bay Road / Hymus Street / Parkin Street for Option 3.1b and Option 3.2b.

Network Statistics

The key network performance metrics have been summarised in **Table 32** and **Table 33** for the weekday AM and PM peak hours respectively. The definition of each performance metric has been included in **Section 7.1.8.2**,noting that the 2040 Do Nothing statistics have been included for direct comparison.

Table 32 Weekday AM Peak Network Performance Results – 2040 with Garden Island Highway Extension (dual lane)

Metric		2040 Do Nothing	2040 Option 3.1a	2040 Option 3.1b	2040 Option 3.2a	2040 Option 3.2b
Total Travelled Distance (VKT)	km	3,044	5,481	5,478	5,373	5,360
Total Travel Time (VHT)	h	121	137	138	154	155
Average Speed	km/h	31.4	40.9	40.8	37.5	37.3
Average Delay	sec	86	24	25	34	35
Completed Trips	no.	1,372	2,994	3,004	2,972	2,971
Average Journey Time	sec	317	165	166	187	187
Vehicles Waiting to Enter	no.	354	1	1	1	1

Table 33 Weekday PM Peak Network Performance Results – 2040 with Garden Island Highway Extension (dual lane)

Metric		2040 Do Nothing	2040 Option 3.1a	2040 Option 3.1b	2040 Option 3.2a	2040 Option 3.2b
Total Travelled Distance (VKT)	km	3,634	5,292	5,273	5,281	5,260
Total Travel Time (VHT)	h	131	107	107	112	113
Average Speed	km/h	38.5	47.2	47.0	46.1	45.9
Average Delay	sec	72	10	10	13	13

Metric		2040 Do Nothing	2040 Option 3.1a	2040 Option 3.1b	2040 Option 3.2a	2040 Option 3.2b
Completed Trips	no.	1,911	3,485	3,480	3,476	3,470
Average Journey Time	sec	247	111	111	116	117
Vehicles Waiting to Enter	no.	106	2	3	3	3

The key takeaways from the network performance:

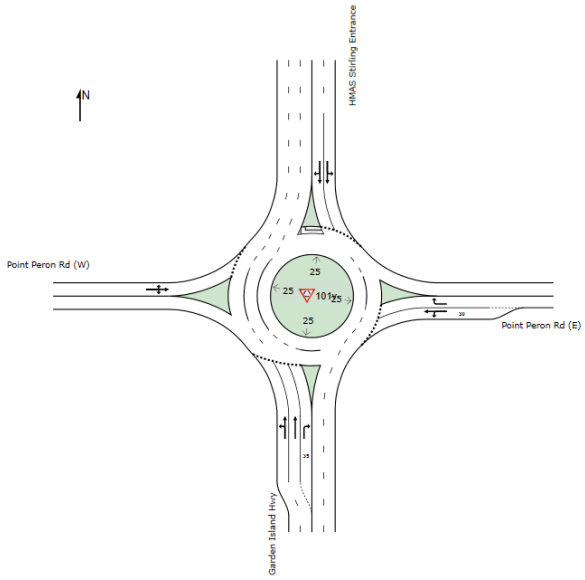
- AM Peak:
  - Option 3.1a and Option 3.1b both demonstrate high performing results with an average speed of approximately 41km/h.
  - Option 3.2a and Option 3.2b experiences a reduction in performance compared to Option 3.1a and Option 3.1b with an average network speed approximately 37km/h (-4km/h) and a higher average journey across the network by approximately 20 seconds.
- PM Peak:
  - All scenarios demonstrate high performing results with though Option 3.2a and Option 3.2b has slightly lower average network speeds and higher average journeys across the network the difference can be considered negligible.

7.4.2.2 SIDRA Assessment

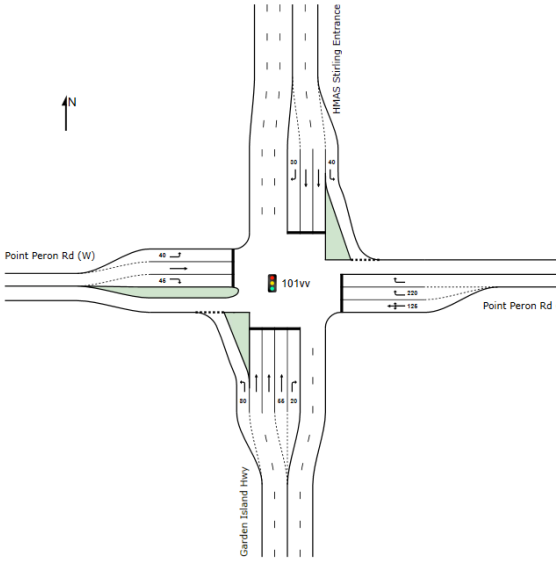
Model Layouts

The 2040 With Garden Island Highway Extension (dual lane) SIDRA Layouts are illustrated in **Figure 76.**

Figure 76 2040 With Garden Island Highway Extension (dual lane)



Option .1: Point Peron Road / HMAS Stirling Entrance / Garden Island Highway roundabout



Option .2: Point Peron Road / HMAS Stirling Entrance / Garden Island Highway signalised intersection

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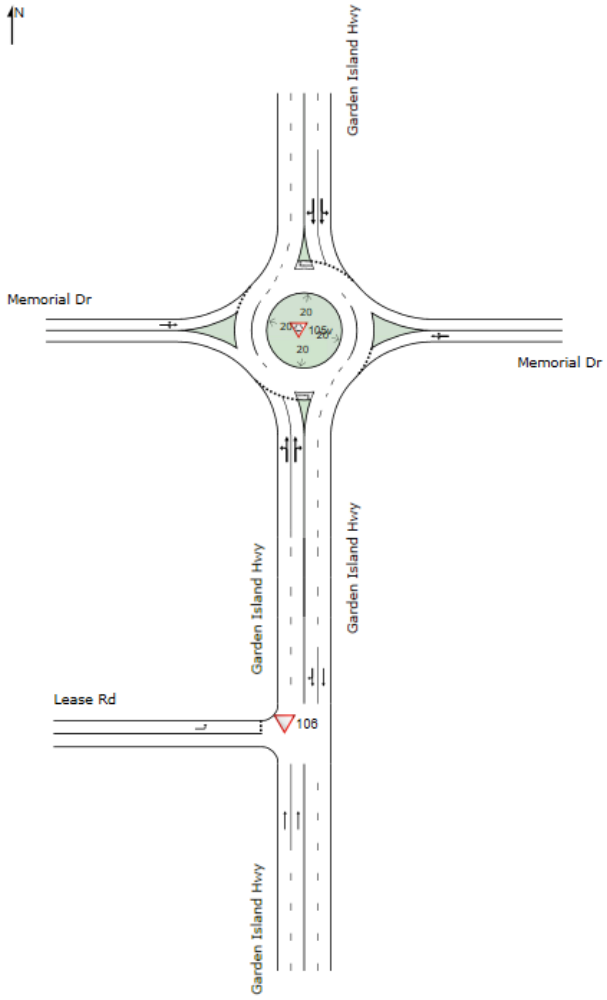
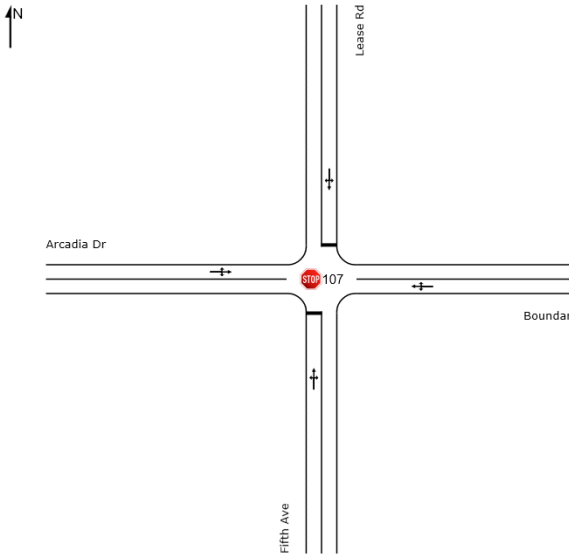
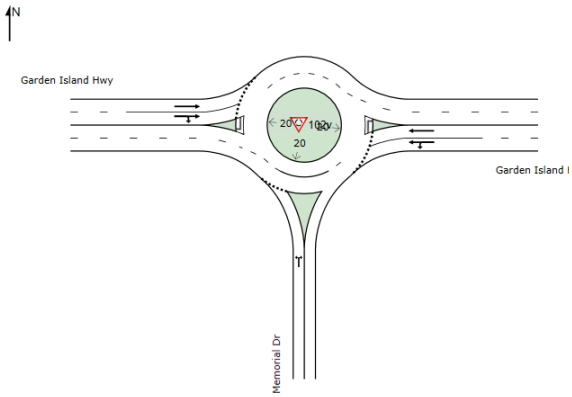


Garden Island Highway / Memorial Drive / Lease Road

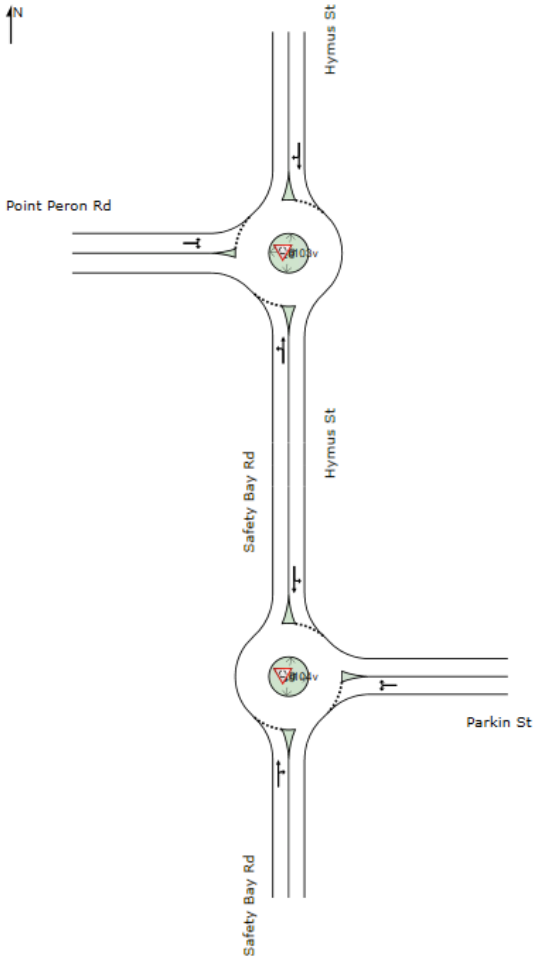


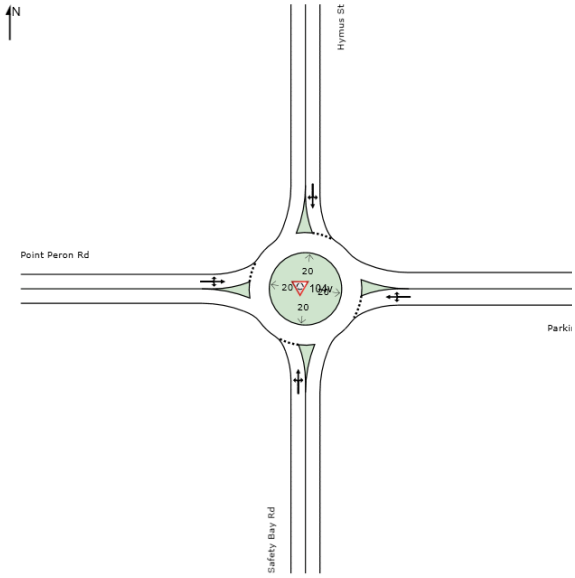
Boundary Road / Lease Road



Memorial Drive (S) / Lease Road

REF: \\AU2011-NTAP01_CIFS02\SHARED_PROJECTS\304900950\5_TECHNICAL\TRAFFIC\REPORTING\003_TRANSPORT REPORT\REV C\CW1200595_304900950-TR-R003-C-TRANSPORT_REPORT_DRAFT_V5.DOCX



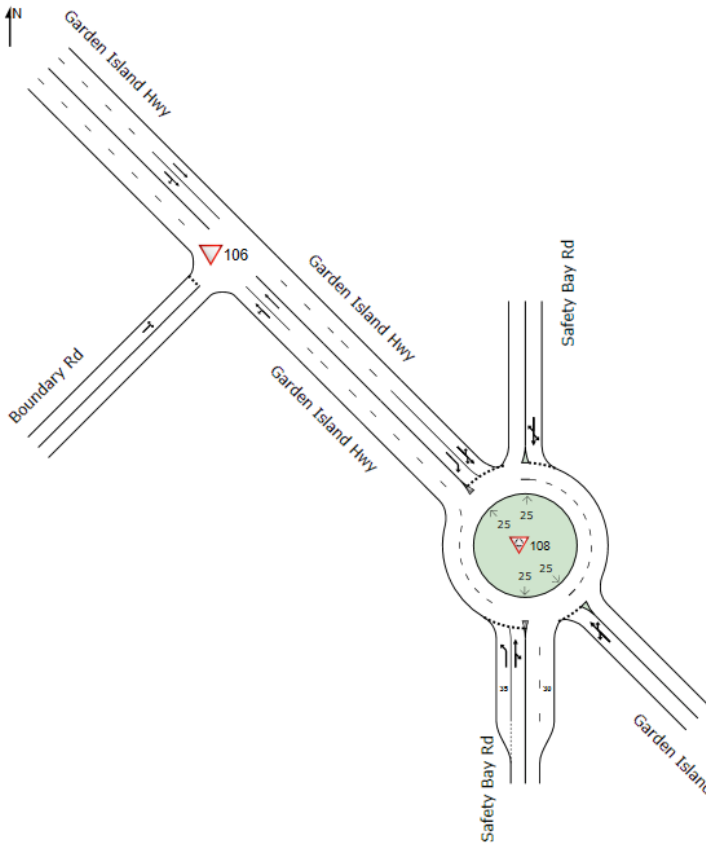


Option .a

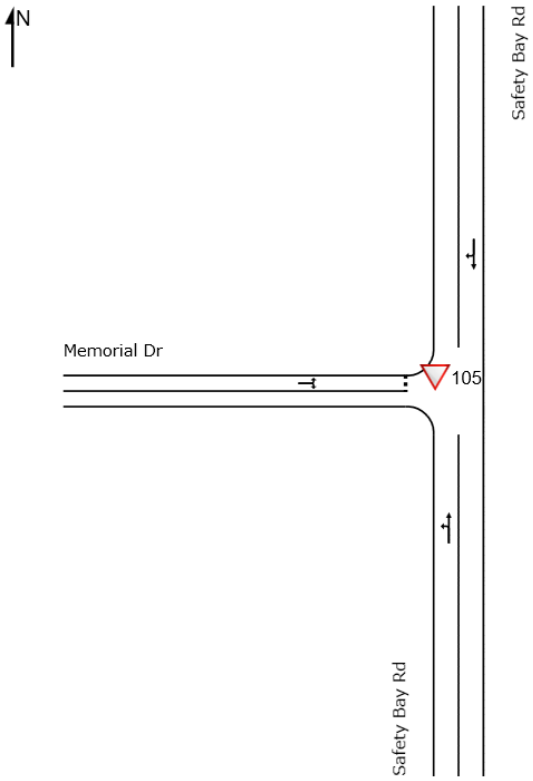
- Point Peron Road / Safety Bay Road / Hymus Street
- Safety Bay Road / Parkin Street

Option .b

- Point Peron Road / Safety Bay Road / Hymus Street / Parkin Street



Safety Bay Road / Boundary Road / Garden Island Highway



Memorial Drive / Safety Bay Road

The Do Nothing with Mitigation AM and PM peak results for each scenario are presented in **Table 34** and **Table 35** respectively, noting the 2040 Do Nothing has been included for comparison.

Table 34 2040 2040 With Garden Island Highway Extension (dual lane) SIDRA Results Summary – AM Peak

Intersection Name	2040 Do Nothing	2040 Option 3.1a	2040 Option 3.1b	2040 Option 3.2a	2040 Option 3.2b
Point Peron Road / HMAS Stirling Entrance / Garden Island Highway	F	F	F	C	C
Point Peron Road / Safety Bay Road / Hymus Street[1]	C	A	A	A	A
Safety Bay Road / Parkin Street[1]	F	B		A	
Safety Bay Road / Garden Island Highway / Boundary Road[1]	A	C	D	D	D
Boundary Road / Lease Road[1]	A	A	A	A	A
Memorial Drive / Lease Road	A				
Memorial Drive / Point Peron Road	F				
Safety Bay Road / Memorial Drive	C	A	A	A	A
Garden Island Highway / Memorial Drive[1]		A	A	A	A
Garden Island Highway / Lease Road[1]		A	A	A	A
Garden Island Highway / Memorial Drive (S)[1]		A	A	A	A

Table 35 2040 With Garden Island Highway Extension (dual lane) SIDRA Results Summary – PM Peak

Intersection Name	2040 Do Nothing	2040 Option 3.1a	2040 Option 3.1b	2040 Option 3.2a	2040 Option 3.2b
Point Peron Road / HMAS Stirling Entrance / Garden Island Highway	F	A	A	B	B
Point Peron Road / Safety Bay Road / Hymus Street[1]	F	F	A	F	A
Safety Bay Road / Parkin Street[1]	B	A		A	
Safety Bay Road / Garden Island Highway / Boundary Road[1]	A	C	C	C	C
Boundary Road / Lease Road[1]	A	A	A	A	A
Memorial Drive / Lease Road	A				
Memorial Drive / Point Peron Road	A				
Safety Bay Road / Memorial Drive	A	A	A	A	A
Garden Island Highway / Memorial Drive[1]		A	A	A	A
Garden Island Highway / Lease Road[1]		A	A	A	A
Garden Island Highway / Memorial Drive (S)[1]		A	A	A	A

1 These intersections were modelled as a network with the nearest intersection. The remaining intersections were modelled as isolated sites.

The SIDRA results indicate the following key takeaways:

- AM Peak
  - In Option 3.1a and Option 3.1b, the Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection is observed to be operating above capacity recording at LOS F as a roundabout. Due to the high HMAS Stirling demand and the intersection type providing priority to the right turning traffic from Point Peron Road, the south approach traffic struggle to enter the roundabout thus resulting to increased delays.
  - In Option 3.2a and Option 3.2b, the Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection demonstrated to perform at LOS C . This shows that the signalised option has more resilience over the roundabout option as it allows ample time for both the south and east approach movements.
  - All other intersections are performing at LOS A to LOS D for all scenarios.
- PM Peak
  - In Option 3.1a and Option 3.2a, the Point Peron Road / Safety Bay Road / Hymus Street intersection is observed to be operating above capacity recording at LOS F as part of the staggered roundabouts. Due to the layout, vehicles from Point Peron Road may have to give way twice before arriving at Parkin Street. Once on Point Peron Road for vehicles going through from Safety Bay Road to Hymus Street and another on Safety Bay Road for vehicles turning right from the south. Aside from this, queues fill the section of Safety Bay Road between Parkin Street and Point Peron Road thus preventing vehicles to turn from Point Peron Road.
  - In Option 3.1b and Option 3.2b, the Point Peron Road / Safety Bay Road / Hymus Street / Parkin Street intersection demonstrated to perform at LOS A as a single roundabout. Reducing the conflict points for this area shows that the single roundabout option has more resilience over the staggered roundabout option.
  - All other intersections are demonstrated to operate at LOS A to LOS C for all scenarios.

Table 36 summarises the recorded SIDRA 95th percentile queuing for the with Garden Island Highway (dual lane). The results demonstrate significant improvement in both peaks compared to the Do Nothing scenario.

Table 36 Garden Island Highway (dual lane) 95th Percentile Queing

95th Percentile Queue Lengths (m)	AM Peak					PM Peak				
	2040 Do Nothing	2040 Option 3.1a	2040 Option 3.1b	2040 Option 3.2a	2040 Option 3.2b	2040 Do Nothing	2040 Option 3.1a	2040 Option 3.1b	2040 Option 3.2a	2040 Option 3.2b
Safety Bay Road / Parkin Street east approach (Parkin Street)	3,499	58	36	32	36	318	9	10	9	10

Summary

The Aimsun and SIDRA results presented in this section indicate the following:

- AM Peak:
  - Option 3.1a and Option 3.1b both demonstrate a high performing network with the recorded results indicating minimal queuing and congestion in the Aimsun model however the detailed analysis from SIDRA shows that the roundabout option for Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection will struggle in 2040.
  - Option 3.2a and Option 3.2b while also performing well, do record slightly worse results compared to Option 3.1a and Option 3.1b with some queuing and delays on the south approach of the Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection in the Aimsun model which is expected due to the introduction of signals where Aimsun captures the slowing down / stopping of vehicles while waiting for the green light. It should be noted that the signal timings are better optimised in the SIDRA model.
  - Based on the SIDRA models, the Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection will perform better as a signalised intersection rather than a roundabout.
- PM Peak
  - All scenarios demonstrate a high performing network with the recorded results indicating minimal queuing and congestion with negligible differences between the scenarios from the Aimsun model.
  - Based on the SIDRA models, the Point Peron Road traffic struggle in the staggered roundabout layout in Option 3.1a and Option 3.2a however the area performs well as a single roundabout in Option 3.1b and Option 3.2b.

7.4.3 Summary of Traffic Modelling Results

The following summarises the results and recommendations for each of the scenarios modelled:

Do Nothing Scenarios

The Aimsun and SIDRA results presented in this section indicate the following:

- AM Peak:
  - The 2023 Do Nothing scenario demonstrates network operating well with some queuing and delays experienced on Parkin Street accessing Safety Bay Road.

- The 2030 Do Nothing scenario is demonstrated to exceed the network capacity with increased congestion / queueing observed throughout the network (most notably Parkin Street, Point Peron Road and Memorial Drive) with queueing shown to cause vehicles to be unable to enter the network. The following intersections are recorded to fail (LOS F):
    i. Safety Bay Road / Parkin Street
    ii. Memorial Drive / Point Peron Road
- The 2040 Do Nothing scenario experiences significant congestion across the network exacerbating the congestion experienced in the 2030 Do Nothing. Increased congestion, queueing and Vehicles waiting to enter the network are all shown with the following intersections recording a LOS F:
    i. Safety Bay Road / Parkin Street
    ii. Memorial Drive / Point Peron Road
    iii. Point Peron Road / HMAS Stirling Entrance

- PM Peak
    - The 2023 Do Nothing scenario demonstrates network operating well.
    - The 2030 Do Nothing scenario is demonstrated to exceed the network capacity with increased congestion / queueing observed on Point Peron Road with the key pinch being the connection with Safety Bay Road and Parkin Street. The following intersections are recorded to fail (LOS F):
        i. Point Peron Road / Safety Bay Road / Hymus Street
    - The 2040 Do Nothing scenario experiences significant congestion across the network exacerbating the congestion experienced in the 2030 Do Nothing. Increased congestion, queueing and Vehicles waiting to enter the network are all shown with the following intersections recording a LOS F:
        i. Point Peron Road / Safety Bay Road / Hymus Street
        ii. Point Peron Road / HMAS Stirling Entrance

Do Nothing Scenarios with Mitigation

2030:

- AM Peak:
    - Option 2.3a and Option 2.3b both demonstrate significant improvement with the proposed mitigation measures in both options shown to alleviate the congested areas present in the 2030 Do Nothing scenario.
- PM Peak
    - Similar to AM Peak, Option 2.3a and Option 2.3b both demonstrate significant improvement with the proposed mitigation measures in both options shown to alleviate the congested areas present in the 2030 Do Nothing scenario.

2040:

- AM Peak:
    - Option 3.3a and Option 3.3b both demonstrate improvements with the proposed mitigation measures in both options shown to alleviate some of the congestion present in the 2040 Do Nothing scenario.
    - Of the 2 options, Option 3.3b is shown to have higher capacity when modelled in isolation.
- PM Peak
    - Option 3.3a and Option 3.3b both demonstrate significant improvement with the proposed mitigation measures in both options shown to alleviate the congested areas present in the 2040 Do Nothing scenario.

With Garden Island Highway Extension (Single Lane) - 2030

- AM Peak:
  - Option 2.1a and Option 2.1b both demonstrate a high performing network with the recorded results indicating minimal queuing and congestion from the Aimsun models. Though with slightly higher delays on Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection from the SIDRA models, the intersection still performs well.
  - Option 2.2a and Option 2.2b while also performing well, do record slightly worse results compared to Option 2.1a and Option 2.1b with some queuing and delays on the Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection which are expected due to the introduction of signals where Aimsun captures the vehicles slowing down / stopping while waiting for the green light. Aside from this, it should be noted that the signal timings are better optimised in the SIDRA model.
  - Based on the SIDRA models, all intersections are performing well in all scenarios.
- PM Peak
  - Similar to AM Peak, Option 2.1a and Option 2.1b both demonstrate a high performing network with the recorded results indicating minimal queuing and congestion.
  - Option 2.2a and Option 2.2b while also performing well, do record slightly worse results compared to Option 2.1a and Option 2.1b with some queuing and delays on the Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection which are expected due to the introduction of signals where Aimsun captures the vehicles slowing down / stopping while waiting for the green light. Aside from this, it should be noted that the signal timings are better optimised in the SIDRA model.
  - Based on the SIDRA models, all intersections are performing well in all scenarios.

With Garden Island Highway Extension (Dual Lane) – 2040

- AM Peak:
  - Option 3.1a and Option 3.1b both demonstrate a high performing network with the recorded results indicating minimal queuing and congestion in the Aimsun model however the detailed analysis from SIDRA shows that the roundabout option for Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection will struggle in 2040.
  - Option 3.2a and Option 3.2b while also performing well, do record slightly worse results compared to Option 3.1a and Option 3.1b with some queuing and delays on the Point Peron Road / HMAS Stirling Entrance / Garden Island Highway intersection which is expected due to the introduction of signals where Aimsun captures the slowing down / stopping of vehicles while waiting for the green light. It should be noted that the signal timings are better optimised in the SIDRA model.
- PM Peak
  - All scenarios demonstrate a high performing network with the recorded results indicating minimal queuing and congestion with negligible differences between the scenarios from the Aimsun model.
  - Based on the SIDRA models, the Point Peron Road traffic struggle in the staggered roundabout layout in Option 3.1a and Option 3.2a however the area performs well as a single roundabout in Option 3.1b and Option 3.2b.

8. Summary, Conclusions and Recommendations

Stantec has undertaken a Transport Needs Study for Cape Peron in response to Recommendation No. 5 from the Cape Peron (including Mangles Bay) Planning Investigation Area, as endorsed by the Minister for Planning.

The Study involved a literature review of previous reports and assessments for Cape Peron, a review of the proposed Long LTCN for the area, a review of existing parking provisions, a review of the crash history covering the past 5 years for the study, the results of an extensive traffic modelling exercise for the area, as well as proposed cross-sections for each of the roads within the area.

Based on the findings and outcomes from this study, the following conclusions and recommendations have been reached.

Parking Supply

- Parking in Cape Peron has been observed to operate at an average 80% occupancy which indicates that there is a high demand for parking. The existing car parks often reach full capacity during peak times, which has led to vehicles parking informally on the verge.
- Due to environmental and physical constraints, only limited opportunities were identified to increase the parking supply in the area.
- Stantec identified a total of 16 potential additional on-street parallel parking bays that could be accommodated.
- Further detailed engineering studies are recommended to be undertaken to confirm the feasibility of these parking bays.

Crash Review

- A review of the crash data for the Cape Peron area for the 5-year period from January 2018 to December 2022 identified that a relatively low number of crashes had been recorded around the Safety Bay Road / Parkin Street intersection, with the majority of these being rear-end crashes resulting in property damage.
- Five (5) crashes were recorded at the Safety Bay Road / Boundary Road roundabout, of which 2 involved cyclists.
    - As this intersection forms part of the Safety Bay Road and Boundary Road primary routes under the LTCN, it is recommended that any modifications or upgrades of this intersection as part of the Garden Island Highway should include appropriate cycling and pedestrian crossings.

Proposed Cross-Sections

- Based on the findings and recommendations in this report, Stantec has prepared potential cross-sections for each of the roads within the study area (refer **Appendix G**)
- Further detailed engineering and environmental studies are recommended to confirm the feasibility of the proposed cross-sections.

Traffic Modelling

Without Garden Island Highway Extension

2030

- The 2030 model results suggest the **need for a 3rd entry lane** and checkpoint at the HMAS Stirling entry, with the intersections at Point Peron Road / Safety Bay Road / Hymus Street and Parkin Street / Safety Bay Road also found to require upgrades to ensure satisfactorily performance for the 2030 scenarios.

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- The 2030 model results showed little difference for the intersection performance for these intersections, for the 2 roundabout options tested.

- Similarly, the 2030 model results for the intersection of Point Peron Road / HMAS Stirling entrance required upgrading to a roundabout to accommodate the future year demands.

2040

- The 2040 model results suggest the need to **duplicate the Causeway Bridge** as well as the **construction of a fourth lane at the HMAS Stirling entry** to ensure that the road network would have sufficient capacity to accommodate the 2040 traffic demands.

- For the intersections of Point Peron Road / Safety Bay Road / Hymus Street and Parkin Street / Safety Bay Road, the 2040 model results suggest that even with the introduction of mitigation measures for both layout options the network is unable to accommodate the 2040 demands. The limitation in both cases is the Point Peron Road single carriageway which is required to accommodate a significant amount of traffic with queues and delays quickly building up and extending beyond Point Peron Road onto Safety Bay Road. **When modelled in isolation the single roundabout is shown to have additional capacity and is the preferred option.**

With Garden Island Highway Extension

2030

- The 2030 model results suggest **the need to construct the GIH with 1 lane in each direction, as well as a 3rd entry lane and checkpoint at the HMAS Stirling entry**, with the intersections at Point Peron Road / Safety Bay Road / Hymus Street and Parkin Street / Safety Bay Road also found to require upgrades to ensure satisfactorily performance for the 2040 scenarios.

    - The 2040 model results showed little difference for the intersection performance for these intersections, for the 2 roundabout options tested.

- The 2030 model results for the intersection of Garden Island Highway / Point Peron Road / HMAS Stirling entrance intersection demonstrated that **the signalised intersection operated with a greater level of service and higher capacity.**

2040

- The 2040 model results suggest the **need to duplicate the GIH between Point Peron Road and Safety Bay Road plus the duplication of Garden Island Causeway Bridge and the construction of a fourth lane at the HMAS Stirling entry** to ensure that the road network would have sufficient capacity to accommodate the 2040 traffic demands.

- For the intersections of Point Peron Road / Safety Bay Road / Hymus Street and Parkin Street / Safety Bay Road, the 2040 model results suggest that single roundabout option performed operated at a greater level of service.

    - **Based on the above, the single roundabout option is considered to be the preferred option for this intersection**

- The 2040 model results for the intersection of Garden Island Highway / Point Peron Road / HMAS Stirling entrance intersection demonstrated that **the signalised intersection operated with a greater level of service and higher capacity.**

    - **Based on the above, the 4-way signalised option is considered to be the preferred option for this intersection.**

Additional Observations

- **Between Point Peron Road and Safety Bay Road the Garden Island Highway Extension is demonstrated to be critical**, reflected in the need to duplicate the extension within this boundary. The extension takes traffic from both the Garden Island Highway (south of Boundary Road) and Safety Bay Road for direct access to HMAS

Stirling. The 2040 scenarios without the extension demonstrate Safety Bay Road and Point Peron Road operating well above capacity with significant queuing (extending beyond the model extents). The full construction of the Garden Island Highway is demonstrated to relieve pressure on the heavily utilised Safety Bay Road with vehicles reassigned to use Garden Island Highway via the Rae Road connection. Furthermore, it is noted that limited options are present to release the pressure on the overloaded roads with constrained road reservation widths.

- Connections to the Garden Island Highway Extension:
  - **Boundary Road:** The modelled layout (as detailed in Section 7.1.2.2) has Boundary Road connecting to Garden Island Highway as a priority controlled intersection. Noting that the Boundary Road / Garden Island Highway / Safety Bay Road is a critical connection with considerable constraints **it is recommended to explore closing Boundary Road between First Avenue and Safety Bay Road with the neighboring local network anticipated to be able to accommodate the redistribution.**
  - **Memorial Drive:** Providing an east-west connection between Garden Island Highway and Safety Bay Road in the modelling suggests that this link will be underutlised carrying approximately 200 vehicles a day. **It is recommended to explore opportunities for the potential closure of this road with the neighbouring network expected to be able to accommodate the redistribution.**
  - **Lease Road:** Providing a north-south connection between Garden Island Highway and Boundary Road the modelling indicates that will be utilised by approximately 1700 vehicles a day predominantly for local traffic. **It is recommended to explore opportunities for the potential closure of this road with the neighbouring network expected to be able to accommodate the redistribution.**

8.1 Proposed Infrastructure and Upgrade Staging Strategy

Based on the model results, Stantec recommends the following staged approach to the road network upgrades:

- **Between 2024 and 2030**
  - Construct Garden Island Highway as a single carriageway between Belgravia Terrace and Point Peron Road (subject to further exploration on the link between Safety Bay Road and Belgravia Terrace).
  - Construct the intersection of Garden Island Highway / Point Peron Road as a 4-way signalised intersection, to its ultimate form.
  - Realign the eastern section of Point Peron Road and construct a 4-way roundabout at intersections of Point Peron Road / Safety Bay Road / Hymus Street / Parkin Street.
  - Construct 3rd entry lane and checkpoint at HMAS Stirling entry.
- **Between 2030 and 2040**
  - Duplicate Garden Island Highway between Safety Bay Road and Point Peron Road, including upgrade of all intersections in between, as well as tie-in with GIH / Point Peron Road / HMAS Stirling entry (southern leg).
  - Duplicate Causeway Bridge, including tie-in with intersection at Garden Island Highway / Point Peron Road / HMAS Stirling entry (northern leg)
  - Construct 4th entry lane and checkpoint at HMAS Stirling entry.

8.2 Agency Recommended Responsibilities

Based on the recommendations in this report, Stantec proposes the following agency responsibilities to be actioned:

Table 37 Recommended Responsibilities Summary

Agency	Recommended Tasks	Commencement Date
Department of Planning, Lands and Heritage	• Undertake or commission detailed engineering design of Garden Island Highway, including the intersections and tie-ins with the existing road network. (To be undertaken in consultation with the City of Rockingham, Department of Defence, Main Roads WA, and the Department of Transport.)	• 2024/2025
City of Rockingham	• Undertake or commission the detailed design to be informed by the cross-sections in **Appendix G** (with the exception of Garden Island Highway) for the **gazetted** roads to enable the costing of capital works improvements that would inform funding decisions. (To be undertaken in consultation with the Department of Transport for roads that form part of the primary routes under the LTCN.) • Prepare or commission detailed design for the proposed 4-way roundabout of Point Peron Road (realigned) / Safety Bay Road / Parkin Street to enable the costing of capital works improvements that inform funding decisions. • Prepare or commission detailed design for potential realignment for gazetted section of Point Peron Road, having regard to its 'tie-in' with a likely 4-way roundabout of Point Peron Road / Safety Bay Road / Parkin Street.	• 2024/2025 • 2024/2025 • 2024/2025
Department of Biodiversity, Conservation and Attractions	• Undertake or commission engineering studies to progress the proposed cross-sections shown in **Appendix G** for the **ungazetted** roads. (To be undertaken in consultation with the City of Rockingham and the Department of Transport for roads that form part of the primary routes under the LTCN.) • Prepare or commission detailed engineering design for the proposed additional on-street parking bays within Cape Peron, including the proposed mini roundabout.	• 2025 • 2025
Department of Defence	• Undertake or commission engineering studies for the construction of 2 additional entry lanes and checkpoints at the HMAS Stirling entry. • Undertake or commission engineering studies for the duplication of the Causeway Road Bridge.	• 2024 / 2025 • 2024 / 2025
State / Commonwealth Agency	• Undertake or commission the detailed road design (15% design) of proposed ugrades. Noting that the detailed road design will operate in tandem with environmental studies in the next dot point. • Undertake or commission the detailed environmental studies required to progress the environmental approvals for the construction of Garden Island Highway. • Undertake or commission the detailed constraint mapping (for example, Aboriginal and European heritage surveys, critical underground infrastructure, etc) along the existing road reservation for the Garden Island Highway, which is to be used to inform the proposed alignment and design.	• 2024 • 2024 • 2024/2025

Appendices

We design with community in mind

Appendix A Water Corp Drawings

N

PERON

PORT PERON

LEASE

TODD AV

RD

ROCKINGHAM MID. 80K01

Print Date: 08/02/2023 08:48:07

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Scale 1:5000

0m 50m 100m 150m 200m 250m

Projection: MGA Zone 50 (m)

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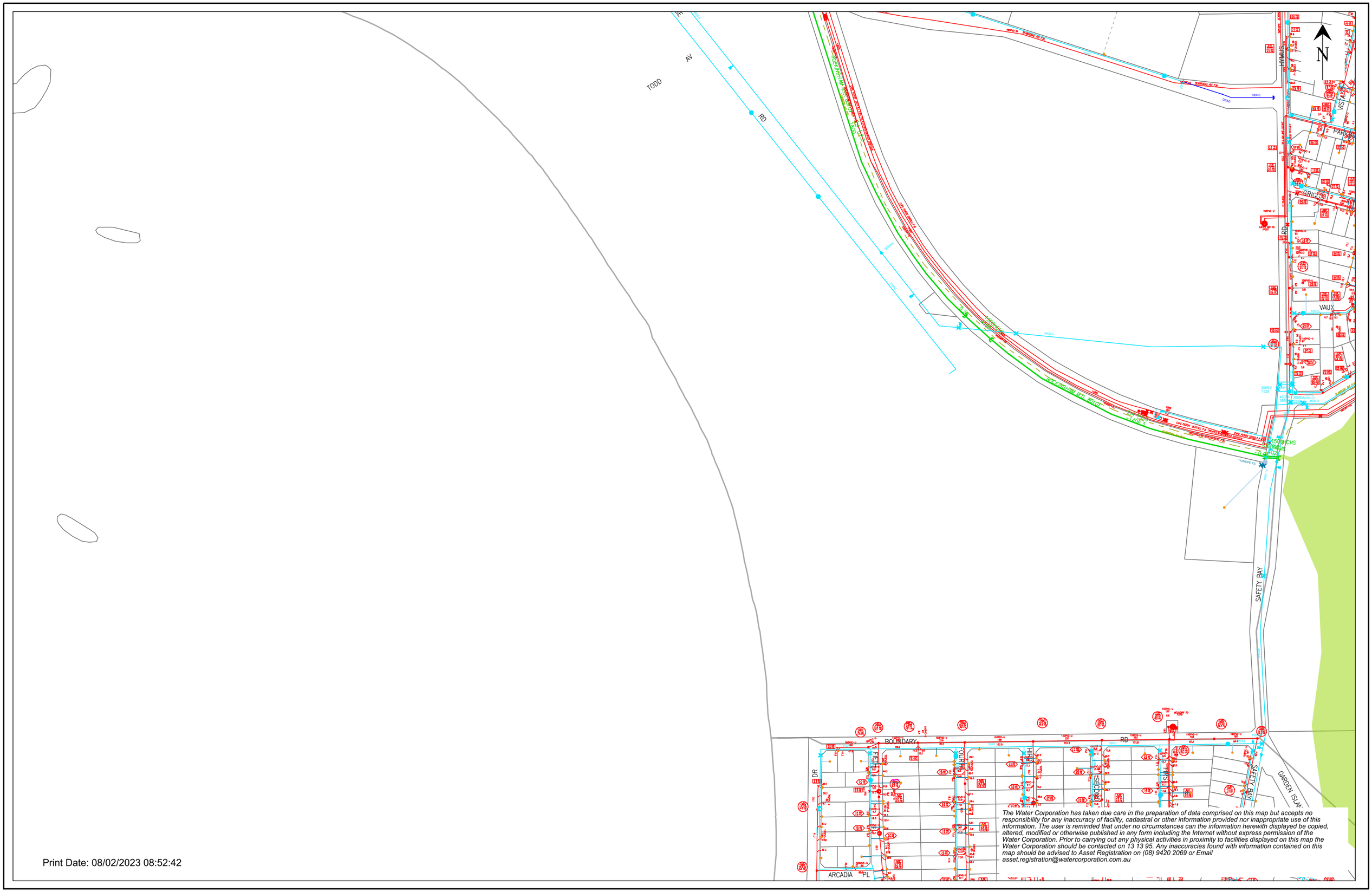

Print Date: 08/02/2023 08:52:42

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Scale 1:5000

0m 50m 100m 150m 200m 250m

Projection: MGA Zone 50 (m)

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C-S01227 SDOOL Duplication ER WWTP to SV9	DN1400	Planned 2035
C-S01342 SDOOL DN1600 Entire Length Duplication	DN1600	Planned 2048
C-S02940 SDOOL Ocean Outfall Duplication	DN2000	Planned 2048

Appendix B Crash Data Report

Detailed Crash History

Selected Areas		
Centre: (-32.276 115.700) (Shape)		
Parameter	**Value**	**Description**
From Date	01/01/17	
To Date	31/12/21	
Crash Type	ALL	
Severity	ALL	
Include Descriptions?	Yes	

Road	Road Name	SLK	CWY	True Dist	Intersection	Date	Day	Time	Severity	Crash No.	Type	Light Cond	Road Cond	Speed Limit	Traffic Control	Road Feature	Road Alignment	Speed Factor	MR Nature	Location	RUM	Unit	Unit Type	From Dir	To Dir	Veh/Ped Move	First Object Hit	Second Object Hit	Third Object Hit	Target Impact Point
1070003	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	05/07/2018	Thursday	1530	PDO Major	2018186364	Intersection	Daylight	Dry	60	Give Way Sign	3-way Intx (T-junction)	Curve		Rear End	On Cway	32:Same Dirn: Same Lane Left Rear	Colliding	Utility	E - PARKIN ST	E - SAFETY BAY RD	Straight Ahead: Not Out Of Control				
1070003	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	05/07/2018	Thursday	1530	PDO Major	2018186364	Intersection	Daylight	Dry	60	Give Way Sign	3-way Intx (T-junction)	Curve		Rear End	On Cway	32:Same Dirn: Same Lane Left Rear	Target	Car	E - PARKIN ST	E - SAFETY BAY RD	Stopped: By Traffic Control				Rear
Location: Safety Bay Rd at Hymus St & Parkin St							**Crash Description:**															**Vehicle Types:** Car, Utility								
1070003	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	06/01/2018	Saturday	1230	PDO Major	2018008030	Intersection	Daylight	Dry	60	Give Way Sign	3-way Intx (T-junction)	Straight		Rear End	On Cway	32:Same Dirn: Same Lane Left Rear	Colliding	Car	E - PARKIN ST	E - SAFETY BAY RD	Straight Ahead: Not Out Of Control				
1070003	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	06/01/2018	Saturday	1230	PDO Major	2018008030	Intersection	Daylight	Dry	60	Give Way Sign	3-way Intx (T-junction)	Straight		Rear End	On Cway	32:Same Dirn: Same Lane Left Rear	Target	Car	E - PARKIN ST	E - SAFETY BAY RD	Stopped: By Traffic Control				Rear
Location: Safety Bay Rd at Hymus St & Parkin St							**Crash Description:**															**Vehicle Types:** Car								
1070003	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	18/02/2021	Thursday	1815	PDO Minor	2021091484	Intersection	Dawn Or Dusk	Dry	60	Give Way Sign	3-way Intx (T-junction)	Curve		Right Angle	On Cway	17:Intx: Thru - Left	Colliding	Utility	E - PARKIN ST	E - SAFETY BAY RD	Turning: To Make Left Turn				
1070003	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	18/02/2021	Thursday	1815	PDO Minor	2021091484	Intersection	Dawn Or Dusk	Dry	60	Give Way Sign	3-way Intx (T-junction)	Curve		Right Angle	On Cway	17:Intx: Thru - Left	Target	Bicycle	N - HYMUS ST	E - SAFETY BAY RD	Straight Ahead: Not Out Of Control				Side
Location: Safety Bay Rd at Hymus St & Parkin St							**Crash Description:**															**Vehicle Types:** Utility, Bicycle								
1070003	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	20/10/2020	Tuesday	1625	PDO Minor	2020852081	Intersection	Daylight	Dry	60	Give Way Sign	3-way Intx (T-junction)	Straight			On Cway	45:Manoeuv: Reversing In Traffic	Colliding	Utility		E - PARKIN ST	Reversing Or Rolling Back: Straight				
1070003	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	20/10/2020	Tuesday	1625	PDO Minor	2020852081	Intersection	Daylight	Dry	60	Give Way Sign	3-way Intx (T-junction)	Straight			On Cway	45:Manoeuv: Reversing In Traffic	Target	Car	E - PARKIN ST	E - SAFETY BAY RD	Stopped: To Avoid Veh				Front
Location: Safety Bay Rd at Hymus St & Parkin St							**Crash Description:**															**Vehicle Types:** Car, Utility								
1070003	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	22/05/2019	Wednesday	1610	PDO Minor	2019141016	Intersection	Daylight	Dry	60	Give Way Sign	3-way Intx (T-junction)	Curve		Rear End	On Cway	32:Same Dirn: Same Lane Left Rear	Colliding	Station Wagon	E - PARKIN ST	E - SAFETY BAY RD	Straight Ahead: Not Out Of Control				
1070003	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	22/05/2019	Wednesday	1610	PDO Minor	2019141016	Intersection	Daylight	Dry	60	Give Way Sign	3-way Intx (T-junction)	Curve		Rear End	On Cway	32:Same Dirn: Same Lane Left Rear	Target	Car	E - PARKIN ST	E - SAFETY BAY RD	Stopped: By Traffic Control				Rear
Location: Safety Bay Rd at Hymus St & Parkin St							**Crash Description:**															**Vehicle Types:** Car, Station Wagon								

Detailed Crash History

Road	Road Name	SLK	CWY	True Dist	Intersection	Date	Day	Time	Severity	Crash No.	Type	Light Cond	Road Cond	Speed Limit	Traffic Control	Road Feature	Road Alignment	Speed Factor	MR Nature	Location	RUM	Unit	Unit Type	From Dir	To Dir	Veh/Ped Move	First Object Hit	Second Object Hit	Third Object Hit	Target Impact Point
10700 03	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	24/01/ 2018	Wednesda y	0630	PDO Major	20180 28105	Intersection	Dawn Or Dusk	Dry	60	No Sign Or Control	3-way Intx (T-junction)	Straight		Rear End	On Cway	31:Same Dirn: Same Lane Rear End	Colliding	Utility	E - SAF ETY BAY RD	E - PAR KIN ST	Overtakin g: Passing On Right				
10700 03	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	24/01/ 2018	Wednesda y	0630	PDO Major	20180 28105	Intersection	Dawn Or Dusk	Dry	60	No Sign Or Control	3-way Intx (T-junction)	Straight		Rear End	On Cway	31:Same Dirn: Same Lane Rear End	Target	Car	E - SAF ETY BAY RD	N - HYM US ST	Stopped: To Avoid Veh				Rear
Location: Safety Bay Rd at Hymus St & Parkin St							**Crash Description:**															**Vehicle Types:** Car, Utility, Four Wheel Drive (Not Car Design), Trailer Towed By Veh 1									
10700 03	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	28/01/ 2018	Sunday	1335	PDO Major	20180 28326	Intersection	Daylight	Dry	60	Give Way Sign	3-way Intx (T-junction)	Curve		Rear End	On Cway	32:Same Dirn: Same Lane Left Rear	Colliding	Car	E - PAR KIN ST	E - SAF ETY BAY RD	Straight Ahead: Not Out Of Control				
10700 03	Safety Bay Rd	0.00	S	0.00	HYMUS ST & PARKIN ST (052655)	28/01/ 2018	Sunday	1335	PDO Major	20180 28326	Intersection	Daylight	Dry	60	Give Way Sign	3-way Intx (T-junction)	Curve		Rear End	On Cway	32:Same Dirn: Same Lane Left Rear	Target	Four Wheel Drive (Not Car Design)	E - PAR KIN ST	E - SAF ETY BAY RD	Stopped: By Traffic Control				Rear
Location: Safety Bay Rd at Hymus St & Parkin St							**Crash Description:**															**Vehicle Types:** Car, Four Wheel Drive (Not Car Design)									
10700 03	Safety Bay Rd	0.05	S	0.05		26/10/ 2017	Thursday	1400	PDO Major	20172 84470	Midblock	Daylight	Wet	60	No Sign Or Control				Hit Object	On Left Verge After Leaving Cway	72:Off Path On Straight: Off Left Cway Obj	Colliding		W	E	Out Of Control: Other	Kerb When Stated As Cause			
Location: Safety Bay Rd 40m North of Griggs Wy							**Crash Description:**															**Vehicle Types:** Other									
10700 03	Safety Bay Rd	0.40	S	0.40	LAKE ST (052659)	11/02/ 2017	Saturday	1600	PDO Minor	20171 19395	Intersection	Daylight	Dry	60	Stop Sign	3-way Intx (T-junction)	Straight		Right Angle	On Cway	15:Intx: Right - Right	Colliding		E - LAK E ST	W - SAF ETY BAY RD	Turning: To Make Right Turn				
10700 03	Safety Bay Rd	0.40	S	0.40	LAKE ST (052659)	11/02/ 2017	Saturday	1600	PDO Minor	20171 19395	Intersection	Daylight	Dry	60	Stop Sign	3-way Intx (T-junction)	Straight		Right Angle	On Cway	15:Intx: Right - Right	Target	Motor Cycle	E - SAF ETY BAY RD	E - LAK E ST	Turning: To Make Right Turn				Side
Location: Safety Bay Rd at Lake St							**Crash Description:**															**Vehicle Types:** Motor Cycle, Other									
10700 03	Safety Bay Rd	0.94	S	0.94	BOUNDARY RD (052660)	03/05/ 2017	Wednesda y	1530	Medical	20171 45715	Intersection	Daylight		60	Give Way Sign	Roundabo ut			Right Angle	On Cway	14:Intx: Thru - Right	Colliding	Bicycle	E - SAF ETY BAY RD	W - SAF ETY BAY RD	Straight Ahead: Not Out Of Control				
10700 03	Safety Bay Rd	0.94	S	0.94	BOUNDARY RD (052660)	03/05/ 2017	Wednesda y	1530	Medical	20171 45715	Intersection	Daylight		60	Give Way Sign	Roundabo ut			Right Angle	On Cway	14:Intx: Thru - Right	Target	Utility	W - BOU NDA RY RD	E - SAF ETY BAY RD	Turning: To Make Right Turn				Side
Location: Safety Bay Rd at Boundary Rd							**Crash Description:**															**Vehicle Types:** Utility, Bicycle									
10700 03	Safety Bay Rd	0.94	S	0.94	BOUNDARY RD (052660)	16/08/ 2018	Thursday	1620	PDO Major	20182 33706	Intersection	Daylight	Dry	60	Give Way Sign	Roundabo ut	Straight		Right Angle	On Cway	10:Intx: Other	Colliding	Car	W - BOU NDA RY RD		Straight Ahead: Not Out Of Control				
10700 03	Safety Bay Rd	0.94	S	0.94	BOUNDARY RD (052660)	16/08/ 2018	Thursday	1620	PDO Major	20182 33706	Intersection	Daylight	Dry	60	Give Way Sign	Roundabo ut	Straight		Right Angle	On Cway	10:Intx: Other	Target	Car	E - SAF ETY BAY RD	W - SAF ETY BAY RD	Straight Ahead: Not Out Of Control				Side
Location: Safety Bay Rd at Boundary Rd							**Crash Description:**															**Vehicle Types:** Car									
10700 03	Safety Bay Rd	0.94	S	0.94	BOUNDARY RD (052660)	22/04/ 2021	Thursday	1540	PDO Minor	20212 15502	Intersection	Daylight	Dry	60	Give Way Sign	Roundabo ut	Straight			On Cway	20:Opposite Dirn: Other	Colliding				Straight Ahead: Not Out Of Control				
10700 03	Safety Bay Rd	0.94	S	0.94	BOUNDARY RD (052660)	22/04/ 2021	Thursday	1540	PDO Minor	20212 15502	Intersection	Daylight	Dry	60	Give Way Sign	Roundabo ut	Straight			On Cway	20:Opposite Dirn: Other	Target	Bicycle			Turning: To Make Right Turn				Side
Location: Safety Bay Rd at Boundary Rd							**Crash Description:**															**Vehicle Types:** Bicycle, Other									

Detailed Crash History

Road	Road Name	SLK	CWY	True Dist	Intersection	Date	Day	Time	Severity	Crash No.	Type	Light Cond	Road Cond	Speed Limit	Traffic Control	Road Feature	Road Alignment	Speed Factor	MR Nature	Location	RUM	Unit	Unit Type	From Dir	To Dir	Veh/Ped Move	First Object Hit	Second Object Hit	Third Object Hit	Target Impact Point
1070003	Safety Bay Rd	0.94	S	0.94	BOUNDARY RD (052660)	30/12/2020	Wednesday	2100	PDO Major	2020942790	Intersection	Dark - Street Lights On	Dry	60	Give Way Sign	Roundabout	Curve		Right Angle	On Cway	14:Intx: Thru - Right	Colliding	Car	E - SAFETY BAY RD	W - SAFETY BAY RD	Straight Ahead: Not Out Of Control				
1070003	Safety Bay Rd	0.94	S	0.94	BOUNDARY RD (052660)	30/12/2020	Wednesday	2100	PDO Major	2020942790	Intersection	Dark - Street Lights On	Dry	60	Give Way Sign	Roundabout	Curve		Right Angle	On Cway	14:Intx: Thru - Right	Target	Utility	W - BOUNDARY RD	E - SAFETY BAY RD	Turning: To Make Right Turn				Side
Location: Safety Bay Rd at Boundary Rd							**Crash Description:**															**Vehicle Types:** Car, Utility								
1070003	Safety Bay Rd	0.94	S	0.94	BOUNDARY RD (052660)	31/08/2018	Friday	2107	PDO Major	2018208381	Intersection	Dark - Street Lights On		60	Give Way Sign	Roundabout			Non Collision	On Left Verge After Leaving Cway	71:Off Path On Straight: Off Left Cway	Colliding	Four Wheel Drive (Not Car Design)	E - SAFETY BAY RD	W - SAFETY BAY RD	Out Of Control: Other				
Location: Safety Bay Rd at Boundary Rd							**Crash Description:**															**Vehicle Types:** Four Wheel Drive (Not Car Design)								
1070017	Arcadia Dr	3.17	S	3.17	BOUNDARY RD (052828)	14/03/2019	Thursday	0900	Medical	2019076270	Intersection	Daylight		51	No Sign Or Control		Curve		Hit Object	On Right Verge After Leaving Cway	84:Off Path On Curve: Off Left Bend In Obj	Colliding	Utility	E - BOUNDARY RD	E - ARCADIA DR	Out Of Control: Other	Kerb When Stated As Cause	Embankment		
Location: Arcadia Dr at Boundary Rd							**Crash Description:** Rego1 trav west on Boundary Road and turning left onto Arcadia drive, loses control and collides with kerb on right of carriageway and rolls over landing in sand dunes to right															**Vehicle Types:** Utility								
1070125	Memorial Dr	0.00	S	0.00	POINT PERON RD (053175)	26/09/2017	Tuesday	1500	PDO Minor	2017296974	Intersection	Daylight	Dry	51	No Sign Or Control	3-way Intx (T-junction)	Curve		Sideswipe Same Dirn	On Cway	56:Overtaking: Into Right Turn	Colliding	Motor Cycle	W - POINT PERON RD	E - POINT PERON RD	Overtaking: Passing On Right				
1070125	Memorial Dr	0.00	S	0.00	POINT PERON RD (053175)	26/09/2017	Tuesday	1500	PDO Minor	2017296974	Intersection	Daylight	Dry	51	No Sign Or Control	3-way Intx (T-junction)	Curve		Sideswipe Same Dirn	On Cway	56:Overtaking: Into Right Turn	Target	Car	W - POINT PERON RD	S - MEMORIAL DR	Turning: To Make Right Turn				Side
Location: Memorial Dr at Point Peron Rd							**Crash Description:**															**Vehicle Types:** Car, Motor Cycle								
1070125	Memorial Dr	0.00	S	0.00	POINT PERON RD (053175)	28/11/2018	Wednesday	1515	PDO Major	2018268732	Intersection	Daylight		51	No Sign Or Control	3-way Intx (T-junction)	Straight		Rear End	On Cway	31:Same Dirn: Same Lane Rear End	Colliding		W - POINT PERON RD	E - POINT PERON RD	Straight Ahead: Not Out Of Control				
1070125	Memorial Dr	0.00	S	0.00	POINT PERON RD (053175)	28/11/2018	Wednesday	1515	PDO Major	2018268732	Intersection	Daylight		51	No Sign Or Control	3-way Intx (T-junction)	Straight		Rear End	On Cway	31:Same Dirn: Same Lane Rear End	Target	Car	W - POINT PERON RD	E - POINT PERON RD	Stopped: To Avoid Veh				Rear
Location: Memorial Dr at Point Peron Rd							**Crash Description:**															**Vehicle Types:** Car, Other								
1070125	Memorial Dr	1.07	S	1.07		30/10/2019	Wednesday	1900	PDO Major	2019302672	Midblock	Dark - Street Lights Off	Dry	51	No Sign Or Control		Curve		Right Angle	On Cway	10:Intx: Other	Colliding				Straight Ahead: Not Out Of Control				
1070125	Memorial Dr	1.07	S	1.07		30/10/2019	Wednesday	1900	PDO Major	2019302672	Midblock	Dark - Street Lights Off	Dry	51	No Sign Or Control		Curve		Right Angle	On Cway	10:Intx: Other	Target	Car			Straight Ahead: Not Out Of Control				Rear
Location: Memorial Dr 290m East of Lease Rd							**Crash Description:**															**Vehicle Types:** Car, Other								
1070126	Point Peron Rd	1.33	S	1.33		10/04/2017	Monday	1635	PDO Major	2017120460	Midblock	Daylight	Dry	60	Give Way Sign	3-way Intx (T-junction)	Straight		Rear End	On Cway	32:Same Dirn: Same Lane Left Rear	Colliding	Station Wagon	N	W	Straight Ahead: Not Out Of Control				
1070126	Point Peron Rd	1.33	S	1.33		10/04/2017	Monday	1635	PDO Major	2017120460	Midblock	Daylight	Dry	60	Give Way Sign	3-way Intx (T-junction)	Straight		Rear End	On Cway	32:Same Dirn: Same Lane Left Rear	Target	Utility	N	W	Stopped: By Traffic Control				Rear
Location: Point Peron Rd 250m West of Memorial Dr							**Crash Description:**															**Vehicle Types:** Station Wagon, Utility								
1070126	Point Peron Rd	1.34	S	1.34		10/05/2021	Monday	1810	PDO Minor	2021200754	Midblock	Dark - Street Lights On	Dry	60	Give Way Sign	3-way Intx (T-junction)	Curve		Right Angle	On Cway	47:Manoeuv: Leaving Driveway	Colliding	Car	N	E	Straight Ahead: Not Out Of Control				

Detailed Crash History

Road	Road Name	SLK	CWY	True Dist	Intersection	Date	Day	Time	Severity	Crash No.	Type	Light Cond	Road Cond	Speed Limit	Traffic Control	Road Feature	Road Alignment	Speed Factor	MR Nature	Location	RUM	Unit	Unit Type	From Dir	To Dir	Veh/Ped Move	First Object Hit	Second Object Hit	Third Object Hit	Target Impact Point
1070126	Point Peron Rd	1.34	S	1.34		10/05/2021	Monday	1810	PDO Minor	20212 00754	Midblock	Dark - Street Lights On	Dry	60	Give Way Sign	3-way Intx (T-junction)	Curve		Right Angle	On Cway	47:Manoeuv: Leaving Driveway	Target	Utility	N	E	Stopped: Prepared To Turn Left				Rear
Location: Point Peron Rd 260m West of Memorial Dr							**Crash Description:**															**Vehicle Types:** Car, Utility								
1070126	Point Peron Rd	1.80	S	1.80		19/02/2017	Sunday	1320	PDO Minor	20170 44370	Midblock	Daylight	Dry	51	No Sign Or Control		Curve		Rear End	On Cway	61:On Path: Parked	Colliding	Car	W	E	Straight Ahead: Not Out Of Control				
1070126	Point Peron Rd	1.80	S	1.80		19/02/2017	Sunday	1320	PDO Minor	20170 44370	Midblock	Daylight	Dry	51	No Sign Or Control		Curve		Rear End	On Cway	61:On Path: Parked	Target	Car	W	E	Stopped: Parked On Cway				Side
Location: Point Peron Rd 440m South East of Pt Peron Lkt Access							**Crash Description:**															**Vehicle Types:** Car, Utility, Trailer Towed By Veh 2								
1070126	Point Peron Rd	2.24	S	2.24	PT PERON LKT ACCESS (053176)	25/03/2017	Saturday	1300	PDO Minor	20171 08545	Intersection	Daylight	Dry	51	Give Way Sign	3-way Intx (T-junction)	Curve		Right Angle	On Cway	12:Intx: Right - Thru	Colliding	Car			Out Of Control: Other				
1070126	Point Peron Rd	2.24	S	2.24	PT PERON LKT ACCESS (053176)	25/03/2017	Saturday	1300	PDO Minor	20171 08545	Intersection	Daylight	Dry	51	Give Way Sign	3-way Intx (T-junction)	Curve		Right Angle	On Cway	12:Intx: Right - Thru	Target	Car			Straight Ahead: Not Out Of Control				Side
Location: Point Peron Rd at Pt Peron Lkt Access							**Crash Description:**															**Vehicle Types:** Car								
1070126	Point Peron Rd	2.27	S	2.27		12/03/2018	Monday	1830	PDO Minor	20180 70341	Midblock	Daylight	Dry	51	No Sign Or Control		Straight			On Cway	44:Manoeuv: Parking Veh Only	Colliding	Station Wagon			Reversing Or Rolling Back: Straight	Veh Parked Off Cway	Veh Parked Off Cway		
Location: Point Peron Rd at Point Peron Rd - End Road							**Crash Description:**															**Vehicle Types:** Car, Station Wagon								
1070130	Hymus St	0.05	S	0.05	POINT PERON RD (053174)	15/04/2020	Wednesday	2250	PDO Major	20206 87474	Intersection	Dark - Street Lights On	Dry	51	Give Way Sign	3-way Intx (T-junction)	Straight		Hit Object	On Right Verge After Leaving Cway	70:Off Path On Straight: Other	Colliding		W - POINT PERON RD		Out Of Control: Other	Kerb When Stated As Cause	Building		
Location: Hymus St at Point Peron Rd							**Crash Description:**															**Vehicle Types:** Other								
1070255	Pt Peron Lkt Access	0.24	S	0.24		26/11/2020	Thursday	1920	PDO Minor	20208 92445	Midblock	Dawn Or Dusk	Dry	51	No Sign Or Control		Straight			On Cway	44:Manoeuv: Parking Veh Only	Colliding	Station Wagon			Unparking : Reversing				
1070255	Pt Peron Lkt Access	0.24	S	0.24		26/11/2020	Thursday	1920	PDO Minor	20208 92445	Midblock	Dawn Or Dusk	Dry	51	No Sign Or Control		Straight			On Cway	44:Manoeuv: Parking Veh Only	Target	Car			Reversing Or Rolling Back: Straight				Rear
Location: Pt Peron Lkt Access 160m North East of Pt Peron Lookout Access - End Road							**Crash Description:**															**Vehicle Types:** Car, Station Wagon								

Appendix C Base Model Report

Cape Peron Transport Needs Study

AIMSUN Base Model Development Report

Ref: 304900950

PREPARED FOR CITY OF ROCKINGHAM | MARCH 2023

We design with community in mind

Stantec

Revision schedule

Rev No	Date	Description	Signature of Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
A	17 March 2023	For Issue	CG	AW	RC	SL

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Abbreviations

Abbreviation	Full Name
DUE	Dynamic User Equilibrium
SRC	Stochastic Route Choice
VHT	Vehicle Hours Travelled

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1 Introduction and Summary

Stantec was engaged by the City of Rockingham to undertake a Transport Needs Study for Cape Peron. The study includes a transport modelling exercise, that requires Stantec to develop a calibrated base network model for Cape Peron that will be used to review existing and future traffic demands to inform the future planning for the area. The base model covers the following time periods:

- Weekday AM Period (06:00 to 08:00)
- Weekday PM Period (14:45 to 16:45)
- Whole day weekday

1.1 Report Purpose

This report outlines the base year model development of Cape Peron detailing the calibration and validation in accordance with the guidelines set forth by the Main Roads Western Australia in the *Operational Modelling Guidelines*.

2 Model Overview and Data Collection

2.1 Model Area

The model area is shown in **Figure 1**.

Figure 1 Study Area

2.2 Intersection Surveys

In order to ensure the modelled traffic conditions were reflective of existing observed traffic conditions Stantec commissioned video surveys on 8 intersections shown in **Table 1** and **Figure 2**. The video surveys were undertaken on 15th February 2023 (Wednesday) and covered 24 hours for each of the intersections in 15-minute intervals classified according to the 12 Austroad vehicle classes.

Table 1 Locations of Video Survey

Intersection #	Intersection Name
Intersection 1	Point Peron Road / HMAS Stirling
Intersection 2	Point Peron Road / Safety Bay Road
Intersection 3	Safety Bay Road / Parkin Street
Intersection 4	Safety Bay Road / Memorial Drive
Intersection 5	Safety Bay Road / Boundary Road
Intersection 6	Boundary Road / Lease Road
Intersection 7	Memorial Drive / Lease Road
Intersection 8	Point Peron Road / Memorial Drive

Figure 2 Locations of Intersection Video Surveys

3 Modelling Assumptions

3.1 Modelling Platform

The model was developed using Aimsun Next v22.0.1.

3.2 Time Periods

Three modelling time periods were assessed in this study: Whole day weekday, Weekday AM peak and Weekday PM peak. For the whole day weekday model, the time period considered was 23 hours as Aimsun only allows model time periods within the same day. It is noted that the traffic counts for 23:00 – 24:00 represent less than 1% of the total daily traffic volumes and therefore only have a negligible impact on the model.
For each peak period, a 'warm-up' period of 30 minutes was added before the modelled peak period and a 'cooldown' period of 30 mins after the peak period, with overall modelled periods as follows.

- Whole Day Weekday 00:00 to 23:00
- Weekday AM
  - AM warm-up 06:00 to 06:30
  - AM peak period 06:30 to 07:30
  - AM cooldown 07:30 to 08:00
- Weekday PM
  - PM warm-up 14:45 to 15:15
  - PM peak period 15:15 to 16:15
  - PM cooldown 16:15 to 16:45

Both the AM and PM peak period models were developed as microscopic models while the whole day weekday model was limited to macroscopic assignment (i.e. not mesoscopic or microscopic).

3.3 Vehicle Types

The following vehicle types will be incorporated in the models to reflect the typical vehicle types within the study area:

- Light vehicles (Austroads class 1), with vehicle parameters based on Table 6-4 of the MRWA Operational Modelling Guidelines
- Trucks (Austroads classes 2-5) with vehicle parameters based on Table 6-6 of the MRWA Operational Modelling Guidelines
- Semi-trailers (Austroads classes 6-9) with vehicle parameters based on Table 6-7 of the MRWA Operational Modelling Guidelines
- B-double (Austroads classes 10-11) with vehicle parameters based on Table 6-8 of the MRWA Operational Modelling Guidelines (if required)
- B-triple (Austroads classes 12) with vehicle parameters based on Table 6-9 of the MRWA Operational Modelling Guidelines (if required)

3.4 Traffic Zones

The zone system for the entire model is shown in **Figure 3**.

Figure 3 Aimsun Model Zone System

3.5 Road Types

The road types within the model network are consistent with the road classifications under the Main Roads Road Information System (https://mrwebapps.mainroads.wa.gov.au/PublicMaps/RoadInformationMapping), and are shown in **Figure 4**.

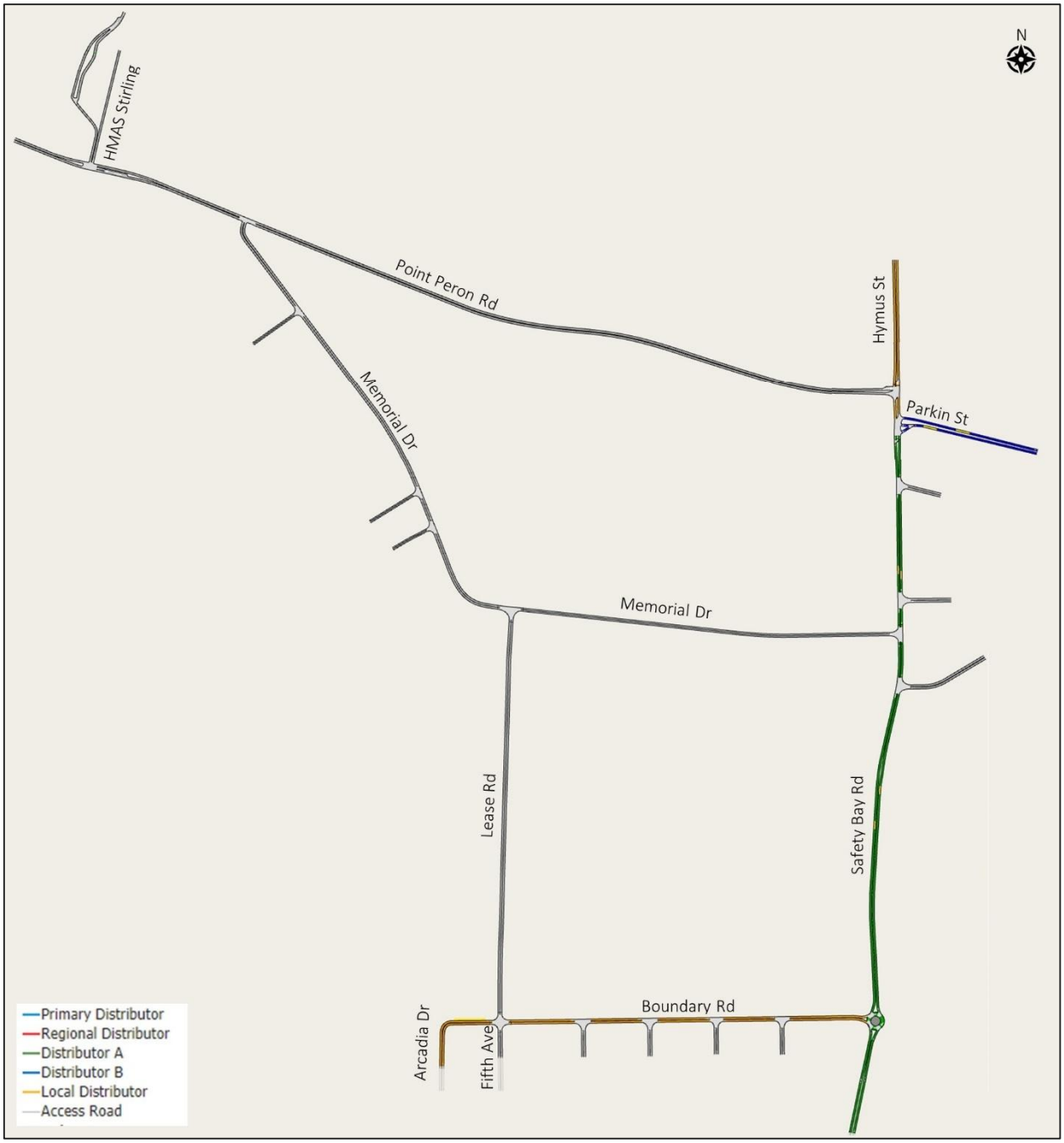


Figure 4 Road Types

3.6 Speed Profiles

The posted speed limit for the roads within the study area were sourced from the Main Roads Road Information System (https://mrwebapps.mainroads.wa.gov.au/PublicMaps/RoadInformationMapping), and are shown in **Figure 5**. It should be noted that speed limits for roundabouts were reduced to replicate vehicles slowing down as they approach the roundabout.

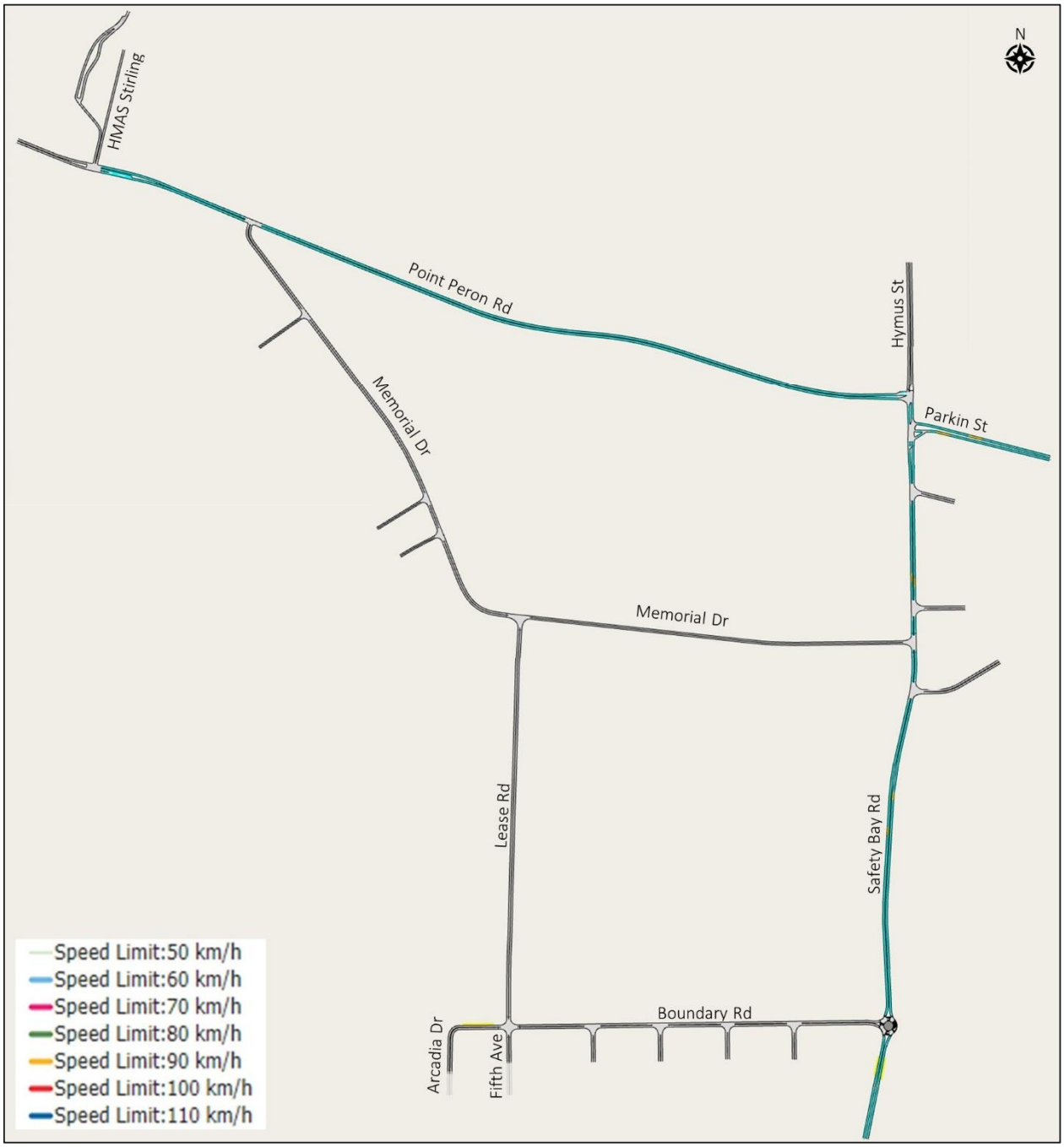


Figure 5 Road Speeds

3.7 Public Transport

The public transport routes shown in **Figure 6** and associated timetables were added in the model based on information available on the Transperth website (as per March 2023).

This included the following bus route:

- 551 Rockingham Station – Rockingham Beach

Figure 6 Bus Routes

There are currently 9 active bus stops within the network. The bus stops within the network are shown in **Figure 7**.

Figure 7 Bus Stops

3.8 Assignment Type

As described in **Section 3.2**, only the AM and PM peak period models were developed using the following combinations of assignment and simulation techniques in a three-step process:

- Static equilibrium (MACRO) assignment using static traffic model
- Dynamic User Equilibrium (DUE) assignment using the mesoscopic simulator
- Stochastic assignment using microscopic simulator

The route choice parameters used in the simulation consist of the following:

- Route choice calculation cycle interval every 15 minutes
- Relative Gap set as 0.5%
- Attractiveness weight set as 2 for mesoscopic and 1 for microscopic
- Gradient based for the Dynamic User Equilibrium (DUE) runs
- C-Logit Model for the Stochastic Route Choice (SRC) replications

The demand matrices went through several iterations to check that demands assigned represented the surveyed turning volumes at key intersections.

3.9 Traffic Profiles

As described in the previous sections, the model covers the weekday AM and PM Peak periods, including both warmup and cooldown periods (both 30 minutes). It was observed that during the AM peak period the more dominant direction is the westbound direction to HMAS Stirling Entrance as staff arrive to start their shift, with the reverse observed to occur during the PM peak period.

Figure 8 presents the overall network traffic demand profile for the AM peak, while **Figure 9** to **Figure 12** show the difference between the observed and modelled counts at some of the key movements along the dominant direction during the AM peak.

Figure 13 presents the overall network traffic demand profile for the PM peak, while **Figure 14** to **Figure 17** show the difference between the observed and modelled counts in some of the key movements along the dominant direction during the PM peak.

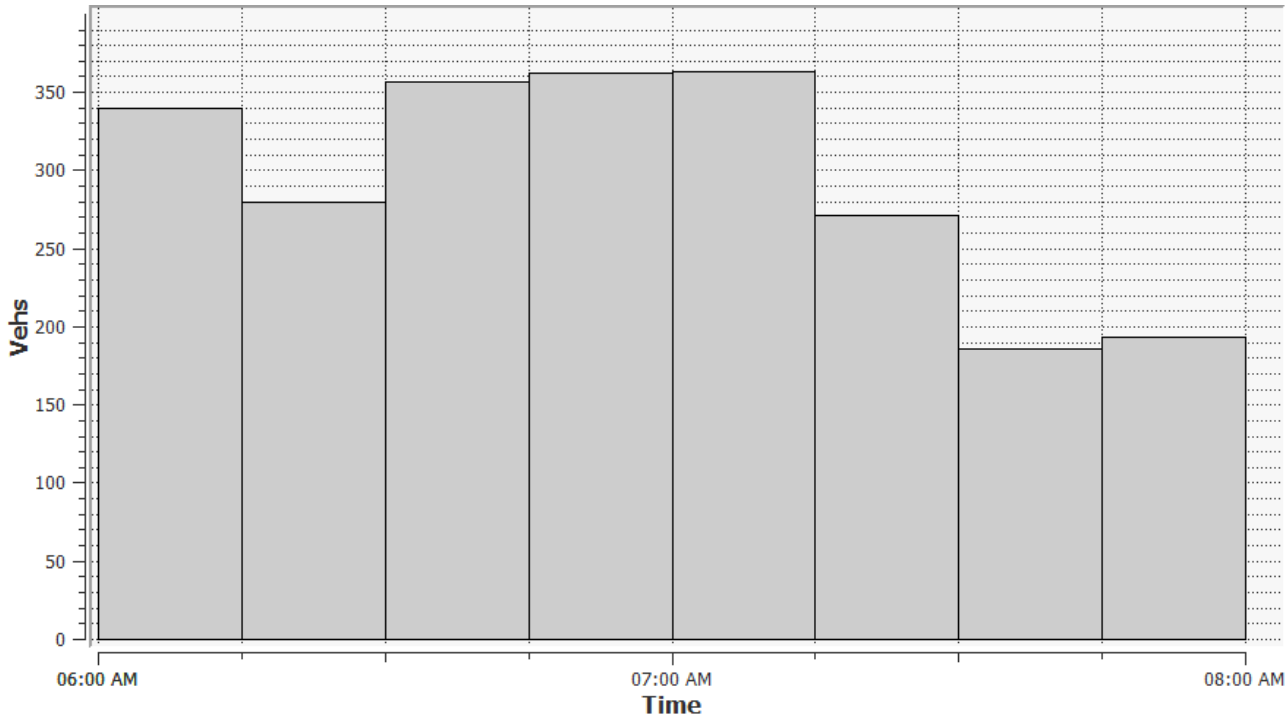


Figure 8 AM Network Traffic Demand

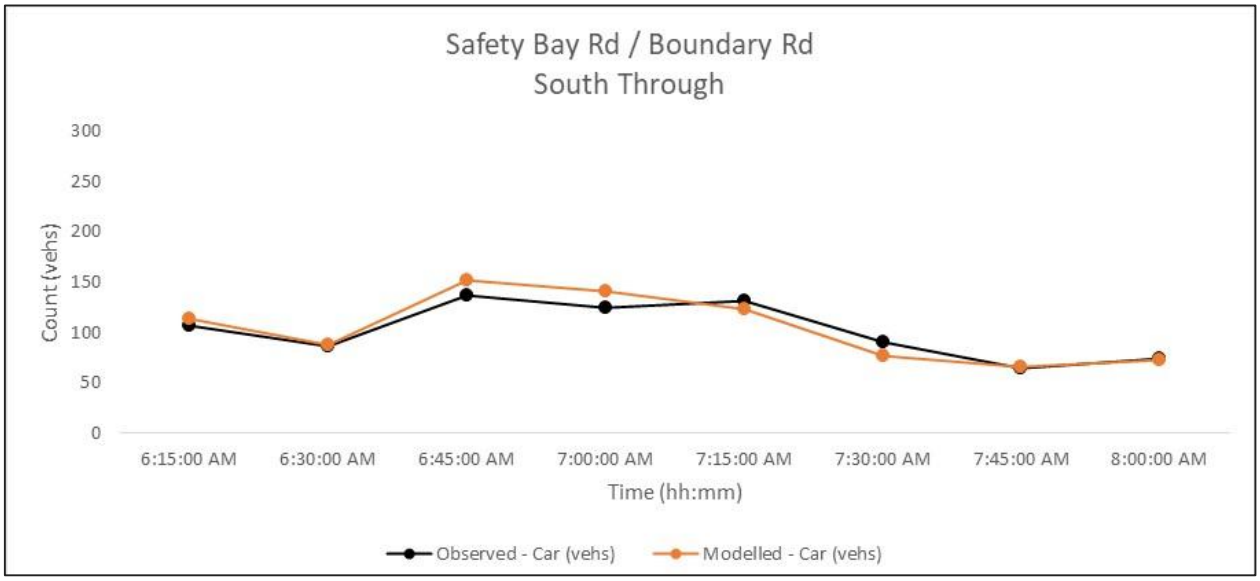


Figure 9 Safety Bay Road / Boundary Road – South Through - AM Turn Profile

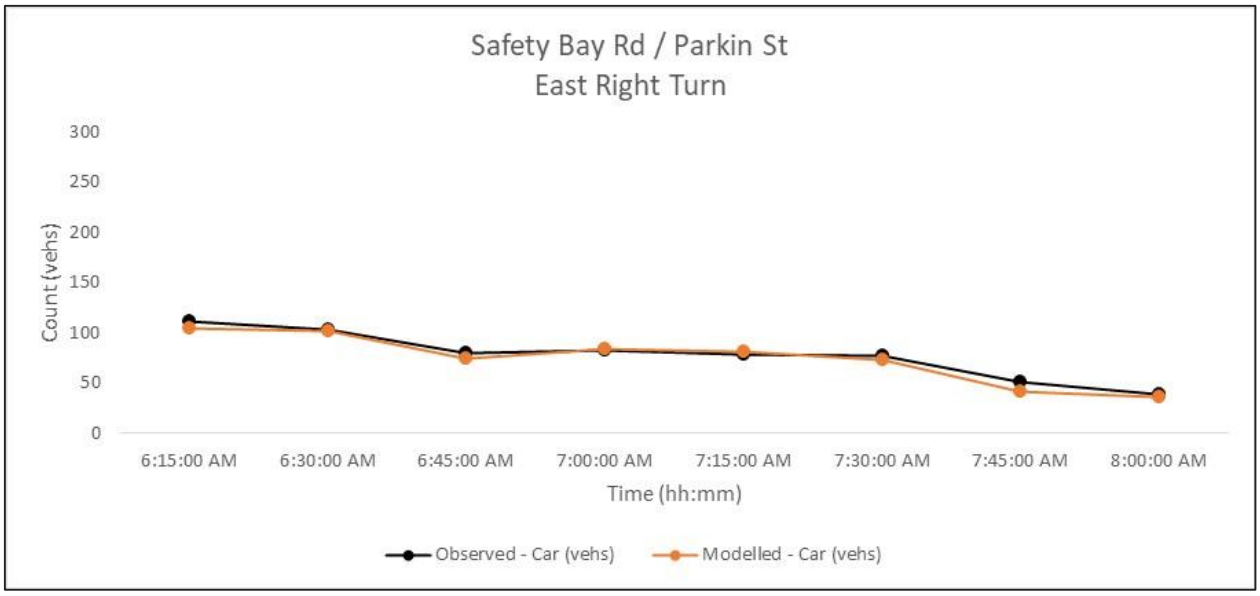


Figure 10 Safety Bay Road / Parkin Street - East Right Turn - AM Turn Profile

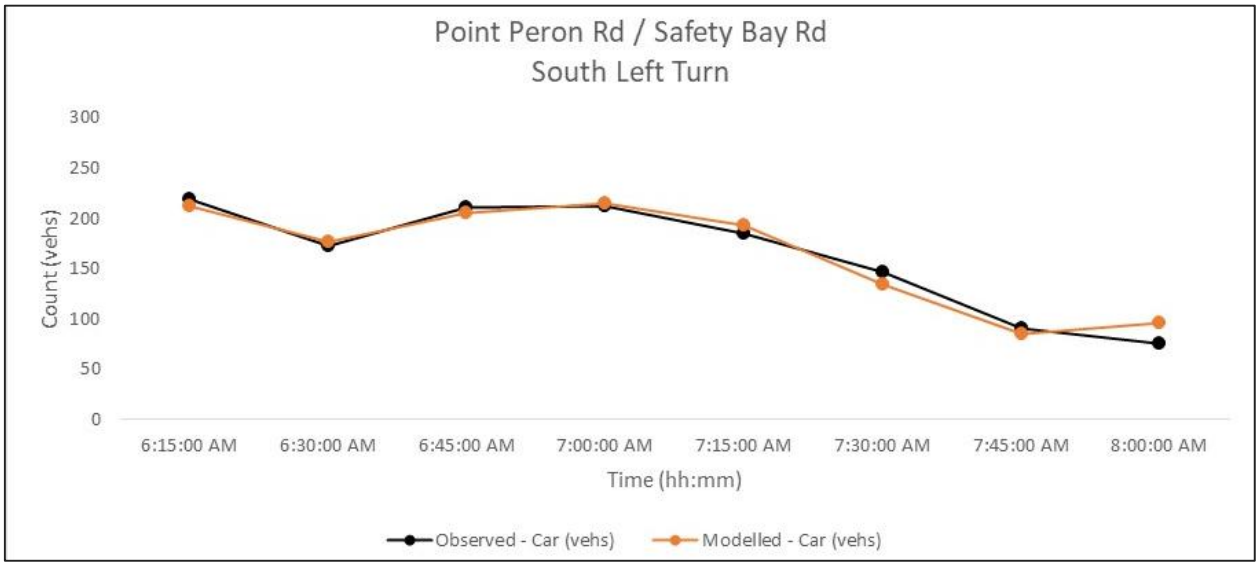


Figure 11 Point Peron Road / Safety Bay Road - South Left Turn - AM Turn Profile

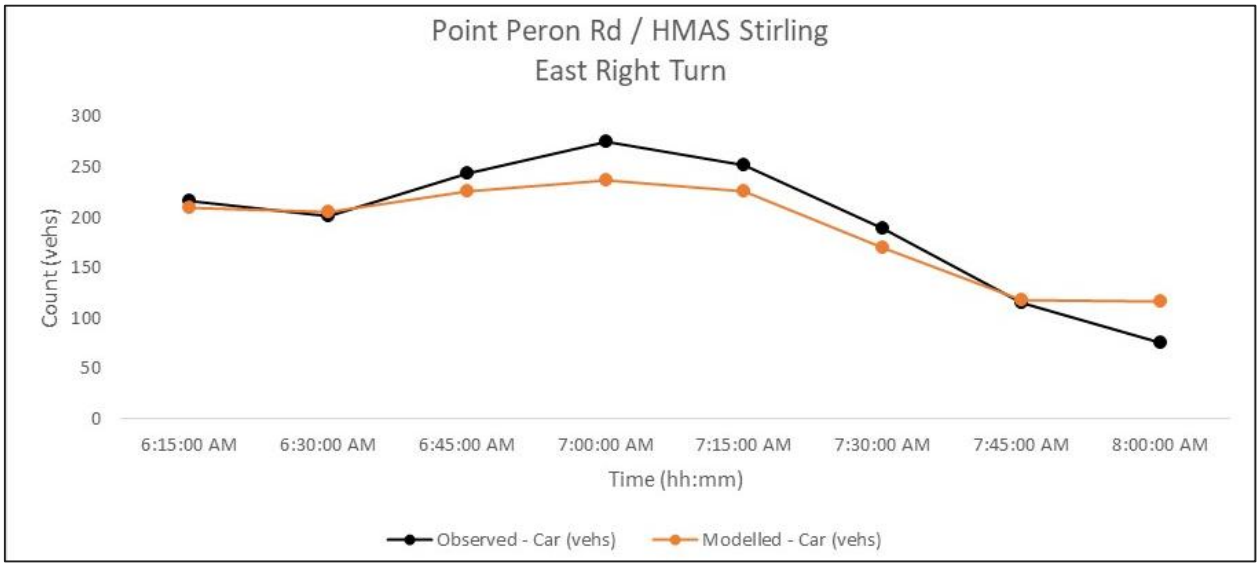


Figure 12 Point Peron Road / HMAS Stirling - East Right Turn - AM Turn Profile

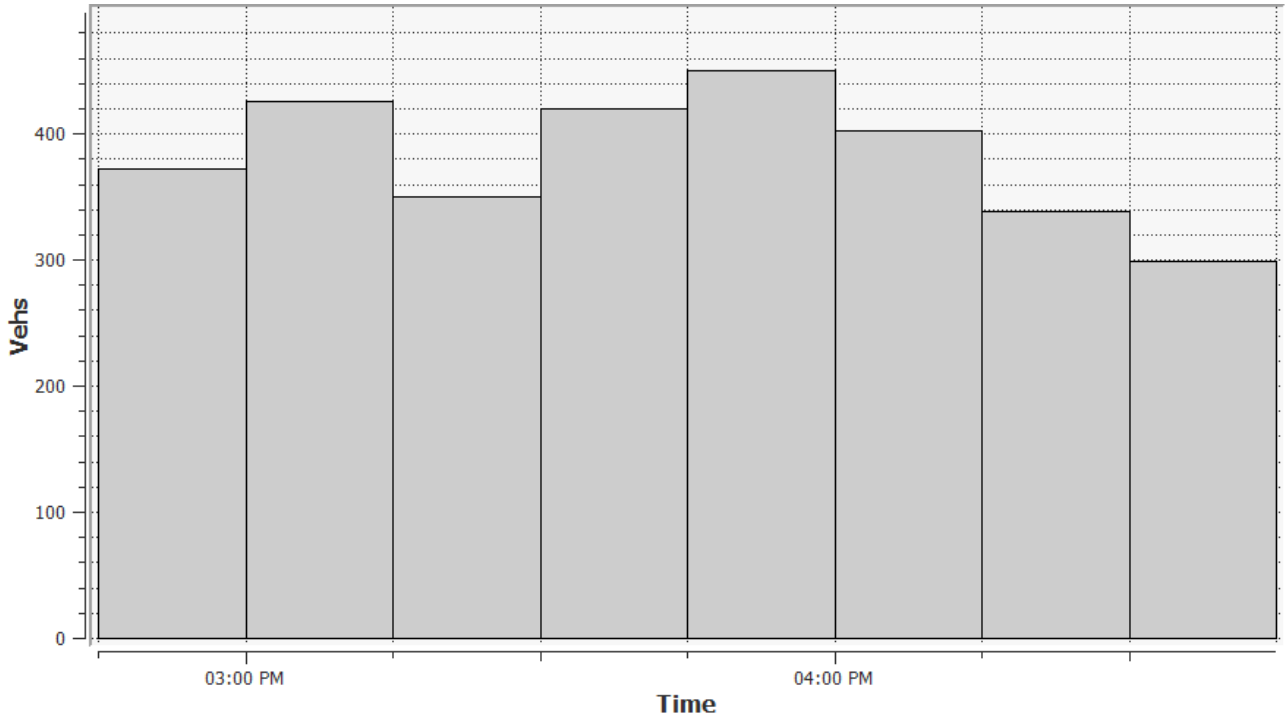


Figure 13 PM Network Demand

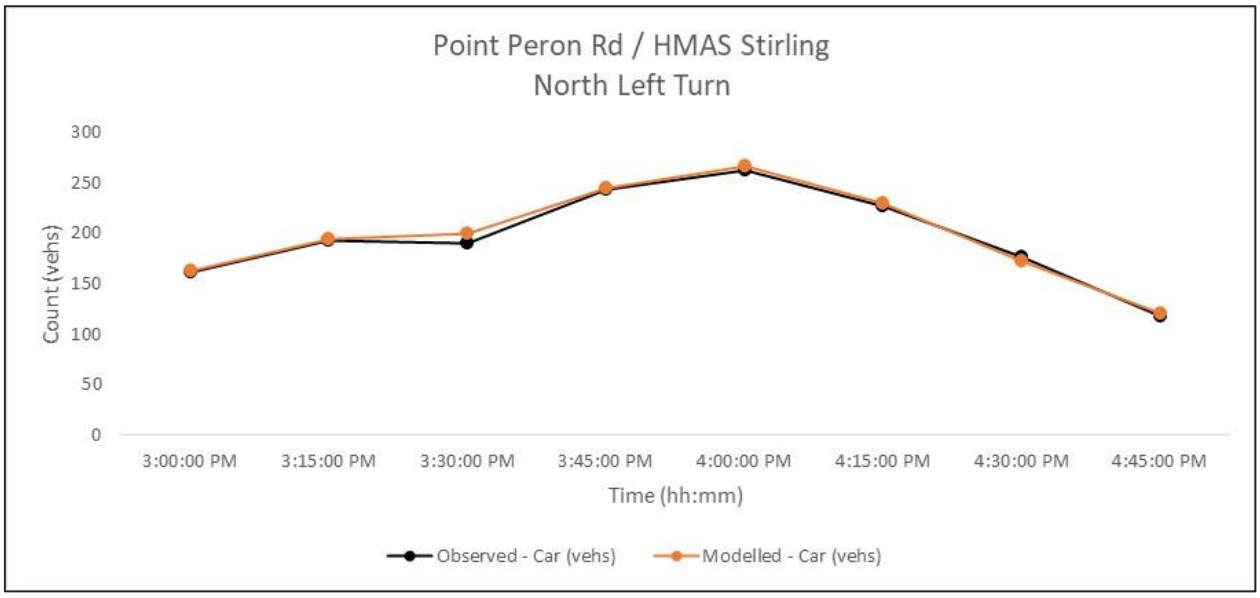


Figure 14 Point Peron Road / HMAS Stirling - North Left Turn - PM Turn Profile

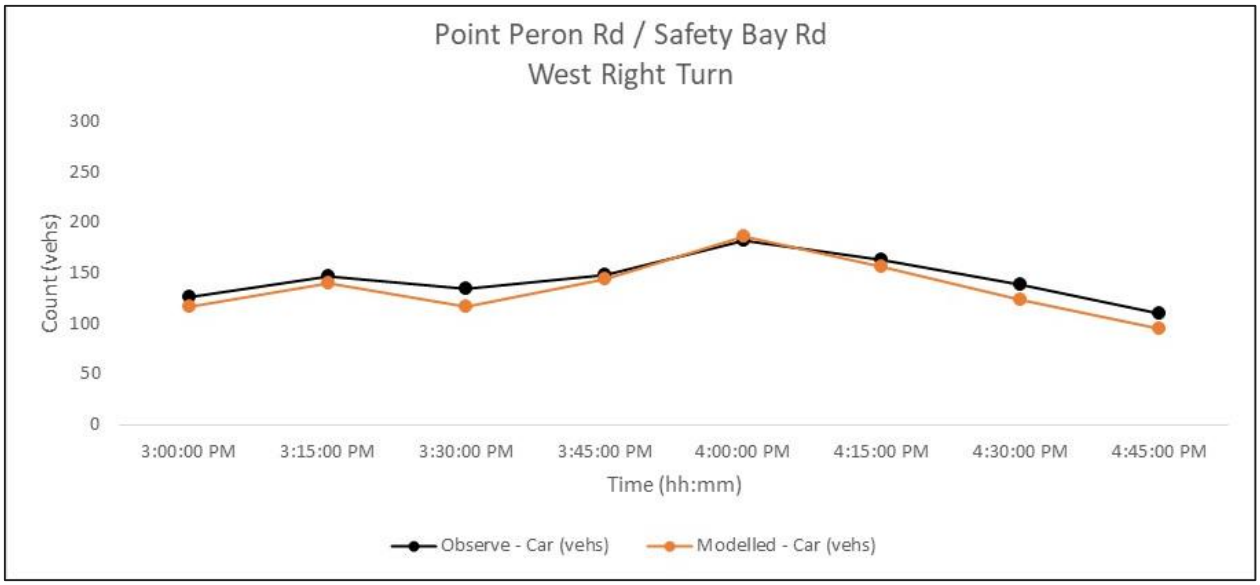


Figure 15 Point Peron Road / Safety Bay Road - West Right Turn - PM Turn Profile

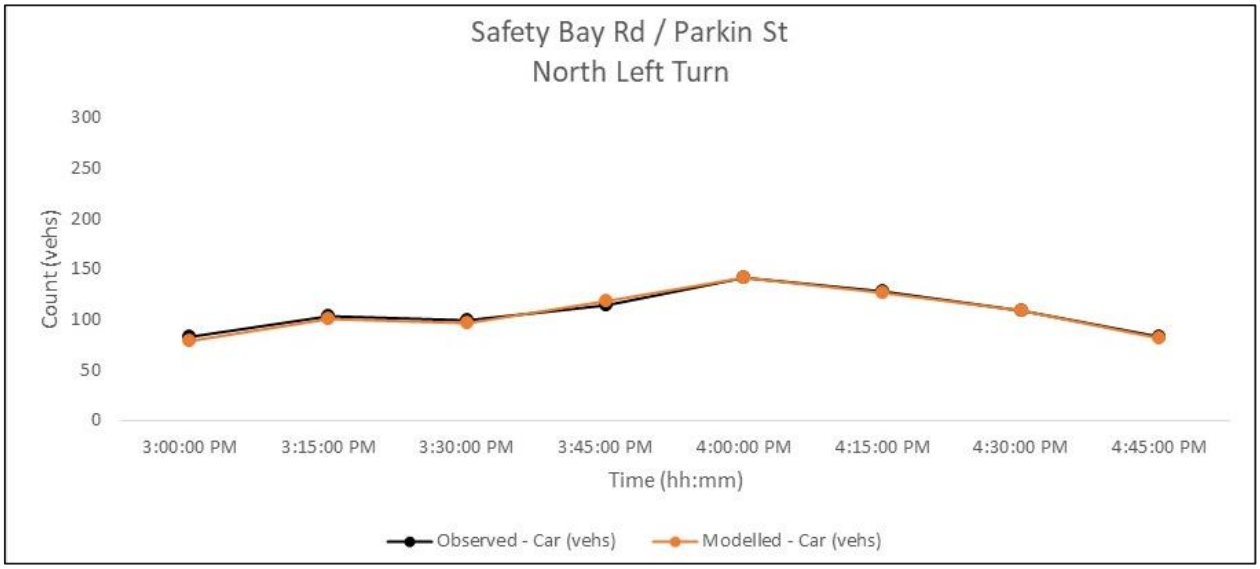


Figure 16 Safety Bay Road / Parkin Street - North Left Turn - PM Turn Profile

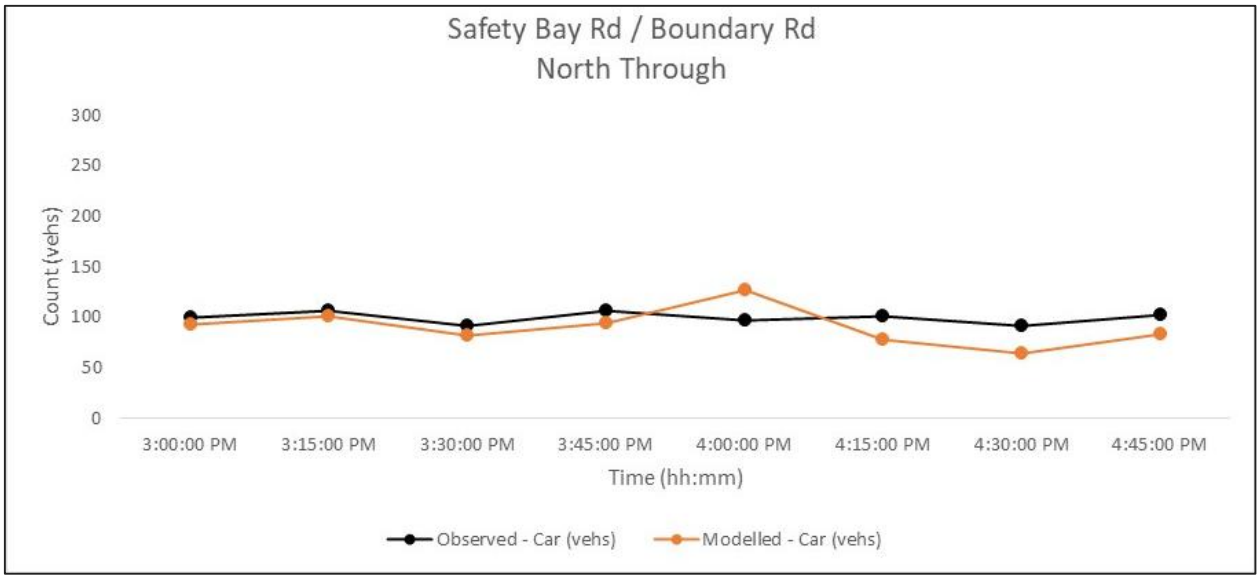


Figure 17 Safety Bay Road / Boundary Road - North Through - PM Turn Profile

3.10 Behaviour Parameters

The following model behaviour parameters were sourced from the Main Roads WA Operational Modelling Guidelines, with some parameters adjusted to reflect localized driver behaviour:

- Simulation Step set as 0.45 seconds
- Car reaction time set as the following: 0.90 seconds general; 1.20 seconds at stop; and 1.35 seconds at traffic lights
- Heavy vehicle reaction time set as the following: 1.35 seconds general; 1.30 seconds at stop; and 1.70 seconds at traffic lights
- Give-way time factor: 1.00
- Initial safety margin: 4.00 – 6.00 seconds
- Final safety margin: 2.00 – 4.00 seconds

3.11 HMAS Stirling Entrance Checkpoints

The checkpoints on the HMAS Stirling Entrance were included in the model to better capture the delays and queues in this area. The delays were replicated in the model through the "metering" feature in Aimsun. The checkpoints are represented by the green boxes along the northbound sections in **Figure 18**. Below is a summary of the inputs:

- Type: Delay
- Control Type: Fixed
- Mean: 1.3 seconds
- Standard Deviation: 2 seconds

The Mean and Standard Deviation values were estimated from reviews of the video footage from the Point Peron Road / HMAS Stirling Entrance intersection.

Figure 18 Aimsun Model - HMAS Stirling Entrance

4 Model Stability

The stochasticity of a microsimulation model can cause instability in the model, which can undermine the reliability of the model to forecast future traffic condition. Thus, it is important to develop a base model that is stable and has an appropriate degree of accuracy for future options assessment. To determine the stability of a model, a total of 5 seed values were used, with the total travel time (in terms of Vehicle Hours Travelled (VHT) statistics) used as a basis to determine the model stability. The resulting VHT statistics, for each of the 5 random seed values used in the modelled replications, are shown in **Figure 19** and **Figure 20** for the AM and PM peak periods, respectively.

The general network statistics for both periods show a low level of variability in the peak hours of both the AM and PM peak. Overall, the analysis of the model runs demonstrates that the modelled network and output results are stable.

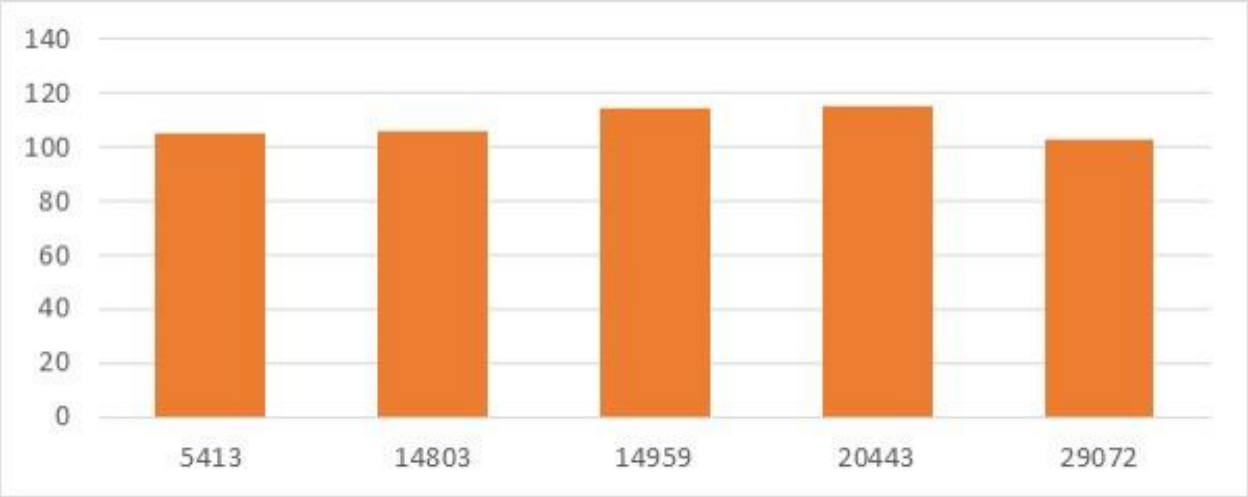


Figure 19 VHT Statistics for Seed Values for AM peak

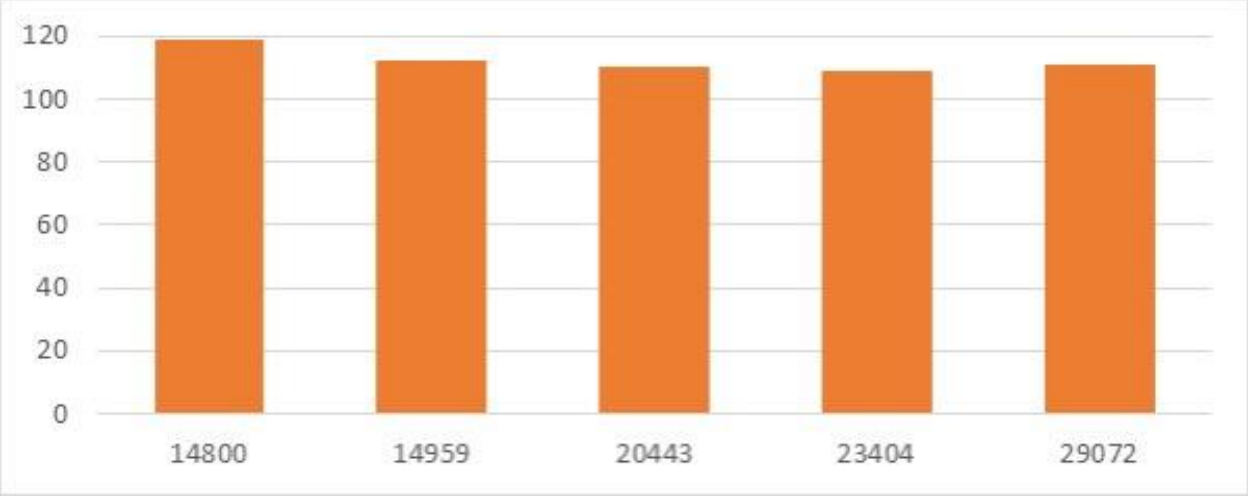


Figure 20 VHT Statistics for Seed Values for PM peak

5 Model Calibration and Validation

5.1 Calibration and Validation Criteria

This section sets out the key calibration statistics from the preparation of the base (existing conditions) model. The calibration of a base model is important to ensure a robust base from which to test options and provide statistical comparisons of existing layouts against options.

Calibration for the model was based on turn count comparison, where the observed and modelled turning movements were compared for general traffic over the modelled peak hour periods.

For the purpose of this study, the model developed is considered to be Category 2 model as defined in Main Roads WA *Operational Modelling Guidelines* (section 2.12.2.1). These types of models are defined to have the following characteristics:

- Small area network or long corridor model with limited route choices.
- Models in this category are developed to assess the performance of networks or corridors under different traffic management schemes.

5.2 Category 2 Model Calibration and Validation Requirements

- 95% of turn and link flow comparisons with GEH less than 10.
- 85% of turn and link flow comparisons with GEH less than 5.
- Regression of modelled and observed counts to show R^2 and slope greater than 0.90.

5.2.1 Base Model Validation Criteria

Validation of the base model was undertaken on the basis of travel time along the corridor. Current guidelines for travel time validation recommend a target of the 90% of the modelled travel times being within 15% or 1 minute of the observed travel times, whichever is larger.

5.3 Calibration Results

The model was calibrated to the criteria listed in **Section 5.2** of this report by comparing the turn flows modelled with observed counts and GEH statistics.

The GEH (named after its inventor, Geoffrey E. Havers.) is a statistic used to determine the measure of fit between observed and modelled traffic flows and is defined as:

$$GEH = \sqrt{\frac{2 * (Observed - Modelled)^2}{(Observed + Modelled)}}$$

A GEH value of five or less is generally considered a good correlation while a GEH value of ten or greater requires further explanation.

The GEH statistics is summarized by time period and vehicle type from **Table 2** to **Table 6** for both the entire model period (23 hours and peak periods), as well as the peak 1-hour periods.

Detailed GEH Statistics for each turn count are included in Error! Reference source not found..

Table 2 Summary of GEH Statistics for Weekday Whole Day Time Period (00:00 - 23:00)

	AIMSUN Objects	Count	Percentage	Criteria Met?
Vehicle Type	**Total Counts**	**54**	**100%**	
Class 1	Number of Counts with GEH < 5	52	96%	✓
	Number of Counts with GEH < 10	54	100%	✓
Class 2-5	Number of Counts with GEH < 5	54	100%	✓
	Number of Counts with GEH < 10	54	100%	✓
Class 6-9	Number of Counts with GEH < 5	54	100%	✓
	Number of Counts with GEH < 10	54	100%	✓
R^2		0.99		✓

Table 3 Summary of GEH Statistics for Weekday AM Peak Period (06:00 – 08:00)

	AIMSUN Objects	Count	Percentage	Criteria Met?
Vehicle Type	**Total Counts**	**54**	**100%**	
Class 1	Number of Counts with GEH < 5	54	100%	✓
	Number of Counts with GEH < 10	54	100%	✓
Class 2-5	Number of Counts with GEH < 5	54	100%	✓
	Number of Counts with GEH < 10	54	100%	✓
Class 6-9	Number of Counts with GEH < 5	54	100%	✓
	Number of Counts with GEH < 10	54	100%	✓
R^2		1.00		✓

Table 4 Summary of GEH Statistics for Weekday AM Peak Hour (06:30 – 07:30)

	AIMSUN Objects	Count	Percentage	Criteria Met?
Vehicle Type	**Total Counts**	**54**	**100%**	
Class 1	Number of Counts with GEH < 5	51	94%	✓
	Number of Counts with GEH < 10	54	100%	✓
Class 2-5	Number of Counts with GEH < 5	54	100%	✓
	Number of Counts with GEH < 10	54	100%	✓
Class 6-9	Number of Counts with GEH < 5	54	100%	✓
	Number of Counts with GEH < 10	54	100%	✓
R^2		0.99		✓

Table 5 Summary of GEH Statistics for Weekday PM Peak Period (14:45 - 16:45)

	AIMSUN Objects	Count	Percentage	Criteria Met?
Vehicle Type	**Total Counts**	**54**	**100%**	
Class 1	Number of Counts with GEH < 5	54	100%	✓
	Number of Counts with GEH < 10	54	100%	✓
Class 2-5	Number of Counts with GEH < 5	54	100%	✓
	Number of Counts with GEH < 10	54	100%	✓
Class 6-9	Number of Counts with GEH < 5	54	100%	✓
	Number of Counts with GEH < 10	54	100%	✓
R^2		1.00		✓

Table 6 Summary of GEH Statistics for Weekday PM Peak Hour (15:15 - 16:15)

	AIMSUN Objects	Count	Percentage	Criteria Met?
Vehicle Type	**Total Counts**	**54**	**100%**	
Class 1	Number of Counts with GEH < 5	54	100%	✓
	Number of Counts with GEH < 10	54	100%	✓
Class 2-5	Number of Counts with GEH < 5	54	100%	✓
	Number of Counts with GEH < 10	54	100%	✓
Class 6-9	Number of Counts with GEH < 5	54	100%	✓
	Number of Counts with GEH < 10	54	100%	✓
R^2		0.99		✓

5.4 Travel Time Validation

For the purpose of model validation, TomTom travel time data was sourced for four travel time routes within the study area. The travel time routes are shown in **Figure 21**.

For the AM peak, Routes 4 and 7 were not considered in the assessment for the following reasons:

- Route 4 showed inconsistencies in the observed travel time where the 95th percentile drastically increased to 8 minutes, compared to the other percentiles with values no greater than 1.6 minutes.
- Route 7 had a sample size of 1.

The TomTom travel time data was provided for each of the individual segments that made up each of the routes in the TomTom GIS dataset. As some of the travel time segments were short, Stantec aggregated the travel times for some of these segments to instead provide the travel times between the main intersections along the corridor.

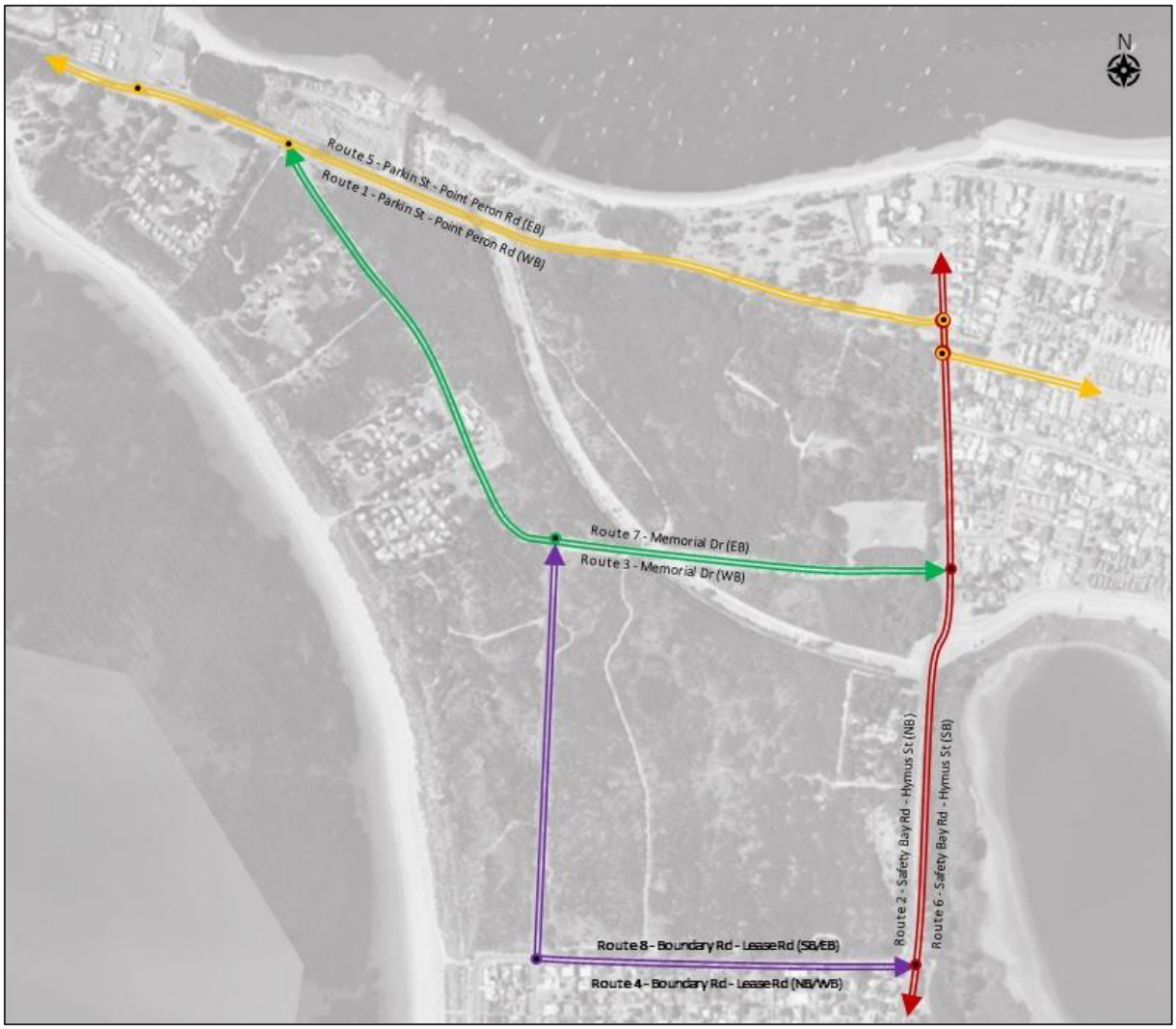


Figure 21 Travel Time Routes

The Main Roads WA *Operational Modelling Guidelines* travel time validation criteria for Category 2 models is that the modelled travel times for 90% of the travel time routes should be within 15% percent or one minute (whichever is greater) of the average observed travel time.

The visual representations for the modelled and observed travel time statistics for the AM peak for each of the aggregated travel time segments are provided in **Figure 22** to **Figure 27**. **Table 7** provides a summary of the modelled and observed travel times during the AM peak.

The visual representations for the modelled and observed travel time statistics for the PM peak are provided for each of the aggregated travel time segments are provided in **Figure 28** to **Figure 35**. **Table 8** provides a summary of the modelled and observed travel times during the PM peak.

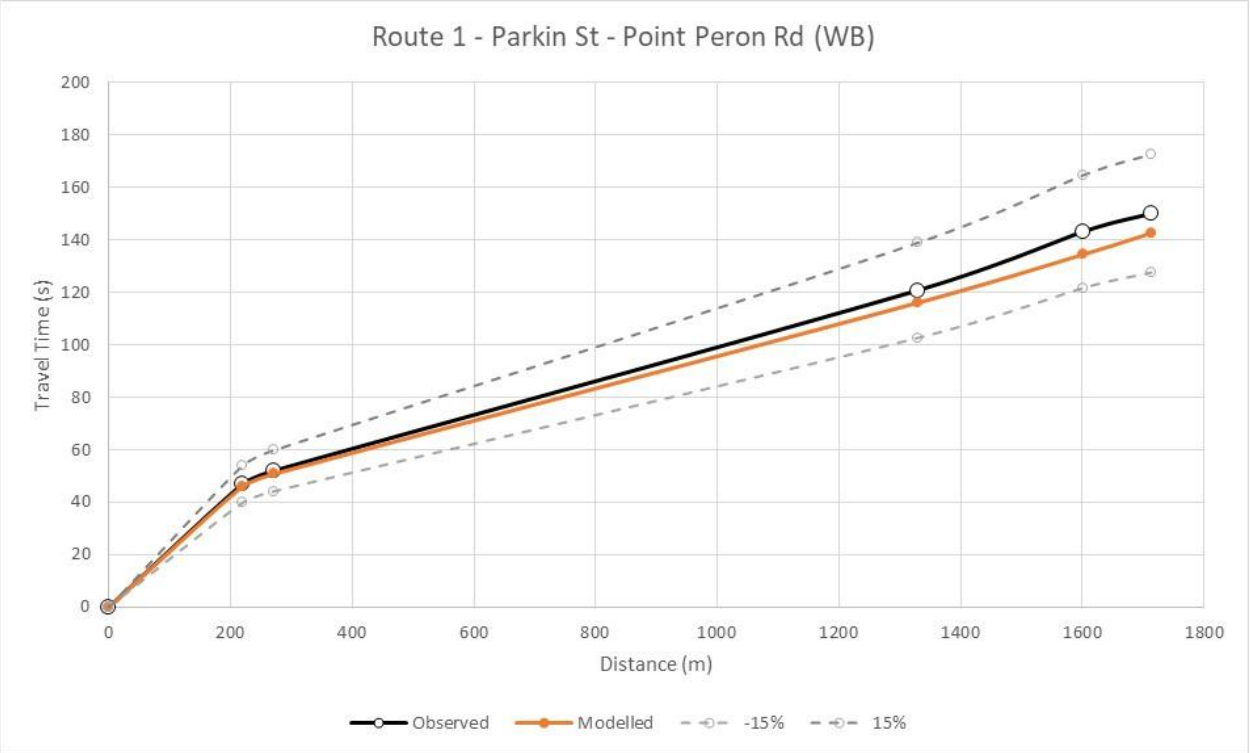


Figure 22 AM Peak - Route 1 - Parkin St - Point Peron Rd (WB)

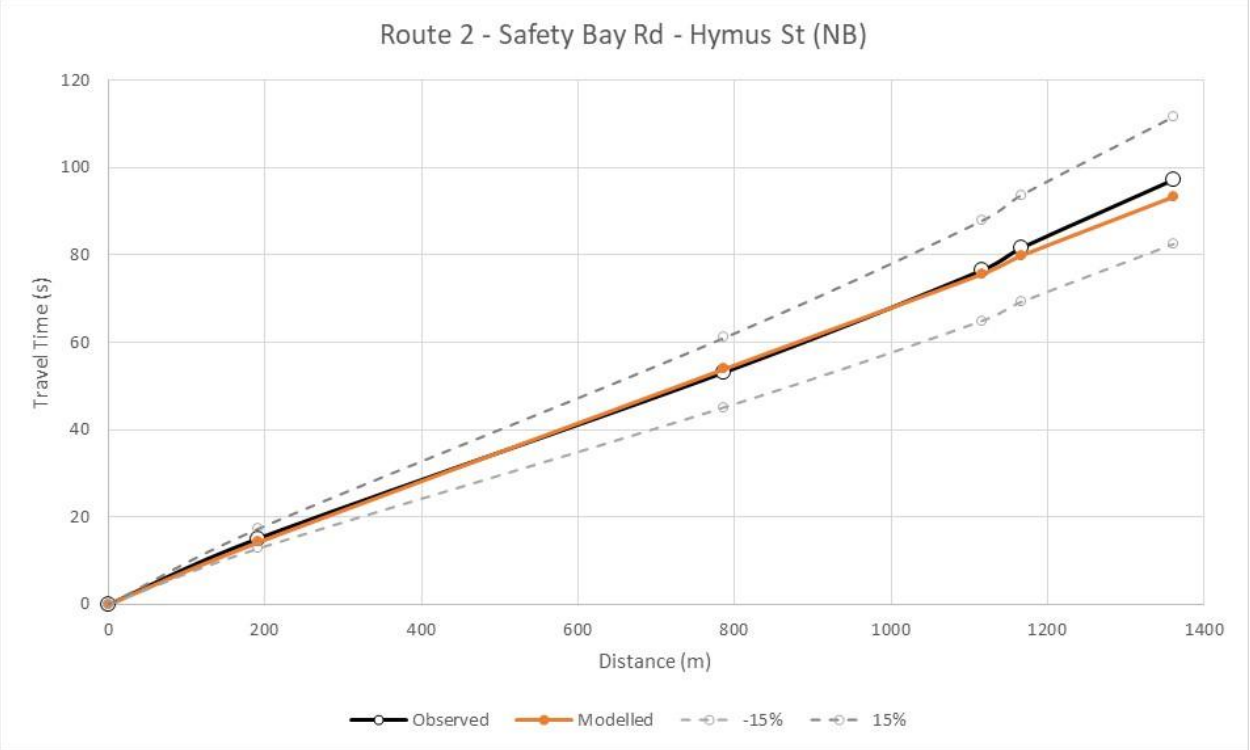


Figure 23 AM Peak - Route 2 - Safety Bay Rd - Hymus St (NB)

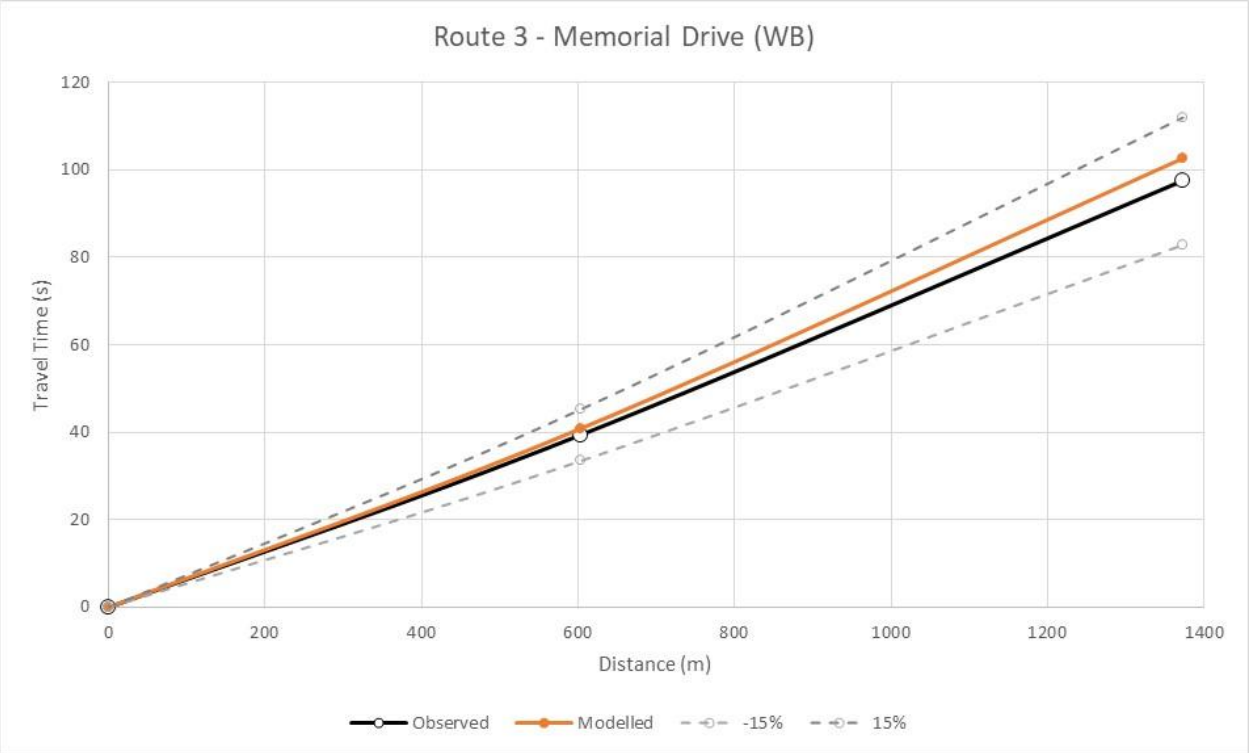


Figure 24 AM Peak - Route 3 - Memorial Drive (WB)

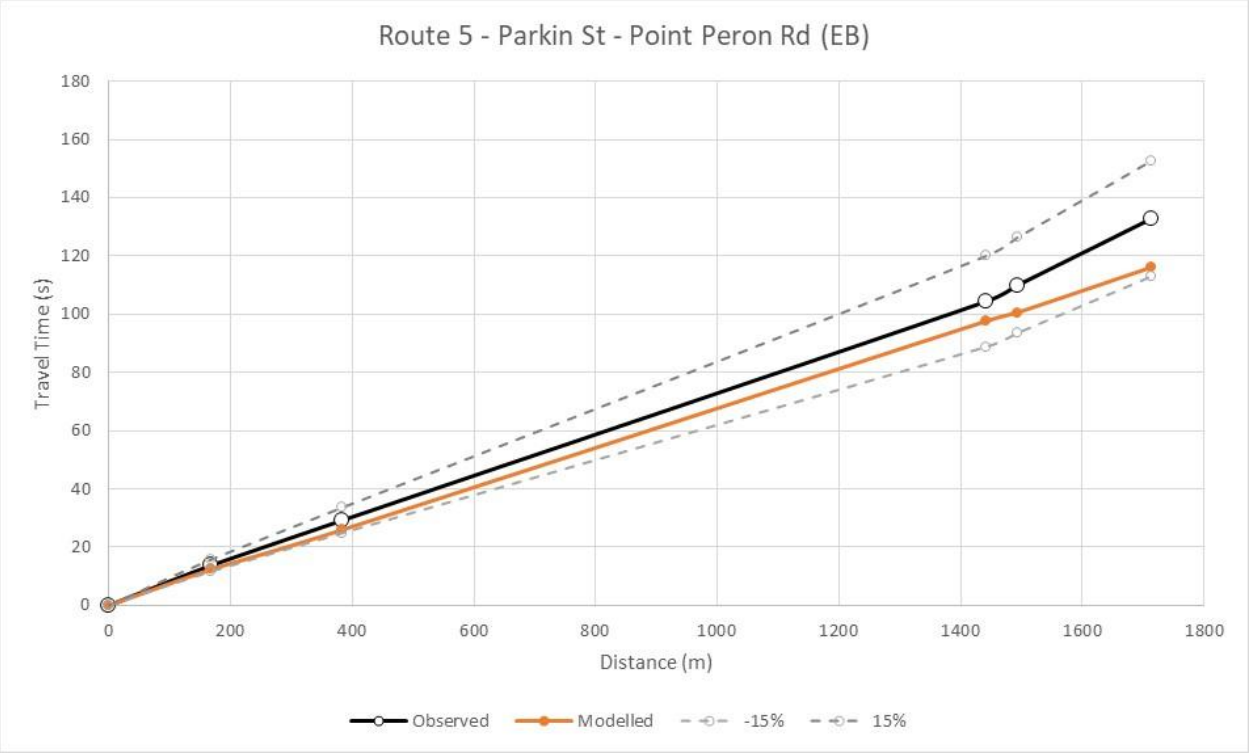


Figure 25 AM Peak - Route 5 - Parkin St - Point Peron Rd (EB)

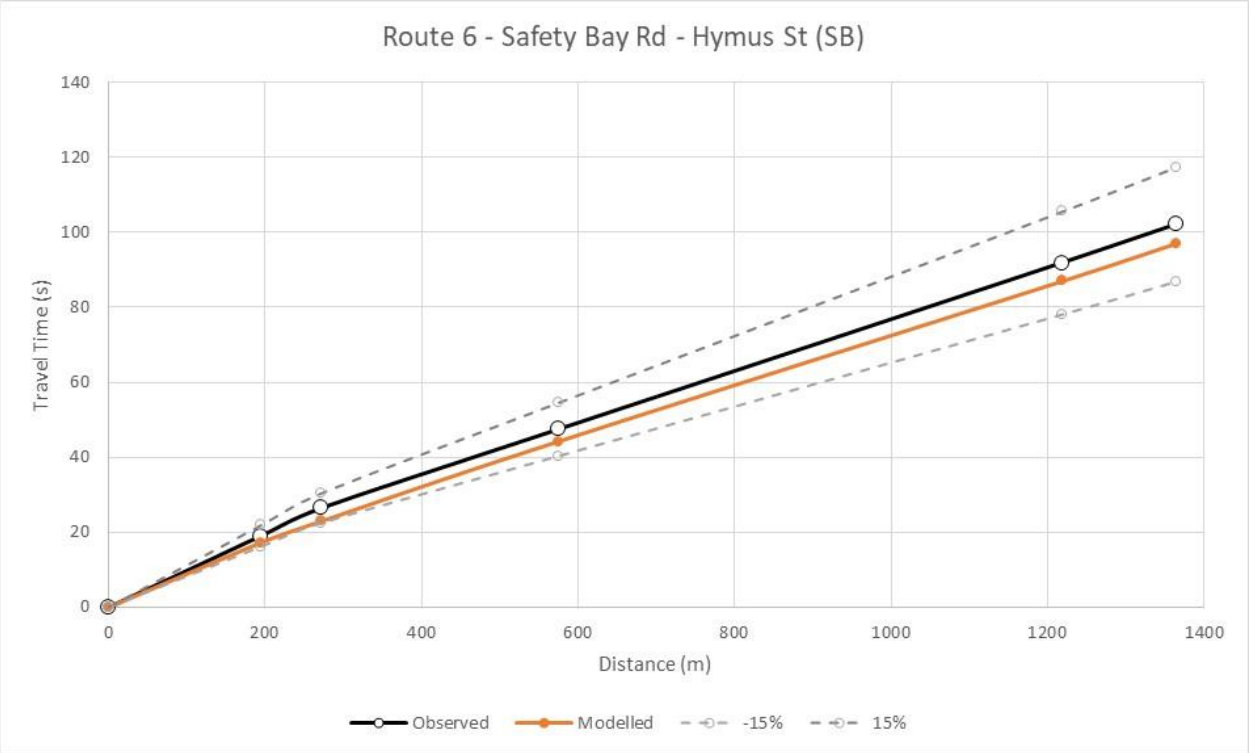


Figure 26 AM Peak - Route 6 - Safety Bay Rd - Hymus St (SB)

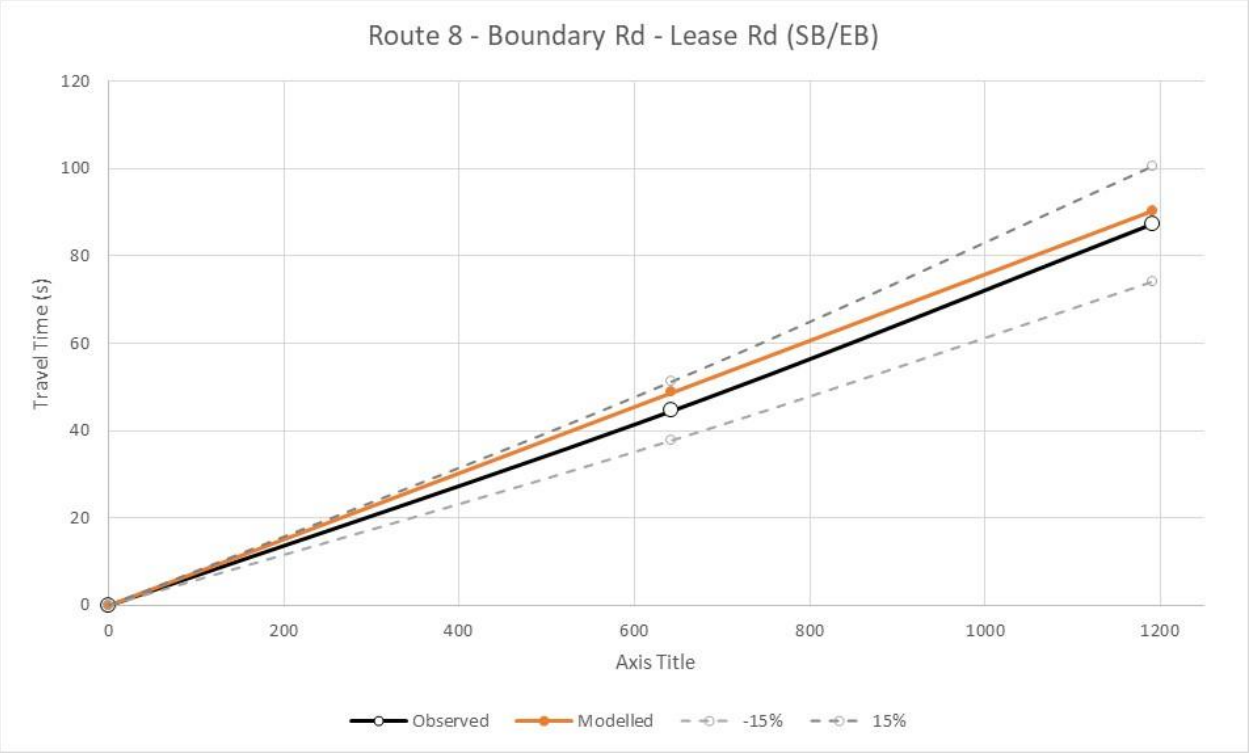


Figure 27 AM Peak - Route 8 - Boundary Rd - Lease Rd (SB/EB)

Table 7 AM Peak - Travel Time Validation Results

Route ID - Name	Travel Time Segment	Distance (m)	Cummulative Average Travel Time (sec)		Absolute Difference (sec)	Within 15% or 1 minute?
			Observed	Modelled		
Route 1 Parkin Street - Point Peron Road Westbound	0	0	0	0	0	✓
	4-7	219	47	46	1	✓
	8	270	52	51	1	✓
	9-17	1329	121	116	5	✓
	18-22	1602	143	135	9	✓
	23-25	1712	150	143	7	✓
Route 2 Safety Bay Road - Hymus Street Northbound	0	0	0	0	0	✓
	1-5	191.81	15	14	1	✓
	6-12	786.73	53	54	1	✓
	13-17	1115.82	76	76	1	✓
	18	1166.95	82	80	2	✓
	19-21	1361.28	97	93	4	✓
Route 3 Memorial Drive Westbound	0	0	0	0	0	✓
	1-7	603	39	41	2	✓
	8-15	1373	97	103	5	✓
Route 5 Parkin Street - Point Peron Road Eastbound	0	0	0	0	0	✓
	1-5	168	14	12	1	✓
	6-8	383	29	26	3	✓
	9-17	1442	104	98	7	✓
	18	1493	110	101	9	✓
	19-22	1712	133	116	17	✓
Route 6 Safety Bay Road - Hymus Street Southbound	0	0	0	0	0	✓
	1-3	194	19	17	2	✓
	4-5	272	26	23	3	✓
	6-9	575	47	44	3	✓
	10-19	1218	92	87	5	✓
	20	1364	102	97	5	✓
Route 8 Boundary Rd - Lease Road Southbound/Eastbound	0	0	0	0	0	✓
	1	643	45	49	4	✓
	2-7	1191	87	90	3	✓

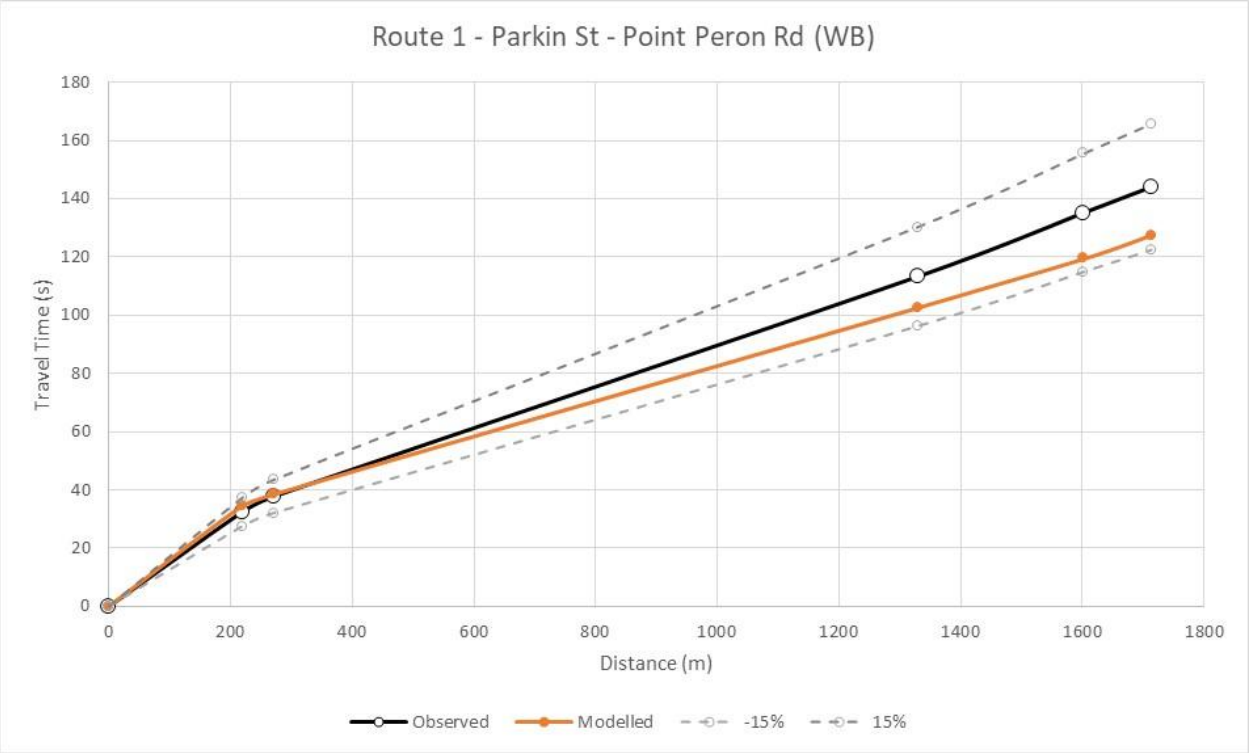


Figure 28 PM Peak - Route 1 - Parkin St - Point Peron Rd (WB)

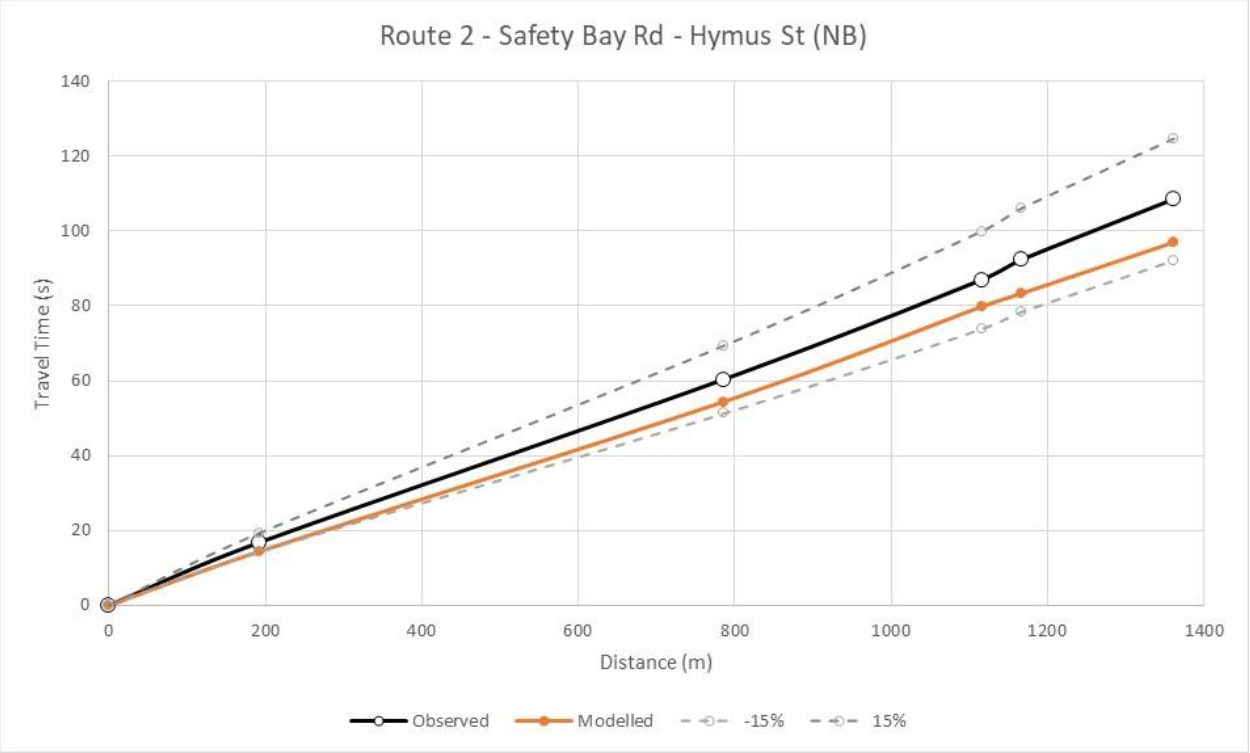


Figure 29 PM Peak - Route 2 - Safety Bay Rd - Hymus St (NB)

Figure 30 PM Peak - Route 3 - Memorial Dr (WB)

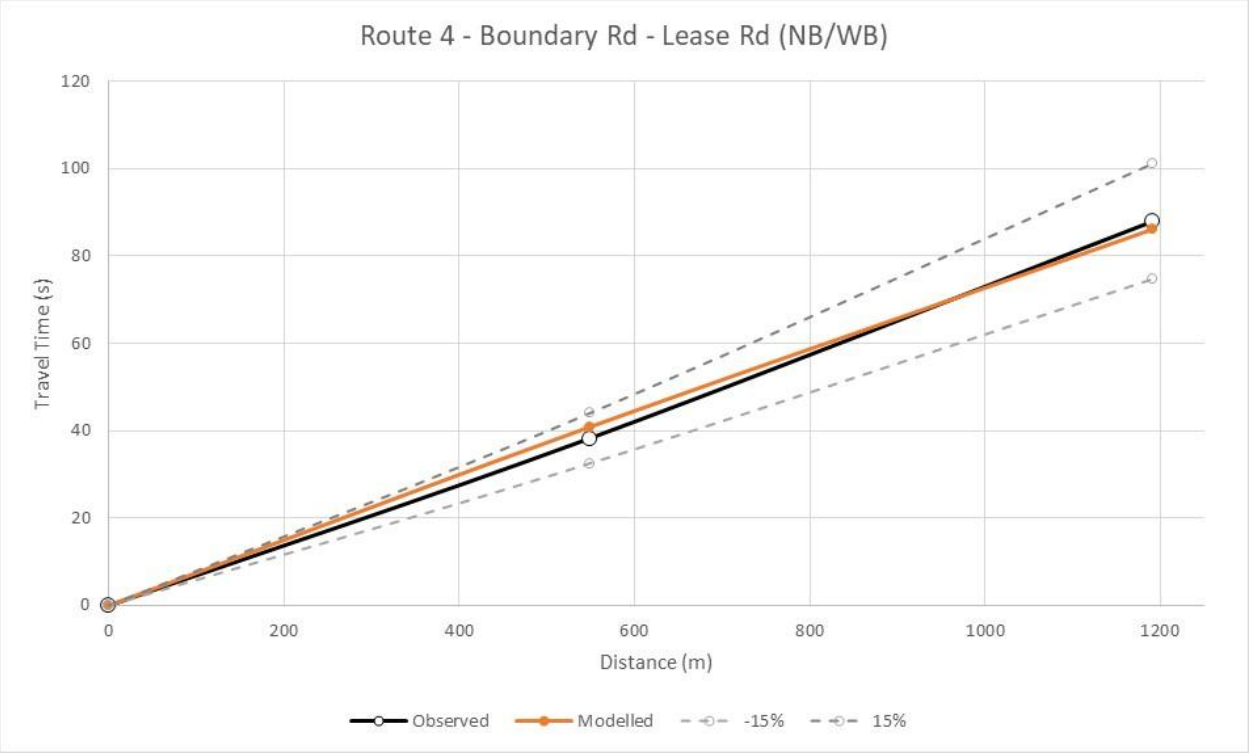
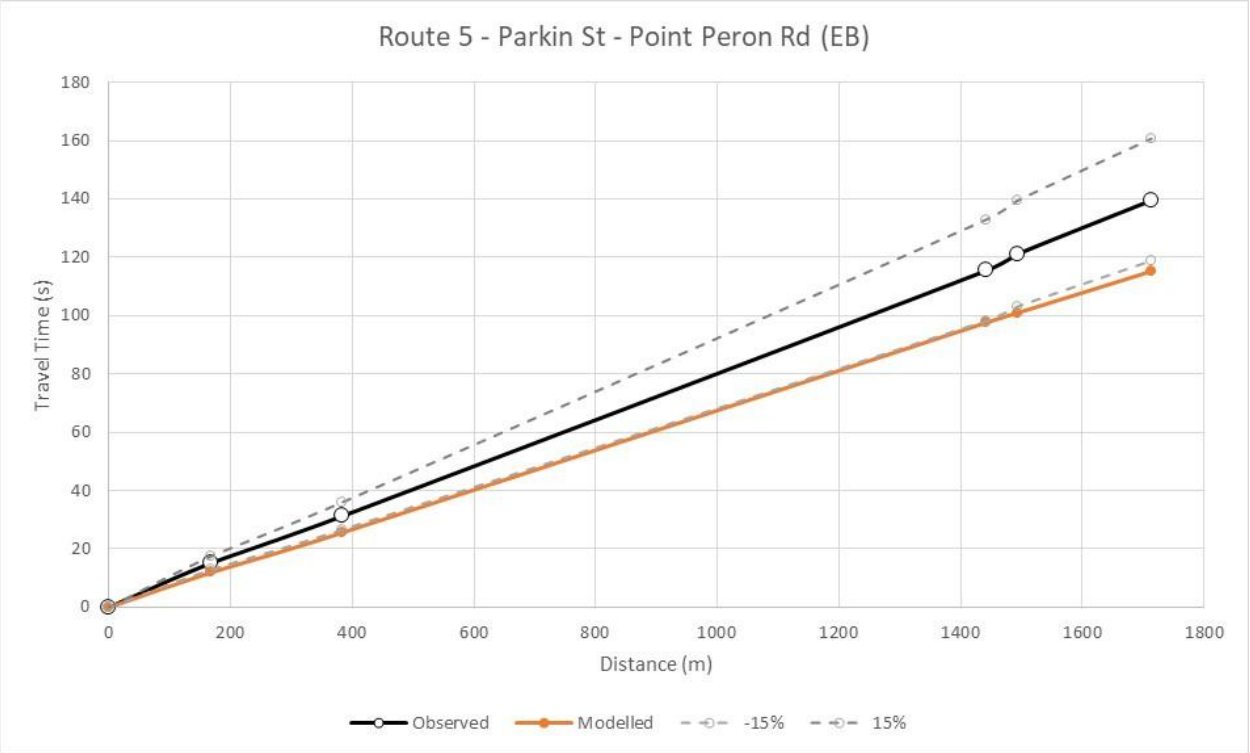


Figure 31 PM Peak - Route 4 - Boundary Rd - Lease Rd (NB/WB)



Note: Modelled travel time is lower than the -15% boundary however it is acceptable as it is still within -1 minute from the observed travel time.

Figure 32 PM Peak - Route 5 - Parkin St - Point Peron Rd (EB)

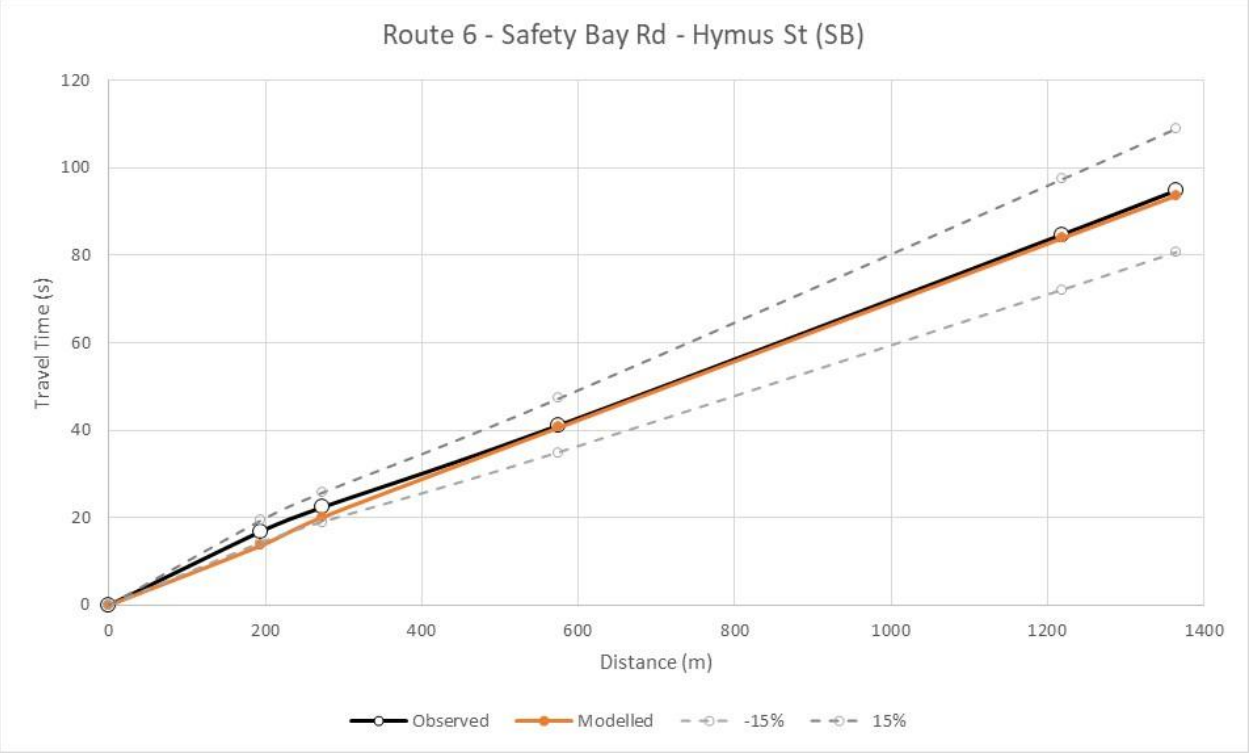


Figure 33 PM Peak - Route 6 - Safety Bay Rd - Hymus St (SB)

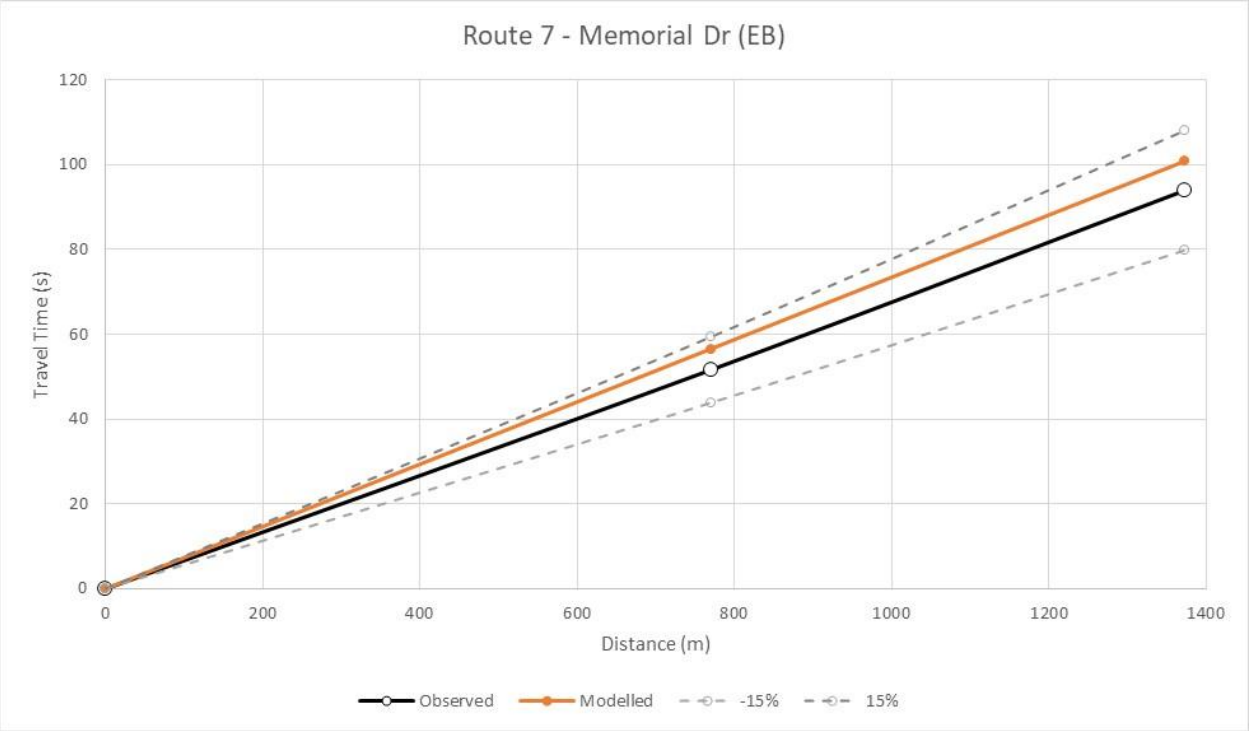


Figure 34 PM Peak - Route 7 - Memorial Dr (EB)

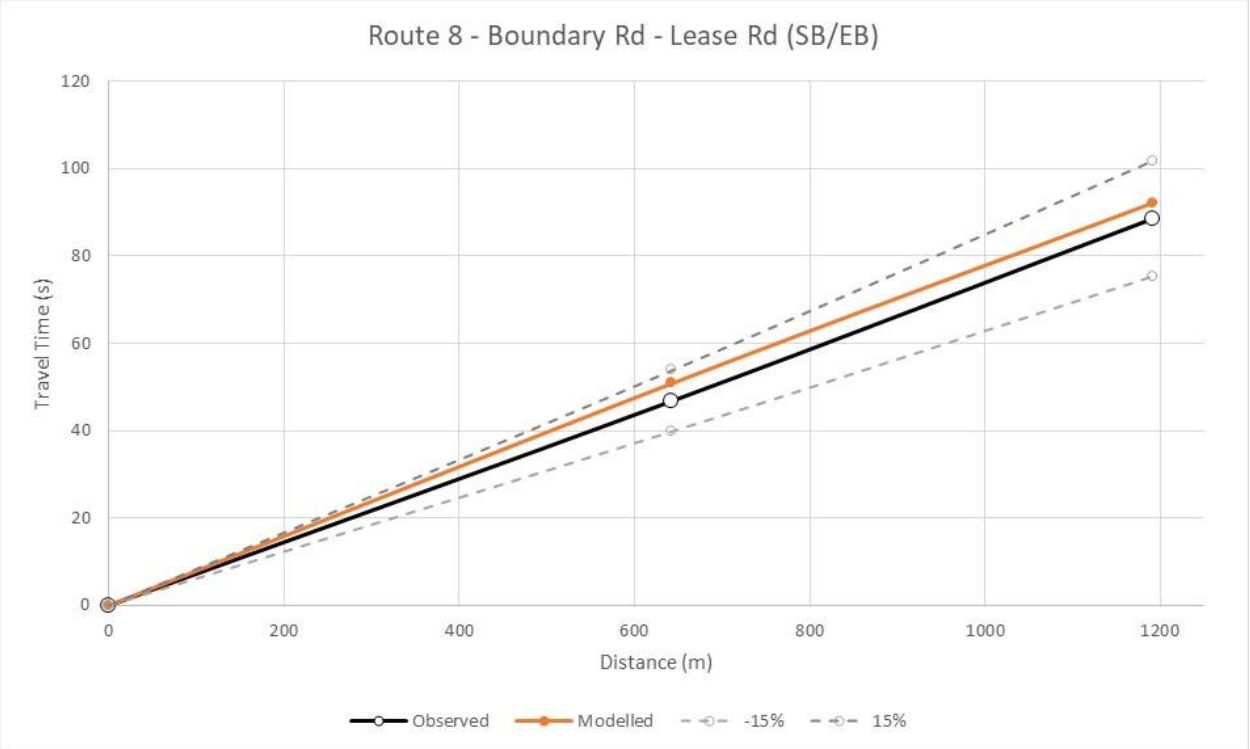


Figure 35 PM Peak - Route 8 - Boundary Rd - Lease Rd (SB/EB)

Table 8 PM Peak - Travel Time Validation Results

Route ID - Name	Travel Time Segment	Distance (m)	Cummulative Average Travel Time (sec)		Absolute Difference (sec)	Within 15% or 1 minute?
			Observed	Modelled		
Route 1 Parkin Street - Point Peron Road Westbound	0	0	0	0	0	✓
	4-7	219	32	35	2	✓
	8	270	38	38	1	✓
	9-17	1329	113	103	11	✓
	18-22	1602	135	120	16	✓
	23-25	1712	144	128	16	✓
Route 2 Safety Bay Road - Hymus Street Northbound	0	0	0	0	0	✓
	1-5	191.81	17	14	2	✓
	6-12	786.73	60	54	6	✓
	13-17	1115.82	87	80	7	✓
	18	1166.95	92	83	9	✓
	19-21	1361.28	108	97	12	✓
Route 3 Memorial Drive Westbound	0	0	0	0	0	✓
	1-7	603	36	41	5	✓
	8-15	1373	90	100	10	✓
Route 4 Boundary Road - Lease Road Northbound/Westbound	0	0	0	0	0	✓
	1-6	548	38	41	3	✓
	7	1191	88	86	2	✓
Route 5 Parkin Street - Point Peron Road Eastbound	0	0	0	0	0	✓
	1-5	168	15	12	3	✓
	6-8	383	31	26	6	✓
	9-17	1442	116	98	18	✓
	18	1493	121	101	20	✓
	19-22	1712	140	115	25	✓
Route 6 Safety Bay Road - Hymus Street Southbound	0	0	0	0	0	✓
	1-3	194	17	14	3	✓
	4-5	272	22	20	2	✓
	6-9	575	41	41	0	✓
	10-19	1218	85	84	1	✓
	20	1364	95	94	1	✓
Route 7 Memorial Drive Eastbound	0	0	0	0	0	✓
	1-8	770	52	57	5	✓
	9-15	1373	94	101	7	✓
Route 8 Boundary Rd - Lease Road Southbound/Eastbound	0	0	0	0	0	✓
	1	643	47	51	4	✓
	2-7	1191	89	92	4	✓

5.5 Queue Validation

Queues were observed in the model as some roads in the study area tend to get busy during the peak hours. In the AM peak, the dominant direction was westbound to HMAS Stirling, thus resulting in queues forming in the westbound direction on Parkin Street and at the HMAS Stirling Entrance. Queues in both directions are shown in the following subsections, including a comparison of the modelled queue length and the observed queue lengths from the video footage and site observations.

In the PM peak, the dominant direction was eastbound to Parkin Street and Safety Bay Road. While there was a relatively large number of traffic travelling eastbound, queues on Point Peron Road were found to typically be less than five vehicles and clear relatively easily due to low volumes of opposing traffic. Queue validation for Point Peron Road was not undertaken as there is no video footage that can show a clear view of the queues. The travel time validation is found to be a sufficient indicator of whether the model reflects the actual conditions.

Apart from the queues observed on these roads, the queues on other roads tend to be short and clear easily. Similar with Point Peron Road the travel time validation is found to be a sufficient indicator of whether the model reflects the actual conditions.

5.5.1 Parkin Street Westbound Queues

During the AM peak, queues were observed along Parkin Street in the westbound direction. They were typically observed reach Vista Avenue; however, they could extend further back beyond the eastbound bus stop. These queues occur in short durations and clear relatively quickly once sufficient gaps occur in the opposing directions.

Figure 36 and **Figure 37** show instances of queuing along Parkin Street westbound in the model and video footage, respectively. In both figures, the image on the left shows typical queues while the image on the right shows the maximum queue observed.

It can be noted that the video cannot capture the whole length of the queue for the worst case however the video captures enough to identify that there are long queues that form on this road during the AM peak.

Figure 36 Modelled Queues - Parkin Street Westbound

Figure 37 Observed Queues - Parkin Street Westbound

5.5.2 HMAS Stirling Entrance – Point Peron Road Westbound Queues

During the AM peak, rolling queues along the HMAS Stirling Entrance were observed to occasionally spill onto Point Peron Road due to the large volume of vehicles entering HMAS Stirling distributed between the two checkpoints. Queues easily form whenever a vehicle in the opposing direction arrives. The queues tend to stay whenever the sections near the checkpoint are filled however, they do not reach the Memorial Drive intersection.

Figure 38 shows instances of the queues observed in the model. The image on the left shows the rolling queues while the image on the right shows the queue formed after a vehicle on the opposing direction passed through the intersection.

Figure 39 shows an instance of the rolling queues from the checkpoints reaching the intersection. It is noted that the video footage does not provide enough information on the length of the queue however based on the number of vehicles consecutively entering the frame with little gaps between them it can indicate that queues are forming beyond the frame. Additional information that can be used is the video footage on Point Peron Road / Memorial Drive that shows the queues do not reach that intersection.

Figure 38 Modelled Queues - HMAS Stirling Entrance

Figure 39 Observed Queue - HMAS Stirling Entrance

6 Summary and Conclusion

The whole day weekday, AM peak and PM peak scenarios have been shown to conform to the model calibration and validation criteria listed in the Main Roads WA *Operational Modelling Guidelines* for Aimsun micro-simulation models.

- 85% of the turning counts had a GEH of less than 5 across all time periods and vehicle types
- 95% of the turning counts had a GEH of less than 10 across all time periods and vehicle types
- R^2 higher than 0.90 were observed in all time periods
- The modelled travel times for the corridor were within 15% and 1 minute above and below the observed travel time for all routes and time periods.

Aside from the criteria from Main Roads WA *Operational Modelling Guidelines*, the model is also considered reflective of the observed queuing conditions within the study area.

It is concluded that the two peak base models appropriately reflect existing year conditions and provide a suitable basis for the potential infrastructure and traffic demand option testing.

Appendix A

DETAILED INTERSECTION TURN SUMMARIES

We design with community in mind

Appendix A

A.1 Whole day weekday

A.1.1 Cars

A-1 Whole day weekday – Cars - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	112	66	-46	-41.07	1.0167
14290: int5,n,r (int5,n,r)	1046	961	-85	-8.126	0.5595
14294: int5,s,t (int5,s,t)	3113	3113	0	0	0
14295: int5,w,l (int5,w,l)	1001	1007.1	6.0985	0.6092	0.04013
14307: int5,w,r (int5,w,r)	414	17	-397	-95.89	5.639
14308: int5,n,t (int5,n,t)	3086	3246	160	5.185	0.59293

A-2 Whole day weekday – Cars - Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
6223: int1,e,r (int1,e,r)	3156	3156	0	0	0
6224: int1,n,r (int1,n,r)	16	16	0	0	0
6225: int1,n,l (int1,n,l)	3183	3188	5	0.1571	0.01847
6226: int1,w,t (int1,w,t)	704	704	0	0	0
6227: int1,w,l (int1,w,l)	23	23	0	0	0
6231: int8,w,t (int8,w,t)	3071	3234.26	163.26	5.316	0.60627
6238: int8,s,l (int8,s,l)	506	556.571	50.571	9.994	0.45748
6239: int8,s,r (int8,s,r)	58	35.3712	-22.629	-39.02	0.69057
6240: int8,w,r (int8,w,r)	827	657.745	-169.26	-20.47	1.2953
6241: int8,e,t (int8,e,t)	3387	3312.43	-74.571	-2.202	0.26866
8018: int8,e,l (int8,e,l)	54	41.4697	-12.53	-23.2	0.37816
13951: int4,w,l (int4,w,l)	59	30.6288	-28.371	-48.09	0.8837
13952: int4,w,r (int4,w,r)	152	127.745	-24.255	-15.96	0.42763
13953: int4,n,r (int4,n,r)	51	30.5303	-20.47	-40.14	0.6685
13954: int4,n,t (int4,n,t)	3420	3584.26	164.26	4.803	0.57875
13955: int4,s,l (int4,s,l)	134	144.17	10.17	7.589	0.17981
13956: int4,s,t (int4,s,t)	3649	3453.93	-195.07	-5.346	0.68254
14008: int7,s,l (int7,s,l)	452	431.902	-20.098	-4.447	0.19935
14009: int7,s,r (int7,s,r)	40	0	-40	-100	1.865
14010: int7,w,r (int7,w,r)	749	555	-194	-25.9	1.5842

14011: int7,w,t (int7,w,t)	165	158.374	-6.6263	-4.016	0.10866
14012: int7,e,l (int7,e,l)	30	0	-30	-100	1.6151
14013: int7,e,t (int7,e,t)	145	174.7	29.7	20.48	0.48982
14045: int6,w,l (int6,w,l)	411	411	0	0	0
14046: int6,w,t (int6,w,t)	890	890	0	0	0
14047: int6,w,r (int6,w,r)	21	21	0	0	0
14048: int6,n,r (int6,n,r)	433	525	92	21.25	0.87651
14049: int6,n,l (int6,n,l)	337	5	-332	-98.52	5.2939
14050: int6,n,t (int6,n,t)	23	25	2	8.696	0.08513
14051: int6,e,t (int6,e,t)	907	820	-87	-9.592	0.61734
14052: int6,e,r (int6,e,r)	74	3.90152	-70.098	-94.73	2.342
14053: int6,e,l (int6,e,l)	51	58	7	13.73	0.19771
14054: int6,s,l (int6,s,l)	5	5	0	0	0
14055: int6,s,t (int6,s,t)	17	17	0	0	0
14056: int6,s,r (int6,s,r)	50	50	0	0	0
14156: int3,s,t (int3,s,t)	2196	1974.56	-221.44	-10.08	1.0111
14158: int3,e,l (int3,e,l)	1547	1544.56	-2.4394	-0.1577	0.01294
14161: int3,n,t (int3,n,t)	1827	1885.22	58.225	3.187	0.2818
14162: int3,n,l (int3,n,l)	2030	2030	0	0	0
14164: int3,e,r (int3,e,r)	1865	1864.94	-0.060607	-0.00325	0
14165: int2,s,t (int2,s,t)	986	970.629	-15.371	-1.559	0.10247
14166: int2,s,l (int2,s,l)	3046	2868.87	-177.13	-5.815	0.67917
14169: int2,w,l (int2,w,l)	434	411.371	-22.629	-5.214	0.2295
14171: int2,w,r (int2,w,r)	2796	2858.26	62.255	2.227	0.24414
14630: int3,s,r (int3,s,r)	1493	1476	-17	-1.139	0.092
14855: int2,n,r (int2,n,r)	477	485.03	8.0303	1.683	0.07635
18367: int2,n,t (int2,n,t)	1058	1056.97	-1.0303	-0.09738	0.00661
18413: int1,e,t (int1,e,t)	713	713	0	0	0

A.1.2 Classes 2-5

A-1 Whole day weekday – Classes 2-5 - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	2	19	17	850	1.0939
14290: int5,n,r (int5,n,r)	27	26	-1	-3.704	0.04051
14294: int5,s,t (int5,s,t)	115	99	-16	-13.91	0.32253
14295: int5,w,l (int5,w,l)	18	19	1	5.556	0.04848
14307: int5,w,r (int5,w,r)	1	1	0	0	0
14308: int5,n,t (int5,n,t)	105	105	0	0	0

A-2 Whole day weekday – Classes 2-5 - Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
6223: int1,e,r (int1,e,r)	83	80	-3	-3.614	0.06929
6224: int1,n,r (int1,n,r)	1	1	0	0	0
6225: int1,n,l (int1,n,l)	80	82	2	2.5	0.04634
6226: int1,w,t (int1,w,t)	30	30	0	0	0
6227: int1,w,l (int1,w,l)	1	1	0	0	0
6231: int8,w,t (int8,w,t)	101	98.9221	-2.0779	-2.057	0.04334
6238: int8,s,l (int8,s,l)	8	8.68207	0.68207	8.526	0.04924
6239: int8,s,r (int8,s,r)	2	0	-2	-100	0.41703
6240: int8,w,r (int8,w,r)	13	13.0779	0.077852	0.5989	0.0045
6241: int8,e,t (int8,e,t)	102	93.3179	-8.6821	-8.512	0.18319
8018: int8,e,l (int8,e,l)	3	0	-3	-100	0.51075
13951: int4,w,l (int4,w,l)	2	0	-2	-100	0.41703
13952: int4,w,r (int4,w,r)	3	2.07785	-0.92215	-30.74	0.12067
13953: int4,n,r (int4,n,r)	0	0	0	0	0
13954: int4,n,t (int4,n,t)	107	106.922	-0.077852	-0.07276	0.00157
13955: int4,s,l (int4,s,l)	1	1.68207	0.68207	68.21	0.12281
13956: int4,s,t (int4,s,t)	123	107.318	-15.682	-12.75	0.30471
14008: int7,s,l (int7,s,l)	9	7	-2	-22.22	0.14744
14009: int7,s,r (int7,s,r)	0	0	0	0	0
14010: int7,w,r (int7,w,r)	11	11	0	0	0
14011: int7,w,t (int7,w,t)	5	2.07785	-2.9221	-58.44	0.32389
14012: int7,e,l (int7,e,l)	0	0	0	0	0
14013: int7,e,t (int7,e,t)	1	1.68207	0.68207	68.21	0.12281
14045: int6,w,l (int6,w,l)	6	6	0	0	0
14046: int6,w,t (int6,w,t)	17	18	1	5.882	0.04984
14047: int6,w,r (int6,w,r)	4	4	0	0	0
14048: int6,n,r (int6,n,r)	7	8	1	14.29	0.07614

14049: int6,n,l (int6,n,l)	2	2	0	0	0
14050: int6,n,t (int6,n,t)	1	1	0	0	0
14051: int6,e,t (int6,e,t)	19	38	19	100	0.74211
14052: int6,e,r (int6,e,r)	2	0	-2	-100	0.41703
14053: int6,e,l (int6,e,l)	1	0	-1	-100	0.29488
14054: int6,s,l (int6,s,l)	1	1	0	0	0
14055: int6,s,t (int6,s,t)	1	1	0	0	0
14056: int6,s,r (int6,s,r)	2	2	0	0	0
14156: int3,s,t (int3,s,t)	34	34.3179	0.31793	0.9351	0.01134
14158: int3,e,l (int3,e,l)	68	67	-1	-1.471	0.02538
14161: int3,n,t (int3,n,t)	48	48.9221	0.92215	1.921	0.02762
14162: int3,n,l (int3,n,l)	75	67	-8	-10.67	0.19797
14164: int3,e,r (int3,e,r)	88	82	-6	-6.818	0.1357
14165: int2,s,t (int2,s,t)	29	29	0	0	0
14166: int2,s,l (int2,s,l)	107	87.3179	-19.682	-18.39	0.41636
14169: int2,w,l (int2,w,l)	18	18	0	0	0
14171: int2,w,r (int2,w,r)	88	80.9221	-7.0779	-8.043	0.16059
14630: int3,s,r (int3,s,r)	72	73	1	1.389	0.02449
14855: int2,n,r (int2,n,r)	6	6	0	0	0
18367: int2,n,t (int2,n,t)	35	35	0	0	0
18413: int1,e,t (int1,e,t)	22	22	0	0	0

A.1.3 Classes 6-9

A-1 Whole day weekday – Classes 6-9 - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	0	0	0	0	0
14290: int5,n,r (int5,n,r)	5	5	0	0	0
14294: int5,s,t (int5,s,t)	5	5	0	0	0
14295: int5,w,l (int5,w,l)	3	2	-1	-33.33	0.13188
14307: int5,w,r (int5,w,r)	1	1	0	0	0
14308: int5,n,t (int5,n,t)	4	4	0	0	0

A-2 Whole day weekday – Classes 6-9 - Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
6223: int1,e,r (int1,e,r)	28	28	0	0	0
6224: int1,n,r (int1,n,r)	0	0	0	0	0
6225: int1,n,l (int1,n,l)	30	34	4	13.33	0.14744
6226: int1,w,t (int1,w,t)	7	7	0	0	0
6227: int1,w,l (int1,w,l)	0	0	0	0	0
6231: int8,w,t (int8,w,t)	36	40.6042	4.6042	12.79	0.15512
6238: int8,s,l (int8,s,l)	0	0	0	0	0
6239: int8,s,r (int8,s,r)	0	0	0	0	0
6240: int8,w,r (int8,w,r)	0	0.395781	0.39578	INF	0.18551
6241: int8,e,t (int8,e,t)	34	35	1	2.941	0.0355
8018: int8,e,l (int8,e,l)	0	0	0	0	0
13951: int4,w,l (int4,w,l)	0	0	0	0	0
13952: int4,w,r (int4,w,r)	0	0.395781	0.39578	INF	0.18551
13953: int4,n,r (int4,n,r)	0	0	0	0	0
13954: int4,n,t (int4,n,t)	7	8.60422	1.6042	22.92	0.11975
13955: int4,s,l (int4,s,l)	0	0	0	0	0
13956: int4,s,t (int4,s,t)	10	7	-3	-30	0.21456
14008: int7,s,l (int7,s,l)	0	0	0	0	0
14009: int7,s,r (int7,s,r)	0	0	0	0	0
14010: int7,w,r (int7,w,r)	0	0	0	0	0
14011: int7,w,t (int7,w,t)	0	0.395781	0.39578	INF	0.18551
14012: int7,e,l (int7,e,l)	0	0	0	0	0
14013: int7,e,t (int7,e,t)	0	0	0	0	0

14045: int6,w,l (int6,w,l)	0	0	0	0	0
14046: int6,w,t (int6,w,t)	3	3	0	0	0
14047: int6,w,r (int6,w,r)	0	0	0	0	0
14048: int6,n,r (int6,n,r)	0	0	0	0	0
14049: int6,n,l (int6,n,l)	0	0	0	0	0
14050: int6,n,t (int6,n,t)	0	0	0	0	0
14051: int6,e,t (int6,e,t)	5	5	0	0	0
14052: int6,e,r (int6,e,r)	0	0	0	0	0
14053: int6,e,l (int6,e,l)	0	0	0	0	0
14054: int6,s,l (int6,s,l)	0	0	0	0	0
14055: int6,s,t (int6,s,t)	0	0	0	0	0
14056: int6,s,r (int6,s,r)	0	0	0	0	0
14156: int3,s,t (int3,s,t)	3	2	-1	-33.33	0.13188
14158: int3,e,l (int3,e,l)	5	5	0	0	0
14161: int3,n,t (int3,n,t)	0	3.60422	3.6042	INF	0.55983
14162: int3,n,l (int3,n,l)	37	38	1	2.703	0.03405
14164: int3,e,r (int3,e,r)	34	35	1	2.941	0.0355
14165: int2,s,t (int2,s,t)	2	2	0	0	0
14166: int2,s,l (int2,s,l)	37	35	-2	-5.405	0.06951
14169: int2,w,l (int2,w,l)	0	0	0	0	0
14171: int2,w,r (int2,w,r)	36	40.6042	4.6042	12.79	0.15512
14630: int3,s,r (int3,s,r)	7	5	-2	-28.57	0.17025
14855: int2,n,r (int2,n,r)	0	0	0	0	0
18367: int2,n,t (int2,n,t)	1	1	0	0	0
18413: int1,e,t (int1,e,t)	7	7	0	0	0

A.2 AM Peak Period

A.2.1 Cars

A-1 AM Peak Period – Cars - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	27	4.2	-22.8	-84.44	4.0819
14294: int5,s,t (int5,s,t)	814	831.4	17.4	2.138	0.42896
14308: int5,n,t (int5,n,t)	180	184.6	4.6	2.556	0.24091
14307: int5,w,r (int5,w,r)	9	8.6	-0.4	-4.444	0.09535
14290: int5,n,r (int5,n,r)	65	49	-16	-24.62	1.4985
14295: int5,w,l (int5,w,l)	85	93.4	8.4	9.882	0.6289

A-2 AM Peak Period – Cars - Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14047: int6,w,r (int6,w,r)	3	3	0	0	0
14008: int7,s,l (int7,s,l)	150	128	-22	-14.67	1.3195
13955: int4,s,l (int4,s,l)	62	19.4	-42.6	-68.71	4.7217
6240: int8,w,r (int8,w,r)	22	32	10	45.45	1.3608
6226: int1,w,t (int1,w,t)	36	52.4	16.4	45.56	1.7443
14162: int3,n,l (int3,n,l)	77	74.8	-2.2	-2.857	0.17856
13953: int4,n,r (int4,n,r)	3	5.4	2.4	80	0.82808
6238: int8,s,l (int8,s,l)	208	149.6	-58.4	-28.08	3.0883
14012: int7,e,l (int7,e,l)	1	0.6	-0.4	-40	0.31623
6223: int1,e,r (int1,e,r)	1570	1510.2	-59.8	-3.809	1.0775
6227: int1,w,l (int1,w,l)	2	1	-1	-50	0.57735
14165: int2,s,t (int2,s,t)	84	90	6	7.143	0.45486
14013: int7,e,t (int7,e,t)	62	24	-38	-61.29	4.0976
14011: int7,w,t (int7,w,t)	7	7.8	0.8	11.43	0.20795
14009: int7,s,r (int7,s,r)	6	0	-6	-100	2.4495
14045: int6,w,l (int6,w,l)	118	115.2	-2.8	-2.373	0.18336
14010: int7,w,r (int7,w,r)	20	27	7	35	1.0211
8018: int8,e,l (int8,e,l)	3	1	-2	-66.67	1
6241: int8,e,t (int8,e,t)	1426	1429	3	0.2104	0.05615
14055: int6,s,t (int6,s,t)	6	5.6	-0.4	-6.667	0.11744

14169: int2,w,l (int2,w,l)	21	18	-3	-14.29	0.48038
13956: int4,s,t (int4,s,t)	864	933	69	7.986	1.6277
14158: int3,e,l (int3,e,l)	77	75.6	-1.4	-1.818	0.11333
14161: int3,n,t (int3,n,t)	108	118.6	10.6	9.815	0.70417
14052: int6,e,r (int6,e,r)	32	8	-24	-75	3.7947
14051: int6,e,t (int6,e,t)	53	46.8	-6.2	-11.7	0.62062
6225: int1,n,l (int1,n,l)	118	117.8	-0.2	-0.1695	0.01302
6239: int8,s,r (int8,s,r)	4	2	-2	-50	0.8165
14164: int3,e,r (int3,e,r)	622	598	-24	-3.859	0.68712
6224: int1,n,r (int1,n,r)	0	0	0	0	0
14630: int3,s,r (int3,s,r)	153	141.6	-11.4	-7.451	0.66418
18367: int2,n,t (int2,n,t)	65	72.8	7.8	12	0.66446
13952: int4,w,r (int4,w,r)	4	6	2	50	0.63246
14156: int3,s,t (int3,s,t)	775	811.8	36.8	4.748	0.92382
14049: int6,n,l (int6,n,l)	4	1.2	-2.8	-70	1.2279
14171: int2,w,r (int2,w,r)	121	121	0	0	0
14855: int2,n,r (int2,n,r)	122	117.4	-4.6	-3.77	0.2973
14166: int2,s,l (int2,s,l)	1314	1319.6	5.6	0.4262	0.10912
14048: int6,n,r (int6,n,r)	15	24.2	9.2	61.33	1.4694
14053: int6,e,l (int6,e,l)	3	2	-1	-33.33	0.44721
14046: int6,w,t (int6,w,t)	62	73.6	11.6	18.71	0.99616
13954: int4,n,t (int4,n,t)	207	208.2	1.2	0.5797	0.05889
14056: int6,s,r (int6,s,r)	10	12	2	20	0.4264
18413: int1,e,t (int1,e,t)	64	67	3	4.688	0.26211
13951: int4,w,l (int4,w,l)	10	1.8	-8.2	-82	2.3871
6231: int8,w,t (int8,w,t)	132	138	6	4.545	0.36515
14050: int6,n,t (int6,n,t)	2	2	0	0	0
14054: int6,s,l (int6,s,l)	0	0	0	0	0

A.2.2 Classes 2-5

A-1 AM Peak Period – Classes 2-5 - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	0	0	0	0	0
14294: int5,s,t (int5,s,t)	25	24.2	-0.8	-3.2	0.11405
14308: int5,n,t (int5,n,t)	14	12.6	-1.4	-10	0.27145
14307: int5,w,r (int5,w,r)	0	0.8	0.8	INF	0.89443
14290: int5,n,r (int5,n,r)	7	6	-1	-14.29	0.27735
14295: int5,w,l (int5,w,l)	2	1.4	-0.6	-30	0.3254

A-2 AM Peak Period – Classes 2-5 – Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14047: int6,w,r (int6,w,r)	0	0	0	0	0
14008: int7,s,l (int7,s,l)	3	3.6	0.6	20	0.23355
13955: int4,s,l (int4,s,l)	0	1.2	1.2	INF	1.0954
6240: int8,w,r (int8,w,r)	1	2.4	1.4	140	0.75926
6226: int1,w,t (int1,w,t)	3	3.6	0.6	20	0.23355
14162: int3,n,l (int3,n,l)	3	4	1	33.33	0.37796
13953: int4,n,r (int4,n,r)	0	0.4	0.4	INF	0.63246
6238: int8,s,l (int8,s,l)	4	5.4	1.4	35	0.45663
14012: int7,e,l (int7,e,l)	0	0.4	0.4	INF	0.63246
6223: int1,e,r (int1,e,r)	25	26.6	1.6	6.4	0.22274
6227: int1,w,l (int1,w,l)	0	0	0	0	0
14165: int2,s,t (int2,s,t)	6	4.6	-1.4	-23.33	0.43001
14013: int7,e,t (int7,e,t)	0	1.2	1.2	INF	1.0954
14011: int7,w,t (int7,w,t)	1	1.4	0.4	40	0.2582
14009: int7,s,r (int7,s,r)	0	0	0	0	0
14045: int6,w,l (int6,w,l)	2	3.8	1.8	90	0.74741
14010: int7,w,r (int7,w,r)	1	1.8	0.8	80	0.47809
8018: int8,e,l (int8,e,l)	0	0	0	0	0
6241: int8,e,t (int8,e,t)	33	37.2	4.2	12.73	0.50128
14055: int6,s,t (int6,s,t)	0	0	0	0	0
14169: int2,w,l (int2,w,l)	1	0.8	-0.2	-20	0.14907
13956: int4,s,t (int4,s,t)	23	22.4	-0.6	-2.609	0.08905
14158: int3,e,l (int3,e,l)	15	12.2	-2.8	-18.67	0.53688

14161: int3,n,t (int3,n,t)	7	6.2	-0.8	-11.43	0.22019
14052: int6,e,r (int6,e,r)	1	0	-1	-100	1
14051: int6,e,t (int6,e,t)	6	6	0	0	0
6225: int1,n,l (int1,n,l)	5	3.6	-1.4	-28	0.4774
6239: int8,s,r (int8,s,r)	0	0.2	0.2	INF	0.44721
14164: int3,e,r (int3,e,r)	24	26	2	8.333	0.28284
6224: int1,n,r (int1,n,r)	0	0	0	0	0
14630: int3,s,r (int3,s,r)	15	12	-3	-20	0.57735
18367: int2,n,t (int2,n,t)	5	6	1	20	0.30151
13952: int4,w,r (int4,w,r)	0	0.6	0.6	INF	0.7746
14156: int3,s,t (int3,s,t)	11	11.2	0.2	1.818	0.04245
14049: int6,n,l (int6,n,l)	0	0.8	0.8	INF	0.89443
14171: int2,w,r (int2,w,r)	5	4.2	-0.8	-16	0.26375
14855: int2,n,r (int2,n,r)	3	5	2	66.67	0.70711
14166: int2,s,l (int2,s,l)	31	32.6	1.6	5.161	0.20063
14048: int6,n,r (int6,n,r)	1	1.4	0.4	40	0.2582
14053: int6,e,l (int6,e,l)	0	0	0	0	0
14046: int6,w,t (int6,w,t)	1	1.4	0.4	40	0.2582
13954: int4,n,t (int4,n,t)	17	18	1	5.882	0.16903
14056: int6,s,r (int6,s,r)	0	0	0	0	0
18413: int1,e,t (int1,e,t)	13	16	3	23.08	0.55709
13951: int4,w,l (int4,w,l)	1	0.8	-0.2	-20	0.14907
6231: int8,w,t (int8,w,t)	7	4.8	-2.2	-31.43	0.64044
14050: int6,n,t (int6,n,t)	0	0	0	0	0
14054: int6,s,l (int6,s,l)	0	0	0	0	0

A.2.3 Classes 6-9

A-1 AM Peak Period – Classes 6-9 - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	0	0	0	0	0
14294: int5,s,t (int5,s,t)	0	0.4	0.4	INF	0.63246
14308: int5,n,t (int5,n,t)	1	0.6	-0.4	-40	0.31623
14307: int5,w,r (int5,w,r)	0	0	0	0	0
14290: int5,n,r (int5,n,r)	4	5.2	1.2	30	0.39563
14295: int5,w,l (int5,w,l)	1	1.2	0.2	20	0.13484

A-2 AM Peak Period – Classes 6-9 Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14047: int6,w,r (int6,w,r)	0	0	0	0	0
14008: int7,s,l (int7,s,l)	0	0	0	0	0
13955: int4,s,l (int4,s,l)	0	0	0	0	0
6240: int8,w,r (int8,w,r)	0	0	0	0	0
6226: int1,w,t (int1,w,t)	2	1.2	-0.8	-40	0.44721
14162: int3,n,l (int3,n,l)	6	7.2	1.2	20	0.33029
13953: int4,n,r (int4,n,r)	0	0.6	0.6	INF	0.7746
6238: int8,s,l (int8,s,l)	0	0.6	0.6	INF	0.7746
14012: int7,e,l (int7,e,l)	0	0	0	0	0
6223: int1,e,r (int1,e,r)	5	6.4	1.4	28	0.41464
6227: int1,w,l (int1,w,l)	0	0	0	0	0
14165: int2,s,t (int2,s,t)	1	1.2	0.2	20	0.13484
14013: int7,e,t (int7,e,t)	0	0.6	0.6	INF	0.7746
14011: int7,w,t (int7,w,t)	0	0	0	0	0
14009: int7,s,r (int7,s,r)	0	0	0	0	0
14045: int6,w,l (int6,w,l)	0	0	0	0	0
14010: int7,w,r (int7,w,r)	0	0	0	0	0
8018: int8,e,l (int8,e,l)	0	0	0	0	0
6241: int8,e,t (int8,e,t)	7	8.8	1.8	25.71	0.45284
14055: int6,s,t (int6,s,t)	0	0	0	0	0
14169: int2,w,l (int2,w,l)	0	0	0	0	0
13956: int4,s,t (int4,s,t)	2	1.6	-0.4	-20	0.21082
14158: int3,e,l (int3,e,l)	3	6.4	3.4	113.3	1.109

14161: int3,n,t (int3,n,t)	0	0	0	0	0
14052: int6,e,r (int6,e,r)	0	0	0	0	0
14051: int6,e,t (int6,e,t)	4	5.2	1.2	30	0.39563
6225: int1,n,l (int1,n,l)	4	6.2	2.2	55	0.68885
6239: int8,s,r (int8,s,r)	0	0	0	0	0
14164: int3,e,r (int3,e,r)	7	9	2	28.57	0.5
6224: int1,n,r (int1,n,r)	0	0	0	0	0
14630: int3,s,r (int3,s,r)	1	0.4	-0.6	-60	0.50709
18367: int2,n,t (int2,n,t)	0	0	0	0	0
13952: int4,w,r (int4,w,r)	0	0	0	0	0
14156: int3,s,t (int3,s,t)	1	1.2	0.2	20	0.13484
14049: int6,n,l (int6,n,l)	0	0	0	0	0
14171: int2,w,r (int2,w,r)	6	7.4	1.4	23.33	0.38245
14855: int2,n,r (int2,n,r)	0	0	0	0	0
14166: int2,s,l (int2,s,l)	9	9	0	0	0
14048: int6,n,r (int6,n,r)	0	0	0	0	0
14053: int6,e,l (int6,e,l)	0	0	0	0	0
14046: int6,w,t (int6,w,t)	1	1.2	0.2	20	0.13484
13954: int4,n,t (int4,n,t)	4	5.8	1.8	45	0.57499
14056: int6,s,r (int6,s,r)	0	0	0	0	0
18413: int1,e,t (int1,e,t)	2	3	1	50	0.44721
13951: int4,w,l (int4,w,l)	0	0	0	0	0
6231: int8,w,t (int8,w,t)	6	7.4	1.4	23.33	0.38245
14050: int6,n,t (int6,n,t)	0	0	0	0	0
14054: int6,s,l (int6,s,l)	0	0	0	0	0

A.3 AM Peak Hour

A.3.1 Cars

A-1 AM Peak Hour – Cars - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	19	2.8	-16.2	-85.26	4.9068
14294: int5,s,t (int5,s,t)	483	492.2	9.2	1.905	0.41664
14308: int5,n,t (int5,n,t)	103	103.2	0.2	0.1942	0.0197
14307: int5,w,r (int5,w,r)	4	4	0	0	0
14290: int5,n,r (int5,n,r)	29	20.2	-8.8	-30.34	1.7743
14295: int5,w,l (int5,w,l)	44	55.4	11.4	25.91	1.6171

A-2 AM Peak Hour – Cars - Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14047: int6,w,r (int6,w,r)	1	1.8	0.8	80	0.67612
14008: int7,s,l (int7,s,l)	94	76	-18	-19.15	1.9524
13955: int4,s,l (int4,s,l)	53	6.8	-46.2	-87.17	8.449
6240: int8,w,r (int8,w,r)	14	19.2	5.2	37.14	1.2763
6226: int1,w,t (int1,w,t)	20	31	11	55	2.1783
14162: int3,n,l (int3,n,l)	53	51	-2	-3.774	0.27735
13953: int4,n,r (int4,n,r)	3	2.8	-0.2	-6.667	0.11744
6238: int8,s,l (int8,s,l)	145	82.8	-62.2	-42.9	5.8281
14012: int7,e,l (int7,e,l)	1	0.6	-0.4	-40	0.44721
6223: int1,e,r (int1,e,r)	960	859	-101	-10.52	3.349
6227: int1,w,l (int1,w,l)	1	1	0	0	0
14165: int2,s,t (int2,s,t)	41	56	15	36.59	2.1539
14013: int7,e,t (int7,e,t)	54	9	-45	-83.33	8.0178
14011: int7,w,t (int7,w,t)	6	5	-1	-16.67	0.4264
14009: int7,s,r (int7,s,r)	3	0	-3	-100	2.4495
14045: int6,w,l (int6,w,l)	67	67	0	0	0
14010: int7,w,r (int7,w,r)	11	15.2	4.2	38.18	1.1604
8018: int8,e,l (int8,e,l)	2	0.2	-1.8	-90	1.7162
6241: int8,e,t (int8,e,t)	842	819.6	-22.4	-2.66	0.77714
14055: int6,s,t (int6,s,t)	4	3.6	-0.4	-10	0.2052
14169: int2,w,l (int2,w,l)	14	10.2	-3.8	-27.14	1.0924
13956: int4,s,t (int4,s,t)	506	560.8	54.8	10.83	2.3728

14158: int3,e,l (int3,e,l)	38	39.8	1.8	4.737	0.2886
14161: int3,n,t (int3,n,t)	60	59	-1	-1.667	0.12964
14052: int6,e,r (int6,e,r)	24	5.6	-18.4	-76.67	4.7829
14051: int6,e,t (int6,e,t)	24	20.4	-3.6	-15	0.76406
6225: int1,n,l (int1,n,l)	84	73.8	-10.2	-12.14	1.1483
6239: int8,s,r (int8,s,r)	3	0.4	-2.6	-86.67	1.9941
14164: int3,e,r (int3,e,r)	318	312.4	-5.6	-1.761	0.31542
6224: int1,n,r (int1,n,r)	0	0	0	0	0
14630: int3,s,r (int3,s,r)	71	79.4	8.4	11.83	0.96866
18367: int2,n,t (int2,n,t)	31	35.8	4.8	15.48	0.83055
13952: int4,w,r (int4,w,r)	4	4	0	0	0
14156: int3,s,t (int3,s,t)	475	492.6	17.6	3.705	0.80017
14049: int6,n,l (int6,n,l)	2	0.6	-1.4	-70	1.2279
14171: int2,w,r (int2,w,r)	82	74.2	-7.8	-9.512	0.88261
14855: int2,n,r (int2,n,r)	86	65.6	-20.4	-23.72	2.3431
14166: int2,s,l (int2,s,l)	755	749	-6	-0.7947	0.2188
14048: int6,n,r (int6,n,r)	8	14	6	75	1.8091
14053: int6,e,l (int6,e,l)	0	1	1	INF	1.4142
14046: int6,w,t (int6,w,t)	28	41.8	13.8	49.29	2.336
13954: int4,n,t (int4,n,t)	108	107.4	-0.6	-0.5556	0.05782
14056: int6,s,r (int6,s,r)	4	8.2	4.2	105	1.7005
18413: int1,e,t (int1,e,t)	26	43.6	17.6	67.69	2.9835
13951: int4,w,l (int4,w,l)	4	1.2	-2.8	-70	1.7365
6231: int8,w,t (int8,w,t)	90	85.6	-4.4	-4.889	0.46958
14050: int6,n,t (int6,n,t)	1	1.2	0.2	20	0.19069
14054: int6,s,l (int6,s,l)	0	0	0	0	0

A.3.2 Classes 2-5

A-1 AM Peak Hour – Classes 2-5 - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	0	0	0	0	0
14294: int5,s,t (int5,s,t)	12	14.2	2.2	18.33	0.60784
14308: int5,n,t (int5,n,t)	6	8	2	33.33	0.75593
14307: int5,w,r (int5,w,r)	0	0	0	0	0
14290: int5,n,r (int5,n,r)	4	2.8	-1.2	-30	0.65079
14295: int5,w,l (int5,w,l)	1	1	0	0	0

A-2 AM Peak Hour – Classes 2-5 – Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14047: int6,w,r (int6,w,r)	0	0	0	0	0
14008: int7,s,l (int7,s,l)	1	1.2	0.2	20	0.19069
13955: int4,s,l (int4,s,l)	0	0.2	0.2	INF	0.63246
6240: int8,w,r (int8,w,r)	0	1	1	INF	1.4142
6226: int1,w,t (int1,w,t)	0	2.2	2.2	INF	2.0976
14162: int3,n,l (int3,n,l)	1	2.6	1.6	160	1.1926
13953: int4,n,r (int4,n,r)	0	0.4	0.4	INF	0.89443
6238: int8,s,l (int8,s,l)	1	2.2	1.2	120	0.94868
14012: int7,e,l (int7,e,l)	0	0.4	0.4	INF	0.89443
6223: int1,e,r (int1,e,r)	14	13	-1	-7.143	0.27217
6227: int1,w,l (int1,w,l)	0	0	0	0	0
14165: int2,s,t (int2,s,t)	3	2.8	-0.2	-6.667	0.11744
14013: int7,e,t (int7,e,t)	0	0.4	0.4	INF	0.89443
14011: int7,w,t (int7,w,t)	0	1	1	INF	1.4142
14009: int7,s,r (int7,s,r)	0	0	0	0	0
14045: int6,w,l (int6,w,l)	1	1	0	0	0
14010: int7,w,r (int7,w,r)	0	0.6	0.6	INF	1.0954
8018: int8,e,l (int8,e,l)	0	0	0	0	0
6241: int8,e,t (int8,e,t)	16	19.4	3.4	21.25	0.80815
14055: int6,s,t (int6,s,t)	0	0	0	0	0
14169: int2,w,l (int2,w,l)	1	0.8	-0.2	-20	0.21082
13956: int4,s,t (int4,s,t)	10	13.8	3.8	38	1.1016
14158: int3,e,l (int3,e,l)	5	7.4	2.4	48	0.96386

14161: int3,n,t (int3,n,t)	4	3.6	-0.4	-10	0.2052
14052: int6,e,r (int6,e,r)	0	0	0	0	0
14051: int6,e,t (int6,e,t)	3	3	0	0	0
6225: int1,n,l (int1,n,l)	3	2.4	-0.6	-20	0.36515
6239: int8,s,r (int8,s,r)	0	0	0	0	0
14164: int3,e,r (int3,e,r)	10	13.2	3.2	32	0.93955
6224: int1,n,r (int1,n,r)	0	0	0	0	0
14630: int3,s,r (int3,s,r)	5	7.4	2.4	48	0.96386
18367: int2,n,t (int2,n,t)	3	3.2	0.2	6.667	0.11359
13952: int4,w,r (int4,w,r)	0	0.4	0.4	INF	0.89443
14156: int3,s,t (int3,s,t)	7	6.8	-0.2	-2.857	0.07614
14049: int6,n,l (int6,n,l)	0	0	0	0	0
14171: int2,w,r (int2,w,r)	2	3	1	50	0.63246
14855: int2,n,r (int2,n,r)	1	2.8	1.8	180	1.3059
14166: int2,s,l (int2,s,l)	16	17	1	6.25	0.24618
14048: int6,n,r (int6,n,r)	0	1	1	INF	1.4142
14053: int6,e,l (int6,e,l)	0	0	0	0	0
14046: int6,w,t (int6,w,t)	0	1	1	INF	1.4142
13954: int4,n,t (int4,n,t)	7	10.4	3.4	48.57	1.1527
14056: int6,s,r (int6,s,r)	0	0	0	0	0
18413: int1,e,t (int1,e,t)	4	8.6	4.6	115	1.8327
13951: int4,w,l (int4,w,l)	0	0.6	0.6	INF	1.0954
6231: int8,w,t (int8,w,t)	3	3.8	0.8	26.67	0.43386
14050: int6,n,t (int6,n,t)	0	0	0	0	0
14054: int6,s,l (int6,s,l)	0	0	0	0	0

A.3.3 Classes 6-9

A-1 AM Peak Hour – Classes 6-9 - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	0	0	0	0	0
14294: int5,s,t (int5,s,t)	0	0	0	0	0
14308: int5,n,t (int5,n,t)	1	0.4	-0.6	-60	0.71714
14307: int5,w,r (int5,w,r)	0	0	0	0	0
14290: int5,n,r (int5,n,r)	1	3.2	2.2	220	1.5181
14295: int5,w,l (int5,w,l)	1	0.6	-0.4	-40	0.44721

A-2 AM Peak Hour – Classes 6-9 Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14047: int6,w,r (int6,w,r)	0	0	0	0	0
14008: int7,s,l (int7,s,l)	0	0	0	0	0
13955: int4,s,l (int4,s,l)	0	0	0	0	0
6240: int8,w,r (int8,w,r)	0	0	0	0	0
6226: int1,w,t (int1,w,t)	1	1	0	0	0
14162: int3,n,l (int3,n,l)	1	4	3	300	1.8974
13953: int4,n,r (int4,n,r)	0	0	0	0	0
6238: int8,s,l (int8,s,l)	0	0	0	0	0
14012: int7,e,l (int7,e,l)	0	0	0	0	0
6223: int1,e,r (int1,e,r)	3	4.2	1.2	40	0.63246
6227: int1,w,l (int1,w,l)	0	0	0	0	0
14165: int2,s,t (int2,s,t)	1	0.6	-0.4	-40	0.44721
14013: int7,e,t (int7,e,t)	0	0	0	0	0
14011: int7,w,t (int7,w,t)	0	0	0	0	0
14009: int7,s,r (int7,s,r)	0	0	0	0	0
14045: int6,w,l (int6,w,l)	0	0	0	0	0
14010: int7,w,r (int7,w,r)	0	0	0	0	0
8018: int8,e,l (int8,e,l)	0	0	0	0	0
6241: int8,e,t (int8,e,t)	5	5.6	0.6	12	0.26062
14055: int6,s,t (int6,s,t)	0	0	0	0	0
14169: int2,w,l (int2,w,l)	0	0	0	0	0
13956: int4,s,t (int4,s,t)	1	0.6	-0.4	-40	0.44721
14158: int3,e,l (int3,e,l)	1	3.6	2.6	260	1.7144

14161: int3,n,t (int3,n,t)	0	0	0	0	0
14052: int6,e,r (int6,e,r)	0	0	0	0	0
14051: int6,e,t (int6,e,t)	1	3.2	2.2	220	1.5181
6225: int1,n,l (int1,n,l)	1	3	2	200	1.4142
6239: int8,s,r (int8,s,r)	0	0	0	0	0
14164: int3,e,r (int3,e,r)	5	5.6	0.6	12	0.26062
6224: int1,n,r (int1,n,r)	0	0	0	0	0
14630: int3,s,r (int3,s,r)	0	0	0	0	0
18367: int2,n,t (int2,n,t)	0	0	0	0	0
13952: int4,w,r (int4,w,r)	0	0	0	0	0
14156: int3,s,t (int3,s,t)	1	0.6	-0.4	-40	0.44721
14049: int6,n,l (int6,n,l)	0	0	0	0	0
14171: int2,w,r (int2,w,r)	1	4	3	300	1.8974
14855: int2,n,r (int2,n,r)	0	0	0	0	0
14166: int2,s,l (int2,s,l)	7	5.4	-1.6	-22.86	0.64258
14048: int6,n,r (int6,n,r)	0	0	0	0	0
14053: int6,e,l (int6,e,l)	0	0	0	0	0
14046: int6,w,t (int6,w,t)	1	0.6	-0.4	-40	0.44721
13954: int4,n,t (int4,n,t)	2	3.6	1.6	80	0.95618
14056: int6,s,r (int6,s,r)	0	0	0	0	0
18413: int1,e,t (int1,e,t)	2	1.4	-0.6	-30	0.46018
13951: int4,w,l (int4,w,l)	0	0	0	0	0
6231: int8,w,t (int8,w,t)	2	3.8	1.8	90	1.057
14050: int6,n,t (int6,n,t)	0	0	0	0	0
14054: int6,s,l (int6,s,l)	0	0	0	0	0

A.4 PM Peak Period

A.4.1 Cars

A-1 PM Peak Period – Cars - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	14	12.2	-1.8	-12.86	0.35166
14294: int5,s,t (int5,s,t)	325	327.6	2.6	0.8	0.10178
14308: int5,n,t (int5,n,t)	795	722.4	-72.6	-9.132	1.8637
14307: int5,w,r (int5,w,r)	209	256	47	22.49	2.1796
14290: int5,n,r (int5,n,r)	181	185.6	4.6	2.541	0.24025
14295: int5,w,l (int5,w,l)	135	144.8	9.8	7.259	0.58587

A-2 PM Peak Period – Cars - Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14047: int6,w,r (int6,w,r)	2	2.4	0.4	20	0.19069
14008: int7,s,l (int7,s,l)	31	29.8	-1.2	-3.871	0.1539
13955: int4,s,l (int4,s,l)	10	15.2	5.2	52	1.0359
6240: int8,w,r (int8,w,r)	430	500	70	16.28	2.2954
6226: int1,w,t (int1,w,t)	87	93.6	6.6	7.586	0.49112
14162: int3,n,l (int3,n,l)	861	851.2	-9.8	-1.138	0.23684
13953: int4,n,r (int4,n,r)	6	5.4	-0.6	-10	0.1777
6238: int8,s,l (int8,s,l)	27	36.4	9.4	34.81	1.1805
14012: int7,e,l (int7,e,l)	4	0	-4	-100	2
6223: int1,e,r (int1,e,r)	109	116	7	6.422	0.46667
6227: int1,w,l (int1,w,l)	2	0.8	-1.2	-60	0.71714
14165: int2,s,t (int2,s,t)	144	148.2	4.2	2.917	0.2457
14013: int7,e,t (int7,e,t)	11	20.6	9.6	87.27	1.7078
14011: int7,w,t (int7,w,t)	83	80.4	-2.6	-3.133	0.2034
14009: int7,s,r (int7,s,r)	5	0	-5	-100	2.2361
14045: int6,w,l (int6,w,l)	29	26.2	-2.8	-9.655	0.37687
14010: int7,w,r (int7,w,r)	356	423.2	67.2	18.88	2.4074
8018: int8,e,l (int8,e,l)	9	3.2	-5.8	-64.44	1.6605
6241: int8,e,t (int8,e,t)	161	165.8	4.8	2.981	0.26552
14055: int6,s,t (int6,s,t)	5	3.4	-1.6	-32	0.55205
14169: int2,w,l (int2,w,l)	97	96.4	-0.6	-0.6186	0.04314
13956: int4,s,t (int4,s,t)	392	398.4	6.4	1.633	0.22764

14158: int3,e,l (int3,e,l)	305	303.6	-1.4	-0.459	0.05675
14161: int3,n,t (int3,n,t)	485	413	-72	-14.85	2.4027
14052: int6,e,r (int6,e,r)	3	0.6	-2.4	-80	1.2649
14051: int6,e,t (int6,e,t)	149	166	17	11.41	0.95784
6225: int1,n,l (int1,n,l)	1571	1589.6	18.6	1.184	0.33085
6239: int8,s,r (int8,s,r)	6	1.8	-4.2	-70	1.5038
14164: int3,e,r (int3,e,r)	113	107.8	-5.2	-4.602	0.34995
6224: int1,n,r (int1,n,r)	4	5.4	1.4	35	0.45663
14630: int3,s,r (int3,s,r)	196	202.4	6.4	3.265	0.32064
18367: int2,n,t (int2,n,t)	198	187	-11	-5.556	0.56061
13952: int4,w,r (int4,w,r)	74	74.6	0.6	0.8108	0.04922
14156: int3,s,t (int3,s,t)	181	169.8	-11.2	-6.188	0.59798
14049: int6,n,l (int6,n,l)	203	249.8	46.8	23.05	2.1993
14171: int2,w,r (int2,w,r)	1149	1078	-71	-6.179	1.5045
14855: int2,n,r (int2,n,r)	46	41.4	-4.6	-10	0.49204
14166: int2,s,l (int2,s,l)	147	129.4	-17.6	-11.97	1.0586
14048: int6,n,r (int6,n,r)	155	163	8	5.161	0.44862
14053: int6,e,l (int6,e,l)	11	12.6	1.6	14.55	0.32935
14046: int6,w,t (int6,w,t)	122	127.8	5.8	4.754	0.36697
13954: int4,n,t (int4,n,t)	796	723.8	-72.2	-9.07	1.852
14056: int6,s,r (int6,s,r)	9	13	4	44.44	0.8528
18413: int1,e,t (int1,e,t)	78	85.4	7.4	9.487	0.5789
13951: int4,w,l (int4,w,l)	13	5.6	-7.4	-56.92	1.7158
6231: int8,w,t (int8,w,t)	1231	1179.8	-51.2	-4.159	1.0428
14050: int6,n,t (int6,n,t)	9	9.4	0.4	4.444	0.09325
14054: int6,s,l (int6,s,l)	0	0	0	0	0

A.4.2 Classes 2-5

A-1 PM Peak Period – Classes 2-5 - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	0	0	0	0	0
14294: int5,s,t (int5,s,t)	12	11.2	-0.8	-6.667	0.16609
14308: int5,n,t (int5,n,t)	11	9.8	-1.2	-10.91	0.26312
14307: int5,w,r (int5,w,r)	0	0.8	0.8	INF	0.89443
14290: int5,n,r (int5,n,r)	3	2.4	-0.6	-20	0.2582
14295: int5,w,l (int5,w,l)	3	2.2	-0.8	-26.67	0.35082

A-2 PM Peak Period– Classes 2-5 – Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14047: int6,w,r (int6,w,r)	0	0	0	0	0
14008: int7,s,l (int7,s,l)	0	0	0	0	0
13955: int4,s,l (int4,s,l)	0	0	0	0	0
6240: int8,w,r (int8,w,r)	3	5.2	2.2	73.33	0.76827
6226: int1,w,t (int1,w,t)	2	3	1	50	0.44721
14162: int3,n,l (int3,n,l)	13	14.4	1.4	10.77	0.26746
13953: int4,n,r (int4,n,r)	0	0.6	0.6	INF	0.7746
6238: int8,s,l (int8,s,l)	0	0	0	0	0
14012: int7,e,l (int7,e,l)	0	0.6	0.6	INF	0.7746
6223: int1,e,r (int1,e,r)	0	1.8	1.8	INF	1.3416
6227: int1,w,l (int1,w,l)	0	0	0	0	0
14165: int2,s,t (int2,s,t)	1	0.2	-0.8	-80	0.7303
14013: int7,e,t (int7,e,t)	0	0	0	0	0
14011: int7,w,t (int7,w,t)	1	1.2	0.2	20	0.13484
14009: int7,s,r (int7,s,r)	0	0.6	0.6	INF	0.7746
14045: int6,w,l (int6,w,l)	0	0.2	0.2	INF	0.44721
14010: int7,w,r (int7,w,r)	2	4	2	100	0.8165
8018: int8,e,l (int8,e,l)	0	0	0	0	0
6241: int8,e,t (int8,e,t)	0	1.8	1.8	INF	1.3416
14055: int6,s,t (int6,s,t)	0	0.4	0.4	INF	0.63246
14169: int2,w,l (int2,w,l)	2	1.4	-0.6	-30	0.3254
13956: int4,s,t (int4,s,t)	13	13.4	0.4	3.077	0.07785
14158: int3,e,l (int3,e,l)	9	10.4	1.4	15.56	0.31785

14161: int3,n,t (int3,n,t)	5	2.2	-2.8	-56	1.0435
14052: int6,e,r (int6,e,r)	0	0	0	0	0
14051: int6,e,t (int6,e,t)	2	1	-1	-50	0.57735
6225: int1,n,l (int1,n,l)	18	19.4	1.4	7.778	0.22892
6239: int8,s,r (int8,s,r)	0	0	0	0	0
14164: int3,e,r (int3,e,r)	1	1.8	0.8	80	0.47809
6224: int1,n,r (int1,n,r)	0	0	0	0	0
14630: int3,s,r (int3,s,r)	12	13.8	1.8	15	0.35437
18367: int2,n,t (int2,n,t)	3	1	-2	-66.67	1
13952: int4,w,r (int4,w,r)	1	1.2	0.2	20	0.13484
14156: int3,s,t (int3,s,t)	1	0.2	-0.8	-80	0.7303
14049: int6,n,l (int6,n,l)	0	0.8	0.8	INF	0.89443
14171: int2,w,r (int2,w,r)	15	15.6	0.6	4	0.10847
14855: int2,n,r (int2,n,r)	0	0	0	0	0
14166: int2,s,l (int2,s,l)	1	1.8	0.8	80	0.47809
14048: int6,n,r (int6,n,r)	2	3.6	1.6	80	0.67612
14053: int6,e,l (int6,e,l)	0	0	0	0	0
14046: int6,w,t (int6,w,t)	1	0.6	-0.4	-40	0.31623
13954: int4,n,t (int4,n,t)	14	12	-2	-14.29	0.39223
14056: int6,s,r (int6,s,r)	1	1.6	0.6	60	0.3721
18413: int1,e,t (int1,e,t)	0	0	0	0	0
13951: int4,w,l (int4,w,l)	0	0.6	0.6	INF	0.7746
6231: int8,w,t (int8,w,t)	18	17.2	-0.8	-4.444	0.13484
14050: int6,n,t (int6,n,t)	0	0	0	0	0
14054: int6,s,l (int6,s,l)	1	1.4	0.4	40	0.2582

A.4.3 Classes 6-9

A-1 PM Peak Period – Classes 6-9 - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	0	0	0	0	0
14294: int5,s,t (int5,s,t)	1	0.8	-0.2	-20	0.14907
14308: int5,n,t (int5,n,t)	0	0	0	0	0
14307: int5,w,r (int5,w,r)	1	0.4	-0.6	-60	0.50709
14290: int5,n,r (int5,n,r)	0	0	0	0	0
14295: int5,w,l (int5,w,l)	1	2	1	100	0.57735

A-2 PM Peak Period – Classes 6-9 Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14047: int6,w,r (int6,w,r)	0	0	0	0	0
14008: int7,s,l (int7,s,l)	0	0	0	0	0
13955: int4,s,l (int4,s,l)	0	0	0	0	0
6240: int8,w,r (int8,w,r)	0	0	0	0	0
6226: int1,w,t (int1,w,t)	0	0	0	0	0
14162: int3,n,l (int3,n,l)	5	4.6	-0.4	-8	0.1291
13953: int4,n,r (int4,n,r)	0	0	0	0	0
6238: int8,s,l (int8,s,l)	0	0	0	0	0
14012: int7,e,l (int7,e,l)	0	0	0	0	0
6223: int1,e,r (int1,e,r)	4	7.2	3.2	80	0.95618
6227: int1,w,l (int1,w,l)	0	0	0	0	0
14165: int2,s,t (int2,s,t)	0	0	0	0	0
14013: int7,e,t (int7,e,t)	0	0	0	0	0
14011: int7,w,t (int7,w,t)	0	0	0	0	0
14009: int7,s,r (int7,s,r)	0	0	0	0	0
14045: int6,w,l (int6,w,l)	0	0	0	0	0
14010: int7,w,r (int7,w,r)	0	0	0	0	0
8018: int8,e,l (int8,e,l)	0	0	0	0	0
6241: int8,e,t (int8,e,t)	4	7.2	3.2	80	0.95618
14055: int6,s,t (int6,s,t)	0	0	0	0	0
14169: int2,w,l (int2,w,l)	0	1.2	1.2	INF	1.0954
13956: int4,s,t (int4,s,t)	1	2.8	1.8	180	0.92338
14158: int3,e,l (int3,e,l)	0	0	0	0	0

14161: int3,n,t (int3,n,t)	0	0	0	0	0
14052: int6,e,r (int6,e,r)	0	0	0	0	0
14051: int6,e,t (int6,e,t)	0	0	0	0	0
6225: int1,n,l (int1,n,l)	5	5.8	0.8	16	0.24343
6239: int8,s,r (int8,s,r)	0	0	0	0	0
14164: int3,e,r (int3,e,r)	4	7.4	3.4	85	1.007
6224: int1,n,r (int1,n,r)	0	0	0	0	0
14630: int3,s,r (int3,s,r)	1	2.8	1.8	180	0.92338
18367: int2,n,t (int2,n,t)	0	0	0	0	0
13952: int4,w,r (int4,w,r)	0	0	0	0	0
14156: int3,s,t (int3,s,t)	0	0	0	0	0
14049: int6,n,l (int6,n,l)	0	0	0	0	0
14171: int2,w,r (int2,w,r)	5	4.6	-0.4	-8	0.1291
14855: int2,n,r (int2,n,r)	0	0	0	0	0
14166: int2,s,l (int2,s,l)	4	7.4	3.4	85	1.007
14048: int6,n,r (int6,n,r)	0	0	0	0	0
14053: int6,e,l (int6,e,l)	0	0	0	0	0
14046: int6,w,t (int6,w,t)	1	2.4	1.4	140	0.75926
13954: int4,n,t (int4,n,t)	0	0	0	0	0
14056: int6,s,r (int6,s,r)	0	0	0	0	0
18413: int1,e,t (int1,e,t)	0	0	0	0	0
13951: int4,w,l (int4,w,l)	0	0	0	0	0
6231: int8,w,t (int8,w,t)	5	5.8	0.8	16	0.24343
14050: int6,n,t (int6,n,t)	0	0	0	0	0
14054: int6,s,l (int6,s,l)	0	0	0	0	0

A.5 PM Peak Hour

A.5.1 Cars

A-1 PM Peak Hour – Cars - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	6	4.4	-1.6	-26.67	0.70165
14294: int5,s,t (int5,s,t)	143	153.6	10.6	7.413	0.87043
14308: int5,n,t (int5,n,t)	396	380.6	-15.4	-3.889	0.78151
14307: int5,w,r (int5,w,r)	116	150.2	34.2	29.48	2.9644
14290: int5,n,r (int5,n,r)	92	97.6	5.6	6.087	0.57515
14295: int5,w,l (int5,w,l)	70	73.4	3.4	4.857	0.40153

A-2 PM Peak Hour – Cars - Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14047: int6,w,r (int6,w,r)	2	1.4	-0.6	-30	0.46018
14008: int7,s,l (int7,s,l)	14	16.2	2.2	15.71	0.56615
13955: int4,s,l (int4,s,l)	3	9	6	200	2.4495
6240: int8,w,r (int8,w,r)	268	320	52	19.4	3.0327
6226: int1,w,t (int1,w,t)	41	50.6	9.6	23.41	1.4185
14162: int3,n,l (int3,n,l)	483	482.2	-0.8	-0.1656	0.03642
13953: int4,n,r (int4,n,r)	4	3.2	-0.8	-20	0.42164
6238: int8,s,l (int8,s,l)	16	22	6	37.5	1.3765
14012: int7,e,l (int7,e,l)	4	0	-4	-100	2.8284
6223: int1,e,r (int1,e,r)	40	43	3	7.5	0.46569
6227: int1,w,l (int1,w,l)	1	0.2	-0.8	-80	1.0328
14165: int2,s,t (int2,s,t)	80	78.2	-1.8	-2.25	0.20239
14013: int7,e,t (int7,e,t)	5	12	7	140	2.401
14011: int7,w,t (int7,w,t)	60	70.2	10.2	17	1.2642
14009: int7,s,r (int7,s,r)	2	0	-2	-100	2
14045: int6,w,l (int6,w,l)	15	13.2	-1.8	-12	0.47936
14010: int7,w,r (int7,w,r)	206	251.2	45.2	21.94	2.9895
8018: int8,e,l (int8,e,l)	2	1.6	-0.4	-20	0.29814
6241: int8,e,t (int8,e,t)	66	63.8	-2.2	-3.333	0.27309
14055: int6,s,t (int6,s,t)	1	3	2	200	1.4142
14169: int2,w,l (int2,w,l)	66	66.8	0.8	1.212	0.09818
13956: int4,s,t (int4,s,t)	184	193.4	9.4	5.109	0.68429

14158: int3,e,l (int3,e,l)	143	141.2	-1.8	-1.259	0.151
14161: int3,n,t (int3,n,t)	245	202.4	-42.6	-17.39	2.8482
14052: int6,e,r (int6,e,r)	1	0	-1	-100	1.4142
14051: int6,e,t (int6,e,t)	74	88	14	18.92	1.5556
6225: int1,n,l (int1,n,l)	922	939.2	17.2	1.866	0.56383
6239: int8,s,r (int8,s,r)	0	1.2	1.2	INF	1.5492
14164: int3,e,r (int3,e,r)	49	46.6	-2.4	-4.898	0.34713
6224: int1,n,r (int1,n,r)	3	2	-1	-33.33	0.63246
14630: int3,s,r (int3,s,r)	94	104.2	10.2	10.85	1.0246
18367: int2,n,t (int2,n,t)	97	80.8	-16.2	-16.7	1.7182
13952: int4,w,r (int4,w,r)	51	67.6	16.6	32.55	2.1557
14156: int3,s,t (int3,s,t)	94	74.4	-19.6	-20.85	2.136
14049: int6,n,l (int6,n,l)	118	146.4	28.4	24.07	2.47
14171: int2,w,r (int2,w,r)	628	603.8	-24.2	-3.854	0.97512
14855: int2,n,r (int2,n,r)	19	20.6	1.6	8.421	0.35957
14166: int2,s,l (int2,s,l)	61	43	-18	-29.51	2.4962
14048: int6,n,r (int6,n,r)	93	98.4	5.4	5.806	0.552
14053: int6,e,l (int6,e,l)	4	5.8	1.8	45	0.81316
14046: int6,w,t (int6,w,t)	67	64.8	-2.2	-3.284	0.27101
13954: int4,n,t (int4,n,t)	391	351	-40	-10.23	2.0767
14056: int6,s,r (int6,s,r)	2	5.2	3.2	160	1.6865
18413: int1,e,t (int1,e,t)	41	43.2	2.2	5.366	0.33906
13951: int4,w,l (int4,w,l)	7	2.6	-4.4	-62.86	2.0083
6231: int8,w,t (int8,w,t)	695	671.2	-23.8	-3.424	0.91062
14050: int6,n,t (int6,n,t)	3	5	2	66.67	1
14054: int6,s,l (int6,s,l)	0	0	0	0	0

A.5.2 Classes 2-5

A-1 PM Peak Hour – Classes 2-5 - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	0	0	0	0	0
14294: int5,s,t (int5,s,t)	7	6.4	-0.6	-8.571	0.2318
14308: int5,n,t (int5,n,t)	5	5.4	0.4	8	0.17541
14307: int5,w,r (int5,w,r)	0	0.2	0.2	INF	0.63246
14290: int5,n,r (int5,n,r)	1	0.6	-0.4	-40	0.44721
14295: int5,w,l (int5,w,l)	3	1.2	-1.8	-60	1.2421

A-2 PM Peak Hour – Classes 2-5 – Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14047: int6,w,r (int6,w,r)	0	0	0	0	0
14008: int7,s,l (int7,s,l)	0	0	0	0	0
13955: int4,s,l (int4,s,l)	0	0	0	0	0
6240: int8,w,r (int8,w,r)	1	3	2	200	1.4142
6226: int1,w,t (int1,w,t)	1	2	1	100	0.8165
14162: int3,n,l (int3,n,l)	5	9.2	4.2	84	1.5762
13953: int4,n,r (int4,n,r)	0	0.4	0.4	INF	0.89443
6238: int8,s,l (int8,s,l)	0	0	0	0	0
14012: int7,e,l (int7,e,l)	0	0.4	0.4	INF	0.89443
6223: int1,e,r (int1,e,r)	0	0.6	0.6	INF	1.0954
6227: int1,w,l (int1,w,l)	0	0	0	0	0
14165: int2,s,t (int2,s,t)	1	0.2	-0.8	-80	1.0328
14013: int7,e,t (int7,e,t)	0	0	0	0	0
14011: int7,w,t (int7,w,t)	0	1	1	INF	1.4142
14009: int7,s,r (int7,s,r)	0	0.6	0.6	INF	1.0954
14045: int6,w,l (int6,w,l)	0	0.2	0.2	INF	0.63246
14010: int7,w,r (int7,w,r)	1	2	1	100	0.8165
8018: int8,e,l (int8,e,l)	0	0	0	0	0
6241: int8,e,t (int8,e,t)	0	0.6	0.6	INF	1.0954
14055: int6,s,t (int6,s,t)	0	0.4	0.4	INF	0.89443
14169: int2,w,l (int2,w,l)	1	1	0	0	0
13956: int4,s,t (int4,s,t)	8	7.6	-0.4	-5	0.14322
14158: int3,e,l (int3,e,l)	5	4.4	-0.6	-12	0.27676

14161: int3,n,t (int3,n,t)	2	1.2	-0.8	-40	0.63246
14052: int6,e,r (int6,e,r)	0	0	0	0	0
14051: int6,e,t (int6,e,t)	0	0.6	0.6	INF	1.0954
6225: int1,n,l (int1,n,l)	7	11.2	4.2	60	1.3923
6239: int8,s,r (int8,s,r)	0	0	0	0	0
14164: int3,e,r (int3,e,r)	0	0.6	0.6	INF	1.0954
6224: int1,n,r (int1,n,r)	0	0	0	0	0
14630: int3,s,r (int3,s,r)	7	7.8	0.8	11.43	0.29409
18367: int2,n,t (int2,n,t)	0	0.6	0.6	INF	1.0954
13952: int4,w,r (int4,w,r)	0	1	1	INF	1.4142
14156: int3,s,t (int3,s,t)	1	0.2	-0.8	-80	1.0328
14049: int6,n,l (int6,n,l)	0	0.2	0.2	INF	0.63246
14171: int2,w,r (int2,w,r)	7	9.8	2.8	40	0.96609
14855: int2,n,r (int2,n,r)	0	0	0	0	0
14166: int2,s,l (int2,s,l)	0	0.6	0.6	INF	1.0954
14048: int6,n,r (int6,n,r)	1	2.2	1.2	120	0.94868
14053: int6,e,l (int6,e,l)	0	0	0	0	0
14046: int6,w,t (int6,w,t)	1	0.6	-0.4	-40	0.44721
13954: int4,n,t (int4,n,t)	9	5.2	-3.8	-42.22	1.4261
14056: int6,s,r (int6,s,r)	1	0.6	-0.4	-40	0.44721
18413: int1,e,t (int1,e,t)	0	0	0	0	0
13951: int4,w,l (int4,w,l)	0	0.6	0.6	INF	1.0954
6231: int8,w,t (int8,w,t)	8	10.2	2.2	27.5	0.72929
14050: int6,n,t (int6,n,t)	0	0	0	0	0
14054: int6,s,l (int6,s,l)	0	0.8	0.8	INF	1.2649

A.5.3 Classes 6-9

A-1 PM Peak Hour – Classes 6-9 - Trajectories

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14288: int5,s,l (int5,s,l)	0	0	0	0	0
14294: int5,s,t (int5,s,t)	0	0.4	0.4	INF	0.89443
14308: int5,n,t (int5,n,t)	0	0	0	0	0
14307: int5,w,r (int5,w,r)	1	0.4	-0.6	-60	0.71714
14290: int5,n,r (int5,n,r)	0	0	0	0	0
14295: int5,w,l (int5,w,l)	0	0.4	0.4	INF	0.89443

A-2 PM Peak Hour – Classes 6-9 Turns

Object	Observed	Assigned	Absolute Difference	Relative Difference (%)	GEH
14047: int6,w,r (int6,w,r)	0	0	0	0	0
14008: int7,s,l (int7,s,l)	0	0	0	0	0
13955: int4,s,l (int4,s,l)	0	0	0	0	0
6240: int8,w,r (int8,w,r)	0	0	0	0	0
6226: int1,w,t (int1,w,t)	0	0	0	0	0
14162: int3,n,l (int3,n,l)	5	2.2	-2.8	-56	1.4757
13953: int4,n,r (int4,n,r)	0	0	0	0	0
6238: int8,s,l (int8,s,l)	0	0	0	0	0
14012: int7,e,l (int7,e,l)	0	0	0	0	0
6223: int1,e,r (int1,e,r)	1	3.4	2.4	240	1.6181
6227: int1,w,l (int1,w,l)	0	0	0	0	0
14165: int2,s,t (int2,s,t)	0	0	0	0	0
14013: int7,e,t (int7,e,t)	0	0	0	0	0
14011: int7,w,t (int7,w,t)	0	0	0	0	0
14009: int7,s,r (int7,s,r)	0	0	0	0	0
14045: int6,w,l (int6,w,l)	0	0	0	0	0
14010: int7,w,r (int7,w,r)	0	0	0	0	0
8018: int8,e,l (int8,e,l)	0	0	0	0	0
6241: int8,e,t (int8,e,t)	1	3.4	2.4	240	1.6181
14055: int6,s,t (int6,s,t)	0	0	0	0	0
14169: int2,w,l (int2,w,l)	0	0.2	0.2	INF	0.63246
13956: int4,s,t (int4,s,t)	0	0.8	0.8	INF	1.2649
14158: int3,e,l (int3,e,l)	0	0	0	0	0

14161: int3,n,t (int3,n,t)	0	0	0	0	0
14052: int6,e,r (int6,e,r)	0	0	0	0	0
14051: int6,e,t (int6,e,t)	0	0	0	0	0
6225: int1,n,l (int1,n,l)	4	2.6	-1.4	-35	0.77067
6239: int8,s,r (int8,s,r)	0	0	0	0	0
14164: int3,e,r (int3,e,r)	1	3.6	2.6	260	1.7144
6224: int1,n,r (int1,n,r)	0	0	0	0	0
14630: int3,s,r (int3,s,r)	0	0.8	0.8	INF	1.2649
18367: int2,n,t (int2,n,t)	0	0	0	0	0
13952: int4,w,r (int4,w,r)	0	0	0	0	0
14156: int3,s,t (int3,s,t)	0	0	0	0	0
14049: int6,n,l (int6,n,l)	0	0	0	0	0
14171: int2,w,r (int2,w,r)	5	2.2	-2.8	-56	1.4757
14855: int2,n,r (int2,n,r)	0	0	0	0	0
14166: int2,s,l (int2,s,l)	1	3.6	2.6	260	1.7144
14048: int6,n,r (int6,n,r)	0	0	0	0	0
14053: int6,e,l (int6,e,l)	0	0	0	0	0
14046: int6,w,t (int6,w,t)	0	0.8	0.8	INF	1.2649
13954: int4,n,t (int4,n,t)	0	0	0	0	0
14056: int6,s,r (int6,s,r)	0	0	0	0	0
18413: int1,e,t (int1,e,t)	0	0	0	0	0
13951: int4,w,l (int4,w,l)	0	0	0	0	0
6231: int8,w,t (int8,w,t)	4	2.6	-1.4	-35	0.77067
14050: int6,n,t (int6,n,t)	0	0	0	0	0
14054: int6,s,l (int6,s,l)	0	0	0	0	0

DESIGN WITH COMMUNITY IN MIND

Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of place and of belonging. That's why at Stantec, we always design with community in mind.

We care about the communities we serve—because they're our communities too. This allows us to assess what's needed and connect our expertise, to appreciate nuances and envision what's never been considered, to bring together diverse perspectives so we can collaborate toward a shared success.

We're designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe.

Stantec trades on the TSX and the NYSE under the symbol STN.
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Appendix D Model Methodology Report

Modelling Methodology Report

Cape Peron Transport Needs Study

CW1200595

Prepared for

City of Rockingham

13 February 2023

Cardno

now

Stantec

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1 Introduction and Summary

Stantec was engaged by the City of Rockingham to undertake a Transport Needs Study for Cape Peron, which includes a transport modelling exercise to review existing and future traffic demands, to inform the future planning for the area.

1.1 Purpose

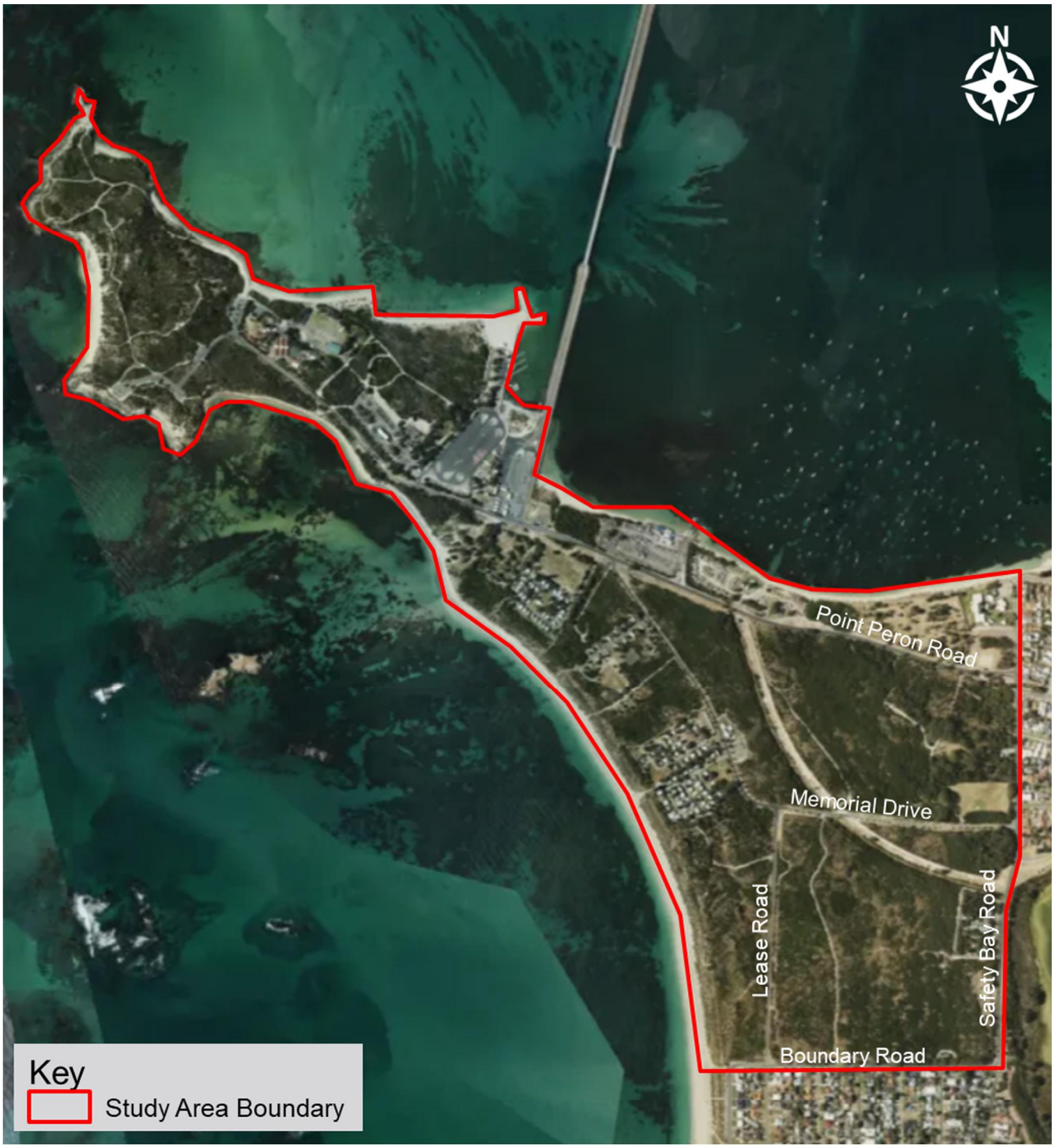
This report outlines the proposed modelling methodology that will detail the proposed modelling approach and will summarise all assumptions adopted for all scenarios. This report will be issued to the City for review and approval prior to the model calibration and validation tasks, as well as the future-year scenarios.

2 Model Overview and Data Collection

2.1 Study Area

The study area is shown in **Figure 2-1**. The study area is bounded by Boundary Road in the south, Safety Bay Road in the east, Point Peron Road in the north, and Lease Road and Memorial Drive in the west.

Figure 2-1 Extent of Base Model Network



2.2 Intersection Surveys

Stantec has commissioned video surveys to be undertaken for the 8 intersections shown in **Figure 2-2**. The video surveys will cover a time period of 24 hours for each of the intersections, with the traffic data to be provided in 15-minute intervals, for Austroads vehicle classes 1, 2-5, 6-9 and 10-12 (noting that no vehicle classes larger than class 9 are anticipated within the study area).

Figure 2-2 Locations of Intersection Traffic Surveys

2.3 Traffic Growth

It is not proposed to utilise ROM data from Main Roads WA for future traffic growth. The drivers of traffic growth within the area will primarily be from the increase in staffing levels at Garden Island, and any other drivers of local growth is better informed by the City. However, as part of the traffic study, ROM data will be used as a comparison against the traffic model results.

3 Model Assumptions

3.1 Modelling Platform

Stantec proposes to utilise and refine the existing Aimsun micro-simulation model (Aimsun Next v22.0.0), developed by Cardno now Stantec for JTSI.

3.2 Time Periods

Three time periods are proposed in this study: weekday AM peak, weekday PM peak, and weekday 24-hr. The modelled peak periods will be based on the traffic data collected from the video surveys. For each peak period, a 'warm-up' and 'cooldown' duration of 30 minutes each will be added before and after the modelled peak period.

The AM and PM peak period models will be developed as microscopic models, while the 24-hour model will be limited to macroscopic assignment only (i.e. not mesoscopic or microscopic).

3.3 Scenarios

Stantec will model the following scenarios:

> Scenario 1 – Existing Network – Year 2023
> Scenario 2 – Existing Network – Year 2031
> Scenario 3 – With Garden Island – Year 2051
> Scenario 4 - Without Garden Island – Year 2051

The Scenario 1 models (Year 2023) will be calibrated and validated to existing conditions, in accordance with the requirements listed in the Main Roads WA Operational Modelling Guidelines for Category 2 models. These models are defined as "small area network or long corridor with limited route choice", which is considered appropriate for the proposed model area.

3.4 Vehicle Types

The following vehicle types will be incorporated in the models to reflect the typical vehicle types within the study area:

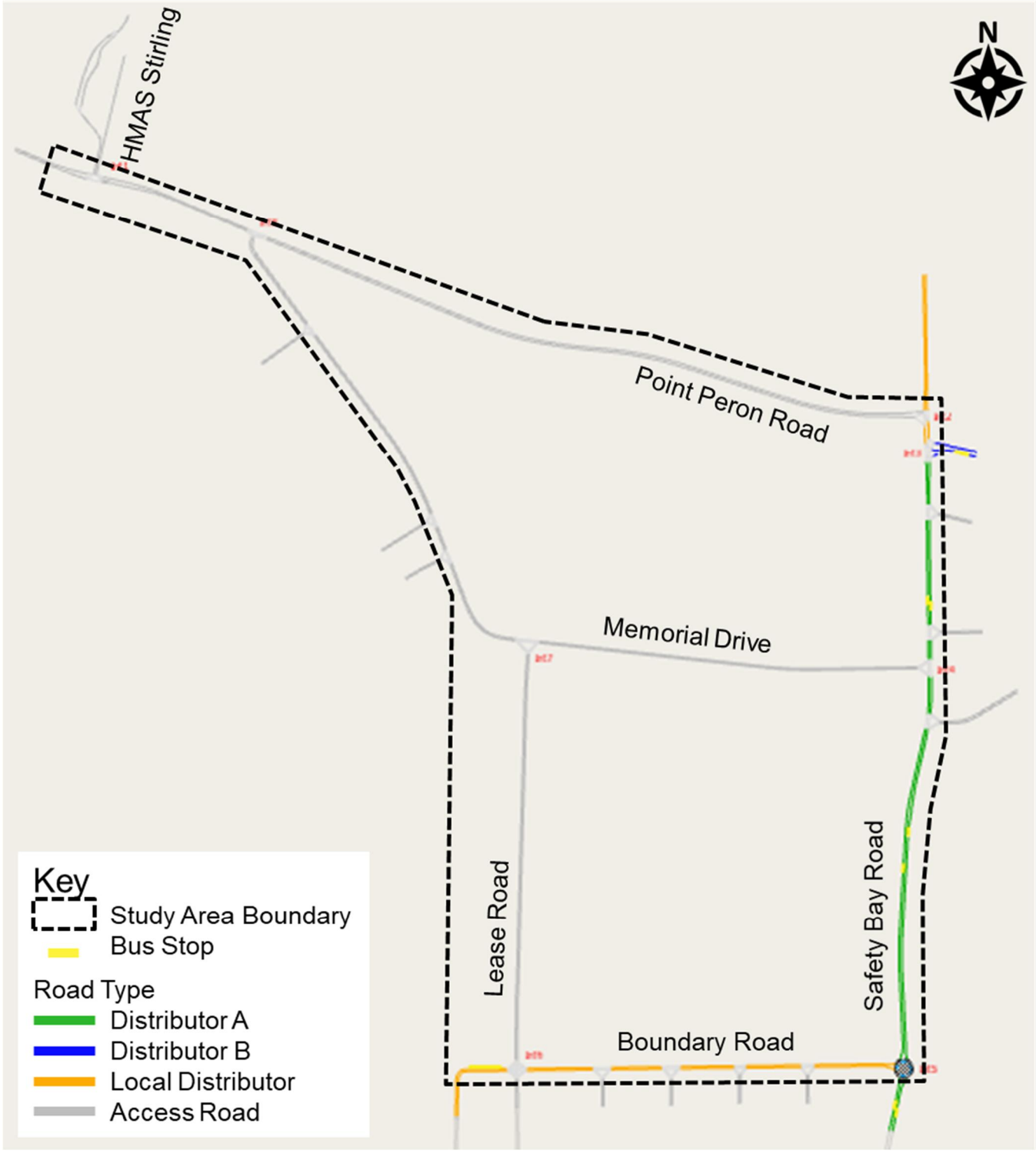
> Light vehicles (Austroads class 1), with vehicle parameters based on Table 6-4 of the MRWA Operational Modelling Guidelines
> Trucks (Austroads classes 2-5) with vehicle parameters based on Table 6-6 of the MRWA Operational Modelling Guidelines
> Semi-trailers (Austroads classes 6-9) with vehicle parameters based on Table 6-7 of the MRWA Operational Modelling Guidelines
> B-double (Austroads classes 10-11) with vehicle parameters based on Table 6-8 of the MRWA Operational Modelling Guidelines (if required)
> B-triple (Austroads classes 12) with vehicle parameters based on Table 6-9 of the MRWA Operational Modelling Guidelines (if required)

It is expected that there are no vehicle classes larger than class 9 are within the study area. In the event that there are such vehicles in the future, Austroads vehicle classes 10-12 will still be included as vehicle types in the model.

3.5 Road Types

The road types within the model network are shown in **Figure 3-1** and are consistent with the road classifications under the Main Roads Road Information System (https://mrwebapps.mainroads.wa.gov.au/PublicMaps/RoadInformationMapping).

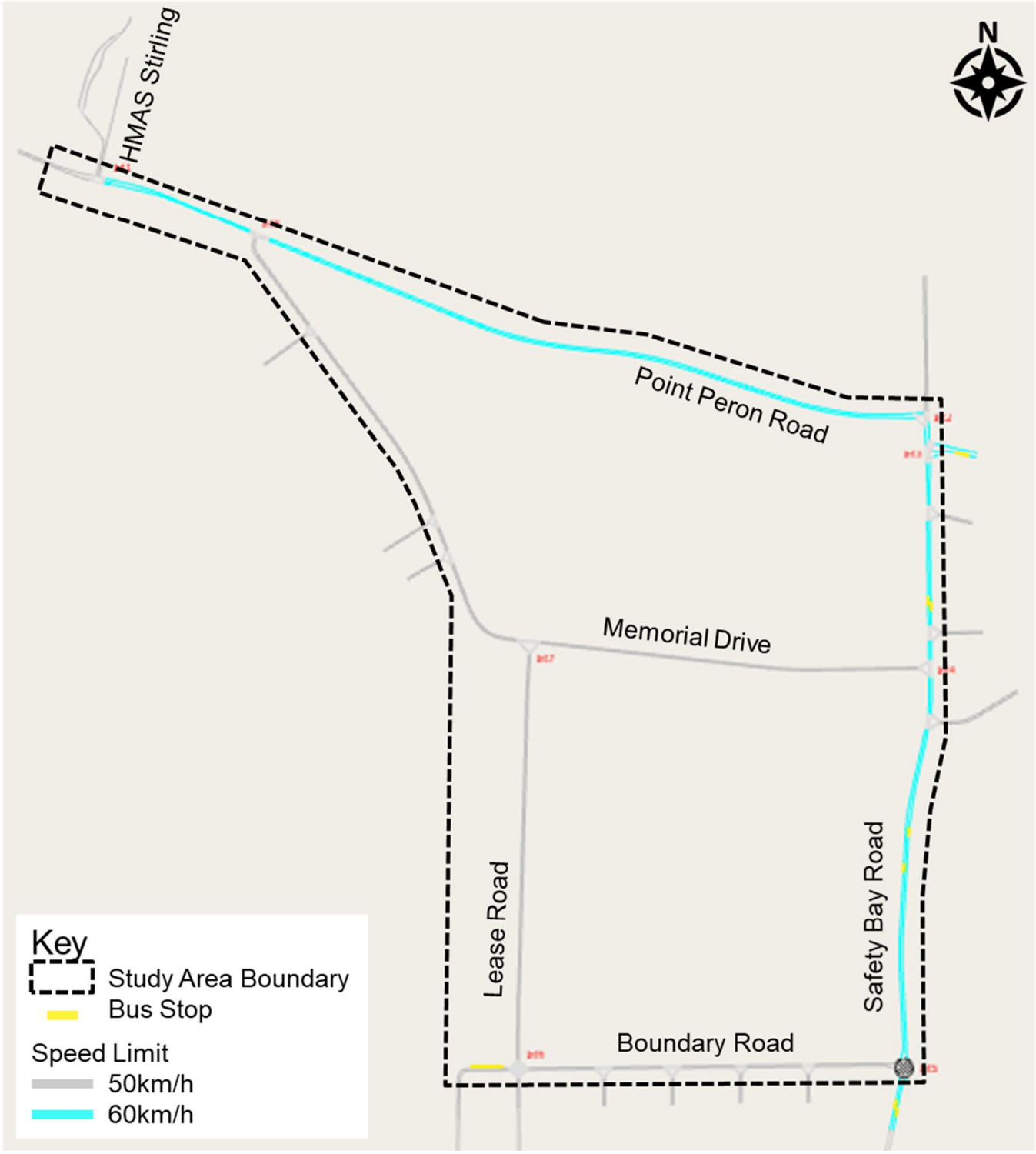
Figure 3-1 Road Types



3.6 Speed Profiles

The posted speed limits for the roads within the study area were sourced from the Main Roads Road Information System (https://mrwebapps.mainroads.wa.gov.au/PublicMaps/RoadInformationMapping), and shown in **Figure 3-2**.

Figure 3-2 Road Speeds



3.7 Public Transport

The public transport routes shown in **Figure 3-3** and associated timetables were included in the model, based on information available on the Transperth website (as per January 2023).

Figure 3-3 Bus Routes

There are currently five bus stops located within the study area. The existing bus stops within the network are shown in **Figure 3-4.**

Figure 3-4 Bus Stops

3.8 Assignment Type

As described in Section 3.2, only the AM and PM peak periods will be set up as microscopic models. These models will be developed using the following combinations of assignment and simulation techniques in a three-step process:

- Static equilibrium (MACRO) assignment using static traffic model
- Dynamic User Equilibrium (DUE) assignment using the mesoscopic simulator
- Stochastic assignment using microscopic simulator

The route choice parameters that will be used in the simulation consist of the following:

- Route choice calculation cycle interval every 15 minutes
- Relative Gap set as 0.5%
- Attractiveness weight set as 2
- Gradient based for the Dynamic User Equilibrium (DUE) runs
- C-Logit Model for the Stochastic Route Choice (SRC) replications.

The demand matrices will go through several iterations to check that demands assigned represented the surveyed turning volumes at key intersections.

3.9 Behaviour Parameters

The following model behaviour parameters were sourced from the Main Roads WA Operational Modelling Guidelines. Parameters may be subject to change as part of the model calibration phase of the project:

- Simulation Step set as 0.45 seconds
- Car reaction time set as the following: 0.90 seconds general; 1.20 seconds at Stop; and 1.35 seconds at traffic lights
- Heavy vehicle reaction time 1.35 seconds general, 1.30 seconds at Stop, and 1.70 seconds at traffic lights.

To ensure the accuracy of model behaviour in comparison with the observed on-street behaviour (e.g. speed/flow performances, bottlenecks, queue formation and discharging), some parameters are needed to be calibrated.

The most commonly modified parameters adjusted during the model calibration phase of the project include the Initial safety margin, final safety margin, visibility to give way, and visibility along main stream. Depending on the amount of route choice in the model, some of the route choice parameters listed in Section 3.8 may also be adjusted during the model calibration process.

3.10 Travel Time Validation Routes

The 4 travel time routes shown in **Figure 3-5** are proposed for model validation purposes (note: for the AM and PM peak only). The travel time data will be requested from Main Roads WA, via their TomTom travel time portal. The travel time data will be requested for the AM and PM peak periods for the date of the surveys, although the date range may need to be increased if sufficient sample sizes are not available for the date of the surveys.

Figure 3-5 Proposed Routes for Model Validation Purposes

3.11 Model Outputs

Based on the outcomes of model development, Stantec will prepare a visual display of all traffic volumes, for each of the modelled scenarios. This will include AM and PM peak hour volumes for all intersections, as well as AM, PM and Daily volumes for the midblock locations on the key roads within the study area.

3.12 SIDRA Intersection Analysis

Stantec will undertake SIDRA intersection analysis for all key intersections within the study area, for both the AM and PM peak hours, for each of the scenarios modelled. The SIDRA analysis will be undertaken using SIDRA 9, with the model results to include Degree of Saturation (DoS), average delays, LoS and 95th percentile queue lengths.

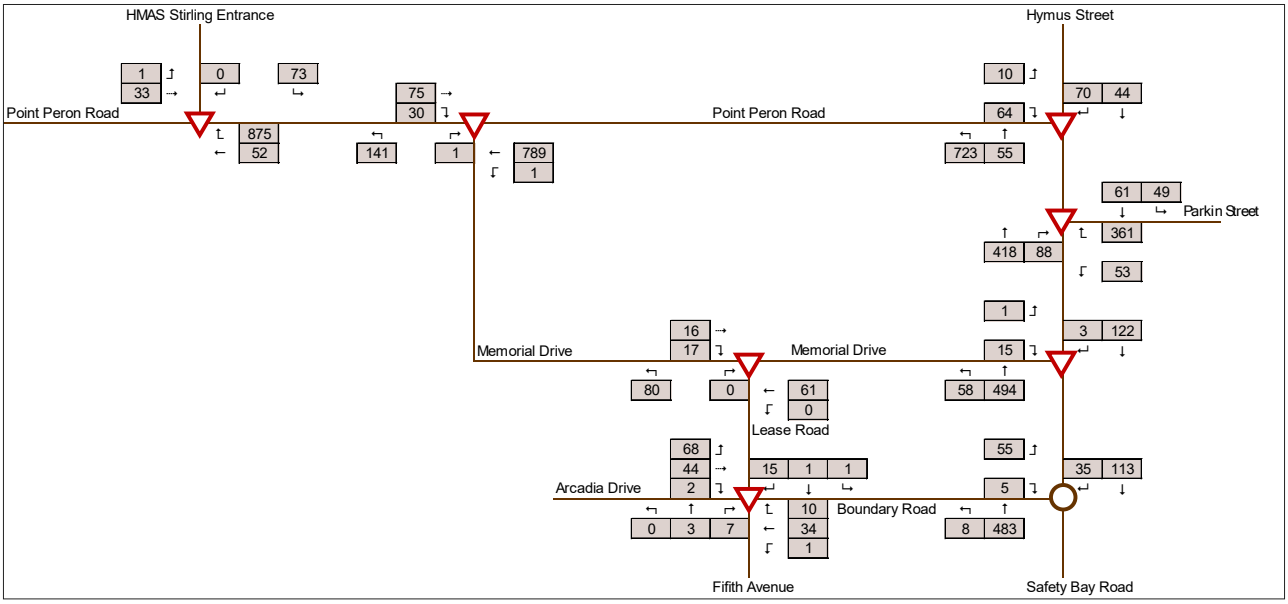
Where intersection LoS is found to be in the range of D – F, Stantec will suggest potential remedial intersection options to improve the LOS, with consideration to be given to pedestrian, cyclist and vehicular LOS.

Appendix E Peak Hour Traffic Volumes

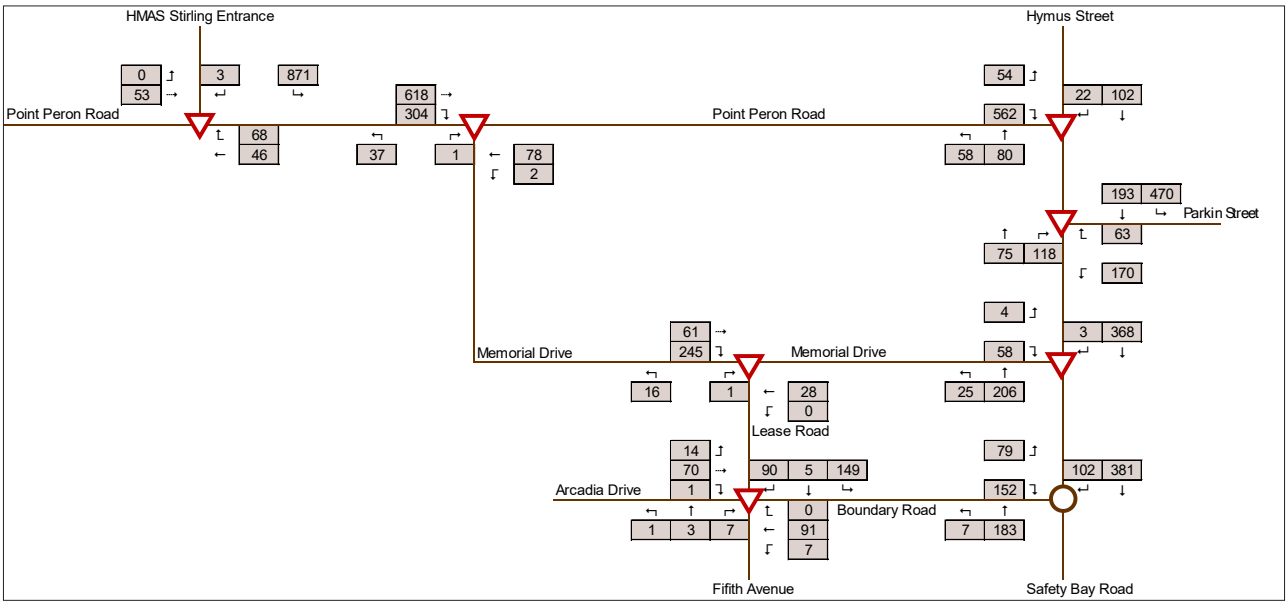
Scenario 1 – 2023 Existing

Existing Peak Hour Turn Counts

AM Peak



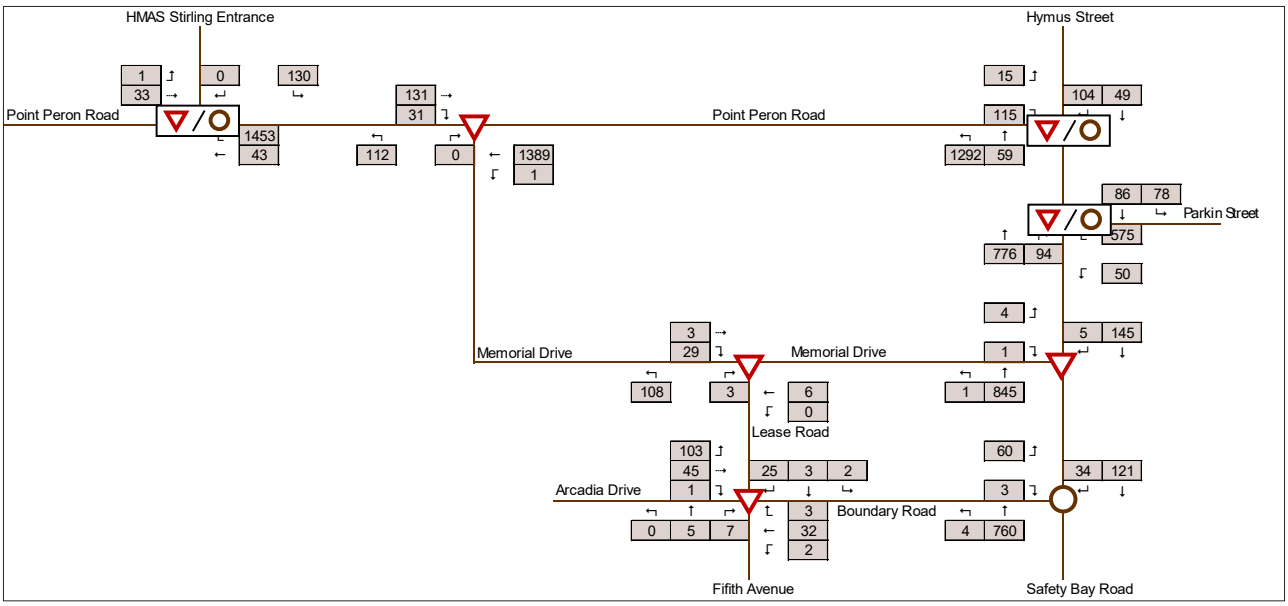
PM Peak



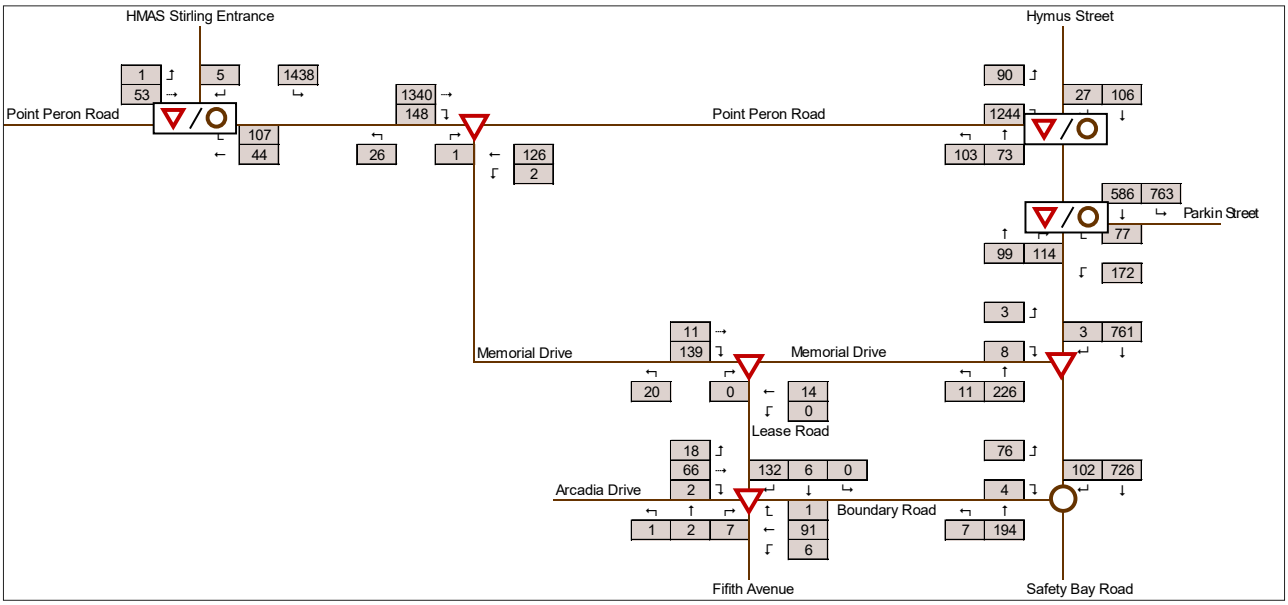
Scenario 2 – 2030 Do Nothing and Scenario - 2.3a No GIH with Staggered RAs

Peak Hour Turn Counts

AM Peak



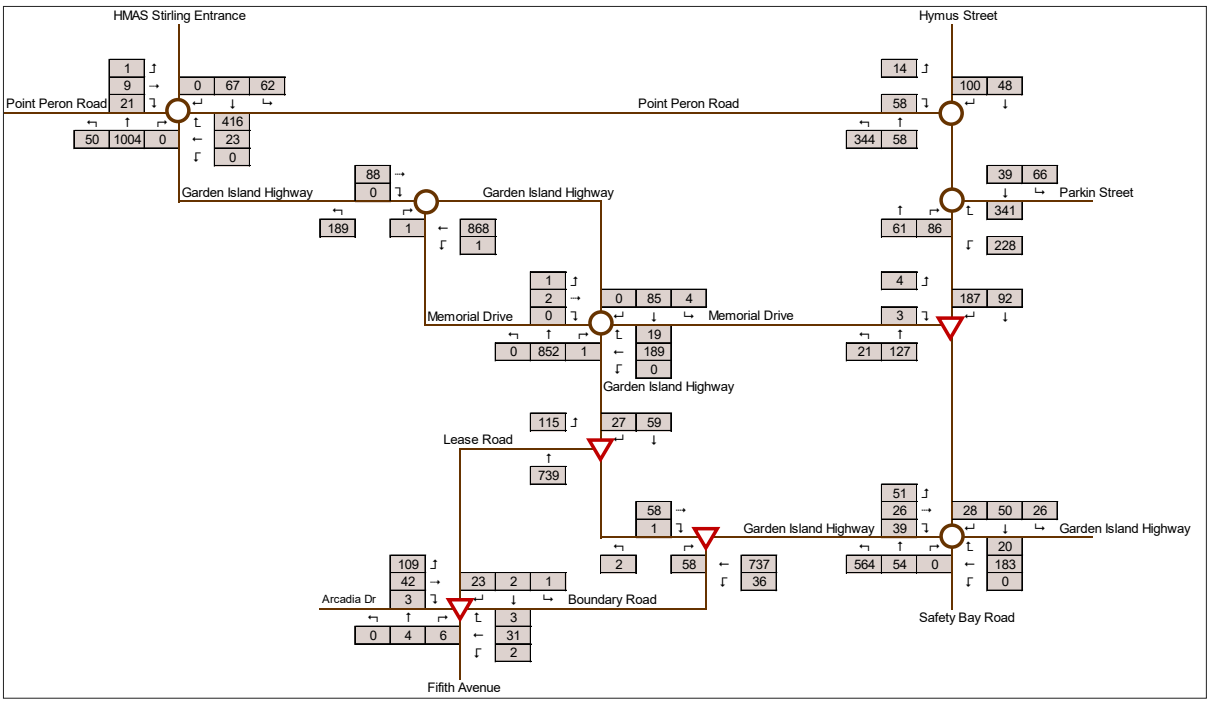
PM Peak



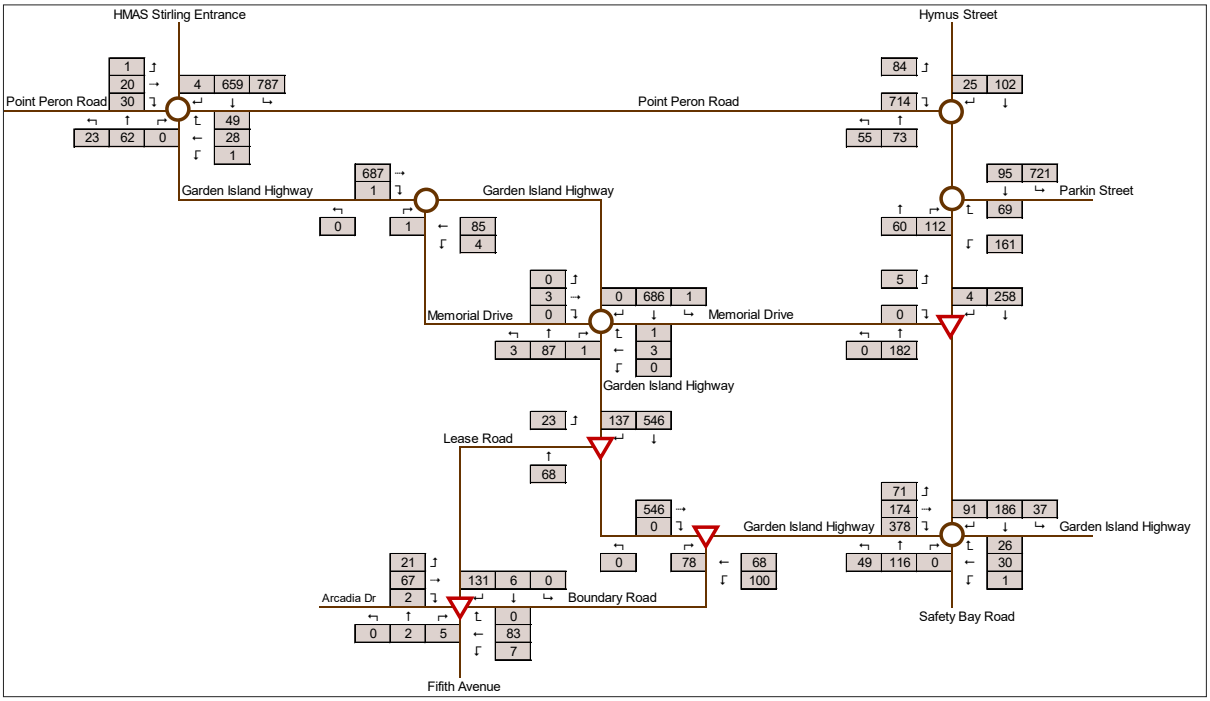
Scenario 2.1a – 2030 GIH/HMAS RA + Staggered RAs

Peak Hour Turn Counts

AM Peak



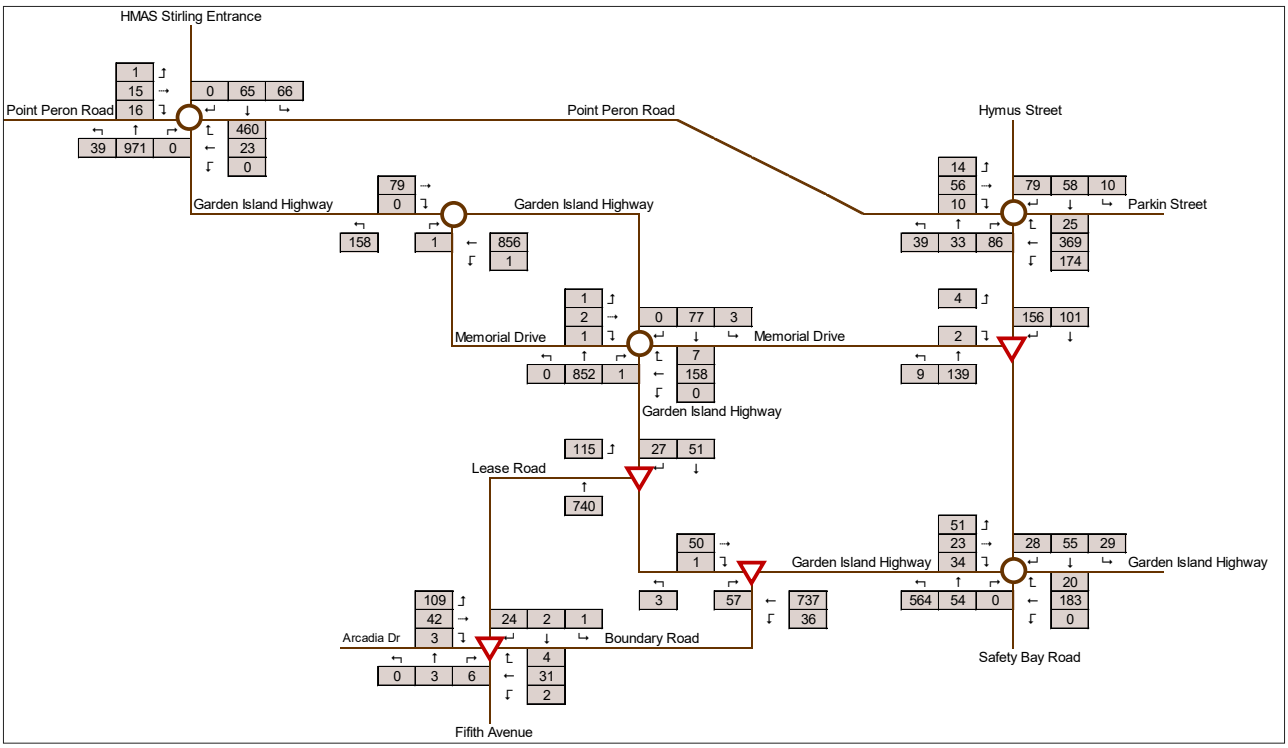
PM Peak



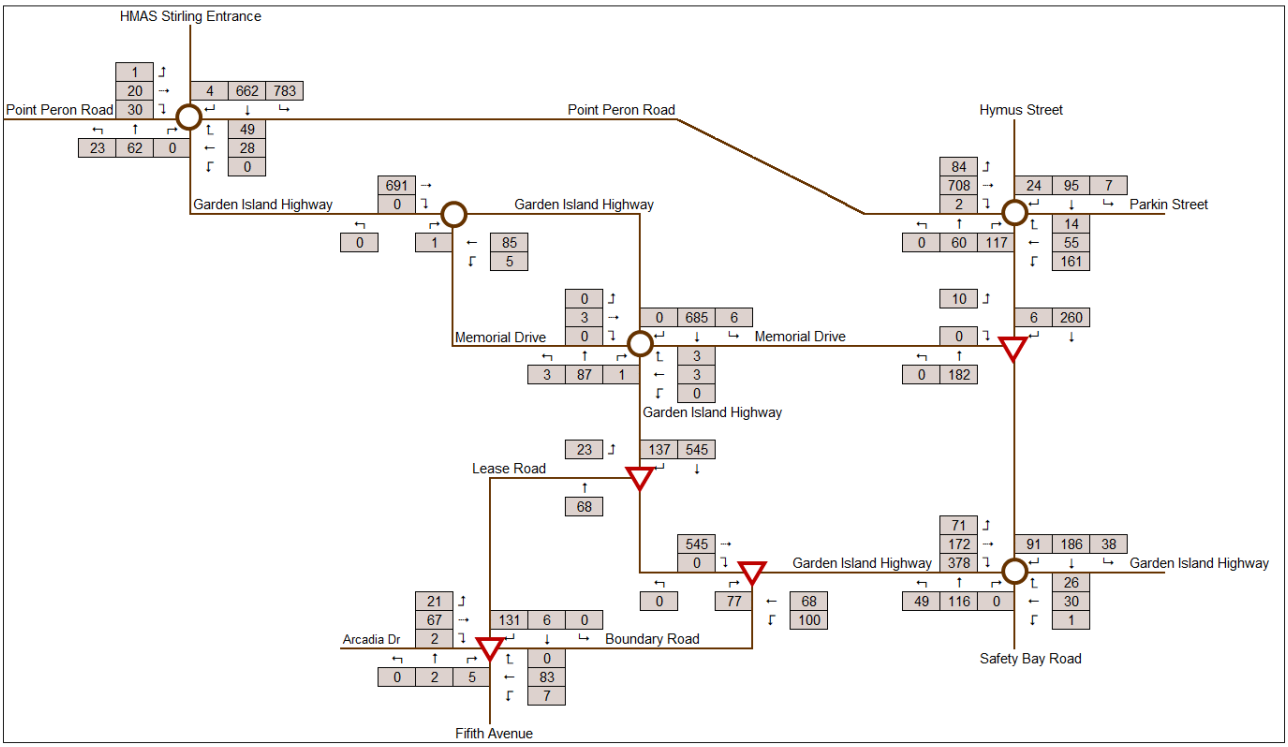
Scenario 2.1b – 2030 GIH/HMAS RA + Single RA

Peak Hour Turn Counts

AM Peak



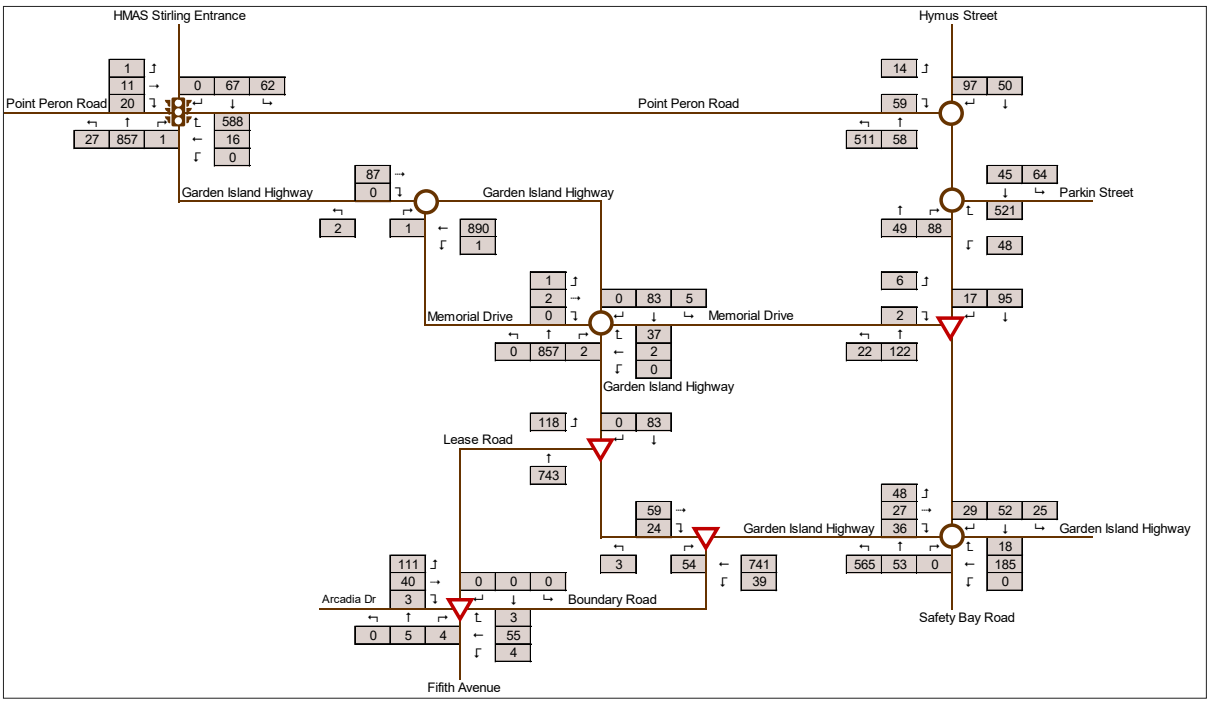
PM Peak



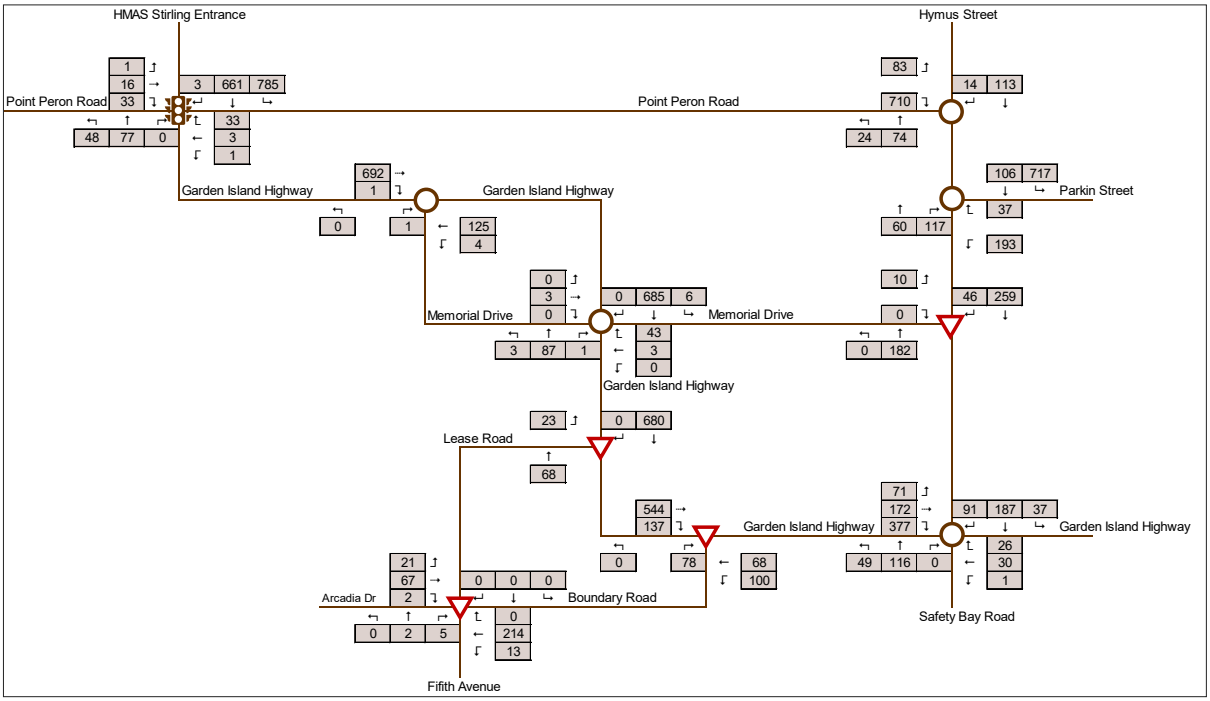
Scenario 2.2a – 2030 GIH/HMAS Signals + Staggered RAs

Peak Hour Turn Counts

AM Peak



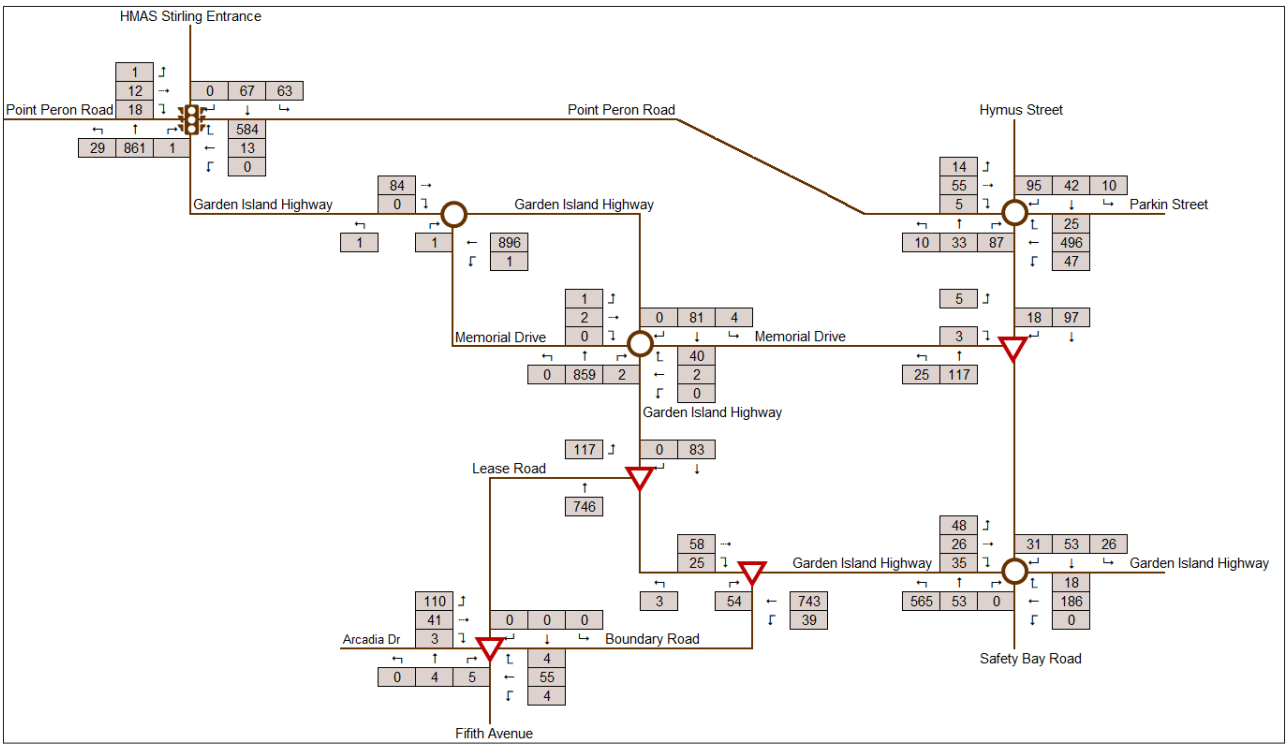
PM Peak



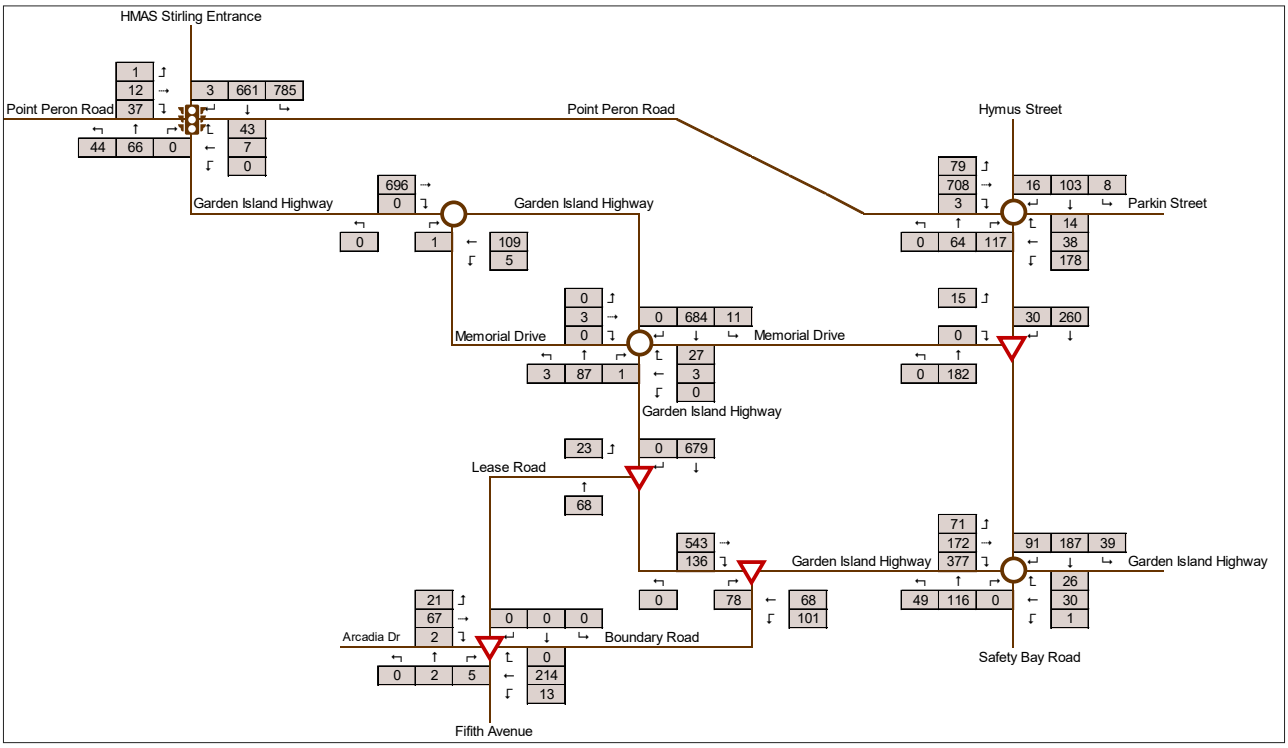
Scenario 2.2b – 2030 GIH/HMAS Signals + Single RA

Peak Hour Turn Counts

AM Peak



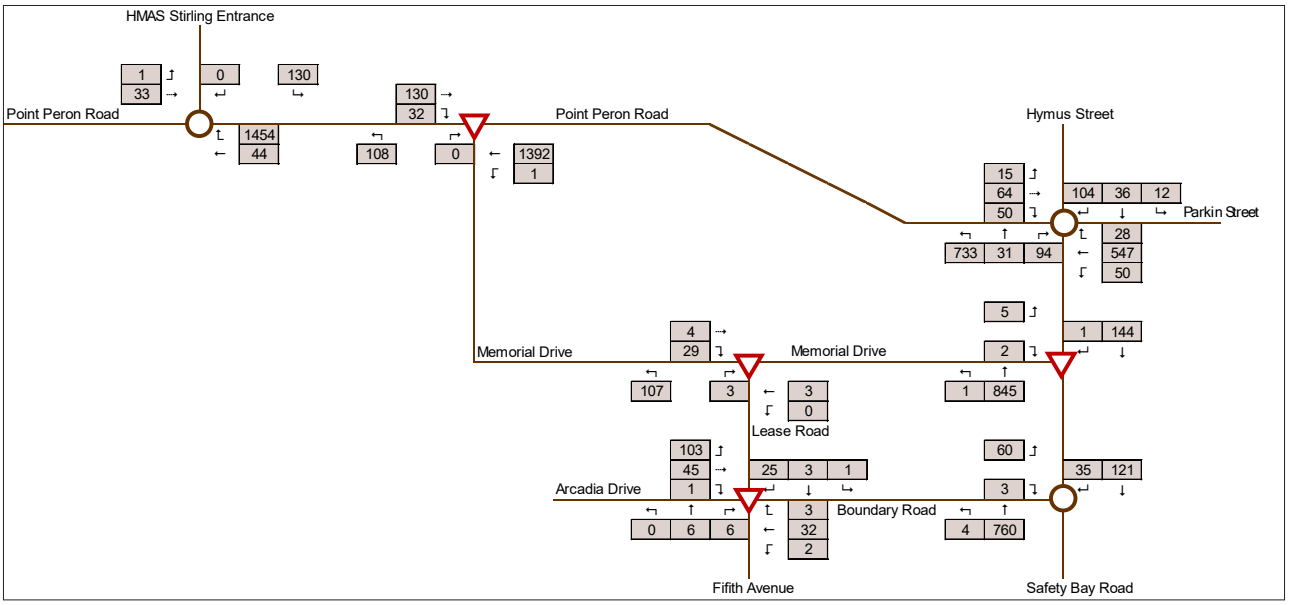
PM Peak



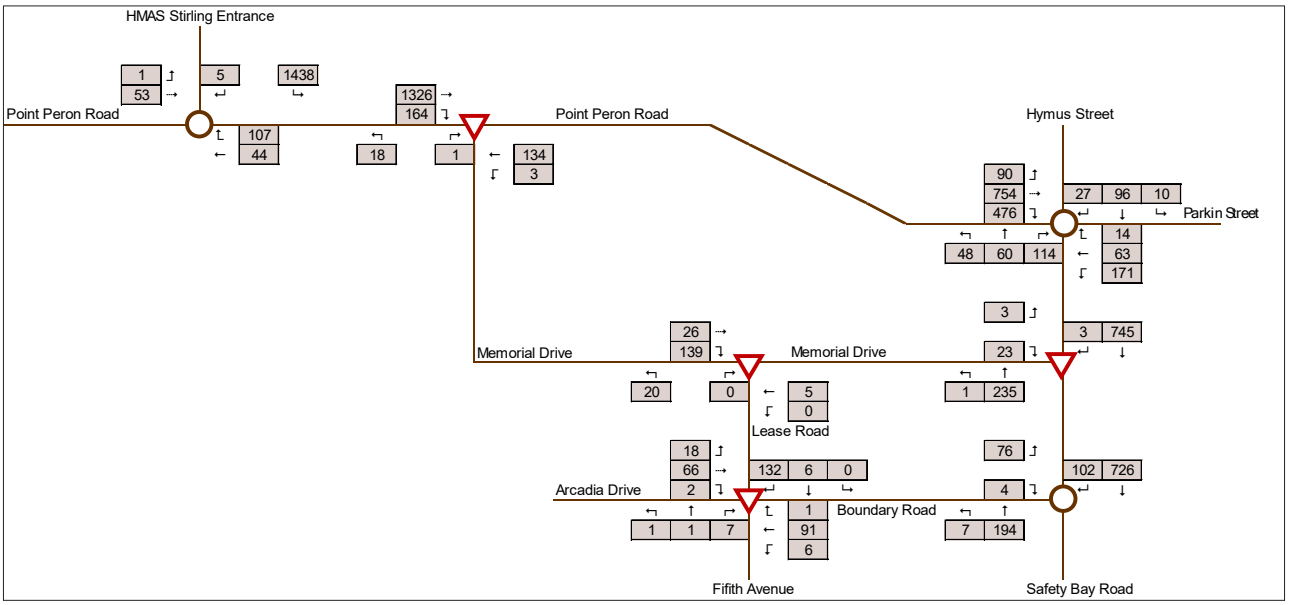
Scenario 2.3b – 2030 No GIH Single RA

Peak Hour Turn Counts

AM Peak



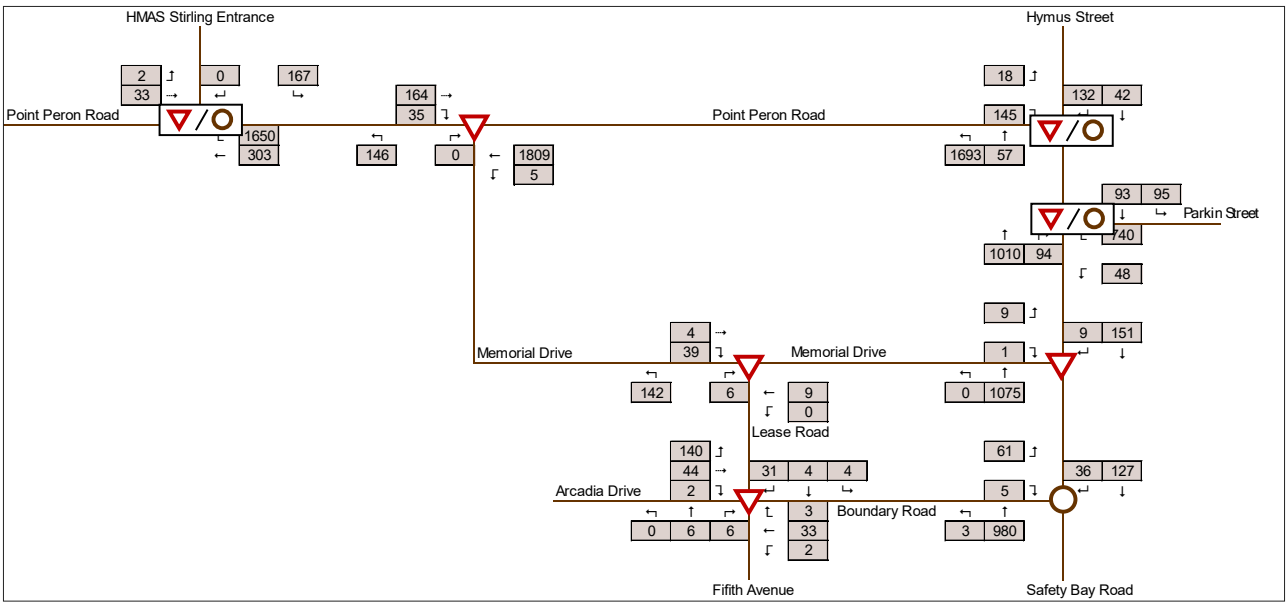
PM Peak



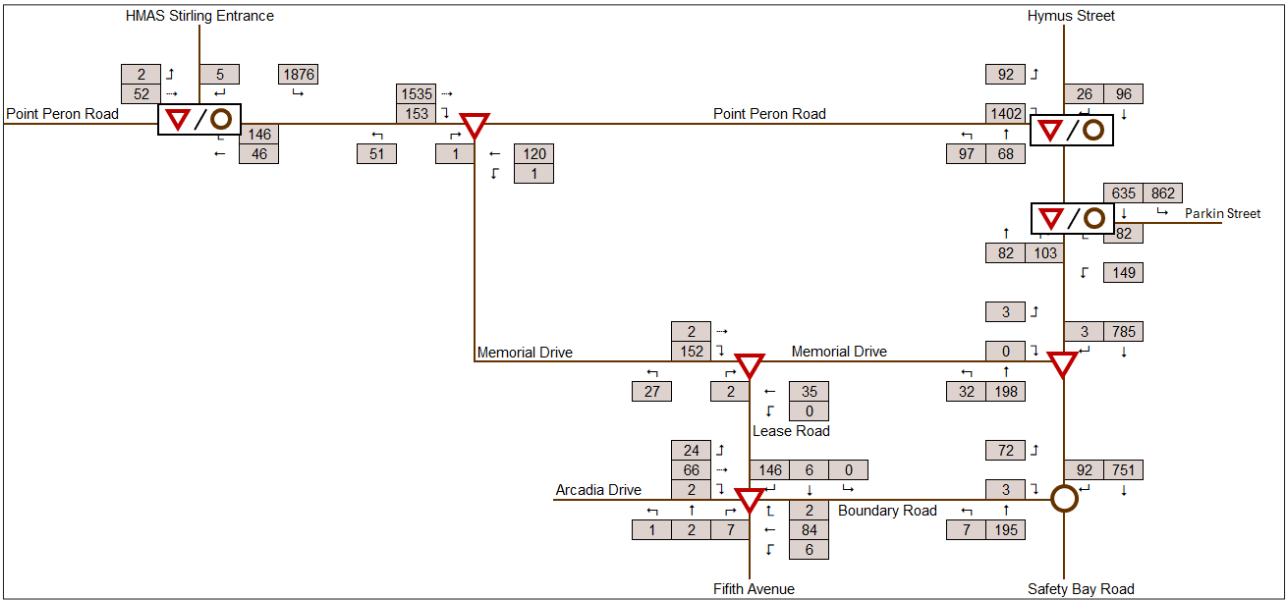
Scenario 3 – 2040 Do Nothing and Scenario 3.3a No GIH + Staggered RAs

Peak Hour Turn Counts

AM Peak



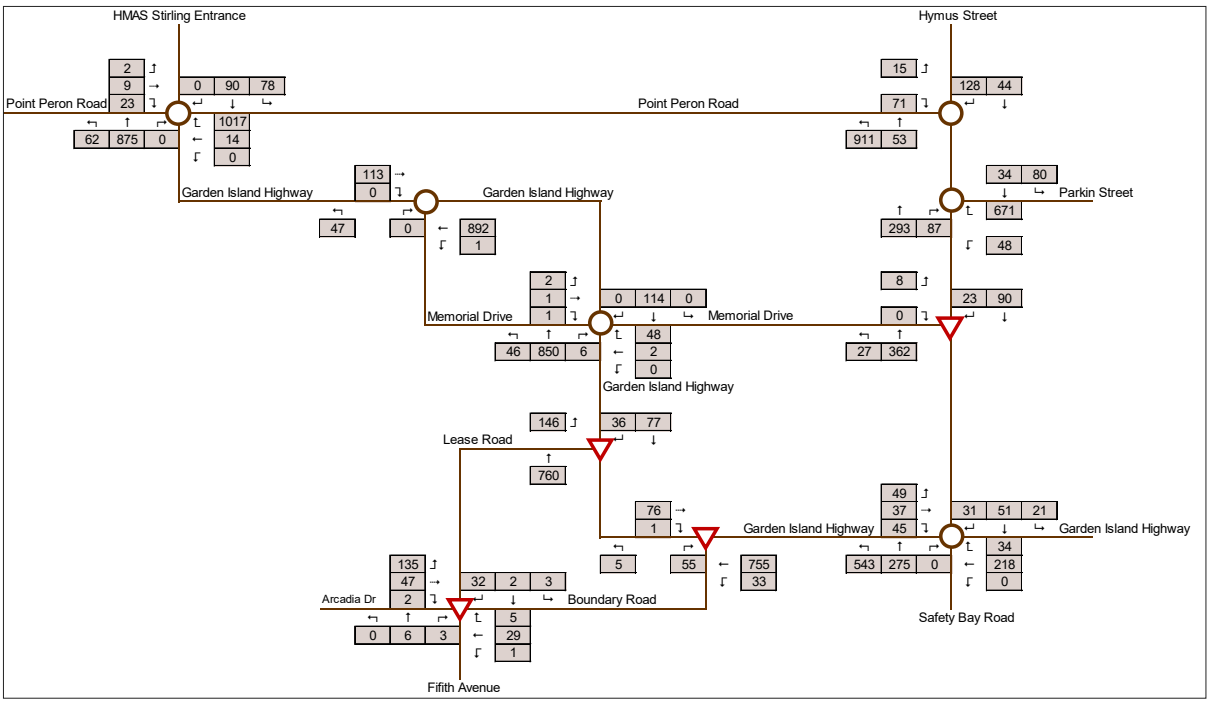
PM Peak



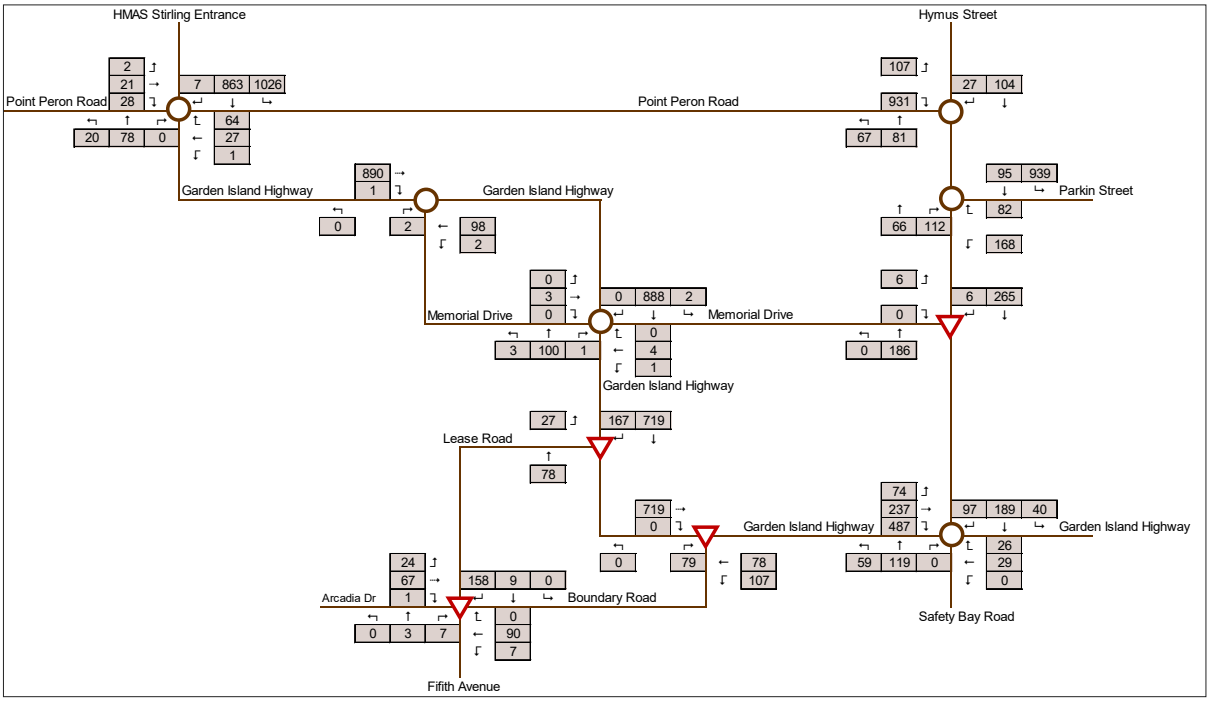
Scenario 3.1a – 2040 GIH/HMAS RA + Staggered RAs

Peak Hour Turn Counts

AM Peak



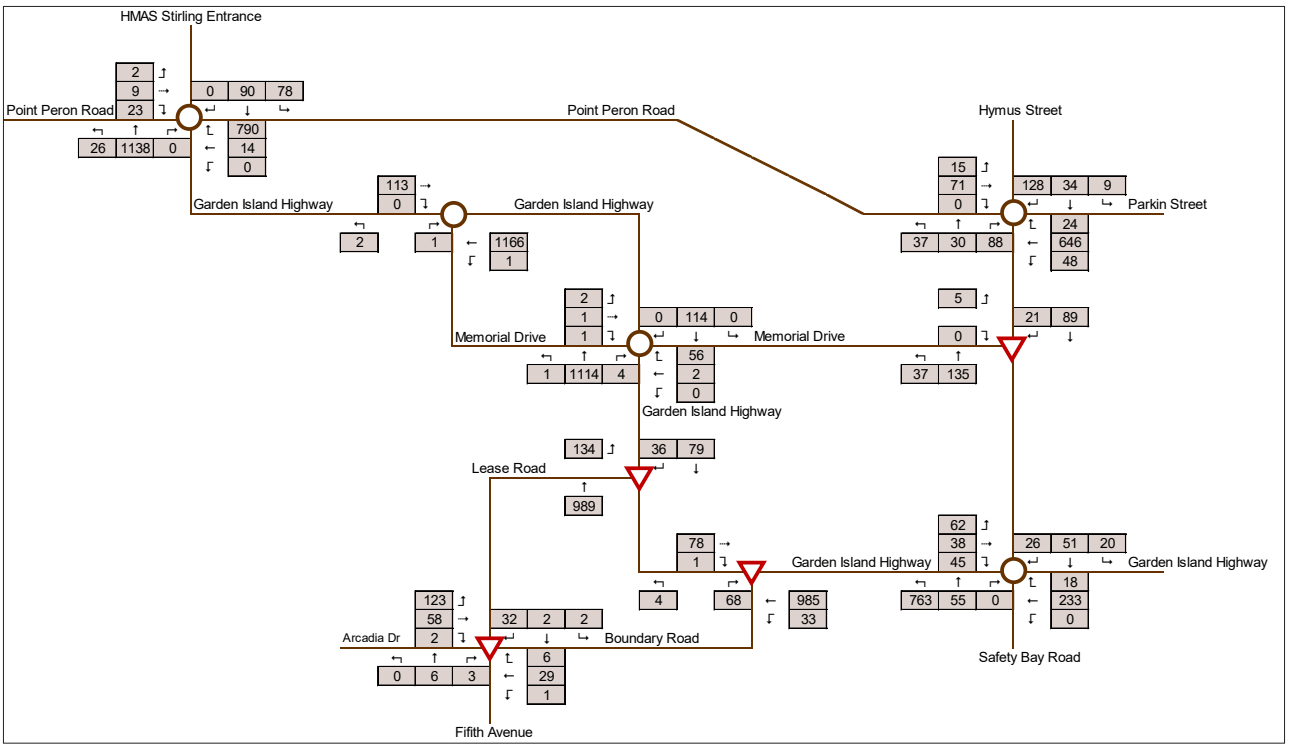
PM Peak



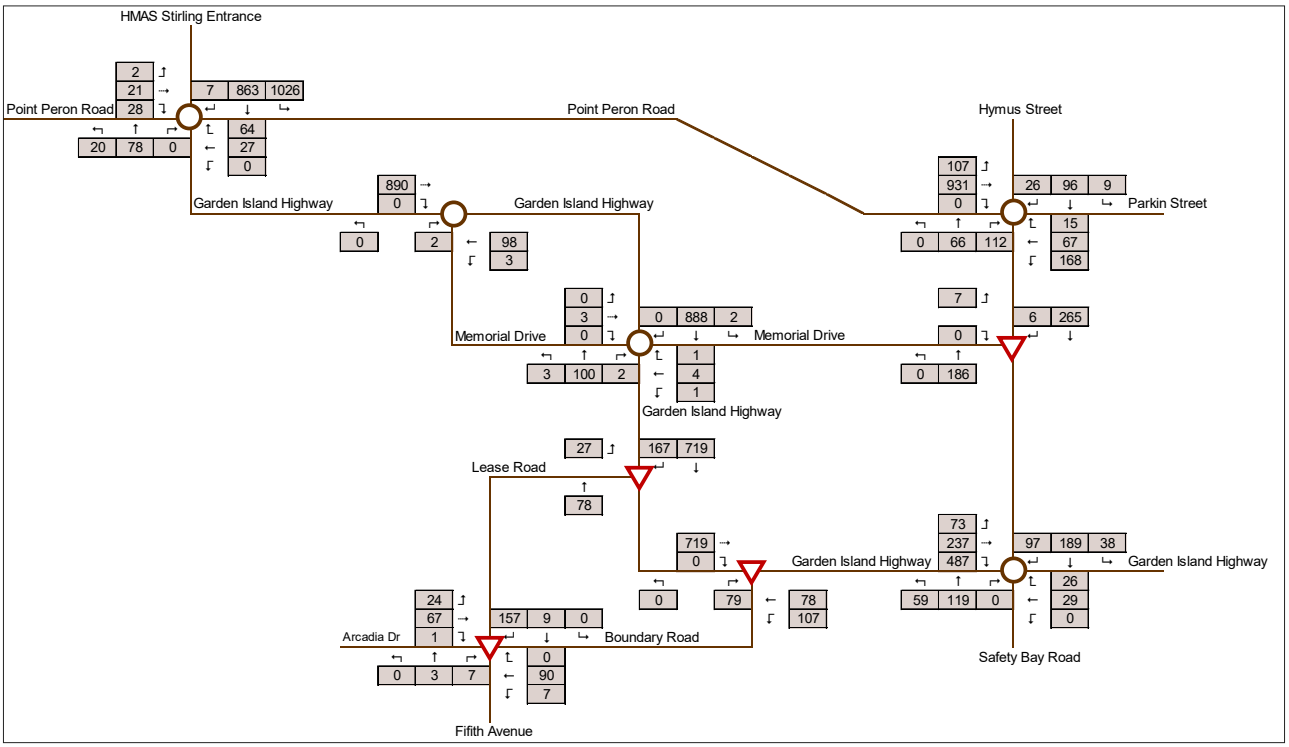
Scenario 3.1b – 2040 GIH/HMAS RA + Single RA

Peak Hour Turn Counts

AM Peak



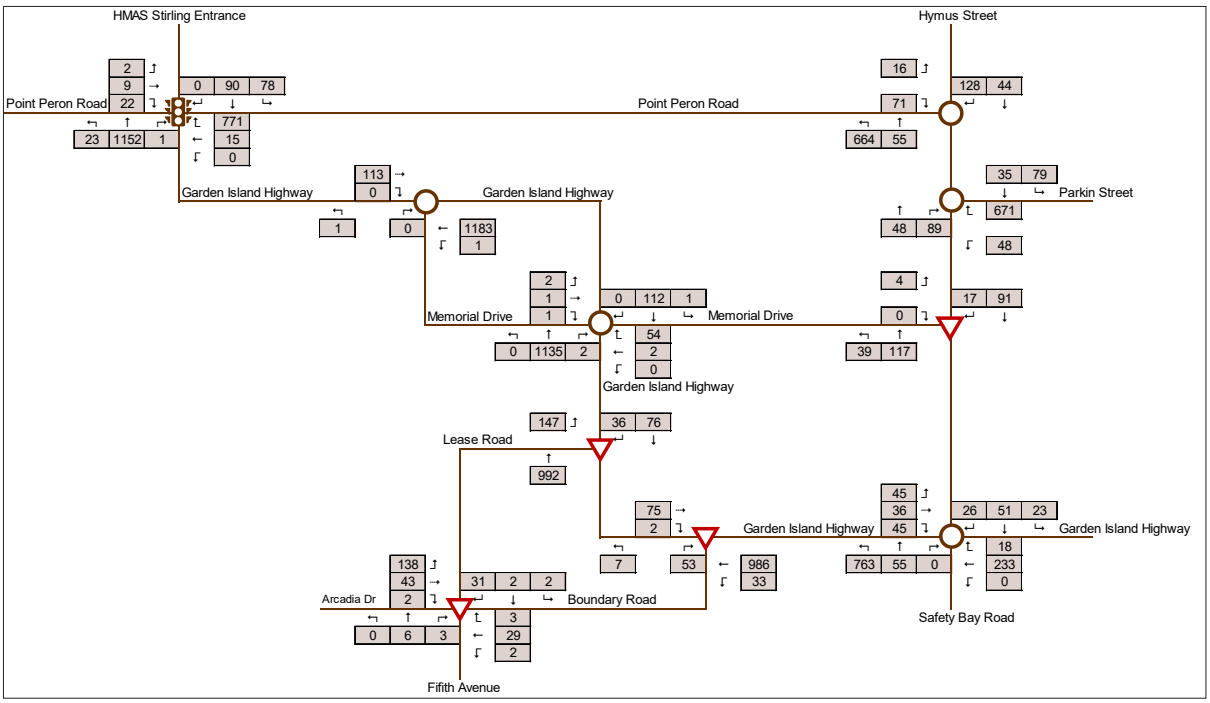
PM Peak



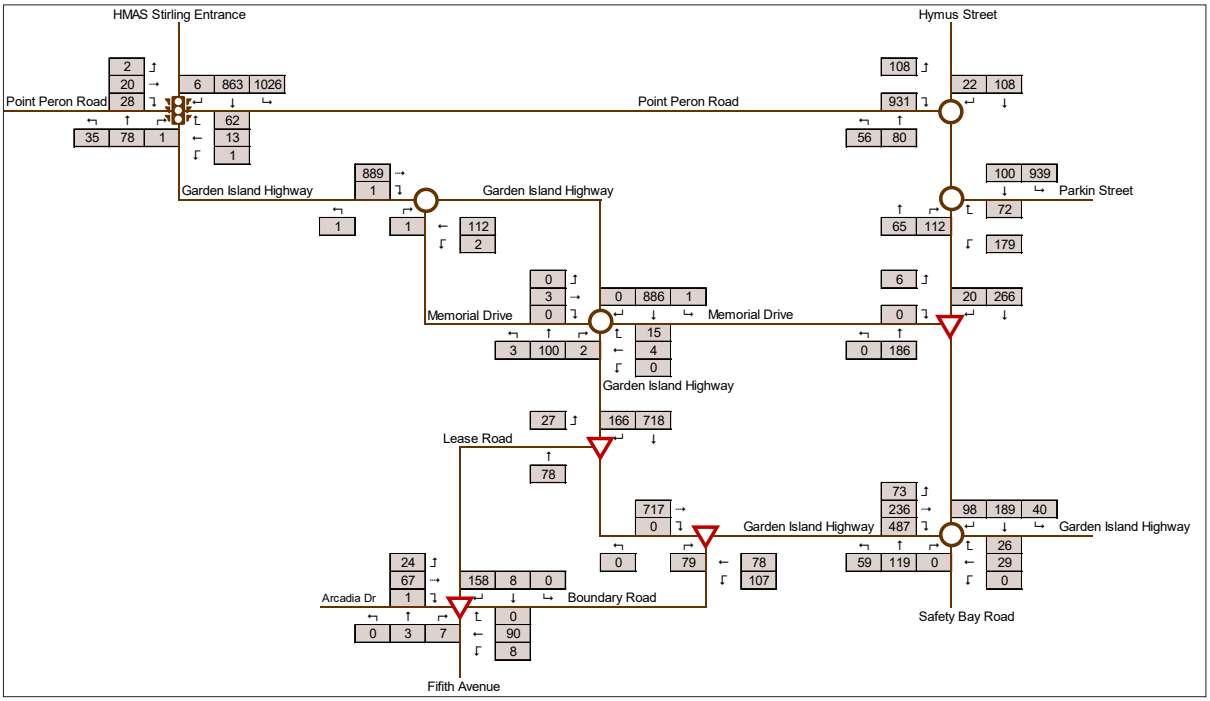
Scenario 3.2a – 2040 GIH/HMAS Signals + Staggered RAs

Peak Hour Turn Counts

AM Peak



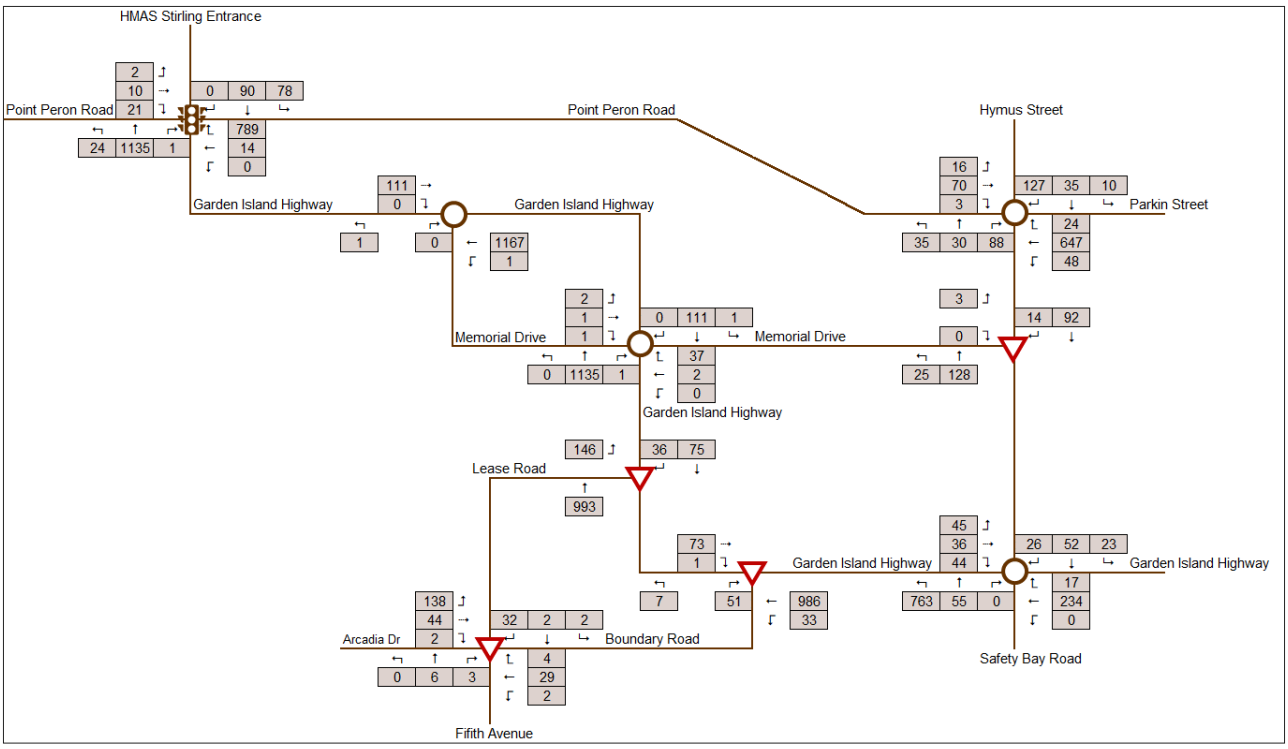
PM Peak



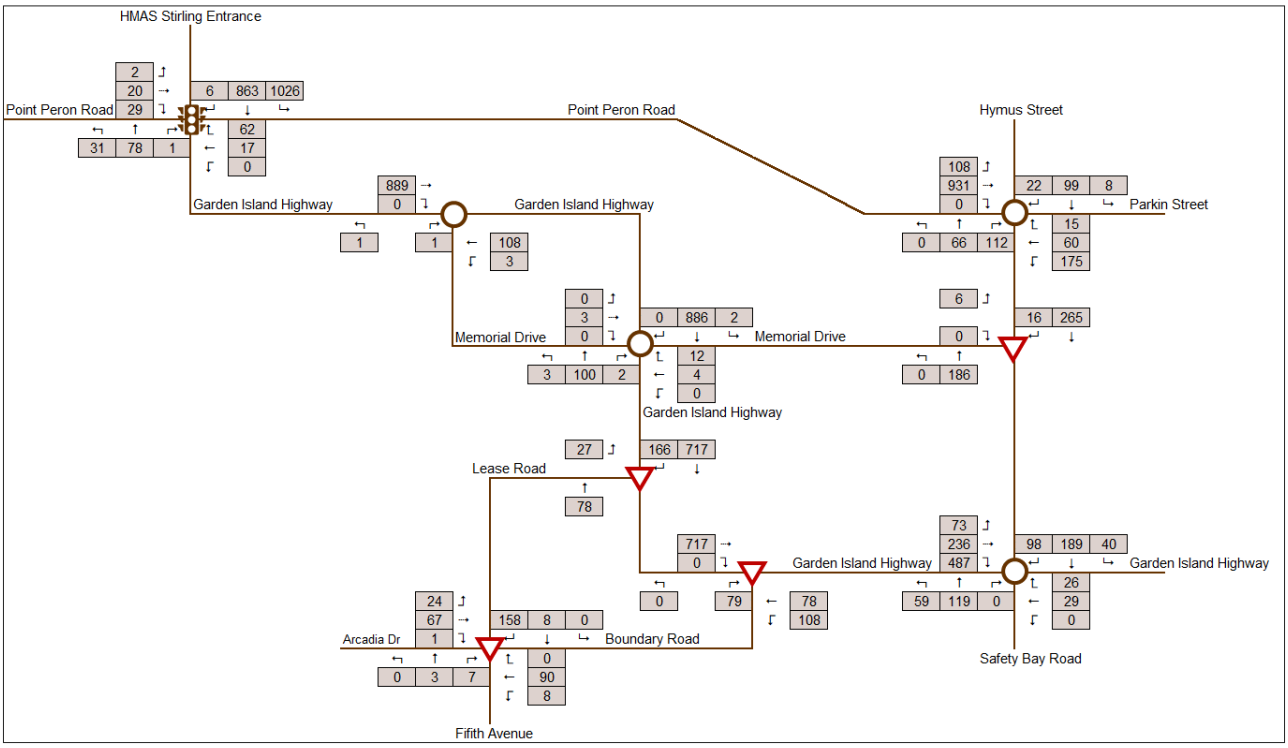
Scenario 3.2b – 2040 GIH/HMAS Signals + Single RA

Peak Hour Turn Counts

AM Peak



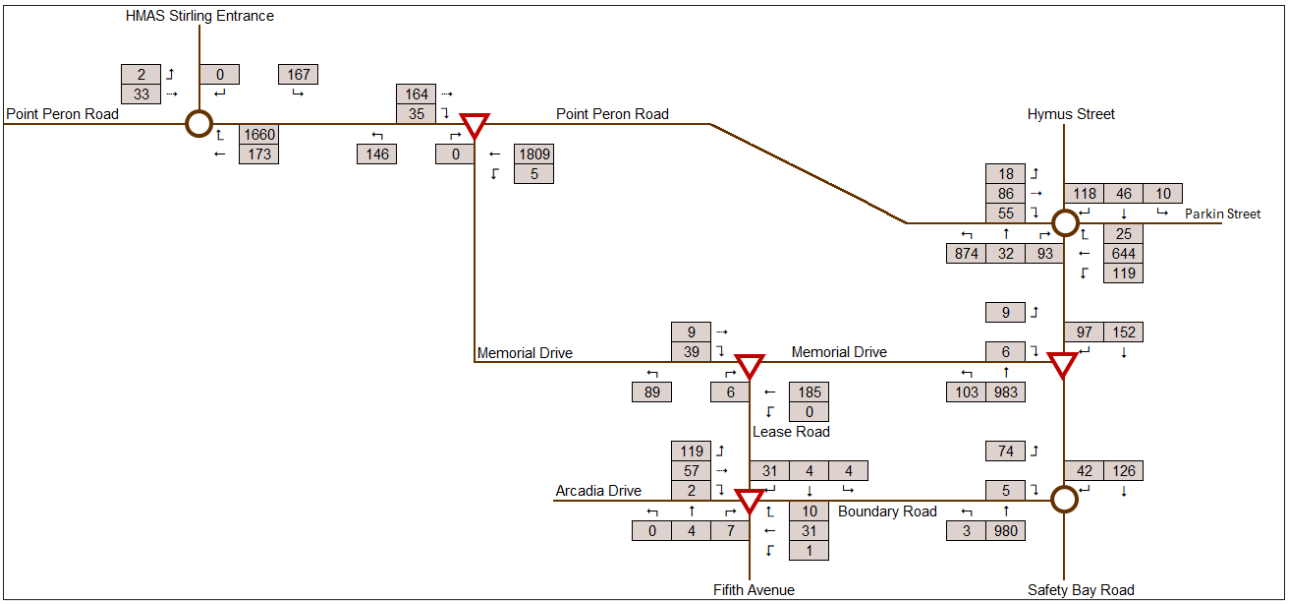
PM Peak



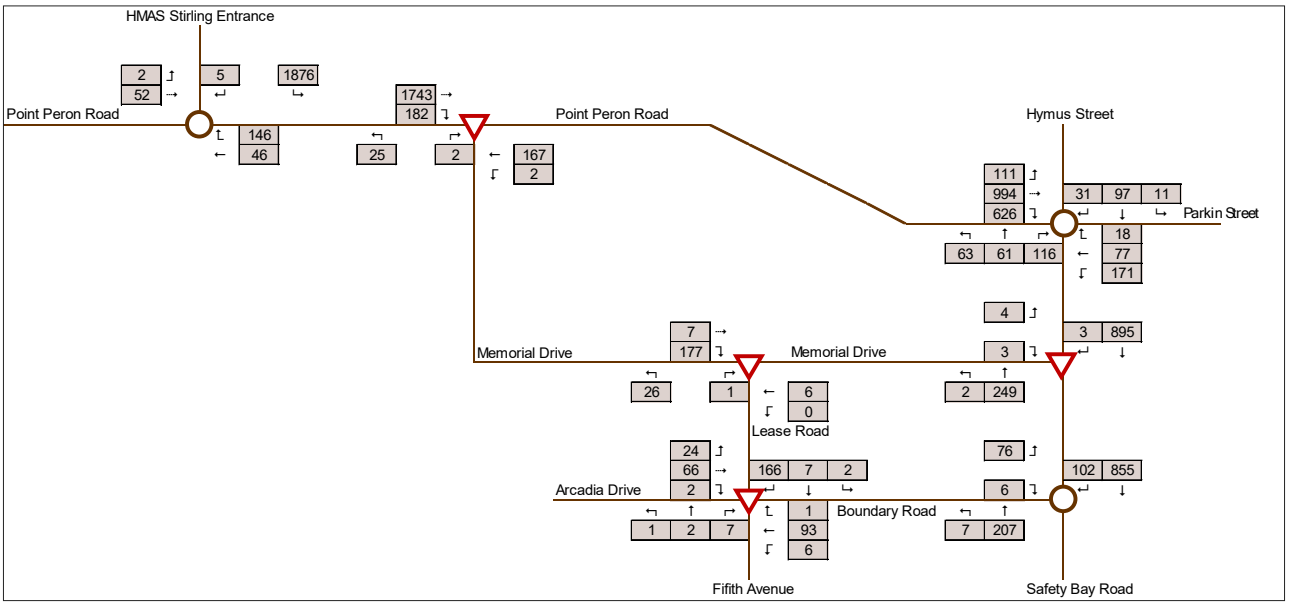
Scenario 3.3b – 2040 No GIH + Single RA

Peak Hour Turn Counts

AM Peak



PM Peak



Appendix F SIDRA Results

Scenario 1 – 2023 Existing

AM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

Site: 101 [Sc1_AM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: AM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	55	23.1	55	23.1	0.035	1.2	LOS A	0.0	0.0	0.00	0.20	0.00	57.9
6	R2	All MCs	921	1.9	921	1.9	0.535	5.8	LOS A	4.3	32.7	0.20	0.54	0.20	45.3
Approach			976	3.1	976	3.1	0.535	5.5	NA	4.3	32.7	0.19	0.52	0.19	45.9
North: HMAS Stirling Entrance															
7	L2	All MCs	77	8.2	77	8.2	0.056	4.8	LOS A	0.2	1.9	0.12	0.50	0.12	44.6
9	R2	All MCs	1	0.0	1	0.0	0.056	19.5	LOS C	0.2	1.9	0.12	0.50	0.12	45.7
Approach			78	8.1	78	8.1	0.056	5.0	LOS A	0.2	1.9	0.12	0.50	0.12	44.7
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.020	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	48.7
11	T1	All MCs	35	9.1	35	9.1	0.020	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.9
Approach			36	8.8	36	8.8	0.020	0.1	NA	0.0	0.0	0.00	0.02	0.00	49.8
All Vehicles			1089	3.7	1089	3.7	0.535	5.3	NA	4.3	32.7	0.17	0.50	0.17	45.9

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

Site: 102 [Sc1_AM_08_Memorial Dr / Point Peron Rd (Site Folder: AM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	148	2.8	148	2.8	0.262	10.7	LOS B	1.0	7.7	0.71	0.89	0.80	41.4
9	R2	All MCs	1	0.0	1	0.0	0.262	12.7	LOS B	1.0	7.7	0.71	0.89	0.80	45.4
Approach			149	2.8	149	2.8	0.262	10.7	LOS B	1.0	7.7	0.71	0.89	0.80	41.5
East: Point Peron Rd (E)															
10	L2	All MCs	1	0.0	1	0.0	0.428	5.7	LOS A	0.0	0.0	0.00	0.00	0.00	57.2
11	T1	All MCs	831	3.3	831	3.3	0.428	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach			832	3.3	832	3.3	0.428	0.2	NA	0.0	0.0	0.00	0.00	0.00	59.7
West: Point Peron Rd (W)															
5	T1	All MCs	79	9.3	79	9.3	0.096	3.1	LOS A	0.5	3.9	0.47	0.56	0.47	53.5
6	R2	All MCs	32	3.3	32	3.3	0.096	10.9	LOS B	0.5	3.9	0.47	0.56	0.47	45.9
Approach			111	7.6	111	7.6	0.096	5.3	NA	0.5	3.9	0.47	0.56	0.47	51.1
All Vehicles			1092	3.7	1092	3.7	0.428	2.1	NA	1.0	7.7	0.14	0.18	0.16	55.4

Safety Bay Road / Point Peron Road

MOVEMENT SUMMARY

Site: 103 [Sc1_AM_02_Safety Bay Rd / Point Peron Rd (Site Folder: AM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM Peak (Network Folder: General)]

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	761	3.2	761	3.2	0.443	2.9	LOS A	0.0	0.0	0.00	0.50	0.00	49.6
11	T1	All MCs	58	7.3	58	7.3	0.443	0.5	LOS A	0.0	0.0	0.00	0.50	0.00	54.6
Approach			819	3.5	819	3.5	0.443	2.7	NA	0.0	0.0	0.00	0.50	0.00	50.0
North: Hymus St															
5	T1	All MCs	46	6.8	46	6.8	0.024	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	All MCs	74	4.3	74	4.3	0.120	9.8	LOS A	0.4	3.4	0.67	0.84	0.67	45.1
Approach			120	5.3	120	5.3	0.120	6.0	NA	0.4	3.4	0.41	0.52	0.41	46.2
West: Point Peron Rd															
7	L2	All MCs	11	0.0	11	0.0	0.007	5.7	LOS A	0.0	0.2	0.14	0.53	0.14	48.8
9	R2	All MCs	67	9.4	67	9.4	0.144	11.9	LOS B	0.5	4.2	0.59	0.81	0.59	43.5
Approach			78	8.1	78	8.1	0.144	11.0	LOS B	0.5	4.2	0.53	0.78	0.53	44.7
All Vehicles			1017	4.0	1017	4.0	0.443	3.8	NA	0.5	4.2	0.09	0.52	0.09	48.8

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104 [Sc1_AM_03_Safety Bay Rd / Parkin St (Site Folder: AM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM Peak (Network Folder: General)]

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	440	1.7	440	1.7	0.222	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	All MCs	93	8.0	93	8.0	0.060	6.1	LOS A	0.3	2.2	0.24	0.52	0.24	48.2
Approach			533	2.8	533	2.8	0.222	1.1	NA	0.3	2.2	0.04	0.09	0.04	55.2
East: Parkin St															
7	L2	All MCs	56	18.9	56	18.9	0.056	6.3	LOS A	0.2	1.9	0.17	0.52	0.17	47.4
9	R2	All MCs	380	5.5	380	5.5	0.916	43.9	LOS E	14.4	113.6	0.95	1.88	3.69	24.9
Approach			436	7.2	436	7.2	0.916	39.0	LOS E	14.4	113.6	0.85	1.71	3.24	27.4
North: Safety Bay Rd															
10	L2	All MCs	52	12.2	52	12.2	0.066	2.9	LOS A	0.0	0.0	0.00	0.24	0.00	47.4
11	T1	All MCs	64	6.6	64	6.6	0.066	0.0	LOS A	0.0	0.0	0.00	0.24	0.00	56.6
Approach			116	9.1	116	9.1	0.066	1.3	NA	0.0	0.0	0.00	0.24	0.00	51.0
All Vehicles			1084	5.2	1084	5.2	0.916	16.4	NA	14.4	113.6	0.36	0.76	1.32	37.0

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc1_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: AM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	61	1.7	61	1.7	0.297	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	56.2
11	T1	All MCs	520	2.6	520	2.6	0.297	0.1	LOS A	0.0	0.0	0.00	0.06	0.00	59.1
Approach			581	2.5	581	2.5	0.297	0.7	NA	0.0	0.0	0.00	0.06	0.00	58.7
North: Safety Bay Rd															
5	T1	All MCs	128	10.7	128	10.7	0.075	0.1	LOS A	0.0	0.3	0.04	0.04	0.04	59.6
6	R2	All MCs	3	0.0	3	0.0	0.075	8.0	LOS A	0.0	0.3	0.04	0.04	0.04	51.1
Approach			132	10.4	132	10.4	0.075	0.3	NA	0.0	0.3	0.04	0.04	0.04	59.4
West: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.029	6.6	LOS A	0.1	0.7	0.53	0.73	0.53	44.4
9	R2	All MCs	16	6.7	16	6.7	0.029	8.6	LOS A	0.1	0.7	0.53	0.73	0.53	45.0
Approach			17	6.3	17	6.3	0.029	8.5	LOS A	0.1	0.7	0.53	0.73	0.53	44.9
All Vehicles			729	4.0	729	4.0	0.297	0.8	NA	0.1	0.7	0.02	0.07	0.02	58.3

Memorial Drive / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc1_AM_07_Memorial Dr / Lease Rd (Site Folder: AM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	84	2.5	84	2.5	0.056	4.8	LOS A	0.2	1.7	0.15	0.50	0.15	45.5
9	R2	All MCs	1	0.0	1	0.0	0.056	4.9	LOS A	0.2	1.7	0.15	0.50	0.15	45.4
Approach			85	2.5	85	2.5	0.056	4.8	LOS A	0.2	1.7	0.15	0.50	0.15	45.5
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.034	4.6	LOS A	0.0	0.0	0.00	0.01	0.00	48.7
11	T1	All MCs	64	1.6	64	1.6	0.034	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
Approach			65	1.6	65	1.6	0.034	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.9
West: Memorial Dr															
5	T1	All MCs	17	6.3	17	6.3	0.020	0.1	LOS A	0.1	0.7	0.14	0.29	0.14	48.1
6	R2	All MCs	18	5.9	18	5.9	0.020	4.8	LOS A	0.1	0.7	0.14	0.29	0.14	46.4
Approach			35	6.1	35	6.1	0.020	2.6	NA	0.1	0.7	0.14	0.29	0.14	47.2
All Vehicles			185	2.8	185	2.8	0.056	2.7	NA	0.2	1.7	0.10	0.29	0.10	47.3

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc1_AM_06_Boundary Rd / Lease Rd (Site Folder: AM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.012	7.6	LOS A	0.0	0.3	0.20	0.90	0.20	44.5
2	T1	All MCs	3	0.0	3	0.0	0.012	7.9	LOS A	0.0	0.3	0.20	0.90	0.20	44.5
3	R2	All MCs	7	0.0	7	0.0	0.012	7.5	LOS A	0.0	0.3	0.20	0.90	0.20	44.3
Approach			12	0.0	12	0.0	0.012	7.6	LOS A	0.0	0.3	0.20	0.90	0.20	44.3
East: Boundary Rd															
4	L2	All MCs	1	0.0	1	0.0	0.030	4.9	LOS A	0.1	0.5	0.10	0.16	0.10	47.7
5	T1	All MCs	36	20.6	36	20.6	0.030	0.1	LOS A	0.1	0.5	0.10	0.16	0.10	48.8
6	R2	All MCs	11	0.0	11	0.0	0.030	4.9	LOS A	0.1	0.5	0.10	0.16	0.10	47.5
Approach			47	15.6	47	15.6	0.030	1.3	NA	0.1	0.5	0.10	0.16	0.10	48.5
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.020	7.6	LOS A	0.1	0.5	0.24	0.91	0.24	44.4
8	T1	All MCs	1	0.0	1	0.0	0.020	7.8	LOS A	0.1	0.5	0.24	0.91	0.24	44.4
9	R2	All MCs	16	6.7	16	6.7	0.020	8.2	LOS A	0.1	0.5	0.24	0.91	0.24	43.9
Approach			18	5.9	18	5.9	0.020	8.2	LOS A	0.1	0.5	0.24	0.91	0.24	44.0
West: Arcadia Dr															
10	L2	All MCs	72	2.9	72	2.9	0.066	4.6	LOS A	0.0	0.1	0.01	0.33	0.01	46.8
11	T1	All MCs	46	4.5	46	4.5	0.066	0.0	LOS A	0.0	0.1	0.01	0.33	0.01	48.1
12	R2	All MCs	2	0.0	2	0.0	0.066	4.6	LOS A	0.0	0.1	0.01	0.33	0.01	46.8
Approach			120	3.5	120	3.5	0.066	2.8	NA	0.0	0.1	0.01	0.33	0.01	47.3
All Vehicles			197	6.4	197	6.4	0.066	3.2	NA	0.1	0.5	0.06	0.38	0.06	47.1

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc1_AM_05_Safety Bay Rd / Boundary Rd (Site Folder: AM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	8	0.0	8	0.0	0.356	4.4	LOS A	2.2	16.6	0.18	0.42	0.18	49.8
8	T1	All MCs	508	2.9	508	2.9	0.356	4.7	LOS A	2.2	16.6	0.18	0.42	0.18	53.1
Approach			517	2.9	517	2.9	0.356	4.6	LOS A	2.2	16.6	0.18	0.42	0.18	53.1
North: Safety Bay Rd															
2	T1	All MCs	119	7.1	119	7.1	0.105	4.5	LOS A	0.6	5.2	0.05	0.49	0.05	52.0
3	R2	All MCs	37	20.0	37	20.0	0.105	8.7	LOS A	0.6	5.2	0.05	0.49	0.05	47.6
Approach			156	10.1	156	10.1	0.105	5.5	LOS A	0.6	5.2	0.05	0.49	0.05	50.9
West: Boundary Rd															
4	L2	All MCs	58	3.6	58	3.6	0.079	6.6	LOS A	0.4	3.4	0.61	0.63	0.61	47.3
6	R2	All MCs	5	0.0	5	0.0	0.079	10.3	LOS B	0.4	3.4	0.61	0.63	0.61	47.7
Approach			63	3.3	63	3.3	0.079	6.9	LOS A	0.4	3.4	0.61	0.63	0.61	47.3
All Vehicles			736	4.4	736	4.4	0.356	5.0	LOS A	2.2	16.6	0.19	0.45	0.19	52.1

PM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

Site: 101 [Sc1_PM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: PM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	48	0.0	48	0.0	0.025	1.1	LOS A	0.0	0.0	0.00	0.20	0.00	58.3
6	R2	All MCs	72	7.4	72	7.4	0.045	5.8	LOS A	0.2	1.7	0.15	0.55	0.15	45.1
Approach			120	4.4	120	4.4	0.045	3.9	NA	0.2	1.7	0.09	0.41	0.09	49.7
North: HMAS Stirling Entrance															
7	L2	All MCs	917	1.5	917	1.5	0.596	5.0	LOS A	4.8	35.6	0.26	0.50	0.26	45.1
9	R2	All MCs	3	0.0	3	0.0	0.596	6.9	LOS A	4.8	35.6	0.26	0.50	0.26	45.3
Approach			920	1.5	920	1.5	0.596	5.0	LOS A	4.8	35.6	0.26	0.50	0.26	45.1
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.029	4.6	LOS A	0.0	0.0	0.00	0.01	0.00	48.7
11	T1	All MCs	56	3.8	56	3.8	0.029	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
Approach			57	3.7	57	3.7	0.029	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.9
All Vehicles			1097	1.9	1097	1.9	0.596	4.6	NA	4.8	35.6	0.23	0.46	0.23	45.8

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

Site: 102 [Sc1_PM_08_Memorial Dr / Point Peron Rd (Site Folder: PM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	39	0.0	39	0.0	0.029	4.8	LOS A	0.1	0.8	0.18	0.50	0.18	45.6
9	R2	All MCs	1	0.0	1	0.0	0.029	13.7	LOS B	0.1	0.8	0.18	0.50	0.18	48.6
Approach			40	0.0	40	0.0	0.029	5.0	LOS A	0.1	0.8	0.18	0.50	0.18	45.7
East: Point Peron Rd (E)															
10	L2	All MCs	2	0.0	2	0.0	0.046	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
11	T1	All MCs	82	6.4	82	6.4	0.046	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			84	6.3	84	6.3	0.046	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.7
West: Point Peron Rd (W)															
5	T1	All MCs	651	1.9	651	1.9	0.527	0.3	LOS A	2.9	21.7	0.20	0.24	0.20	56.6
6	R2	All MCs	320	1.0	320	1.0	0.527	6.0	LOS A	2.9	21.7	0.20	0.24	0.20	48.3
Approach			971	1.6	971	1.6	0.527	2.2	NA	2.9	21.7	0.20	0.24	0.20	53.5
All Vehicles			1095	1.9	1095	1.9	0.527	2.1	NA	2.9	21.7	0.19	0.23	0.19	53.6

Safety Bay Road / Point Peron Road

MOVEMENT SUMMARY

Site: 103 [Sc1_PM_02_Safety Bay Rd / Point Peron Rd (Site Folder: PM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [PM Peak (Network Folder: General)]

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	61	8.6	61	8.6	0.079	2.9	LOS A	0.0	0.0	0.00	0.34	0.00	49.0
11	T1	All MCs	84	0.0	84	0.0	0.079	0.5	LOS A	0.0	0.0	0.00	0.34	0.00	57.1
Approach			145	3.6	145	3.6	0.079	1.5	NA	0.0	0.0	0.00	0.34	0.00	53.4
North: Hymus St															
5	T1	All MCs	107	1.0	107	1.0	0.054	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	All MCs	23	0.0	23	0.0	0.015	5.0	LOS A	0.1	0.5	0.25	0.48	0.25	48.6
Approach			131	0.8	131	0.8	0.054	0.9	NA	0.1	0.5	0.04	0.09	0.04	49.6
West: Point Peron Rd															
7	L2	All MCs	57	3.7	57	3.7	0.038	6.1	LOS A	0.2	1.2	0.17	0.54	0.17	48.6
9	R2	All MCs	592	2.0	592	2.0	0.670	11.1	LOS B	8.1	60.7	0.66	0.84	1.01	44.4
Approach			648	2.1	648	2.1	0.670	10.7	LOS B	8.1	60.7	0.61	0.81	0.94	44.8
All Vehicles			924	2.2	924	2.2	0.670	7.9	NA	8.1	60.7	0.44	0.64	0.67	46.6

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104 [Sc1_PM_03_Safety Bay Rd / Parkin St (Site Folder: PM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [PM Peak (Network Folder: General)]

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	79	0.0	79	0.0	0.039	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	124	7.6	124	7.6	0.175	10.1	LOS B	0.7	5.5	0.63	0.82	0.63	45.8
Approach			203	4.7	203	4.7	0.175	6.2	NA	0.7	5.5	0.38	0.50	0.38	48.1
East: Parkin St															
7	L2	All MCs	179	3.5	179	3.5	0.190	6.9	LOS A	0.8	5.7	0.35	0.59	0.35	49.6
9	R2	All MCs	66	7.9	66	7.9	0.198	16.7	LOS C	0.7	6.0	0.70	0.88	0.72	39.2
Approach			245	4.7	245	4.7	0.198	9.5	LOS A	0.8	6.0	0.44	0.67	0.45	47.3
North: Safety Bay Rd															
10	L2	All MCs	495	2.1	495	2.1	0.365	2.9	LOS A	0.0	0.0	0.00	0.38	0.00	51.1
11	T1	All MCs	203	0.5	203	0.5	0.365	0.0	LOS A	0.0	0.0	0.00	0.38	0.00	54.4
Approach			698	1.7	698	1.7	0.365	2.1	NA	0.0	0.0	0.00	0.38	0.00	51.8
All Vehicles			1146	2.8	1146	2.8	0.365	4.4	NA	0.8	6.0	0.16	0.46	0.16	49.7

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc1_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: PM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	26	0.0	26	0.0	0.126	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	56.9
11	T1	All MCs	217	3.9	217	3.9	0.126	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	59.2
Approach			243	3.5	243	3.5	0.126	0.6	NA	0.0	0.0	0.00	0.06	0.00	58.9
North: Safety Bay Rd															
5	T1	All MCs	387	1.9	387	1.9	0.198	0.0	LOS A	0.0	0.2	0.01	0.01	0.01	59.9
6	R2	All MCs	3	0.0	3	0.0	0.198	5.6	LOS A	0.0	0.2	0.01	0.01	0.01	51.3
Approach			391	1.9	391	1.9	0.198	0.0	NA	0.0	0.2	0.01	0.01	0.01	59.8
West: Memorial Dr															
7	L2	All MCs	4	0.0	4	0.0	0.093	5.3	LOS A	0.3	2.2	0.49	0.73	0.49	44.9
9	R2	All MCs	61	1.7	61	1.7	0.093	7.8	LOS A	0.3	2.2	0.49	0.73	0.49	46.6
Approach			65	1.6	65	1.6	0.093	7.6	LOS A	0.3	2.2	0.49	0.73	0.49	46.5
All Vehicles			699	2.4	699	2.4	0.198	1.0	NA	0.3	2.2	0.05	0.09	0.05	57.7

Memorial Drive / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc1_PM_07_Memorial Dr / Lease Rd (Site Folder: PM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	17	0.0	17	0.0	0.012	4.6	LOS A	0.0	0.3	0.09	0.50	0.09	45.7
9	R2	All MCs	1	0.0	1	0.0	0.012	5.9	LOS A	0.0	0.3	0.09	0.50	0.09	45.6
Approach			18	0.0	18	0.0	0.012	4.7	LOS A	0.0	0.3	0.09	0.50	0.09	45.7
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.016	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	48.7
11	T1	All MCs	29	0.0	29	0.0	0.016	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.9
Approach			31	0.0	31	0.0	0.016	0.2	NA	0.0	0.0	0.00	0.02	0.00	49.8
West: Memorial Dr															
5	T1	All MCs	64	1.6	64	1.6	0.181	0.1	LOS A	1.0	7.1	0.11	0.43	0.11	47.3
6	R2	All MCs	258	0.8	258	0.8	0.181	4.7	LOS A	1.0	7.1	0.11	0.43	0.11	46.0
Approach			322	1.0	322	1.0	0.181	3.8	NA	1.0	7.1	0.11	0.43	0.11	46.3
All Vehicles			371	0.9	371	0.9	0.181	3.5	NA	1.0	7.1	0.10	0.40	0.10	46.5

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc1_PM_06_Boundary Rd / Lease Rd (Site Folder: PM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	100.0	1	100.0	0.016	15.7	LOS C	0.1	0.5	0.35	0.94	0.35	39.9
2	T1	All MCs	3	0.0	3	0.0	0.016	8.0	LOS A	0.1	0.5	0.35	0.94	0.35	43.6
3	R2	All MCs	7	14.3	7	14.3	0.016	10.4	LOS B	0.1	0.5	0.35	0.94	0.35	42.8
Approach			12	18.2	12	18.2	0.016	10.2	LOS B	0.1	0.5	0.35	0.94	0.35	42.7
East: Boundary Rd															
4	L2	All MCs	7	0.0	7	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.5
5	T1	All MCs	96	1.1	96	1.1	0.054	0.0	LOS A	0.0	0.1	0.01	0.04	0.01	49.7
6	R2	All MCs	1	0.0	1	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.3
Approach			104	1.0	104	1.0	0.054	0.4	NA	0.0	0.1	0.01	0.04	0.01	49.6
North: Lease Rd															
7	L2	All MCs	157	0.0	157	0.0	0.237	7.8	LOS A	1.0	7.7	0.25	0.88	0.25	44.3
8	T1	All MCs	5	0.0	5	0.0	0.237	8.3	LOS A	1.0	7.7	0.25	0.88	0.25	44.3
9	R2	All MCs	95	2.2	95	2.2	0.237	8.5	LOS A	1.0	7.7	0.25	0.88	0.25	44.0
Approach			257	0.8	257	0.8	0.237	8.1	LOS A	1.0	7.7	0.25	0.88	0.25	44.2
West: Arcadia Dr															
10	L2	All MCs	15	0.0	15	0.0	0.047	4.6	LOS A	0.0	0.1	0.01	0.10	0.01	48.2
11	T1	All MCs	74	1.4	74	1.4	0.047	0.0	LOS A	0.0	0.1	0.01	0.10	0.01	49.4
12	R2	All MCs	1	0.0	1	0.0	0.047	4.6	LOS A	0.0	0.1	0.01	0.10	0.01	48.0
Approach			89	1.2	89	1.2	0.047	0.8	NA	0.0	0.1	0.01	0.10	0.01	49.2
All Vehicles			462	1.4	462	1.4	0.237	5.0	NA	1.0	7.7	0.15	0.54	0.15	46.2

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc1_PM_05_Safety Bay Rd / Boundary Rd (Site Folder: PM Peak)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	7	0.0	7	0.0	0.165	4.7	LOS A	0.9	6.9	0.29	0.45	0.29	49.4
8	T1	All MCs	193	3.3	193	3.3	0.165	5.0	LOS A	0.9	6.9	0.29	0.45	0.29	52.6
Approach			200	3.2	200	3.2	0.165	5.0	LOS A	0.9	6.9	0.29	0.45	0.29	52.5
North: Safety Bay Rd															
2	T1	All MCs	401	1.3	401	1.3	0.435	5.6	LOS A	3.2	24.1	0.47	0.52	0.47	52.0
3	R2	All MCs	107	2.0	107	2.0	0.435	9.6	LOS A	3.2	24.1	0.47	0.52	0.47	47.9
Approach			508	1.4	508	1.4	0.435	6.5	LOS A	3.2	24.1	0.47	0.52	0.47	51.0
West: Boundary Rd															
4	L2	All MCs	83	2.5	83	2.5	0.223	4.5	LOS A	1.4	10.3	0.45	0.58	0.45	47.2
6	R2	All MCs	160	0.0	160	0.0	0.223	8.4	LOS A	1.4	10.3	0.45	0.58	0.45	47.4
Approach			243	0.9	243	0.9	0.223	7.1	LOS A	1.4	10.3	0.45	0.58	0.45	47.4
All Vehicles			952	1.7	952	1.7	0.435	6.3	LOS A	3.2	24.1	0.43	0.52	0.43	50.3

Scenario 2 – 2030 Do Nothing

AM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

▽ Site: 101 [Sc2_AM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: 2_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	45	23.3	45	23.3	0.030	1.3	LOS A	0.1	1.1	0.11	0.20	0.11	51.3
6	R2	All MCs	1529	2.1	1529	2.1	0.902	6.6	LOS A	25.9	194.9	0.53	0.46	0.53	44.3
Approach			1575	2.7	1575	2.7	0.902	6.4	NA	25.9	194.9	0.52	0.46	0.52	44.4
North: HMAS Stirling Entrance															
7	L2	All MCs	137	8.5	137	8.5	0.125	4.8	LOS A	0.5	4.2	0.14	0.49	0.14	44.1
9	R2	All MCs	1	0.0	1	0.0	0.125	128.6	LOS F	0.5	4.2	0.14	0.49	0.14	45.3
Approach			138	8.4	138	8.4	0.125	5.8	LOS A	0.5	4.2	0.14	0.49	0.14	44.2
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.020	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	48.7
11	T1	All MCs	35	9.1	35	9.1	0.020	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.9
Approach			36	8.8	36	8.8	0.020	0.1	NA	0.0	0.0	0.00	0.02	0.00	49.8
All Vehicles			1748	3.3	1748	3.3	0.902	6.2	NA	25.9	194.9	0.48	0.45	0.48	44.5

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

▽ Site: 102 [Sc2_AM_08_Memorial Dr / Point Peron Rd (Site Folder: 2_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	118	2.7	118	2.7	1.529	547.2	LOS F	28.4	214.5	1.00	3.23	9.45	4.5
9	R2	All MCs	1	0.0	1	0.0	1.529	555.2	LOS F	28.4	214.5	1.00	3.23	9.45	5.9
Approach			119	2.7	119	2.7	1.529	547.3	LOS F	28.4	214.5	1.00	3.23	9.45	4.5
East: Point Peron Rd (E)															
10	L2	All MCs	1	0.0	1	0.0	0.748	6.0	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
11	T1	All MCs	1462	2.8	1462	2.8	0.748	0.6	LOS A	0.0	0.0	0.00	0.00	0.00	58.8
Approach			1463	2.8	1463	2.8	0.748	0.6	NA	0.0	0.0	0.00	0.00	0.00	58.8
West: Point Peron Rd (W)															
5	T1	All MCs	138	9.2	138	9.2	0.495	81.9	LOS F	7.2	59.5	0.83	0.87	1.31	20.7
6	R2	All MCs	33	3.2	33	3.2	0.495	96.5	LOS F	7.2	59.5	0.83	0.87	1.31	19.4
Approach			171	8.0	171	8.0	0.495	84.7	NA	7.2	59.5	0.83	0.87	1.31	20.4
All Vehicles			1753	3.3	1753	3.3	1.529	45.9	NA	28.4	214.5	0.15	0.30	0.77	29.2

Safety Bay Road / Point Peron Road

MOVEMENT SUMMARY

Site: 103 [Sc2_AM_02_Safety Bay Rd / Point Peron Rd (Site Folder: 2_AM Peak_Do Nothing)]

Network: N101 [AM Peak_2_Do Nothing (Network Folder: 2)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1360	2.9	921	2.0	0.511	2.9	LOS A	0.0	0.0	0.00	0.51	0.00	50.1
11	T1	All MCs	62	6.8	41	4.6	0.511	0.5	LOS A	0.0	0.0	0.00	0.51	0.00	54.5
Approach			1422	3.0	962	2.1	0.511	2.8	NA	0.0	0.0	0.00	0.51	0.00	50.3
North: Hymus St															
5	T1	All MCs	52	10.2	52	10.2	0.028	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	All MCs	109	1.9	109	1.9	0.227	12.3	LOS B	0.9	6.5	0.77	0.91	0.83	44.3
Approach			161	4.6	161	4.6	0.227	8.4	NA	0.9	6.5	0.53	0.62	0.57	45.3
West: Point Peron Rd															
7	L2	All MCs	16	6.7	16	6.7	0.010	5.8	LOS A	0.0	0.3	0.11	0.54	0.11	48.5
9	R2	All MCs	121	9.6	121	9.6	0.308	15.3	LOS C	1.2	10.4	0.69	0.92	0.85	40.3
Approach			137	9.2	137	9.2	0.308	14.2	LOS B	1.2	10.4	0.63	0.88	0.76	41.7
All Vehicles			1720	3.7	1260	5.0	0.511	4.8	NA	1.2	10.4	0.14	0.56	0.16	48.2

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104 [Sc2_AM_03_Safety Bay Rd / Parkin St (Site Folder: 2_AM Peak_Do Nothing)]

Network: N101 [AM Peak_2_Do Nothing (Network Folder: 2)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	817	1.5	817	1.5	0.411	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
6	R2	All MCs	99	6.4	99	6.4	0.067	6.3	LOS A	0.3	2.4	0.30	0.54	0.30	48.5
Approach			916	2.1	916	2.1	0.411	0.8	NA	0.3	2.4	0.03	0.06	0.03	56.6
East: Parkin St															
7	L2	All MCs	53	18.0	53	18.0	0.056	14.7	LOS B	0.2	1.9	0.21	0.53	0.21	47.5
9	R2	All MCs	605	5.0	605	5.0	4.170	2899.7	LOS F	289.4	2265.5	1.00	7.63	25.57	0.6
Approach			658	6.1	658	6.1	4.170	2668.9	LOS F	289.4	2265.5	0.94	7.06	23.54	0.7
North: Safety Bay Rd															
10	L2	All MCs	82	11.5	82	11.5	0.100	2.9	LOS A	0.0	0.0	0.00	0.26	0.00	47.5
11	T1	All MCs	91	8.1	91	8.1	0.100	0.0	LOS A	0.0	0.0	0.00	0.26	0.00	56.3
Approach			173	9.8	173	9.8	0.100	1.4	NA	0.0	0.0	0.00	0.26	0.00	50.8
All Vehicles			1746	4.3	1746	4.3	4.170	1006.0	NA	289.4	2265.5	0.37	2.72	8.89	1.5

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

▽ Site: 105 [Sc2_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1	0.0	1	0.0	0.450	5.7	LOS A	0.0	0.0	0.00	0.00	0.00	57.2
11	T1	All MCs	889	2.0	889	2.0	0.450	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach			891	2.0	891	2.0	0.450	0.2	NA	0.0	0.0	0.00	0.00	0.00	59.7
North: Safety Bay Rd															
5	T1	All MCs	153	11.0	153	11.0	0.095	0.4	LOS A	0.1	0.9	0.08	0.09	0.08	59.0
6	R2	All MCs	5	0.0	5	0.0	0.095	11.2	LOS B	0.1	0.9	0.08	0.09	0.08	50.6
Approach			158	10.7	158	10.7	0.095	0.8	NA	0.1	0.9	0.08	0.09	0.08	58.7
West: Memorial Dr															
7	L2	All MCs	4	25.0	4	25.0	0.014	13.0	LOS B	0.0	0.4	0.72	0.81	0.72	38.2
9	R2	All MCs	1	0.0	1	0.0	0.014	12.7	LOS B	0.0	0.4	0.72	0.81	0.72	44.1
Approach			5	20.0	5	20.0	0.014	13.0	LOS B	0.0	0.4	0.72	0.81	0.72	39.4
All Vehicles			1054	3.4	1054	3.4	0.450	0.3	NA	0.1	0.9	0.01	0.02	0.01	59.4

Memorial Drive / Lease Road

MOVEMENT SUMMARY

▽ Site: 106 [Sc2_AM_07_Memorial Dr / Lease Rd (Site Folder: 2_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	114	1.9	114	1.9	0.073	4.6	LOS A	0.3	2.3	0.04	0.51	0.04	45.8
9	R2	All MCs	3	33.3	3	33.3	0.073	5.1	LOS A	0.3	2.3	0.04	0.51	0.04	44.0
Approach			117	2.7	117	2.7	0.073	4.6	LOS A	0.3	2.3	0.04	0.51	0.04	45.7
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.004	4.6	LOS A	0.0	0.0	0.00	0.08	0.00	48.3
11	T1	All MCs	6	0.0	6	0.0	0.004	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	49.6
Approach			7	0.0	7	0.0	0.004	0.7	NA	0.0	0.0	0.00	0.08	0.00	49.4
West: Memorial Dr															
5	T1	All MCs	3	0.0	3	0.0	0.019	0.0	LOS A	0.1	0.7	0.04	0.49	0.04	47.2
6	R2	All MCs	31	3.4	31	3.4	0.019	4.6	LOS A	0.1	0.7	0.04	0.49	0.04	45.8
Approach			34	3.1	34	3.1	0.019	4.2	NA	0.1	0.7	0.04	0.49	0.04	45.9
All Vehicles			158	2.7	158	2.7	0.073	4.3	NA	0.3	2.3	0.04	0.49	0.04	45.9

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2_AM_06_Boundary Rd / Lease Rd (Site Folder: 2_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.014	7.6	LOS A	0.0	0.4	0.21	0.91	0.21	44.4
2	T1	All MCs	5	0.0	5	0.0	0.014	8.1	LOS A	0.0	0.4	0.21	0.91	0.21	44.4
3	R2	All MCs	7	0.0	7	0.0	0.014	7.5	LOS A	0.0	0.4	0.21	0.91	0.21	44.3
Approach			14	0.0	14	0.0	0.014	7.7	LOS A	0.0	0.4	0.21	0.91	0.21	44.3
East: Boundary Rd															
4	L2	All MCs	2	0.0	2	0.0	0.025	4.9	LOS A	0.0	0.2	0.05	0.09	0.05	48.1
5	T1	All MCs	34	18.8	34	18.8	0.025	0.0	LOS A	0.0	0.2	0.05	0.09	0.05	49.4
6	R2	All MCs	3	0.0	3	0.0	0.025	5.0	LOS A	0.0	0.2	0.05	0.09	0.05	47.9
Approach			39	16.2	39	16.2	0.025	0.7	NA	0.0	0.2	0.05	0.09	0.05	49.2
North: Lease Rd															
7	L2	All MCs	2	0.0	2	0.0	0.036	7.6	LOS A	0.1	0.9	0.24	0.90	0.24	44.4
8	T1	All MCs	3	0.0	3	0.0	0.036	7.8	LOS A	0.1	0.9	0.24	0.90	0.24	44.4
9	R2	All MCs	26	4.0	26	4.0	0.036	8.1	LOS A	0.1	0.9	0.24	0.90	0.24	44.0
Approach			32	3.3	32	3.3	0.036	8.1	LOS A	0.1	0.9	0.24	0.90	0.24	44.1
West: Arcadia Dr															
10	L2	All MCs	108	2.9	108	2.9	0.087	4.6	LOS A	0.0	0.1	0.00	0.37	0.00	46.6
11	T1	All MCs	47	4.4	47	4.4	0.087	0.0	LOS A	0.0	0.1	0.00	0.37	0.00	47.9
12	R2	All MCs	1	0.0	1	0.0	0.087	4.6	LOS A	0.0	0.1	0.00	0.37	0.00	46.6
Approach			157	3.4	157	3.4	0.087	3.2	NA	0.0	0.1	0.00	0.37	0.00	47.0
All Vehicles			241	5.2	241	5.2	0.087	3.7	NA	0.1	0.9	0.05	0.43	0.05	46.8

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc2_AM_05_Safety Bay Rd / Boundary Rd (Site Folder: 2_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	4	0.0	4	0.0	0.537	4.4	LOS A	4.3	32.1	0.22	0.42	0.22	49.6
8	T1	All MCs	800	2.1	800	2.1	0.537	4.7	LOS A	4.3	32.1	0.22	0.42	0.22	53.2
Approach			804	2.1	804	2.1	0.537	4.7	LOS A	4.3	32.1	0.22	0.42	0.22	53.2
North: Safety Bay Rd															
2	T1	All MCs	127	7.4	127	7.4	0.107	4.5	LOS A	0.7	5.5	0.04	0.49	0.04	52.0
3	R2	All MCs	36	17.6	36	17.6	0.107	8.7	LOS A	0.7	5.5	0.04	0.49	0.04	48.6
Approach			163	9.7	163	9.7	0.107	5.4	LOS A	0.7	5.5	0.04	0.49	0.04	51.2
West: Boundary Rd															
4	L2	All MCs	63	3.3	63	3.3	0.109	9.6	LOS A	0.7	5.0	0.77	0.72	0.77	45.6
6	R2	All MCs	3	0.0	3	0.0	0.109	13.3	LOS B	0.7	5.0	0.77	0.72	0.77	46.0
Approach			66	3.2	66	3.2	0.109	9.8	LOS A	0.7	5.0	0.77	0.72	0.77	45.7
All Vehicles			1034	3.4	1034	3.4	0.537	5.1	LOS A	4.3	32.1	0.23	0.45	0.23	52.3

PM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

▽ Site: 101 [Sc2_PM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: 2_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	46	0.0	46	0.0	0.024	1.1	LOS A	0.0	0.0	0.00	0.20	0.00	58.3
6	R2	All MCs	113	5.6	113	5.6	0.069	5.8	LOS A	0.3	2.6	0.15	0.55	0.15	45.2
Approach			159	4.0	159	4.0	0.069	4.4	NA	0.3	2.6	0.11	0.45	0.11	48.4
North: HMAS Stirling Entrance															
7	L2	All MCs	1514	1.6	1514	1.6	0.986	14.5	LOS B	77.1	578.5	1.00	0.67	1.18	39.2
9	R2	All MCs	5	0.0	5	0.0	0.986	33.2	LOS D	77.1	578.5	1.00	0.67	1.18	40.8
Approach			1519	1.6	1519	1.6	0.986	14.6	LOS B	77.1	578.5	1.00	0.67	1.18	39.2
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.029	4.6	LOS A	0.0	0.0	0.00	0.01	0.00	48.7
11	T1	All MCs	56	3.8	56	3.8	0.029	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
Approach			57	3.7	57	3.7	0.029	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.9
All Vehicles			1735	1.9	1735	1.9	0.986	13.2	NA	77.1	578.5	0.89	0.63	1.05	40.2

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

▽ Site: 102 [Sc2_PM_08_Memorial Dr / Point Peron Rd (Site Folder: 2_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	27	0.0	27	0.0	0.042	5.0	LOS A	0.1	1.0	0.37	0.50	0.37	43.9
9	R2	All MCs	1	0.0	1	0.0	0.042	76.5	LOS F	0.1	1.0	0.37	0.50	0.37	47.1
Approach			28	0.0	28	0.0	0.042	7.6	LOS A	0.1	1.0	0.37	0.50	0.37	44.0
East: Point Peron Rd (E)															
10	L2	All MCs	2	0.0	2	0.0	0.072	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.4
11	T1	All MCs	133	4.8	133	4.8	0.072	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			135	4.7	135	4.7	0.072	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
West: Point Peron Rd (W)															
5	T1	All MCs	1411	1.6	1411	1.6	0.815	0.7	LOS A	5.5	41.1	0.12	0.12	0.16	58.3
6	R2	All MCs	156	2.0	156	2.0	0.815	7.6	LOS A	5.5	41.1	0.12	0.12	0.16	49.4
Approach			1566	1.6	1566	1.6	0.815	1.3	NA	5.5	41.1	0.12	0.12	0.16	57.2
All Vehicles			1729	1.8	1729	1.8	0.815	1.3	NA	5.5	41.1	0.11	0.12	0.15	57.1

Safety Bay Road / Point Peron Road

MOVEMENT SUMMARY

Site: 103 [Sc2_PM_02_Safety Bay Rd / Point Peron Rd (Site Folder: 2_PM Peak_Do Nothing)]

Network: N101 [PM Peak_2_Do Nothing (Network Folder: 2)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	108	5.8	108	5.8	0.100	2.9	LOS A	0.0	0.0	0.00	0.40	0.00	49.7
11	T1	All MCs	77	0.0	77	0.0	0.100	0.5	LOS A	0.0	0.0	0.00	0.40	0.00	56.4
Approach			185	3.4	185	3.4	0.100	1.9	NA	0.0	0.0	0.00	0.40	0.00	52.3
North: Hymus St															
5	T1	All MCs	112	0.9	112	0.9	0.056	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	All MCs	28	0.0	28	0.0	0.019	5.1	LOS A	0.1	0.6	0.29	0.49	0.29	48.5
Approach			140	0.8	140	0.8	0.056	1.0	NA	0.1	0.6	0.06	0.10	0.06	49.5
West: Point Peron Rd															
7	L2	All MCs	95	4.4	95	4.4	0.064	8.4	LOS A	0.3	2.1	0.17	0.54	0.17	48.5
9	R2	All MCs	1309	1.4	1309	1.4	1.689	636.0	LOS F	346.0	2587.7	1.00	8.92	20.31	2.8
Approach			1404	1.6	1404	1.6	1.689	593.7	LOS F	346.0	2587.7	0.94	8.36	18.95	3.2
All Vehicles			1729	1.7	1729	1.7	1.689	482.3	NA	346.0	2587.7	0.77	6.84	15.39	3.9

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104 [Sc2_PM_03_Safety Bay Rd / Parkin St (Site Folder: 2_PM Peak_Do Nothing)]

Network: N101 [PM Peak_2_Do Nothing (Network Folder: 2)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	104	0.0	104	0.0	0.052	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	120	8.8	120	8.8	0.252	13.9	LOS B	0.9	7.7	0.75	0.92	0.85	43.0
Approach			224	4.7	224	4.7	0.252	7.4	NA	0.9	7.7	0.40	0.49	0.45	46.4
East: Parkin St															
7	L2	All MCs	181	2.9	181	2.9	0.242	8.5	LOS A	0.9	7.1	0.50	0.71	0.50	48.8
9	R2	All MCs	81	7.8	81	7.8	0.406	30.1	LOS D	1.5	12.4	0.85	1.03	1.15	30.5
Approach			262	4.4	262	4.4	0.406	15.1	LOS C	1.5	12.4	0.61	0.81	0.70	43.1
North: Safety Bay Rd															
10	L2	All MCs	803	2.0	501	1.9	0.459	2.9	LOS A	0.0	0.0	0.00	0.31	0.00	51.8
11	T1	All MCs	617	0.5	385	0.5	0.459	0.0	LOS A	0.0	0.0	0.00	0.31	0.00	55.3
Approach			1420	1.3	886	1.3	0.459	1.6	NA	0.0	0.0	0.00	0.31	0.00	52.9
All Vehicles			1906	2.2	1372	3.0	0.459	5.2	NA	1.5	12.4	0.18	0.43	0.21	48.7

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

▽ Site: 105 [Sc2_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	12	0.0	12	0.0	0.130	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	57.2
11	T1	All MCs	238	4.4	238	4.4	0.130	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
Approach			249	4.2	249	4.2	0.130	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.5
North: Safety Bay Rd															
5	T1	All MCs	801	1.2	801	1.2	0.403	0.0	LOS A	0.0	0.2	0.00	0.00	0.00	59.9
6	R2	All MCs	3	0.0	3	0.0	0.403	5.6	LOS A	0.0	0.2	0.00	0.00	0.00	51.3
Approach			804	1.2	804	1.2	0.403	0.0	NA	0.0	0.2	0.00	0.00	0.00	59.9
West: Memorial Dr															
7	L2	All MCs	3	0.0	3	0.0	0.032	5.3	LOS A	0.1	0.7	0.62	0.72	0.62	41.9
9	R2	All MCs	8	12.5	8	12.5	0.032	15.0	LOS C	0.1	0.7	0.62	0.72	0.62	41.7
Approach			12	9.1	12	9.1	0.032	12.4	LOS B	0.1	0.7	0.62	0.72	0.62	41.8
All Vehicles			1065	2.0	1065	2.0	0.403	0.2	NA	0.1	0.7	0.01	0.02	0.01	59.5

Memorial Drive / Lease Road

MOVEMENT SUMMARY

▽ Site: 106 [Sc2_PM_07_Memorial Dr / Lease Rd (Site Folder: 2_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	21	0.0	21	0.0	0.014	4.6	LOS A	0.1	0.4	0.06	0.51	0.06	45.8
9	R2	All MCs	1	0.0	1	0.0	0.014	4.9	LOS A	0.1	0.4	0.06	0.51	0.06	45.6
Approach			22	0.0	22	0.0	0.014	4.6	LOS A	0.1	0.4	0.06	0.51	0.06	45.8
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.008	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	48.6
11	T1	All MCs	15	0.0	15	0.0	0.008	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.8
Approach			16	0.0	16	0.0	0.008	0.3	NA	0.0	0.0	0.00	0.04	0.00	49.7
West: Memorial Dr															
5	T1	All MCs	12	9.1	12	9.1	0.089	0.0	LOS A	0.4	3.2	0.07	0.49	0.07	47.1
6	R2	All MCs	146	1.4	146	1.4	0.089	4.6	LOS A	0.4	3.2	0.07	0.49	0.07	45.7
Approach			158	2.0	158	2.0	0.089	4.3	NA	0.4	3.2	0.07	0.49	0.07	45.8
All Vehicles			196	1.6	196	1.6	0.089	4.0	NA	0.4	3.2	0.06	0.46	0.06	46.1

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2_PM_06_Boundary Rd / Lease Rd (Site Folder: 2_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	100.0	1	100.0	0.013	15.7	LOS C	0.0	0.4	0.28	0.95	0.28	40.1
2	T1	All MCs	2	0.0	2	0.0	0.013	8.0	LOS A	0.0	0.4	0.28	0.95	0.28	43.9
3	R2	All MCs	7	14.3	7	14.3	0.013	9.1	LOS A	0.0	0.4	0.28	0.95	0.28	43.1
Approach			11	20.0	11	20.0	0.013	9.5	LOS A	0.0	0.4	0.28	0.95	0.28	42.9
East: Boundary Rd															
4	L2	All MCs	6	0.0	6	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.5
5	T1	All MCs	96	1.1	96	1.1	0.054	0.0	LOS A	0.0	0.1	0.01	0.04	0.01	49.8
6	R2	All MCs	1	0.0	1	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.3
Approach			103	1.0	103	1.0	0.054	0.3	NA	0.0	0.1	0.01	0.04	0.01	49.7
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.174	7.7	LOS A	0.6	4.8	0.32	0.90	0.32	44.2
8	T1	All MCs	6	0.0	6	0.0	0.174	8.2	LOS A	0.6	4.8	0.32	0.90	0.32	44.2
9	R2	All MCs	139	1.5	139	1.5	0.174	8.3	LOS A	0.6	4.8	0.32	0.90	0.32	44.0
Approach			146	1.4	146	1.4	0.174	8.3	LOS A	0.6	4.8	0.32	0.90	0.32	44.0
West: Arcadia Dr															
10	L2	All MCs	19	0.0	19	0.0	0.049	4.6	LOS A	0.0	0.1	0.02	0.13	0.02	48.0
11	T1	All MCs	69	3.0	69	3.0	0.049	0.0	LOS A	0.0	0.1	0.02	0.13	0.02	49.2
12	R2	All MCs	2	0.0	2	0.0	0.049	4.7	LOS A	0.0	0.1	0.02	0.13	0.02	47.8
Approach			91	2.3	91	2.3	0.049	1.1	NA	0.0	0.1	0.02	0.13	0.02	48.9
All Vehicles			351	2.1	351	2.1	0.174	4.1	NA	0.6	4.8	0.15	0.45	0.15	46.8

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc2_PM_05_Safety Bay Rd / Boundary Rd (Site Folder: 2_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	7	0.0	7	0.0	0.174	4.7	LOS A	0.9	6.7	0.27	0.45	0.27	49.5
8	T1	All MCs	204	4.1	204	4.1	0.174	5.0	LOS A	0.9	6.7	0.27	0.45	0.27	52.5
Approach			212	4.0	212	4.0	0.174	5.0	LOS A	0.9	6.7	0.27	0.45	0.27	52.4
North: Safety Bay Rd															
2	T1	All MCs	764	1.0	764	1.0	0.525	4.4	LOS A	5.0	37.2	0.07	0.46	0.07	53.8
3	R2	All MCs	107	2.0	107	2.0	0.525	8.4	LOS A	5.0	37.2	0.07	0.46	0.07	49.4
Approach			872	1.1	872	1.1	0.525	4.9	LOS A	5.0	37.2	0.07	0.46	0.07	53.2
West: Boundary Rd															
4	L2	All MCs	80	3.9	80	3.9	0.080	4.4	LOS A	0.4	3.4	0.42	0.51	0.42	48.4
6	R2	All MCs	4	0.0	4	0.0	0.080	8.3	LOS A	0.4	3.4	0.42	0.51	0.42	49.0
Approach			84	3.8	84	3.8	0.080	4.6	LOS A	0.4	3.4	0.42	0.51	0.42	48.5
All Vehicles			1167	1.8	1167	1.8	0.525	4.9	LOS A	5.0	37.2	0.13	0.46	0.13	52.7

Scenario 2.1a – 2030 GIH/HMAS RA + Staggered RAs

AM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101v [Sc2.1a_AM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 2.1a_AM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	53	12.0	53	12.0	1.040	63.1	LOS E	57.5	437.5	1.00	2.59	4.44	25.3
2	T1	All MCs	1057	2.6	1057	2.6	1.040	62.4	LOS E	57.5	437.5	1.00	2.59	4.44	25.5
3	R2	All MCs	1	0.0	1	0.0	0.002	12.0	LOS B	0.0	0.1	0.52	0.61	0.52	47.2
Approach			1111	3.0	1111	3.0	1.040	62.4	LOS E	57.5	437.5	1.00	2.58	4.43	25.5
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.025	4.5	LOS A	0.1	1.0	0.29	0.39	0.29	52.6
5	T1	All MCs	24	8.7	24	8.7	0.025	4.6	LOS A	0.1	1.0	0.29	0.39	0.29	50.2
6	R2	All MCs	438	0.2	438	0.2	0.273	9.4	LOS A	1.8	13.5	0.30	0.59	0.30	46.9
Approach			463	0.7	463	0.7	0.273	9.2	LOS A	1.8	13.5	0.30	0.58	0.30	47.1
North: HMAS Stirling Entrance															
7	L2	All MCs	65	0.0	65	0.0	0.098	2.7	LOS A	0.6	5.0	0.16	0.32	0.16	50.8
8	T1	All MCs	71	14.9	71	14.9	0.098	2.6	LOS A	0.6	5.0	0.16	0.32	0.16	47.2
9	R2	All MCs	1	0.0	1	0.0	0.098	7.5	LOS A	0.6	5.0	0.16	0.32	0.16	47.0
Approach			137	7.7	137	7.7	0.098	2.7	LOS A	0.6	5.0	0.16	0.32	0.16	49.0
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.090	8.4	LOS A	0.4	3.5	0.82	0.87	0.82	42.8
11	T1	All MCs	9	0.0	9	0.0	0.090	8.3	LOS A	0.4	3.5	0.82	0.87	0.82	45.8
12	R2	All MCs	22	9.5	22	9.5	0.090	13.9	LOS B	0.4	3.5	0.82	0.87	0.82	41.5
Approach			33	6.5	33	6.5	0.090	12.1	LOS B	0.4	3.5	0.82	0.87	0.82	42.9
All Vehicles			1743	2.8	1743	2.8	1.040	42.6	LOS D	57.5	437.5	0.74	1.84	2.93	31.4

Safety Bay Road / Point Peron Road / Hymus Street

MOVEMENT SUMMARY

Site: 103v [Sc2.1a_AM_02_Safety Bay Rd / Point Peron Rd / Hymus St (Site Folder: 2.1a_AM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM Peak_2.1a_Staggered RA (Network Folder: 2.1a)]

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	362	0.9	362	0.9	0.331	3.0	LOS A	2.1	15.9	0.32	0.48	0.32	50.8
11	T1	All MCs	61	6.9	61	6.9	0.331	3.5	LOS A	2.1	15.9	0.32	0.48	0.32	45.3
Approach			423	1.7	423	1.7	0.331	3.1	LOS A	2.1	15.9	0.32	0.48	0.32	49.9
North: Hymus St															
5	T1	All MCs	51	8.3	51	8.3	0.121	4.0	LOS A	0.6	4.7	0.20	0.55	0.20	42.6
6	R2	All MCs	105	0.0	105	0.0	0.121	7.2	LOS A	0.6	4.7	0.20	0.55	0.20	47.8
Approach			156	2.7	156	2.7	0.121	6.2	LOS A	0.6	4.7	0.20	0.55	0.20	46.6
West: Point Peron Rd															
7	L2	All MCs	15	0.0	15	0.0	0.060	4.8	LOS A	0.2	1.8	0.16	0.61	0.16	47.9
9	R2	All MCs	61	1.7	61	1.7	0.060	8.3	LOS A	0.2	1.8	0.16	0.61	0.16	47.9
Approach			76	1.4	76	1.4	0.060	7.6	LOS A	0.2	1.8	0.16	0.61	0.16	47.9
All Vehicles			655	1.9	655	1.9	0.331	4.3	LOS A	2.1	15.9	0.28	0.51	0.28	48.6

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104v [Sc2.1a_AM_03_Safety Bay Rd / Parkin St / Hymus St (Site Folder: 2.1a_AM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM Peak_2.1a_Staggered RA (Network Folder: 2.1a)]

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	64	11.5	64	11.5	0.169	7.2	LOS A	0.9	7.2	0.52	0.65	0.52	41.0
6	R2	All MCs	91	5.8	91	5.8	0.169	10.3	LOS B	0.9	7.2	0.52	0.65	0.52	46.6
Approach			155	8.2	155	8.2	0.169	9.0	LOS A	0.9	7.2	0.52	0.65	0.52	45.2
East: Parkin St															
7	L2	All MCs	240	3.5	240	3.5	0.409	4.8	LOS A	2.7	20.3	0.20	0.58	0.20	49.4
9	R2	All MCs	359	0.0	359	0.0	0.409	8.3	LOS A	2.7	20.3	0.20	0.58	0.20	48.6
Approach			599	1.4	599	1.4	0.409	6.9	LOS A	2.7	20.3	0.20	0.58	0.20	49.0
North: Hymus St															
10	L2	All MCs	69	0.0	69	0.0	0.094	2.8	LOS A	0.5	3.9	0.27	0.46	0.27	51.3
11	T1	All MCs	41	12.8	41	12.8	0.094	3.4	LOS A	0.5	3.9	0.27	0.46	0.27	43.5
Approach			111	4.8	111	4.8	0.094	3.0	LOS A	0.5	3.9	0.27	0.46	0.27	48.9
All Vehicles			864	3.0	864	3.0	0.409	6.8	LOS A	2.7	20.3	0.26	0.57	0.26	48.3

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc2.1a_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2.1a_AM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	22	0.0	22	0.0	0.085	5.6	LOS A	0.0	0.0	0.00	0.08	0.00	56.7
11	T1	All MCs	134	9.4	134	9.4	0.085	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	58.9
Approach			156	8.1	156	8.1	0.085	0.8	NA	0.0	0.0	0.00	0.08	0.00	58.5
North: Safety Bay Rd															
5	T1	All MCs	97	14.1	97	14.1	0.179	0.5	LOS A	0.9	7.1	0.29	0.43	0.29	54.5
6	R2	All MCs	197	0.0	197	0.0	0.179	6.0	LOS A	0.9	7.1	0.29	0.43	0.29	47.3
Approach			294	4.7	294	4.7	0.179	4.2	NA	0.9	7.1	0.29	0.43	0.29	49.4
West: Memorial Dr															
7	L2	All MCs	4	0.0	4	0.0	0.008	4.9	LOS A	0.0	0.2	0.31	0.52	0.31	46.1
9	R2	All MCs	3	33.3	3	33.3	0.008	7.7	LOS A	0.0	0.2	0.31	0.52	0.31	40.6
Approach			7	14.3	7	14.3	0.008	6.1	LOS A	0.0	0.2	0.31	0.52	0.31	43.3
All Vehicles			457	6.0	457	6.0	0.179	3.1	NA	0.9	7.1	0.19	0.32	0.19	52.1

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc2.1a_AM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 2.1a_AM Peak_HMAS RA+Staggered RA)]

Network: N101 [AM Peak_2.1a_Safety Bay-Boundary-GIH (Network Folder: 2.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	594	0.0	594	0.0	0.562	5.4	LOS A	4.5	33.4	0.64	0.55	0.64	49.3
8	T1	All MCs	57	0.0	57	0.0	0.562	5.8	LOS A	4.5	33.4	0.64	0.55	0.64	53.2
3b	R3	All MCs	1	0.0	1	0.0	0.562	12.1	LOS B	4.5	33.4	0.64	0.55	0.64	52.3
Approach			652	0.0	652	0.0	0.562	5.4	LOS A	4.5	33.4	0.64	0.55	0.64	49.9
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	0.0	1	0.0	0.189	4.5	LOS A	1.1	9.3	0.34	0.42	0.34	53.3
22	T1	All MCs	193	18.6	193	18.6	0.189	4.7	LOS A	1.1	9.3	0.34	0.42	0.34	50.7
23a	R1	All MCs	21	70.0	21	70.0	0.189	10.1	LOS B	1.1	9.3	0.34	0.42	0.34	38.5
Approach			215	23.5	215	23.5	0.189	5.3	LOS A	1.1	9.3	0.34	0.42	0.34	48.1
North: Safety Bay Rd															
7a	L1	All MCs	27	50.0	27	50.0	0.092	4.4	LOS A	0.5	3.8	0.23	0.47	0.23	43.6
2	T1	All MCs	53	0.0	53	0.0	0.092	4.1	LOS A	0.5	3.8	0.23	0.47	0.23	53.4
9b	R3	All MCs	29	3.6	29	3.6	0.092	10.5	LOS B	0.5	3.8	0.23	0.47	0.23	49.8
Approach			109	13.5	109	13.5	0.092	5.9	LOS A	0.5	3.8	0.23	0.47	0.23	49.6
NorthWest: Garden Island Hwy															
27b	L3	All MCs	54	2.0	54	2.0	0.099	2.3	LOS A	0.6	4.7	0.28	0.49	0.28	50.2
28	T1	All MCs	27	53.8	27	53.8	0.099	3.0	LOS A	0.6	4.7	0.28	0.49	0.28	36.1
29a	R1	All MCs	41	0.0	41	0.0	0.099	6.2	LOS A	0.6	4.7	0.28	0.49	0.28	50.5
Approach			122	12.9	122	12.9	0.099	3.8	LOS A	0.6	4.7	0.28	0.49	0.28	46.3
All Vehicles			1098	7.4	1098	7.4	0.562	5.3	LOS A	4.5	33.4	0.50	0.51	0.50	49.1

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc2.1a_AM_09_Boundary Rd / Garden Island Hwy (Site Folder: 2.1a_AM Peak_HMAS RA+Staggered RA)]

Network: N101 [AM Peak_2.1a_Safety Bay-Boundary-GIH (Network Folder: 2.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	38	13.9	38	13.9	0.436	3.3	LOS A	0.0	0.0	0.00	0.03	0.00	47.7
11	T1	All MCs	776	4.2	776	4.2	0.436	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.4
Approach			814	4.7	814	4.7	0.436	0.2	NA	0.0	0.0	0.00	0.03	0.00	58.8
NorthWest: Garden Island Hwy															
5	T1	All MCs	61	20.7	61	20.7	0.042	0.2	LOS A	0.0	0.2	0.03	0.04	0.03	59.3
6	R2	All MCs	1	0.0	1	0.0	0.042	10.1	LOS B	0.0	0.2	0.03	0.04	0.03	56.9
Approach			62	20.3	62	20.3	0.042	0.3	NA	0.0	0.2	0.03	0.04	0.03	59.3
SouthWest: Boundary Rd															
7	L2	All MCs	2	0.0	2	0.0	0.148	9.9	LOS A	0.4	3.5	0.69	0.87	0.69	48.2
9	R2	All MCs	61	5.2	61	5.2	0.148	12.4	LOS B	0.4	3.5	0.69	0.87	0.69	42.9
Approach			63	5.0	63	5.0	0.148	12.3	LOS B	0.4	3.5	0.69	0.87	0.69	43.2
All Vehicles			939	5.7	939	5.7	0.436	1.0	NA	0.4	3.5	0.05	0.08	0.05	57.4

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2.1a_AM_06_Boundary Rd / Lease Rd (Site Folder: 2.1a_AM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.012	7.6	LOS A	0.0	0.3	0.20	0.91	0.20	44.4
2	T1	All MCs	4	0.0	4	0.0	0.012	8.1	LOS A	0.0	0.3	0.20	0.91	0.20	44.4
3	R2	All MCs	6	0.0	6	0.0	0.012	7.4	LOS A	0.0	0.3	0.20	0.91	0.20	44.3
Approach			12	0.0	12	0.0	0.012	7.7	LOS A	0.0	0.3	0.20	0.91	0.20	44.3
East: Boundary Rd															
4	L2	All MCs	2	0.0	2	0.0	0.022	4.9	LOS A	0.0	0.2	0.06	0.10	0.06	48.1
5	T1	All MCs	33	16.1	33	16.1	0.022	0.1	LOS A	0.0	0.2	0.06	0.10	0.06	49.3
6	R2	All MCs	3	0.0	3	0.0	0.022	5.0	LOS A	0.0	0.2	0.06	0.10	0.06	47.9
Approach			38	13.9	38	13.9	0.022	0.7	NA	0.0	0.2	0.06	0.10	0.06	49.2
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.031	7.6	LOS A	0.1	0.7	0.24	0.89	0.24	44.4
8	T1	All MCs	2	0.0	2	0.0	0.031	7.8	LOS A	0.1	0.7	0.24	0.89	0.24	44.4
9	R2	All MCs	24	0.0	24	0.0	0.031	7.8	LOS A	0.1	0.7	0.24	0.89	0.24	44.2
Approach			27	0.0	27	0.0	0.031	7.8	LOS A	0.1	0.7	0.24	0.89	0.24	44.2
West: Arcadia Dr															
10	L2	All MCs	115	0.9	115	0.9	0.088	4.6	LOS A	0.0	0.2	0.01	0.39	0.01	46.6
11	T1	All MCs	44	7.1	44	7.1	0.088	0.0	LOS A	0.0	0.2	0.01	0.39	0.01	47.8
12	R2	All MCs	3	0.0	3	0.0	0.088	4.6	LOS A	0.0	0.2	0.01	0.39	0.01	46.5
Approach			162	2.6	162	2.6	0.088	3.3	NA	0.0	0.2	0.01	0.39	0.01	46.9
All Vehicles			239	4.0	239	4.0	0.088	3.6	NA	0.1	0.7	0.05	0.42	0.05	46.8

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc2.1a_AM_07_Memorial Dr / Garden Island Hwy (Site Folder: 2.1a_AM Peak_HMAS RA+Staggered RA)]

Network: N101 [AM Peak_2.1a_GIH-Memorial-Lease (Network Folder: 2.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.773	7.5	LOS A	11.5	88.1	0.86	0.67	0.96	42.4
11	T1	All MCs	897	3.8	897	3.8	0.773	8.0	LOS A	11.5	88.1	0.86	0.67	0.96	46.5
3	R2	All MCs	1	0.0	1	0.0	0.773	12.3	LOS B	11.5	88.1	0.86	0.67	0.96	46.6
Approach			899	3.7	899	3.7	0.773	8.0	LOS A	11.5	88.1	0.86	0.67	0.96	46.5
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.171	4.5	LOS A	1.1	7.5	0.31	0.44	0.31	50.3
5	T1	All MCs	199	0.0	199	0.0	0.171	4.7	LOS A	1.1	7.5	0.31	0.44	0.31	53.6
6	R2	All MCs	20	0.0	20	0.0	0.171	9.3	LOS A	1.1	7.5	0.31	0.44	0.31	52.7
Approach			220	0.0	220	0.0	0.171	5.1	LOS A	1.1	7.5	0.31	0.44	0.31	53.5
North: Garden Island Hwy															
7	L2	All MCs	4	25.0	4	25.0	0.064	4.2	LOS A	0.4	3.6	0.05	0.40	0.05	48.5
5	T1	All MCs	89	12.9	89	12.9	0.064	4.2	LOS A	0.4	3.6	0.05	0.40	0.05	52.8
6	R2	All MCs	1	0.0	1	0.0	0.064	8.7	LOS A	0.4	3.6	0.05	0.40	0.05	50.2
Approach			95	13.3	95	13.3	0.064	4.3	LOS A	0.4	3.6	0.05	0.40	0.05	52.3
West: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.010	10.5	LOS B	0.1	0.5	0.92	0.66	0.92	47.0
11	T1	All MCs	2	0.0	2	0.0	0.010	11.8	LOS B	0.1	0.5	0.92	0.66	0.92	47.2
9	R2	All MCs	1	0.0	1	0.0	0.010	15.0	LOS B	0.1	0.5	0.92	0.66	0.92	40.4
Approach			4	0.0	4	0.0	0.010	12.3	LOS B	0.1	0.5	0.92	0.66	0.92	46.0
All Vehicles			1218	3.8	1218	3.8	0.773	7.2	LOS A	11.5	88.1	0.69	0.60	0.77	48.6

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc2.1a_AM_10_Garden Island Hwy / Lease Rd (Site Folder: 2.1a_AM Peak_HMAS RA+Staggered RA)]

Network: N101 [AM Peak_2.1a_GIH-Memorial-Lease (Network Folder: 2.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	778	4.2	778	4.2	0.472	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	49.7
Approach			778	4.2	778	4.2	0.472	0.3	NA	0.0	0.0	0.00	0.00	0.00	49.7
North: Garden Island Hwy															
5	T1	All MCs	62	20.3	62	20.3	0.079	2.5	LOS A	0.3	3.1	0.44	0.54	0.44	44.9
6	R2	All MCs	28	0.0	28	0.0	0.079	8.9	LOS A	0.3	3.1	0.44	0.54	0.44	43.0
Approach			91	14.0	91	14.0	0.079	4.5	NA	0.3	3.1	0.44	0.54	0.44	44.3
West: Lease Rd															
7	L2	All MCs	121	0.9	121	0.9	0.214	9.4	LOS A	0.7	5.2	0.66	0.85	0.69	39.9
Approach			121	0.9	121	0.9	0.214	9.4	LOS A	0.7	5.2	0.66	0.85	0.69	39.9
All Vehicles			989	4.7	989	4.7	0.472	1.8	NA	0.7	5.2	0.12	0.15	0.13	47.6

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc2.1a_AM_11_Memorial Dr / Garden Island Hwy (Site Folder: 2.1a_AM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	199	0.5	199	0.5	0.335	12.4	LOS B	2.3	17.1	0.88	0.77	0.88	42.5
9	R2	All MCs	1	0.0	1	0.0	0.335	16.8	LOS B	2.3	17.1	0.88	0.77	0.88	44.6
Approach			200	0.5	200	0.5	0.335	12.4	LOS B	2.3	17.1	0.88	0.77	0.88	42.5
East: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.537	3.8	LOS A	5.0	38.4	0.03	0.40	0.03	50.8
11	T1	All MCs	914	3.7	914	3.7	0.537	4.1	LOS A	5.0	38.4	0.03	0.40	0.03	53.4
Approach			915	3.7	915	3.7	0.537	4.1	LOS A	5.0	38.4	0.03	0.40	0.03	53.4
West: Garden Island Hwy															
5	T1	All MCs	93	13.6	93	13.6	0.060	4.2	LOS A	0.4	3.6	0.02	0.41	0.02	50.1
6	R2	All MCs	1	0.0	1	0.0	0.060	8.7	LOS A	0.4	3.6	0.02	0.41	0.02	48.6
Approach			94	13.5	94	13.5	0.060	4.3	LOS A	0.4	3.6	0.02	0.41	0.02	50.1
All Vehicles			1208	3.9	1208	3.9	0.537	5.5	LOS A	5.0	38.4	0.17	0.46	0.17	51.0

PM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101v [Sc2.1a_PM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 2.1a_PM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	24	0.0	24	0.0	0.070	4.1	LOS A	0.4	3.0	0.25	0.40	0.25	48.4
2	T1	All MCs	65	6.5	65	6.5	0.070	4.2	LOS A	0.4	3.0	0.25	0.40	0.25	48.7
3	R2	All MCs	1	0.0	1	0.0	0.001	9.5	LOS A	0.0	0.0	0.27	0.57	0.27	48.5
Approach			91	4.7	91	4.7	0.070	4.2	LOS A	0.4	3.0	0.25	0.40	0.25	48.6
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.051	8.5	LOS A	0.4	2.6	0.83	0.70	0.83	49.7
5	T1	All MCs	29	0.0	29	0.0	0.051	8.5	LOS A	0.4	2.6	0.83	0.70	0.83	48.1
6	R2	All MCs	52	0.0	52	0.0	0.064	12.5	LOS B	0.5	3.8	0.85	0.70	0.85	45.5
Approach			82	0.0	82	0.0	0.064	11.0	LOS B	0.5	3.8	0.85	0.70	0.85	46.4
North: HMAS Stirling Entrance															
7	L2	All MCs	828	0.1	828	0.1	0.966	5.4	LOS A	48.6	363.8	1.00	0.50	1.01	47.9
8	T1	All MCs	694	2.9	694	2.9	0.966	5.3	LOS A	48.6	363.8	1.00	0.50	1.01	45.8
9	R2	All MCs	4	0.0	4	0.0	0.966	10.2	LOS B	48.6	363.8	1.00	0.50	1.01	44.5
Approach			1526	1.4	1526	1.4	0.966	5.4	LOS A	48.6	363.8	1.00	0.50	1.01	47.0
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.048	3.0	LOS A	0.2	1.5	0.24	0.50	0.24	45.7
11	T1	All MCs	21	0.0	21	0.0	0.048	2.8	LOS A	0.2	1.5	0.24	0.50	0.24	49.1
12	R2	All MCs	32	6.7	32	6.7	0.048	7.9	LOS A	0.2	1.5	0.24	0.50	0.24	45.3
Approach			54	3.9	54	3.9	0.048	5.8	LOS A	0.2	1.5	0.24	0.50	0.24	46.9
All Vehicles			1753	1.6	1753	1.6	0.966	5.6	LOS A	48.6	363.8	0.93	0.51	0.94	47.1

Safety Bay Road / Point Peron Road / Hymus Street

MOVEMENT SUMMARY

Site: 103v [Sc2.1a_PM_02_Safety Bay Rd / Point Peron Rd / Hymus St (Site Folder: 2.1a_PM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [PM Peak_2.1a_Staggered RA (Network Folder: 2.1a)]

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	58	0.0	58	0.0	0.096	2.5	LOS A	0.2	1.7	0.14	0.43	0.14	51.6
11	T1	All MCs	77	0.0	77	0.0	0.096	2.9	LOS A	0.2	1.7	0.14	0.43	0.14	45.9
Approach			135	0.0	135	0.0	0.096	2.7	LOS A	0.2	1.7	0.14	0.43	0.14	48.2
North: Hymus St															
5	T1	All MCs	107	2.0	107	2.0	0.231	9.0	LOS A	0.5	3.8	0.77	0.72	0.77	39.9
6	R2	All MCs	26	0.0	26	0.0	0.231	12.2	LOS B	0.5	3.8	0.77	0.72	0.77	46.0
Approach			134	1.6	134	1.6	0.231	9.6	LOS A	0.5	3.8	0.77	0.72	0.77	41.7
West: Point Peron Rd															
7	L2	All MCs	88	0.0	88	0.0	0.682	5.2	LOS A	2.2	16.0	0.37	0.58	0.37	47.2
9	R2	All MCs	752	0.1	752	0.1	0.682	8.6	LOS A	2.2	16.0	0.37	0.58	0.37	46.6
Approach			840	0.1	840	0.1	0.682	8.3	LOS A	2.2	16.0	0.37	0.58	0.37	46.8
All Vehicles			1108	0.3	1108	0.3	0.682	7.8	LOS A	2.2	16.0	0.39	0.58	0.39	46.2

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104v [Sc2.1a_PM_03_Safety Bay Rd / Parkin St / Hymus St (Site Folder: 2.1a_PM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [PM Peak_2.1a_Staggered RA (Network Folder: 2.1a)]

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	63	0.0	63	0.0	0.144	5.1	LOS A	0.3	2.4	0.23	0.57	0.23	43.1
6	R2	All MCs	118	7.1	118	7.1	0.144	8.6	LOS A	0.3	2.4	0.23	0.57	0.23	47.2
Approach			181	4.7	181	4.7	0.144	7.4	LOS A	0.3	2.4	0.23	0.57	0.23	46.4
East: Parkin St															
7	L2	All MCs	169	1.9	169	1.9	0.192	5.0	LOS A	0.4	3.1	0.28	0.56	0.28	50.3
9	R2	All MCs	73	0.0	73	0.0	0.192	8.5	LOS A	0.4	3.1	0.28	0.56	0.28	49.5
Approach			242	1.3	242	1.3	0.192	6.1	LOS A	0.4	3.1	0.28	0.56	0.28	50.1
North: Hymus St															
10	L2	All MCs	759	0.0	759	0.0	0.652	3.6	LOS A	2.6	19.4	0.53	0.51	0.53	50.6
11	T1	All MCs	100	3.2	100	3.2	0.652	4.1	LOS A	2.6	19.4	0.53	0.51	0.53	46.1
Approach			859	0.4	859	0.4	0.652	3.6	LOS A	2.6	19.4	0.53	0.51	0.53	50.2
All Vehicles			1282	1.1	1282	1.1	0.652	4.6	LOS A	2.6	19.4	0.44	0.52	0.44	49.5

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc2.1a_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2.1a_PM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1	0.0	1	0.0	0.100	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
11	T1	All MCs	192	4.4	192	4.4	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			193	4.4	193	4.4	0.100	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Safety Bay Rd															
5	T1	All MCs	272	2.3	272	2.3	0.141	0.0	LOS A	0.0	0.2	0.01	0.01	0.01	59.8
6	R2	All MCs	4	0.0	4	0.0	0.141	5.7	LOS A	0.0	0.2	0.01	0.01	0.01	51.2
Approach			276	2.3	276	2.3	0.141	0.1	NA	0.0	0.2	0.01	0.01	0.01	59.7
West: Memorial Dr															
7	L2	All MCs	5	0.0	5	0.0	0.005	5.1	LOS A	0.0	0.1	0.29	0.51	0.29	46.2
9	R2	All MCs	1	0.0	1	0.0	0.005	6.4	LOS A	0.0	0.1	0.29	0.51	0.29	48.2
Approach			6	0.0	6	0.0	0.005	5.3	LOS A	0.0	0.1	0.29	0.51	0.29	46.6
All Vehicles			475	3.1	475	3.1	0.141	0.1	NA	0.0	0.2	0.01	0.01	0.01	59.5

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc2.1a_PM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 2.1a_PM Peak_HMAS RA+Staggered RA)]

Network: N101 [PM Peak_2.1a_Safety Bay-Boundary-GIH (Network Folder: 2.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	52	0.0	52	0.0	0.145	4.1	LOS A	0.3	2.4	0.36	0.43	0.36	50.9
8	T1	All MCs	122	0.0	122	0.0	0.145	4.5	LOS A	0.3	2.4	0.36	0.43	0.36	54.1
3b	R3	All MCs	1	0.0	1	0.0	0.145	10.8	LOS B	0.3	2.4	0.36	0.43	0.36	53.2
Approach			175	0.0	175	0.0	0.145	4.4	LOS A	0.3	2.4	0.36	0.43	0.36	53.5
SouthEast: Garden Island Hwy															
21b	L3	All MCs	2	50.0	2	50.0	0.096	10.9	LOS B	0.2	1.9	0.73	0.70	0.73	40.4
22	T1	All MCs	32	16.7	32	16.7	0.096	8.9	LOS A	0.2	1.9	0.73	0.70	0.73	45.2
23a	R1	All MCs	27	30.8	27	30.8	0.096	13.9	LOS B	0.2	1.9	0.73	0.70	0.73	43.1
Approach			61	24.1	61	24.1	0.096	11.2	LOS B	0.2	1.9	0.73	0.70	0.73	43.7
North: Safety Bay Rd															
7a	L1	All MCs	39	13.5	39	13.5	0.421	8.3	LOS A	1.2	8.8	0.79	0.72	0.80	48.1
2	T1	All MCs	196	0.0	196	0.0	0.421	8.0	LOS A	1.2	8.8	0.79	0.72	0.80	50.9
9b	R3	All MCs	96	0.0	96	0.0	0.421	14.3	LOS B	1.2	8.8	0.79	0.72	0.80	45.8
Approach			331	1.6	331	1.6	0.421	9.9	LOS A	1.2	8.8	0.79	0.72	0.80	49.5
NorthWest: Garden Island Hwy															
27b	L3	All MCs	75	0.0	75	0.0	0.512	3.1	LOS A	1.8	13.3	0.52	0.55	0.52	49.0
28	T1	All MCs	183	12.1	183	12.1	0.512	3.7	LOS A	1.8	13.3	0.52	0.55	0.52	45.7
29a	R1	All MCs	398	0.0	398	0.0	0.512	7.0	LOS A	1.8	13.3	0.52	0.55	0.52	48.6
Approach			656	3.4	656	3.4	0.512	5.6	LOS A	1.8	13.3	0.52	0.55	0.52	47.8
All Vehicles			1222	3.4	1222	3.4	0.512	6.9	LOS A	1.8	13.3	0.58	0.59	0.58	49.0

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc2.1a_PM_09_Boundary Rd / Garden Island Hwy (Site Folder: 2.1a_PM Peak_HMAS RA+Staggered RA)]

Network: N101 [PM Peak_2.1a_Safety Bay-Boundary-GIH (Network Folder: 2.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	105	1.0	105	1.0	0.097	3.3	LOS A	0.0	0.0	0.00	0.33	0.00	52.0
11	T1	All MCs	72	5.9	72	5.9	0.097	0.0	LOS A	0.0	0.0	0.00	0.33	0.00	56.5
Approach			177	3.0	177	3.0	0.097	2.0	NA	0.0	0.0	0.00	0.33	0.00	53.7
NorthWest: Garden Island Hwy															
5	T1	All MCs	575	3.7	575	3.7	0.316	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	1	0.0	1	0.0	0.316	5.5	LOS A	0.0	0.0	0.00	0.00	0.00	57.2
Approach			576	3.7	576	3.7	0.316	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
SouthWest: Boundary Rd															
7	L2	All MCs	1	0.0	1	0.0	0.143	5.8	LOS A	0.2	1.3	0.55	0.82	0.55	49.9
9	R2	All MCs	82	1.3	82	1.3	0.143	9.7	LOS A	0.2	1.3	0.55	0.82	0.55	45.7
Approach			83	1.3	83	1.3	0.143	9.6	LOS A	0.2	1.3	0.55	0.82	0.55	45.8
All Vehicles			836	3.3	836	3.3	0.316	1.4	NA	0.2	1.3	0.06	0.15	0.06	56.8

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2.1a_PM_06_Boundary Rd / Lease Rd (Site Folder: 2.1a_PM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.009	7.7	LOS A	0.0	0.2	0.26	0.88	0.26	44.4
2	T1	All MCs	2	0.0	2	0.0	0.009	8.0	LOS A	0.0	0.2	0.26	0.88	0.26	44.4
3	R2	All MCs	5	0.0	5	0.0	0.009	7.9	LOS A	0.0	0.2	0.26	0.88	0.26	44.2
Approach			8	0.0	8	0.0	0.009	7.9	LOS A	0.0	0.2	0.26	0.88	0.26	44.3
East: Boundary Rd															
4	L2	All MCs	7	0.0	7	0.0	0.049	4.6	LOS A	0.0	0.1	0.01	0.05	0.01	48.5
5	T1	All MCs	87	0.0	87	0.0	0.049	0.0	LOS A	0.0	0.1	0.01	0.05	0.01	49.7
6	R2	All MCs	1	0.0	1	0.0	0.049	4.6	LOS A	0.0	0.1	0.01	0.05	0.01	48.3
Approach			96	0.0	96	0.0	0.049	0.4	NA	0.0	0.1	0.01	0.05	0.01	49.6
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.169	7.7	LOS A	0.6	4.6	0.31	0.89	0.31	44.3
8	T1	All MCs	6	0.0	6	0.0	0.169	8.1	LOS A	0.6	4.6	0.31	0.89	0.31	44.3
9	R2	All MCs	138	0.0	138	0.0	0.169	8.1	LOS A	0.6	4.6	0.31	0.89	0.31	44.1
Approach			145	0.0	145	0.0	0.169	8.1	LOS A	0.6	4.6	0.31	0.89	0.31	44.1
West: Arcadia Dr															
10	L2	All MCs	22	0.0	22	0.0	0.049	4.6	LOS A	0.0	0.1	0.01	0.14	0.01	48.0
11	T1	All MCs	71	0.0	71	0.0	0.049	0.0	LOS A	0.0	0.1	0.01	0.14	0.01	49.2
12	R2	All MCs	2	0.0	2	0.0	0.049	4.6	LOS A	0.0	0.1	0.01	0.14	0.01	47.8
Approach			95	0.0	95	0.0	0.049	1.2	NA	0.0	0.1	0.01	0.14	0.01	48.9
All Vehicles			344	0.0	344	0.0	0.169	4.1	NA	0.6	4.6	0.14	0.45	0.14	46.8

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc2.1a_PM_07_Memorial Dr / Garden Island Hwy (Site Folder: 2.1a_PM Peak_HMAS RA+Staggered RA)]

Network: N101 [PM Peak_2.1a_GIH-Memorial-Lease (Network Folder: 2.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	3	0.0	3	0.0	0.062	3.1	LOS A	0.2	1.2	0.05	0.39	0.05	46.3
11	T1	All MCs	92	4.6	92	4.6	0.062	3.4	LOS A	0.2	1.2	0.05	0.39	0.05	52.4
3	R2	All MCs	1	0.0	1	0.0	0.062	7.9	LOS A	0.2	1.2	0.05	0.39	0.05	51.4
Approach			96	4.4	96	4.4	0.062	3.4	LOS A	0.2	1.2	0.05	0.39	0.05	52.2
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.007	8.9	LOS A	0.0	0.1	0.71	0.59	0.71	45.6
5	T1	All MCs	3	0.0	3	0.0	0.007	9.2	LOS A	0.0	0.1	0.71	0.59	0.71	50.7
6	R2	All MCs	1	0.0	1	0.0	0.007	13.8	LOS B	0.0	0.1	0.71	0.59	0.71	49.9
Approach			5	0.0	5	0.0	0.007	10.1	LOS B	0.0	0.1	0.71	0.59	0.71	49.9
North: Garden Island Hwy															
7	L2	All MCs	1	0.0	1	0.0	0.430	3.8	LOS A	1.5	11.2	0.07	0.39	0.07	54.6
5	T1	All MCs	722	2.9	722	2.9	0.430	4.1	LOS A	1.5	11.2	0.07	0.39	0.07	52.7
6	R2	All MCs	1	0.0	1	0.0	0.430	8.7	LOS A	1.5	11.2	0.07	0.39	0.07	50.2
Approach			724	2.9	724	2.9	0.430	4.1	LOS A	1.5	11.2	0.07	0.39	0.07	52.7
West: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.004	3.3	LOS A	0.0	0.1	0.27	0.43	0.27	51.7
11	T1	All MCs	3	0.0	3	0.0	0.004	4.6	LOS A	0.0	0.1	0.27	0.43	0.27	52.0
9	R2	All MCs	1	0.0	1	0.0	0.004	7.8	LOS A	0.0	0.1	0.27	0.43	0.27	47.6
Approach			5	0.0	5	0.0	0.004	5.0	LOS A	0.0	0.1	0.27	0.43	0.27	51.4
All Vehicles			831	3.0	831	3.0	0.430	4.1	LOS A	1.5	11.2	0.07	0.39	0.07	52.6

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc2.1a_PM_10_Garden Island Hwy / Lease Rd (Site Folder: 2.1a_PM Peak_HMAS RA+Staggered RA)]

Network: N101 [PM Peak_2.1a_GIH-Memorial-Lease (Network Folder: 2.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	72	5.9	72	5.9	0.040	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach			72	5.9	72	5.9	0.040	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: Garden Island Hwy															
5	T1	All MCs	575	3.7	575	3.7	0.391	0.1	LOS A	0.5	3.6	0.10	0.14	0.10	48.4
6	R2	All MCs	144	0.0	144	0.0	0.391	4.9	LOS A	0.5	3.6	0.10	0.14	0.10	46.1
Approach			719	2.9	719	2.9	0.391	1.1	NA	0.5	3.6	0.10	0.14	0.10	47.9
West: Lease Rd															
7	L2	All MCs	24	0.0	24	0.0	0.016	4.8	LOS A	0.0	0.2	0.16	0.50	0.16	43.9
Approach			24	0.0	24	0.0	0.016	4.8	LOS A	0.0	0.2	0.16	0.50	0.16	43.9
All Vehicles			815	3.1	815	3.1	0.391	1.1	NA	0.5	3.6	0.10	0.14	0.10	48.0

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc2.1a_PM_11_Memorial Dr / Garden Island Hwy (Site Folder: 2.1a_PM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.002	3.3	LOS A	0.0	0.1	0.26	0.47	0.26	46.9
9	R2	All MCs	1	0.0	1	0.0	0.002	7.8	LOS A	0.0	0.1	0.26	0.47	0.26	48.4
Approach			2	0.0	2	0.0	0.002	5.5	LOS A	0.0	0.1	0.26	0.47	0.26	47.7
East: Garden Island Hwy															
10	L2	All MCs	4	0.0	4	0.0	0.057	3.8	LOS A	0.3	2.3	0.02	0.41	0.02	50.9
11	T1	All MCs	89	4.7	89	4.7	0.057	4.1	LOS A	0.3	2.3	0.02	0.41	0.02	53.3
Approach			94	4.5	94	4.5	0.057	4.1	LOS A	0.3	2.3	0.02	0.41	0.02	53.2
West: Garden Island Hwy															
5	T1	All MCs	723	2.9	723	2.9	0.424	4.1	LOS A	3.6	27.6	0.03	0.40	0.03	53.2
6	R2	All MCs	1	0.0	1	0.0	0.424	8.7	LOS A	3.6	27.6	0.03	0.40	0.03	48.6
Approach			724	2.9	724	2.9	0.424	4.1	LOS A	3.6	27.6	0.03	0.40	0.03	53.2
All Vehicles			820	3.1	820	3.1	0.424	4.1	LOS A	3.6	27.6	0.03	0.40	0.03	53.2

Scenario 2.1b – 2030 GIH/HMAS RA + Single RA

AM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101v [Sc2.1b_AM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 2.1b_AM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	41	12.8	41	12.8	1.032	59.6	LOS E	52.6	400.8	1.00	2.50	4.35	26.1
2	T1	All MCs	1022	2.7	1022	2.7	1.032	58.9	LOS E	52.6	400.8	1.00	2.50	4.35	26.3
3	R2	All MCs	1	0.0	1	0.0	0.002	12.2	LOS B	0.0	0.1	0.54	0.61	0.54	47.0
Approach			1064	3.1	1064	3.1	1.032	58.9	LOS E	52.6	400.8	1.00	2.50	4.34	26.3
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.025	4.4	LOS A	0.1	1.0	0.28	0.39	0.28	52.7
5	T1	All MCs	24	8.7	24	8.7	0.025	4.5	LOS A	0.1	1.0	0.28	0.39	0.28	50.2
6	R2	All MCs	484	0.2	484	0.2	0.299	9.4	LOS A	2.0	15.1	0.29	0.59	0.29	46.9
Approach			509	0.6	509	0.6	0.299	9.2	LOS A	2.0	15.1	0.29	0.58	0.29	47.1
North: HMAS Stirling Entrance															
7	L2	All MCs	69	4.5	69	4.5	0.101	2.7	LOS A	0.6	5.1	0.17	0.32	0.17	49.7
8	T1	All MCs	68	12.3	68	12.3	0.101	2.6	LOS A	0.6	5.1	0.17	0.32	0.17	47.6
9	R2	All MCs	1	0.0	1	0.0	0.101	7.5	LOS A	0.6	5.1	0.17	0.32	0.17	46.9
Approach			139	8.3	139	8.3	0.101	2.7	LOS A	0.6	5.1	0.17	0.32	0.17	48.7
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.098	8.3	LOS A	0.5	3.8	0.81	0.86	0.81	43.1
11	T1	All MCs	16	6.7	16	6.7	0.098	8.5	LOS A	0.5	3.8	0.81	0.86	0.81	45.0
12	R2	All MCs	17	12.5	17	12.5	0.098	14.5	LOS B	0.5	3.8	0.81	0.86	0.81	41.4
Approach			34	9.4	34	9.4	0.098	11.5	LOS B	0.5	3.8	0.81	0.86	0.81	43.2
All Vehicles			1746	2.9	1746	2.9	1.032	39.0	LOS D	52.6	400.8	0.72	1.73	2.76	32.6

Safety Bay Road / Parkin Street / Point Peron Road

MOVEMENT SUMMARY

Site: 104v [Sc2.1b_AM_03_Safety Bay Rd / Parkin St / Point Peron Rd / Hymus St (Site Folder: 2.1b_AM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	41	7.7	41	7.7	0.191	7.0	LOS A	1.1	8.9	0.62	0.67	0.62	46.8
5	T1	All MCs	35	12.1	35	12.1	0.191	7.4	LOS A	1.1	8.9	0.62	0.67	0.62	46.2
6	R2	All MCs	91	5.8	91	5.8	0.191	11.7	LOS B	1.1	8.9	0.62	0.67	0.62	46.7
Approach			166	7.6	166	7.6	0.191	9.6	LOS A	1.1	8.9	0.62	0.67	0.62	46.6
East: Parkin St															
7	L2	All MCs	183	4.6	183	4.6	0.461	5.0	LOS A	3.2	24.0	0.42	0.48	0.42	50.7
5	T1	All MCs	388	0.0	388	0.0	0.461	5.0	LOS A	3.2	24.0	0.42	0.48	0.42	53.3
9	R2	All MCs	26	0.0	26	0.0	0.461	9.6	LOS A	3.2	24.0	0.42	0.48	0.42	52.5
Approach			598	1.4	598	1.4	0.461	5.2	LOS A	3.2	24.0	0.42	0.48	0.42	52.6
North: Hymus St															
10	L2	All MCs	11	0.0	11	0.0	0.130	4.7	LOS A	0.7	5.3	0.35	0.56	0.35	51.8
11	T1	All MCs	61	6.9	61	6.9	0.130	5.0	LOS A	0.7	5.3	0.35	0.56	0.35	49.4
9	R2	All MCs	83	0.0	83	0.0	0.130	9.5	LOS A	0.7	5.3	0.35	0.56	0.35	51.3
Approach			155	2.7	155	2.7	0.130	7.4	LOS A	0.7	5.3	0.35	0.56	0.35	50.7
West: Point Peron Rd															
10	L2	All MCs	15	0.0	15	0.0	0.072	4.6	LOS A	0.4	3.0	0.34	0.47	0.34	53.1
11	T1	All MCs	59	0.0	59	0.0	0.072	4.8	LOS A	0.4	3.0	0.34	0.47	0.34	53.5
12	R2	All MCs	11	30.0	11	30.0	0.072	10.2	LOS B	0.4	3.0	0.34	0.47	0.34	45.5
Approach			84	3.8	84	3.8	0.072	5.4	LOS A	0.4	3.0	0.34	0.47	0.34	52.5
All Vehicles			1003	2.8	1003	2.8	0.461	6.3	LOS A	3.2	24.0	0.44	0.53	0.44	51.3

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc2.1b_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2.1b_AM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	9	0.0	9	0.0	0.085	5.6	LOS A	0.0	0.0	0.00	0.04	0.00	57.1
11	T1	All MCs	146	9.4	146	9.4	0.085	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.5
Approach			156	8.8	156	8.8	0.085	0.4	NA	0.0	0.0	0.00	0.04	0.00	59.3
North: Safety Bay Rd															
5	T1	All MCs	106	15.8	106	15.8	0.164	0.5	LOS A	0.8	6.4	0.28	0.40	0.28	54.8
6	R2	All MCs	164	0.0	164	0.0	0.164	6.0	LOS A	0.8	6.4	0.28	0.40	0.28	47.5
Approach			271	6.2	271	6.2	0.164	3.8	NA	0.8	6.4	0.28	0.40	0.28	50.1
West: Memorial Dr															
7	L2	All MCs	4	0.0	4	0.0	0.005	5.0	LOS A	0.0	0.1	0.28	0.51	0.28	46.3
9	R2	All MCs	2	0.0	2	0.0	0.005	6.2	LOS A	0.0	0.1	0.28	0.51	0.28	48.2
Approach			6	0.0	6	0.0	0.005	5.4	LOS A	0.0	0.1	0.28	0.51	0.28	47.0
All Vehicles			433	7.1	433	7.1	0.164	2.6	NA	0.8	6.4	0.18	0.27	0.18	53.1

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc2.1b_AM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 2.1b_AM Peak_HMAS RA+Single RA)]

Network: N101 [AM Peak_2.1b_Safety Bay-Boundary-GIH (Network Folder: 2.1b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	594	0.0	594	0.0	0.562	5.4	LOS A	1.8	13.5	0.64	0.55	0.64	49.3
8	T1	All MCs	57	0.0	57	0.0	0.562	5.8	LOS A	1.8	13.5	0.64	0.55	0.64	53.2
3b	R3	All MCs	1	0.0	1	0.0	0.562	12.1	LOS B	1.8	13.5	0.64	0.55	0.64	52.3
Approach			652	0.0	652	0.0	0.562	5.4	LOS A	1.8	13.5	0.64	0.55	0.64	49.9
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	0.0	1	0.0	0.189	4.5	LOS A	0.4	3.8	0.34	0.42	0.34	53.3
22	T1	All MCs	193	18.6	193	18.6	0.189	4.7	LOS A	0.4	3.8	0.34	0.42	0.34	50.7
23a	R1	All MCs	21	70.0	21	70.0	0.189	10.1	LOS B	0.4	3.8	0.34	0.42	0.34	38.5
Approach			215	23.5	215	23.5	0.189	5.3	LOS A	0.4	3.8	0.34	0.42	0.34	48.1
North: Safety Bay Rd															
7a	L1	All MCs	31	51.7	31	51.7	0.097	4.4	LOS A	0.2	1.6	0.22	0.46	0.22	43.4
2	T1	All MCs	58	0.0	58	0.0	0.097	4.0	LOS A	0.2	1.6	0.22	0.46	0.22	53.6
9b	R3	All MCs	29	3.6	29	3.6	0.097	10.4	LOS B	0.2	1.6	0.22	0.46	0.22	50.1
Approach			118	14.3	118	14.3	0.097	5.7	LOS A	0.2	1.6	0.22	0.46	0.22	49.6
NorthWest: Garden Island Hwy															
27b	L3	All MCs	54	2.0	54	2.0	0.092	2.3	LOS A	0.2	1.7	0.28	0.49	0.28	50.3
28	T1	All MCs	24	52.2	24	52.2	0.092	3.0	LOS A	0.2	1.7	0.28	0.49	0.28	36.5
29a	R1	All MCs	36	0.0	36	0.0	0.092	6.2	LOS A	0.2	1.7	0.28	0.49	0.28	50.7
Approach			114	12.0	114	12.0	0.092	3.7	LOS A	0.2	1.7	0.28	0.49	0.28	46.7
All Vehicles			1098	7.4	1098	7.4	0.562	5.3	LOS A	1.8	13.5	0.50	0.51	0.50	49.2

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc2.1b_AM_09_Boundary Rd / Garden Island Hwy (Site Folder: 2.1b_AM Peak_HMAS RA+Single RA)]

Network: N101 [AM Peak_2.1b_Safety Bay-Boundary-GIH (Network Folder: 2.1b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	38	13.9	38	13.9	0.436	3.3	LOS A	0.0	0.0	0.00	0.03	0.00	47.7
11	T1	All MCs	776	4.2	776	4.2	0.436	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.4
Approach			814	4.7	814	4.7	0.436	0.2	NA	0.0	0.0	0.00	0.03	0.00	58.8
NorthWest: Garden Island Hwy															
5	T1	All MCs	53	20.0	53	20.0	0.036	0.2	LOS A	0.0	0.1	0.04	0.05	0.04	59.2
6	R2	All MCs	1	0.0	1	0.0	0.036	10.1	LOS B	0.0	0.1	0.04	0.05	0.04	56.9
Approach			54	19.6	54	19.6	0.036	0.4	NA	0.0	0.1	0.04	0.05	0.04	59.1
SouthWest: Boundary Rd															
7	L2	All MCs	3	0.0	3	0.0	0.146	9.9	LOS A	0.2	1.4	0.68	0.87	0.68	48.3
9	R2	All MCs	60	5.3	60	5.3	0.146	12.3	LOS B	0.2	1.4	0.68	0.87	0.68	43.0
Approach			63	5.0	63	5.0	0.146	12.2	LOS B	0.2	1.4	0.68	0.87	0.68	43.5
All Vehicles			931	5.5	931	5.5	0.436	1.0	NA	0.2	1.4	0.05	0.08	0.05	57.4

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2.1b_AM_06_Boundary Rd / Lease Rd (Site Folder: 2.1b_AM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.011	7.6	LOS A	0.0	0.3	0.19	0.91	0.19	44.4
2	T1	All MCs	3	0.0	3	0.0	0.011	8.1	LOS A	0.0	0.3	0.19	0.91	0.19	44.4
3	R2	All MCs	6	0.0	6	0.0	0.011	7.4	LOS A	0.0	0.3	0.19	0.91	0.19	44.3
Approach			11	0.0	11	0.0	0.011	7.6	LOS A	0.0	0.3	0.19	0.91	0.19	44.3
East: Boundary Rd															
4	L2	All MCs	2	0.0	2	0.0	0.023	4.9	LOS A	0.0	0.3	0.07	0.11	0.07	48.0
5	T1	All MCs	33	16.1	33	16.1	0.023	0.1	LOS A	0.0	0.3	0.07	0.11	0.07	49.2
6	R2	All MCs	4	0.0	4	0.0	0.023	5.0	LOS A	0.0	0.3	0.07	0.11	0.07	47.8
Approach			39	13.5	39	13.5	0.023	0.9	NA	0.0	0.3	0.07	0.11	0.07	49.0
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.032	7.6	LOS A	0.1	0.8	0.25	0.89	0.25	44.4
8	T1	All MCs	2	0.0	2	0.0	0.032	7.8	LOS A	0.1	0.8	0.25	0.89	0.25	44.4
9	R2	All MCs	25	0.0	25	0.0	0.032	7.8	LOS A	0.1	0.8	0.25	0.89	0.25	44.2
Approach			28	0.0	28	0.0	0.032	7.8	LOS A	0.1	0.8	0.25	0.89	0.25	44.2
West: Arcadia Dr															
10	L2	All MCs	115	0.9	115	0.9	0.088	4.6	LOS A	0.0	0.2	0.01	0.39	0.01	46.6
11	T1	All MCs	44	7.1	44	7.1	0.088	0.0	LOS A	0.0	0.2	0.01	0.39	0.01	47.8
12	R2	All MCs	3	0.0	3	0.0	0.088	4.6	LOS A	0.0	0.2	0.01	0.39	0.01	46.5
Approach			162	2.6	162	2.6	0.088	3.3	NA	0.0	0.2	0.01	0.39	0.01	46.9
All Vehicles			240	3.9	240	3.9	0.088	3.6	NA	0.1	0.8	0.05	0.43	0.05	46.8

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc2.1b_AM_07_Memorial Dr / Garden Island Hwy (Site Folder: 2.1b_AM Peak_HMAS RA+Single RA)]

Network: N101 [AM Peak_2.1b_GIH-Memorial-Lease (Network Folder: 2.1b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.730	5.3	LOS A	3.5	27.0	0.75	0.55	0.75	43.1
11	T1	All MCs	897	3.6	897	3.6	0.730	5.7	LOS A	3.5	27.0	0.75	0.55	0.75	47.4
3	R2	All MCs	1	0.0	1	0.0	0.730	10.1	LOS B	3.5	27.0	0.75	0.55	0.75	47.5
Approach			899	3.6	899	3.6	0.730	5.7	LOS A	3.5	27.0	0.75	0.55	0.75	47.4
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.136	4.4	LOS A	0.3	2.3	0.29	0.42	0.29	50.7
5	T1	All MCs	166	0.0	166	0.0	0.136	4.6	LOS A	0.3	2.3	0.29	0.42	0.29	53.8
6	R2	All MCs	7	0.0	7	0.0	0.136	9.3	LOS A	0.3	2.3	0.29	0.42	0.29	52.9
Approach			175	0.0	175	0.0	0.136	4.8	LOS A	0.3	2.3	0.29	0.42	0.29	53.8
North: Garden Island Hwy															
7	L2	All MCs	3	0.0	3	0.0	0.058	3.8	LOS A	0.1	1.3	0.05	0.40	0.05	54.6
5	T1	All MCs	81	11.7	81	11.7	0.058	4.2	LOS A	0.1	1.3	0.05	0.40	0.05	52.7
6	R2	All MCs	1	0.0	1	0.0	0.058	8.7	LOS A	0.1	1.3	0.05	0.40	0.05	50.2
Approach			85	11.1	85	11.1	0.058	4.3	LOS A	0.1	1.3	0.05	0.40	0.05	52.8
West: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.012	10.3	LOS B	0.0	0.3	0.90	0.68	0.90	45.9
11	T1	All MCs	2	0.0	2	0.0	0.012	11.6	LOS B	0.0	0.3	0.90	0.68	0.90	46.2
9	R2	All MCs	1	100.0	1	100.0	0.012	22.8	LOS C	0.0	0.3	0.90	0.68	0.90	38.9
Approach			4	25.0	4	25.0	0.012	14.1	LOS B	0.0	0.3	0.90	0.68	0.90	44.9
All Vehicles			1163	3.7	1163	3.7	0.730	5.5	LOS A	3.5	27.0	0.63	0.52	0.63	49.0

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc2.1b_AM_10_Garden Island Hwy / Lease Rd (Site Folder: 2.1b_AM Peak_HMAS RA+Single RA)]

Network: N101 [AM Peak_2.1b_GIH-Memorial-Lease (Network Folder: 2.1b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	779	4.2	779	4.2	0.431	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.7
Approach			779	4.2	779	4.2	0.431	0.2	NA	0.0	0.0	0.00	0.00	0.00	49.7
North: Garden Island Hwy															
5	T1	All MCs	54	19.6	54	19.6	0.074	2.7	LOS A	0.1	1.2	0.47	0.57	0.47	44.6
6	R2	All MCs	28	0.0	28	0.0	0.074	8.9	LOS A	0.1	1.2	0.47	0.57	0.47	42.6
Approach			82	12.8	82	12.8	0.074	4.8	NA	0.1	1.2	0.47	0.57	0.47	43.9
West: Lease Rd															
7	L2	All MCs	121	0.9	121	0.9	0.195	9.3	LOS A	0.3	2.0	0.65	0.84	0.66	40.0
Approach			121	0.9	121	0.9	0.195	9.3	LOS A	0.3	2.0	0.65	0.84	0.66	40.0
All Vehicles			982	4.5	982	4.5	0.431	1.7	NA	0.3	2.0	0.12	0.15	0.12	47.7

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc2.1b_AM_11_Memorial Dr / Garden Island Hwy (Site Folder: 2.1b_AM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	166	0.6	166	0.6	0.277	11.9	LOS B	1.9	13.8	0.86	0.75	0.86	42.8
9	R2	All MCs	1	0.0	1	0.0	0.277	16.3	LOS B	1.9	13.8	0.86	0.75	0.86	44.9
Approach			167	0.6	167	0.6	0.277	11.9	LOS B	1.9	13.8	0.86	0.75	0.86	42.8
East: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.529	3.8	LOS A	4.9	37.4	0.03	0.40	0.03	50.8
11	T1	All MCs	901	3.7	901	3.7	0.529	4.1	LOS A	4.9	37.4	0.03	0.40	0.03	53.4
Approach			902	3.7	902	3.7	0.529	4.1	LOS A	4.9	37.4	0.03	0.40	0.03	53.4
West: Garden Island Hwy															
5	T1	All MCs	83	11.4	83	11.4	0.054	4.2	LOS A	0.4	3.1	0.02	0.41	0.02	50.8
6	R2	All MCs	1	0.0	1	0.0	0.054	8.7	LOS A	0.4	3.1	0.02	0.41	0.02	48.6
Approach			84	11.3	84	11.3	0.054	4.2	LOS A	0.4	3.1	0.02	0.41	0.02	50.7
All Vehicles			1154	3.8	1154	3.8	0.529	5.2	LOS A	4.9	37.4	0.15	0.45	0.15	51.4

PM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101v [Sc2.1b_PM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 2.1b_PM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	24	0.0	24	0.0	0.070	4.1	LOS A	0.4	3.0	0.25	0.40	0.25	48.4
2	T1	All MCs	65	6.5	65	6.5	0.070	4.2	LOS A	0.4	3.0	0.25	0.40	0.25	48.7
3	R2	All MCs	1	0.0	1	0.0	0.001	9.5	LOS A	0.0	0.0	0.27	0.57	0.27	48.5
Approach			91	4.7	91	4.7	0.070	4.2	LOS A	0.4	3.0	0.25	0.40	0.25	48.6
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.051	8.5	LOS A	0.4	2.6	0.83	0.70	0.83	49.7
5	T1	All MCs	29	0.0	29	0.0	0.051	8.5	LOS A	0.4	2.6	0.83	0.70	0.83	48.1
6	R2	All MCs	52	0.0	52	0.0	0.064	12.6	LOS B	0.5	3.8	0.85	0.70	0.85	45.5
Approach			82	0.0	82	0.0	0.064	11.0	LOS B	0.5	3.8	0.85	0.70	0.85	46.4
North: HMAS Stirling Entrance															
7	L2	All MCs	824	0.3	824	0.3	0.965	5.3	LOS A	47.7	356.3	1.00	0.50	1.01	47.9
8	T1	All MCs	697	2.6	697	2.6	0.965	5.2	LOS A	47.7	356.3	1.00	0.50	1.01	45.8
9	R2	All MCs	4	0.0	4	0.0	0.965	10.1	LOS B	47.7	356.3	1.00	0.50	1.01	44.5
Approach			1525	1.3	1525	1.3	0.965	5.3	LOS A	47.7	356.3	1.00	0.50	1.01	47.0
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.048	3.0	LOS A	0.2	1.5	0.24	0.50	0.24	45.7
11	T1	All MCs	21	0.0	21	0.0	0.048	2.8	LOS A	0.2	1.5	0.24	0.50	0.24	49.1
12	R2	All MCs	32	6.7	32	6.7	0.048	7.9	LOS A	0.2	1.5	0.24	0.50	0.24	45.3
Approach			54	3.9	54	3.9	0.048	5.8	LOS A	0.2	1.5	0.24	0.50	0.24	46.9
All Vehicles			1752	1.5	1752	1.5	0.965	5.5	LOS A	47.7	356.3	0.93	0.50	0.94	47.0

Safety Bay Road / Parkin Street / Point Peron Road

MOVEMENT SUMMARY

▽ Site: 104v [Sc2.1b_PM_03_Safety Bay Rd / Parkin St / Point Peron Rd / Hymus St (Site Folder: 2.1b_PM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	1	0.0	1	0.0	0.146	4.3	LOS A	0.8	6.1	0.27	0.55	0.27	50.2
5	T1	All MCs	63	0.0	63	0.0	0.146	4.6	LOS A	0.8	6.1	0.27	0.55	0.27	50.5
6	R2	All MCs	123	6.8	123	6.8	0.146	9.3	LOS A	0.8	6.1	0.27	0.55	0.27	47.6
Approach			187	4.5	187	4.5	0.146	7.7	LOS A	0.8	6.1	0.27	0.55	0.27	48.5
East: Parkin St															
7	L2	All MCs	169	1.9	169	1.9	0.192	4.5	LOS A	1.1	8.4	0.34	0.48	0.34	51.7
5	T1	All MCs	58	0.0	58	0.0	0.192	4.6	LOS A	1.1	8.4	0.34	0.48	0.34	53.8
9	R2	All MCs	15	0.0	15	0.0	0.192	9.3	LOS A	1.1	8.4	0.34	0.48	0.34	53.0
Approach			242	1.3	242	1.3	0.192	4.8	LOS A	1.1	8.4	0.34	0.48	0.34	52.4
North: Hymus St															
10	L2	All MCs	7	0.0	7	0.0	0.223	10.1	LOS B	1.5	11.4	0.86	0.75	0.86	49.7
11	T1	All MCs	100	2.1	100	2.1	0.223	10.4	LOS B	1.5	11.4	0.86	0.75	0.86	47.7
9	R2	All MCs	25	0.0	25	0.0	0.223	14.9	LOS B	1.5	11.4	0.86	0.75	0.86	49.2
Approach			133	1.6	133	1.6	0.223	11.3	LOS B	1.5	11.4	0.86	0.75	0.86	48.2
West: Point Peron Rd															
10	L2	All MCs	88	0.0	88	0.0	0.670	5.8	LOS A	6.4	47.5	0.66	0.54	0.66	52.0
11	T1	All MCs	745	0.0	745	0.0	0.670	6.0	LOS A	6.4	47.5	0.66	0.54	0.66	52.3
12	R2	All MCs	3	66.7	3	66.7	0.670	13.8	LOS B	6.4	47.5	0.66	0.54	0.66	39.4
Approach			837	0.3	837	0.3	0.670	6.0	LOS A	6.4	47.5	0.66	0.54	0.66	52.2
All Vehicles			1399	1.1	1399	1.1	0.670	6.5	LOS A	6.4	47.5	0.57	0.55	0.57	51.4

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

▽ Site: 105 [Sc2.1b_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2.1b_PM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1	0.0	1	0.0	0.100	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
11	T1	All MCs	192	4.4	192	4.4	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			193	4.4	193	4.4	0.100	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Safety Bay Rd															
5	T1	All MCs	274	2.7	274	2.7	0.144	0.0	LOS A	0.0	0.4	0.02	0.02	0.02	59.7
6	R2	All MCs	6	0.0	6	0.0	0.144	5.8	LOS A	0.0	0.4	0.02	0.02	0.02	51.2
Approach			280	2.6	280	2.6	0.144	0.1	NA	0.0	0.4	0.02	0.02	0.02	59.5
West: Memorial Dr															
7	L2	All MCs	11	0.0	11	0.0	0.009	5.1	LOS A	0.0	0.2	0.29	0.51	0.29	46.3
9	R2	All MCs	1	0.0	1	0.0	0.009	6.5	LOS A	0.0	0.2	0.29	0.51	0.29	48.2
Approach			12	0.0	12	0.0	0.009	5.2	LOS A	0.0	0.2	0.29	0.51	0.29	46.5
All Vehicles			484	3.3	484	3.3	0.144	0.2	NA	0.0	0.4	0.02	0.02	0.02	59.3

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc2.1b_PM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 2.1b_PM Peak_HMAS RA+Single RA)]

Network: N101 [PM Peak_2.1b_Safety Bay-Boundary-GIH (Network Folder: 2.1b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	52	0.0	52	0.0	0.145	4.1	LOS A	0.3	2.4	0.36	0.43	0.36	50.9
8	T1	All MCs	122	0.0	122	0.0	0.145	4.5	LOS A	0.3	2.4	0.36	0.43	0.36	54.1
3b	R3	All MCs	1	0.0	1	0.0	0.145	10.8	LOS B	0.3	2.4	0.36	0.43	0.36	53.2
Approach			175	0.0	175	0.0	0.145	4.4	LOS A	0.3	2.4	0.36	0.43	0.36	53.5
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	100.0	1	100.0	0.095	13.6	LOS B	0.2	1.9	0.73	0.70	0.73	43.7
22	T1	All MCs	32	16.7	32	16.7	0.095	8.8	LOS A	0.2	1.9	0.73	0.70	0.73	45.1
23a	R1	All MCs	27	30.8	27	30.8	0.095	13.9	LOS B	0.2	1.9	0.73	0.70	0.73	43.1
Approach			60	24.6	60	24.6	0.095	11.2	LOS B	0.2	1.9	0.73	0.70	0.73	43.8
North: Safety Bay Rd															
7a	L1	All MCs	40	15.8	40	15.8	0.422	8.4	LOS A	1.2	8.9	0.79	0.72	0.80	47.6
2	T1	All MCs	196	0.0	196	0.0	0.422	8.0	LOS A	1.2	8.9	0.79	0.72	0.80	50.9
9b	R3	All MCs	96	0.0	96	0.0	0.422	14.3	LOS B	1.2	8.9	0.79	0.72	0.80	45.8
Approach			332	1.9	332	1.9	0.422	9.9	LOS A	1.2	8.9	0.79	0.72	0.80	49.5
NorthWest: Garden Island Hwy															
27b	L3	All MCs	75	0.0	75	0.0	0.510	3.1	LOS A	1.8	13.2	0.52	0.55	0.52	49.0
28	T1	All MCs	181	11.0	181	11.0	0.510	3.7	LOS A	1.8	13.2	0.52	0.55	0.52	46.0
29a	R1	All MCs	398	0.0	398	0.0	0.510	7.0	LOS A	1.8	13.2	0.52	0.55	0.52	48.6
Approach			654	3.1	654	3.1	0.510	5.6	LOS A	1.8	13.2	0.52	0.55	0.52	47.9
All Vehicles			1220	3.4	1220	3.4	0.510	6.9	LOS A	1.8	13.2	0.58	0.59	0.58	49.1

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc2.1b_PM_09_Boundary Rd / Garden Island Hwy (Site Folder: 2.1b_PM Peak_HMAS RA+Single RA)]

Network: N101 [PM Peak_2.1b_Safety Bay-Boundary-GIH (Network Folder: 2.1b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	105	1.0	105	1.0	0.097	3.3	LOS A	0.0	0.0	0.00	0.33	0.00	52.0
11	T1	All MCs	72	5.9	72	5.9	0.097	0.0	LOS A	0.0	0.0	0.00	0.33	0.00	56.5
Approach			177	3.0	177	3.0	0.097	2.0	NA	0.0	0.0	0.00	0.33	0.00	53.7
NorthWest: Garden Island Hwy															
5	T1	All MCs	574	3.5	574	3.5	0.314	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	1	0.0	1	0.0	0.314	5.5	LOS A	0.0	0.0	0.00	0.00	0.00	57.2
Approach			575	3.5	575	3.5	0.314	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
SouthWest: Boundary Rd															
7	L2	All MCs	1	0.0	1	0.0	0.141	5.8	LOS A	0.2	1.3	0.54	0.82	0.54	49.9
9	R2	All MCs	81	1.3	81	1.3	0.141	9.6	LOS A	0.2	1.3	0.54	0.82	0.54	45.7
Approach			82	1.3	82	1.3	0.141	9.6	LOS A	0.2	1.3	0.54	0.82	0.54	45.8
All Vehicles			834	3.2	834	3.2	0.314	1.4	NA	0.2	1.3	0.05	0.15	0.05	56.8

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2.1b_PM_06_Boundary Rd / Lease Rd (Site Folder: 2.1b_PM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.009	7.7	LOS A	0.0	0.2	0.26	0.88	0.26	44.4
2	T1	All MCs	2	0.0	2	0.0	0.009	8.0	LOS A	0.0	0.2	0.26	0.88	0.26	44.4
3	R2	All MCs	5	0.0	5	0.0	0.009	7.9	LOS A	0.0	0.2	0.26	0.88	0.26	44.2
Approach			8	0.0	8	0.0	0.009	7.9	LOS A	0.0	0.2	0.26	0.88	0.26	44.3
East: Boundary Rd															
4	L2	All MCs	7	0.0	7	0.0	0.049	4.6	LOS A	0.0	0.1	0.01	0.05	0.01	48.5
5	T1	All MCs	87	0.0	87	0.0	0.049	0.0	LOS A	0.0	0.1	0.01	0.05	0.01	49.7
6	R2	All MCs	1	0.0	1	0.0	0.049	4.6	LOS A	0.0	0.1	0.01	0.05	0.01	48.3
Approach			96	0.0	96	0.0	0.049	0.4	NA	0.0	0.1	0.01	0.05	0.01	49.6
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.169	7.7	LOS A	0.6	4.6	0.31	0.89	0.31	44.3
8	T1	All MCs	6	0.0	6	0.0	0.169	8.1	LOS A	0.6	4.6	0.31	0.89	0.31	44.3
9	R2	All MCs	138	0.0	138	0.0	0.169	8.1	LOS A	0.6	4.6	0.31	0.89	0.31	44.1
Approach			145	0.0	145	0.0	0.169	8.1	LOS A	0.6	4.6	0.31	0.89	0.31	44.1
West: Arcadia Dr															
10	L2	All MCs	22	0.0	22	0.0	0.049	4.6	LOS A	0.0	0.1	0.01	0.14	0.01	48.0
11	T1	All MCs	71	0.0	71	0.0	0.049	0.0	LOS A	0.0	0.1	0.01	0.14	0.01	49.2
12	R2	All MCs	2	0.0	2	0.0	0.049	4.6	LOS A	0.0	0.1	0.01	0.14	0.01	47.8
Approach			95	0.0	95	0.0	0.049	1.2	NA	0.0	0.1	0.01	0.14	0.01	48.9
All Vehicles			344	0.0	344	0.0	0.169	4.1	NA	0.6	4.6	0.14	0.45	0.14	46.8

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc2.1b_PM_07_Memorial Dr / Garden Island Hwy (Site Folder: 2.1b_PM Peak_HMAS RA+Single RA)]

Network: N101 [PM Peak_2.1b_GIH-Memorial-Lease (Network Folder: 2.1b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	3	0.0	3	0.0	0.063	3.1	LOS A	0.2	1.3	0.07	0.39	0.07	46.3
11	T1	All MCs	92	4.6	92	4.6	0.063	3.4	LOS A	0.2	1.3	0.07	0.39	0.07	52.3
3	R2	All MCs	1	0.0	1	0.0	0.063	7.9	LOS A	0.2	1.3	0.07	0.39	0.07	51.3
Approach			96	4.4	96	4.4	0.063	3.4	LOS A	0.2	1.3	0.07	0.39	0.07	52.1
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.010	8.9	LOS A	0.0	0.2	0.71	0.62	0.71	44.6
5	T1	All MCs	3	0.0	3	0.0	0.010	9.2	LOS A	0.0	0.2	0.71	0.62	0.71	50.0
6	R2	All MCs	3	0.0	3	0.0	0.010	13.8	LOS B	0.0	0.2	0.71	0.62	0.71	49.3
Approach			7	0.0	7	0.0	0.010	11.1	LOS B	0.0	0.2	0.71	0.62	0.71	49.2
North: Garden Island Hwy															
7	L2	All MCs	6	0.0	6	0.0	0.432	3.8	LOS A	1.5	11.2	0.07	0.39	0.07	54.6
5	T1	All MCs	721	2.8	721	2.8	0.432	4.1	LOS A	1.5	11.2	0.07	0.39	0.07	52.7
6	R2	All MCs	1	0.0	1	0.0	0.432	8.7	LOS A	1.5	11.2	0.07	0.39	0.07	50.2
Approach			728	2.7	728	2.7	0.432	4.1	LOS A	1.5	11.2	0.07	0.39	0.07	52.7
West: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.004	3.3	LOS A	0.0	0.1	0.27	0.43	0.27	51.6
11	T1	All MCs	3	0.0	3	0.0	0.004	4.6	LOS A	0.0	0.1	0.27	0.43	0.27	52.0
9	R2	All MCs	1	0.0	1	0.0	0.004	7.8	LOS A	0.0	0.1	0.27	0.43	0.27	47.6
Approach			5	0.0	5	0.0	0.004	5.0	LOS A	0.0	0.1	0.27	0.43	0.27	51.3
All Vehicles			837	2.9	837	2.9	0.432	4.1	LOS A	1.5	11.2	0.07	0.39	0.07	52.5

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc2.1b_PM_10_Garden Island Hwy / Lease Rd (Site Folder: 2.1b_PM Peak_HMAS RA+Single RA)]

Network: N101 [PM Peak_2.1b_GIH-Memorial-Lease (Network Folder: 2.1b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	72	5.9	72	5.9	0.040	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach			72	5.9	72	5.9	0.040	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: Garden Island Hwy															
5	T1	All MCs	574	3.5	574	3.5	0.389	0.1	LOS A	0.5	3.6	0.10	0.14	0.10	48.4
6	R2	All MCs	144	0.0	144	0.0	0.389	4.9	LOS A	0.5	3.6	0.10	0.14	0.10	46.1
Approach			718	2.8	718	2.8	0.389	1.1	NA	0.5	3.6	0.10	0.14	0.10	47.9
West: Lease Rd															
7	L2	All MCs	24	0.0	24	0.0	0.016	4.8	LOS A	0.0	0.2	0.16	0.50	0.16	43.9
Approach			24	0.0	24	0.0	0.016	4.8	LOS A	0.0	0.2	0.16	0.50	0.16	43.9
All Vehicles			814	3.0	814	3.0	0.389	1.1	NA	0.5	3.6	0.10	0.14	0.10	48.0

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc2.1b_PM_11_Memorial Dr / Garden Island Hwy (Site Folder: 2.1b_PM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.002	3.3	LOS A	0.0	0.1	0.26	0.47	0.26	46.9
9	R2	All MCs	1	0.0	1	0.0	0.002	7.8	LOS A	0.0	0.1	0.26	0.47	0.26	48.4
Approach			2	0.0	2	0.0	0.002	5.5	LOS A	0.0	0.1	0.26	0.47	0.26	47.7
East: Garden Island Hwy															
10	L2	All MCs	5	0.0	5	0.0	0.058	3.8	LOS A	0.3	2.4	0.02	0.41	0.02	50.9
11	T1	All MCs	89	4.7	89	4.7	0.058	4.1	LOS A	0.3	2.4	0.02	0.41	0.02	53.3
Approach			95	4.4	95	4.4	0.058	4.1	LOS A	0.3	2.4	0.02	0.41	0.02	53.1
West: Garden Island Hwy															
5	T1	All MCs	727	2.7	727	2.7	0.426	4.1	LOS A	3.6	27.7	0.03	0.40	0.03	53.3
6	R2	All MCs	1	0.0	1	0.0	0.426	8.7	LOS A	3.6	27.7	0.03	0.40	0.03	48.6
Approach			728	2.7	728	2.7	0.426	4.1	LOS A	3.6	27.7	0.03	0.40	0.03	53.3
All Vehicles			825	2.9	825	2.9	0.426	4.1	LOS A	3.6	27.7	0.03	0.40	0.03	53.2

Scenario 2.2a – 2030 GIH/HMAS Signals + Staggered RAs

AM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101vv [Sc2.2a_AM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 2.2a_AM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	28	22.2	28	22.2	0.023	6.6	LOS A	0.1	0.8	0.21	0.58	0.21	46.2
2	T1	All MCs	902	3.2	902	3.2	*0.679	28.5	LOS C	8.6	65.5	0.96	0.85	1.03	37.3
3	R2	All MCs	1	0.0	1	0.0	0.006	41.4	LOS D	0.0	0.2	0.92	0.59	0.92	35.8
Approach			932	3.7	932	3.7	0.679	27.8	LOS C	8.6	65.5	0.94	0.84	1.01	36.2
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.679	33.3	LOS C	6.4	47.0	0.99	0.86	1.10	35.5
5	T1	All MCs	17	6.3	17	6.3	*0.679	29.0	LOS C	6.4	47.0	0.99	0.86	1.10	36.7
6	R2	All MCs	619	0.0	619	0.0	0.679	33.3	LOS C	6.4	47.0	0.99	0.86	1.10	36.0
Approach			637	0.2	637	0.2	0.679	33.2	LOS C	6.4	47.0	0.99	0.86	1.10	36.0
North: HMAS Stirling Entrance															
7	L2	All MCs	65	0.0	65	0.0	0.044	5.2	LOS A	0.2	1.5	0.22	0.56	0.22	48.8
8	T1	All MCs	71	14.9	71	14.9	0.124	20.1	LOS C	1.1	10.1	0.82	0.61	0.82	39.6
9	R2	All MCs	1	0.0	1	0.0	*0.006	31.4	LOS C	0.0	0.2	0.92	0.58	0.92	34.6
Approach			137	7.7	137	7.7	0.124	13.1	LOS B	1.1	10.1	0.53	0.58	0.53	43.8
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.003	15.3	LOS B	0.0	0.1	0.81	0.58	0.81	40.5
11	T1	All MCs	12	9.1	12	9.1	0.064	27.9	LOS C	0.3	2.6	0.93	0.63	0.93	38.5
12	R2	All MCs	21	10.0	21	10.0	*0.124	33.0	LOS C	0.6	4.9	0.94	0.69	0.94	32.5
Approach			34	9.4	34	9.4	0.124	30.7	LOS C	0.6	4.9	0.93	0.67	0.93	34.8
All Vehicles			1739	2.8	1739	2.8	0.679	28.7	LOS C	8.6	65.5	0.93	0.83	1.00	36.6

Safety Bay Road / Point Peron Road / Hymus Street

MOVEMENT SUMMARY

Site: 103v [Sc2.2a_AM_02_Safety Bay Rd / Point Peron Rd / Hymus St (Site Folder: 2.2a_AM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM Peak_2.2a_Staggered RA (Network Folder: 2.2a)]

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	538	0.0	538	0.0	0.453	3.1	LOS A	1.4	10.0	0.36	0.48	0.36	51.2
11	T1	All MCs	61	6.9	61	6.9	0.453	3.6	LOS A	1.4	10.0	0.36	0.48	0.36	45.2
Approach			599	0.7	599	0.7	0.453	3.1	LOS A	1.4	10.0	0.36	0.48	0.36	50.5
North: Hymus St															
5	T1	All MCs	53	8.0	53	8.0	0.120	4.0	LOS A	0.2	1.9	0.20	0.54	0.20	42.6
6	R2	All MCs	102	0.0	102	0.0	0.120	7.2	LOS A	0.2	1.9	0.20	0.54	0.20	47.8
Approach			155	2.7	155	2.7	0.120	6.1	LOS A	0.2	1.9	0.20	0.54	0.20	46.6
West: Point Peron Rd															
7	L2	All MCs	15	0.0	15	0.0	0.061	4.8	LOS A	0.1	0.7	0.16	0.61	0.16	47.9
9	R2	All MCs	62	1.7	62	1.7	0.061	8.3	LOS A	0.1	0.7	0.16	0.61	0.16	47.9
Approach			77	1.4	77	1.4	0.061	7.6	LOS A	0.1	0.7	0.16	0.61	0.16	47.9
All Vehicles			831	1.1	831	1.1	0.453	4.1	LOS A	1.4	10.0	0.31	0.50	0.31	49.2

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104v [Sc2.2a_AM_03_Safety Bay Rd / Parkin St / Hymus St (Site Folder: 2.2a_AM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM Peak_2.2a_Staggered RA (Network Folder: 2.2a)]

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	52	10.2	52	10.2	0.183	8.6	LOS A	0.4	3.2	0.63	0.71	0.63	39.1
6	R2	All MCs	93	5.7	93	5.7	0.183	11.7	LOS B	0.4	3.2	0.63	0.71	0.63	45.6
Approach			144	7.3	144	7.3	0.183	10.6	LOS B	0.4	3.2	0.63	0.71	0.63	44.3
East: Parkin St															
7	L2	All MCs	51	16.7	51	16.7	0.415	5.2	LOS A	1.1	8.5	0.22	0.60	0.22	46.2
9	R2	All MCs	548	0.0	548	0.0	0.415	8.3	LOS A	1.1	8.5	0.22	0.60	0.22	47.2
Approach			599	1.4	599	1.4	0.415	8.1	LOS A	1.1	8.5	0.22	0.60	0.22	47.1
North: Hymus St															
10	L2	All MCs	67	0.0	67	0.0	0.098	2.8	LOS A	0.2	1.7	0.28	0.46	0.28	51.2
11	T1	All MCs	47	11.1	47	11.1	0.098	3.4	LOS A	0.2	1.7	0.28	0.46	0.28	44.0
Approach			115	4.6	115	4.6	0.098	3.1	LOS A	0.2	1.7	0.28	0.46	0.28	48.7
All Vehicles			858	2.8	858	2.8	0.415	7.8	LOS A	1.1	8.5	0.30	0.60	0.30	46.7

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc2.2a_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2.2a_AM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	23	0.0	23	0.0	0.082	5.6	LOS A	0.0	0.0	0.00	0.09	0.00	56.6
11	T1	All MCs	128	9.0	128	9.0	0.082	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	58.9
Approach			152	7.6	152	7.6	0.082	0.9	NA	0.0	0.0	0.00	0.09	0.00	58.4
North: Safety Bay Rd															
5	T1	All MCs	100	13.7	100	13.7	0.069	0.1	LOS A	0.1	1.0	0.09	0.12	0.09	58.4
6	R2	All MCs	18	0.0	18	0.0	0.069	5.9	LOS A	0.1	1.0	0.09	0.12	0.09	50.2
Approach			118	11.6	118	11.6	0.069	1.0	NA	0.1	1.0	0.09	0.12	0.09	57.0
West: Memorial Dr															
7	L2	All MCs	6	0.0	6	0.0	0.006	4.9	LOS A	0.0	0.2	0.24	0.50	0.24	46.4
9	R2	All MCs	2	0.0	2	0.0	0.006	5.5	LOS A	0.0	0.2	0.24	0.50	0.24	48.4
Approach			8	0.0	8	0.0	0.006	5.1	LOS A	0.0	0.2	0.24	0.50	0.24	47.0
All Vehicles			278	9.1	278	9.1	0.082	1.0	NA	0.1	1.0	0.04	0.12	0.04	57.4

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc2.2a_AM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 2.2a_AM Peak_HMAS Signals+Staggered RA)]

Network: N101 [AM Peak_2.2a_Safety Bay-Boundary-GIH (Network Folder: 2.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	595	0.0	595	0.0	0.562	5.4	LOS A	1.8	13.5	0.64	0.55	0.64	49.3
8	T1	All MCs	56	0.0	56	0.0	0.562	5.8	LOS A	1.8	13.5	0.64	0.55	0.64	53.2
3b	R3	All MCs	1	0.0	1	0.0	0.562	12.1	LOS B	1.8	13.5	0.64	0.55	0.64	52.3
Approach			652	0.0	652	0.0	0.562	5.5	LOS A	1.8	13.5	0.64	0.55	0.64	49.9
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	0.0	1	0.0	0.189	4.5	LOS A	0.4	3.8	0.35	0.42	0.35	53.3
22	T1	All MCs	195	19.5	195	19.5	0.189	4.8	LOS A	0.4	3.8	0.35	0.42	0.35	50.7
23a	R1	All MCs	19	72.2	19	72.2	0.189	10.2	LOS B	0.4	3.8	0.35	0.42	0.35	38.2
Approach			215	24.0	215	24.0	0.189	5.2	LOS A	0.4	3.8	0.35	0.42	0.35	48.2
North: Safety Bay Rd															
7a	L1	All MCs	26	48.0	26	48.0	0.093	4.4	LOS A	0.2	1.5	0.23	0.47	0.23	43.9
2	T1	All MCs	55	0.0	55	0.0	0.093	4.1	LOS A	0.2	1.5	0.23	0.47	0.23	53.5
9b	R3	All MCs	31	3.4	31	3.4	0.093	10.4	LOS B	0.2	1.5	0.23	0.47	0.23	49.9
Approach			112	12.3	112	12.3	0.093	5.9	LOS A	0.2	1.5	0.23	0.47	0.23	49.9
NorthWest: Garden Island Hwy															
27b	L3	All MCs	51	0.0	51	0.0	0.095	2.3	LOS A	0.2	1.8	0.27	0.48	0.27	51.1
28	T1	All MCs	28	55.6	28	55.6	0.095	3.0	LOS A	0.2	1.8	0.27	0.48	0.27	35.8
29a	R1	All MCs	38	0.0	38	0.0	0.095	6.1	LOS A	0.2	1.8	0.27	0.48	0.27	50.6
Approach			117	13.5	117	13.5	0.095	3.7	LOS A	0.2	1.8	0.27	0.48	0.27	46.2
All Vehicles			1095	7.4	1095	7.4	0.562	5.3	LOS A	1.8	13.5	0.50	0.51	0.50	49.2

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc2.2a_AM_09_Boundary Rd / Garden Island Hwy (Site Folder: 2.2a_AM Peak_HMAS Signals+Staggered RA)]

Network: N101 [AM Peak_2.2a_Safety Bay-Boundary-GIH (Network Folder: 2.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	41	12.8	41	12.8	0.442	3.3	LOS A	0.0	0.0	0.00	0.03	0.00	48.2
11	T1	All MCs	780	4.5	780	4.5	0.442	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.4
Approach			821	4.9	821	4.9	0.442	0.2	NA	0.0	0.0	0.00	0.03	0.00	58.7
NorthWest: Garden Island Hwy															
5	T1	All MCs	62	20.3	62	20.3	0.078	2.6	LOS A	0.1	1.2	0.45	0.54	0.45	51.4
6	R2	All MCs	25	0.0	25	0.0	0.078	10.3	LOS B	0.1	1.2	0.45	0.54	0.45	52.9
Approach			87	14.5	87	14.5	0.078	4.9	NA	0.1	1.2	0.45	0.54	0.45	52.1
SouthWest: Boundary Rd															
7	L2	All MCs	3	0.0	3	0.0	0.143	10.0	LOS A	0.2	1.3	0.70	0.88	0.70	48.1
9	R2	All MCs	57	3.7	57	3.7	0.143	12.6	LOS B	0.2	1.3	0.70	0.88	0.70	42.7
Approach			60	3.5	60	3.5	0.143	12.5	LOS B	0.2	1.3	0.70	0.88	0.70	43.2
All Vehicles			968	5.7	968	5.7	0.442	1.4	NA	0.2	1.3	0.08	0.13	0.08	56.7

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2.2a_AM_06_Boundary Rd / Lease Rd (Site Folder: 2.2a_AM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.011	7.6	LOS A	0.0	0.3	0.24	0.90	0.24	44.4
2	T1	All MCs	5	0.0	5	0.0	0.011	8.2	LOS A	0.0	0.3	0.24	0.90	0.24	44.4
3	R2	All MCs	4	0.0	4	0.0	0.011	7.6	LOS A	0.0	0.3	0.24	0.90	0.24	44.2
Approach			11	0.0	11	0.0	0.011	7.9	LOS A	0.0	0.3	0.24	0.90	0.24	44.3
East: Boundary Rd															
4	L2	All MCs	4	0.0	4	0.0	0.037	4.8	LOS A	0.0	0.2	0.04	0.08	0.04	48.3
5	T1	All MCs	58	9.1	58	9.1	0.037	0.0	LOS A	0.0	0.2	0.04	0.08	0.04	49.5
6	R2	All MCs	3	0.0	3	0.0	0.037	5.0	LOS A	0.0	0.2	0.04	0.08	0.04	48.1
Approach			65	8.1	65	8.1	0.037	0.6	NA	0.0	0.2	0.04	0.08	0.04	49.4
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.003	7.6	LOS A	0.0	0.1	0.19	0.90	0.19	44.4
8	T1	All MCs	1	0.0	1	0.0	0.003	7.9	LOS A	0.0	0.1	0.19	0.90	0.19	44.4
9	R2	All MCs	1	0.0	1	0.0	0.003	7.9	LOS A	0.0	0.1	0.19	0.90	0.19	44.2
Approach			3	0.0	3	0.0	0.003	7.8	LOS A	0.0	0.1	0.19	0.90	0.19	44.3
West: Arcadia Dr															
10	L2	All MCs	117	1.8	117	1.8	0.089	4.6	LOS A	0.0	0.2	0.01	0.40	0.01	46.5
11	T1	All MCs	42	5.0	42	5.0	0.089	0.0	LOS A	0.0	0.2	0.01	0.40	0.01	47.7
12	R2	All MCs	3	0.0	3	0.0	0.089	4.6	LOS A	0.0	0.2	0.01	0.40	0.01	46.4
Approach			162	2.6	162	2.6	0.089	3.4	NA	0.0	0.2	0.01	0.40	0.01	46.8
All Vehicles			241	3.9	241	3.9	0.089	2.9	NA	0.0	0.3	0.03	0.34	0.03	47.3

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc2.2a_AM_07_Memorial Dr / Garden Island Hwy (Site Folder: 2.2a_AM Peak_HMAS Signals+Staggered RA)]

Network: N101 [AM Peak_2.2a_GIH-Memorial-Lease (Network Folder: 2.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.598	3.5	LOS A	2.6	20.3	0.31	0.38	0.31	45.1
11	T1	All MCs	902	4.0	902	4.0	0.598	3.8	LOS A	2.6	20.3	0.31	0.38	0.31	49.7
3	R2	All MCs	2	0.0	2	0.0	0.598	8.3	LOS A	2.6	20.3	0.31	0.38	0.31	49.9
Approach			905	4.0	905	4.0	0.598	3.8	LOS A	2.6	20.3	0.31	0.38	0.31	49.7
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.034	4.4	LOS A	0.1	0.5	0.28	0.59	0.28	46.5
5	T1	All MCs	2	0.0	2	0.0	0.034	4.6	LOS A	0.1	0.5	0.28	0.59	0.28	51.2
6	R2	All MCs	39	0.0	39	0.0	0.034	9.3	LOS A	0.1	0.5	0.28	0.59	0.28	50.4
Approach			42	0.0	42	0.0	0.034	8.9	LOS A	0.1	0.5	0.28	0.59	0.28	50.4
North: Garden Island Hwy															
7	L2	All MCs	5	0.0	5	0.0	0.064	3.8	LOS A	0.2	1.4	0.05	0.40	0.05	54.6
5	T1	All MCs	87	14.5	87	14.5	0.064	4.2	LOS A	0.2	1.4	0.05	0.40	0.05	52.7
6	R2	All MCs	1	0.0	1	0.0	0.064	8.7	LOS A	0.2	1.4	0.05	0.40	0.05	50.2
Approach			94	13.5	94	13.5	0.064	4.3	LOS A	0.2	1.4	0.05	0.40	0.05	52.9
West: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.008	10.9	LOS B	0.0	0.2	0.85	0.64	0.85	46.7
11	T1	All MCs	2	0.0	2	0.0	0.008	12.2	LOS B	0.0	0.2	0.85	0.64	0.85	47.0
9	R2	All MCs	1	0.0	1	0.0	0.008	15.4	LOS B	0.0	0.2	0.85	0.64	0.85	40.0
Approach			4	0.0	4	0.0	0.008	12.7	LOS B	0.0	0.2	0.85	0.64	0.85	45.7
All Vehicles			1045	4.6	1045	4.6	0.598	4.1	LOS A	2.6	20.3	0.29	0.39	0.29	50.0

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc2.2a_AM_10_Garden Island Hwy / Lease Rd (Site Folder: 2.2a_AM Peak_HMAS Signals+Staggered RA)]

Network: N101 [AM Peak_2.2a_GIH-Memorial-Lease (Network Folder: 2.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	782	4.4	782	4.4	0.418	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach			782	4.4	782	4.4	0.418	0.2	NA	0.0	0.0	0.00	0.00	0.00	49.8
North: Garden Island Hwy															
5	T1	All MCs	87	14.5	87	14.5	0.055	0.1	LOS A	0.0	0.1	0.02	0.03	0.02	49.7
6	R2	All MCs	1	0.0	1	0.0	0.055	8.9	LOS A	0.0	0.1	0.02	0.03	0.02	47.3
Approach			88	14.3	88	14.3	0.055	0.2	NA	0.0	0.1	0.02	0.03	0.02	49.7
West: Lease Rd															
7	L2	All MCs	124	1.7	124	1.7	0.197	9.4	LOS A	0.3	2.1	0.66	0.84	0.66	39.9
Approach			124	1.7	124	1.7	0.197	9.4	LOS A	0.3	2.1	0.66	0.84	0.66	39.9
All Vehicles			995	5.0	995	5.0	0.418	1.3	NA	0.3	2.1	0.08	0.11	0.08	48.3

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc2.2a_AM_11_Memorial Dr / Garden Island Hwy (Site Folder: 2.2a_AM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	2	50.0	2	50.0	0.007	14.8	LOS B	0.0	0.4	0.80	0.65	0.80	35.6
9	R2	All MCs	1	0.0	1	0.0	0.007	15.3	LOS B	0.0	0.4	0.80	0.65	0.80	43.1
Approach			3	33.3	3	33.3	0.007	15.0	LOS B	0.0	0.4	0.80	0.65	0.80	38.0
East: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.550	3.8	LOS A	5.3	40.3	0.03	0.40	0.03	50.8
11	T1	All MCs	937	3.7	937	3.7	0.550	4.1	LOS A	5.3	40.3	0.03	0.40	0.03	53.5
Approach			938	3.7	938	3.7	0.550	4.1	LOS A	5.3	40.3	0.03	0.40	0.03	53.5
West: Garden Island Hwy															
5	T1	All MCs	92	13.8	92	13.8	0.060	4.2	LOS A	0.4	3.5	0.02	0.41	0.02	50.4
6	R2	All MCs	1	0.0	1	0.0	0.060	8.7	LOS A	0.4	3.5	0.02	0.41	0.02	48.9
Approach			93	13.6	93	13.6	0.060	4.3	LOS A	0.4	3.5	0.02	0.41	0.02	50.4
All Vehicles			1034	4.7	1034	4.7	0.550	4.1	LOS A	5.3	40.3	0.03	0.40	0.03	53.2

PM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101vv [Sc2.2a_PM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 2.2a_PM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	51	0.0	51	0.0	0.030	5.9	LOS A	0.2	1.1	0.11	0.57	0.11	47.5
2	T1	All MCs	81	5.2	81	5.2	0.023	9.0	LOS A	0.5	4.4	0.37	0.40	0.37	46.5
3	R2	All MCs	1	0.0	1	0.0	0.011	65.6	LOS E	0.1	0.4	0.97	0.59	0.97	25.9
Approach			133	3.2	133	3.2	0.030	8.3	LOS A	0.5	4.4	0.28	0.47	0.28	46.6
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.138	67.7	LOS E	0.8	5.7	0.98	0.68	0.98	25.7
5	T1	All MCs	3	0.0	3	0.0	*0.138	63.3	LOS E	0.8	5.7	0.98	0.68	0.98	27.5
6	R2	All MCs	35	0.0	35	0.0	0.138	67.6	LOS E	0.8	5.7	0.98	0.68	0.98	27.0
Approach			39	0.0	39	0.0	0.138	67.3	LOS E	0.8	5.7	0.98	0.68	0.98	27.0
North: HMAS Stirling Entrance															
7	L2	All MCs	826	0.0	826	0.0	0.495	5.2	LOS A	5.2	38.1	0.21	0.57	0.21	48.9
8	T1	All MCs	696	2.9	696	2.9	*0.369	12.6	LOS B	12.0	91.6	0.47	0.42	0.47	45.7
9	R2	All MCs	3	0.0	3	0.0	*0.034	69.4	LOS E	0.2	1.3	0.97	0.62	0.97	26.3
Approach			1525	1.3	1525	1.3	0.495	8.7	LOS A	12.0	91.6	0.33	0.50	0.33	46.6
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.006	43.4	LOS D	0.0	0.3	0.92	0.58	0.92	30.9
11	T1	All MCs	17	6.3	17	6.3	0.182	62.4	LOS E	1.0	7.9	0.99	0.69	0.99	28.3
12	R2	All MCs	35	3.0	35	3.0	*0.382	68.3	LOS E	2.1	16.0	1.00	0.73	1.00	24.1
Approach			53	4.0	53	4.0	0.382	65.9	LOS E	2.1	16.0	0.99	0.71	0.99	25.6
All Vehicles			1749	1.5	1749	1.5	0.495	11.7	LOS B	12.0	91.6	0.36	0.51	0.36	44.7

Safety Bay Road / Point Peron Road / Hymus Street

MOVEMENT SUMMARY

Site: 103v [Sc2.2a_PM_02_Safety Bay Rd / Point Peron Rd / Hymus St (Site Folder: 2.2a_PM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [PM Peak_2.2a_Staggered RA (Network Folder: 2.2a)]

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	25	0.0	25	0.0	0.071	2.4	LOS A	0.2	1.3	0.10	0.43	0.10	51.7
11	T1	All MCs	78	0.0	78	0.0	0.071	2.9	LOS A	0.2	1.3	0.10	0.43	0.10	46.0
Approach			103	0.0	103	0.0	0.071	2.8	LOS A	0.2	1.3	0.10	0.43	0.10	47.3
North: Hymus St															
5	T1	All MCs	119	1.8	119	1.8	0.233	8.9	LOS A	0.5	3.7	0.77	0.71	0.77	40.1
6	R2	All MCs	15	0.0	15	0.0	0.233	12.1	LOS B	0.5	3.7	0.77	0.71	0.77	46.2
Approach			134	1.6	134	1.6	0.233	9.3	LOS A	0.5	3.7	0.77	0.71	0.77	41.2
West: Point Peron Rd															
7	L2	All MCs	87	0.0	87	0.0	0.680	5.2	LOS A	2.1	15.5	0.37	0.58	0.37	47.2
9	R2	All MCs	747	0.1	747	0.1	0.680	8.6	LOS A	2.1	15.5	0.37	0.58	0.37	46.7
Approach			835	0.1	835	0.1	0.680	8.3	LOS A	2.1	15.5	0.37	0.58	0.37	46.8
All Vehicles			1072	0.3	1072	0.3	0.680	7.9	LOS A	2.1	15.5	0.39	0.58	0.39	46.0

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104v [Sc2.2a_PM_03_Safety Bay Rd / Parkin St / Hymus St (Site Folder: 2.2a_PM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [PM Peak_2.2a_Staggered RA (Network Folder: 2.2a)]

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	63	0.0	63	0.0	0.138	4.9	LOS A	0.3	2.3	0.16	0.57	0.16	43.5
6	R2	All MCs	123	6.8	123	6.8	0.138	8.4	LOS A	0.3	2.3	0.16	0.57	0.16	47.5
Approach			186	4.5	186	4.5	0.138	7.2	LOS A	0.3	2.3	0.16	0.57	0.16	46.8
East: Parkin St															
7	L2	All MCs	203	1.6	203	1.6	0.195	5.1	LOS A	0.4	3.2	0.29	0.54	0.29	50.7
9	R2	All MCs	39	0.0	39	0.0	0.195	8.6	LOS A	0.4	3.2	0.29	0.54	0.29	50.0
Approach			242	1.3	242	1.3	0.195	5.7	LOS A	0.4	3.2	0.29	0.54	0.29	50.6
North: Hymus St															
10	L2	All MCs	755	0.0	755	0.0	0.661	3.6	LOS A	2.6	19.5	0.54	0.51	0.54	50.5
11	T1	All MCs	112	2.8	112	2.8	0.661	4.1	LOS A	2.6	19.5	0.54	0.51	0.54	46.2
Approach			866	0.4	866	0.4	0.661	3.7	LOS A	2.6	19.5	0.54	0.51	0.54	50.1
All Vehicles			1295	1.1	1295	1.1	0.661	4.6	LOS A	2.6	19.5	0.44	0.53	0.44	49.7

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc2.2a_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2.2a_PM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1	0.0	1	0.0	0.100	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
11	T1	All MCs	192	4.4	192	4.4	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			193	4.4	193	4.4	0.100	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Safety Bay Rd															
5	T1	All MCs	273	2.3	273	2.3	0.171	0.2	LOS A	0.4	2.7	0.12	0.14	0.12	58.4
6	R2	All MCs	48	0.0	48	0.0	0.171	6.2	LOS A	0.4	2.7	0.12	0.14	0.12	50.2
Approach			321	2.0	321	2.0	0.171	1.1	NA	0.4	2.7	0.12	0.14	0.12	57.0
West: Memorial Dr															
7	L2	All MCs	11	0.0	11	0.0	0.009	5.1	LOS A	0.0	0.2	0.29	0.51	0.29	46.2
9	R2	All MCs	1	0.0	1	0.0	0.009	6.7	LOS A	0.0	0.2	0.29	0.51	0.29	48.2
Approach			12	0.0	12	0.0	0.009	5.3	LOS A	0.0	0.2	0.29	0.51	0.29	46.5
All Vehicles			525	2.8	525	2.8	0.171	0.8	NA	0.4	2.7	0.08	0.10	0.08	57.7

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc2.2a_PM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 2.2a_PM Peak_HMAS Signals+Staggered RA)]

Network: N101 [PM Peak_2.2a_Safety Bay-Boundary-GIH (Network Folder: 2.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	52	0.0	52	0.0	0.145	4.1	LOS A	0.3	2.4	0.36	0.43	0.36	50.9
8	T1	All MCs	122	0.0	122	0.0	0.145	4.5	LOS A	0.3	2.4	0.36	0.43	0.36	54.1
3b	R3	All MCs	1	0.0	1	0.0	0.145	10.8	LOS B	0.3	2.4	0.36	0.43	0.36	53.2
Approach			175	0.0	175	0.0	0.145	4.4	LOS A	0.3	2.4	0.36	0.43	0.36	53.5
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	100.0	1	100.0	0.095	13.6	LOS B	0.2	1.9	0.73	0.70	0.73	43.7
22	T1	All MCs	32	16.7	32	16.7	0.095	8.8	LOS A	0.2	1.9	0.73	0.70	0.73	45.1
23a	R1	All MCs	27	30.8	27	30.8	0.095	13.9	LOS B	0.2	1.9	0.73	0.70	0.73	43.1
Approach			60	24.6	60	24.6	0.095	11.2	LOS B	0.2	1.9	0.73	0.70	0.73	43.8
North: Safety Bay Rd															
7a	L1	All MCs	39	13.5	39	13.5	0.421	8.3	LOS A	1.2	8.8	0.78	0.71	0.79	48.1
2	T1	All MCs	197	0.0	197	0.0	0.421	7.9	LOS A	1.2	8.8	0.78	0.71	0.79	50.9
9b	R3	All MCs	96	0.0	96	0.0	0.421	14.3	LOS B	1.2	8.8	0.78	0.71	0.79	45.8
Approach			332	1.6	332	1.6	0.421	9.8	LOS A	1.2	8.8	0.78	0.71	0.79	49.6
NorthWest: Garden Island Hwy															
27b	L3	All MCs	75	0.0	75	0.0	0.509	3.1	LOS A	1.8	13.2	0.52	0.55	0.52	49.0
28	T1	All MCs	181	11.6	181	11.6	0.509	3.7	LOS A	1.8	13.2	0.52	0.55	0.52	45.8
29a	R1	All MCs	397	0.0	397	0.0	0.509	7.0	LOS A	1.8	13.2	0.52	0.55	0.52	48.6
Approach			653	3.2	653	3.2	0.509	5.6	LOS A	1.8	13.2	0.52	0.55	0.52	47.8
All Vehicles			1219	3.4	1219	3.4	0.509	6.9	LOS A	1.8	13.2	0.58	0.59	0.58	49.1

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc2.2a_PM_09_Boundary Rd / Garden Island Hwy (Site Folder: 2.2a_PM Peak_HMAS Signals+Staggered RA)]

Network: N101 [PM Peak_2.2a_Safety Bay-Boundary-GIH (Network Folder: 2.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	105	1.0	105	1.0	0.097	3.3	LOS A	0.0	0.0	0.00	0.33	0.00	52.0
11	T1	All MCs	72	5.9	72	5.9	0.097	0.0	LOS A	0.0	0.0	0.00	0.33	0.00	56.5
Approach			177	3.0	177	3.0	0.097	2.0	NA	0.0	0.0	0.00	0.33	0.00	53.7
NorthWest: Garden Island Hwy															
5	T1	All MCs	573	3.7	573	3.7	0.408	0.3	LOS A	0.5	3.8	0.17	0.19	0.17	56.6
6	R2	All MCs	144	0.0	144	0.0	0.408	6.3	LOS A	0.5	3.8	0.17	0.19	0.17	55.6
Approach			717	2.9	717	2.9	0.408	1.5	NA	0.5	3.8	0.17	0.19	0.17	56.2
SouthWest: Boundary Rd															
7	L2	All MCs	1	0.0	1	0.0	0.177	5.8	LOS A	0.2	1.6	0.64	0.85	0.64	48.8
9	R2	All MCs	82	1.3	82	1.3	0.177	11.4	LOS B	0.2	1.6	0.64	0.85	0.64	43.8
Approach			83	1.3	83	1.3	0.177	11.3	LOS B	0.2	1.6	0.64	0.85	0.64	43.9
All Vehicles			977	2.8	977	2.8	0.408	2.4	NA	0.5	3.8	0.18	0.27	0.18	54.7

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2.2a_PM_06_Boundary Rd / Lease Rd (Site Folder: 2.2a_PM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.011	8.3	LOS A	0.0	0.3	0.37	0.87	0.37	44.0
2	T1	All MCs	2	0.0	2	0.0	0.011	8.8	LOS A	0.0	0.3	0.37	0.87	0.37	44.0
3	R2	All MCs	5	0.0	5	0.0	0.011	8.8	LOS A	0.0	0.3	0.37	0.87	0.37	43.9
Approach			8	0.0	8	0.0	0.011	8.7	LOS A	0.0	0.3	0.37	0.87	0.37	43.9
East: Boundary Rd															
4	L2	All MCs	14	0.0	14	0.0	0.124	4.6	LOS A	0.0	0.1	0.00	0.03	0.00	48.6
5	T1	All MCs	225	0.0	225	0.0	0.124	0.0	LOS A	0.0	0.1	0.00	0.03	0.00	49.8
6	R2	All MCs	1	0.0	1	0.0	0.124	4.6	LOS A	0.0	0.1	0.00	0.03	0.00	48.4
Approach			240	0.0	240	0.0	0.124	0.3	NA	0.0	0.1	0.00	0.03	0.00	49.7
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.003	7.7	LOS A	0.0	0.1	0.27	0.86	0.27	44.1
8	T1	All MCs	1	0.0	1	0.0	0.003	8.7	LOS A	0.0	0.1	0.27	0.86	0.27	44.1
9	R2	All MCs	1	0.0	1	0.0	0.003	8.8	LOS A	0.0	0.1	0.27	0.86	0.27	44.0
Approach			3	0.0	3	0.0	0.003	8.4	LOS A	0.0	0.1	0.27	0.86	0.27	44.1
West: Arcadia Dr															
10	L2	All MCs	22	0.0	22	0.0	0.050	4.6	LOS A	0.0	0.2	0.03	0.15	0.03	47.9
11	T1	All MCs	71	0.0	71	0.0	0.050	0.0	LOS A	0.0	0.2	0.03	0.15	0.03	49.1
12	R2	All MCs	2	0.0	2	0.0	0.050	5.1	LOS A	0.0	0.2	0.03	0.15	0.03	47.7
Approach			95	0.0	95	0.0	0.050	1.2	NA	0.0	0.2	0.03	0.15	0.03	48.8
All Vehicles			346	0.0	346	0.0	0.124	0.8	NA	0.0	0.3	0.02	0.09	0.02	49.3

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc2.2a_PM_07_Memorial Dr / Garden Island Hwy (Site Folder: 2.2a_PM Peak_HMAS Signals+Staggered RA)]

Network: N101 [PM Peak_2.2a_GIH-Memorial-Lease (Network Folder: 2.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	3	0.0	3	0.0	0.074	3.3	LOS A	0.2	1.5	0.21	0.39	0.21	45.6
11	T1	All MCs	92	4.6	92	4.6	0.074	3.6	LOS A	0.2	1.5	0.21	0.39	0.21	51.4
3	R2	All MCs	1	0.0	1	0.0	0.074	8.1	LOS A	0.2	1.5	0.21	0.39	0.21	50.4
Approach			96	4.4	96	4.4	0.074	3.7	LOS A	0.2	1.5	0.21	0.39	0.21	51.2
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.069	9.3	LOS A	0.2	1.2	0.73	0.74	0.73	42.3
5	T1	All MCs	3	0.0	3	0.0	0.069	9.6	LOS A	0.2	1.2	0.73	0.74	0.73	48.4
6	R2	All MCs	45	0.0	45	0.0	0.069	14.2	LOS B	0.2	1.2	0.73	0.74	0.73	47.7
Approach			49	0.0	49	0.0	0.069	13.8	LOS B	0.2	1.2	0.73	0.74	0.73	47.7
North: Garden Island Hwy															
7	L2	All MCs	6	0.0	6	0.0	0.433	3.8	LOS A	1.5	11.4	0.07	0.39	0.07	54.6
5	T1	All MCs	721	2.9	721	2.9	0.433	4.1	LOS A	1.5	11.4	0.07	0.39	0.07	52.6
6	R2	All MCs	1	0.0	1	0.0	0.433	8.7	LOS A	1.5	11.4	0.07	0.39	0.07	50.2
Approach			728	2.9	728	2.9	0.433	4.1	LOS A	1.5	11.4	0.07	0.39	0.07	52.7
West: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.004	3.5	LOS A	0.0	0.1	0.34	0.44	0.34	51.4
11	T1	All MCs	3	0.0	3	0.0	0.004	4.8	LOS A	0.0	0.1	0.34	0.44	0.34	51.7
9	R2	All MCs	1	0.0	1	0.0	0.004	8.0	LOS A	0.0	0.1	0.34	0.44	0.34	47.2
Approach			5	0.0	5	0.0	0.004	5.2	LOS A	0.0	0.1	0.34	0.44	0.34	51.1
All Vehicles			879	2.9	879	2.9	0.433	4.6	LOS A	1.5	11.4	0.12	0.41	0.12	51.9

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc2.2a_PM_10_Garden Island Hwy / Lease Rd (Site Folder: 2.2a_PM Peak_HMAS Signals+Staggered RA)]

Network: N101 [PM Peak_2.2a_GIH-Memorial-Lease (Network Folder: 2.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	72	5.9	72	5.9	0.040	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach			72	5.9	72	5.9	0.040	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: Garden Island Hwy															
5	T1	All MCs	716	2.9	716	2.9	0.377	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	All MCs	1	0.0	1	0.0	0.377	4.6	LOS A	0.0	0.0	0.00	0.00	0.00	47.5
Approach			717	2.9	717	2.9	0.377	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
West: Lease Rd															
7	L2	All MCs	24	0.0	24	0.0	0.016	4.8	LOS A	0.0	0.2	0.16	0.50	0.16	43.9
Approach			24	0.0	24	0.0	0.016	4.8	LOS A	0.0	0.2	0.16	0.50	0.16	43.9
All Vehicles			813	3.1	813	3.1	0.377	0.1	NA	0.0	0.2	0.01	0.02	0.01	49.8

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc2.2a_PM_11_Memorial Dr / Garden Island Hwy (Site Folder: 2.2a_PM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.002	3.5	LOS A	0.0	0.1	0.32	0.47	0.32	47.1
9	R2	All MCs	1	0.0	1	0.0	0.002	8.0	LOS A	0.0	0.1	0.32	0.47	0.32	48.3
Approach			2	0.0	2	0.0	0.002	5.7	LOS A	0.0	0.1	0.32	0.47	0.32	47.7
East: Garden Island Hwy															
10	L2	All MCs	4	0.0	4	0.0	0.081	3.8	LOS A	0.4	3.3	0.02	0.41	0.02	50.9
11	T1	All MCs	132	3.2	132	3.2	0.081	4.1	LOS A	0.4	3.3	0.02	0.41	0.02	53.7
Approach			136	3.1	136	3.1	0.081	4.1	LOS A	0.4	3.3	0.02	0.41	0.02	53.6
West: Garden Island Hwy															
5	T1	All MCs	728	2.9	728	2.9	0.427	4.1	LOS A	3.7	28.5	0.03	0.40	0.03	53.4
6	R2	All MCs	1	0.0	1	0.0	0.427	8.7	LOS A	3.7	28.5	0.03	0.40	0.03	48.9
Approach			729	2.9	729	2.9	0.427	4.1	LOS A	3.7	28.5	0.03	0.40	0.03	53.4
All Vehicles			867	2.9	867	2.9	0.427	4.1	LOS A	3.7	28.5	0.03	0.40	0.03	53.4

Scenario 2.2b – 2030 GIH/HMAS Signals + Single RA

AM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101vv [Sc2.2b_AM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 2.2b_AM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	31	20.7	31	20.7	0.025	6.6	LOS A	0.1	0.8	0.21	0.58	0.21	46.3
2	T1	All MCs	906	3.1	906	3.1	*0.682	28.6	LOS C	8.6	66.0	0.97	0.86	1.04	37.2
3	R2	All MCs	1	0.0	1	0.0	0.006	41.5	LOS D	0.0	0.2	0.92	0.59	0.92	35.8
Approach			938	3.7	938	3.7	0.682	27.9	LOS C	8.6	66.0	0.94	0.85	1.01	36.2
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.670	33.1	LOS C	6.3	46.1	0.99	0.86	1.09	35.6
5	T1	All MCs	14	0.0	14	0.0	*0.670	28.9	LOS C	6.3	46.1	0.99	0.86	1.09	36.7
6	R2	All MCs	615	0.0	615	0.0	0.670	33.2	LOS C	6.3	46.1	0.99	0.86	1.09	36.1
Approach			629	0.0	629	0.0	0.670	33.1	LOS C	6.3	46.1	0.99	0.86	1.09	36.1
North: HMAS Stirling Entrance															
7	L2	All MCs	66	1.6	66	1.6	0.045	5.2	LOS A	0.2	1.5	0.22	0.55	0.22	48.4
8	T1	All MCs	71	14.9	71	14.9	0.124	20.1	LOS C	1.1	10.1	0.82	0.61	0.82	39.6
9	R2	All MCs	1	0.0	1	0.0	*0.006	31.4	LOS C	0.0	0.2	0.92	0.58	0.92	34.6
Approach			138	8.4	138	8.4	0.124	13.0	LOS B	1.1	10.1	0.53	0.58	0.53	43.7
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.003	15.3	LOS B	0.0	0.1	0.81	0.58	0.81	40.5
11	T1	All MCs	13	8.3	13	8.3	0.069	27.9	LOS C	0.4	2.8	0.93	0.64	0.93	38.5
12	R2	All MCs	19	11.1	19	11.1	*0.113	32.9	LOS C	0.5	4.4	0.94	0.69	0.94	32.4
Approach			33	9.7	33	9.7	0.113	30.4	LOS C	0.5	4.4	0.93	0.66	0.93	35.0
All Vehicles			1738	2.8	1738	2.8	0.682	28.6	LOS C	8.6	66.0	0.93	0.83	1.00	36.6

Safety Bay Road / Parkin Street / Point Peron Road

MOVEMENT SUMMARY

▽ Site: 104v [Sc2.2b_AM_03_Safety Bay Rd / Parkin St / Point Peron Rd / Hymus St (Site Folder: 2.2b_AM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	11	0.0	11	0.0	0.179	7.7	LOS A	1.1	8.4	0.70	0.71	0.70	47.7
5	T1	All MCs	35	12.1	35	12.1	0.179	8.6	LOS A	1.1	8.4	0.70	0.71	0.70	45.2
6	R2	All MCs	92	5.7	92	5.7	0.179	12.8	LOS B	1.1	8.4	0.70	0.71	0.70	45.7
Approach			137	6.9	137	6.9	0.179	11.3	LOS B	1.1	8.4	0.70	0.71	0.70	45.7
East: Parkin St															
7	L2	All MCs	49	17.0	49	17.0	0.458	5.3	LOS A	3.2	23.9	0.41	0.47	0.41	48.4
5	T1	All MCs	522	0.0	522	0.0	0.458	5.0	LOS A	3.2	23.9	0.41	0.47	0.41	53.2
9	R2	All MCs	26	0.0	26	0.0	0.458	9.6	LOS A	3.2	23.9	0.41	0.47	0.41	52.4
Approach			598	1.4	598	1.4	0.458	5.2	LOS A	3.2	23.9	0.41	0.47	0.41	52.8
North: Hymus St															
10	L2	All MCs	11	0.0	11	0.0	0.130	4.6	LOS A	0.7	5.4	0.35	0.57	0.35	51.5
11	T1	All MCs	44	9.5	44	9.5	0.130	5.0	LOS A	0.7	5.4	0.35	0.57	0.35	48.6
9	R2	All MCs	100	0.0	100	0.0	0.130	9.5	LOS A	0.7	5.4	0.35	0.57	0.35	51.0
Approach			155	2.7	155	2.7	0.130	7.9	LOS A	0.7	5.4	0.35	0.57	0.35	50.5
West: Point Peron Rd															
10	L2	All MCs	15	0.0	15	0.0	0.065	4.6	LOS A	0.4	2.6	0.34	0.46	0.34	53.2
11	T1	All MCs	58	0.0	58	0.0	0.065	4.8	LOS A	0.4	2.6	0.34	0.46	0.34	53.6
12	R2	All MCs	5	20.0	5	20.0	0.065	9.9	LOS A	0.4	2.6	0.34	0.46	0.34	47.2
Approach			78	1.4	78	1.4	0.065	5.1	LOS A	0.4	2.6	0.34	0.46	0.34	53.1
All Vehicles			967	2.4	967	2.4	0.458	6.5	LOS A	3.2	23.9	0.44	0.52	0.44	51.5

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

▽ Site: 105 [Sc2.2b_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2.2b_AM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	26	0.0	26	0.0	0.081	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	56.5
11	T1	All MCs	123	9.4	123	9.4	0.081	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	58.7
Approach			149	7.7	149	7.7	0.081	1.0	NA	0.0	0.0	0.00	0.10	0.00	58.2
North: Safety Bay Rd															
5	T1	All MCs	102	14.4	102	14.4	0.071	0.1	LOS A	0.1	1.0	0.09	0.13	0.09	58.4
6	R2	All MCs	19	0.0	19	0.0	0.071	5.9	LOS A	0.1	1.0	0.09	0.13	0.09	50.2
Approach			121	12.2	121	12.2	0.071	1.0	NA	0.1	1.0	0.09	0.13	0.09	56.9
West: Memorial Dr															
7	L2	All MCs	5	0.0	5	0.0	0.007	4.9	LOS A	0.0	0.2	0.24	0.51	0.24	46.4
9	R2	All MCs	3	0.0	3	0.0	0.007	5.5	LOS A	0.0	0.2	0.24	0.51	0.24	48.3
Approach			8	0.0	8	0.0	0.007	5.1	LOS A	0.0	0.2	0.24	0.51	0.24	47.2
All Vehicles			279	9.4	279	9.4	0.081	1.1	NA	0.1	1.0	0.05	0.13	0.05	57.2

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc2.2b_AM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 2.2b_AM Peak_HMAS Signals+Single RA)]

Network: N101 [AM Peak_2.2b_Safety Bay-Boundary-GIH (Network Folder: 2.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	595	0.0	595	0.0	0.564	5.4	LOS A	1.8	13.5	0.64	0.55	0.64	49.3
8	T1	All MCs	56	0.0	56	0.0	0.564	5.8	LOS A	1.8	13.5	0.64	0.55	0.64	53.2
3b	R3	All MCs	1	0.0	1	0.0	0.564	12.1	LOS B	1.8	13.5	0.64	0.55	0.64	52.3
Approach			652	0.0	652	0.0	0.564	5.5	LOS A	1.8	13.5	0.64	0.55	0.64	49.9
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	0.0	1	0.0	0.190	4.5	LOS A	0.5	3.8	0.35	0.42	0.35	53.3
22	T1	All MCs	196	19.4	196	19.4	0.190	4.8	LOS A	0.5	3.8	0.35	0.42	0.35	50.7
23a	R1	All MCs	19	72.2	19	72.2	0.190	10.2	LOS B	0.5	3.8	0.35	0.42	0.35	38.2
Approach			216	23.9	216	23.9	0.190	5.2	LOS A	0.5	3.8	0.35	0.42	0.35	48.2
North: Safety Bay Rd															
7a	L1	All MCs	27	50.0	27	50.0	0.096	4.4	LOS A	0.2	1.6	0.22	0.47	0.22	43.5
2	T1	All MCs	56	0.0	56	0.0	0.096	4.0	LOS A	0.2	1.6	0.22	0.47	0.22	53.4
9b	R3	All MCs	33	3.2	33	3.2	0.096	10.4	LOS B	0.2	1.6	0.22	0.47	0.22	49.8
Approach			116	12.7	116	12.7	0.096	5.9	LOS A	0.2	1.6	0.22	0.47	0.22	49.7
NorthWest: Garden Island Hwy															
27b	L3	All MCs	51	0.0	51	0.0	0.093	2.3	LOS A	0.2	1.8	0.27	0.48	0.27	51.1
28	T1	All MCs	27	53.8	27	53.8	0.093	3.0	LOS A	0.2	1.8	0.27	0.48	0.27	36.2
29a	R1	All MCs	37	0.0	37	0.0	0.093	6.1	LOS A	0.2	1.8	0.27	0.48	0.27	50.6
Approach			115	12.8	115	12.8	0.093	3.7	LOS A	0.2	1.8	0.27	0.48	0.27	46.4
All Vehicles			1098	7.4	1098	7.4	0.564	5.3	LOS A	1.8	13.5	0.50	0.51	0.50	49.2

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc2.2b_AM_09_Boundary Rd / Garden Island Hwy (Site Folder: 2.2b_AM Peak_HMAS Signals+Single RA)]

Network: N101 [AM Peak_2.2b_Safety Bay-Boundary-GIH (Network Folder: 2.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	41	12.8	41	12.8	0.443	3.3	LOS A	0.0	0.0	0.00	0.03	0.00	48.2
11	T1	All MCs	782	4.4	782	4.4	0.443	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.4
Approach			823	4.9	823	4.9	0.443	0.2	NA	0.0	0.0	0.00	0.03	0.00	58.7
NorthWest: Garden Island Hwy															
5	T1	All MCs	61	20.7	61	20.7	0.079	2.8	LOS A	0.1	1.3	0.46	0.56	0.46	51.1
6	R2	All MCs	26	0.0	26	0.0	0.079	10.4	LOS B	0.1	1.3	0.46	0.56	0.46	52.8
Approach			87	14.5	87	14.5	0.079	5.0	NA	0.1	1.3	0.46	0.56	0.46	51.9
SouthWest: Boundary Rd															
7	L2	All MCs	3	0.0	3	0.0	0.144	10.0	LOS A	0.2	1.3	0.70	0.88	0.70	48.0
9	R2	All MCs	57	3.7	57	3.7	0.144	12.7	LOS B	0.2	1.3	0.70	0.88	0.70	42.7
Approach			60	3.5	60	3.5	0.144	12.5	LOS B	0.2	1.3	0.70	0.88	0.70	43.1
All Vehicles			971	5.6	971	5.6	0.443	1.4	NA	0.2	1.3	0.08	0.13	0.08	56.7

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2.2b_AM_06_Boundary Rd / Lease Rd (Site Folder: 2.2b_AM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.011	7.6	LOS A	0.0	0.3	0.24	0.90	0.24	44.4
2	T1	All MCs	4	0.0	4	0.0	0.011	8.2	LOS A	0.0	0.3	0.24	0.90	0.24	44.4
3	R2	All MCs	5	0.0	5	0.0	0.011	7.6	LOS A	0.0	0.3	0.24	0.90	0.24	44.2
Approach			11	0.0	11	0.0	0.011	7.8	LOS A	0.0	0.3	0.24	0.90	0.24	44.3
East: Boundary Rd															
4	L2	All MCs	4	0.0	4	0.0	0.037	4.8	LOS A	0.0	0.3	0.05	0.09	0.05	48.2
5	T1	All MCs	58	9.1	58	9.1	0.037	0.0	LOS A	0.0	0.3	0.05	0.09	0.05	49.4
6	R2	All MCs	4	0.0	4	0.0	0.037	5.0	LOS A	0.0	0.3	0.05	0.09	0.05	48.0
Approach			66	7.9	66	7.9	0.037	0.7	NA	0.0	0.3	0.05	0.09	0.05	49.3
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.003	7.6	LOS A	0.0	0.1	0.19	0.90	0.19	44.4
8	T1	All MCs	1	0.0	1	0.0	0.003	7.9	LOS A	0.0	0.1	0.19	0.90	0.19	44.4
9	R2	All MCs	1	0.0	1	0.0	0.003	7.9	LOS A	0.0	0.1	0.19	0.90	0.19	44.2
Approach			3	0.0	3	0.0	0.003	7.8	LOS A	0.0	0.1	0.19	0.90	0.19	44.3
West: Arcadia Dr															
10	L2	All MCs	116	0.9	116	0.9	0.089	4.6	LOS A	0.0	0.2	0.01	0.39	0.01	46.6
11	T1	All MCs	43	7.3	43	7.3	0.089	0.0	LOS A	0.0	0.2	0.01	0.39	0.01	47.7
12	R2	All MCs	3	0.0	3	0.0	0.089	4.6	LOS A	0.0	0.2	0.01	0.39	0.01	46.4
Approach			162	2.6	162	2.6	0.089	3.4	NA	0.0	0.2	0.01	0.39	0.01	46.9
All Vehicles			242	3.9	242	3.9	0.089	2.9	NA	0.0	0.3	0.03	0.34	0.03	47.4

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc2.2b_AM_07_Memorial Dr / Garden Island Hwy (Site Folder: 2.2b_AM Peak_HMAS Signals+Single RA)]

Network: N101 [AM Peak_2.2b_GIH-Memorial-Lease (Network Folder: 2.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.603	3.5	LOS A	2.7	20.6	0.32	0.38	0.32	45.1
11	T1	All MCs	904	4.0	904	4.0	0.603	3.8	LOS A	2.7	20.6	0.32	0.38	0.32	49.6
3	R2	All MCs	2	0.0	2	0.0	0.603	8.3	LOS A	2.7	20.6	0.32	0.38	0.32	49.8
Approach			907	3.9	907	3.9	0.603	3.8	LOS A	2.7	20.6	0.32	0.38	0.32	49.6
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.036	4.4	LOS A	0.1	0.6	0.28	0.59	0.28	46.5
5	T1	All MCs	2	0.0	2	0.0	0.036	4.6	LOS A	0.1	0.6	0.28	0.59	0.28	51.2
6	R2	All MCs	42	0.0	42	0.0	0.036	9.2	LOS A	0.1	0.6	0.28	0.59	0.28	50.4
Approach			45	0.0	45	0.0	0.036	8.9	LOS A	0.1	0.6	0.28	0.59	0.28	50.4
North: Garden Island Hwy															
7	L2	All MCs	4	0.0	4	0.0	0.062	3.8	LOS A	0.2	1.3	0.05	0.40	0.05	54.6
5	T1	All MCs	85	13.6	85	13.6	0.062	4.2	LOS A	0.2	1.3	0.05	0.40	0.05	52.7
6	R2	All MCs	1	0.0	1	0.0	0.062	8.7	LOS A	0.2	1.3	0.05	0.40	0.05	50.2
Approach			91	12.8	91	12.8	0.062	4.3	LOS A	0.2	1.3	0.05	0.40	0.05	52.8
West: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.008	11.0	LOS B	0.0	0.2	0.85	0.64	0.85	46.7
11	T1	All MCs	2	0.0	2	0.0	0.008	12.3	LOS B	0.0	0.2	0.85	0.64	0.85	46.9
9	R2	All MCs	1	0.0	1	0.0	0.008	15.5	LOS B	0.0	0.2	0.85	0.64	0.85	40.0
Approach			4	0.0	4	0.0	0.008	12.8	LOS B	0.0	0.2	0.85	0.64	0.85	45.7
All Vehicles			1047	4.5	1047	4.5	0.603	4.1	LOS A	2.7	20.6	0.30	0.40	0.30	49.9

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc2.2b_AM_10_Garden Island Hwy / Lease Rd (Site Folder: 2.2b_AM Peak_HMAS Signals+Single RA)]

Network: N101 [AM Peak_2.2b_GIH-Memorial-Lease (Network Folder: 2.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	785	4.4	785	4.4	0.419	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach			785	4.4	785	4.4	0.419	0.2	NA	0.0	0.0	0.00	0.00	0.00	49.8
North: Garden Island Hwy															
5	T1	All MCs	87	14.5	87	14.5	0.055	0.1	LOS A	0.0	0.1	0.02	0.03	0.02	49.7
6	R2	All MCs	1	0.0	1	0.0	0.055	8.9	LOS A	0.0	0.1	0.02	0.03	0.02	47.3
Approach			88	14.3	88	14.3	0.055	0.2	NA	0.0	0.1	0.02	0.03	0.02	49.7
West: Lease Rd															
7	L2	All MCs	123	0.9	123	0.9	0.194	9.3	LOS A	0.3	2.1	0.66	0.84	0.66	40.0
Approach			123	0.9	123	0.9	0.194	9.3	LOS A	0.3	2.1	0.66	0.84	0.66	40.0
All Vehicles			997	4.9	997	4.9	0.419	1.3	NA	0.3	2.1	0.08	0.11	0.08	48.3

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc2.2b_AM_11_Memorial Dr / Garden Island Hwy (Site Folder: 2.2b_AM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	1	100.0	1	100.0	0.005	18.9	LOS B	0.0	0.3	0.81	0.66	0.81	28.1
9	R2	All MCs	1	0.0	1	0.0	0.005	15.4	LOS B	0.0	0.3	0.81	0.66	0.81	42.3
Approach			2	50.0	2	50.0	0.005	17.1	LOS B	0.0	0.3	0.81	0.66	0.81	34.4
East: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.554	3.8	LOS A	5.3	40.8	0.03	0.40	0.03	50.8
11	T1	All MCs	943	3.7	943	3.7	0.554	4.1	LOS A	5.3	40.8	0.03	0.40	0.03	53.5
Approach			944	3.7	944	3.7	0.554	4.1	LOS A	5.3	40.8	0.03	0.40	0.03	53.5
West: Garden Island Hwy															
5	T1	All MCs	88	13.1	88	13.1	0.058	4.2	LOS A	0.4	3.4	0.02	0.41	0.02	50.6
6	R2	All MCs	1	0.0	1	0.0	0.058	8.7	LOS A	0.4	3.4	0.02	0.41	0.02	48.9
Approach			89	12.9	89	12.9	0.058	4.3	LOS A	0.4	3.4	0.02	0.41	0.02	50.6
All Vehicles			1036	4.6	1036	4.6	0.554	4.1	LOS A	5.3	40.8	0.03	0.40	0.03	53.2

PM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101vv [Sc2.2b_PM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 2.2b_PM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	46	0.0	46	0.0	0.028	6.0	LOS A	0.1	1.0	0.12	0.57	0.12	47.5
2	T1	All MCs	69	6.1	69	6.1	0.021	9.7	LOS A	0.5	3.8	0.40	0.42	0.40	46.0
3	R2	All MCs	1	0.0	1	0.0	0.010	60.0	LOS E	0.1	0.4	0.96	0.59	0.96	27.1
Approach			117	3.6	117	3.6	0.028	8.7	LOS A	0.5	3.8	0.29	0.48	0.29	46.3
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.174	62.3	LOS E	1.0	7.2	0.98	0.69	0.98	27.1
5	T1	All MCs	7	0.0	7	0.0	*0.174	57.9	LOS E	1.0	7.2	0.98	0.69	0.98	28.8
6	R2	All MCs	45	0.0	45	0.0	0.174	62.3	LOS E	1.0	7.2	0.98	0.69	0.98	28.1
Approach			54	0.0	54	0.0	0.174	61.7	LOS E	1.0	7.2	0.98	0.69	0.98	28.2
North: HMAS Stirling Entrance															
7	L2	All MCs	826	0.0	826	0.0	0.500	5.1	LOS A	4.5	33.3	0.21	0.57	0.21	48.8
8	T1	All MCs	696	2.9	696	2.9	*0.388	13.8	LOS B	12.1	92.0	0.51	0.45	0.51	45.0
9	R2	All MCs	3	0.0	3	0.0	*0.031	64.2	LOS E	0.2	1.2	0.97	0.62	0.97	27.4
Approach			1525	1.3	1525	1.3	0.500	9.2	LOS A	12.1	92.0	0.35	0.51	0.35	46.2
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.005	38.4	LOS D	0.0	0.3	0.91	0.58	0.91	32.2
11	T1	All MCs	13	8.3	13	8.3	0.127	56.4	LOS E	0.7	5.5	0.98	0.67	0.98	29.7
12	R2	All MCs	39	2.7	39	2.7	*0.392	62.6	LOS E	2.2	16.4	1.00	0.73	1.00	25.2
Approach			53	4.0	53	4.0	0.392	60.7	LOS E	2.2	16.4	0.99	0.71	0.99	26.4
All Vehicles			1748	1.5	1748	1.5	0.500	12.3	LOS B	12.1	92.0	0.39	0.52	0.39	44.3

Safety Bay Road / Parkin Street / Point Peron Road

MOVEMENT SUMMARY

Site: 104v [Sc2.1b_PM_03_Safety Bay Rd / Parkin St / Point Peron Rd / Hymus St (Site Folder: 2.2b_PM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	1	0.0	1	0.0	0.143	4.2	LOS A	0.8	6.0	0.22	0.55	0.22	50.4
5	T1	All MCs	67	0.0	67	0.0	0.143	4.4	LOS A	0.8	6.0	0.22	0.55	0.22	50.8
6	R2	All MCs	123	6.8	123	6.8	0.143	9.2	LOS A	0.8	6.0	0.22	0.55	0.22	47.8
Approach			192	4.4	192	4.4	0.143	7.5	LOS A	0.8	6.0	0.22	0.55	0.22	48.8
East: Parkin St															
7	L2	All MCs	187	1.7	187	1.7	0.192	4.5	LOS A	1.1	8.4	0.33	0.48	0.33	51.8
5	T1	All MCs	40	0.0	40	0.0	0.192	4.6	LOS A	1.1	8.4	0.33	0.48	0.33	53.9
9	R2	All MCs	15	0.0	15	0.0	0.192	9.3	LOS A	1.1	8.4	0.33	0.48	0.33	53.0
Approach			242	1.3	242	1.3	0.192	4.8	LOS A	1.1	8.4	0.33	0.48	0.33	52.3
North: Hymus St															
10	L2	All MCs	8	0.0	8	0.0	0.224	10.1	LOS B	1.5	11.5	0.86	0.75	0.86	49.8
11	T1	All MCs	108	1.9	108	1.9	0.224	10.4	LOS B	1.5	11.5	0.86	0.75	0.86	48.0
9	R2	All MCs	17	0.0	17	0.0	0.224	14.9	LOS B	1.5	11.5	0.86	0.75	0.86	49.4
Approach			134	1.6	134	1.6	0.224	10.9	LOS B	1.5	11.5	0.86	0.75	0.86	48.3
West: Point Peron Rd															
10	L2	All MCs	83	0.0	83	0.0	0.666	5.8	LOS A	6.3	46.6	0.65	0.55	0.66	52.0
11	T1	All MCs	745	0.0	745	0.0	0.666	6.0	LOS A	6.3	46.6	0.65	0.55	0.66	52.3
12	R2	All MCs	3	33.3	3	33.3	0.666	11.9	LOS B	6.3	46.6	0.65	0.55	0.66	43.8
Approach			832	0.1	832	0.1	0.666	6.0	LOS A	6.3	46.6	0.65	0.55	0.66	52.2
All Vehicles			1399	1.1	1399	1.1	0.666	6.5	LOS A	6.3	46.6	0.56	0.55	0.56	51.4

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc2.2b_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2.2b_PM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1	0.0	1	0.0	0.100	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
11	T1	All MCs	192	4.4	192	4.4	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			193	4.4	193	4.4	0.100	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Safety Bay Rd															
5	T1	All MCs	274	2.3	274	2.3	0.160	0.1	LOS A	0.2	1.8	0.08	0.10	0.08	58.9
6	R2	All MCs	32	0.0	32	0.0	0.160	6.1	LOS A	0.2	1.8	0.08	0.10	0.08	50.5
Approach			305	2.1	305	2.1	0.160	0.7	NA	0.2	1.8	0.08	0.10	0.08	57.9
West: Memorial Dr															
7	L2	All MCs	16	0.0	16	0.0	0.013	5.1	LOS A	0.0	0.4	0.28	0.51	0.28	46.3
9	R2	All MCs	1	0.0	1	0.0	0.013	6.6	LOS A	0.0	0.4	0.28	0.51	0.28	48.2
Approach			17	0.0	17	0.0	0.013	5.2	LOS A	0.0	0.4	0.28	0.51	0.28	46.4
All Vehicles			515	2.9	515	2.9	0.160	0.6	NA	0.2	1.8	0.06	0.08	0.06	58.1

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc2.2b_PM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 2.2b_PM Peak_HMAS Signals+Single RA)]

Network: N101 [PM Peak_2.2b_Safety Bay-Boundary-GIH (Network Folder: 2.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	52	0.0	52	0.0	0.145	4.1	LOS A	0.3	2.4	0.36	0.43	0.36	50.9
8	T1	All MCs	122	0.0	122	0.0	0.145	4.5	LOS A	0.3	2.4	0.36	0.43	0.36	54.1
3b	R3	All MCs	1	0.0	1	0.0	0.145	10.8	LOS B	0.3	2.4	0.36	0.43	0.36	53.2
Approach			175	0.0	175	0.0	0.145	4.4	LOS A	0.3	2.4	0.36	0.43	0.36	53.5
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	100.0	1	100.0	0.095	13.6	LOS B	0.2	1.9	0.73	0.70	0.73	43.7
22	T1	All MCs	32	16.7	32	16.7	0.095	8.8	LOS A	0.2	1.9	0.73	0.70	0.73	45.1
23a	R1	All MCs	27	30.8	27	30.8	0.095	13.9	LOS B	0.2	1.9	0.73	0.70	0.73	43.1
Approach			60	24.6	60	24.6	0.095	11.2	LOS B	0.2	1.9	0.73	0.70	0.73	43.8
North: Safety Bay Rd															
7a	L1	All MCs	41	15.4	41	15.4	0.424	8.4	LOS A	1.2	9.0	0.79	0.72	0.80	47.7
2	T1	All MCs	197	0.0	197	0.0	0.424	8.0	LOS A	1.2	9.0	0.79	0.72	0.80	50.9
9b	R3	All MCs	96	0.0	96	0.0	0.424	14.3	LOS B	1.2	9.0	0.79	0.72	0.80	45.8
Approach			334	1.9	334	1.9	0.424	9.9	LOS A	1.2	9.0	0.79	0.72	0.80	49.5
NorthWest: Garden Island Hwy															
27b	L3	All MCs	75	0.0	75	0.0	0.509	3.1	LOS A	1.8	13.2	0.52	0.55	0.52	49.0
28	T1	All MCs	181	11.6	181	11.6	0.509	3.7	LOS A	1.8	13.2	0.52	0.55	0.52	45.8
29a	R1	All MCs	397	0.0	397	0.0	0.509	7.0	LOS A	1.8	13.2	0.52	0.55	0.52	48.6
Approach			653	3.2	653	3.2	0.509	5.6	LOS A	1.8	13.2	0.52	0.55	0.52	47.8
All Vehicles			1221	3.4	1221	3.4	0.509	6.9	LOS A	1.8	13.2	0.58	0.59	0.58	49.1

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc2.2b_PM_09_Boundary Rd / Garden Island Hwy (Site Folder: 2.2b_PM Peak_HMAS Signals+Single RA)]

Network: N101 [PM Peak_2.2b_Safety Bay-Boundary-GIH (Network Folder: 2.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	106	1.0	106	1.0	0.097	3.3	LOS A	0.0	0.0	0.00	0.33	0.00	52.0
11	T1	All MCs	72	5.9	72	5.9	0.097	0.0	LOS A	0.0	0.0	0.00	0.33	0.00	56.5
Approach			178	3.0	178	3.0	0.097	2.0	NA	0.0	0.0	0.00	0.33	0.00	53.7
NorthWest: Garden Island Hwy															
5	T1	All MCs	572	3.7	572	3.7	0.407	0.3	LOS A	0.5	3.8	0.17	0.19	0.17	56.6
6	R2	All MCs	143	0.0	143	0.0	0.407	6.3	LOS A	0.5	3.8	0.17	0.19	0.17	55.6
Approach			715	2.9	715	2.9	0.407	1.5	NA	0.5	3.8	0.17	0.19	0.17	56.2
SouthWest: Boundary Rd															
7	L2	All MCs	1	0.0	1	0.0	0.176	5.8	LOS A	0.2	1.6	0.64	0.85	0.64	48.8
9	R2	All MCs	82	1.3	82	1.3	0.176	11.4	LOS B	0.2	1.6	0.64	0.85	0.64	43.9
Approach			83	1.3	83	1.3	0.176	11.3	LOS B	0.2	1.6	0.64	0.85	0.64	44.0
All Vehicles			976	2.8	976	2.8	0.407	2.4	NA	0.5	3.8	0.18	0.27	0.18	54.7

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2.2b_PM_06_Boundary Rd / Lease Rd (Site Folder: 2.2b_PM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.011	8.3	LOS A	0.0	0.3	0.37	0.87	0.37	44.0
2	T1	All MCs	2	0.0	2	0.0	0.011	8.8	LOS A	0.0	0.3	0.37	0.87	0.37	44.0
3	R2	All MCs	5	0.0	5	0.0	0.011	8.8	LOS A	0.0	0.3	0.37	0.87	0.37	43.9
Approach			8	0.0	8	0.0	0.011	8.7	LOS A	0.0	0.3	0.37	0.87	0.37	43.9
East: Boundary Rd															
4	L2	All MCs	14	0.0	14	0.0	0.124	4.6	LOS A	0.0	0.1	0.00	0.03	0.00	48.6
5	T1	All MCs	225	0.0	225	0.0	0.124	0.0	LOS A	0.0	0.1	0.00	0.03	0.00	49.8
6	R2	All MCs	1	0.0	1	0.0	0.124	4.6	LOS A	0.0	0.1	0.00	0.03	0.00	48.4
Approach			240	0.0	240	0.0	0.124	0.3	NA	0.0	0.1	0.00	0.03	0.00	49.7
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.003	7.7	LOS A	0.0	0.1	0.27	0.86	0.27	44.1
8	T1	All MCs	1	0.0	1	0.0	0.003	8.7	LOS A	0.0	0.1	0.27	0.86	0.27	44.1
9	R2	All MCs	1	0.0	1	0.0	0.003	8.8	LOS A	0.0	0.1	0.27	0.86	0.27	44.0
Approach			3	0.0	3	0.0	0.003	8.4	LOS A	0.0	0.1	0.27	0.86	0.27	44.1
West: Arcadia Dr															
10	L2	All MCs	22	0.0	22	0.0	0.050	4.6	LOS A	0.0	0.2	0.03	0.15	0.03	47.9
11	T1	All MCs	71	0.0	71	0.0	0.050	0.0	LOS A	0.0	0.2	0.03	0.15	0.03	49.1
12	R2	All MCs	2	0.0	2	0.0	0.050	5.1	LOS A	0.0	0.2	0.03	0.15	0.03	47.7
Approach			95	0.0	95	0.0	0.050	1.2	NA	0.0	0.2	0.03	0.15	0.03	48.8
All Vehicles			346	0.0	346	0.0	0.124	0.8	NA	0.0	0.3	0.02	0.09	0.02	49.3

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc2.2b_PM_07_Memorial Dr / Garden Island Hwy (Site Folder: 2.2b_PM Peak_HMAS Signals+Single RA)]

Network: N101 [PM Peak_2.2b_GIH-Memorial-Lease (Network Folder: 2.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	3	0.0	3	0.0	0.071	3.2	LOS A	0.2	1.4	0.17	0.38	0.17	45.8
11	T1	All MCs	92	4.6	92	4.6	0.071	3.5	LOS A	0.2	1.4	0.17	0.38	0.17	51.7
3	R2	All MCs	1	0.0	1	0.0	0.071	8.0	LOS A	0.2	1.4	0.17	0.38	0.17	50.7
Approach			96	4.4	96	4.4	0.071	3.6	LOS A	0.2	1.4	0.17	0.38	0.17	51.5
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.046	9.2	LOS A	0.1	0.8	0.72	0.72	0.72	42.5
5	T1	All MCs	3	0.0	3	0.0	0.046	9.5	LOS A	0.1	0.8	0.72	0.72	0.72	48.6
6	R2	All MCs	28	0.0	28	0.0	0.046	14.1	LOS B	0.1	0.8	0.72	0.72	0.72	47.9
Approach			33	0.0	33	0.0	0.046	13.5	LOS B	0.1	0.8	0.72	0.72	0.72	47.9
North: Garden Island Hwy															
7	L2	All MCs	12	0.0	12	0.0	0.435	3.8	LOS A	1.5	11.5	0.07	0.39	0.07	54.6
5	T1	All MCs	720	2.9	720	2.9	0.435	4.1	LOS A	1.5	11.5	0.07	0.39	0.07	52.7
6	R2	All MCs	1	0.0	1	0.0	0.435	8.7	LOS A	1.5	11.5	0.07	0.39	0.07	50.2
Approach			733	2.9	733	2.9	0.435	4.1	LOS A	1.5	11.5	0.07	0.39	0.07	52.7
West: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.004	3.5	LOS A	0.0	0.1	0.32	0.44	0.32	51.5
11	T1	All MCs	3	0.0	3	0.0	0.004	4.7	LOS A	0.0	0.1	0.32	0.44	0.32	51.8
9	R2	All MCs	1	0.0	1	0.0	0.004	8.0	LOS A	0.0	0.1	0.32	0.44	0.32	47.3
Approach			5	0.0	5	0.0	0.004	5.1	LOS A	0.0	0.1	0.32	0.44	0.32	51.2
All Vehicles			866	2.9	866	2.9	0.435	4.4	LOS A	1.5	11.5	0.11	0.40	0.11	52.2

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc2.2b_PM_10_Garden Island Hwy / Lease Rd (Site Folder: 2.2b_PM Peak_HMAS Signals+Single RA)]

Network: N101 [PM Peak_2.2b_GIH-Memorial-Lease (Network Folder: 2.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	72	5.9	72	5.9	0.040	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach			72	5.9	72	5.9	0.040	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: Garden Island Hwy															
5	T1	All MCs	715	2.9	715	2.9	0.377	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	All MCs	1	0.0	1	0.0	0.377	4.6	LOS A	0.0	0.0	0.00	0.00	0.00	47.5
Approach			716	2.9	716	2.9	0.377	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
West: Lease Rd															
7	L2	All MCs	24	0.0	24	0.0	0.016	4.8	LOS A	0.0	0.2	0.16	0.50	0.16	43.9
Approach			24	0.0	24	0.0	0.016	4.8	LOS A	0.0	0.2	0.16	0.50	0.16	43.9
All Vehicles			812	3.1	812	3.1	0.377	0.1	NA	0.0	0.2	0.01	0.02	0.01	49.8

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc2.2b_PM_11_Memorial Dr / Garden Island Hwy (Site Folder: 2.2b_PM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.002	3.4	LOS A	0.0	0.1	0.30	0.47	0.30	47.2
9	R2	All MCs	1	0.0	1	0.0	0.002	7.9	LOS A	0.0	0.1	0.30	0.47	0.30	48.3
Approach			2	0.0	2	0.0	0.002	5.7	LOS A	0.0	0.1	0.30	0.47	0.30	47.8
East: Garden Island Hwy															
10	L2	All MCs	5	0.0	5	0.0	0.072	3.8	LOS A	0.4	2.9	0.02	0.41	0.02	50.9
11	T1	All MCs	115	3.7	115	3.7	0.072	4.1	LOS A	0.4	2.9	0.02	0.41	0.02	53.6
Approach			120	3.5	120	3.5	0.072	4.1	LOS A	0.4	2.9	0.02	0.41	0.02	53.5
West: Garden Island Hwy															
5	T1	All MCs	733	2.9	733	2.9	0.429	4.1	LOS A	3.7	28.5	0.03	0.40	0.03	53.4
6	R2	All MCs	1	0.0	1	0.0	0.429	8.7	LOS A	3.7	28.5	0.03	0.40	0.03	48.9
Approach			734	2.9	734	2.9	0.429	4.1	LOS A	3.7	28.5	0.03	0.40	0.03	53.4
All Vehicles			856	3.0	856	3.0	0.429	4.1	LOS A	3.7	28.5	0.03	0.40	0.03	53.4

Scenario 2.3a – 2030 No GIH + Staggered RAs

AM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

Site: 101 [Sc2.3a_AM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: 2.3a_AM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	45	23.3	45	23.3	0.465	4.6	LOS A	4.2	32.4	0.03	0.64	0.03	44.7
6	R2	All MCs	1529	2.1	1529	2.1	0.465	8.8	LOS A	4.3	32.5	0.03	0.64	0.03	44.4
Approach			1575	2.7	1575	2.7	0.465	8.7	LOS A	4.3	32.5	0.03	0.64	0.03	44.4
North: HMAS Stirling Entrance															
7	L2	All MCs	137	8.5	137	8.5	0.104	3.1	LOS A	0.7	5.7	0.19	0.39	0.19	46.6
9	R2	All MCs	1	0.0	1	0.0	0.104	7.5	LOS A	0.7	5.7	0.19	0.39	0.19	46.7
Approach			138	8.4	138	8.4	0.104	3.1	LOS A	0.7	5.7	0.19	0.39	0.19	46.6
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.065	7.4	LOS A	0.2	1.9	0.63	0.74	0.63	44.6
11	T1	All MCs	35	9.1	35	9.1	0.065	8.2	LOS A	0.2	1.9	0.63	0.74	0.63	43.7
Approach			36	8.8	36	8.8	0.065	8.2	LOS A	0.2	1.9	0.63	0.74	0.63	43.8
All Vehicles			1748	3.3	1748	3.3	0.465	8.2	LOS A	4.3	32.5	0.05	0.62	0.05	44.5

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

Site: 102 [Sc2.3a_AM_08_Memorial Dr / Point Peron Rd (Site Folder: 2.3a_AM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	118	2.7	118	2.7	0.121	8.2	LOS A	0.5	3.6	0.46	0.63	0.46	44.2
9	R2	All MCs	1	0.0	1	0.0	0.121	65.5	LOS F	0.5	3.6	0.46	0.63	0.46	47.9
Approach			119	2.7	119	2.7	0.121	8.8	LOS A	0.5	3.6	0.46	0.63	0.46	44.3
East: Point Peron Rd (E)															
10	L2	All MCs	1	0.0	1	0.0	0.192	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
11	T1	All MCs	1462	2.8	1462	2.8	0.556	1.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.6
Approach			1463	2.8	1463	2.8	0.556	1.1	NA	0.0	0.0	0.00	0.00	0.00	59.6
West: Point Peron Rd (W)															
5	T1	All MCs	138	9.2	138	9.2	0.348	29.3	LOS D	3.6	29.9	0.75	0.78	0.87	35.0
6	R2	All MCs	33	3.2	33	3.2	0.348	42.8	LOS E	3.6	29.9	0.75	0.78	0.87	31.6
Approach			171	8.0	171	8.0	0.348	31.9	NA	3.6	29.9	0.75	0.78	0.87	34.3
All Vehicles			1753	3.3	1753	3.3	0.556	4.6	NA	3.6	29.9	0.10	0.12	0.12	54.4

Safety Bay Road / Point Peron Road

MOVEMENT SUMMARY

Site: 103 [Sc2.3a_AM_02_Safety Bay Rd / Point Peron Rd / Hymus St (Site Folder: 2.3a_AM Peak_No GIH+Staggered RA)]

Network: N101 [AM Peak_2.3a_No GIH +Staggered RA (Network Folder: 2.3a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1360	2.9	1360	2.9	0.725	3.8	LOS A	8.6	65.8	0.49	0.48	0.49	50.2
11	T1	All MCs	62	6.8	62	6.8	0.725	3.6	LOS A	8.6	65.8	0.53	0.49	0.53	45.6
Approach			1422	3.0	1422	3.0	0.725	3.8	LOS A	8.6	65.8	0.49	0.48	0.49	50.0
North: Hymus St															
5	T1	All MCs	52	10.2	52	10.2	0.148	3.5	LOS A	0.6	4.7	0.26	0.54	0.26	42.4
6	R2	All MCs	109	1.9	109	1.9	0.148	8.1	LOS A	0.6	4.7	0.26	0.54	0.26	47.4
Approach			161	4.6	161	4.6	0.148	6.6	LOS A	0.6	4.7	0.26	0.54	0.26	46.3
West: Point Peron Rd															
7	L2	All MCs	16	6.7	16	6.7	0.050	4.5	LOS A	0.3	2.2	0.20	0.57	0.20	47.8
9	R2	All MCs	121	9.6	121	9.6	0.050	9.2	LOS A	0.3	2.2	0.21	0.58	0.21	47.0
Approach			137	9.2	137	9.2	0.050	8.6	LOS A	0.3	2.2	0.21	0.58	0.21	47.1
All Vehicles			1720	3.7	1720	3.7	0.725	4.4	LOS A	8.6	65.8	0.45	0.50	0.45	49.2

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104 [Sc2.3a_AM_03_Safety Bay Rd / Parkin St / Hymus St (Site Folder: 2.3a_AM Peak_No GIH+Staggered RA)]

Network: N101 [AM Peak_2.3a_No GIH +Staggered RA (Network Folder: 2.3a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	817	1.5	817	1.5	0.566	9.8	LOS A	5.6	41.6	0.87	0.78	1.02	39.9
6	R2	All MCs	99	6.4	99	6.4	0.566	15.9	LOS B	4.0	30.6	0.88	0.82	1.07	44.8
Approach			916	2.1	916	2.1	0.566	10.4	LOS B	5.6	41.6	0.87	0.79	1.02	40.9
East: Parkin St															
7	L2	All MCs	53	18.0	53	18.0	0.660	5.2	LOS A	4.9	38.9	0.47	0.55	0.47	45.6
9	R2	All MCs	605	5.0	605	5.0	0.660	9.6	LOS A	4.9	38.9	0.47	0.55	0.47	45.6
Approach			658	6.1	658	6.1	0.660	9.3	LOS A	4.9	38.9	0.47	0.55	0.47	45.6
North: Hymus St															
10	L2	All MCs	82	11.5	82	11.5	0.069	2.7	LOS A	0.4	3.5	0.30	0.45	0.30	47.2
11	T1	All MCs	91	8.1	91	8.1	0.064	2.9	LOS A	0.4	3.0	0.28	0.39	0.28	46.3
Approach			173	9.8	173	9.8	0.069	2.8	LOS A	0.4	3.5	0.29	0.42	0.29	46.8
All Vehicles			1746	4.3	1746	4.3	0.660	9.2	LOS A	5.6	41.6	0.66	0.66	0.74	43.5

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

▽ Site: 105 [Sc2.3a_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2.3a_AM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1	0.0	1	0.0	0.450	5.7	LOS A	0.0	0.0	0.00	0.00	0.00	57.2
11	T1	All MCs	889	2.0	889	2.0	0.450	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach			891	2.0	891	2.0	0.450	0.2	NA	0.0	0.0	0.00	0.00	0.00	59.7
North: Safety Bay Rd															
5	T1	All MCs	153	11.0	153	11.0	0.095	0.4	LOS A	0.1	0.9	0.08	0.09	0.08	59.0
6	R2	All MCs	5	0.0	5	0.0	0.095	11.2	LOS B	0.1	0.9	0.08	0.09	0.08	50.6
Approach			158	10.7	158	10.7	0.095	0.8	NA	0.1	0.9	0.08	0.09	0.08	58.7
West: Memorial Dr															
7	L2	All MCs	4	25.0	4	25.0	0.014	13.0	LOS B	0.0	0.4	0.72	0.81	0.72	38.2
9	R2	All MCs	1	0.0	1	0.0	0.014	12.7	LOS B	0.0	0.4	0.72	0.81	0.72	44.1
Approach			5	20.0	5	20.0	0.014	13.0	LOS B	0.0	0.4	0.72	0.81	0.72	39.4
All Vehicles			1054	3.4	1054	3.4	0.450	0.3	NA	0.1	0.9	0.01	0.02	0.01	59.4

Memorial Drive / Lease Road

MOVEMENT SUMMARY

▽ Site: 106 [Sc2.3a_AM_07_Memorial Dr / Lease Rd (Site Folder: 2.3a_AM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	114	1.9	114	1.9	0.073	4.6	LOS A	0.3	2.3	0.04	0.51	0.04	45.8
9	R2	All MCs	3	33.3	3	33.3	0.073	5.1	LOS A	0.3	2.3	0.04	0.51	0.04	44.0
Approach			117	2.7	117	2.7	0.073	4.6	LOS A	0.3	2.3	0.04	0.51	0.04	45.7
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.004	4.6	LOS A	0.0	0.0	0.00	0.08	0.00	48.3
11	T1	All MCs	6	0.0	6	0.0	0.004	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	49.6
Approach			7	0.0	7	0.0	0.004	0.7	NA	0.0	0.0	0.00	0.08	0.00	49.4
West: Memorial Dr															
5	T1	All MCs	3	0.0	3	0.0	0.019	0.0	LOS A	0.1	0.7	0.04	0.49	0.04	47.2
6	R2	All MCs	31	3.4	31	3.4	0.019	4.6	LOS A	0.1	0.7	0.04	0.49	0.04	45.8
Approach			34	3.1	34	3.1	0.019	4.2	NA	0.1	0.7	0.04	0.49	0.04	45.9
All Vehicles			158	2.7	158	2.7	0.073	4.3	NA	0.3	2.3	0.04	0.49	0.04	45.9

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2.3a_AM_06_Boundary Rd / Lease Rd (Site Folder: 2.3a_AM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.014	7.6	LOS A	0.0	0.4	0.21	0.91	0.21	44.4
2	T1	All MCs	5	0.0	5	0.0	0.014	8.1	LOS A	0.0	0.4	0.21	0.91	0.21	44.4
3	R2	All MCs	7	0.0	7	0.0	0.014	7.5	LOS A	0.0	0.4	0.21	0.91	0.21	44.3
Approach			14	0.0	14	0.0	0.014	7.7	LOS A	0.0	0.4	0.21	0.91	0.21	44.3
East: Boundary Rd															
4	L2	All MCs	2	0.0	2	0.0	0.025	4.9	LOS A	0.0	0.2	0.05	0.09	0.05	48.1
5	T1	All MCs	34	18.8	34	18.8	0.025	0.0	LOS A	0.0	0.2	0.05	0.09	0.05	49.4
6	R2	All MCs	3	0.0	3	0.0	0.025	5.0	LOS A	0.0	0.2	0.05	0.09	0.05	47.9
Approach			39	16.2	39	16.2	0.025	0.7	NA	0.0	0.2	0.05	0.09	0.05	49.2
North: Lease Rd															
7	L2	All MCs	2	0.0	2	0.0	0.036	7.6	LOS A	0.1	0.9	0.24	0.90	0.24	44.4
8	T1	All MCs	3	0.0	3	0.0	0.036	7.8	LOS A	0.1	0.9	0.24	0.90	0.24	44.4
9	R2	All MCs	26	4.0	26	4.0	0.036	8.1	LOS A	0.1	0.9	0.24	0.90	0.24	44.0
Approach			32	3.3	32	3.3	0.036	8.1	LOS A	0.1	0.9	0.24	0.90	0.24	44.1
West: Arcadia Dr															
10	L2	All MCs	108	2.9	108	2.9	0.087	4.6	LOS A	0.0	0.1	0.00	0.37	0.00	46.6
11	T1	All MCs	47	4.4	47	4.4	0.087	0.0	LOS A	0.0	0.1	0.00	0.37	0.00	47.9
12	R2	All MCs	1	0.0	1	0.0	0.087	4.6	LOS A	0.0	0.1	0.00	0.37	0.00	46.6
Approach			157	3.4	157	3.4	0.087	3.2	NA	0.0	0.1	0.00	0.37	0.00	47.0
All Vehicles			241	5.2	241	5.2	0.087	3.7	NA	0.1	0.9	0.05	0.43	0.05	46.8

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc2.3a_AM_05_Safety Bay Rd / Boundary Rd (Site Folder: 2.3a_AM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	4	0.0	4	0.0	0.537	4.4	LOS A	4.3	32.1	0.22	0.42	0.22	49.6
8	T1	All MCs	800	2.1	800	2.1	0.537	4.7	LOS A	4.3	32.1	0.22	0.42	0.22	53.2
Approach			804	2.1	804	2.1	0.537	4.7	LOS A	4.3	32.1	0.22	0.42	0.22	53.2
North: Safety Bay Rd															
2	T1	All MCs	127	7.4	127	7.4	0.107	4.5	LOS A	0.7	5.5	0.04	0.49	0.04	52.0
3	R2	All MCs	36	17.6	36	17.6	0.107	8.7	LOS A	0.7	5.5	0.04	0.49	0.04	48.6
Approach			163	9.7	163	9.7	0.107	5.4	LOS A	0.7	5.5	0.04	0.49	0.04	51.2
West: Boundary Rd															
4	L2	All MCs	63	3.3	63	3.3	0.109	9.6	LOS A	0.7	5.0	0.77	0.72	0.77	45.6
6	R2	All MCs	3	0.0	3	0.0	0.109	13.3	LOS B	0.7	5.0	0.77	0.72	0.77	46.0
Approach			66	3.2	66	3.2	0.109	9.8	LOS A	0.7	5.0	0.77	0.72	0.77	45.7
All Vehicles			1034	3.4	1034	3.4	0.537	5.1	LOS A	4.3	32.1	0.23	0.45	0.23	52.3

PM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

Site: 101 [Sc2.3a_PM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: 2.3a_PM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	46	0.0	46	0.0	0.050	4.4	LOS A	0.4	2.8	0.06	0.53	0.06	46.6
6	R2	All MCs	113	5.6	113	5.6	0.050	8.9	LOS A	0.4	2.8	0.06	0.59	0.06	44.6
Approach			159	4.0	159	4.0	0.050	7.6	LOS A	0.4	2.8	0.06	0.57	0.06	45.2
North: HMAS Stirling Entrance															
7	L2	All MCs	1514	1.6	1514	1.6	0.994	12.6	LOS B	79.3	594.8	1.00	0.81	1.09	40.9
9	R2	All MCs	5	0.0	5	0.0	0.994	17.0	LOS B	79.3	594.8	1.00	0.81	1.09	41.8
Approach			1519	1.6	1519	1.6	0.994	12.7	LOS B	79.3	594.8	1.00	0.81	1.09	40.9
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.051	3.1	LOS A	0.2	1.4	0.22	0.35	0.22	47.0
11	T1	All MCs	56	3.8	56	3.8	0.051	3.1	LOS A	0.2	1.4	0.22	0.35	0.22	47.5
Approach			57	3.7	57	3.7	0.051	3.1	LOS A	0.2	1.4	0.22	0.35	0.22	47.5
All Vehicles			1735	1.9	1735	1.9	0.994	11.9	LOS B	79.3	594.8	0.89	0.78	0.97	41.5

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

Site: 102 [Sc2.3a_PM_08_Memorial Dr / Point Peron Rd (Site Folder: 2.3a_PM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	27	0.0	27	0.0	0.058	4.7	LOS A	0.2	1.3	0.24	0.47	0.24	42.4
9	R2	All MCs	1	0.0	1	0.0	0.058	142.3	LOS F	0.2	1.3	0.24	0.47	0.24	46.0
Approach			28	0.0	28	0.0	0.058	9.8	LOS A	0.2	1.3	0.24	0.47	0.24	42.6
East: Point Peron Rd (E)															
10	L2	All MCs	2	0.0	2	0.0	0.019	5.5	LOS A	0.0	0.0	0.00	0.04	0.00	57.2
11	T1	All MCs	133	4.8	133	4.8	0.053	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			135	4.7	135	4.7	0.053	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
West: Point Peron Rd (W)															
5	T1	All MCs	1411	1.6	1411	1.6	0.841	1.1	LOS A	7.8	58.7	0.14	0.13	0.20	57.7
6	R2	All MCs	156	2.0	156	2.0	0.841	8.5	LOS A	7.8	58.7	0.14	0.13	0.20	49.2
Approach			1566	1.6	1566	1.6	0.841	1.8	NA	7.8	58.7	0.14	0.13	0.20	56.7
All Vehicles			1729	1.8	1729	1.8	0.841	1.8	NA	7.8	58.7	0.13	0.13	0.19	56.6

Safety Bay Road / Point Peron Road

MOVEMENT SUMMARY

Site: 103 [Sc2.3a_PM_02_Safety Bay Rd / Point Peron Rd / Hymus St (Site Folder: 2.3a_PM Peak_No GIH+Staggered RA)]

Network: N101 [PM Peak_2.3a_No GIH +Staggered RA (Network Folder: 2.3a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	108	5.8	108	5.8	0.092	2.3	LOS A	0.6	4.3	0.14	0.40	0.14	50.0
11	T1	All MCs	77	0.0	77	0.0	0.092	2.6	LOS A	0.6	4.3	0.13	0.39	0.13	46.9
Approach			185	3.4	185	3.4	0.092	2.4	LOS A	0.6	4.3	0.14	0.40	0.14	48.7
North: Hymus St															
5	T1	All MCs	112	0.9	112	0.9	0.234	7.1	LOS A	0.9	6.9	0.68	0.78	0.68	41.4
6	R2	All MCs	28	0.0	28	0.0	0.234	11.6	LOS B	0.9	6.9	0.68	0.78	0.68	47.2
Approach			140	0.8	140	0.8	0.234	8.0	LOS A	0.9	6.9	0.68	0.78	0.68	43.1
West: Point Peron Rd															
7	L2	All MCs	95	4.4	95	4.4	0.469	4.6	LOS A	3.5	26.2	0.29	0.58	0.29	47.4
9	R2	All MCs	1309	1.4	1309	1.4	0.469	9.2	LOS A	3.5	26.5	0.30	0.58	0.30	46.3
Approach			1404	1.6	1404	1.6	0.469	8.9	LOS A	3.5	26.5	0.30	0.58	0.30	46.4
All Vehicles			1729	1.7	1729	1.7	0.469	8.1	LOS A	3.5	26.5	0.31	0.58	0.31	46.3

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104 [Sc2.3a_PM_03_Safety Bay Rd / Parkin St / Hymus St (Site Folder: 2.3a_PM Peak_No GIH+Staggered RA)]

Network: N101 [PM Peak_2.3a_No GIH +Staggered RA (Network Folder: 2.3a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	104	0.0	104	0.0	0.078	4.5	LOS A	0.4	3.3	0.26	0.41	0.26	46.8
6	R2	All MCs	120	8.8	120	8.8	0.083	9.2	LOS A	0.5	4.0	0.25	0.58	0.25	46.0
Approach			224	4.7	224	4.7	0.083	7.0	LOS A	0.5	4.0	0.26	0.50	0.26	46.2
East: Parkin St															
7	L2	All MCs	181	2.9	181	2.9	0.317	7.5	LOS A	1.9	15.1	0.70	0.70	0.70	48.8
9	R2	All MCs	81	7.8	81	7.8	0.317	12.7	LOS B	1.9	15.1	0.70	0.70	0.70	46.7
Approach			262	4.4	262	4.4	0.317	9.1	LOS A	1.9	15.1	0.70	0.70	0.70	48.3
North: Hymus St															
10	L2	All MCs	803	2.0	803	2.0	0.521	2.9	LOS A	4.3	32.5	0.41	0.47	0.41	50.9
11	T1	All MCs	617	0.5	617	0.5	0.468	3.4	LOS A	3.6	26.3	0.41	0.42	0.41	48.0
Approach			1420	1.3	1420	1.3	0.521	3.1	LOS A	4.3	32.5	0.41	0.45	0.41	49.9
All Vehicles			1906	2.2	1906	2.2	0.521	4.4	LOS A	4.3	32.5	0.43	0.49	0.43	49.0

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

▽ Site: 105 [Sc2.3a_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2.3a_PM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	12	0.0	12	0.0	0.130	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	57.2
11	T1	All MCs	238	4.4	238	4.4	0.130	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
Approach			249	4.2	249	4.2	0.130	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.5
North: Safety Bay Rd															
5	T1	All MCs	801	1.2	801	1.2	0.403	0.0	LOS A	0.0	0.2	0.00	0.00	0.00	59.9
6	R2	All MCs	3	0.0	3	0.0	0.403	5.6	LOS A	0.0	0.2	0.00	0.00	0.00	51.3
Approach			804	1.2	804	1.2	0.403	0.0	NA	0.0	0.2	0.00	0.00	0.00	59.9
West: Memorial Dr															
7	L2	All MCs	3	0.0	3	0.0	0.032	5.3	LOS A	0.1	0.7	0.62	0.72	0.62	41.9
9	R2	All MCs	8	12.5	8	12.5	0.032	15.0	LOS C	0.1	0.7	0.62	0.72	0.62	41.7
Approach			12	9.1	12	9.1	0.032	12.4	LOS B	0.1	0.7	0.62	0.72	0.62	41.8
All Vehicles			1065	2.0	1065	2.0	0.403	0.2	NA	0.1	0.7	0.01	0.02	0.01	59.5

Memorial Drive / Lease Road

MOVEMENT SUMMARY

▽ Site: 106 [Sc2.3a_PM_07_Memorial Dr / Lease Rd (Site Folder: 2.3a_PM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	21	0.0	21	0.0	0.014	4.6	LOS A	0.1	0.4	0.06	0.51	0.06	45.8
9	R2	All MCs	1	0.0	1	0.0	0.014	4.9	LOS A	0.1	0.4	0.06	0.51	0.06	45.6
Approach			22	0.0	22	0.0	0.014	4.6	LOS A	0.1	0.4	0.06	0.51	0.06	45.8
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.008	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	48.6
11	T1	All MCs	15	0.0	15	0.0	0.008	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.8
Approach			16	0.0	16	0.0	0.008	0.3	NA	0.0	0.0	0.00	0.04	0.00	49.7
West: Memorial Dr															
5	T1	All MCs	12	9.1	12	9.1	0.089	0.0	LOS A	0.4	3.2	0.07	0.49	0.07	47.1
6	R2	All MCs	146	1.4	146	1.4	0.089	4.6	LOS A	0.4	3.2	0.07	0.49	0.07	45.7
Approach			158	2.0	158	2.0	0.089	4.3	NA	0.4	3.2	0.07	0.49	0.07	45.8
All Vehicles			196	1.6	196	1.6	0.089	4.0	NA	0.4	3.2	0.06	0.46	0.06	46.1

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2.3a_PM_06_Boundary Rd / Lease Rd (Site Folder: 2.3a_PM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	100.0	1	100.0	0.013	15.7	LOS C	0.0	0.4	0.28	0.95	0.28	40.1
2	T1	All MCs	2	0.0	2	0.0	0.013	8.0	LOS A	0.0	0.4	0.28	0.95	0.28	43.9
3	R2	All MCs	7	14.3	7	14.3	0.013	9.1	LOS A	0.0	0.4	0.28	0.95	0.28	43.1
Approach			11	20.0	11	20.0	0.013	9.5	LOS A	0.0	0.4	0.28	0.95	0.28	42.9
East: Boundary Rd															
4	L2	All MCs	6	0.0	6	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.5
5	T1	All MCs	96	1.1	96	1.1	0.054	0.0	LOS A	0.0	0.1	0.01	0.04	0.01	49.8
6	R2	All MCs	1	0.0	1	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.3
Approach			103	1.0	103	1.0	0.054	0.3	NA	0.0	0.1	0.01	0.04	0.01	49.7
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.174	7.7	LOS A	0.6	4.8	0.32	0.90	0.32	44.2
8	T1	All MCs	6	0.0	6	0.0	0.174	8.2	LOS A	0.6	4.8	0.32	0.90	0.32	44.2
9	R2	All MCs	139	1.5	139	1.5	0.174	8.3	LOS A	0.6	4.8	0.32	0.90	0.32	44.0
Approach			146	1.4	146	1.4	0.174	8.3	LOS A	0.6	4.8	0.32	0.90	0.32	44.0
West: Arcadia Dr															
10	L2	All MCs	19	0.0	19	0.0	0.049	4.6	LOS A	0.0	0.1	0.02	0.13	0.02	48.0
11	T1	All MCs	69	3.0	69	3.0	0.049	0.0	LOS A	0.0	0.1	0.02	0.13	0.02	49.2
12	R2	All MCs	2	0.0	2	0.0	0.049	4.7	LOS A	0.0	0.1	0.02	0.13	0.02	47.8
Approach			91	2.3	91	2.3	0.049	1.1	NA	0.0	0.1	0.02	0.13	0.02	48.9
All Vehicles			351	2.1	351	2.1	0.174	4.1	NA	0.6	4.8	0.15	0.45	0.15	46.8

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc2.3a_PM_05_Safety Bay Rd / Boundary Rd (Site Folder: 2.3a_PM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	7	0.0	7	0.0	0.174	4.7	LOS A	0.9	6.7	0.27	0.45	0.27	49.5
8	T1	All MCs	204	4.1	204	4.1	0.174	5.0	LOS A	0.9	6.7	0.27	0.45	0.27	52.5
Approach			212	4.0	212	4.0	0.174	5.0	LOS A	0.9	6.7	0.27	0.45	0.27	52.4
North: Safety Bay Rd															
2	T1	All MCs	764	1.0	764	1.0	0.525	4.4	LOS A	5.0	37.2	0.07	0.46	0.07	53.8
3	R2	All MCs	107	2.0	107	2.0	0.525	8.4	LOS A	5.0	37.2	0.07	0.46	0.07	49.4
Approach			872	1.1	872	1.1	0.525	4.9	LOS A	5.0	37.2	0.07	0.46	0.07	53.2
West: Boundary Rd															
4	L2	All MCs	80	3.9	80	3.9	0.080	4.4	LOS A	0.4	3.4	0.42	0.51	0.42	48.4
6	R2	All MCs	4	0.0	4	0.0	0.080	8.3	LOS A	0.4	3.4	0.42	0.51	0.42	49.0
Approach			84	3.8	84	3.8	0.080	4.6	LOS A	0.4	3.4	0.42	0.51	0.42	48.5
All Vehicles			1167	1.8	1167	1.8	0.525	4.9	LOS A	5.0	37.2	0.13	0.46	0.13	52.7

Scenario 2.3b – 2030 No GIH + Single RA

AM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

Site: 101 [Sc2.3b_AM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: 2.3b_AM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	46	25.0	46	25.0	0.466	4.7	LOS A	4.3	32.6	0.03	0.64	0.03	44.7
6	R2	All MCs	1531	2.1	1531	2.1	0.466	8.8	LOS A	4.3	32.6	0.03	0.64	0.03	44.4
Approach			1577	2.8	1577	2.8	0.466	8.7	LOS A	4.3	32.6	0.03	0.64	0.03	44.4
North: HMAS Stirling Entrance															
7	L2	All MCs	137	8.5	137	8.5	0.104	3.1	LOS A	0.7	5.7	0.19	0.39	0.19	46.6
9	R2	All MCs	1	0.0	1	0.0	0.104	7.5	LOS A	0.7	5.7	0.19	0.39	0.19	46.7
Approach			138	8.4	138	8.4	0.104	3.1	LOS A	0.7	5.7	0.19	0.39	0.19	46.6
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.065	7.4	LOS A	0.2	1.9	0.63	0.74	0.63	44.6
11	T1	All MCs	35	9.1	35	9.1	0.065	8.2	LOS A	0.2	1.9	0.63	0.74	0.63	43.7
Approach			36	8.8	36	8.8	0.065	8.2	LOS A	0.2	1.9	0.63	0.74	0.63	43.8
All Vehicles			1751	3.4	1751	3.4	0.466	8.2	LOS A	4.3	32.6	0.05	0.62	0.05	44.5

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

Site: 102 [Sc2.3b_AM_08_Memorial Dr / Point Peron Rd (Site Folder: 2.3b_AM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	114	2.8	114	2.8	0.118	8.2	LOS A	0.5	3.4	0.46	0.63	0.46	44.2
9	R2	All MCs	1	0.0	1	0.0	0.118	65.7	LOS F	0.5	3.4	0.46	0.63	0.46	47.9
Approach			115	2.8	115	2.8	0.118	8.8	LOS A	0.5	3.4	0.46	0.63	0.46	44.3
East: Point Peron Rd (E)															
10	L2	All MCs	1	0.0	1	0.0	0.193	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
11	T1	All MCs	1465	2.7	1465	2.7	0.556	1.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.6
Approach			1466	2.7	1466	2.7	0.556	1.0	NA	0.0	0.0	0.00	0.00	0.00	59.6
West: Point Peron Rd (W)															
5	T1	All MCs	137	9.2	137	9.2	0.357	31.3	LOS D	3.8	31.5	0.76	0.79	0.91	34.1
6	R2	All MCs	34	3.1	34	3.1	0.357	44.4	LOS E	3.8	31.5	0.76	0.79	0.91	30.9
Approach			171	8.0	171	8.0	0.357	33.9	NA	3.8	31.5	0.76	0.79	0.91	33.4
All Vehicles			1752	3.2	1752	3.2	0.556	4.7	NA	3.8	31.5	0.10	0.12	0.12	54.2

Safety Bay Road / Parkin Street / Point Peron Road

MOVEMENT SUMMARY

Site: 104 [Sc2.3b_AM_03_Safety Bay Rd / Parkin St / Point Peron Rd / Hymus St (Site Folder: 2.3b_AM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	772	1.1	772	1.1	0.406	4.3	LOS A	0.0	0.0	0.00	0.46	0.00	53.9
5	T1	All MCs	33	9.7	33	9.7	0.149	8.1	LOS A	1.0	8.0	0.75	0.71	0.75	45.6
6	R2	All MCs	99	6.4	99	6.4	0.149	12.5	LOS B	1.0	8.0	0.75	0.71	0.75	45.4
Approach			903	2.0	903	2.0	0.406	5.3	LOS A	1.0	8.0	0.11	0.49	0.11	52.4
East: Parkin St															
7	L2	All MCs	53	18.0	53	18.0	0.546	5.9	LOS A	4.0	32.1	0.52	0.52	0.52	47.7
5	T1	All MCs	576	5.1	576	5.1	0.546	6.8	LOS A	4.0	32.1	0.52	0.52	0.52	51.5
9	R2	All MCs	29	3.6	29	3.6	0.546	10.1	LOS B	4.0	32.1	0.52	0.52	0.52	50.9
Approach			658	6.1	658	6.1	0.546	6.9	LOS A	4.0	32.1	0.52	0.52	0.52	51.2
North: Hymus St															
10	L2	All MCs	13	0.0	13	0.0	0.160	4.9	LOS A	0.7	5.3	0.37	0.61	0.37	51.4
11	T1	All MCs	38	11.1	38	11.1	0.160	5.4	LOS A	0.7	5.3	0.37	0.61	0.37	48.2
9	R2	All MCs	109	1.9	109	1.9	0.160	11.0	LOS B	0.7	5.3	0.37	0.61	0.37	50.4
Approach			160	3.9	160	3.9	0.160	9.2	LOS A	0.7	5.3	0.37	0.61	0.37	50.0
West: Point Peron Rd															
10	L2	All MCs	16	6.7	16	6.7	0.065	4.8	LOS A	0.4	3.1	0.35	0.45	0.35	51.4
11	T1	All MCs	67	12.5	67	12.5	0.065	5.0	LOS A	0.4	3.1	0.35	0.45	0.35	50.7
12	R2	All MCs	53	6.0	53	6.0	0.046	9.6	LOS A	0.2	1.9	0.35	0.60	0.35	47.0
Approach			136	9.3	136	9.3	0.065	6.7	LOS A	0.4	3.1	0.35	0.51	0.35	49.5
All Vehicles			1857	4.1	1857	4.1	0.546	6.3	LOS A	4.0	32.1	0.30	0.51	0.30	51.5

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

▽ Site: 105 [Sc2.3b_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2.3b_AM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	2	50.0	2	50.0	0.451	6.5	LOS A	0.0	0.0	0.00	0.00	0.00	43.5
11	T1	All MCs	889	2.0	889	2.0	0.451	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach			892	2.1	892	2.1	0.451	0.2	NA	0.0	0.0	0.00	0.00	0.00	59.6
North: Safety Bay Rd															
5	T1	All MCs	152	11.1	152	11.1	0.087	0.1	LOS A	0.0	0.2	0.02	0.02	0.02	59.8
6	R2	All MCs	1	0.0	1	0.0	0.087	9.9	LOS A	0.0	0.2	0.02	0.02	0.02	51.2
Approach			153	11.0	153	11.0	0.087	0.1	NA	0.0	0.2	0.02	0.02	0.02	59.8
West: Memorial Dr															
7	L2	All MCs	5	20.0	5	20.0	0.019	12.4	LOS B	0.1	0.5	0.72	0.83	0.72	39.0
9	R2	All MCs	2	0.0	2	0.0	0.019	12.7	LOS B	0.1	0.5	0.72	0.83	0.72	44.3
Approach			7	14.3	7	14.3	0.019	12.5	LOS B	0.1	0.5	0.72	0.83	0.72	40.6
All Vehicles			1052	3.5	1052	3.5	0.451	0.3	NA	0.1	0.5	0.01	0.01	0.01	59.4

Memorial Drive / Lease Road

MOVEMENT SUMMARY

▽ Site: 106 [Sc2.3b_AM_07_Memorial Dr / Lease Rd (Site Folder: 2.3b_AM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	113	1.9	113	1.9	0.073	4.6	LOS A	0.3	2.3	0.03	0.52	0.03	45.8
9	R2	All MCs	3	33.3	3	33.3	0.073	5.0	LOS A	0.3	2.3	0.03	0.52	0.03	44.1
Approach			116	2.7	116	2.7	0.073	4.6	LOS A	0.3	2.3	0.03	0.52	0.03	45.8
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.002	4.6	LOS A	0.0	0.0	0.00	0.14	0.00	48.0
11	T1	All MCs	3	0.0	3	0.0	0.002	0.0	LOS A	0.0	0.0	0.00	0.14	0.00	49.2
Approach			4	0.0	4	0.0	0.002	1.1	NA	0.0	0.0	0.00	0.14	0.00	48.9
West: Memorial Dr															
5	T1	All MCs	4	0.0	4	0.0	0.020	0.0	LOS A	0.1	0.7	0.03	0.48	0.03	47.3
6	R2	All MCs	31	3.4	31	3.4	0.020	4.6	LOS A	0.1	0.7	0.03	0.48	0.03	45.9
Approach			35	3.0	35	3.0	0.020	4.1	NA	0.1	0.7	0.03	0.48	0.03	46.0
All Vehicles			155	2.7	155	2.7	0.073	4.4	NA	0.3	2.3	0.03	0.50	0.03	45.9

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2.3b_AM_06_Boundary Rd / Lease Rd (Site Folder: 2.3b_AM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.014	7.6	LOS A	0.0	0.4	0.22	0.91	0.22	44.4
2	T1	All MCs	6	0.0	6	0.0	0.014	8.1	LOS A	0.0	0.4	0.22	0.91	0.22	44.4
3	R2	All MCs	6	0.0	6	0.0	0.014	7.5	LOS A	0.0	0.4	0.22	0.91	0.22	44.2
Approach			14	0.0	14	0.0	0.014	7.8	LOS A	0.0	0.4	0.22	0.91	0.22	44.3
East: Boundary Rd															
4	L2	All MCs	2	0.0	2	0.0	0.025	4.9	LOS A	0.0	0.2	0.05	0.09	0.05	48.1
5	T1	All MCs	34	18.8	34	18.8	0.025	0.0	LOS A	0.0	0.2	0.05	0.09	0.05	49.4
6	R2	All MCs	3	0.0	3	0.0	0.025	5.0	LOS A	0.0	0.2	0.05	0.09	0.05	47.9
Approach			39	16.2	39	16.2	0.025	0.7	NA	0.0	0.2	0.05	0.09	0.05	49.2
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.035	7.6	LOS A	0.1	0.9	0.25	0.90	0.25	44.4
8	T1	All MCs	3	0.0	3	0.0	0.035	7.8	LOS A	0.1	0.9	0.25	0.90	0.25	44.4
9	R2	All MCs	26	4.0	26	4.0	0.035	8.1	LOS A	0.1	0.9	0.25	0.90	0.25	44.0
Approach			31	3.4	31	3.4	0.035	8.1	LOS A	0.1	0.9	0.25	0.90	0.25	44.1
West: Arcadia Dr															
10	L2	All MCs	108	2.9	108	2.9	0.087	4.6	LOS A	0.0	0.1	0.00	0.37	0.00	46.6
11	T1	All MCs	47	4.4	47	4.4	0.087	0.0	LOS A	0.0	0.1	0.00	0.37	0.00	47.9
12	R2	All MCs	1	0.0	1	0.0	0.087	4.6	LOS A	0.0	0.1	0.00	0.37	0.00	46.6
Approach			157	3.4	157	3.4	0.087	3.2	NA	0.0	0.1	0.00	0.37	0.00	47.0
All Vehicles			240	5.3	240	5.3	0.087	3.7	NA	0.1	0.9	0.05	0.43	0.05	46.8

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc2.3b_AM_05_Safety Bay Rd / Boundary Rd (Site Folder: 2.3b_AM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	4	0.0	4	0.0	0.538	4.4	LOS A	4.3	32.3	0.23	0.42	0.23	49.6
8	T1	All MCs	800	2.1	800	2.1	0.538	4.7	LOS A	4.3	32.3	0.23	0.42	0.23	53.2
Approach			804	2.1	804	2.1	0.538	4.7	LOS A	4.3	32.3	0.23	0.42	0.23	53.1
North: Safety Bay Rd															
2	T1	All MCs	127	7.4	127	7.4	0.108	4.5	LOS A	0.7	5.6	0.04	0.49	0.04	52.0
3	R2	All MCs	37	17.1	37	17.1	0.108	8.7	LOS A	0.7	5.6	0.04	0.49	0.04	48.6
Approach			164	9.6	164	9.6	0.108	5.4	LOS A	0.7	5.6	0.04	0.49	0.04	51.2
West: Boundary Rd															
4	L2	All MCs	63	3.3	63	3.3	0.109	9.6	LOS A	0.7	5.1	0.77	0.72	0.77	45.6
6	R2	All MCs	3	0.0	3	0.0	0.109	13.3	LOS B	0.7	5.1	0.77	0.72	0.77	46.0
Approach			66	3.2	66	3.2	0.109	9.8	LOS A	0.7	5.1	0.77	0.72	0.77	45.7
All Vehicles			1035	3.4	1035	3.4	0.538	5.1	LOS A	4.3	32.3	0.23	0.45	0.23	52.3

PM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

Site: 101 [Sc2.3b_PM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: 2.3b_PM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	46	0.0	46	0.0	0.050	4.4	LOS A	0.4	2.8	0.06	0.53	0.06	46.6
6	R2	All MCs	113	5.6	113	5.6	0.050	8.9	LOS A	0.4	2.8	0.06	0.59	0.06	44.6
Approach			159	4.0	159	4.0	0.050	7.6	LOS A	0.4	2.8	0.06	0.57	0.06	45.2
North: HMAS Stirling Entrance															
7	L2	All MCs	1514	1.6	1514	1.6	0.994	12.6	LOS B	79.3	594.8	1.00	0.81	1.09	40.9
9	R2	All MCs	5	0.0	5	0.0	0.994	17.0	LOS B	79.3	594.8	1.00	0.81	1.09	41.8
Approach			1519	1.6	1519	1.6	0.994	12.7	LOS B	79.3	594.8	1.00	0.81	1.09	40.9
West: Point Peron Rd (W)															
10	L2	All MCs	1	0.0	1	0.0	0.051	3.1	LOS A	0.2	1.4	0.22	0.35	0.22	47.0
11	T1	All MCs	56	3.8	56	3.8	0.051	3.1	LOS A	0.2	1.4	0.22	0.35	0.22	47.5
Approach			57	3.7	57	3.7	0.051	3.1	LOS A	0.2	1.4	0.22	0.35	0.22	47.5
All Vehicles			1735	1.9	1735	1.9	0.994	11.9	LOS B	79.3	594.8	0.89	0.78	0.97	41.5

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

Site: 102 [Sc2.3b_PM_08_Memorial Dr / Point Peron Rd (Site Folder: 2.3b_PM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	19	0.0	19	0.0	0.054	4.7	LOS A	0.2	1.2	0.31	0.45	0.31	40.9
9	R2	All MCs	1	0.0	1	0.0	0.054	144.4	LOS F	0.2	1.2	0.31	0.45	0.31	44.7
Approach			20	0.0	20	0.0	0.054	12.0	LOS B	0.2	1.2	0.31	0.45	0.31	41.2
East: Point Peron Rd (E)															
10	L2	All MCs	3	0.0	3	0.0	0.020	5.5	LOS A	0.0	0.0	0.00	0.05	0.00	57.0
11	T1	All MCs	141	4.5	141	4.5	0.057	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			144	4.4	144	4.4	0.057	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.7
West: Point Peron Rd (W)															
5	T1	All MCs	1396	1.6	1396	1.6	0.849	1.3	LOS A	9.4	70.4	0.16	0.15	0.25	57.2
6	R2	All MCs	173	2.4	173	2.4	0.849	8.9	LOS A	9.4	70.4	0.16	0.15	0.25	48.8
Approach			1568	1.7	1568	1.7	0.849	2.2	NA	9.4	70.4	0.16	0.15	0.25	56.2
All Vehicles			1733	1.9	1733	1.9	0.849	2.1	NA	9.4	70.4	0.15	0.15	0.23	56.2

Safety Bay Road / Parkin Street / Point Peron Road

MOVEMENT SUMMARY

Site: 104 [Sc2.3b_PM_03_Safety Bay Rd / Parkin St / Point Peron Rd / Hymus St (Site Folder: 2.3b_PM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	51	0.0	51	0.0	0.026	3.5	LOS A	0.0	0.0	0.00	0.46	0.00	54.4
5	T1	All MCs	63	0.0	63	0.0	0.127	4.5	LOS A	0.7	5.8	0.29	0.55	0.29	50.5
6	R2	All MCs	120	8.8	120	8.8	0.127	9.3	LOS A	0.7	5.8	0.29	0.55	0.29	47.0
Approach			234	4.5	234	4.5	0.127	6.8	LOS A	0.7	5.8	0.23	0.53	0.23	49.3
East: Parkin St															
7	L2	All MCs	180	2.3	180	2.3	0.318	7.5	LOS A	1.9	15.2	0.71	0.68	0.71	49.6
5	T1	All MCs	66	9.5	66	9.5	0.318	8.4	LOS A	1.9	15.2	0.71	0.68	0.71	49.8
9	R2	All MCs	15	0.0	15	0.0	0.318	12.3	LOS B	1.9	15.2	0.71	0.68	0.71	51.2
Approach			261	4.0	261	4.0	0.318	8.0	LOS A	1.9	15.2	0.71	0.68	0.71	49.8
North: Hymus St															
10	L2	All MCs	11	0.0	11	0.0	0.286	9.8	LOS A	1.4	10.1	0.78	0.85	0.78	49.8
11	T1	All MCs	101	1.0	101	1.0	0.286	10.1	LOS B	1.4	10.1	0.78	0.85	0.78	48.1
9	R2	All MCs	28	0.0	28	0.0	0.286	14.6	LOS B	1.4	10.1	0.78	0.85	0.78	49.4
Approach			140	0.8	140	0.8	0.286	11.0	LOS B	1.4	10.1	0.78	0.85	0.78	48.5
West: Point Peron Rd															
10	L2	All MCs	95	4.4	95	4.4	0.619	5.7	LOS A	5.7	42.8	0.58	0.52	0.58	51.0
11	T1	All MCs	794	2.0	794	2.0	0.619	5.5	LOS A	5.7	42.8	0.58	0.52	0.58	52.1
12	R2	All MCs	501	0.4	501	0.4	0.430	10.2	LOS B	3.0	22.2	0.50	0.62	0.50	47.5
Approach			1389	1.6	1389	1.6	0.619	7.2	LOS A	5.7	42.8	0.55	0.55	0.55	50.5
All Vehicles			2024	2.2	2024	2.2	0.619	7.5	LOS A	5.7	42.8	0.55	0.59	0.55	50.1

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc2.3b_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 2.3b_PM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1	0.0	1	0.0	0.129	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
11	T1	All MCs	247	4.3	247	4.3	0.129	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			248	4.2	248	4.2	0.129	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Safety Bay Rd															
5	T1	All MCs	784	1.1	784	1.1	0.394	0.0	LOS A	0.0	0.2	0.00	0.00	0.00	59.9
6	R2	All MCs	3	0.0	3	0.0	0.394	5.6	LOS A	0.0	0.2	0.00	0.00	0.00	51.3
Approach			787	1.1	787	1.1	0.394	0.0	NA	0.0	0.2	0.00	0.00	0.00	59.9
West: Memorial Dr															
7	L2	All MCs	3	0.0	3	0.0	0.073	5.3	LOS A	0.2	1.6	0.66	0.85	0.66	41.9
9	R2	All MCs	24	4.3	24	4.3	0.073	13.3	LOS B	0.2	1.6	0.66	0.85	0.66	43.4
Approach			27	3.8	27	3.8	0.073	12.4	LOS B	0.2	1.6	0.66	0.85	0.66	43.2
All Vehicles			1063	1.9	1063	1.9	0.394	0.3	NA	0.2	1.6	0.02	0.02	0.02	59.2

Memorial Drive / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc2.3b_PM_07_Memorial Dr / Lease Rd (Site Folder: 2.3b_PM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	21	0.0	21	0.0	0.014	4.6	LOS A	0.1	0.4	0.03	0.52	0.03	45.9
9	R2	All MCs	1	0.0	1	0.0	0.014	4.7	LOS A	0.1	0.4	0.03	0.52	0.03	45.7
Approach			22	0.0	22	0.0	0.014	4.6	LOS A	0.1	0.4	0.03	0.52	0.03	45.9
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.0	0.00	0.09	0.00	48.3
11	T1	All MCs	5	0.0	5	0.0	0.003	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	49.5
Approach			6	0.0	6	0.0	0.003	0.8	NA	0.0	0.0	0.00	0.09	0.00	49.3
West: Memorial Dr															
5	T1	All MCs	27	3.8	27	3.8	0.097	0.0	LOS A	0.5	3.6	0.04	0.46	0.04	47.4
6	R2	All MCs	146	1.4	146	1.4	0.097	4.6	LOS A	0.5	3.6	0.04	0.46	0.04	46.0
Approach			174	1.8	174	1.8	0.097	3.9	NA	0.5	3.6	0.04	0.46	0.04	46.2
All Vehicles			202	1.6	202	1.6	0.097	3.8	NA	0.5	3.6	0.04	0.45	0.04	46.3

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc2.3b_PM_06_Boundary Rd / Lease Rd (Site Folder: 2.3b_PM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	100.0	1	100.0	0.012	15.7	LOS C	0.0	0.4	0.28	0.95	0.28	40.1
2	T1	All MCs	1	0.0	1	0.0	0.012	8.0	LOS A	0.0	0.4	0.28	0.95	0.28	43.8
3	R2	All MCs	7	14.3	7	14.3	0.012	9.1	LOS A	0.0	0.4	0.28	0.95	0.28	43.0
Approach			9	22.2	9	22.2	0.012	9.7	LOS A	0.0	0.4	0.28	0.95	0.28	42.8
East: Boundary Rd															
4	L2	All MCs	6	0.0	6	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.5
5	T1	All MCs	96	1.1	96	1.1	0.054	0.0	LOS A	0.0	0.1	0.01	0.04	0.01	49.8
6	R2	All MCs	1	0.0	1	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.3
Approach			103	1.0	103	1.0	0.054	0.3	NA	0.0	0.1	0.01	0.04	0.01	49.7
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.174	7.7	LOS A	0.6	4.8	0.32	0.90	0.32	44.2
8	T1	All MCs	6	0.0	6	0.0	0.174	8.2	LOS A	0.6	4.8	0.32	0.90	0.32	44.2
9	R2	All MCs	139	1.5	139	1.5	0.174	8.3	LOS A	0.6	4.8	0.32	0.90	0.32	44.0
Approach			146	1.4	146	1.4	0.174	8.3	LOS A	0.6	4.8	0.32	0.90	0.32	44.0
West: Arcadia Dr															
10	L2	All MCs	19	0.0	19	0.0	0.049	4.6	LOS A	0.0	0.1	0.02	0.13	0.02	48.0
11	T1	All MCs	69	3.0	69	3.0	0.049	0.0	LOS A	0.0	0.1	0.02	0.13	0.02	49.2
12	R2	All MCs	2	0.0	2	0.0	0.049	4.7	LOS A	0.0	0.1	0.02	0.13	0.02	47.8
Approach			91	2.3	91	2.3	0.049	1.1	NA	0.0	0.1	0.02	0.13	0.02	48.9
All Vehicles			349	2.1	349	2.1	0.174	4.1	NA	0.6	4.8	0.15	0.45	0.15	46.8

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc2.3b_PM_05_Safety Bay Rd / Boundary Rd (Site Folder: 2.3b_PM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	7	0.0	7	0.0	0.174	4.7	LOS A	0.9	6.7	0.27	0.45	0.27	49.5
8	T1	All MCs	204	4.1	204	4.1	0.174	5.0	LOS A	0.9	6.7	0.27	0.45	0.27	52.5
Approach			212	4.0	212	4.0	0.174	5.0	LOS A	0.9	6.7	0.27	0.45	0.27	52.4
North: Safety Bay Rd															
2	T1	All MCs	764	1.0	764	1.0	0.525	4.4	LOS A	5.0	37.2	0.07	0.46	0.07	50.2
3	R2	All MCs	107	2.0	107	2.0	0.525	8.4	LOS A	5.0	37.2	0.07	0.46	0.07	52.6
Approach			872	1.1	872	1.1	0.525	4.9	LOS A	5.0	37.2	0.07	0.46	0.07	50.5
West: Boundary Rd															
4	L2	All MCs	80	3.9	80	3.9	0.080	4.4	LOS A	0.4	3.4	0.42	0.51	0.42	48.4
6	R2	All MCs	4	0.0	4	0.0	0.080	8.3	LOS A	0.4	3.4	0.42	0.51	0.42	49.0
Approach			84	3.8	84	3.8	0.080	4.6	LOS A	0.4	3.4	0.42	0.51	0.42	48.5
All Vehicles			1167	1.8	1167	1.8	0.525	4.9	LOS A	5.0	37.2	0.13	0.46	0.13	50.6

Scenario 3 – 2040 Do Nothing

AM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

▽ Site: 101 [Sc3_AM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: 3_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	319	5.0	319	5.0	0.175	1.2	LOS A	0.9	6.7	0.12	0.21	0.12	51.3
6	R2	All MCs	1737	1.9	1737	1.9	1.159	154.1	LOS F	249.4	1877.1	1.00	1.27	2.31	13.0
Approach			2056	2.4	2056	2.4	1.159	130.6	NA	249.4	1877.1	0.86	1.10	1.97	14.6
North: HMAS Stirling Entrance															
7	L2	All MCs	176	8.4	176	8.4	0.317	4.8	LOS A	1.3	10.6	0.28	0.46	0.28	41.7
9	R2	All MCs	1	0.0	1	0.0	0.317	756.4	LOS F	1.3	10.6	0.28	0.46	0.28	43.4
Approach			177	8.3	177	8.3	0.317	9.3	LOS A	1.3	10.6	0.28	0.46	0.28	41.7
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.020	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	48.6
11	T1	All MCs	35	9.1	35	9.1	0.020	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.7
Approach			37	8.6	37	8.6	0.020	0.3	NA	0.0	0.0	0.00	0.03	0.00	49.6
All Vehicles			2269	2.9	2269	2.9	1.159	118.8	NA	249.4	1877.1	0.80	1.03	1.80	15.6

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

▽ Site: 102 [Sc3_AM_08_Memorial Dr / Point Peron Rd (Site Folder: 3_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	154	0.7	154	0.7	25.789	22772.1	LOS F	94.5	699.5	1.00	1.47	3.07	0.1
9	R2	All MCs	1	0.0	1	0.0	25.789	22694.9	LOS F	94.5	699.5	1.00	1.47	3.07	0.2
Approach			155	0.7	155	0.7	25.789	22771.6	LOS F	94.5	699.5	1.00	1.47	3.07	0.1
East: Point Peron Rd (E)															
10	L2	All MCs	5	40.0	5	40.0	0.974	10.5	LOS B	0.0	0.0	0.00	0.00	0.00	47.7
11	T1	All MCs	1904	2.4	1904	2.4	0.974	5.3	LOS A	0.0	0.0	0.00	0.00	0.00	51.2
Approach			1909	2.5	1909	2.5	0.974	5.3	NA	0.0	0.0	0.00	0.00	0.00	51.2
West: Point Peron Rd (W)															
5	T1	All MCs	173	9.8	173	9.8	6.237	5370.7	LOS F	122.1	1014.4	1.00	1.07	2.80	0.5
6	R2	All MCs	37	2.9	37	2.9	6.237	5385.1	LOS F	122.1	1014.4	1.00	1.07	2.80	0.5
Approach			209	8.5	209	8.5	6.237	5373.2	NA	122.1	1014.4	1.00	1.07	2.80	0.5
All Vehicles			2274	3.0	2274	3.0	25.789	2049.2	NA	122.1	1014.4	0.16	0.20	0.47	1.3

Safety Bay Road / Point Peron Road

MOVEMENT SUMMARY

Site: 103 [Sc3_AM_02_Safety Bay Rd / Point Peron Rd (Site Folder: 3_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM Peak_3_Do Nothing (Network Folder: 3)]

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1782	2.5	1087	1.5	0.593	2.9	LOS A	0.0	0.0	0.00	0.51	0.00	50.2
11	T1	All MCs	60	7.0	36	4.0	0.593	0.5	LOS A	0.0	0.0	0.00	0.51	0.00	54.4
Approach			1842	2.7	1122	1.5	0.593	2.8	NA	0.0	0.0	0.00	0.51	0.00	50.3
North: Hymus St															
5	T1	All MCs	44	9.5	44	9.5	0.104	4.5	LOS A	0.4	3.4	0.79	0.79	0.79	44.7
6	R2	All MCs	139	3.0	139	3.0	0.436	20.0	LOS C	1.7	13.2	0.88	1.04	1.18	40.4
Approach			183	4.6	183	4.6	0.436	16.2	NA	1.7	13.2	0.86	0.98	1.09	40.9
West: Point Peron Rd															
7	L2	All MCs	19	5.6	19	5.6	0.012	5.7	LOS A	0.0	0.4	0.10	0.54	0.10	48.6
9	R2	All MCs	153	9.7	153	9.7	0.484	21.1	LOS C	2.1	18.0	0.80	1.04	1.21	35.8
Approach			172	9.2	172	9.2	0.484	19.4	LOS C	2.1	18.0	0.72	0.99	1.09	37.8
All Vehicles			2197	3.4	1477	5.0	0.593	6.4	NA	2.1	18.0	0.19	0.62	0.26	46.6

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104 [Sc3_AM_03_Safety Bay Rd / Parkin St (Site Folder: 3_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM Peak_3_Do Nothing (Network Folder: 3)]

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	1063	1.4	1063	1.4	0.534	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.6
6	R2	All MCs	99	7.4	99	7.4	0.070	6.4	LOS A	0.3	2.5	0.33	0.55	0.33	48.0
Approach			1162	1.9	1162	1.9	0.534	0.7	NA	0.3	2.5	0.03	0.05	0.03	56.9
East: Parkin St															
7	L2	All MCs	51	20.8	51	20.8	0.055	27.6	LOS D	0.2	1.9	0.22	0.53	0.22	46.9
9	R2	All MCs	779	4.5	779	4.5	13.155	11021.3	LOS F	449.6	3499.2	1.00	5.19	17.90	0.2
Approach			829	5.5	829	5.5	13.155	10351.6	LOS F	449.6	3499.2	0.95	4.90	16.82	0.2
North: Safety Bay Rd															
10	L2	All MCs	100	12.6	100	12.6	0.115	2.9	LOS A	0.0	0.0	0.00	0.27	0.00	47.0
11	T1	All MCs	98	6.5	98	6.5	0.115	0.0	LOS A	0.0	0.0	0.00	0.27	0.00	56.1
Approach			198	9.6	198	9.6	0.115	1.5	NA	0.0	0.0	0.00	0.27	0.00	50.1
All Vehicles			2189	3.9	2189	3.9	13.155	3922.2	NA	449.6	3499.2	0.38	1.91	6.39	0.4

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc3_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1	0.0	1	0.0	0.571	5.8	LOS A	0.0	0.0	0.00	0.00	0.00	57.0
11	T1	All MCs	1132	1.8	1132	1.8	0.571	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	59.5
Approach			1133	1.8	1133	1.8	0.571	0.3	NA	0.0	0.0	0.00	0.00	0.00	59.5
North: Safety Bay Rd															
5	T1	All MCs	159	10.6	159	10.6	0.117	2.0	LOS A	0.4	3.1	0.19	0.22	0.19	56.7
6	R2	All MCs	9	0.0	9	0.0	0.117	16.4	LOS C	0.4	3.1	0.19	0.22	0.19	48.9
Approach			168	10.0	168	10.0	0.117	2.8	NA	0.4	3.1	0.19	0.22	0.19	56.2
West: Memorial Dr															
7	L2	All MCs	9	22.2	9	22.2	0.074	22.5	LOS C	0.2	1.8	0.88	0.95	0.88	32.1
9	R2	All MCs	1	100.0	1	100.0	0.074	80.5	LOS F	0.2	1.8	0.88	0.95	0.88	31.7
Approach			11	30.0	11	30.0	0.074	28.3	LOS D	0.2	1.8	0.88	0.95	0.88	32.0
All Vehicles			1312	3.0	1312	3.0	0.571	0.8	NA	0.4	3.1	0.03	0.04	0.03	58.6

Memorial Drive / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc3_AM_07_Memorial Dr / Lease Rd (Site Folder: 3_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	149	0.7	149	0.7	0.098	4.6	LOS A	0.4	3.1	0.05	0.51	0.05	45.8
9	R2	All MCs	6	16.7	6	16.7	0.098	4.9	LOS A	0.4	3.1	0.05	0.51	0.05	44.8
Approach			156	1.4	156	1.4	0.098	4.6	LOS A	0.4	3.1	0.05	0.51	0.05	45.8
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.005	4.6	LOS A	0.0	0.0	0.00	0.05	0.00	48.5
11	T1	All MCs	9	0.0	9	0.0	0.005	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	49.7
Approach			11	0.0	11	0.0	0.005	0.5	NA	0.0	0.0	0.00	0.05	0.00	49.6
West: Memorial Dr															
5	T1	All MCs	4	50.0	4	50.0	0.026	0.0	LOS A	0.1	1.0	0.05	0.49	0.05	47.1
6	R2	All MCs	41	7.7	41	7.7	0.026	4.7	LOS A	0.1	1.0	0.05	0.49	0.05	45.4
Approach			45	11.6	45	11.6	0.026	4.2	NA	0.1	1.0	0.05	0.49	0.05	45.6
All Vehicles			212	3.5	212	3.5	0.098	4.3	NA	0.4	3.1	0.05	0.48	0.05	45.9

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3_AM_06_Boundary Rd / Lease Rd (Site Folder: 3_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.014	7.6	LOS A	0.0	0.4	0.23	0.91	0.23	44.4
2	T1	All MCs	6	0.0	6	0.0	0.014	8.3	LOS A	0.0	0.4	0.23	0.91	0.23	44.4
3	R2	All MCs	6	0.0	6	0.0	0.014	7.5	LOS A	0.0	0.4	0.23	0.91	0.23	44.2
Approach			14	0.0	14	0.0	0.014	7.9	LOS A	0.0	0.4	0.23	0.91	0.23	44.3
East: Boundary Rd															
4	L2	All MCs	2	0.0	2	0.0	0.026	5.0	LOS A	0.0	0.2	0.06	0.10	0.06	48.1
5	T1	All MCs	35	18.2	35	18.2	0.026	0.1	LOS A	0.0	0.2	0.06	0.10	0.06	49.4
6	R2	All MCs	3	0.0	3	0.0	0.026	5.1	LOS A	0.0	0.2	0.06	0.10	0.06	47.9
Approach			40	15.8	40	15.8	0.026	0.7	NA	0.0	0.2	0.06	0.10	0.06	49.2
North: Lease Rd															
7	L2	All MCs	4	25.0	4	25.0	0.048	9.5	LOS A	0.2	1.3	0.26	0.92	0.26	43.3
8	T1	All MCs	4	0.0	4	0.0	0.048	8.0	LOS A	0.2	1.3	0.26	0.92	0.26	44.3
9	R2	All MCs	33	6.5	33	6.5	0.048	8.5	LOS A	0.2	1.3	0.26	0.92	0.26	43.8
Approach			41	7.7	41	7.7	0.048	8.5	LOS A	0.2	1.3	0.26	0.92	0.26	43.8
West: Arcadia Dr															
10	L2	All MCs	147	1.4	147	1.4	0.107	4.6	LOS A	0.0	0.1	0.00	0.41	0.00	46.5
11	T1	All MCs	46	4.5	46	4.5	0.107	0.0	LOS A	0.0	0.1	0.00	0.41	0.00	47.7
12	R2	All MCs	2	0.0	2	0.0	0.107	4.6	LOS A	0.0	0.1	0.00	0.41	0.00	46.4
Approach			196	2.2	196	2.2	0.107	3.5	NA	0.0	0.1	0.00	0.41	0.00	46.8
All Vehicles			291	4.7	291	4.7	0.107	4.0	NA	0.2	1.3	0.06	0.46	0.06	46.5

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc3_AM_05_Safety Bay Rd / Boundary Rd (Site Folder: 3_AM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	3	0.0	3	0.0	0.683	4.6	LOS A	7.3	54.8	0.30	0.42	0.30	49.3
8	T1	All MCs	1032	1.7	1032	1.7	0.683	4.8	LOS A	7.3	54.8	0.30	0.42	0.30	52.9
Approach			1035	1.7	1035	1.7	0.683	4.8	LOS A	7.3	54.8	0.30	0.42	0.30	52.9
North: Safety Bay Rd															
2	T1	All MCs	134	8.7	134	8.7	0.117	4.5	LOS A	0.8	6.3	0.06	0.48	0.06	51.6
3	R2	All MCs	38	16.7	38	16.7	0.117	8.7	LOS A	0.8	6.3	0.06	0.48	0.06	48.5
Approach			172	10.4	172	10.4	0.117	5.4	LOS A	0.8	6.3	0.06	0.48	0.06	50.9
West: Boundary Rd															
4	L2	All MCs	64	3.3	64	3.3	0.153	13.6	LOS B	1.0	7.7	0.88	0.79	0.88	43.4
6	R2	All MCs	5	20.0	5	20.0	0.153	19.2	LOS B	1.0	7.7	0.88	0.79	0.88	39.9
Approach			69	4.5	69	4.5	0.153	14.0	LOS B	1.0	7.7	0.88	0.79	0.88	43.1
All Vehicles			1276	3.1	1276	3.1	0.683	5.4	LOS A	7.3	54.8	0.30	0.45	0.30	52.0

PM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

▽ Site: 101 [Sc3_PM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: 3_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	48	0.0	48	0.0	0.025	1.1	LOS A	0.0	0.0	0.00	0.20	0.00	58.3
6	R2	All MCs	154	5.5	154	5.5	0.094	5.8	LOS A	0.5	3.7	0.16	0.55	0.16	45.2
Approach			202	4.2	202	4.2	0.094	4.7	NA	0.5	3.7	0.12	0.47	0.12	47.8
North: HMAS Stirling Entrance															
7	L2	All MCs	1975	1.6	1975	1.6	1.284	263.7	LOS F	344.1	2583.4	1.00	2.13	3.97	8.5
9	R2	All MCs	5	0.0	5	0.0	1.284	295.6	LOS F	344.1	2583.4	1.00	2.13	3.97	10.8
Approach			1980	1.6	1980	1.6	1.284	263.7	LOS F	344.1	2583.4	1.00	2.13	3.97	8.5
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.029	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	48.6
11	T1	All MCs	55	3.8	55	3.8	0.029	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.8
Approach			57	3.7	57	3.7	0.029	0.2	NA	0.0	0.0	0.00	0.02	0.00	49.8
All Vehicles			2239	1.9	2239	1.9	1.284	233.7	NA	344.1	2583.4	0.90	1.93	3.52	9.3

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

▽ Site: 102 [Sc3_PM_08_Memorial Dr / Point Peron Rd (Site Folder: 3_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	54	0.0	54	0.0	0.118	5.0	LOS A	0.4	2.6	0.47	0.51	0.47	42.3
9	R2	All MCs	1	0.0	1	0.0	0.118	260.9	LOS F	0.4	2.6	0.47	0.51	0.47	45.8
Approach			55	0.0	55	0.0	0.118	9.9	LOS A	0.4	2.6	0.47	0.51	0.47	42.4
East: Point Peron Rd (E)															
10	L2	All MCs	1	0.0	1	0.0	0.070	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
11	T1	All MCs	126	5.8	126	5.8	0.070	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			127	5.8	127	5.8	0.070	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Point Peron Rd (W)															
5	T1	All MCs	1616	1.6	1616	1.6	0.921	1.1	LOS A	10.1	75.8	0.13	0.13	0.20	57.6
6	R2	All MCs	161	1.3	161	1.3	0.921	8.7	LOS A	10.1	75.8	0.13	0.13	0.20	49.0
Approach			1777	1.6	1777	1.6	0.921	1.8	NA	10.1	75.8	0.13	0.13	0.20	56.7
All Vehicles			1959	1.8	1959	1.8	0.921	1.9	NA	10.1	75.8	0.13	0.13	0.19	56.4

Safety Bay Road / Point Peron Road

MOVEMENT SUMMARY

Site: 103 [Sc3_PM_02_Safety Bay Rd / Point Peron Rd (Site Folder: 3_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [PM Peak_3_Do Nothing (Network Folder: 3)]

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	102	7.2	102	7.2	0.096	2.9	LOS A	0.0	0.0	0.00	0.40	0.00	49.1
11	T1	All MCs	72	0.0	72	0.0	0.096	0.5	LOS A	0.0	0.0	0.00	0.40	0.00	56.4
Approach			174	4.2	174	4.2	0.096	1.9	NA	0.0	0.0	0.00	0.40	0.00	51.9
North: Hymus St															
5	T1	All MCs	101	1.0	101	1.0	0.051	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	All MCs	27	0.0	27	0.0	0.018	5.1	LOS A	0.1	0.6	0.28	0.49	0.28	48.6
Approach			128	0.8	128	0.8	0.051	1.1	NA	0.1	0.6	0.06	0.10	0.06	49.5
West: Point Peron Rd															
7	L2	All MCs	97	4.3	97	4.3	0.065	8.3	LOS A	0.3	2.1	0.16	0.54	0.16	48.6
9	R2	All MCs	1476	1.4	1476	1.4	2.021	933.8	LOS F	475.9	3562.9	1.00	10.33	23.74	1.9
Approach			1573	1.6	1573	1.6	2.021	876.8	LOS F	475.9	3562.9	0.95	9.73	22.29	2.2
All Vehicles			1875	1.8	1875	1.8	2.021	735.8	NA	475.9	3562.9	0.80	8.20	18.70	2.6

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104 [Sc3_PM_03_Safety Bay Rd / Parkin St (Site Folder: 3_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [PM Peak_3_Do Nothing (Network Folder: 3)]

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	86	0.0	86	0.0	0.043	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	108	7.8	108	7.8	0.193	11.8	LOS B	0.7	5.7	0.70	0.87	0.70	44.6
Approach			195	4.3	195	4.3	0.193	6.6	NA	0.7	5.7	0.39	0.48	0.39	47.5
East: Parkin St															
7	L2	All MCs	157	3.4	157	3.4	0.201	8.1	LOS A	0.8	5.8	0.46	0.68	0.46	49.0
9	R2	All MCs	86	8.5	86	8.5	0.384	26.9	LOS D	1.4	12.3	0.82	1.01	1.11	32.2
Approach			243	5.2	243	5.2	0.384	14.8	LOS B	1.4	12.3	0.59	0.80	0.69	43.2
North: Safety Bay Rd															
10	L2	All MCs	907	2.0	478	1.9	0.431	2.9	LOS A	0.0	0.0	0.00	0.31	0.00	51.7
11	T1	All MCs	668	0.6	352	0.6	0.431	0.0	LOS A	0.0	0.0	0.00	0.31	0.00	55.3
Approach			1576	1.4	831	1.4	0.431	1.7	NA	0.0	0.0	0.00	0.31	0.00	52.8
All Vehicles			2014	2.1	1269	3.4	0.431	4.9	NA	1.4	12.3	0.17	0.43	0.19	49.0

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc3_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	34	0.0	34	0.0	0.125	5.6	LOS A	0.0	0.0	0.00	0.08	0.00	56.7
11	T1	All MCs	208	4.0	208	4.0	0.125	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	59.0
Approach			242	3.5	242	3.5	0.125	0.8	NA	0.0	0.0	0.00	0.08	0.00	58.6
North: Safety Bay Rd															
5	T1	All MCs	826	1.0	826	1.0	0.415	0.0	LOS A	0.0	0.2	0.00	0.00	0.00	60.0
6	R2	All MCs	3	0.0	3	0.0	0.415	5.6	LOS A	0.0	0.2	0.00	0.00	0.00	51.3
Approach			829	1.0	829	1.0	0.415	0.0	NA	0.0	0.2	0.00	0.00	0.00	59.9
West: Memorial Dr															
7	L2	All MCs	3	0.0	3	0.0	0.005	5.2	LOS A	0.0	0.1	0.41	0.52	0.41	45.4
9	R2	All MCs	1	0.0	1	0.0	0.005	12.3	LOS B	0.0	0.1	0.41	0.52	0.41	47.4
Approach			4	0.0	4	0.0	0.005	7.0	LOS A	0.0	0.1	0.41	0.52	0.41	46.0
All Vehicles			1076	1.6	1076	1.6	0.415	0.2	NA	0.0	0.2	0.00	0.02	0.00	59.5

Memorial Drive / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc3_PM_07_Memorial Dr / Lease Rd (Site Folder: 3_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	28	0.0	28	0.0	0.020	4.7	LOS A	0.1	0.6	0.11	0.50	0.11	45.7
9	R2	All MCs	2	0.0	2	0.0	0.020	5.2	LOS A	0.1	0.6	0.11	0.50	0.11	45.5
Approach			31	0.0	31	0.0	0.020	4.7	LOS A	0.1	0.6	0.11	0.50	0.11	45.7
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.019	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	48.7
11	T1	All MCs	37	0.0	37	0.0	0.019	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.9
Approach			38	0.0	38	0.0	0.019	0.1	NA	0.0	0.0	0.00	0.02	0.00	49.9
West: Memorial Dr															
5	T1	All MCs	2	0.0	2	0.0	0.094	0.1	LOS A	0.5	3.4	0.12	0.52	0.12	46.8
6	R2	All MCs	160	1.3	160	1.3	0.094	4.7	LOS A	0.5	3.4	0.12	0.52	0.12	45.5
Approach			162	1.3	162	1.3	0.094	4.6	NA	0.5	3.4	0.12	0.52	0.12	45.5
All Vehicles			231	0.9	231	0.9	0.094	3.9	NA	0.5	3.4	0.10	0.43	0.10	46.2

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3_PM_06_Boundary Rd / Lease Rd (Site Folder: 3_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	100.0	1	100.0	0.013	15.7	LOS C	0.0	0.4	0.28	0.95	0.28	40.1
2	T1	All MCs	2	0.0	2	0.0	0.013	8.0	LOS A	0.0	0.4	0.28	0.95	0.28	43.9
3	R2	All MCs	7	14.3	7	14.3	0.013	9.1	LOS A	0.0	0.4	0.28	0.95	0.28	43.1
Approach			11	20.0	11	20.0	0.013	9.5	LOS A	0.0	0.4	0.28	0.95	0.28	42.9
East: Boundary Rd															
4	L2	All MCs	6	0.0	6	0.0	0.051	4.6	LOS A	0.0	0.1	0.01	0.05	0.01	48.5
5	T1	All MCs	88	2.4	88	2.4	0.051	0.0	LOS A	0.0	0.1	0.01	0.05	0.01	49.7
6	R2	All MCs	2	0.0	2	0.0	0.051	4.6	LOS A	0.0	0.1	0.01	0.05	0.01	48.3
Approach			97	2.2	97	2.2	0.051	0.4	NA	0.0	0.1	0.01	0.05	0.01	49.6
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.191	7.7	LOS A	0.7	5.4	0.32	0.90	0.32	44.2
8	T1	All MCs	6	0.0	6	0.0	0.191	8.2	LOS A	0.7	5.4	0.32	0.90	0.32	44.2
9	R2	All MCs	154	1.4	154	1.4	0.191	8.3	LOS A	0.7	5.4	0.32	0.90	0.32	44.0
Approach			161	1.3	161	1.3	0.191	8.3	LOS A	0.7	5.4	0.32	0.90	0.32	44.0
West: Arcadia Dr															
10	L2	All MCs	25	0.0	25	0.0	0.052	4.6	LOS A	0.0	0.1	0.01	0.15	0.01	47.9
11	T1	All MCs	69	1.5	69	1.5	0.052	0.0	LOS A	0.0	0.1	0.01	0.15	0.01	49.1
12	R2	All MCs	2	0.0	2	0.0	0.052	4.6	LOS A	0.0	0.1	0.01	0.15	0.01	47.7
Approach			97	1.1	97	1.1	0.052	1.3	NA	0.0	0.1	0.01	0.15	0.01	48.7
All Vehicles			365	2.0	365	2.0	0.191	4.4	NA	0.7	5.4	0.16	0.48	0.16	46.6

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc3_PM_05_Safety Bay Rd / Boundary Rd (Site Folder: 3_PM Peak_Do Nothing)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	7	0.0	7	0.0	0.171	4.6	LOS A	0.9	6.5	0.25	0.44	0.25	49.5
8	T1	All MCs	205	3.1	205	3.1	0.171	4.9	LOS A	0.9	6.5	0.25	0.44	0.25	52.8
Approach			213	3.0	213	3.0	0.171	4.9	LOS A	0.9	6.5	0.25	0.44	0.25	52.7
North: Safety Bay Rd															
2	T1	All MCs	791	0.8	791	0.8	0.534	4.4	LOS A	5.2	38.3	0.07	0.45	0.07	53.9
3	R2	All MCs	97	2.2	97	2.2	0.534	8.4	LOS A	5.2	38.3	0.07	0.45	0.07	49.5
Approach			887	0.9	887	0.9	0.534	4.9	LOS A	5.2	38.3	0.07	0.45	0.07	53.4
West: Boundary Rd															
4	L2	All MCs	76	2.8	76	2.8	0.076	4.4	LOS A	0.4	3.3	0.42	0.50	0.42	48.8
6	R2	All MCs	3	33.3	3	33.3	0.076	9.3	LOS A	0.4	3.3	0.42	0.50	0.42	41.9
Approach			79	4.0	79	4.0	0.076	4.6	LOS A	0.4	3.3	0.42	0.50	0.42	48.5
All Vehicles			1179	1.5	1179	1.5	0.534	4.8	LOS A	5.2	38.3	0.12	0.46	0.12	52.9

Scenario 3.1a – 2040 GIH/HMAS RA + Staggered RAs

AM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101v [Sc3.1a_AM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 3.1a_AM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	65	14.5	65	14.5	0.169	11.9	LOS B	1.0	9.3	0.85	0.81	0.85	42.6
2	T1	All MCs	921	2.7	921	2.7	1.235	236.9	LOS F	126.4	950.3	1.00	5.21	11.22	10.4
3	R2	All MCs	1	0.0	1	0.0	0.002	15.6	LOS B	0.0	0.1	0.82	0.60	0.82	45.2
Approach			987	3.5	987	3.5	1.235	221.8	LOS F	126.4	950.3	0.99	4.91	10.52	11.0
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.018	4.7	LOS A	0.1	0.5	0.29	0.41	0.29	52.6
5	T1	All MCs	15	0.0	15	0.0	0.018	4.7	LOS A	0.1	0.5	0.29	0.41	0.29	50.3
6	R2	All MCs	1071	0.8	1071	0.8	0.722	10.1	LOS B	7.4	54.8	0.53	0.60	0.53	46.3
Approach			1086	0.8	1086	0.8	0.722	10.1	LOS B	7.4	54.8	0.53	0.60	0.53	46.3
North: HMAS Stirling Entrance															
7	L2	All MCs	82	0.0	82	0.0	0.061	2.9	LOS A	0.4	3.0	0.17	0.35	0.17	50.7
8	T1	All MCs	95	13.3	95	13.3	0.061	2.7	LOS A	0.4	3.4	0.18	0.30	0.18	47.3
9	R2	All MCs	1	0.0	1	0.0	0.061	7.6	LOS A	0.4	3.4	0.18	0.28	0.18	46.9
Approach			178	7.1	178	7.1	0.061	2.8	LOS A	0.4	3.4	0.17	0.32	0.17	48.9
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.096	8.7	LOS A	0.4	3.0	0.74	0.88	0.74	42.6
11	T1	All MCs	9	0.0	9	0.0	0.096	8.6	LOS A	0.4	3.0	0.74	0.88	0.74	45.5
12	R2	All MCs	24	13.0	24	13.0	0.096	14.8	LOS B	0.4	3.0	0.74	0.88	0.74	40.8
Approach			36	8.8	36	8.8	0.096	12.8	LOS B	0.4	3.0	0.74	0.88	0.74	42.2
All Vehicles			2287	2.6	2287	2.6	1.235	101.0	LOS F	126.4	950.3	0.70	2.44	4.82	20.8

Safety Bay Road / Point Peron Road / Hymus Street

MOVEMENT SUMMARY

Site: 103v [Sc3.1a_AM_02_Safety Bay Rd / Point Peron Rd / Hymus St (Site Folder: 3.1a_AM Peak_HMAS RA+Staggered RA)]

Network: N101 [AM Peak_3.1a_Staggered RA (Network Folder: 3.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	959	0.9	959	0.9	0.779	4.1	LOS A	9.9	74.1	0.70	0.54	0.70	49.6
11	T1	All MCs	56	5.7	56	5.7	0.779	4.7	LOS A	9.9	74.1	0.70	0.54	0.70	44.3
Approach			1015	1.1	1015	1.1	0.779	4.2	LOS A	9.9	74.1	0.70	0.54	0.70	49.2
North: Hymus St															
5	T1	All MCs	46	9.1	46	9.1	0.142	4.1	LOS A	0.7	5.5	0.22	0.56	0.22	42.3
6	R2	All MCs	135	0.0	135	0.0	0.142	7.3	LOS A	0.7	5.5	0.22	0.56	0.22	47.6
Approach			181	2.3	181	2.3	0.142	6.5	LOS A	0.7	5.5	0.22	0.56	0.22	46.7
West: Point Peron Rd															
7	L2	All MCs	16	0.0	16	0.0	0.070	4.8	LOS A	0.3	2.4	0.17	0.61	0.17	47.8
9	R2	All MCs	75	0.0	75	0.0	0.070	8.2	LOS A	0.3	2.4	0.17	0.61	0.17	47.8
Approach			91	0.0	91	0.0	0.070	7.6	LOS A	0.3	2.4	0.17	0.61	0.17	47.8
All Vehicles			1286	1.2	1286	1.2	0.779	4.7	LOS A	9.9	74.1	0.60	0.55	0.60	48.6

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104v [Sc3.1a_AM_03_Safety Bay Rd / Parkin St / Hymus St (Site Folder: 3.1a_AM Peak_HMAS RA+Staggered RA)]

Network: N101 [AM Peak_3.1a_Staggered RA (Network Folder: 3.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	308	3.8	308	3.8	0.857	23.9	LOS C	9.1	70.9	1.00	1.23	1.85	26.5
6	R2	All MCs	92	8.0	92	8.0	0.857	27.6	LOS C	9.1	70.9	1.00	1.23	1.85	37.0
Approach			400	4.7	400	4.7	0.857	24.7	LOS C	9.1	70.9	1.00	1.23	1.85	30.2
East: Parkin St															
7	L2	All MCs	51	16.7	51	16.7	0.767	5.4	LOS A	7.8	58.0	0.41	0.53	0.41	45.6
9	R2	All MCs	706	0.0	706	0.0	0.767	8.5	LOS A	7.8	58.0	0.41	0.53	0.41	46.3
Approach			757	1.1	757	1.1	0.767	8.3	LOS A	7.8	58.0	0.41	0.53	0.41	46.2
North: Hymus St															
10	L2	All MCs	84	0.0	84	0.0	0.103	2.8	LOS A	0.6	4.8	0.31	0.47	0.31	51.2
11	T1	All MCs	36	11.8	36	11.8	0.103	3.4	LOS A	0.6	4.8	0.31	0.47	0.31	43.7
Approach			120	3.5	120	3.5	0.103	3.0	LOS A	0.6	4.8	0.31	0.47	0.31	49.4
All Vehicles			1277	2.5	1277	2.5	0.857	12.9	LOS B	9.1	70.9	0.59	0.74	0.85	40.6

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc3.1a_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3.1a_AM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	28	0.0	28	0.0	0.214	5.6	LOS A	0.0	0.0	0.00	0.04	0.00	57.0
11	T1	All MCs	381	5.0	381	5.0	0.214	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	59.4
Approach			409	4.6	409	4.6	0.214	0.4	NA	0.0	0.0	0.00	0.04	0.00	59.2
North: Safety Bay Rd															
5	T1	All MCs	95	14.4	95	14.4	0.075	0.5	LOS A	0.2	1.7	0.21	0.25	0.21	57.5
6	R2	All MCs	24	0.0	24	0.0	0.075	7.0	LOS A	0.2	1.7	0.21	0.25	0.21	49.5
Approach			119	11.5	119	11.5	0.075	1.8	NA	0.2	1.7	0.21	0.25	0.21	55.6
West: Memorial Dr															
7	L2	All MCs	8	0.0	8	0.0	0.009	5.9	LOS A	0.0	0.2	0.41	0.56	0.41	45.9
9	R2	All MCs	1	0.0	1	0.0	0.009	6.8	LOS A	0.0	0.2	0.41	0.56	0.41	47.9
Approach			9	0.0	9	0.0	0.009	6.0	LOS A	0.0	0.2	0.41	0.56	0.41	46.1
All Vehicles			538	6.1	538	6.1	0.214	0.8	NA	0.2	1.7	0.05	0.10	0.05	58.1

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc3.1a_AM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 3.1a_AM Peak_HMAS RA+Staggered RA)]

Network: N101 [AM Peak_3.1a_Safety Bay-Boundary-GIH (Network Folder: 3.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	572	0.0	572	0.0	0.444	5.3	LOS A	3.5	25.5	0.62	0.54	0.62	49.5
8	T1	All MCs	289	0.0	289	0.0	0.292	6.0	LOS A	1.9	13.9	0.58	0.54	0.58	52.9
3b	R3	All MCs	1	0.0	1	0.0	0.292	12.3	LOS B	1.9	13.9	0.58	0.54	0.58	52.0
Approach			862	0.0	862	0.0	0.444	5.5	LOS A	3.5	25.5	0.61	0.54	0.61	51.2
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	0.0	1	0.0	0.255	4.5	LOS A	1.2	10.1	0.31	0.44	0.31	53.4
22	T1	All MCs	229	15.6	229	15.6	0.255	4.6	LOS A	1.2	10.1	0.31	0.44	0.31	50.8
23a	R1	All MCs	36	58.8	36	58.8	0.255	9.8	LOS A	1.2	10.1	0.31	0.44	0.31	40.3
Approach			266	21.3	266	21.3	0.255	5.3	LOS A	1.2	10.1	0.31	0.44	0.31	48.0
North: Safety Bay Rd															
7a	L1	All MCs	22	52.4	22	52.4	0.106	4.6	LOS A	0.5	3.7	0.25	0.50	0.25	43.1
2	T1	All MCs	54	0.0	54	0.0	0.106	4.1	LOS A	0.5	3.7	0.25	0.50	0.25	53.3
9b	R3	All MCs	33	3.2	33	3.2	0.106	10.5	LOS B	0.5	3.7	0.25	0.50	0.25	49.5
Approach			108	11.7	108	11.7	0.106	6.2	LOS A	0.5	3.7	0.25	0.50	0.25	49.8
NorthWest: Garden Island Hwy															
27b	L3	All MCs	52	0.0	52	0.0	0.081	3.3	LOS A	0.5	4.1	0.52	0.52	0.52	51.1
28	T1	All MCs	39	48.6	39	48.6	0.081	4.3	LOS A	0.5	4.1	0.52	0.52	0.52	37.2
29a	R1	All MCs	47	0.0	47	0.0	0.048	7.5	LOS A	0.3	2.0	0.52	0.63	0.52	46.9
Approach			138	13.7	138	13.7	0.081	5.0	LOS A	0.5	4.1	0.52	0.56	0.52	45.0
All Vehicles			1375	6.4	1375	6.4	0.444	5.5	LOS A	3.5	25.5	0.51	0.52	0.51	49.9

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc3.1a_AM_09_Boundary Rd / Garden Island Hwy (Site Folder: 3.1a_AM Peak_HMAS RA+Staggered RA)]

Network: N101 [AM Peak_3.1a_Safety Bay-Boundary-GIH (Network Folder: 3.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	35	15.2	35	15.2	0.222	3.3	LOS A	0.0	0.0	0.00	0.05	0.00	47.1
11	T1	All MCs	795	4.0	795	4.0	0.222	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach			829	4.4	829	4.4	0.222	0.1	NA	0.0	0.0	0.00	0.02	0.00	59.0
NorthWest: Garden Island Hwy															
5	T1	All MCs	80	19.7	80	19.7	0.027	0.1	LOS A	0.0	0.2	0.02	0.03	0.02	59.4
6	R2	All MCs	1	0.0	1	0.0	0.027	10.7	LOS B	0.0	0.2	0.05	0.06	0.05	56.9
Approach			81	19.5	81	19.5	0.027	0.3	NA	0.0	0.2	0.02	0.03	0.02	59.4
SouthWest: Boundary Rd															
7	L2	All MCs	5	0.0	5	0.0	0.225	7.9	LOS A	0.8	6.1	0.77	0.92	0.83	44.5
9	R2	All MCs	58	3.6	58	3.6	0.225	19.5	LOS C	0.8	6.1	0.77	0.92	0.83	37.5
Approach			63	3.3	63	3.3	0.225	18.6	LOS C	0.8	6.1	0.77	0.92	0.83	38.4
All Vehicles			974	5.6	974	5.6	0.225	1.4	NA	0.8	6.1	0.05	0.08	0.06	57.0

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3.1a_AM_06_Boundary Rd / Lease Rd (Site Folder: 3.1a_AM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.011	7.5	LOS A	0.0	0.3	0.23	0.91	0.23	44.3
2	T1	All MCs	6	0.0	6	0.0	0.011	8.3	LOS A	0.0	0.3	0.23	0.91	0.23	44.3
3	R2	All MCs	3	0.0	3	0.0	0.011	7.5	LOS A	0.0	0.3	0.23	0.91	0.23	44.2
Approach			11	0.0	11	0.0	0.011	7.9	LOS A	0.0	0.3	0.23	0.91	0.23	44.3
East: Boundary Rd															
4	L2	All MCs	1	0.0	1	0.0	0.022	5.1	LOS A	0.0	0.3	0.10	0.13	0.10	47.9
5	T1	All MCs	31	17.2	31	17.2	0.022	0.1	LOS A	0.0	0.3	0.10	0.13	0.10	49.1
6	R2	All MCs	5	0.0	5	0.0	0.022	5.1	LOS A	0.0	0.3	0.10	0.13	0.10	47.7
Approach			37	14.3	37	14.3	0.022	1.0	NA	0.0	0.3	0.10	0.13	0.10	48.9
North: Lease Rd															
7	L2	All MCs	3	0.0	3	0.0	0.044	7.6	LOS A	0.1	1.1	0.25	0.89	0.25	44.3
8	T1	All MCs	2	0.0	2	0.0	0.044	7.9	LOS A	0.1	1.1	0.25	0.89	0.25	44.3
9	R2	All MCs	34	0.0	34	0.0	0.044	7.9	LOS A	0.1	1.1	0.25	0.89	0.25	44.2
Approach			39	0.0	39	0.0	0.044	7.9	LOS A	0.1	1.1	0.25	0.89	0.25	44.2
West: Arcadia Dr															
10	L2	All MCs	142	1.5	142	1.5	0.105	4.6	LOS A	0.0	0.1	0.00	0.40	0.00	46.6
11	T1	All MCs	49	4.3	49	4.3	0.105	0.0	LOS A	0.0	0.1	0.00	0.40	0.00	47.8
12	R2	All MCs	2	0.0	2	0.0	0.105	4.6	LOS A	0.0	0.1	0.00	0.40	0.00	46.4
Approach			194	2.2	194	2.2	0.105	3.4	NA	0.0	0.1	0.00	0.40	0.00	46.9
All Vehicles			280	3.4	280	3.4	0.105	3.9	NA	0.1	1.1	0.06	0.45	0.06	46.6

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc3.1a_AM_07_Memorial Dr / Garden Island Hwy (Site Folder: 3.1a_AM Peak_HMAS RA+Staggered RA)]

Network: N101 [AM Peak_3.1a_GIH-Memorial-Lease (Network Folder: 3.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	48	2.2	48	2.2	0.315	3.5	LOS A	2.3	17.6	0.23	0.39	0.23	45.3
11	T1	All MCs	895	3.5	895	3.5	0.315	3.7	LOS A	2.3	17.6	0.24	0.39	0.24	50.2
3	R2	All MCs	6	0.0	6	0.0	0.315	8.2	LOS A	2.3	17.5	0.25	0.39	0.25	50.2
Approach			949	3.4	949	3.4	0.315	3.7	LOS A	2.3	17.6	0.24	0.39	0.24	49.9
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.050	4.6	LOS A	0.2	1.6	0.30	0.61	0.30	46.3
5	T1	All MCs	2	0.0	2	0.0	0.050	4.8	LOS A	0.2	1.6	0.30	0.61	0.30	51.1
6	R2	All MCs	51	0.0	51	0.0	0.050	9.5	LOS A	0.2	1.6	0.30	0.61	0.30	50.3
Approach			54	0.0	54	0.0	0.050	9.2	LOS A	0.2	1.6	0.30	0.61	0.30	50.3
North: Garden Island Hwy															
7	L2	All MCs	1	0.0	1	0.0	0.042	4.1	LOS A	0.2	2.0	0.06	0.39	0.06	54.4
5	T1	All MCs	120	14.0	120	14.0	0.042	4.3	LOS A	0.2	2.0	0.07	0.39	0.07	52.6
6	R2	All MCs	1	0.0	1	0.0	0.042	8.7	LOS A	0.2	2.0	0.07	0.40	0.07	50.1
Approach			122	13.8	122	13.8	0.042	4.3	LOS A	0.2	2.0	0.07	0.39	0.07	52.6
West: Memorial Dr															
7	L2	All MCs	2	50.0	2	50.0	0.011	10.4	LOS B	0.0	0.5	0.67	0.69	0.67	37.9
11	T1	All MCs	1	0.0	1	0.0	0.011	8.3	LOS A	0.0	0.5	0.67	0.69	0.67	46.6
9	R2	All MCs	1	100.0	1	100.0	0.011	18.7	LOS B	0.0	0.5	0.67	0.69	0.67	39.5
Approach			4	50.0	4	50.0	0.011	12.0	LOS B	0.0	0.5	0.67	0.69	0.67	40.3
All Vehicles			1129	4.6	1129	4.6	0.315	4.1	LOS A	2.3	17.6	0.22	0.40	0.22	50.1

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc3.1a_AM_10_Garden Island Hwy / Lease Rd (Site Folder: 3.1a_AM Peak_HMAS RA+Staggered RA)]

Network: N101 [AM Peak_3.1a_GIH-Memorial-Lease (Network Folder: 3.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	800	3.9	800	3.9	0.213	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach			800	3.9	800	3.9	0.213	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Garden Island Hwy															
5	T1	All MCs	81	19.5	81	19.5	0.053	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	All MCs	38	0.0	38	0.0	0.065	9.5	LOS A	0.2	1.7	0.62	0.80	0.62	39.3
Approach			119	13.3	119	13.3	0.065	3.0	NA	0.2	1.7	0.20	0.25	0.20	46.0
West: Lease Rd															
7	L2	All MCs	154	1.4	154	1.4	0.179	6.8	LOS A	0.7	5.0	0.47	0.68	0.47	42.3
Approach			154	1.4	154	1.4	0.179	6.8	LOS A	0.7	5.0	0.47	0.68	0.47	42.3
All Vehicles			1073	4.6	1073	4.6	0.213	1.4	NA	0.7	5.0	0.09	0.13	0.09	48.2

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc3.1a_AM_11_Memorial Dr / Garden Island Hwy (Site Folder: 3.1a_AM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	49	4.3	49	4.3	0.083	7.6	LOS A	0.3	2.6	0.63	0.72	0.63	45.0
9	R2	All MCs	1	0.0	1	0.0	0.083	11.8	LOS B	0.3	2.6	0.63	0.72	0.63	47.3
Approach			51	4.2	51	4.2	0.083	7.7	LOS A	0.3	2.6	0.63	0.72	0.63	45.1
East: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.280	4.1	LOS A	1.8	13.8	0.02	0.40	0.02	50.7
11	T1	All MCs	939	3.4	939	3.4	0.280	4.1	LOS A	1.8	14.0	0.02	0.40	0.02	53.5
Approach			940	3.4	940	3.4	0.280	4.1	LOS A	1.8	14.0	0.02	0.40	0.02	53.5
West: Garden Island Hwy															
5	T1	All MCs	119	13.3	119	13.3	0.039	4.2	LOS A	0.2	2.2	0.02	0.40	0.02	50.3
6	R2	All MCs	1	0.0	1	0.0	0.039	8.7	LOS A	0.2	2.1	0.02	0.41	0.02	48.6
Approach			120	13.2	120	13.2	0.039	4.3	LOS A	0.2	2.2	0.02	0.41	0.02	50.2
All Vehicles			1111	4.5	1111	4.5	0.280	4.3	LOS A	1.8	14.0	0.05	0.42	0.05	52.7

PM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101v [Sc3.1a_PM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 3.1a_PM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	21	0.0	21	0.0	0.027	4.5	LOS A	0.1	1.3	0.27	0.45	0.27	47.9
2	T1	All MCs	82	7.7	82	7.7	0.049	4.3	LOS A	0.3	1.9	0.25	0.39	0.25	48.6
3	R2	All MCs	1	0.0	1	0.0	0.001	9.4	LOS A	0.0	0.0	0.27	0.56	0.27	48.5
Approach			104	6.1	104	6.1	0.049	4.3	LOS A	0.3	1.9	0.25	0.40	0.25	48.5
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.054	9.9	LOS A	0.3	2.1	0.75	0.73	0.75	49.1
5	T1	All MCs	28	0.0	28	0.0	0.054	9.9	LOS A	0.3	2.1	0.75	0.73	0.75	47.6
6	R2	All MCs	67	0.0	67	0.0	0.090	13.7	LOS B	0.6	4.1	0.77	0.76	0.77	45.1
Approach			97	0.0	97	0.0	0.090	12.6	LOS B	0.6	4.1	0.76	0.75	0.76	45.8
North: HMAS Stirling Entrance															
7	L2	All MCs	1080	0.0	1080	0.0	0.631	3.2	LOS A	7.0	51.8	0.33	0.38	0.33	50.2
8	T1	All MCs	908	3.1	908	3.1	0.631	3.0	LOS A	7.2	54.9	0.38	0.32	0.38	47.9
9	R2	All MCs	7	0.0	7	0.0	0.631	8.0	LOS A	7.2	54.9	0.38	0.32	0.38	46.2
Approach			1996	1.4	1996	1.4	0.631	3.1	LOS A	7.2	54.9	0.35	0.35	0.35	49.2
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.053	3.0	LOS A	0.2	1.2	0.23	0.50	0.23	45.8
11	T1	All MCs	22	0.0	22	0.0	0.053	2.9	LOS A	0.2	1.2	0.23	0.50	0.23	49.2
12	R2	All MCs	29	7.1	29	7.1	0.053	8.0	LOS A	0.2	1.2	0.23	0.50	0.23	45.4
Approach			54	3.9	54	3.9	0.053	5.7	LOS A	0.2	1.2	0.23	0.50	0.23	47.1
All Vehicles			2251	1.6	2251	1.6	0.631	3.6	LOS A	7.2	54.9	0.36	0.38	0.36	48.9

Safety Bay Road / Point Peron Road / Hymus Street

MOVEMENT SUMMARY

Site: 103v [Sc3.1a_PM_02_Safety Bay Rd / Point Peron Rd / Hymus St (Site Folder: 3.1a_PM Peak_HMAS RA+Staggered RA)]

Network: N101 [PM Peak_3.1a_Staggered RA (Network Folder: 3.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	71	0.0	71	0.0	0.112	2.5	LOS A	0.7	5.4	0.16	0.43	0.16	51.5
11	T1	All MCs	85	1.2	85	1.2	0.112	2.9	LOS A	0.7	5.4	0.16	0.43	0.16	45.8
Approach			156	0.7	156	0.7	0.112	2.7	LOS A	0.7	5.4	0.16	0.43	0.16	48.3
North: Hymus St															
5	T1	All MCs	109	1.9	109	1.9	0.441	13.2	LOS B	2.6	19.5	1.00	0.87	1.12	36.6
6	R2	All MCs	28	0.0	28	0.0	0.441	16.4	LOS B	2.6	19.5	1.00	0.87	1.12	43.7
Approach			138	1.5	138	1.5	0.441	13.9	LOS B	2.6	19.5	1.00	0.87	1.12	38.7
West: Point Peron Rd															
7	L2	All MCs	113	0.0	113	0.0	1.088	88.7	LOS F	92.1	677.0	1.00	1.59	2.53	23.0
9	R2	All MCs	980	0.0	980	0.0	1.088	92.1	LOS F	92.1	677.0	1.00	1.59	2.53	15.4
Approach			1093	0.0	1093	0.0	1.088	91.8	LOS F	92.1	677.0	1.00	1.59	2.53	16.4
All Vehicles			1386	0.2	1386	0.2	1.088	74.0	LOS F	92.1	677.0	0.90	1.39	2.12	18.9

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104v [Sc3.1a_PM_03_Safety Bay Rd / Parkin St / Hymus St (Site Folder: 3.1a_PM Peak_HMAS RA+Staggered RA)]

Network: N101 [PM Peak_3.1a_Staggered RA (Network Folder: 3.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	69	1.5	69	1.5	0.151	5.2	LOS A	0.8	6.2	0.25	0.57	0.25	43.0
6	R2	All MCs	118	5.4	118	5.4	0.151	8.6	LOS A	0.8	6.2	0.25	0.57	0.25	47.7
Approach			187	3.9	187	3.9	0.151	7.4	LOS A	0.8	6.2	0.25	0.57	0.25	46.7
East: Parkin St															
7	L2	All MCs	177	1.8	177	1.8	0.206	5.0	LOS A	1.2	8.7	0.27	0.55	0.27	50.2
9	R2	All MCs	86	0.0	86	0.0	0.206	8.5	LOS A	1.2	8.7	0.27	0.55	0.27	49.3
Approach			263	1.2	263	1.2	0.206	6.1	LOS A	1.2	8.7	0.27	0.55	0.27	50.0
North: Hymus St															
10	L2	All MCs	988	0.0	916	0.0	0.757	3.9	LOS A	9.4	69.5	0.65	0.52	0.65	50.3
11	T1	All MCs	100	2.1	93	2.3	0.757	4.4	LOS A	9.4	69.5	0.65	0.52	0.65	46.0
Approach			1088	0.2	1009	0.2	0.757	3.9	LOS A	9.4	69.5	0.65	0.52	0.65	50.0
All Vehicles			1539	0.8	1460	0.9	0.757	4.8	LOS A	9.4	69.5	0.53	0.53	0.53	49.5

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc3.1a_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3.1a_PM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1	0.0	1	0.0	0.101	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
11	T1	All MCs	196	3.8	196	3.8	0.101	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			197	3.7	197	3.7	0.101	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Safety Bay Rd															
5	T1	All MCs	279	1.9	279	1.9	0.145	0.0	LOS A	0.0	0.4	0.02	0.02	0.02	59.7
6	R2	All MCs	6	0.0	6	0.0	0.145	5.8	LOS A	0.0	0.4	0.02	0.02	0.02	51.2
Approach			285	1.8	285	1.8	0.145	0.1	NA	0.0	0.4	0.02	0.02	0.02	59.5
West: Memorial Dr															
7	L2	All MCs	6	0.0	6	0.0	0.006	5.1	LOS A	0.0	0.2	0.29	0.51	0.29	46.2
9	R2	All MCs	1	0.0	1	0.0	0.006	6.5	LOS A	0.0	0.2	0.29	0.51	0.29	48.2
Approach			7	0.0	7	0.0	0.006	5.3	LOS A	0.0	0.2	0.29	0.51	0.29	46.6
All Vehicles			489	2.6	489	2.6	0.145	0.2	NA	0.0	0.4	0.01	0.02	0.01	59.4

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc3.1a_PM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 3.1a_PM Peak_HMAS RA+Staggered RA)]

Network: N101 [PM Peak_3.1a_Safety Bay-Boundary-GIH (Network Folder: 3.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	62	0.0	62	0.0	0.055	4.3	LOS A	0.3	2.3	0.37	0.43	0.37	51.3
8	T1	All MCs	125	0.0	125	0.0	0.089	4.4	LOS A	0.5	3.9	0.36	0.42	0.36	54.0
3b	R3	All MCs	1	0.0	1	0.0	0.089	10.7	LOS B	0.5	3.9	0.36	0.42	0.36	53.0
Approach			188	0.0	188	0.0	0.089	4.4	LOS A	0.5	3.9	0.36	0.42	0.36	53.4
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	0.0	1	0.0	0.108	8.7	LOS A	0.5	4.4	0.68	0.74	0.68	49.6
22	T1	All MCs	31	24.1	31	24.1	0.108	9.7	LOS A	0.5	4.4	0.68	0.74	0.68	44.5
23a	R1	All MCs	27	26.9	27	26.9	0.108	14.1	LOS B	0.5	4.4	0.68	0.74	0.68	43.5
Approach			59	25.0	59	25.0	0.108	11.7	LOS B	0.5	4.4	0.68	0.74	0.68	44.0
North: Safety Bay Rd															
7a	L1	All MCs	42	12.5	42	12.5	0.491	8.9	LOS A	2.8	20.7	0.71	0.83	0.84	48.1
2	T1	All MCs	199	0.0	199	0.0	0.491	8.7	LOS A	2.8	20.7	0.71	0.83	0.84	50.7
9b	R3	All MCs	102	0.0	102	0.0	0.491	14.9	LOS B	2.8	20.7	0.71	0.83	0.84	45.5
Approach			343	1.5	343	1.5	0.491	10.5	LOS B	2.8	20.7	0.71	0.83	0.84	49.3
NorthWest: Garden Island Hwy															
27b	L3	All MCs	78	0.0	78	0.0	0.281	3.0	LOS A	1.9	14.2	0.42	0.44	0.42	51.3
28	T1	All MCs	249	12.2	249	12.2	0.281	3.4	LOS A	1.9	14.2	0.42	0.44	0.42	47.7
29a	R1	All MCs	513	0.0	513	0.0	0.340	6.6	LOS A	2.5	18.2	0.41	0.58	0.41	47.4
Approach			840	3.6	840	3.6	0.340	5.3	LOS A	2.5	18.2	0.41	0.52	0.41	47.9
All Vehicles			1431	3.5	1431	3.5	0.491	6.7	LOS A	2.8	20.7	0.49	0.59	0.52	48.9

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc3.1a_PM_09_Boundary Rd / Garden Island Hwy (Site Folder: 3.1a_PM Peak_HMAS RA+Staggered RA)]

Network: N101 [PM Peak_3.1a_Safety Bay-Boundary-GIH (Network Folder: 3.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	113	0.9	113	0.9	0.061	3.3	LOS A	0.0	0.0	0.00	0.53	0.00	50.4
11	T1	All MCs	82	7.7	82	7.7	0.048	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			195	3.8	195	3.8	0.061	1.9	NA	0.0	0.0	0.00	0.31	0.00	54.0
NorthWest: Garden Island Hwy															
5	T1	All MCs	757	3.9	757	3.9	0.202	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	59.9
6	R2	All MCs	1	0.0	1	0.0	0.202	5.6	LOS A	0.0	0.1	0.00	0.00	0.00	57.4
Approach			758	3.9	758	3.9	0.202	0.0	NA	0.0	0.1	0.00	0.00	0.00	59.9
SouthWest: Boundary Rd															
7	L2	All MCs	1	0.0	1	0.0	0.294	5.5	LOS A	1.3	9.9	0.22	0.50	0.22	42.9
9	R2	All MCs	83	1.3	83	1.3	0.294	21.9	LOS C	1.3	9.9	0.22	0.50	0.22	35.2
Approach			84	1.3	84	1.3	0.294	21.7	LOS C	1.3	9.9	0.22	0.50	0.22	35.4
All Vehicles			1037	3.7	1037	3.7	0.294	2.1	NA	1.3	9.9	0.02	0.10	0.02	55.6

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3.1a_PM_06_Boundary Rd / Lease Rd (Site Folder: 3.1a_PM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.013	7.8	LOS A	0.0	0.3	0.27	0.88	0.27	44.4
2	T1	All MCs	3	0.0	3	0.0	0.013	8.0	LOS A	0.0	0.3	0.27	0.88	0.27	44.3
3	R2	All MCs	7	0.0	7	0.0	0.013	8.0	LOS A	0.0	0.3	0.27	0.88	0.27	44.2
Approach			12	0.0	12	0.0	0.013	8.0	LOS A	0.0	0.3	0.27	0.88	0.27	44.2
East: Boundary Rd															
4	L2	All MCs	7	0.0	7	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.5
5	T1	All MCs	95	1.1	95	1.1	0.054	0.0	LOS A	0.0	0.1	0.01	0.04	0.01	49.7
6	R2	All MCs	1	0.0	1	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.3
Approach			103	1.0	103	1.0	0.054	0.4	NA	0.0	0.1	0.01	0.04	0.01	49.6
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.208	7.7	LOS A	0.8	5.9	0.33	0.89	0.33	44.2
8	T1	All MCs	9	0.0	9	0.0	0.208	8.2	LOS A	0.8	5.9	0.33	0.89	0.33	44.2
9	R2	All MCs	166	0.0	166	0.0	0.208	8.3	LOS A	0.8	5.9	0.33	0.89	0.33	44.1
Approach			177	0.0	177	0.0	0.208	8.3	LOS A	0.8	5.9	0.33	0.89	0.33	44.1
West: Arcadia Dr															
10	L2	All MCs	25	0.0	25	0.0	0.051	4.6	LOS A	0.0	0.1	0.01	0.15	0.01	47.9
11	T1	All MCs	71	1.5	71	1.5	0.051	0.0	LOS A	0.0	0.1	0.01	0.15	0.01	49.1
12	R2	All MCs	1	0.0	1	0.0	0.051	4.6	LOS A	0.0	0.1	0.01	0.15	0.01	47.7
Approach			97	1.1	97	1.1	0.051	1.2	NA	0.0	0.1	0.01	0.15	0.01	48.8
All Vehicles			388	0.5	388	0.5	0.208	4.4	NA	0.8	5.9	0.16	0.48	0.16	46.6

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc3.1a_PM_07_Memorial Dr / Garden Island Hwy (Site Folder: 3.1a_PM Peak_HMAS RA+Staggered RA)]

Network: N101 [PM Peak_3.1a_GIH-Memorial-Lease (Network Folder: 3.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	3	0.0	3	0.0	0.036	3.3	LOS A	0.2	1.7	0.06	0.39	0.06	46.2
11	T1	All MCs	105	6.0	105	6.0	0.036	3.4	LOS A	0.2	1.7	0.06	0.39	0.06	52.3
3	R2	All MCs	1	0.0	1	0.0	0.036	7.9	LOS A	0.2	1.7	0.06	0.39	0.06	51.3
Approach			109	5.8	109	5.8	0.036	3.4	LOS A	0.2	1.7	0.06	0.39	0.06	52.1
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.010	8.0	LOS A	0.0	0.3	0.62	0.65	0.62	46.8
5	T1	All MCs	4	0.0	4	0.0	0.010	8.3	LOS A	0.0	0.3	0.62	0.65	0.62	51.5
6	R2	All MCs	1	0.0	1	0.0	0.010	12.9	LOS B	0.0	0.3	0.62	0.65	0.62	50.7
Approach			6	0.0	6	0.0	0.010	9.0	LOS A	0.0	0.3	0.62	0.65	0.62	50.9
North: Garden Island Hwy															
7	L2	All MCs	2	0.0	2	0.0	0.284	4.1	LOS A	2.0	15.2	0.05	0.39	0.05	54.5
5	T1	All MCs	935	3.3	935	3.3	0.284	4.1	LOS A	2.0	15.2	0.06	0.39	0.06	52.7
6	R2	All MCs	1	0.0	1	0.0	0.284	8.7	LOS A	2.0	15.2	0.06	0.39	0.06	50.2
Approach			938	3.3	938	3.3	0.284	4.1	LOS A	2.0	15.2	0.06	0.39	0.06	52.7
West: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.005	3.3	LOS A	0.0	0.2	0.26	0.44	0.26	51.7
11	T1	All MCs	3	0.0	3	0.0	0.005	4.7	LOS A	0.0	0.2	0.26	0.44	0.26	52.0
9	R2	All MCs	1	0.0	1	0.0	0.005	7.9	LOS A	0.0	0.2	0.26	0.44	0.26	47.6
Approach			5	0.0	5	0.0	0.005	5.0	LOS A	0.0	0.2	0.26	0.44	0.26	51.4
All Vehicles			1059	3.5	1059	3.5	0.284	4.1	LOS A	2.0	15.2	0.06	0.39	0.06	52.6

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc3.1a_PM_10_Garden Island Hwy / Lease Rd (Site Folder: 3.1a_PM Peak_HMAS RA+Staggered RA)]

Network: N101 [PM Peak_3.1a_GIH-Memorial-Lease (Network Folder: 3.1a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	82	7.7	82	7.7	0.024	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach			82	7.7	82	7.7	0.024	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: Garden Island Hwy															
5	T1	All MCs	757	3.9	757	3.9	0.267	0.1	LOS A	1.2	9.4	0.06	0.09	0.06	48.9
6	R2	All MCs	176	0.0	176	0.0	0.267	5.0	LOS A	1.2	9.4	0.19	0.26	0.19	45.0
Approach			933	3.2	933	3.2	0.267	1.0	NA	1.2	9.4	0.09	0.12	0.09	48.1
West: Lease Rd															
7	L2	All MCs	28	0.0	28	0.0	0.022	4.7	LOS A	0.1	0.6	0.11	0.50	0.11	44.0
Approach			28	0.0	28	0.0	0.022	4.7	LOS A	0.1	0.6	0.11	0.50	0.11	44.0
All Vehicles			1043	3.4	1043	3.4	0.267	1.0	NA	1.2	9.4	0.08	0.12	0.08	48.1

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc3.1a_PM_11_Memorial Dr / Garden Island Hwy (Site Folder: 3.1a_PM Peak_HMAS RA+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.003	3.3	LOS A	0.0	0.1	0.26	0.51	0.26	46.4
9	R2	All MCs	2	0.0	2	0.0	0.003	7.8	LOS A	0.0	0.1	0.26	0.51	0.26	48.0
Approach			3	0.0	3	0.0	0.003	6.3	LOS A	0.0	0.1	0.26	0.51	0.26	47.5
East: Garden Island Hwy															
10	L2	All MCs	2	0.0	2	0.0	0.033	4.1	LOS A	0.2	1.4	0.02	0.41	0.02	50.7
11	T1	All MCs	103	6.1	103	6.1	0.033	4.2	LOS A	0.2	1.4	0.02	0.40	0.02	53.0
Approach			105	6.0	105	6.0	0.033	4.2	LOS A	0.2	1.4	0.02	0.40	0.02	53.0
West: Garden Island Hwy															
5	T1	All MCs	937	3.3	937	3.3	0.281	4.1	LOS A	2.0	15.3	0.03	0.40	0.03	53.1
6	R2	All MCs	1	0.0	1	0.0	0.281	8.7	LOS A	2.0	15.2	0.03	0.40	0.03	48.6
Approach			938	3.3	938	3.3	0.281	4.1	LOS A	2.0	15.3	0.03	0.40	0.03	53.1
All Vehicles			1046	3.5	1046	3.5	0.281	4.1	LOS A	2.0	15.3	0.03	0.40	0.03	53.0

Scenario 3.1b – 2040 GIH/HMAS RA + Single RA

AM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101v [Sc3.1b_AM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 3.1b_AM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	27	30.8	27	30.8	0.076	10.1	LOS B	0.4	4.2	0.72	0.76	0.72	43.2
2	T1	All MCs	1198	2.8	1198	2.8	1.221	217.3	LOS F	152.4	1147.8	1.00	5.92	12.49	11.2
3	R2	All MCs	1	0.0	1	0.0	0.002	13.8	LOS B	0.0	0.1	0.69	0.59	0.69	46.6
Approach			1226	3.4	1226	3.4	1.221	212.5	LOS F	152.4	1147.8	0.99	5.80	12.21	11.4
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.018	4.7	LOS A	0.1	0.5	0.29	0.41	0.29	52.6
5	T1	All MCs	15	0.0	15	0.0	0.018	4.7	LOS A	0.1	0.5	0.29	0.41	0.29	50.3
6	R2	All MCs	832	0.0	832	0.0	0.564	9.8	LOS A	4.4	32.2	0.41	0.60	0.41	46.6
Approach			847	0.0	847	0.0	0.564	9.7	LOS A	4.4	32.2	0.41	0.59	0.41	46.7
North: HMAS Stirling Entrance															
7	L2	All MCs	82	0.0	82	0.0	0.061	2.9	LOS A	0.4	3.0	0.17	0.35	0.17	50.7
8	T1	All MCs	95	13.3	95	13.3	0.061	2.7	LOS A	0.4	3.4	0.18	0.30	0.18	47.3
9	R2	All MCs	1	0.0	1	0.0	0.061	7.6	LOS A	0.4	3.4	0.18	0.28	0.18	46.9
Approach			178	7.1	178	7.1	0.061	2.8	LOS A	0.4	3.4	0.17	0.32	0.17	48.9
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.100	7.9	LOS A	0.4	3.1	0.75	0.88	0.75	42.9
11	T1	All MCs	9	0.0	9	0.0	0.100	7.8	LOS A	0.4	3.1	0.75	0.88	0.75	45.9
12	R2	All MCs	24	13.0	24	13.0	0.100	14.1	LOS B	0.4	3.1	0.75	0.88	0.75	41.2
Approach			36	8.8	36	8.8	0.100	12.1	LOS B	0.4	3.1	0.75	0.88	0.75	42.6
All Vehicles			2287	2.5	2287	2.5	1.221	117.9	LOS F	152.4	1147.8	0.71	3.37	6.72	18.6

Safety Bay Road / Parkin Street / Point Peron Road

MOVEMENT SUMMARY

Site: 104v [Sc3.1b_AM_03_Safety Bay Rd / Parkin St / Point Peron Rd / Hymus St (Site Folder: 3.1b_AM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	39	0.0	39	0.0	0.267	9.8	LOS A	1.7	13.9	0.83	0.77	0.83	46.4
5	T1	All MCs	32	13.3	32	13.3	0.267	11.0	LOS B	1.7	13.9	0.83	0.77	0.83	43.8
6	R2	All MCs	93	8.0	93	8.0	0.267	15.2	LOS B	1.7	13.9	0.83	0.77	0.83	43.9
Approach			163	7.1	163	7.1	0.267	13.1	LOS B	1.7	13.9	0.83	0.77	0.83	44.5
East: Parkin St															
7	L2	All MCs	51	16.7	51	16.7	0.585	5.7	LOS A	4.8	35.9	0.52	0.50	0.52	48.0
5	T1	All MCs	680	0.0	680	0.0	0.585	5.3	LOS A	4.8	35.9	0.52	0.50	0.52	52.8
9	R2	All MCs	25	0.0	25	0.0	0.585	9.9	LOS A	4.8	35.9	0.52	0.50	0.52	51.9
Approach			756	1.1	756	1.1	0.585	5.5	LOS A	4.8	35.9	0.52	0.50	0.52	52.5
North: Hymus St															
10	L2	All MCs	9	0.0	9	0.0	0.153	4.7	LOS A	0.9	6.5	0.38	0.59	0.38	51.1
11	T1	All MCs	36	11.8	36	11.8	0.153	5.2	LOS A	0.9	6.5	0.38	0.59	0.38	47.9
9	R2	All MCs	135	0.0	135	0.0	0.153	9.6	LOS A	0.9	6.5	0.38	0.59	0.38	50.6
Approach			180	2.3	180	2.3	0.153	8.4	LOS A	0.9	6.5	0.38	0.59	0.38	50.2
West: Point Peron Rd															
10	L2	All MCs	16	0.0	16	0.0	0.077	4.6	LOS A	0.4	3.2	0.35	0.45	0.35	53.3
11	T1	All MCs	75	0.0	75	0.0	0.077	4.8	LOS A	0.4	3.2	0.35	0.45	0.35	53.6
12	R2	All MCs	1	0.0	1	0.0	0.077	9.4	LOS A	0.4	3.2	0.35	0.45	0.35	51.3
Approach			92	0.0	92	0.0	0.077	4.8	LOS A	0.4	3.2	0.35	0.45	0.35	53.5
All Vehicles			1191	2.0	1191	2.0	0.585	6.9	LOS A	4.8	35.9	0.53	0.55	0.53	51.1

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc3.1b_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3.1b_AM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	39	0.0	39	0.0	0.096	5.6	LOS A	0.0	0.0	0.00	0.13	0.00	56.3
11	T1	All MCs	142	7.4	142	7.4	0.096	0.0	LOS A	0.0	0.0	0.00	0.13	0.00	58.4
Approach			181	5.8	181	5.8	0.096	1.2	NA	0.0	0.0	0.00	0.13	0.00	57.9
North: Safety Bay Rd															
5	T1	All MCs	94	13.5	94	13.5	0.068	0.2	LOS A	0.1	1.2	0.12	0.16	0.12	58.0
6	R2	All MCs	22	0.0	22	0.0	0.068	6.0	LOS A	0.1	1.2	0.12	0.16	0.12	49.9
Approach			116	10.9	116	10.9	0.068	1.3	NA	0.1	1.2	0.12	0.16	0.12	56.2
West: Memorial Dr															
7	L2	All MCs	5	0.0	5	0.0	0.005	5.0	LOS A	0.0	0.1	0.24	0.50	0.24	46.4
9	R2	All MCs	1	0.0	1	0.0	0.005	5.6	LOS A	0.0	0.1	0.24	0.50	0.24	48.3
Approach			6	0.0	6	0.0	0.005	5.1	LOS A	0.0	0.1	0.24	0.50	0.24	46.8
All Vehicles			303	7.6	303	7.6	0.096	1.3	NA	0.1	1.2	0.05	0.15	0.05	57.0

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc3.1b_AM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 3.1b_AM Peak_HMAS RA+Single RA)]

Network: N101 [AM Peak_3.1b_Safety Bay-Boundary-GIH (Network Folder: 3.1b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	803	0.0	803	0.0	0.614	5.9	LOS A	5.9	43.6	0.72	0.59	0.74	48.9
8	T1	All MCs	58	0.0	58	0.0	0.071	6.1	LOS A	0.4	2.8	0.52	0.53	0.52	53.2
3b	R3	All MCs	1	0.0	1	0.0	0.071	12.4	LOS B	0.4	2.8	0.52	0.53	0.52	52.3
Approach			862	0.0	862	0.0	0.614	5.9	LOS A	5.9	43.6	0.71	0.59	0.72	49.4
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	0.0	1	0.0	0.252	4.4	LOS A	1.2	9.8	0.30	0.43	0.30	53.5
22	T1	All MCs	245	18.0	245	18.0	0.252	4.6	LOS A	1.2	9.8	0.30	0.43	0.30	51.1
23a	R1	All MCs	19	61.1	19	61.1	0.252	9.8	LOS A	1.2	9.8	0.30	0.43	0.30	40.0
Approach			265	21.0	265	21.0	0.252	5.0	LOS A	1.2	9.8	0.30	0.43	0.30	49.3
North: Safety Bay Rd															
7a	L1	All MCs	21	50.0	21	50.0	0.099	4.6	LOS A	0.4	3.2	0.23	0.49	0.23	43.6
2	T1	All MCs	54	0.0	54	0.0	0.099	4.1	LOS A	0.4	3.2	0.23	0.49	0.23	53.5
9b	R3	All MCs	27	3.8	27	3.8	0.099	10.5	LOS B	0.4	3.2	0.23	0.49	0.23	49.9
Approach			102	11.3	102	11.3	0.099	6.0	LOS A	0.4	3.2	0.23	0.49	0.23	50.2
NorthWest: Garden Island Hwy															
27b	L3	All MCs	65	0.0	65	0.0	0.075	2.3	LOS A	0.4	3.6	0.25	0.42	0.25	52.6
28	T1	All MCs	40	50.0	40	50.0	0.075	2.7	LOS A	0.4	3.6	0.25	0.42	0.25	37.7
29a	R1	All MCs	47	0.0	47	0.0	0.038	6.2	LOS A	0.2	1.6	0.26	0.58	0.26	48.0
Approach			153	13.1	153	13.1	0.075	3.6	LOS A	0.4	3.6	0.25	0.47	0.25	46.4
All Vehicles			1382	6.3	1382	6.3	0.614	5.5	LOS A	5.9	43.6	0.54	0.54	0.55	49.1

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc3.1b_AM_09_Boundary Rd / Garden Island Hwy (Site Folder: 3.1b_AM Peak_HMAS RA+Single RA)]

Network: N101 [AM Peak_3.1b_Safety Bay-Boundary-GIH (Network Folder: 3.1b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	35	15.2	35	15.2	0.286	3.3	LOS A	0.0	0.0	0.00	0.04	0.00	47.1
11	T1	All MCs	1037	3.9	1037	3.9	0.286	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach			1072	4.2	1072	4.2	0.286	0.1	NA	0.0	0.0	0.00	0.02	0.00	59.2
NorthWest: Garden Island Hwy															
5	T1	All MCs	82	20.5	82	20.5	0.029	0.3	LOS A	0.0	0.3	0.03	0.04	0.03	59.1
6	R2	All MCs	1	0.0	1	0.0	0.029	14.1	LOS B	0.0	0.3	0.07	0.08	0.07	56.5
Approach			83	20.3	83	20.3	0.029	0.5	NA	0.0	0.3	0.03	0.04	0.03	59.0
SouthWest: Boundary Rd															
7	L2	All MCs	4	0.0	4	0.0	0.447	13.9	LOS B	1.7	12.6	0.90	1.04	1.20	37.5
9	R2	All MCs	72	2.9	72	2.9	0.447	35.1	LOS E	1.7	12.6	0.90	1.04	1.20	28.6
Approach			76	2.8	76	2.8	0.447	33.9	LOS D	1.7	12.6	0.90	1.04	1.20	29.3
All Vehicles			1231	5.2	1231	5.2	0.447	2.2	NA	1.7	12.6	0.06	0.08	0.08	55.7

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3.1b_AM_06_Boundary Rd / Lease Rd (Site Folder: 3.1b_AM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.011	7.5	LOS A	0.0	0.3	0.23	0.91	0.23	44.3
2	T1	All MCs	6	0.0	6	0.0	0.011	8.3	LOS A	0.0	0.3	0.23	0.91	0.23	44.3
3	R2	All MCs	3	0.0	3	0.0	0.011	7.5	LOS A	0.0	0.3	0.23	0.91	0.23	44.2
Approach			11	0.0	11	0.0	0.011	8.0	LOS A	0.0	0.3	0.23	0.91	0.23	44.3
East: Boundary Rd															
4	L2	All MCs	1	0.0	1	0.0	0.023	5.1	LOS A	0.0	0.4	0.11	0.15	0.11	47.8
5	T1	All MCs	31	17.2	31	17.2	0.023	0.1	LOS A	0.0	0.4	0.11	0.15	0.11	49.0
6	R2	All MCs	6	0.0	6	0.0	0.023	5.1	LOS A	0.0	0.4	0.11	0.15	0.11	47.6
Approach			38	13.9	38	13.9	0.023	1.1	NA	0.0	0.4	0.11	0.15	0.11	48.7
North: Lease Rd															
7	L2	All MCs	2	0.0	2	0.0	0.043	7.7	LOS A	0.1	1.1	0.27	0.89	0.27	44.3
8	T1	All MCs	2	0.0	2	0.0	0.043	8.0	LOS A	0.1	1.1	0.27	0.89	0.27	44.3
9	R2	All MCs	34	0.0	34	0.0	0.043	8.0	LOS A	0.1	1.1	0.27	0.89	0.27	44.2
Approach			38	0.0	38	0.0	0.043	8.0	LOS A	0.1	1.1	0.27	0.89	0.27	44.2
West: Arcadia Dr															
10	L2	All MCs	129	1.6	129	1.6	0.105	4.6	LOS A	0.0	0.1	0.00	0.37	0.00	46.7
11	T1	All MCs	61	3.4	61	3.4	0.105	0.0	LOS A	0.0	0.1	0.00	0.37	0.00	47.9
12	R2	All MCs	2	0.0	2	0.0	0.105	4.6	LOS A	0.0	0.1	0.00	0.37	0.00	46.6
Approach			193	2.2	193	2.2	0.105	3.1	NA	0.0	0.1	0.00	0.37	0.00	47.1
All Vehicles			279	3.4	279	3.4	0.105	3.7	NA	0.1	1.1	0.06	0.43	0.06	46.8

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc3.1b_AM_07_Memorial Dr / Garden Island Hwy (Site Folder: 3.1b_AM Peak_HMAS RA+Single RA)]

Network: N101 [AM Peak_3.1b_GIH-Memorial-Lease (Network Folder: 3.1b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.394	3.6	LOS A	3.1	24.1	0.27	0.39	0.27	45.1
11	T1	All MCs	1173	3.5	1173	3.5	0.394	3.8	LOS A	3.1	24.1	0.28	0.39	0.28	50.0
3	R2	All MCs	4	0.0	4	0.0	0.394	8.3	LOS A	3.1	23.9	0.29	0.39	0.29	49.9
Approach			1178	3.5	1178	3.5	0.394	3.8	LOS A	3.1	24.1	0.28	0.39	0.28	50.0
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.058	4.6	LOS A	0.3	1.9	0.30	0.61	0.30	46.3
5	T1	All MCs	2	0.0	2	0.0	0.058	4.9	LOS A	0.3	1.9	0.30	0.61	0.30	51.1
6	R2	All MCs	59	0.0	59	0.0	0.058	9.5	LOS A	0.3	1.9	0.30	0.61	0.30	50.3
Approach			62	0.0	62	0.0	0.058	9.2	LOS A	0.3	1.9	0.30	0.61	0.30	50.3
North: Garden Island Hwy															
7	L2	All MCs	1	0.0	1	0.0	0.042	4.1	LOS A	0.2	2.1	0.06	0.39	0.06	54.5
5	T1	All MCs	120	14.0	120	14.0	0.042	4.3	LOS A	0.2	2.1	0.06	0.40	0.06	52.7
6	R2	All MCs	1	0.0	1	0.0	0.042	8.7	LOS A	0.2	2.0	0.06	0.40	0.06	50.2
Approach			122	13.8	122	13.8	0.042	4.3	LOS A	0.2	2.1	0.06	0.40	0.06	52.6
West: Memorial Dr															
7	L2	All MCs	2	50.0	2	50.0	0.013	12.4	LOS B	0.0	0.6	0.72	0.75	0.72	37.2
11	T1	All MCs	1	0.0	1	0.0	0.013	9.4	LOS A	0.0	0.6	0.72	0.75	0.72	45.5
9	R2	All MCs	1	100.0	1	100.0	0.013	21.5	LOS C	0.0	0.6	0.72	0.75	0.72	38.0
Approach			4	50.0	4	50.0	0.013	13.9	LOS B	0.0	0.6	0.72	0.75	0.72	39.3
All Vehicles			1366	4.4	1366	4.4	0.394	4.1	LOS A	3.1	24.1	0.26	0.40	0.26	50.1

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc3.1b_AM_10_Garden Island Hwy / Lease Rd (Site Folder: 3.1b_AM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM Peak_3.1b_GIH-Memorial-Lease (Network Folder: 3.1b)]

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	1041	3.8	1041	3.8	0.276	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach			1041	3.8	1041	3.8	0.276	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Garden Island Hwy															
5	T1	All MCs	83	20.3	83	20.3	0.055	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	All MCs	38	0.0	38	0.0	0.094	12.7	LOS B	0.3	2.4	0.74	0.88	0.74	37.1
Approach			121	13.9	121	13.9	0.094	4.0	NA	0.3	2.4	0.23	0.28	0.23	45.0
West: Lease Rd															
7	L2	All MCs	141	1.5	141	1.5	0.194	7.8	LOS A	0.7	5.2	0.53	0.75	0.53	41.3
Approach			141	1.5	141	1.5	0.194	7.8	LOS A	0.7	5.2	0.53	0.75	0.53	41.3
All Vehicles			1303	4.5	1303	4.5	0.276	1.3	NA	0.7	5.2	0.08	0.11	0.08	48.3

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc3.1b_AM_11_Memorial Dr / Garden Island Hwy (Site Folder: 3.1b_AM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	2	50.0	2	50.0	0.008	12.4	LOS B	0.0	0.3	0.68	0.71	0.68	36.6
9	R2	All MCs	1	0.0	1	0.0	0.008	12.7	LOS B	0.0	0.3	0.68	0.71	0.68	44.4
Approach			3	33.3	3	33.3	0.008	12.5	LOS B	0.0	0.3	0.68	0.71	0.68	39.2
East: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.367	4.1	LOS A	2.6	20.1	0.02	0.40	0.02	50.7
11	T1	All MCs	1227	3.4	1227	3.4	0.367	4.1	LOS A	2.7	20.4	0.02	0.40	0.02	53.5
Approach			1228	3.4	1228	3.4	0.367	4.1	LOS A	2.7	20.4	0.02	0.40	0.02	53.5
West: Garden Island Hwy															
5	T1	All MCs	119	13.3	119	13.3	0.039	4.2	LOS A	0.2	2.2	0.02	0.40	0.02	50.3
6	R2	All MCs	1	0.0	1	0.0	0.039	8.7	LOS A	0.2	2.1	0.02	0.41	0.02	48.6
Approach			120	13.2	120	13.2	0.039	4.3	LOS A	0.2	2.2	0.02	0.40	0.02	50.2
All Vehicles			1352	4.4	1352	4.4	0.367	4.1	LOS A	2.7	20.4	0.02	0.40	0.02	53.1

PM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101v [Sc3.1b_PM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 3.1b_PM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	21	0.0	21	0.0	0.027	4.5	LOS A	0.1	1.3	0.27	0.45	0.27	47.9
2	T1	All MCs	82	7.7	82	7.7	0.049	4.3	LOS A	0.3	1.9	0.25	0.39	0.25	48.6
3	R2	All MCs	1	0.0	1	0.0	0.001	9.4	LOS A	0.0	0.0	0.27	0.56	0.27	48.5
Approach			104	6.1	104	6.1	0.049	4.3	LOS A	0.3	1.9	0.25	0.40	0.25	48.5
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.054	9.9	LOS A	0.3	2.1	0.75	0.73	0.75	49.1
5	T1	All MCs	28	0.0	28	0.0	0.054	9.9	LOS A	0.3	2.1	0.75	0.73	0.75	47.6
6	R2	All MCs	67	0.0	67	0.0	0.090	13.7	LOS B	0.6	4.1	0.77	0.76	0.77	45.1
Approach			97	0.0	97	0.0	0.090	12.6	LOS B	0.6	4.1	0.76	0.75	0.76	45.8
North: HMAS Stirling Entrance															
7	L2	All MCs	1080	0.0	1080	0.0	0.631	3.2	LOS A	7.0	51.8	0.33	0.38	0.33	50.2
8	T1	All MCs	908	3.1	908	3.1	0.631	3.0	LOS A	7.2	54.9	0.38	0.32	0.38	47.9
9	R2	All MCs	7	0.0	7	0.0	0.631	8.0	LOS A	7.2	54.9	0.38	0.32	0.38	46.2
Approach			1996	1.4	1996	1.4	0.631	3.1	LOS A	7.2	54.9	0.35	0.35	0.35	49.2
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.053	3.0	LOS A	0.2	1.2	0.23	0.50	0.23	45.8
11	T1	All MCs	22	0.0	22	0.0	0.053	2.9	LOS A	0.2	1.2	0.23	0.50	0.23	49.2
12	R2	All MCs	29	7.1	29	7.1	0.053	8.0	LOS A	0.2	1.2	0.23	0.50	0.23	45.4
Approach			54	3.9	54	3.9	0.053	5.7	LOS A	0.2	1.2	0.23	0.50	0.23	47.1
All Vehicles			2251	1.6	2251	1.6	0.631	3.6	LOS A	7.2	54.9	0.36	0.38	0.36	48.9

Safety Bay Road / Parkin Street / Point Peron Road

MOVEMENT SUMMARY

Site: 104v [Sc3.1b_PM_03_Safety Bay Rd / Parkin St / Point Peron Rd / Hymus St (Site Folder: 3.1b_PM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	1	0.0	1	0.0	0.150	4.4	LOS A	0.8	6.2	0.29	0.55	0.29	50.2
5	T1	All MCs	69	1.5	69	1.5	0.150	4.7	LOS A	0.8	6.2	0.29	0.55	0.29	50.1
6	R2	All MCs	118	5.4	118	5.4	0.150	9.4	LOS A	0.8	6.2	0.29	0.55	0.29	48.0
Approach			188	3.9	188	3.9	0.150	7.6	LOS A	0.8	6.2	0.29	0.55	0.29	48.8
East: Parkin St															
7	L2	All MCs	177	1.8	177	1.8	0.209	4.5	LOS A	1.3	9.7	0.35	0.48	0.35	51.6
5	T1	All MCs	71	0.0	71	0.0	0.209	4.6	LOS A	1.3	9.7	0.35	0.48	0.35	53.8
9	R2	All MCs	16	0.0	16	0.0	0.209	9.3	LOS A	1.3	9.7	0.35	0.48	0.35	52.9
Approach			263	1.2	263	1.2	0.209	4.8	LOS A	1.3	9.7	0.35	0.48	0.35	52.4
North: Hymus St															
10	L2	All MCs	9	0.0	9	0.0	0.367	14.5	LOS B	2.9	21.6	1.00	0.85	1.02	46.9
11	T1	All MCs	101	2.1	101	2.1	0.367	14.9	LOS B	2.9	21.6	1.00	0.85	1.02	44.5
9	R2	All MCs	27	0.0	27	0.0	0.367	19.3	LOS B	2.9	21.6	1.00	0.85	1.02	46.5
Approach			138	1.5	138	1.5	0.367	15.7	LOS B	2.9	21.6	1.00	0.85	1.02	45.2
West: Point Peron Rd															
10	L2	All MCs	113	0.0	113	0.0	0.863	9.6	LOS A	16.6	122.3	0.94	0.74	1.10	50.6
11	T1	All MCs	980	0.0	980	0.0	0.863	9.8	LOS A	16.6	122.3	0.94	0.74	1.10	50.9
12	R2	All MCs	1	0.0	1	0.0	0.863	14.5	LOS B	16.6	122.3	0.94	0.74	1.10	48.2
Approach			1094	0.0	1094	0.0	0.863	9.8	LOS A	16.6	122.3	0.94	0.74	1.10	50.9
All Vehicles			1683	0.8	1683	0.8	0.863	9.3	LOS A	16.6	122.3	0.78	0.69	0.88	50.4

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc3.1b_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3.1b_PM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1	0.0	1	0.0	0.101	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
11	T1	All MCs	196	3.8	196	3.8	0.101	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			197	3.7	197	3.7	0.101	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Safety Bay Rd															
5	T1	All MCs	279	1.9	279	1.9	0.145	0.0	LOS A	0.0	0.4	0.02	0.02	0.02	59.7
6	R2	All MCs	6	0.0	6	0.0	0.145	5.8	LOS A	0.0	0.4	0.02	0.02	0.02	51.2
Approach			285	1.8	285	1.8	0.145	0.1	NA	0.0	0.4	0.02	0.02	0.02	59.5
West: Memorial Dr															
7	L2	All MCs	7	0.0	7	0.0	0.007	5.1	LOS A	0.0	0.2	0.29	0.51	0.29	46.2
9	R2	All MCs	1	0.0	1	0.0	0.007	6.5	LOS A	0.0	0.2	0.29	0.51	0.29	48.2
Approach			8	0.0	8	0.0	0.007	5.3	LOS A	0.0	0.2	0.29	0.51	0.29	46.5
All Vehicles			491	2.6	491	2.6	0.145	0.2	NA	0.0	0.4	0.02	0.02	0.02	59.4

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc3.1b_PM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 3.1b_PM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [PM Peak_3.1b_Safety Bay-Boundary-GIH (Network Folder: 3.1b)]

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	62	0.0	62	0.0	0.055	4.3	LOS A	0.3	2.3	0.37	0.43	0.37	51.3
8	T1	All MCs	125	0.0	125	0.0	0.089	4.4	LOS A	0.5	3.9	0.36	0.42	0.36	54.0
3b	R3	All MCs	1	0.0	1	0.0	0.089	10.7	LOS B	0.5	3.9	0.36	0.42	0.36	53.0
Approach			188	0.0	188	0.0	0.089	4.4	LOS A	0.5	3.9	0.36	0.42	0.36	53.4
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	0.0	1	0.0	0.108	8.7	LOS A	0.5	4.4	0.68	0.74	0.68	49.6
22	T1	All MCs	31	24.1	31	24.1	0.108	9.7	LOS A	0.5	4.4	0.68	0.74	0.68	44.5
23a	R1	All MCs	27	26.9	27	26.9	0.108	14.1	LOS B	0.5	4.4	0.68	0.74	0.68	43.5
Approach			59	25.0	59	25.0	0.108	11.7	LOS B	0.5	4.4	0.68	0.74	0.68	44.0
North: Safety Bay Rd															
7a	L1	All MCs	40	10.5	40	10.5	0.487	8.7	LOS A	2.8	20.4	0.71	0.83	0.84	48.5
2	T1	All MCs	199	0.0	199	0.0	0.487	8.6	LOS A	2.8	20.4	0.71	0.83	0.84	50.7
9b	R3	All MCs	102	0.0	102	0.0	0.487	14.8	LOS B	2.8	20.4	0.71	0.83	0.84	45.5
Approach			341	1.2	341	1.2	0.487	10.5	LOS B	2.8	20.4	0.71	0.83	0.84	49.4
NorthWest: Garden Island Hwy															
27b	L3	All MCs	77	0.0	77	0.0	0.280	3.0	LOS A	1.8	14.1	0.42	0.44	0.42	51.3
28	T1	All MCs	249	12.2	249	12.2	0.280	3.4	LOS A	1.8	14.1	0.42	0.44	0.42	47.7
29a	R1	All MCs	513	0.0	513	0.0	0.340	6.6	LOS A	2.5	18.2	0.41	0.58	0.41	47.4
Approach			839	3.6	839	3.6	0.340	5.3	LOS A	2.5	18.2	0.41	0.52	0.41	47.8
All Vehicles			1427	3.5	1427	3.5	0.487	6.7	LOS A	2.8	20.4	0.49	0.59	0.52	49.0

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc3.1b_PM_09_Boundary Rd / Garden Island Hwy (Site Folder: 3.1b_PM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [PM Peak_3.1b_Safety Bay-Boundary-GIH (Network Folder: 3.1b)]

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	113	0.9	113	0.9	0.061	3.3	LOS A	0.0	0.0	0.00	0.53	0.00	50.4
11	T1	All MCs	82	7.7	82	7.7	0.048	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			195	3.8	195	3.8	0.061	1.9	NA	0.0	0.0	0.00	0.31	0.00	54.0
NorthWest: Garden Island Hwy															
5	T1	All MCs	757	3.9	757	3.9	0.202	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	59.9
6	R2	All MCs	1	0.0	1	0.0	0.202	5.6	LOS A	0.0	0.1	0.00	0.00	0.00	57.4
Approach			758	3.9	758	3.9	0.202	0.0	NA	0.0	0.1	0.00	0.00	0.00	59.9
SouthWest: Boundary Rd															
7	L2	All MCs	1	0.0	1	0.0	0.294	5.5	LOS A	1.3	9.9	0.22	0.50	0.22	42.9
9	R2	All MCs	83	1.3	83	1.3	0.294	21.9	LOS C	1.3	9.9	0.22	0.50	0.22	35.2
Approach			84	1.3	84	1.3	0.294	21.7	LOS C	1.3	9.9	0.22	0.50	0.22	35.4
All Vehicles			1037	3.7	1037	3.7	0.294	2.1	NA	1.3	9.9	0.02	0.10	0.02	55.6

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3.1b_PM_06_Boundary Rd / Lease Rd (Site Folder: 3.1b_PM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.013	7.8	LOS A	0.0	0.3	0.27	0.88	0.27	44.4
2	T1	All MCs	3	0.0	3	0.0	0.013	8.0	LOS A	0.0	0.3	0.27	0.88	0.27	44.3
3	R2	All MCs	7	0.0	7	0.0	0.013	8.0	LOS A	0.0	0.3	0.27	0.88	0.27	44.2
Approach			12	0.0	12	0.0	0.013	8.0	LOS A	0.0	0.3	0.27	0.88	0.27	44.2
East: Boundary Rd															
4	L2	All MCs	7	0.0	7	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.5
5	T1	All MCs	95	1.1	95	1.1	0.054	0.0	LOS A	0.0	0.1	0.01	0.04	0.01	49.7
6	R2	All MCs	1	0.0	1	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.3
Approach			103	1.0	103	1.0	0.054	0.4	NA	0.0	0.1	0.01	0.04	0.01	49.6
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.207	7.7	LOS A	0.8	5.8	0.33	0.89	0.33	44.2
8	T1	All MCs	9	0.0	9	0.0	0.207	8.2	LOS A	0.8	5.8	0.33	0.89	0.33	44.2
9	R2	All MCs	165	0.0	165	0.0	0.207	8.3	LOS A	0.8	5.8	0.33	0.89	0.33	44.1
Approach			176	0.0	176	0.0	0.207	8.3	LOS A	0.8	5.8	0.33	0.89	0.33	44.1
West: Arcadia Dr															
10	L2	All MCs	25	0.0	25	0.0	0.051	4.6	LOS A	0.0	0.1	0.01	0.15	0.01	47.9
11	T1	All MCs	71	1.5	71	1.5	0.051	0.0	LOS A	0.0	0.1	0.01	0.15	0.01	49.1
12	R2	All MCs	1	0.0	1	0.0	0.051	4.6	LOS A	0.0	0.1	0.01	0.15	0.01	47.7
Approach			97	1.1	97	1.1	0.051	1.2	NA	0.0	0.1	0.01	0.15	0.01	48.8
All Vehicles			387	0.5	387	0.5	0.207	4.4	NA	0.8	5.8	0.16	0.48	0.16	46.6

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc3.1b_PM_07_Memorial Dr / Garden Island Hwy (Site Folder: 3.1b_PM Peak_HMAS RA+Single RA)]

Network: N101 [PM Peak_3.1b_GIH-Memorial-Lease (Network Folder: 3.1b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	3	0.0	3	0.0	0.036	3.3	LOS A	0.2	1.8	0.06	0.39	0.06	46.2
11	T1	All MCs	105	6.0	105	6.0	0.036	3.4	LOS A	0.2	1.8	0.06	0.39	0.06	52.2
3	R2	All MCs	2	0.0	2	0.0	0.036	7.9	LOS A	0.2	1.7	0.06	0.40	0.06	51.2
Approach			111	5.7	111	5.7	0.036	3.5	LOS A	0.2	1.8	0.06	0.39	0.06	52.0
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.010	8.0	LOS A	0.0	0.3	0.62	0.65	0.62	46.8
5	T1	All MCs	4	0.0	4	0.0	0.010	8.3	LOS A	0.0	0.3	0.62	0.65	0.62	51.5
6	R2	All MCs	1	0.0	1	0.0	0.010	12.9	LOS B	0.0	0.3	0.62	0.65	0.62	50.7
Approach			6	0.0	6	0.0	0.010	9.0	LOS A	0.0	0.3	0.62	0.65	0.62	50.9
North: Garden Island Hwy															
7	L2	All MCs	2	0.0	2	0.0	0.285	4.1	LOS A	2.0	15.0	0.06	0.39	0.06	54.5
5	T1	All MCs	935	3.3	935	3.3	0.285	4.1	LOS A	2.0	15.0	0.06	0.39	0.06	52.7
6	R2	All MCs	1	0.0	1	0.0	0.285	8.7	LOS A	2.0	15.0	0.07	0.39	0.07	50.2
Approach			938	3.3	938	3.3	0.285	4.1	LOS A	2.0	15.0	0.06	0.39	0.06	52.7
West: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.005	3.4	LOS A	0.0	0.2	0.26	0.44	0.26	51.7
11	T1	All MCs	3	0.0	3	0.0	0.005	4.7	LOS A	0.0	0.2	0.26	0.44	0.26	52.0
9	R2	All MCs	1	0.0	1	0.0	0.005	7.9	LOS A	0.0	0.2	0.26	0.44	0.26	47.6
Approach			5	0.0	5	0.0	0.005	5.0	LOS A	0.0	0.2	0.26	0.44	0.26	51.4
All Vehicles			1060	3.5	1060	3.5	0.285	4.1	LOS A	2.0	15.0	0.07	0.39	0.07	52.6

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc3.1b_PM_10_Garden Island Hwy / Lease Rd (Site Folder: 3.1b_PM Peak_HMAS RA+Single RA)]

Network: N101 [PM Peak_3.1b_GIH-Memorial-Lease (Network Folder: 3.1b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	82	7.7	82	7.7	0.024	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach			82	7.7	82	7.7	0.024	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: Garden Island Hwy															
5	T1	All MCs	757	3.9	757	3.9	0.267	0.1	LOS A	1.2	9.4	0.06	0.09	0.06	48.9
6	R2	All MCs	176	0.0	176	0.0	0.267	5.0	LOS A	1.2	9.4	0.19	0.26	0.19	45.0
Approach			933	3.2	933	3.2	0.267	1.0	NA	1.2	9.4	0.09	0.12	0.09	48.1
West: Lease Rd															
7	L2	All MCs	28	0.0	28	0.0	0.022	4.7	LOS A	0.1	0.6	0.11	0.50	0.11	44.0
Approach			28	0.0	28	0.0	0.022	4.7	LOS A	0.1	0.6	0.11	0.50	0.11	44.0
All Vehicles			1043	3.4	1043	3.4	0.267	1.0	NA	1.2	9.4	0.08	0.12	0.08	48.1

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc3.1b_PM_11_Memorial Dr / Garden Island Hwy (Site Folder: 3.1b_PM Peak_HMAS RA+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.003	3.3	LOS A	0.0	0.1	0.26	0.51	0.26	46.4
9	R2	All MCs	2	0.0	2	0.0	0.003	7.8	LOS A	0.0	0.1	0.26	0.51	0.26	48.0
Approach			3	0.0	3	0.0	0.003	6.3	LOS A	0.0	0.1	0.26	0.51	0.26	47.5
East: Garden Island Hwy															
10	L2	All MCs	3	0.0	3	0.0	0.033	4.1	LOS A	0.2	1.4	0.02	0.41	0.02	50.7
11	T1	All MCs	103	6.1	103	6.1	0.033	4.2	LOS A	0.2	1.4	0.02	0.40	0.02	53.0
Approach			106	5.9	106	5.9	0.033	4.2	LOS A	0.2	1.4	0.02	0.40	0.02	52.9
West: Garden Island Hwy															
5	T1	All MCs	937	3.3	937	3.3	0.281	4.1	LOS A	2.0	15.3	0.03	0.40	0.03	53.1
6	R2	All MCs	1	0.0	1	0.0	0.281	8.7	LOS A	2.0	15.2	0.03	0.40	0.03	48.6
Approach			938	3.3	938	3.3	0.281	4.1	LOS A	2.0	15.3	0.03	0.40	0.03	53.1
All Vehicles			1047	3.5	1047	3.5	0.281	4.1	LOS A	2.0	15.3	0.03	0.40	0.03	53.0

Scenario 3.2a – 2040 GIH/HMAS Signals + Staggered RAs

AM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101vv [Sc3.2a_AM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 3.2a_AM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	24	30.4	24	30.4	0.020	6.6	LOS A	0.1	0.7	0.16	0.57	0.16	46.0
2	T1	All MCs	1213	2.8	1213	2.8	*0.660	32.3	LOS C	13.9	105.9	0.92	0.81	0.92	36.8
3	R2	All MCs	1	0.0	1	0.0	0.007	58.9	LOS E	0.0	0.3	0.94	0.59	0.94	31.7
Approach			1238	3.3	1238	3.3	0.660	31.8	LOS C	13.9	105.9	0.90	0.80	0.90	34.6
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.653	37.0	LOS D	10.2	74.8	0.96	0.84	0.98	34.0
5	T1	All MCs	16	0.0	16	0.0	*0.653	32.8	LOS C	10.2	74.8	0.96	0.84	0.98	35.3
6	R2	All MCs	812	0.0	812	0.0	0.653	37.1	LOS D	10.2	74.8	0.96	0.84	0.98	34.7
Approach			828	0.0	828	0.0	0.653	37.0	LOS D	10.2	74.8	0.96	0.84	0.98	34.7
North: HMAS Stirling Entrance															
7	L2	All MCs	82	0.0	82	0.0	0.052	5.0	LOS A	0.3	1.9	0.16	0.54	0.16	49.0
8	T1	All MCs	95	13.3	95	13.3	0.090	20.3	LOS C	1.3	11.6	0.73	0.56	0.73	39.4
9	R2	All MCs	1	0.0	1	0.0	*0.007	42.4	LOS D	0.0	0.3	0.94	0.58	0.94	31.4
Approach			178	7.1	178	7.1	0.090	13.4	LOS B	1.3	11.6	0.47	0.55	0.47	43.7
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.007	20.9	LOS C	0.0	0.3	0.87	0.60	0.87	38.1
11	T1	All MCs	9	0.0	9	0.0	0.064	38.8	LOS D	0.4	2.7	0.95	0.64	0.95	34.6
12	R2	All MCs	23	9.1	23	9.1	*0.181	44.6	LOS D	0.9	7.3	0.97	0.70	0.97	29.0
Approach			35	6.1	35	6.1	0.181	41.6	LOS D	0.9	7.3	0.96	0.68	0.96	31.1
All Vehicles			2279	2.4	2279	2.4	0.660	32.4	LOS C	13.9	105.9	0.89	0.79	0.90	35.2

Safety Bay Road / Point Peron Road / Hymus Street

MOVEMENT SUMMARY

Site: 103v [Sc3.2a_AM_02_Safety Bay Rd / Point Peron Rd / Hymus St (Site Folder: 3.2a_AM Peak_HMAS Signals+Staggered RA)]

Network: N101 [AM Peak_3.2a_Staggered RA (Network Folder: 3.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	699	0.0	699	0.0	0.590	3.5	LOS A	5.3	38.9	0.50	0.51	0.50	50.7
11	T1	All MCs	58	7.3	58	7.3	0.590	4.1	LOS A	5.3	38.9	0.50	0.51	0.50	44.9
Approach			757	0.6	757	0.6	0.590	3.6	LOS A	5.3	38.9	0.50	0.51	0.50	50.2
North: Hymus St															
5	T1	All MCs	46	9.1	46	9.1	0.142	4.1	LOS A	0.7	5.6	0.22	0.56	0.22	42.3
6	R2	All MCs	135	0.0	135	0.0	0.142	7.3	LOS A	0.7	5.6	0.22	0.56	0.22	47.6
Approach			181	2.3	181	2.3	0.142	6.5	LOS A	0.7	5.6	0.22	0.56	0.22	46.7
West: Point Peron Rd															
7	L2	All MCs	17	0.0	17	0.0	0.071	4.8	LOS A	0.3	2.3	0.17	0.61	0.17	47.8
9	R2	All MCs	75	0.0	75	0.0	0.071	8.3	LOS A	0.3	2.3	0.17	0.61	0.17	47.9
Approach			92	0.0	92	0.0	0.071	7.6	LOS A	0.3	2.3	0.17	0.61	0.17	47.8
All Vehicles			1029	0.8	1029	0.8	0.590	4.4	LOS A	5.3	38.9	0.42	0.53	0.42	49.1

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104v [Sc3.2a_AM_03_Safety Bay Rd / Parkin St / Hymus St (Site Folder: 3.2a_AM Peak_HMAS Signals+Staggered RA)]

Network: N101 [AM Peak_3.2a_Staggered RA (Network Folder: 3.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	51	8.3	51	8.3	0.220	10.1	LOS B	1.2	10.0	0.72	0.75	0.72	37.2
6	R2	All MCs	94	7.9	94	7.9	0.220	13.4	LOS B	1.2	10.0	0.72	0.75	0.72	44.0
Approach			144	8.0	144	8.0	0.220	12.3	LOS B	1.2	10.0	0.72	0.75	0.72	42.6
East: Parkin St															
7	L2	All MCs	51	16.7	51	16.7	0.546	5.2	LOS A	4.2	31.7	0.23	0.59	0.23	46.1
9	R2	All MCs	706	0.0	706	0.0	0.546	8.3	LOS A	4.2	31.7	0.23	0.59	0.23	47.1
Approach			757	1.1	757	1.1	0.546	8.1	LOS A	4.2	31.7	0.23	0.59	0.23	47.0
North: Hymus St															
10	L2	All MCs	83	0.0	83	0.0	0.102	2.9	LOS A	0.6	4.5	0.29	0.47	0.29	51.2
11	T1	All MCs	37	11.4	37	11.4	0.102	3.4	LOS A	0.6	4.5	0.29	0.47	0.29	43.9
Approach			120	3.5	120	3.5	0.102	3.0	LOS A	0.6	4.5	0.29	0.47	0.29	49.4
All Vehicles			1021	2.4	1021	2.4	0.546	8.1	LOS A	4.2	31.7	0.31	0.60	0.31	46.4

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc3.2a_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3.2a_AM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	41	0.0	41	0.0	0.089	5.6	LOS A	0.0	0.0	0.00	0.15	0.00	56.1
11	T1	All MCs	123	9.4	123	9.4	0.089	0.0	LOS A	0.0	0.0	0.00	0.15	0.00	58.2
Approach			164	7.1	164	7.1	0.089	1.4	NA	0.0	0.0	0.00	0.15	0.00	57.6
North: Safety Bay Rd															
5	T1	All MCs	96	14.3	96	14.3	0.067	0.1	LOS A	0.1	1.0	0.09	0.13	0.09	58.3
6	R2	All MCs	18	0.0	18	0.0	0.067	6.0	LOS A	0.1	1.0	0.09	0.13	0.09	50.1
Approach			114	12.0	114	12.0	0.067	1.0	NA	0.1	1.0	0.09	0.13	0.09	56.9
West: Memorial Dr															
7	L2	All MCs	4	0.0	4	0.0	0.004	4.9	LOS A	0.0	0.1	0.23	0.50	0.23	46.4
9	R2	All MCs	1	0.0	1	0.0	0.004	5.5	LOS A	0.0	0.1	0.23	0.50	0.23	48.4
Approach			5	0.0	5	0.0	0.004	5.0	LOS A	0.0	0.1	0.23	0.50	0.23	46.9
All Vehicles			283	8.9	283	8.9	0.089	1.3	NA	0.1	1.0	0.04	0.15	0.04	57.1

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc3.2a_AM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 3.2a_AM Peak_HMAS Signals+Staggered RA)]

Network: N101 [AM Peak_3.2a_Safety Bay-Boundary-GIH (Network Folder: 3.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	803	0.0	803	0.0	0.614	5.9	LOS A	5.9	43.6	0.72	0.59	0.74	48.9
8	T1	All MCs	58	0.0	58	0.0	0.071	6.1	LOS A	0.4	2.8	0.52	0.53	0.52	53.2
3b	R3	All MCs	1	0.0	1	0.0	0.071	12.4	LOS B	0.4	2.8	0.52	0.53	0.52	52.3
Approach			862	0.0	862	0.0	0.614	5.9	LOS A	5.9	43.6	0.71	0.59	0.72	49.4
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	0.0	1	0.0	0.252	4.4	LOS A	1.2	9.8	0.30	0.43	0.30	53.6
22	T1	All MCs	245	17.6	245	17.6	0.252	4.6	LOS A	1.2	9.8	0.30	0.43	0.30	51.1
23a	R1	All MCs	19	66.7	19	66.7	0.252	9.9	LOS A	1.2	9.8	0.30	0.43	0.30	39.1
Approach			265	21.0	265	21.0	0.252	5.0	LOS A	1.2	9.8	0.30	0.43	0.30	49.2
North: Safety Bay Rd															
7a	L1	All MCs	24	52.2	24	52.2	0.102	4.6	LOS A	0.4	3.3	0.23	0.48	0.23	43.3
2	T1	All MCs	54	0.0	54	0.0	0.102	4.1	LOS A	0.4	3.3	0.23	0.48	0.23	53.5
9b	R3	All MCs	27	3.8	27	3.8	0.102	10.5	LOS B	0.4	3.3	0.23	0.48	0.23	49.9
Approach			105	13.0	105	13.0	0.102	5.9	LOS A	0.4	3.3	0.23	0.48	0.23	49.9
NorthWest: Garden Island Hwy															
27b	L3	All MCs	47	0.0	47	0.0	0.061	2.3	LOS A	0.3	3.0	0.25	0.41	0.25	52.5
28	T1	All MCs	38	47.2	38	47.2	0.061	2.7	LOS A	0.3	3.0	0.25	0.41	0.25	38.3
29a	R1	All MCs	47	0.0	47	0.0	0.037	6.1	LOS A	0.2	1.5	0.25	0.58	0.25	48.0
Approach			133	13.5	133	13.5	0.061	3.8	LOS A	0.3	3.0	0.25	0.47	0.25	46.1
All Vehicles			1365	6.4	1365	6.4	0.614	5.5	LOS A	5.9	43.6	0.55	0.54	0.56	49.1

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc3.2a_AM_09_Boundary Rd / Garden Island Hwy (Site Folder: 3.2a_AM Peak_HMAS Signals+Staggered RA)]

Network: N101 [AM Peak_3.2a_Safety Bay-Boundary-GIH (Network Folder: 3.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	35	15.2	35	15.2	0.286	3.3	LOS A	0.0	0.0	0.00	0.04	0.00	47.1
11	T1	All MCs	1038	3.9	1038	3.9	0.286	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach			1073	4.2	1073	4.2	0.286	0.1	NA	0.0	0.0	0.00	0.02	0.00	59.2
NorthWest: Garden Island Hwy															
5	T1	All MCs	79	20.0	79	20.0	0.028	0.6	LOS A	0.1	0.6	0.07	0.08	0.07	58.2
6	R2	All MCs	2	0.0	2	0.0	0.028	14.1	LOS B	0.1	0.6	0.15	0.17	0.15	55.6
Approach			81	19.5	81	19.5	0.028	0.9	NA	0.1	0.6	0.07	0.08	0.07	58.1
SouthWest: Boundary Rd															
7	L2	All MCs	7	0.0	7	0.0	0.378	12.3	LOS B	1.3	10.2	0.88	1.01	1.11	38.2
9	R2	All MCs	56	5.7	56	5.7	0.378	34.9	LOS D	1.3	10.2	0.88	1.01	1.11	29.4
Approach			63	5.0	63	5.0	0.378	32.2	LOS D	1.3	10.2	0.88	1.01	1.11	30.9
All Vehicles			1217	5.3	1217	5.3	0.378	1.8	NA	1.3	10.2	0.05	0.07	0.06	56.3

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3.2a_AM_06_Boundary Rd / Lease Rd (Site Folder: 3.2a_AM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.011	7.5	LOS A	0.0	0.3	0.22	0.92	0.22	44.3
2	T1	All MCs	6	0.0	6	0.0	0.011	8.2	LOS A	0.0	0.3	0.22	0.92	0.22	44.3
3	R2	All MCs	3	0.0	3	0.0	0.011	7.4	LOS A	0.0	0.3	0.22	0.92	0.22	44.2
Approach			11	0.0	11	0.0	0.011	7.9	LOS A	0.0	0.3	0.22	0.92	0.22	44.3
East: Boundary Rd															
4	L2	All MCs	2	0.0	2	0.0	0.021	4.9	LOS A	0.0	0.2	0.07	0.11	0.07	48.1
5	T1	All MCs	31	17.2	31	17.2	0.021	0.1	LOS A	0.0	0.2	0.07	0.11	0.07	49.3
6	R2	All MCs	3	0.0	3	0.0	0.021	5.1	LOS A	0.0	0.2	0.07	0.11	0.07	47.9
Approach			36	14.7	36	14.7	0.021	0.8	NA	0.0	0.2	0.07	0.11	0.07	49.1
North: Lease Rd															
7	L2	All MCs	2	0.0	2	0.0	0.042	7.6	LOS A	0.1	1.0	0.26	0.89	0.26	44.4
8	T1	All MCs	2	0.0	2	0.0	0.042	7.9	LOS A	0.1	1.0	0.26	0.89	0.26	44.3
9	R2	All MCs	33	0.0	33	0.0	0.042	7.9	LOS A	0.1	1.0	0.26	0.89	0.26	44.2
Approach			37	0.0	37	0.0	0.042	7.9	LOS A	0.1	1.0	0.26	0.89	0.26	44.2
West: Arcadia Dr															
10	L2	All MCs	145	0.7	145	0.7	0.105	4.6	LOS A	0.0	0.1	0.00	0.41	0.00	46.5
11	T1	All MCs	45	7.0	45	7.0	0.105	0.0	LOS A	0.0	0.1	0.00	0.41	0.00	47.7
12	R2	All MCs	2	0.0	2	0.0	0.105	4.6	LOS A	0.0	0.1	0.00	0.41	0.00	46.4
Approach			193	2.2	193	2.2	0.105	3.5	NA	0.0	0.1	0.00	0.41	0.00	46.8
All Vehicles			276	3.4	276	3.4	0.105	3.9	NA	0.1	1.0	0.05	0.45	0.05	46.6

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc3.2a_AM_07_Memorial Dr / Garden Island Hwy (Site Folder: 3.2a_AM Peak_HMAS Signals+Staggered RA)]

Network: N101 [AM Peak_3.2a_GIH-Memorial-Lease (Network Folder: 3.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.399	3.6	LOS A	3.2	24.6	0.27	0.39	0.27	45.2
11	T1	All MCs	1195	3.4	1195	3.4	0.399	3.8	LOS A	3.2	24.6	0.28	0.39	0.28	50.0
3	R2	All MCs	2	0.0	2	0.0	0.399	8.3	LOS A	3.2	24.3	0.29	0.39	0.29	50.0
Approach			1198	3.4	1198	3.4	0.399	3.8	LOS A	3.2	24.6	0.28	0.39	0.28	50.0
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.056	4.6	LOS A	0.3	1.8	0.30	0.61	0.30	46.3
5	T1	All MCs	2	0.0	2	0.0	0.056	4.8	LOS A	0.3	1.8	0.30	0.61	0.30	51.1
6	R2	All MCs	57	0.0	57	0.0	0.056	9.5	LOS A	0.3	1.8	0.30	0.61	0.30	50.3
Approach			60	0.0	60	0.0	0.056	9.2	LOS A	0.3	1.8	0.30	0.61	0.30	50.3
North: Garden Island Hwy															
7	L2	All MCs	1	0.0	1	0.0	0.040	4.1	LOS A	0.2	2.1	0.05	0.40	0.05	54.5
5	T1	All MCs	118	13.4	118	13.4	0.040	4.3	LOS A	0.2	2.1	0.05	0.40	0.05	52.7
6	R2	All MCs	1	0.0	1	0.0	0.040	8.7	LOS A	0.2	2.0	0.05	0.40	0.05	50.2
Approach			120	13.2	120	13.2	0.040	4.3	LOS A	0.2	2.1	0.05	0.40	0.05	52.7
West: Memorial Dr															
7	L2	All MCs	2	50.0	2	50.0	0.013	12.5	LOS B	0.1	0.6	0.72	0.75	0.72	37.1
11	T1	All MCs	1	0.0	1	0.0	0.013	9.5	LOS A	0.1	0.6	0.72	0.75	0.72	45.4
9	R2	All MCs	1	100.0	1	100.0	0.013	21.6	LOS C	0.1	0.6	0.72	0.75	0.72	37.9
Approach			4	50.0	4	50.0	0.013	14.0	LOS B	0.1	0.6	0.72	0.75	0.72	39.3
All Vehicles			1382	4.3	1382	4.3	0.399	4.1	LOS A	3.2	24.6	0.26	0.40	0.26	50.2

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc3.2a_AM_10_Garden Island Hwy / Lease Rd (Site Folder: 3.2a_AM Peak_HMAS Signals+Staggered RA)]

Network: N101 [AM Peak_3.2a_GIH-Memorial-Lease (Network Folder: 3.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	1044	3.8	1044	3.8	0.544	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	49.6
Approach			1044	3.8	1044	3.8	0.544	0.3	NA	0.0	0.0	0.00	0.00	0.00	49.6
North: Garden Island Hwy															
5	T1	All MCs	80	19.7	80	19.7	0.052	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	All MCs	38	0.0	38	0.0	0.127	16.1	LOS C	0.4	3.0	0.82	0.91	0.82	35.0
Approach			118	13.4	118	13.4	0.127	5.2	NA	0.4	3.0	0.26	0.29	0.26	43.9
West: Lease Rd															
7	L2	All MCs	155	0.7	155	0.7	0.118	4.6	LOS A	0.5	3.4	0.06	0.51	0.06	44.3
Approach			155	0.7	155	0.7	0.118	4.6	LOS A	0.5	3.4	0.06	0.51	0.06	44.3
All Vehicles			1317	4.3	1317	4.3	0.544	1.2	NA	0.5	3.4	0.03	0.09	0.03	48.3

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc3.2a_AM_11_Memorial Dr / Garden Island Hwy (Site Folder: 3.2a_AM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.004	8.2	LOS A	0.0	0.1	0.66	0.66	0.66	44.3
9	R2	All MCs	1	0.0	1	0.0	0.004	12.7	LOS B	0.0	0.1	0.66	0.66	0.66	45.8
Approach			2	0.0	2	0.0	0.004	10.4	LOS B	0.0	0.1	0.66	0.66	0.66	45.1
East: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.372	4.1	LOS A	2.7	20.5	0.02	0.40	0.02	50.7
11	T1	All MCs	1245	3.3	1245	3.3	0.372	4.1	LOS A	2.7	20.8	0.02	0.40	0.02	53.6
Approach			1246	3.3	1246	3.3	0.372	4.1	LOS A	2.7	20.8	0.02	0.40	0.02	53.6
West: Garden Island Hwy															
5	T1	All MCs	119	13.3	119	13.3	0.039	4.2	LOS A	0.2	2.2	0.02	0.40	0.02	50.5
6	R2	All MCs	1	0.0	1	0.0	0.039	8.7	LOS A	0.2	2.1	0.02	0.41	0.02	48.9
Approach			120	13.2	120	13.2	0.039	4.3	LOS A	0.2	2.2	0.02	0.40	0.02	50.5
All Vehicles			1368	4.2	1368	4.2	0.372	4.1	LOS A	2.7	20.8	0.02	0.40	0.02	53.3

PM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101vv [Sc3.2a_PM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 3.2a_PM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	37	0.0	37	0.0	0.022	5.9	LOS A	0.1	1.0	0.09	0.57	0.09	47.6
2	T1	All MCs	82	7.7	82	7.7	0.022	7.4	LOS A	0.5	4.6	0.30	0.36	0.30	47.6
3	R2	All MCs	1	0.0	1	0.0	0.014	82.1	LOS F	0.1	0.6	0.98	0.59	0.98	22.7
Approach			120	5.3	120	5.3	0.022	7.6	LOS A	0.5	4.6	0.24	0.43	0.24	47.2
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.352	85.9	LOS F	2.1	15.1	1.00	0.72	1.00	22.5
5	T1	All MCs	14	0.0	14	0.0	*0.352	81.6	LOS F	2.1	15.1	1.00	0.72	1.00	24.4
6	R2	All MCs	65	0.0	65	0.0	0.352	86.0	LOS F	2.1	15.1	1.00	0.72	1.00	23.8
Approach			80	0.0	80	0.0	0.352	85.3	LOS F	2.1	15.1	1.00	0.72	1.00	23.9
North: HMAS Stirling Entrance															
7	L2	All MCs	1080	0.0	1080	0.0	0.634	5.2	LOS A	9.2	67.7	0.23	0.58	0.23	48.8
8	T1	All MCs	908	3.0	908	3.0	*0.349	10.5	LOS B	12.6	96.1	0.40	0.36	0.40	46.8
9	R2	All MCs	6	0.0	6	0.0	*0.084	87.4	LOS F	0.5	3.4	0.99	0.65	0.99	23.4
Approach			1995	1.4	1995	1.4	0.634	7.9	LOS A	12.6	96.1	0.31	0.48	0.31	47.0
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.014	59.3	LOS E	0.1	0.9	0.94	0.61	0.94	27.2
11	T1	All MCs	21	0.0	21	0.0	0.267	79.7	LOS E	1.6	11.6	1.00	0.70	1.00	25.0
12	R2	All MCs	29	7.1	29	7.1	*0.423	85.8	LOS F	2.3	17.9	1.00	0.73	1.00	21.1
Approach			53	4.0	53	4.0	0.423	82.3	LOS F	2.3	17.9	1.00	0.71	1.00	22.9
All Vehicles			2247	1.6	2247	1.6	0.634	12.4	LOS B	12.6	96.1	0.34	0.49	0.34	44.3

Safety Bay Road / Point Peron Road / Hymus Street

MOVEMENT SUMMARY

Site: 103v [Sc3.2a_PM_02_Safety Bay Rd / Point Peron Rd / Hymus St (Site Folder: 3.2a_PM Peak_HMAS Signals+Staggered RA)]

Network: N101 [PM Peak_3.2a_Staggered RA (Network Folder: 3.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	59	0.0	59	0.0	0.101	2.4	LOS A	0.7	4.9	0.14	0.43	0.14	51.6
11	T1	All MCs	84	1.3	84	1.3	0.101	2.9	LOS A	0.7	4.9	0.14	0.43	0.14	45.9
Approach			143	0.7	143	0.7	0.101	2.7	LOS A	0.7	4.9	0.14	0.43	0.14	48.1
North: Hymus St															
5	T1	All MCs	114	1.9	114	1.9	0.444	13.2	LOS B	2.6	19.4	1.00	0.88	1.12	36.7
6	R2	All MCs	23	0.0	23	0.0	0.444	16.4	LOS B	2.6	19.4	1.00	0.88	1.12	43.7
Approach			137	1.5	137	1.5	0.444	13.8	LOS B	2.6	19.4	1.00	0.88	1.12	38.4
West: Point Peron Rd															
7	L2	All MCs	114	0.0	114	0.0	1.090	90.1	LOS F	93.3	686.1	1.00	1.60	2.54	22.8
9	R2	All MCs	980	0.0	980	0.0	1.090	93.6	LOS F	93.3	686.1	1.00	1.60	2.54	15.3
Approach			1094	0.0	1094	0.0	1.090	93.2	LOS F	93.3	686.1	1.00	1.60	2.54	16.2
All Vehicles			1374	0.2	1374	0.2	1.090	75.9	LOS F	93.3	686.1	0.91	1.40	2.15	18.6

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104v [Sc3.2a_PM_03_Safety Bay Rd / Parkin St / Hymus St (Site Folder: 3.2a_PM Peak_HMAS Signals+Staggered RA)]

Network: N101 [PM Peak_3.2a_Staggered RA (Network Folder: 3.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	68	1.5	68	1.5	0.147	5.2	LOS A	0.8	6.1	0.23	0.57	0.23	43.1
6	R2	All MCs	118	5.4	118	5.4	0.147	8.6	LOS A	0.8	6.1	0.23	0.57	0.23	47.7
Approach			186	4.0	186	4.0	0.147	7.3	LOS A	0.8	6.1	0.23	0.57	0.23	46.8
East: Parkin St															
7	L2	All MCs	188	1.7	188	1.7	0.208	5.0	LOS A	1.2	8.9	0.28	0.55	0.28	50.3
9	R2	All MCs	76	0.0	76	0.0	0.208	8.5	LOS A	1.2	8.9	0.28	0.55	0.28	49.5
Approach			264	1.2	264	1.2	0.208	6.0	LOS A	1.2	8.9	0.28	0.55	0.28	50.2
North: Hymus St															
10	L2	All MCs	988	0.0	915	0.0	0.759	3.9	LOS A	9.5	69.9	0.65	0.52	0.65	50.2
11	T1	All MCs	105	2.0	98	2.2	0.759	4.4	LOS A	9.5	69.9	0.65	0.52	0.65	46.0
Approach			1094	0.2	1013	0.2	0.759	3.9	LOS A	9.5	69.9	0.65	0.52	0.65	50.0
All Vehicles			1544	0.8	1464	0.9	0.759	4.7	LOS A	9.5	69.9	0.53	0.53	0.53	49.5

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc3.2a_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3.2a_PM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1	0.0	1	0.0	0.101	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
11	T1	All MCs	196	3.8	196	3.8	0.101	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			197	3.7	197	3.7	0.101	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Safety Bay Rd															
5	T1	All MCs	280	1.9	280	1.9	0.155	0.1	LOS A	0.2	1.2	0.06	0.07	0.06	59.2
6	R2	All MCs	21	0.0	21	0.0	0.155	6.2	LOS A	0.2	1.2	0.06	0.07	0.06	50.8
Approach			301	1.7	301	1.7	0.155	0.5	NA	0.2	1.2	0.06	0.07	0.06	58.5
West: Memorial Dr															
7	L2	All MCs	6	0.0	6	0.0	0.006	5.1	LOS A	0.0	0.2	0.30	0.51	0.30	46.2
9	R2	All MCs	1	0.0	1	0.0	0.006	6.6	LOS A	0.0	0.2	0.30	0.51	0.30	48.2
Approach			7	0.0	7	0.0	0.006	5.3	LOS A	0.0	0.2	0.30	0.51	0.30	46.6
All Vehicles			505	2.5	505	2.5	0.155	0.4	NA	0.2	1.2	0.04	0.05	0.04	58.8

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc3.2a_PM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 3.2a_PM Peak_HMAS Signals+Staggered RA)]

Network: N101 [PM Peak_3.2a_Safety Bay-Boundary-GIH (Network Folder: 3.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	62	0.0	62	0.0	0.055	4.3	LOS A	0.3	2.3	0.38	0.43	0.38	51.3
8	T1	All MCs	125	0.0	125	0.0	0.089	4.4	LOS A	0.5	3.9	0.36	0.42	0.36	54.0
3b	R3	All MCs	1	0.0	1	0.0	0.089	10.7	LOS B	0.5	3.9	0.36	0.42	0.36	53.0
Approach			188	0.0	188	0.0	0.089	4.4	LOS A	0.5	3.9	0.36	0.42	0.36	53.4
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	0.0	1	0.0	0.108	8.7	LOS A	0.5	4.4	0.69	0.74	0.69	49.6
22	T1	All MCs	31	24.1	31	24.1	0.108	9.7	LOS A	0.5	4.4	0.69	0.74	0.69	44.5
23a	R1	All MCs	27	26.9	27	26.9	0.108	14.1	LOS B	0.5	4.4	0.69	0.74	0.69	43.5
Approach			59	25.0	59	25.0	0.108	11.7	LOS B	0.5	4.4	0.69	0.74	0.69	44.0
North: Safety Bay Rd															
7a	L1	All MCs	42	12.5	42	12.5	0.492	8.9	LOS A	2.8	20.8	0.71	0.83	0.85	48.1
2	T1	All MCs	199	0.0	199	0.0	0.492	8.7	LOS A	2.8	20.8	0.71	0.83	0.85	50.7
9b	R3	All MCs	103	0.0	103	0.0	0.492	14.9	LOS B	2.8	20.8	0.71	0.83	0.85	45.4
Approach			344	1.5	344	1.5	0.492	10.6	LOS B	2.8	20.8	0.71	0.83	0.85	49.3
NorthWest: Garden Island Hwy															
27b	L3	All MCs	77	0.0	77	0.0	0.279	3.0	LOS A	1.8	14.0	0.42	0.44	0.42	51.3
28	T1	All MCs	248	11.9	248	11.9	0.279	3.4	LOS A	1.8	14.0	0.42	0.44	0.42	47.9
29a	R1	All MCs	513	0.0	513	0.0	0.340	6.6	LOS A	2.5	18.2	0.41	0.58	0.41	47.4
Approach			838	3.5	838	3.5	0.340	5.3	LOS A	2.5	18.2	0.41	0.53	0.41	47.9
All Vehicles			1429	3.5	1429	3.5	0.492	6.7	LOS A	2.8	20.8	0.49	0.59	0.52	48.9

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc3.2a_PM_09_Boundary Rd / Garden Island Hwy (Site Folder: 3.2a_PM Peak_HMAS Signals+Staggered RA)]

Network: N101 [PM Peak_3.2a_Safety Bay-Boundary-GIH (Network Folder: 3.2a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	113	0.9	113	0.9	0.061	3.3	LOS A	0.0	0.0	0.00	0.53	0.00	50.4
11	T1	All MCs	82	7.7	82	7.7	0.048	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			195	3.8	195	3.8	0.061	1.9	NA	0.0	0.0	0.00	0.31	0.00	54.0
NorthWest: Garden Island Hwy															
5	T1	All MCs	755	3.8	755	3.8	0.201	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	59.9
6	R2	All MCs	1	0.0	1	0.0	0.201	5.6	LOS A	0.0	0.1	0.00	0.00	0.00	57.4
Approach			756	3.8	756	3.8	0.201	0.0	NA	0.0	0.1	0.00	0.00	0.00	59.9
SouthWest: Boundary Rd															
7	L2	All MCs	1	0.0	1	0.0	0.292	5.5	LOS A	1.3	9.9	0.22	0.50	0.22	43.0
9	R2	All MCs	83	1.3	83	1.3	0.292	21.7	LOS C	1.3	9.9	0.22	0.50	0.22	35.3
Approach			84	1.3	84	1.3	0.292	21.5	LOS C	1.3	9.9	0.22	0.50	0.22	35.5
All Vehicles			1035	3.6	1035	3.6	0.292	2.1	NA	1.3	9.9	0.02	0.10	0.02	55.6

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3.2a_PM_06_Boundary Rd / Lease Rd (Site Folder: 3.2a_PM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.013	7.8	LOS A	0.0	0.3	0.27	0.88	0.27	44.4
2	T1	All MCs	3	0.0	3	0.0	0.013	8.0	LOS A	0.0	0.3	0.27	0.88	0.27	44.3
3	R2	All MCs	7	0.0	7	0.0	0.013	8.0	LOS A	0.0	0.3	0.27	0.88	0.27	44.2
Approach			12	0.0	12	0.0	0.013	8.0	LOS A	0.0	0.3	0.27	0.88	0.27	44.2
East: Boundary Rd															
4	L2	All MCs	8	0.0	8	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.05	0.01	48.5
5	T1	All MCs	95	1.1	95	1.1	0.054	0.0	LOS A	0.0	0.1	0.01	0.05	0.01	49.7
6	R2	All MCs	1	0.0	1	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.05	0.01	48.3
Approach			104	1.0	104	1.0	0.054	0.4	NA	0.0	0.1	0.01	0.05	0.01	49.6
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.207	7.7	LOS A	0.8	5.8	0.33	0.89	0.33	44.2
8	T1	All MCs	8	0.0	8	0.0	0.207	8.2	LOS A	0.8	5.8	0.33	0.89	0.33	44.2
9	R2	All MCs	166	0.0	166	0.0	0.207	8.3	LOS A	0.8	5.8	0.33	0.89	0.33	44.1
Approach			176	0.0	176	0.0	0.207	8.3	LOS A	0.8	5.8	0.33	0.89	0.33	44.1
West: Arcadia Dr															
10	L2	All MCs	25	0.0	25	0.0	0.051	4.6	LOS A	0.0	0.1	0.01	0.15	0.01	47.9
11	T1	All MCs	71	1.5	71	1.5	0.051	0.0	LOS A	0.0	0.1	0.01	0.15	0.01	49.1
12	R2	All MCs	1	0.0	1	0.0	0.051	4.6	LOS A	0.0	0.1	0.01	0.15	0.01	47.7
Approach			97	1.1	97	1.1	0.051	1.2	NA	0.0	0.1	0.01	0.15	0.01	48.8
All Vehicles			388	0.5	388	0.5	0.207	4.4	NA	0.8	5.8	0.16	0.48	0.16	46.6

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc3.2a_PM_07_Memorial Dr / Garden Island Hwy (Site Folder: 3.2a_PM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [PM Peak_3.2a_GIH-Memorial-Lease (Network Folder: 3.2a)]

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	3	0.0	3	0.0	0.038	3.4	LOS A	0.2	1.9	0.12	0.38	0.12	45.9
11	T1	All MCs	105	6.0	105	6.0	0.038	3.5	LOS A	0.2	1.9	0.12	0.38	0.12	51.8
3	R2	All MCs	2	0.0	2	0.0	0.038	8.0	LOS A	0.2	1.8	0.12	0.39	0.12	50.8
Approach			111	5.7	111	5.7	0.038	3.5	LOS A	0.2	1.9	0.12	0.38	0.12	51.6
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.033	8.1	LOS A	0.1	1.0	0.62	0.77	0.62	44.0
5	T1	All MCs	4	0.0	4	0.0	0.033	8.4	LOS A	0.1	1.0	0.62	0.77	0.62	49.6
6	R2	All MCs	16	0.0	16	0.0	0.033	13.0	LOS B	0.1	1.0	0.62	0.77	0.62	48.9
Approach			21	0.0	21	0.0	0.033	11.9	LOS B	0.1	1.0	0.62	0.77	0.62	48.9
North: Garden Island Hwy															
7	L2	All MCs	1	0.0	1	0.0	0.283	4.1	LOS A	2.0	15.0	0.06	0.39	0.06	54.5
5	T1	All MCs	933	3.2	933	3.2	0.283	4.1	LOS A	2.0	15.0	0.06	0.39	0.06	52.7
6	R2	All MCs	1	0.0	1	0.0	0.283	8.7	LOS A	2.0	15.0	0.07	0.39	0.07	50.2
Approach			935	3.2	935	3.2	0.283	4.1	LOS A	2.0	15.0	0.06	0.39	0.06	52.7
West: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.005	3.4	LOS A	0.0	0.2	0.28	0.45	0.28	51.6
11	T1	All MCs	3	0.0	3	0.0	0.005	4.7	LOS A	0.0	0.2	0.28	0.45	0.28	51.9
9	R2	All MCs	1	0.0	1	0.0	0.005	7.9	LOS A	0.0	0.2	0.28	0.45	0.28	47.5
Approach			5	0.0	5	0.0	0.005	5.1	LOS A	0.0	0.2	0.28	0.45	0.28	51.3
All Vehicles			1072	3.3	1072	3.3	0.283	4.2	LOS A	2.0	15.0	0.08	0.40	0.08	52.4

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc3.2a_PM_10_Garden Island Hwy / Lease Rd (Site Folder: 3.2a_PM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [PM Peak_3.2a_GIH-Memorial-Lease (Network Folder: 3.2a)]

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	82	7.7	82	7.7	0.040	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach			82	7.7	82	7.7	0.040	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: Garden Island Hwy															
5	T1	All MCs	756	3.8	756	3.8	0.266	0.1	LOS A	1.2	9.3	0.06	0.09	0.06	48.9
6	R2	All MCs	175	0.0	175	0.0	0.266	5.0	LOS A	1.2	9.3	0.19	0.26	0.19	45.1
Approach			931	3.1	931	3.1	0.266	1.0	NA	1.2	9.3	0.09	0.12	0.09	48.1
West: Lease Rd															
7	L2	All MCs	28	0.0	28	0.0	0.022	4.6	LOS A	0.1	0.6	0.05	0.51	0.05	44.3
Approach			28	0.0	28	0.0	0.022	4.6	LOS A	0.1	0.6	0.05	0.51	0.05	44.3
All Vehicles			1041	3.3	1041	3.3	0.266	1.0	NA	1.2	9.3	0.08	0.12	0.08	48.1

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc3.2a_PM_11_Memorial Dr / Garden Island Hwy (Site Folder: 3.2a_PM Peak_HMAS Signals+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.002	3.4	LOS A	0.0	0.1	0.27	0.48	0.27	47.2
9	R2	All MCs	1	0.0	1	0.0	0.002	7.9	LOS A	0.0	0.1	0.27	0.48	0.27	48.4
Approach			2	0.0	2	0.0	0.002	5.6	LOS A	0.0	0.1	0.27	0.48	0.27	47.9
East: Garden Island Hwy															
10	L2	All MCs	2	0.0	2	0.0	0.037	4.1	LOS A	0.2	1.5	0.02	0.40	0.02	50.7
11	T1	All MCs	118	5.4	118	5.4	0.037	4.1	LOS A	0.2	1.5	0.02	0.40	0.02	53.3
Approach			120	5.3	120	5.3	0.037	4.1	LOS A	0.2	1.5	0.02	0.40	0.02	53.2
West: Garden Island Hwy															
5	T1	All MCs	936	3.1	936	3.1	0.280	4.1	LOS A	2.0	15.3	0.02	0.40	0.02	53.4
6	R2	All MCs	1	0.0	1	0.0	0.280	8.7	LOS A	2.0	15.2	0.02	0.40	0.02	48.9
Approach			937	3.1	937	3.1	0.280	4.1	LOS A	2.0	15.3	0.02	0.40	0.02	53.4
All Vehicles			1059	3.4	1059	3.4	0.280	4.1	LOS A	2.0	15.3	0.02	0.40	0.02	53.3

Scenario 3.2b – 2040 GIH/HMAS Signals + Single RA

AM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101vv [Sc3.2b_AM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 3.2b_AM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	25	29.2	25	29.2	0.021	6.5	LOS A	0.1	0.7	0.16	0.57	0.16	46.1
2	T1	All MCs	1195	2.8	1195	2.8	*0.648	32.0	LOS C	13.6	103.5	0.91	0.80	0.91	36.9
3	R2	All MCs	1	0.0	1	0.0	0.007	58.7	LOS E	0.0	0.3	0.94	0.59	0.94	31.7
Approach			1221	3.4	1221	3.4	0.648	31.5	LOS C	13.6	103.5	0.89	0.80	0.89	34.8
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.668	37.3	LOS D	10.5	77.0	0.97	0.84	1.00	33.9
5	T1	All MCs	15	0.0	15	0.0	*0.668	33.1	LOS C	10.5	77.0	0.97	0.84	1.00	35.2
6	R2	All MCs	831	0.0	831	0.0	0.668	37.4	LOS D	10.5	77.0	0.97	0.84	1.00	34.6
Approach			846	0.0	846	0.0	0.668	37.3	LOS D	10.5	77.0	0.97	0.84	1.00	34.6
North: HMAS Stirling Entrance															
7	L2	All MCs	82	0.0	82	0.0	0.052	5.0	LOS A	0.3	1.9	0.16	0.54	0.16	49.0
8	T1	All MCs	95	13.3	95	13.3	0.090	20.3	LOS C	1.3	11.6	0.73	0.56	0.73	39.4
9	R2	All MCs	1	0.0	1	0.0	*0.007	42.4	LOS D	0.0	0.3	0.94	0.58	0.94	31.4
Approach			178	7.1	178	7.1	0.090	13.4	LOS B	1.3	11.6	0.47	0.55	0.47	43.7
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.007	20.9	LOS C	0.0	0.3	0.87	0.60	0.87	38.1
11	T1	All MCs	11	0.0	11	0.0	0.071	38.9	LOS D	0.4	3.0	0.96	0.64	0.96	34.5
12	R2	All MCs	22	9.5	22	9.5	*0.173	44.6	LOS D	0.9	7.0	0.97	0.70	0.97	29.0
Approach			35	6.1	35	6.1	0.173	41.4	LOS D	0.9	7.0	0.96	0.68	0.96	31.2
All Vehicles			2280	2.4	2280	2.4	0.668	32.4	LOS C	13.6	103.5	0.89	0.79	0.90	35.2

Safety Bay Road / Parkin Street / Point Peron Road

MOVEMENT SUMMARY

▽ Site: 104v [Sc3.2b_AM_03_Safety Bay Rd / Parkin St / Point Peron Rd / Hymus St (Site Folder: 3.2b_AM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	37	0.0	37	0.0	0.264	9.8	LOS A	1.7	13.8	0.83	0.77	0.83	46.4
5	T1	All MCs	32	13.3	32	13.3	0.264	11.0	LOS B	1.7	13.8	0.83	0.77	0.83	43.7
6	R2	All MCs	93	8.0	93	8.0	0.264	15.2	LOS B	1.7	13.8	0.83	0.77	0.83	43.9
Approach			161	7.2	161	7.2	0.264	13.1	LOS B	1.7	13.8	0.83	0.77	0.83	44.4
East: Parkin St															
7	L2	All MCs	51	16.7	51	16.7	0.588	5.7	LOS A	4.8	36.1	0.52	0.50	0.52	48.0
5	T1	All MCs	681	0.0	681	0.0	0.588	5.3	LOS A	4.8	36.1	0.52	0.50	0.52	52.8
9	R2	All MCs	25	0.0	25	0.0	0.588	9.9	LOS A	4.8	36.1	0.52	0.50	0.52	51.9
Approach			757	1.1	757	1.1	0.588	5.5	LOS A	4.8	36.1	0.52	0.50	0.52	52.4
North: Hymus St															
10	L2	All MCs	11	0.0	11	0.0	0.154	4.7	LOS A	0.9	6.6	0.38	0.59	0.38	51.1
11	T1	All MCs	37	11.4	37	11.4	0.154	5.2	LOS A	0.9	6.6	0.38	0.59	0.38	48.0
9	R2	All MCs	134	0.0	134	0.0	0.154	9.6	LOS A	0.9	6.6	0.38	0.59	0.38	50.7
Approach			181	2.3	181	2.3	0.154	8.4	LOS A	0.9	6.6	0.38	0.59	0.38	50.2
West: Point Peron Rd															
10	L2	All MCs	17	0.0	17	0.0	0.079	4.6	LOS A	0.4	3.3	0.36	0.46	0.36	53.2
11	T1	All MCs	74	0.0	74	0.0	0.079	4.8	LOS A	0.4	3.3	0.36	0.46	0.36	53.6
12	R2	All MCs	3	33.3	3	33.3	0.079	10.2	LOS B	0.4	3.3	0.36	0.46	0.36	44.9
Approach			94	1.1	94	1.1	0.079	4.9	LOS A	0.4	3.3	0.36	0.46	0.36	53.3
All Vehicles			1193	2.1	1193	2.1	0.588	6.9	LOS A	4.8	36.1	0.53	0.55	0.53	51.1

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

▽ Site: 105 [Sc3.2b_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3.2b_AM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	26	0.0	26	0.0	0.086	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	56.6
11	T1	All MCs	135	7.8	135	7.8	0.086	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	58.8
Approach			161	6.5	161	6.5	0.086	0.9	NA	0.0	0.0	0.00	0.10	0.00	58.3
North: Safety Bay Rd															
5	T1	All MCs	97	14.1	97	14.1	0.066	0.1	LOS A	0.1	0.8	0.08	0.11	0.08	58.6
6	R2	All MCs	15	0.0	15	0.0	0.066	6.0	LOS A	0.1	0.8	0.08	0.11	0.08	50.3
Approach			112	12.3	112	12.3	0.066	0.9	NA	0.1	0.8	0.08	0.11	0.08	57.4
West: Memorial Dr															
7	L2	All MCs	3	0.0	3	0.0	0.003	4.9	LOS A	0.0	0.1	0.24	0.50	0.24	46.4
9	R2	All MCs	1	0.0	1	0.0	0.003	5.5	LOS A	0.0	0.1	0.24	0.50	0.24	48.3
Approach			4	0.0	4	0.0	0.003	5.1	LOS A	0.0	0.1	0.24	0.50	0.24	46.9
All Vehicles			277	8.7	277	8.7	0.086	1.0	NA	0.1	0.8	0.04	0.11	0.04	57.7

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc3.2b_AM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 3.2b_AM Peak_HMAS Signals+Single RA)]

Network: N101 [AM Peak_3.2b_Safety Bay-Boundary-GIH (Network Folder: 3.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	803	0.0	803	0.0	0.614	5.9	LOS A	5.9	43.6	0.72	0.59	0.74	48.9
8	T1	All MCs	58	0.0	58	0.0	0.071	6.1	LOS A	0.4	2.8	0.52	0.53	0.52	53.2
3b	R3	All MCs	1	0.0	1	0.0	0.071	12.4	LOS B	0.4	2.8	0.52	0.53	0.52	52.3
Approach			862	0.0	862	0.0	0.614	5.9	LOS A	5.9	43.6	0.71	0.59	0.72	49.4
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	0.0	1	0.0	0.252	4.4	LOS A	1.2	9.8	0.30	0.43	0.30	53.6
22	T1	All MCs	246	17.9	246	17.9	0.252	4.6	LOS A	1.2	9.8	0.30	0.43	0.30	51.1
23a	R1	All MCs	18	64.7	18	64.7	0.252	9.9	LOS A	1.2	9.8	0.30	0.43	0.30	39.4
Approach			265	21.0	265	21.0	0.252	5.0	LOS A	1.2	9.8	0.30	0.43	0.30	49.3
North: Safety Bay Rd															
7a	L1	All MCs	24	52.2	24	52.2	0.103	4.6	LOS A	0.4	3.4	0.23	0.48	0.23	43.3
2	T1	All MCs	55	0.0	55	0.0	0.103	4.1	LOS A	0.4	3.4	0.23	0.48	0.23	53.5
9b	R3	All MCs	27	3.8	27	3.8	0.103	10.5	LOS B	0.4	3.4	0.23	0.48	0.23	50.0
Approach			106	12.9	106	12.9	0.103	5.9	LOS A	0.4	3.4	0.23	0.48	0.23	49.9
NorthWest: Garden Island Hwy															
27b	L3	All MCs	47	0.0	47	0.0	0.061	2.3	LOS A	0.3	3.0	0.25	0.41	0.25	52.6
28	T1	All MCs	38	47.2	38	47.2	0.061	2.7	LOS A	0.3	3.0	0.25	0.41	0.25	38.3
29a	R1	All MCs	46	0.0	46	0.0	0.036	6.1	LOS A	0.2	1.5	0.25	0.58	0.25	48.0
Approach			132	13.6	132	13.6	0.061	3.8	LOS A	0.3	3.0	0.25	0.47	0.25	46.1
All Vehicles			1365	6.4	1365	6.4	0.614	5.5	LOS A	5.9	43.6	0.55	0.54	0.56	49.1

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc3.2b_AM_09_Boundary Rd / Garden Island Hwy (Site Folder: 3.2b_AM Peak_HMAS Signals+Single RA)]

Network: N101 [AM Peak_3.2b_Safety Bay-Boundary-GIH (Network Folder: 3.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	35	15.2	35	15.2	0.286	3.3	LOS A	0.0	0.0	0.00	0.04	0.00	47.1
11	T1	All MCs	1038	3.9	1038	3.9	0.286	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach			1073	4.2	1073	4.2	0.286	0.1	NA	0.0	0.0	0.00	0.02	0.00	59.2
NorthWest: Garden Island Hwy															
5	T1	All MCs	77	20.5	77	20.5	0.027	0.3	LOS A	0.0	0.3	0.04	0.04	0.04	59.0
6	R2	All MCs	1	0.0	1	0.0	0.027	14.1	LOS B	0.0	0.3	0.08	0.09	0.08	56.5
Approach			78	20.3	78	20.3	0.027	0.5	NA	0.0	0.3	0.04	0.04	0.04	58.9
SouthWest: Boundary Rd															
7	L2	All MCs	7	0.0	7	0.0	0.346	11.5	LOS B	1.2	9.2	0.87	1.00	1.07	39.0
9	R2	All MCs	54	3.9	54	3.9	0.346	32.7	LOS D	1.2	9.2	0.87	1.00	1.07	30.4
Approach			61	3.4	61	3.4	0.346	30.1	LOS D	1.2	9.2	0.87	1.00	1.07	31.9
All Vehicles			1212	5.2	1212	5.2	0.346	1.6	NA	1.2	9.2	0.05	0.07	0.06	56.6

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3.2b_AM_06_Boundary Rd / Lease Rd (Site Folder: 3.2b_AM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.011	7.5	LOS A	0.0	0.3	0.22	0.91	0.22	44.3
2	T1	All MCs	6	0.0	6	0.0	0.011	8.2	LOS A	0.0	0.3	0.22	0.91	0.22	44.3
3	R2	All MCs	3	0.0	3	0.0	0.011	7.4	LOS A	0.0	0.3	0.22	0.91	0.22	44.2
Approach			11	0.0	11	0.0	0.011	7.9	LOS A	0.0	0.3	0.22	0.91	0.22	44.3
East: Boundary Rd															
4	L2	All MCs	2	0.0	2	0.0	0.022	5.0	LOS A	0.0	0.3	0.08	0.13	0.08	48.0
5	T1	All MCs	31	17.2	31	17.2	0.022	0.1	LOS A	0.0	0.3	0.08	0.13	0.08	49.2
6	R2	All MCs	4	0.0	4	0.0	0.022	5.1	LOS A	0.0	0.3	0.08	0.13	0.08	47.8
Approach			37	14.3	37	14.3	0.022	0.9	NA	0.0	0.3	0.08	0.13	0.08	48.9
North: Lease Rd															
7	L2	All MCs	2	0.0	2	0.0	0.043	7.6	LOS A	0.1	1.1	0.26	0.89	0.26	44.4
8	T1	All MCs	2	0.0	2	0.0	0.043	7.9	LOS A	0.1	1.1	0.26	0.89	0.26	44.3
9	R2	All MCs	34	0.0	34	0.0	0.043	7.9	LOS A	0.1	1.1	0.26	0.89	0.26	44.2
Approach			38	0.0	38	0.0	0.043	7.9	LOS A	0.1	1.1	0.26	0.89	0.26	44.2
West: Arcadia Dr															
10	L2	All MCs	145	0.7	145	0.7	0.105	4.6	LOS A	0.0	0.1	0.00	0.41	0.00	46.5
11	T1	All MCs	46	6.8	46	6.8	0.105	0.0	LOS A	0.0	0.1	0.00	0.41	0.00	47.7
12	R2	All MCs	2	0.0	2	0.0	0.105	4.6	LOS A	0.0	0.1	0.00	0.41	0.00	46.4
Approach			194	2.2	194	2.2	0.105	3.5	NA	0.0	0.1	0.00	0.41	0.00	46.8
All Vehicles			279	3.4	279	3.4	0.105	3.9	NA	0.1	1.1	0.06	0.45	0.06	46.6

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc3.2b_AM_07_Memorial Dr / Garden Island Hwy (Site Folder: 3.2b_AM Peak_HMAS Signals+Single RA)]

Network: N101 [AM Peak_3.2b_GIH-Memorial-Lease (Network Folder: 3.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.388	3.5	LOS A	3.1	23.8	0.22	0.38	0.22	45.4
11	T1	All MCs	1195	3.4	1195	3.4	0.388	3.6	LOS A	3.1	23.8	0.22	0.38	0.22	50.4
3	R2	All MCs	1	0.0	1	0.0	0.388	8.2	LOS A	3.1	23.6	0.23	0.38	0.23	50.3
Approach			1197	3.4	1197	3.4	0.388	3.6	LOS A	3.1	23.8	0.22	0.38	0.22	50.3
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.039	4.5	LOS A	0.2	1.2	0.29	0.61	0.29	46.5
5	T1	All MCs	2	0.0	2	0.0	0.039	4.8	LOS A	0.2	1.2	0.29	0.61	0.29	51.2
6	R2	All MCs	39	0.0	39	0.0	0.039	9.4	LOS A	0.2	1.2	0.29	0.61	0.29	50.4
Approach			42	0.0	42	0.0	0.039	9.1	LOS A	0.2	1.2	0.29	0.61	0.29	50.4
North: Garden Island Hwy															
7	L2	All MCs	1	0.0	1	0.0	0.040	4.1	LOS A	0.2	2.1	0.04	0.40	0.04	54.6
5	T1	All MCs	117	13.5	117	13.5	0.040	4.3	LOS A	0.2	2.1	0.04	0.40	0.04	52.8
6	R2	All MCs	1	0.0	1	0.0	0.040	8.7	LOS A	0.2	2.1	0.04	0.40	0.04	50.2
Approach			119	13.3	119	13.3	0.040	4.3	LOS A	0.2	2.1	0.04	0.40	0.04	52.8
West: Memorial Dr															
7	L2	All MCs	2	50.0	2	50.0	0.013	12.4	LOS B	0.0	0.5	0.71	0.75	0.71	37.2
11	T1	All MCs	1	0.0	1	0.0	0.013	9.4	LOS A	0.0	0.5	0.71	0.75	0.71	45.5
9	R2	All MCs	1	100.0	1	100.0	0.013	21.5	LOS C	0.0	0.5	0.71	0.75	0.71	38.0
Approach			4	50.0	4	50.0	0.013	13.9	LOS B	0.0	0.5	0.71	0.75	0.71	39.3
All Vehicles			1362	4.3	1362	4.3	0.388	3.9	LOS A	3.1	23.8	0.21	0.39	0.21	50.5

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc3.2b_AM_10_Garden Island Hwy / Lease Rd (Site Folder: 3.2b_AM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [AM Peak_3.2b_GIH-Memorial-Lease (Network Folder: 3.2b)]

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	1045	3.8	1045	3.8	0.277	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach			1045	3.8	1045	3.8	0.277	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Garden Island Hwy															
5	T1	All MCs	79	20.0	79	20.0	0.052	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	All MCs	38	0.0	38	0.0	0.094	12.8	LOS B	0.3	2.4	0.74	0.88	0.74	37.0
Approach			117	13.5	117	13.5	0.094	4.1	NA	0.3	2.4	0.24	0.29	0.24	44.9
West: Lease Rd															
7	L2	All MCs	154	0.7	154	0.7	0.210	7.8	LOS A	0.8	5.7	0.54	0.75	0.54	41.3
Approach			154	0.7	154	0.7	0.210	7.8	LOS A	0.8	5.7	0.54	0.75	0.54	41.3
All Vehicles			1316	4.3	1316	4.3	0.277	1.4	NA	0.8	5.7	0.08	0.11	0.08	48.2

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc3.2b_AM_11_Memorial Dr / Garden Island Hwy (Site Folder: 3.2b_AM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.004	8.1	LOS A	0.0	0.1	0.66	0.66	0.66	44.4
9	R2	All MCs	1	0.0	1	0.0	0.004	12.6	LOS B	0.0	0.1	0.66	0.66	0.66	45.8
Approach			2	0.0	2	0.0	0.004	10.4	LOS B	0.0	0.1	0.66	0.66	0.66	45.2
East: Garden Island Hwy															
10	L2	All MCs	1	0.0	1	0.0	0.367	4.1	LOS A	2.6	20.1	0.02	0.40	0.02	50.7
11	T1	All MCs	1228	3.3	1228	3.3	0.367	4.1	LOS A	2.7	20.4	0.02	0.40	0.02	53.6
Approach			1229	3.3	1229	3.3	0.367	4.1	LOS A	2.7	20.4	0.02	0.40	0.02	53.6
West: Garden Island Hwy															
5	T1	All MCs	117	13.5	117	13.5	0.039	4.2	LOS A	0.2	2.2	0.02	0.40	0.02	50.5
6	R2	All MCs	1	0.0	1	0.0	0.039	8.7	LOS A	0.2	2.1	0.02	0.41	0.02	48.9
Approach			118	13.4	118	13.4	0.039	4.3	LOS A	0.2	2.2	0.02	0.41	0.02	50.5
All Vehicles			1349	4.2	1349	4.2	0.367	4.1	LOS A	2.7	20.4	0.02	0.40	0.02	53.3

PM Peak

HMAS Stirling Entrance / Point Peron Road / GIH

MOVEMENT SUMMARY

Site: 101vv [Sc3.2b_PM_01_HMAS Stirling / Point Peron Rd / Garden Island Hwy (Site Folder: 3.2b_PM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
1	L2	All MCs	33	0.0	33	0.0	0.019	5.9	LOS A	0.1	0.8	0.10	0.57	0.10	47.6
2	T1	All MCs	82	7.7	82	7.7	0.023	7.9	LOS A	0.5	4.6	0.32	0.38	0.32	47.3
3	R2	All MCs	1	0.0	1	0.0	0.013	76.6	LOS E	0.1	0.5	0.97	0.59	0.97	23.7
Approach			116	5.5	116	5.5	0.023	8.0	LOS A	0.5	4.6	0.26	0.43	0.26	47.0
East: Point Peron Rd (E)															
4	L2	All MCs	1	0.0	1	0.0	0.346	80.2	LOS F	2.0	14.9	1.00	0.72	1.00	23.6
5	T1	All MCs	18	0.0	18	0.0	*0.346	75.9	LOS E	2.0	14.9	1.00	0.72	1.00	25.4
6	R2	All MCs	65	0.0	65	0.0	0.346	80.3	LOS F	2.0	14.9	1.00	0.72	1.00	24.7
Approach			84	0.0	84	0.0	0.346	79.4	LOS E	2.0	14.9	1.00	0.72	1.00	24.9
North: HMAS Stirling Entrance															
7	L2	All MCs	1080	0.0	1080	0.0	0.638	5.3	LOS A	9.2	67.4	0.24	0.58	0.24	48.8
8	T1	All MCs	908	3.0	908	3.0	*0.358	11.3	LOS B	12.6	96.3	0.43	0.38	0.43	46.4
9	R2	All MCs	6	0.0	6	0.0	*0.079	82.0	LOS F	0.4	3.2	0.98	0.65	0.98	24.2
Approach			1995	1.4	1995	1.4	0.638	8.3	LOS A	12.6	96.3	0.33	0.49	0.33	46.8
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.013	54.1	LOS D	0.1	0.9	0.93	0.61	0.93	28.3
11	T1	All MCs	21	0.0	21	0.0	0.249	73.9	LOS E	1.5	10.8	1.00	0.70	1.00	26.0
12	R2	All MCs	31	6.9	31	6.9	*0.408	80.0	LOS F	2.2	17.2	1.00	0.73	1.00	21.9
Approach			54	3.9	54	3.9	0.408	76.6	LOS E	2.2	17.2	1.00	0.71	1.00	23.8
All Vehicles			2248	1.6	2248	1.6	0.638	12.5	LOS B	12.6	96.3	0.37	0.50	0.37	44.2

Safety Bay Road / Parkin Street / Point Peron Road

MOVEMENT SUMMARY

Site: 104v [Sc3.2b_PM_03_Safety Bay Rd / Parkin St / Point Peron Rd / Hymus St (Site Folder: 3.2b_PM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	1	0.0	1	0.0	0.147	4.3	LOS A	0.8	6.1	0.27	0.55	0.27	50.2
5	T1	All MCs	69	1.5	69	1.5	0.147	4.6	LOS A	0.8	6.1	0.27	0.55	0.27	50.2
6	R2	All MCs	118	5.4	118	5.4	0.147	9.3	LOS A	0.8	6.1	0.27	0.55	0.27	48.0
Approach			188	3.9	188	3.9	0.147	7.5	LOS A	0.8	6.1	0.27	0.55	0.27	48.8
East: Parkin St															
7	L2	All MCs	184	1.7	184	1.7	0.209	4.5	LOS A	1.3	9.7	0.35	0.48	0.35	51.7
5	T1	All MCs	63	0.0	63	0.0	0.209	4.6	LOS A	1.3	9.7	0.35	0.48	0.35	53.8
9	R2	All MCs	16	0.0	16	0.0	0.209	9.3	LOS A	1.3	9.7	0.35	0.48	0.35	52.9
Approach			263	1.2	263	1.2	0.209	4.8	LOS A	1.3	9.7	0.35	0.48	0.35	52.3
North: Hymus St															
10	L2	All MCs	8	0.0	8	0.0	0.361	14.3	LOS B	2.8	21.1	1.00	0.85	1.01	47.0
11	T1	All MCs	104	2.0	104	2.0	0.361	14.7	LOS B	2.8	21.1	1.00	0.85	1.01	44.8
9	R2	All MCs	23	0.0	23	0.0	0.361	19.1	LOS B	2.8	21.1	1.00	0.85	1.01	46.6
Approach			136	1.6	136	1.6	0.361	15.4	LOS B	2.8	21.1	1.00	0.85	1.01	45.3
West: Point Peron Rd															
10	L2	All MCs	114	0.0	114	0.0	0.864	9.6	LOS A	16.6	122.2	0.93	0.74	1.09	50.6
11	T1	All MCs	980	0.0	980	0.0	0.864	9.8	LOS A	16.6	122.2	0.93	0.74	1.09	50.9
12	R2	All MCs	1	0.0	1	0.0	0.864	14.5	LOS B	16.6	122.2	0.93	0.74	1.09	48.2
Approach			1095	0.0	1095	0.0	0.864	9.8	LOS A	16.6	122.2	0.93	0.74	1.09	50.9
All Vehicles			1682	0.8	1682	0.8	0.864	9.2	LOS A	16.6	122.2	0.77	0.69	0.88	50.4

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc3.2b_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3.2b_PM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1	0.0	1	0.0	0.101	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
11	T1	All MCs	196	3.8	196	3.8	0.101	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			197	3.7	197	3.7	0.101	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Safety Bay Rd															
5	T1	All MCs	279	1.9	279	1.9	0.152	0.1	LOS A	0.1	1.0	0.05	0.06	0.05	59.4
6	R2	All MCs	17	0.0	17	0.0	0.152	6.2	LOS A	0.1	1.0	0.05	0.06	0.05	50.9
Approach			296	1.8	296	1.8	0.152	0.4	NA	0.1	1.0	0.05	0.06	0.05	58.8
West: Memorial Dr															
7	L2	All MCs	6	0.0	6	0.0	0.006	5.1	LOS A	0.0	0.2	0.29	0.51	0.29	46.2
9	R2	All MCs	1	0.0	1	0.0	0.006	6.5	LOS A	0.0	0.2	0.29	0.51	0.29	48.2
Approach			7	0.0	7	0.0	0.006	5.3	LOS A	0.0	0.2	0.29	0.51	0.29	46.6
All Vehicles			500	2.5	500	2.5	0.152	0.3	NA	0.1	1.0	0.03	0.04	0.03	59.0

Safety Bay Road / GIH

MOVEMENT SUMMARY

Site: 108 [Sc3.2b_PM_05_Safety Bay Rd / Garden Island Hwy (Site Folder: 3.2b_PM Peak_HMAS Signals+Single RA)]

Network: N101 [PM Peak_3.2b_Safety Bay-Boundary-GIH (Network Folder: 3.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1a	L1	All MCs	62	0.0	62	0.0	0.055	4.3	LOS A	0.3	2.3	0.38	0.43	0.38	51.3
8	T1	All MCs	125	0.0	125	0.0	0.089	4.4	LOS A	0.5	3.9	0.36	0.42	0.36	54.0
3b	R3	All MCs	1	0.0	1	0.0	0.089	10.7	LOS B	0.5	3.9	0.36	0.42	0.36	53.0
Approach			188	0.0	188	0.0	0.089	4.4	LOS A	0.5	3.9	0.36	0.42	0.36	53.4
SouthEast: Garden Island Hwy															
21b	L3	All MCs	1	0.0	1	0.0	0.108	8.7	LOS A	0.5	4.4	0.69	0.74	0.69	49.6
22	T1	All MCs	31	24.1	31	24.1	0.108	9.7	LOS A	0.5	4.4	0.69	0.74	0.69	44.5
23a	R1	All MCs	27	26.9	27	26.9	0.108	14.1	LOS B	0.5	4.4	0.69	0.74	0.69	43.5
Approach			59	25.0	59	25.0	0.108	11.7	LOS B	0.5	4.4	0.69	0.74	0.69	44.0
North: Safety Bay Rd															
7a	L1	All MCs	42	12.5	42	12.5	0.492	8.9	LOS A	2.8	20.8	0.71	0.83	0.85	48.1
2	T1	All MCs	199	0.0	199	0.0	0.492	8.7	LOS A	2.8	20.8	0.71	0.83	0.85	50.7
9b	R3	All MCs	103	0.0	103	0.0	0.492	14.9	LOS B	2.8	20.8	0.71	0.83	0.85	45.4
Approach			344	1.5	344	1.5	0.492	10.6	LOS B	2.8	20.8	0.71	0.83	0.85	49.3
NorthWest: Garden Island Hwy															
27b	L3	All MCs	77	0.0	77	0.0	0.279	3.0	LOS A	1.8	14.0	0.42	0.44	0.42	51.3
28	T1	All MCs	248	11.9	248	11.9	0.279	3.4	LOS A	1.8	14.0	0.42	0.44	0.42	47.9
29a	R1	All MCs	513	0.0	513	0.0	0.340	6.6	LOS A	2.5	18.2	0.41	0.58	0.41	47.4
Approach			838	3.5	838	3.5	0.340	5.3	LOS A	2.5	18.2	0.41	0.53	0.41	47.9
All Vehicles			1429	3.5	1429	3.5	0.492	6.7	LOS A	2.8	20.8	0.49	0.59	0.52	48.9

Boundary Road / GIH

MOVEMENT SUMMARY

Site: 106 [Sc3.2b_PM_09_Boundary Rd / Garden Island Hwy (Site Folder: 3.2b_PM Peak_HMAS Signals+Single RA)]

Network: N101 [PM Peak_3.2b_Safety Bay-Boundary-GIH (Network Folder: 3.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Garden Island Hwy															
10	L2	All MCs	114	0.9	114	0.9	0.061	3.3	LOS A	0.0	0.0	0.00	0.53	0.00	50.4
11	T1	All MCs	82	7.7	82	7.7	0.048	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			196	3.8	196	3.8	0.061	1.9	NA	0.0	0.0	0.00	0.31	0.00	54.0
NorthWest: Garden Island Hwy															
5	T1	All MCs	755	3.8	755	3.8	0.201	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	59.9
6	R2	All MCs	1	0.0	1	0.0	0.201	5.6	LOS A	0.0	0.1	0.00	0.00	0.00	57.4
Approach			756	3.8	756	3.8	0.201	0.0	NA	0.0	0.1	0.00	0.00	0.00	59.9
SouthWest: Boundary Rd															
7	L2	All MCs	1	0.0	1	0.0	0.292	5.5	LOS A	1.3	9.9	0.22	0.50	0.22	42.9
9	R2	All MCs	83	1.3	83	1.3	0.292	21.8	LOS C	1.3	9.9	0.22	0.50	0.22	35.3
Approach			84	1.3	84	1.3	0.292	21.6	LOS C	1.3	9.9	0.22	0.50	0.22	35.5
All Vehicles			1036	3.6	1036	3.6	0.292	2.1	NA	1.3	9.9	0.02	0.10	0.02	55.6

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3.2b_PM_06_Boundary Rd / Lease Rd (Site Folder: 3.2b_PM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.013	7.8	LOS A	0.0	0.3	0.27	0.88	0.27	44.4
2	T1	All MCs	3	0.0	3	0.0	0.013	8.0	LOS A	0.0	0.3	0.27	0.88	0.27	44.3
3	R2	All MCs	7	0.0	7	0.0	0.013	8.0	LOS A	0.0	0.3	0.27	0.88	0.27	44.2
Approach			12	0.0	12	0.0	0.013	8.0	LOS A	0.0	0.3	0.27	0.88	0.27	44.2
East: Boundary Rd															
4	L2	All MCs	8	0.0	8	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.05	0.01	48.5
5	T1	All MCs	95	1.1	95	1.1	0.054	0.0	LOS A	0.0	0.1	0.01	0.05	0.01	49.7
6	R2	All MCs	1	0.0	1	0.0	0.054	4.6	LOS A	0.0	0.1	0.01	0.05	0.01	48.3
Approach			104	1.0	104	1.0	0.054	0.4	NA	0.0	0.1	0.01	0.05	0.01	49.6
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.207	7.7	LOS A	0.8	5.8	0.33	0.89	0.33	44.2
8	T1	All MCs	8	0.0	8	0.0	0.207	8.2	LOS A	0.8	5.8	0.33	0.89	0.33	44.2
9	R2	All MCs	166	0.0	166	0.0	0.207	8.3	LOS A	0.8	5.8	0.33	0.89	0.33	44.1
Approach			176	0.0	176	0.0	0.207	8.3	LOS A	0.8	5.8	0.33	0.89	0.33	44.1
West: Arcadia Dr															
10	L2	All MCs	25	0.0	25	0.0	0.051	4.6	LOS A	0.0	0.1	0.01	0.15	0.01	47.9
11	T1	All MCs	71	1.5	71	1.5	0.051	0.0	LOS A	0.0	0.1	0.01	0.15	0.01	49.1
12	R2	All MCs	1	0.0	1	0.0	0.051	4.6	LOS A	0.0	0.1	0.01	0.15	0.01	47.7
Approach			97	1.1	97	1.1	0.051	1.2	NA	0.0	0.1	0.01	0.15	0.01	48.8
All Vehicles			388	0.5	388	0.5	0.207	4.4	NA	0.8	5.8	0.16	0.48	0.16	46.6

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 105v [Sc3.2b_PM_07_Memorial Dr / Garden Island Hwy (Site Folder: 3.2b_PM Peak_HMAS Signals+Single RA)]

Network: N101 [PM Peak_3.2b_GIH-Memorial-Lease (Network Folder: 3.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
10	L2	All MCs	3	0.0	3	0.0	0.037	3.3	LOS A	0.2	1.8	0.11	0.38	0.11	46.0
11	T1	All MCs	105	6.0	105	6.0	0.037	3.5	LOS A	0.2	1.8	0.11	0.38	0.11	51.9
3	R2	All MCs	2	0.0	2	0.0	0.037	8.0	LOS A	0.2	1.8	0.11	0.39	0.11	50.8
Approach			111	5.7	111	5.7	0.037	3.5	LOS A	0.2	1.8	0.11	0.38	0.11	51.7
East: Memorial Dr															
4	L2	All MCs	1	0.0	1	0.0	0.028	8.1	LOS A	0.1	0.8	0.62	0.76	0.62	44.2
5	T1	All MCs	4	0.0	4	0.0	0.028	8.4	LOS A	0.1	0.8	0.62	0.76	0.62	49.8
6	R2	All MCs	13	0.0	13	0.0	0.028	13.0	LOS B	0.1	0.8	0.62	0.76	0.62	49.0
Approach			18	0.0	18	0.0	0.028	11.6	LOS B	0.1	0.8	0.62	0.76	0.62	49.0
North: Garden Island Hwy															
7	L2	All MCs	2	0.0	2	0.0	0.284	4.1	LOS A	2.0	15.0	0.06	0.39	0.06	54.5
5	T1	All MCs	933	3.2	933	3.2	0.284	4.1	LOS A	2.0	15.0	0.06	0.39	0.06	52.7
6	R2	All MCs	1	0.0	1	0.0	0.284	8.7	LOS A	2.0	15.0	0.07	0.39	0.07	50.2
Approach			936	3.1	936	3.1	0.284	4.1	LOS A	2.0	15.0	0.06	0.39	0.06	52.7
West: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.005	3.4	LOS A	0.0	0.2	0.28	0.45	0.28	51.6
11	T1	All MCs	3	0.0	3	0.0	0.005	4.7	LOS A	0.0	0.2	0.28	0.45	0.28	51.9
9	R2	All MCs	1	0.0	1	0.0	0.005	7.9	LOS A	0.0	0.2	0.28	0.45	0.28	47.5
Approach			5	0.0	5	0.0	0.005	5.1	LOS A	0.0	0.2	0.28	0.45	0.28	51.3
All Vehicles			1069	3.3	1069	3.3	0.284	4.2	LOS A	2.0	15.0	0.08	0.40	0.08	52.4

GIH / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc3.2b_PM_10_Garden Island Hwy / Lease Rd (Site Folder: 3.2b_PM Peak_HMAS Signals+Single RA)]

Network: N101 [PM Peak_3.2b_GIH-Memorial-Lease (Network Folder: 3.2b)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Garden Island Hwy															
11	T1	All MCs	82	7.7	82	7.7	0.024	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach			82	7.7	82	7.7	0.024	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
North: Garden Island Hwy															
5	T1	All MCs	755	3.8	755	3.8	0.266	0.1	LOS A	1.2	9.3	0.06	0.09	0.06	48.9
6	R2	All MCs	175	0.0	175	0.0	0.266	5.0	LOS A	1.2	9.3	0.19	0.26	0.19	45.1
Approach			929	3.1	929	3.1	0.266	1.0	NA	1.2	9.3	0.09	0.12	0.09	48.1
West: Lease Rd															
7	L2	All MCs	28	0.0	28	0.0	0.022	4.7	LOS A	0.1	0.6	0.11	0.50	0.11	44.0
Approach			28	0.0	28	0.0	0.022	4.7	LOS A	0.1	0.6	0.11	0.50	0.11	44.0
All Vehicles			1040	3.3	1040	3.3	0.266	1.0	NA	1.2	9.3	0.08	0.12	0.08	48.1

GIH / Memorial Drive

MOVEMENT SUMMARY

Site: 102v [Sc3.2b_PM_11_Memorial Dr / Garden Island Hwy (Site Folder: 3.2b_PM Peak_HMAS Signals+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	1	0.0	1	0.0	0.002	3.4	LOS A	0.0	0.1	0.27	0.48	0.27	47.3
9	R2	All MCs	1	0.0	1	0.0	0.002	7.9	LOS A	0.0	0.1	0.27	0.48	0.27	48.4
Approach			2	0.0	2	0.0	0.002	5.6	LOS A	0.0	0.1	0.27	0.48	0.27	47.9
East: Garden Island Hwy															
10	L2	All MCs	3	0.0	3	0.0	0.036	4.1	LOS A	0.2	1.5	0.02	0.41	0.02	50.7
11	T1	All MCs	114	5.6	114	5.6	0.036	4.2	LOS A	0.2	1.5	0.02	0.40	0.02	53.2
Approach			117	5.4	117	5.4	0.036	4.1	LOS A	0.2	1.5	0.02	0.40	0.02	53.2
West: Garden Island Hwy															
5	T1	All MCs	936	3.1	936	3.1	0.280	4.1	LOS A	2.0	15.2	0.02	0.40	0.02	53.4
6	R2	All MCs	1	0.0	1	0.0	0.280	8.7	LOS A	2.0	15.2	0.02	0.40	0.02	48.9
Approach			937	3.1	937	3.1	0.280	4.1	LOS A	2.0	15.2	0.02	0.40	0.02	53.4
All Vehicles			1056	3.4	1056	3.4	0.280	4.1	LOS A	2.0	15.2	0.02	0.40	0.02	53.3

Scenario 3.3a – 2040 No GIH + Staggered RAs

AM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

Site: 101 [Sc3.3a_AM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: 3.3a_AM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	319	5.0	319	5.0	0.606	4.4	LOS A	7.0	53.0	0.03	0.60	0.03	45.8
6	R2	All MCs	1737	1.9	1737	1.9	0.606	8.8	LOS A	7.3	54.6	0.04	0.62	0.04	44.7
Approach			2056	2.4	2056	2.4	0.606	8.1	LOS A	7.3	54.6	0.04	0.62	0.04	44.8
North: HMAS Stirling Entrance															
7	L2	All MCs	176	8.4	176	8.4	0.093	3.3	LOS A	0.6	5.2	0.18	0.40	0.18	46.3
9	R2	All MCs	1	0.0	1	0.0	0.093	7.4	LOS A	0.6	5.2	0.18	0.40	0.18	46.5
Approach			177	8.3	177	8.3	0.093	3.4	LOS A	0.6	5.2	0.18	0.40	0.18	46.3
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.073	8.6	LOS A	0.3	2.2	0.68	0.77	0.68	43.9
11	T1	All MCs	35	9.1	35	9.1	0.073	9.6	LOS A	0.3	2.2	0.68	0.77	0.68	42.8
Approach			37	8.6	37	8.6	0.073	9.5	LOS A	0.3	2.2	0.68	0.77	0.68	42.9
All Vehicles			2269	2.9	2269	2.9	0.606	7.8	LOS A	7.3	54.6	0.06	0.60	0.06	44.9

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

Site: 102 [Sc3.3a_AM_08_Memorial Dr / Point Peron Rd (Site Folder: 3.3a_AM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	154	0.7	154	0.7	0.360	177.7	LOS F	1.4	10.6	0.69	0.86	0.86	41.1
9	R2	All MCs	1	0.0	1	0.0	0.360	463.6	LOS F	1.4	10.6	0.69	0.86	0.86	45.0
Approach			155	0.7	155	0.7	0.360	179.7	LOS F	1.4	10.6	0.69	0.86	0.86	41.2
East: Point Peron Rd (E)															
10	L2	All MCs	5	40.0	5	40.0	0.251	6.2	LOS A	0.0	0.0	0.00	0.01	0.00	45.9
11	T1	All MCs	1904	2.4	1904	2.4	0.723	83.3	LOS F	0.0	0.0	0.00	0.00	0.00	59.2
Approach			1909	2.5	1909	2.5	0.723	83.0	NA	0.0	0.0	0.00	0.00	0.00	59.1
West: Point Peron Rd (W)															
5	T1	All MCs	173	9.8	173	9.8	0.098	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	37	2.9	37	2.9	1.457	603.3	LOS F	9.7	73.6	1.00	1.59	3.68	4.1
Approach			209	8.5	209	8.5	1.457	106.1	NA	9.7	73.6	0.18	0.28	0.65	17.6
All Vehicles			2274	3.0	2274	3.0	1.457	91.7	NA	9.7	73.6	0.06	0.09	0.12	47.4

Safety Bay Road / Point Peron Road

MOVEMENT SUMMARY

Site: 103 [Sc3.3a_AM_02_Safety Bay Rd / Point Peron Rd / Hymus St (Site Folder: 3.3a_AM Peak_No GIH+Staggered RA)]

Network: N101 [AM Peak_3.3a_No GIH +Staggered RA (Network Folder: 3.3a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	1782	2.5	1653	2.6	0.898	6.5	LOS A	11.4	87.0	0.79	0.56	0.80	49.1
11	T1	All MCs	60	7.0	56	7.3	0.898	5.2	LOS A	11.4	87.0	0.88	0.58	0.89	44.4
Approach			1842	2.7	1708	2.8	0.898	6.5	LOS A	11.4	87.0	0.79	0.56	0.80	48.9
North: Hymus St															
5	T1	All MCs	44	9.5	44	9.5	0.053	3.8	LOS A	0.2	1.6	0.30	0.40	0.30	44.7
6	R2	All MCs	139	3.0	139	3.0	0.112	8.3	LOS A	0.5	3.4	0.27	0.59	0.27	46.3
Approach			183	4.6	183	4.6	0.112	7.2	LOS A	0.5	3.4	0.28	0.55	0.28	46.1
West: Point Peron Rd															
7	L2	All MCs	19	5.6	19	5.6	0.062	4.4	LOS A	0.4	3.2	0.21	0.56	0.21	47.8
9	R2	All MCs	153	9.7	153	9.7	0.062	9.1	LOS A	0.4	3.2	0.22	0.57	0.22	46.9
Approach			172	9.2	172	9.2	0.062	8.6	LOS A	0.4	3.2	0.22	0.57	0.22	47.1
All Vehicles			2197	3.4	2063	3.6	0.898	6.7	LOS A	11.4	87.0	0.70	0.56	0.71	48.3

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104 [Sc3.3a_AM_03_Safety Bay Rd / Parkin St / Hymus St (Site Folder: 3.3a_AM Peak_No GIH+Staggered RA)]

Network: N101 [AM Peak_3.3a_No GIH +Staggered RA (Network Folder: 3.3a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	1063	1.4	1063	1.4	1.149	161.6	LOS F	86.9	648.7	1.00	3.63	7.21	6.6
6	R2	All MCs	99	7.4	99	7.4	1.149	165.0	LOS F	35.9	272.7	1.00	3.19	6.52	14.0
Approach			1162	1.9	1162	1.9	1.149	161.9	LOS F	86.9	648.7	1.00	3.59	7.15	7.4
East: Parkin St															
7	L2	All MCs	51	20.8	51	20.8	0.964	12.6	LOS B	24.4	192.6	1.00	0.77	1.16	41.7
9	R2	All MCs	779	4.5	779	4.5	0.964	16.4	LOS B	24.4	192.6	1.00	0.77	1.16	40.3
Approach			829	5.5	829	5.5	0.964	16.2	LOS B	24.4	192.6	1.00	0.77	1.16	40.4
North: Hymus St															
10	L2	All MCs	100	12.6	100	12.6	0.075	2.6	LOS A	0.5	4.1	0.28	0.44	0.28	46.9
11	T1	All MCs	98	6.5	98	6.5	0.076	2.9	LOS A	0.5	3.6	0.28	0.39	0.28	46.8
Approach			198	9.6	198	9.6	0.076	2.7	LOS A	0.5	4.1	0.28	0.41	0.28	46.9
All Vehicles			2189	3.9	2189	3.9	1.149	92.3	LOS F	86.9	648.7	0.94	2.24	4.26	13.7

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc3.3a_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3.3a_AM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	2	50.0	2	50.0	0.572	6.5	LOS A	0.0	0.0	0.00	0.00	0.00	43.4
11	T1	All MCs	1132	1.8	1132	1.8	0.572	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	59.5
Approach			1134	1.9	1134	1.9	0.572	0.3	NA	0.0	0.0	0.00	0.00	0.00	59.4
North: Safety Bay Rd															
5	T1	All MCs	159	10.6	159	10.6	0.117	2.0	LOS A	0.4	3.2	0.19	0.22	0.19	56.7
6	R2	All MCs	9	0.0	9	0.0	0.117	16.5	LOS C	0.4	3.2	0.19	0.22	0.19	48.9
Approach			168	10.0	168	10.0	0.117	2.8	NA	0.4	3.2	0.19	0.22	0.19	56.1
West: Memorial Dr															
7	L2	All MCs	9	22.2	9	22.2	0.074	22.5	LOS C	0.2	1.8	0.88	0.95	0.88	32.1
9	R2	All MCs	1	100.0	1	100.0	0.074	80.7	LOS F	0.2	1.8	0.88	0.95	0.88	31.6
Approach			11	30.0	11	30.0	0.074	28.3	LOS D	0.2	1.8	0.88	0.95	0.88	32.0
All Vehicles			1313	3.1	1313	3.1	0.572	0.8	NA	0.4	3.2	0.03	0.04	0.03	58.6

Memorial Drive / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc3.3a_AM_07_Memorial Dr / Lease Rd (Site Folder: 3.3a_AM Peak_No GIH +Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	149	0.7	149	0.7	0.098	4.6	LOS A	0.4	3.1	0.05	0.51	0.05	45.8
9	R2	All MCs	6	16.7	6	16.7	0.098	4.9	LOS A	0.4	3.1	0.05	0.51	0.05	44.8
Approach			156	1.4	156	1.4	0.098	4.6	LOS A	0.4	3.1	0.05	0.51	0.05	45.8
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.005	4.6	LOS A	0.0	0.0	0.00	0.05	0.00	48.5
11	T1	All MCs	9	0.0	9	0.0	0.005	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	49.7
Approach			11	0.0	11	0.0	0.005	0.5	NA	0.0	0.0	0.00	0.05	0.00	49.6
West: Memorial Dr															
5	T1	All MCs	4	50.0	4	50.0	0.026	0.0	LOS A	0.1	1.0	0.05	0.49	0.05	47.1
6	R2	All MCs	41	7.7	41	7.7	0.026	4.7	LOS A	0.1	1.0	0.05	0.49	0.05	45.4
Approach			45	11.6	45	11.6	0.026	4.2	NA	0.1	1.0	0.05	0.49	0.05	45.6
All Vehicles			212	3.5	212	3.5	0.098	4.3	NA	0.4	3.1	0.05	0.48	0.05	45.9

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3.3a_AM_06_Boundary Rd / Lease Rd (Site Folder: 3.3a_AM Peak_No GIH +Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.014	7.6	LOS A	0.0	0.4	0.23	0.91	0.23	44.4
2	T1	All MCs	6	0.0	6	0.0	0.014	8.3	LOS A	0.0	0.4	0.23	0.91	0.23	44.4
3	R2	All MCs	6	0.0	6	0.0	0.014	7.5	LOS A	0.0	0.4	0.23	0.91	0.23	44.2
Approach			14	0.0	14	0.0	0.014	7.9	LOS A	0.0	0.4	0.23	0.91	0.23	44.3
East: Boundary Rd															
4	L2	All MCs	2	0.0	2	0.0	0.026	5.0	LOS A	0.0	0.2	0.06	0.10	0.06	48.1
5	T1	All MCs	35	18.2	35	18.2	0.026	0.1	LOS A	0.0	0.2	0.06	0.10	0.06	49.4
6	R2	All MCs	3	0.0	3	0.0	0.026	5.1	LOS A	0.0	0.2	0.06	0.10	0.06	47.9
Approach			40	15.8	40	15.8	0.026	0.7	NA	0.0	0.2	0.06	0.10	0.06	49.2
North: Lease Rd															
7	L2	All MCs	4	25.0	4	25.0	0.048	9.5	LOS A	0.2	1.3	0.26	0.92	0.26	43.3
8	T1	All MCs	4	0.0	4	0.0	0.048	8.0	LOS A	0.2	1.3	0.26	0.92	0.26	44.3
9	R2	All MCs	33	6.5	33	6.5	0.048	8.5	LOS A	0.2	1.3	0.26	0.92	0.26	43.8
Approach			41	7.7	41	7.7	0.048	8.5	LOS A	0.2	1.3	0.26	0.92	0.26	43.8
West: Arcadia Dr															
10	L2	All MCs	147	1.4	147	1.4	0.107	4.6	LOS A	0.0	0.1	0.00	0.41	0.00	46.5
11	T1	All MCs	46	4.5	46	4.5	0.107	0.0	LOS A	0.0	0.1	0.00	0.41	0.00	47.7
12	R2	All MCs	2	0.0	2	0.0	0.107	4.6	LOS A	0.0	0.1	0.00	0.41	0.00	46.4
Approach			196	2.2	196	2.2	0.107	3.5	NA	0.0	0.1	0.00	0.41	0.00	46.8
All Vehicles			291	4.7	291	4.7	0.107	4.0	NA	0.2	1.3	0.06	0.46	0.06	46.5

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc3.3a_AM_05_Safety Bay Rd / Boundary Rd (Site Folder: 3.3a_AM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	3	0.0	3	0.0	0.683	4.6	LOS A	7.3	54.8	0.30	0.42	0.30	49.3
8	T1	All MCs	1032	1.7	1032	1.7	0.683	4.8	LOS A	7.3	54.8	0.30	0.42	0.30	52.9
Approach			1035	1.7	1035	1.7	0.683	4.8	LOS A	7.3	54.8	0.30	0.42	0.30	52.9
North: Safety Bay Rd															
2	T1	All MCs	134	8.7	134	8.7	0.117	4.5	LOS A	0.8	6.3	0.06	0.48	0.06	51.6
3	R2	All MCs	38	16.7	38	16.7	0.117	8.7	LOS A	0.8	6.3	0.06	0.48	0.06	48.5
Approach			172	10.4	172	10.4	0.117	5.4	LOS A	0.8	6.3	0.06	0.48	0.06	50.9
West: Boundary Rd															
4	L2	All MCs	64	3.3	64	3.3	0.153	13.6	LOS B	1.0	7.7	0.88	0.79	0.88	43.4
6	R2	All MCs	5	20.0	5	20.0	0.153	19.2	LOS B	1.0	7.7	0.88	0.79	0.88	39.9
Approach			69	4.5	69	4.5	0.153	14.0	LOS B	1.0	7.7	0.88	0.79	0.88	43.1
All Vehicles			1276	3.1	1276	3.1	0.683	5.4	LOS A	7.3	54.8	0.30	0.45	0.30	52.0

PM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

Site: 101 [Sc3.3a_PM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: 3.3a_PM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	48	0.0	48	0.0	0.063	4.4	LOS A	0.5	3.5	0.06	0.55	0.06	46.3
6	R2	All MCs	154	5.5	154	5.5	0.063	8.9	LOS A	0.5	3.5	0.06	0.60	0.06	44.6
Approach			202	4.2	202	4.2	0.063	7.8	LOS A	0.5	3.5	0.06	0.59	0.06	45.0
North: HMAS Stirling Entrance															
7	L2	All MCs	1975	1.6	1975	1.6	0.948	160.1	LOS F	41.9	314.8	0.82	0.42	0.82	45.2
9	R2	All MCs	5	0.0	5	0.0	0.948	9.2	LOS A	41.9	314.8	0.95	0.42	0.95	44.8
Approach			1980	1.6	1980	1.6	0.948	159.7	LOS F	41.9	314.8	0.82	0.42	0.82	45.2
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.053	3.3	LOS A	0.2	1.5	0.26	0.37	0.26	46.8
11	T1	All MCs	55	3.8	55	3.8	0.053	575.3	LOS F	0.2	1.5	0.26	0.37	0.26	47.3
Approach			57	3.7	57	3.7	0.053	554.1	LOS F	0.2	1.5	0.26	0.37	0.26	47.3
All Vehicles			2239	1.9	2239	1.9	0.948	156.0	LOS F	41.9	314.8	0.74	0.43	0.74	45.2

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

Site: 102 [Sc3.3a_PM_08_Memorial Dr / Point Peron Rd (Site Folder: 3.3a_PM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	54	0.0	54	0.0	0.109	4.7	LOS A	0.3	2.5	0.22	0.48	0.22	42.7
9	R2	All MCs	1	0.0	1	0.0	0.109	243.9	LOS F	0.3	2.5	0.22	0.48	0.22	46.3
Approach			55	0.0	55	0.0	0.109	9.3	LOS A	0.3	2.5	0.22	0.48	0.22	42.8
East: Point Peron Rd (E)															
10	L2	All MCs	1	0.0	1	0.0	0.018	5.5	LOS A	0.0	0.0	0.00	0.02	0.00	57.3
11	T1	All MCs	126	5.8	126	5.8	0.052	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			127	5.8	127	5.8	0.052	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Point Peron Rd (W)															
5	T1	All MCs	1616	1.6	1616	1.6	0.703	1.3	LOS A	3.6	26.6	0.10	0.10	0.11	58.7
6	R2	All MCs	161	1.3	161	1.3	0.703	7.2	LOS A	3.6	26.6	0.15	0.15	0.16	49.6
Approach			1777	1.6	1777	1.6	0.703	1.8	NA	3.6	26.6	0.11	0.11	0.12	57.8
All Vehicles			1959	1.8	1959	1.8	0.703	1.9	NA	3.6	26.6	0.10	0.11	0.11	57.3

Safety Bay Road / Point Peron Road

MOVEMENT SUMMARY

Site: 103 [Sc3.3a_PM_02_Safety Bay Rd / Point Peron Rd / Hymus St (Site Folder: 3.3a_PM Peak_No GIH+Staggered RA)]

Network: N101 [PM Peak_3.3a_No GIH +Staggered RA (Network Folder: 3.3a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	102	7.2	102	7.2	0.087	2.3	LOS A	0.5	4.1	0.14	0.40	0.14	49.5
11	T1	All MCs	72	0.0	72	0.0	0.087	2.6	LOS A	0.5	4.1	0.13	0.39	0.13	46.9
Approach			174	4.2	174	4.2	0.087	2.4	LOS A	0.5	4.1	0.13	0.40	0.13	48.4
North: Hymus St															
5	T1	All MCs	101	1.0	101	1.0	0.103	6.6	LOS A	0.4	3.1	0.67	0.75	0.67	41.8
6	R2	All MCs	27	0.0	27	0.0	0.103	11.7	LOS B	0.4	3.1	0.68	0.81	0.68	46.5
Approach			128	0.8	128	0.8	0.103	7.7	LOS A	0.4	3.1	0.67	0.76	0.67	43.3
West: Point Peron Rd															
7	L2	All MCs	97	4.3	97	4.3	0.537	4.7	LOS A	4.2	31.6	0.31	0.57	0.31	47.3
9	R2	All MCs	1476	1.4	1476	1.4	0.537	9.2	LOS A	4.5	33.6	0.32	0.57	0.32	46.2
Approach			1573	1.6	1573	1.6	0.537	9.0	LOS A	4.5	33.6	0.32	0.57	0.32	46.3
All Vehicles			1875	1.8	1875	1.8	0.537	8.3	LOS A	4.5	33.6	0.32	0.57	0.32	46.3

Safety Bay Road / Parkin Street

MOVEMENT SUMMARY

Site: 104 [Sc3.3a_PM_03_Safety Bay Rd / Parkin St / Hymus St (Site Folder: 3.3a_PM Peak_No GIH+Staggered RA)]

Network: N101 [PM Peak_3.3a_No GIH +Staggered RA (Network Folder: 3.3a)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
5	T1	All MCs	86	0.0	86	0.0	0.065	4.5	LOS A	0.4	2.7	0.27	0.41	0.27	51.0
6	R2	All MCs	108	7.8	108	7.8	0.075	9.2	LOS A	0.4	3.5	0.26	0.59	0.26	48.3
Approach			195	4.3	195	4.3	0.075	7.1	LOS A	0.4	3.5	0.26	0.51	0.26	49.0
East: Parkin St															
7	L2	All MCs	157	3.4	157	3.4	0.342	8.0	LOS A	1.8	14.5	0.68	0.73	0.68	50.0
9	R2	All MCs	86	8.5	86	8.5	0.342	13.1	LOS B	1.8	14.5	0.68	0.73	0.68	46.1
Approach			243	5.2	243	5.2	0.342	9.8	LOS A	1.8	14.5	0.68	0.73	0.68	49.1
North: Hymus St															
10	L2	All MCs	907	2.0	907	2.0	0.579	2.9	LOS A	5.3	39.6	0.42	0.47	0.42	50.9
11	T1	All MCs	668	0.6	668	0.6	0.502	3.4	LOS A	4.0	29.8	0.41	0.42	0.41	51.5
Approach			1576	1.4	1576	1.4	0.579	3.1	LOS A	5.3	39.6	0.42	0.45	0.42	51.1
All Vehicles			2014	2.1	2014	2.1	0.579	4.3	LOS A	5.3	39.6	0.43	0.49	0.43	50.5

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

▽ Site: 105 [Sc3.3a_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3.3a_PM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	34	0.0	34	0.0	0.125	5.6	LOS A	0.0	0.0	0.00	0.08	0.00	56.7
11	T1	All MCs	208	4.0	208	4.0	0.125	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	59.0
Approach			242	3.5	242	3.5	0.125	0.8	NA	0.0	0.0	0.00	0.08	0.00	58.6
North: Safety Bay Rd															
5	T1	All MCs	826	1.0	826	1.0	0.415	0.0	LOS A	0.0	0.2	0.00	0.00	0.00	60.0
6	R2	All MCs	3	0.0	3	0.0	0.415	5.6	LOS A	0.0	0.2	0.00	0.00	0.00	51.3
Approach			829	1.0	829	1.0	0.415	0.0	NA	0.0	0.2	0.00	0.00	0.00	59.9
West: Memorial Dr															
7	L2	All MCs	3	0.0	3	0.0	0.005	5.2	LOS A	0.0	0.1	0.41	0.52	0.41	45.4
9	R2	All MCs	1	0.0	1	0.0	0.005	12.3	LOS B	0.0	0.1	0.41	0.52	0.41	47.4
Approach			4	0.0	4	0.0	0.005	7.0	LOS A	0.0	0.1	0.41	0.52	0.41	46.0
All Vehicles			1076	1.6	1076	1.6	0.415	0.2	NA	0.0	0.2	0.00	0.02	0.00	59.5

Memorial Drive / Lease Road

MOVEMENT SUMMARY

▽ Site: 106 [Sc3.3a_PM_07_Memorial Dr / Lease Rd (Site Folder: 3.3a_PM Peak_No GIH +Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	28	0.0	28	0.0	0.020	4.7	LOS A	0.1	0.6	0.11	0.50	0.11	45.7
9	R2	All MCs	2	0.0	2	0.0	0.020	5.2	LOS A	0.1	0.6	0.11	0.50	0.11	45.5
Approach			31	0.0	31	0.0	0.020	4.7	LOS A	0.1	0.6	0.11	0.50	0.11	45.7
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.019	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	48.7
11	T1	All MCs	37	0.0	37	0.0	0.019	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.9
Approach			38	0.0	38	0.0	0.019	0.1	NA	0.0	0.0	0.00	0.02	0.00	49.9
West: Memorial Dr															
5	T1	All MCs	2	0.0	2	0.0	0.094	0.1	LOS A	0.5	3.4	0.12	0.52	0.12	46.8
6	R2	All MCs	160	1.3	160	1.3	0.094	4.7	LOS A	0.5	3.4	0.12	0.52	0.12	45.5
Approach			162	1.3	162	1.3	0.094	4.6	NA	0.5	3.4	0.12	0.52	0.12	45.5
All Vehicles			231	0.9	231	0.9	0.094	3.9	NA	0.5	3.4	0.10	0.43	0.10	46.2

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3.3a_PM_06_Boundary Rd / Lease Rd (Site Folder: 3.3a_PM Peak_No GIH +Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	100.0	1	100.0	0.013	15.7	LOS C	0.0	0.4	0.28	0.95	0.28	40.1
2	T1	All MCs	2	0.0	2	0.0	0.013	8.0	LOS A	0.0	0.4	0.28	0.95	0.28	43.9
3	R2	All MCs	7	14.3	7	14.3	0.013	9.1	LOS A	0.0	0.4	0.28	0.95	0.28	43.1
Approach			11	20.0	11	20.0	0.013	9.5	LOS A	0.0	0.4	0.28	0.95	0.28	42.9
East: Boundary Rd															
4	L2	All MCs	6	0.0	6	0.0	0.051	4.6	LOS A	0.0	0.1	0.01	0.05	0.01	48.5
5	T1	All MCs	88	2.4	88	2.4	0.051	0.0	LOS A	0.0	0.1	0.01	0.05	0.01	49.7
6	R2	All MCs	2	0.0	2	0.0	0.051	4.6	LOS A	0.0	0.1	0.01	0.05	0.01	48.3
Approach			97	2.2	97	2.2	0.051	0.4	NA	0.0	0.1	0.01	0.05	0.01	49.6
North: Lease Rd															
7	L2	All MCs	1	0.0	1	0.0	0.191	7.7	LOS A	0.7	5.4	0.32	0.90	0.32	44.2
8	T1	All MCs	6	0.0	6	0.0	0.191	8.2	LOS A	0.7	5.4	0.32	0.90	0.32	44.2
9	R2	All MCs	154	1.4	154	1.4	0.191	8.3	LOS A	0.7	5.4	0.32	0.90	0.32	44.0
Approach			161	1.3	161	1.3	0.191	8.3	LOS A	0.7	5.4	0.32	0.90	0.32	44.0
West: Arcadia Dr															
10	L2	All MCs	25	0.0	25	0.0	0.052	4.6	LOS A	0.0	0.1	0.01	0.15	0.01	47.9
11	T1	All MCs	69	1.5	69	1.5	0.052	0.0	LOS A	0.0	0.1	0.01	0.15	0.01	49.1
12	R2	All MCs	2	0.0	2	0.0	0.052	4.6	LOS A	0.0	0.1	0.01	0.15	0.01	47.7
Approach			97	1.1	97	1.1	0.052	1.3	NA	0.0	0.1	0.01	0.15	0.01	48.7
All Vehicles			365	2.0	365	2.0	0.191	4.4	NA	0.7	5.4	0.16	0.48	0.16	46.6

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc3.3a_PM_05_Safety Bay Rd / Boundary Rd (Site Folder: 3.3a_PM Peak_No GIH+Staggered RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	7	0.0	7	0.0	0.171	4.6	LOS A	0.9	6.5	0.25	0.44	0.25	49.5
8	T1	All MCs	205	3.1	205	3.1	0.171	4.9	LOS A	0.9	6.5	0.25	0.44	0.25	52.8
Approach			213	3.0	213	3.0	0.171	4.9	LOS A	0.9	6.5	0.25	0.44	0.25	52.7
North: Safety Bay Rd															
2	T1	All MCs	791	0.8	791	0.8	0.534	4.4	LOS A	5.2	38.3	0.07	0.45	0.07	53.9
3	R2	All MCs	97	2.2	97	2.2	0.534	8.4	LOS A	5.2	38.3	0.07	0.45	0.07	49.5
Approach			887	0.9	887	0.9	0.534	4.9	LOS A	5.2	38.3	0.07	0.45	0.07	53.4
West: Boundary Rd															
4	L2	All MCs	76	2.8	76	2.8	0.076	4.4	LOS A	0.4	3.3	0.42	0.50	0.42	48.8
6	R2	All MCs	3	33.3	3	33.3	0.076	9.3	LOS A	0.4	3.3	0.42	0.50	0.42	41.9
Approach			79	4.0	79	4.0	0.076	4.6	LOS A	0.4	3.3	0.42	0.50	0.42	48.5
All Vehicles			1179	1.5	1179	1.5	0.534	4.8	LOS A	5.2	38.3	0.12	0.46	0.12	52.9

Scenario 3.3b – 2040 No GIH + Single RA

AM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

Site: 101 [Sc3.3b_AM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: 3.3b_AM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	182	6.4	182	6.4	0.569	4.4	LOS A	6.1	46.2	0.03	0.62	0.03	45.4
6	R2	All MCs	1747	1.8	1747	1.8	0.569	8.8	LOS A	6.3	47.3	0.03	0.63	0.03	44.6
Approach			1929	2.2	1929	2.2	0.569	8.4	LOS A	6.3	47.3	0.03	0.63	0.03	44.6
North: HMAS Stirling Entrance															
7	L2	All MCs	176	8.4	176	8.4	0.093	3.3	LOS A	0.6	5.2	0.18	0.40	0.18	46.3
9	R2	All MCs	1	0.0	1	0.0	0.093	7.4	LOS A	0.6	5.2	0.18	0.40	0.18	46.5
Approach			177	8.3	177	8.3	0.093	3.4	LOS A	0.6	5.2	0.18	0.40	0.18	46.3
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.071	8.2	LOS A	0.3	2.1	0.66	0.77	0.66	44.1
11	T1	All MCs	35	9.1	35	9.1	0.071	9.1	LOS A	0.3	2.1	0.66	0.77	0.66	43.1
Approach			37	8.6	37	8.6	0.071	9.1	LOS A	0.3	2.1	0.66	0.77	0.66	43.2
All Vehicles			2143	2.8	2143	2.8	0.569	8.0	LOS A	6.3	47.3	0.06	0.61	0.06	44.7

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

Site: 102 [Sc3.3b_AM_08_Memorial Dr / Point Peron Rd (Site Folder: 3.3b_AM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	154	0.7	154	0.7	0.360	177.7	LOS F	1.4	10.6	0.69	0.86	0.86	41.1
9	R2	All MCs	1	0.0	1	0.0	0.360	463.6	LOS F	1.4	10.6	0.69	0.86	0.86	45.0
Approach			155	0.7	155	0.7	0.360	179.7	LOS F	1.4	10.6	0.69	0.86	0.86	41.2
East: Point Peron Rd (E)															
10	L2	All MCs	5	40.0	5	40.0	0.251	6.2	LOS A	0.0	0.0	0.00	0.01	0.00	45.9
11	T1	All MCs	1904	2.4	1904	2.4	0.723	83.3	LOS F	0.0	0.0	0.00	0.00	0.00	59.2
Approach			1909	2.5	1909	2.5	0.723	83.0	NA	0.0	0.0	0.00	0.00	0.00	59.1
West: Point Peron Rd (W)															
5	T1	All MCs	173	9.8	173	9.8	0.098	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	37	2.9	37	2.9	1.457	603.3	LOS F	9.7	73.6	1.00	1.59	3.68	4.1
Approach			209	8.5	209	8.5	1.457	106.1	NA	9.7	73.6	0.18	0.28	0.65	17.6
All Vehicles			2274	3.0	2274	3.0	1.457	91.7	NA	9.7	73.6	0.06	0.09	0.12	47.4

Safety Bay Road / Parkin Street / Point Peron Road

MOVEMENT SUMMARY

Site: 104 [Sc3.3b_AM_03_Safety Bay Rd / Parkin St / Point Peron Rd / Hymus St (Site Folder: 3.3b_AM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	920	0.9	920	0.9	0.483	5.0	LOS A	0.0	0.0	0.00	0.46	0.00	53.9
5	T1	All MCs	34	12.5	34	12.5	0.178	9.4	LOS A	1.3	10.4	0.84	0.73	0.84	44.3
6	R2	All MCs	98	7.5	98	7.5	0.178	13.7	LOS B	1.3	10.4	0.84	0.73	0.84	44.4
Approach			1052	1.9	1052	1.9	0.483	6.0	LOS A	1.3	10.4	0.11	0.49	0.11	52.4
East: Parkin St															
7	L2	All MCs	125	10.1	125	10.1	0.759	7.4	LOS A	7.8	61.4	0.67	0.64	0.76	48.4
5	T1	All MCs	678	4.7	678	4.7	0.759	10.0	LOS A	7.8	61.4	0.67	0.64	0.76	51.0
9	R2	All MCs	26	4.0	26	4.0	0.759	11.9	LOS B	7.8	61.4	0.67	0.64	0.76	50.3
Approach			829	5.5	829	5.5	0.759	9.6	LOS A	7.8	61.4	0.67	0.64	0.76	50.7
North: Hymus St															
10	L2	All MCs	11	10.0	11	10.0	0.042	6.1	LOS A	0.2	1.3	0.40	0.54	0.40	50.3
11	T1	All MCs	48	8.7	48	8.7	0.133	5.5	LOS A	0.6	4.4	0.37	0.59	0.37	49.1
9	R2	All MCs	124	2.5	124	2.5	0.133	12.2	LOS B	0.6	4.4	0.36	0.62	0.36	49.9
Approach			183	4.6	183	4.6	0.133	10.1	LOS B	0.6	4.4	0.36	0.61	0.36	49.7
West: Point Peron Rd															
10	L2	All MCs	19	5.6	19	5.6	0.087	4.8	LOS A	0.5	4.4	0.36	0.45	0.36	51.7
11	T1	All MCs	91	14.0	91	14.0	0.087	5.0	LOS A	0.5	4.4	0.36	0.45	0.36	50.3
12	R2	All MCs	58	3.6	58	3.6	0.051	9.6	LOS A	0.3	2.1	0.36	0.61	0.36	47.4
Approach			167	9.4	167	9.4	0.087	6.6	LOS A	0.5	4.4	0.36	0.50	0.36	49.5
All Vehicles			2232	4.0	2232	4.0	0.759	7.7	LOS A	7.8	61.4	0.36	0.56	0.39	51.2

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc3.3b_AM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3.3b_AM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	108	1.0	108	1.0	0.579	5.8	LOS A	0.0	0.0	0.00	0.06	0.00	56.2
11	T1	All MCs	1035	1.8	1035	1.8	0.579	0.3	LOS A	0.0	0.0	0.00	0.06	0.00	58.8
Approach			1143	1.7	1143	1.7	0.579	0.8	NA	0.0	0.0	0.00	0.06	0.00	58.5
North: Safety Bay Rd															
5	T1	All MCs	160	11.2	160	11.2	0.420	15.9	LOS C	3.5	28.4	0.80	0.89	1.17	43.2
6	R2	All MCs	102	2.1	102	2.1	0.420	23.4	LOS C	3.5	28.4	0.80	0.89	1.17	38.4
Approach			262	7.6	262	7.6	0.420	18.8	NA	3.5	28.4	0.80	0.89	1.17	41.2
West: Memorial Dr															
7	L2	All MCs	9	11.1	9	11.1	0.085	15.0	LOS B	0.2	1.7	0.84	0.93	0.84	35.6
9	R2	All MCs	6	16.7	6	16.7	0.085	32.7	LOS D	0.2	1.7	0.84	0.93	0.84	36.9
Approach			16	13.3	16	13.3	0.085	22.1	LOS C	0.2	1.7	0.84	0.93	0.84	36.2
All Vehicles			1421	3.0	1421	3.0	0.579	4.4	NA	3.5	28.4	0.16	0.22	0.23	54.0

Memorial Drive / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc3.3b_AM_07_Memorial Dr / Lease Rd (Site Folder: 3.3b_AM Peak_No GIH +Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	94	1.1	94	1.1	0.074	5.2	LOS A	0.3	2.2	0.29	0.54	0.29	45.3
9	R2	All MCs	6	0.0	6	0.0	0.074	5.5	LOS A	0.3	2.2	0.29	0.54	0.29	45.1
Approach			100	1.1	100	1.1	0.074	5.2	LOS A	0.3	2.2	0.29	0.54	0.29	45.2
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.100	4.6	LOS A	0.0	0.0	0.00	0.00	0.00	48.7
11	T1	All MCs	195	1.1	195	1.1	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach			196	1.1	196	1.1	0.100	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Memorial Dr															
5	T1	All MCs	9	22.2	9	22.2	0.035	0.7	LOS A	0.2	1.3	0.31	0.47	0.31	46.8
6	R2	All MCs	41	7.7	41	7.7	0.035	5.4	LOS A	0.2	1.3	0.31	0.47	0.31	45.2
Approach			51	10.4	51	10.4	0.035	4.5	NA	0.2	1.3	0.31	0.47	0.31	45.5
All Vehicles			346	2.4	346	2.4	0.100	2.2	NA	0.3	2.2	0.13	0.23	0.13	47.8

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3.3b_AM_06_Boundary Rd / Lease Rd (Site Folder: 3.3b_AM Peak_No GIH +Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	0.0	1	0.0	0.013	7.6	LOS A	0.0	0.3	0.23	0.90	0.23	44.4
2	T1	All MCs	4	0.0	4	0.0	0.013	8.3	LOS A	0.0	0.3	0.23	0.90	0.23	44.4
3	R2	All MCs	7	0.0	7	0.0	0.013	7.6	LOS A	0.0	0.3	0.23	0.90	0.23	44.2
Approach			13	0.0	13	0.0	0.013	7.8	LOS A	0.0	0.3	0.23	0.90	0.23	44.3
East: Boundary Rd															
4	L2	All MCs	1	0.0	1	0.0	0.029	5.1	LOS A	0.1	0.6	0.14	0.19	0.14	47.5
5	T1	All MCs	33	22.6	33	22.6	0.029	0.2	LOS A	0.1	0.6	0.14	0.19	0.14	48.7
6	R2	All MCs	11	0.0	11	0.0	0.029	5.1	LOS A	0.1	0.6	0.14	0.19	0.14	47.3
Approach			44	16.7	44	16.7	0.029	1.5	NA	0.1	0.6	0.14	0.19	0.14	48.3
North: Lease Rd															
7	L2	All MCs	4	25.0	4	25.0	0.047	9.6	LOS A	0.2	1.2	0.27	0.91	0.27	43.3
8	T1	All MCs	4	0.0	4	0.0	0.047	8.0	LOS A	0.2	1.2	0.27	0.91	0.27	44.3
9	R2	All MCs	33	3.2	33	3.2	0.047	8.3	LOS A	0.2	1.2	0.27	0.91	0.27	44.0
Approach			41	5.1	41	5.1	0.047	8.4	LOS A	0.2	1.2	0.27	0.91	0.27	43.9
West: Arcadia Dr															
10	L2	All MCs	125	1.7	125	1.7	0.103	4.6	LOS A	0.0	0.1	0.00	0.36	0.00	46.7
11	T1	All MCs	60	5.3	60	5.3	0.103	0.0	LOS A	0.0	0.1	0.00	0.36	0.00	47.9
12	R2	All MCs	2	0.0	2	0.0	0.103	4.6	LOS A	0.0	0.1	0.00	0.36	0.00	46.6
Approach			187	2.8	187	2.8	0.103	3.1	NA	0.0	0.1	0.00	0.36	0.00	47.1
All Vehicles			285	5.2	285	5.2	0.103	3.8	NA	0.2	1.2	0.07	0.44	0.07	46.7

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc3.3b_AM_05_Safety Bay Rd / Boundary Rd (Site Folder: 3.3b_AM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	3	0.0	3	0.0	0.693	4.7	LOS A	7.5	56.5	0.34	0.42	0.34	49.2
8	T1	All MCs	1032	1.7	1032	1.7	0.693	4.9	LOS A	7.5	56.5	0.34	0.42	0.34	52.8
Approach			1035	1.7	1035	1.7	0.693	4.9	LOS A	7.5	56.5	0.34	0.42	0.34	52.8
North: Safety Bay Rd															
2	T1	All MCs	133	8.7	133	8.7	0.120	4.5	LOS A	0.8	6.5	0.06	0.49	0.06	51.5
3	R2	All MCs	44	16.7	44	16.7	0.120	8.7	LOS A	0.8	6.5	0.06	0.49	0.06	48.5
Approach			177	10.7	177	10.7	0.120	5.6	LOS A	0.8	6.5	0.06	0.49	0.06	50.7
West: Boundary Rd															
4	L2	All MCs	78	4.1	78	4.1	0.190	14.0	LOS B	1.2	9.7	0.89	0.80	0.89	43.1
6	R2	All MCs	5	20.0	5	20.0	0.190	19.4	LOS B	1.2	9.7	0.89	0.80	0.89	39.8
Approach			83	5.1	83	5.1	0.190	14.3	LOS B	1.2	9.7	0.89	0.80	0.89	42.9
All Vehicles			1295	3.2	1295	3.2	0.693	5.6	LOS A	7.5	56.5	0.33	0.46	0.33	51.7

PM Peak

HMAS Stirling Entrance / Point Peron Road

MOVEMENT SUMMARY

Site: 101 [Sc3.3b_PM_01_HMAS Stirling Entrance / Point Peron Rd (Site Folder: 3.3b_PM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Point Peron Rd (E)															
5	T1	All MCs	48	0.0	48	0.0	0.063	4.4	LOS A	0.5	3.5	0.06	0.55	0.06	46.3
6	R2	All MCs	154	5.5	154	5.5	0.063	8.9	LOS A	0.5	3.5	0.06	0.60	0.06	44.6
Approach			202	4.2	202	4.2	0.063	7.8	LOS A	0.5	3.5	0.06	0.59	0.06	45.0
North: HMAS Stirling Entrance															
7	L2	All MCs	1975	1.6	1975	1.6	0.948	160.1	LOS F	41.9	314.8	0.82	0.42	0.82	45.2
9	R2	All MCs	5	0.0	5	0.0	0.948	9.2	LOS A	41.9	314.8	0.95	0.42	0.95	44.8
Approach			1980	1.6	1980	1.6	0.948	159.7	LOS F	41.9	314.8	0.82	0.42	0.82	45.2
West: Point Peron Rd (W)															
10	L2	All MCs	2	0.0	2	0.0	0.053	3.3	LOS A	0.2	1.5	0.26	0.37	0.26	46.8
11	T1	All MCs	55	3.8	55	3.8	0.053	575.3	LOS F	0.2	1.5	0.26	0.37	0.26	47.3
Approach			57	3.7	57	3.7	0.053	554.1	LOS F	0.2	1.5	0.26	0.37	0.26	47.3
All Vehicles			2239	1.9	2239	1.9	0.948	156.0	LOS F	41.9	314.8	0.74	0.43	0.74	45.2

Memorial Drive / Point Peron Road

MOVEMENT SUMMARY

Site: 102 [Sc3.3b_PM_08_Memorial Dr / Point Peron Rd (Site Folder: 3.3b_PM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Memorial Dr															
7	L2	All MCs	26	0.0	26	0.0	0.505	11.7	LOS B	2.0	14.7	1.00	0.67	1.19	28.9
9	R2	All MCs	2	0.0	2	0.0	0.505	385.5	LOS F	2.0	14.7	1.00	0.67	1.19	33.5
Approach			28	0.0	28	0.0	0.505	39.4	LOS E	2.0	14.7	1.00	0.67	1.19	29.3
East: Point Peron Rd (E)															
10	L2	All MCs	2	0.0	2	0.0	0.025	5.5	LOS A	0.0	0.0	0.00	0.03	0.00	57.2
11	T1	All MCs	176	4.8	176	4.8	0.071	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			178	4.7	178	4.7	0.071	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
West: Point Peron Rd (W)															
5	T1	All MCs	1835	1.6	1835	1.6	0.813	3.2	LOS A	9.3	70.1	0.14	0.14	0.22	57.6
6	R2	All MCs	192	2.2	192	2.2	0.813	9.2	LOS A	9.3	70.1	0.20	0.20	0.32	48.5
Approach			2026	1.7	2026	1.7	0.813	3.8	NA	9.3	70.1	0.14	0.14	0.23	56.6
All Vehicles			2233	1.9	2233	1.9	0.813	4.0	NA	9.3	70.1	0.14	0.14	0.23	56.2

Safety Bay Road / Parkin Street / Point Peron Road

MOVEMENT SUMMARY

Site: 104 [Sc3.3b_PM_03_Safety Bay Rd / Parkin St / Point Peron Rd / Hymus St (Site Folder: 3.3b_PM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	66	0.0	66	0.0	0.034	3.5	LOS A	0.0	0.0	0.00	0.46	0.00	54.4
5	T1	All MCs	64	0.0	64	0.0	0.132	4.6	LOS A	0.8	6.1	0.33	0.55	0.33	50.3
6	R2	All MCs	122	8.6	122	8.6	0.132	9.4	LOS A	0.8	6.1	0.33	0.55	0.33	46.9
Approach			253	4.2	253	4.2	0.132	6.6	LOS A	0.8	6.1	0.24	0.53	0.24	49.5
East: Parkin St															
7	L2	All MCs	180	2.9	180	2.9	0.433	9.4	LOS A	2.6	20.4	0.75	0.80	0.84	48.4
5	T1	All MCs	81	10.4	81	10.4	0.433	9.9	LOS A	2.6	20.4	0.75	0.80	0.84	48.7
9	R2	All MCs	19	0.0	19	0.0	0.433	13.6	LOS B	2.6	20.4	0.75	0.80	0.84	50.3
Approach			280	4.9	280	4.9	0.433	9.8	LOS A	2.6	20.4	0.75	0.80	0.84	48.6
North: Hymus St															
10	L2	All MCs	12	0.0	12	0.0	0.088	13.9	LOS B	0.4	3.0	0.82	0.90	0.82	47.7
11	T1	All MCs	102	1.0	102	1.0	0.279	11.9	LOS B	1.6	11.8	0.88	0.88	0.88	46.7
9	R2	All MCs	33	0.0	33	0.0	0.279	16.0	LOS B	1.6	11.8	0.89	0.88	0.89	48.3
Approach			146	0.7	146	0.7	0.279	12.9	LOS B	1.6	11.8	0.88	0.88	0.88	47.2
West: Point Peron Rd															
10	L2	All MCs	117	3.6	117	3.6	0.811	7.5	LOS A	12.3	92.9	0.80	0.65	0.86	50.3
11	T1	All MCs	1046	2.0	1046	2.0	0.811	7.4	LOS A	12.3	92.9	0.80	0.65	0.86	51.2
12	R2	All MCs	659	0.6	659	0.6	0.568	10.6	LOS B	4.7	34.7	0.60	0.63	0.60	47.2
Approach			1822	1.6	1822	1.6	0.811	8.5	LOS A	12.3	92.9	0.72	0.64	0.77	49.8
All Vehicles			2501	2.2	2501	2.2	0.811	8.7	LOS A	12.3	92.9	0.69	0.66	0.73	49.5

Safety Bay Road / Memorial Drive

MOVEMENT SUMMARY

Site: 105 [Sc3.3b_PM_04_Safety Bay Rd / Memorial Dr (Site Folder: 3.3b_PM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
10	L2	All MCs	2	0.0	2	0.0	0.135	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
11	T1	All MCs	262	3.2	262	3.2	0.135	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			264	3.2	264	3.2	0.135	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Safety Bay Rd															
5	T1	All MCs	942	1.1	942	1.1	0.474	0.0	LOS A	0.0	0.2	0.00	0.00	0.00	60.0
6	R2	All MCs	3	0.0	3	0.0	0.474	5.6	LOS A	0.0	0.2	0.00	0.00	0.00	51.3
Approach			945	1.1	945	1.1	0.474	0.0	NA	0.0	0.2	0.00	0.00	0.00	59.9
West: Memorial Dr															
7	L2	All MCs	4	50.0	4	50.0	0.017	7.0	LOS A	0.1	0.6	0.58	0.63	0.58	36.4
9	R2	All MCs	3	0.0	3	0.0	0.017	15.8	LOS C	0.1	0.6	0.58	0.63	0.58	45.4
Approach			7	28.6	7	28.6	0.017	10.8	LOS B	0.1	0.6	0.58	0.63	0.58	40.3
All Vehicles			1217	1.7	1217	1.7	0.474	0.1	NA	0.1	0.6	0.01	0.01	0.01	59.7

Memorial Drive / Lease Road

MOVEMENT SUMMARY

Site: 106 [Sc3.3b_PM_07_Memorial Dr / Lease Rd (Site Folder: 3.3b_PM Peak_No GIH +Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lease Rd															
7	L2	All MCs	27	0.0	27	0.0	0.018	4.6	LOS A	0.1	0.5	0.04	0.51	0.04	45.9
9	R2	All MCs	1	0.0	1	0.0	0.018	4.7	LOS A	0.1	0.5	0.04	0.51	0.04	45.7
Approach			28	0.0	28	0.0	0.018	4.6	LOS A	0.1	0.5	0.04	0.51	0.04	45.9
East: Memorial Dr															
10	L2	All MCs	1	0.0	1	0.0	0.004	4.6	LOS A	0.0	0.0	0.00	0.08	0.00	48.3
11	T1	All MCs	6	0.0	6	0.0	0.004	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	49.6
Approach			7	0.0	7	0.0	0.004	0.7	NA	0.0	0.0	0.00	0.08	0.00	49.4
West: Memorial Dr															
5	T1	All MCs	7	28.6	7	28.6	0.109	0.0	LOS A	0.5	4.1	0.05	0.52	0.05	47.0
6	R2	All MCs	186	1.1	186	1.1	0.109	4.6	LOS A	0.5	4.1	0.05	0.52	0.05	45.7
Approach			194	2.2	194	2.2	0.109	4.4	NA	0.5	4.1	0.05	0.52	0.05	45.7
All Vehicles			229	1.8	229	1.8	0.109	4.3	NA	0.5	4.1	0.04	0.50	0.04	45.9

Boundary Road / Lease Road

MOVEMENT SUMMARY

Site: 107 [Sc3.3b_PM_06_Boundary Rd / Lease Rd (Site Folder: 3.3b_PM Peak_No GIH +Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fifth Ave															
1	L2	All MCs	1	100.0	1	100.0	0.013	15.7	LOS C	0.0	0.4	0.29	0.95	0.29	40.1
2	T1	All MCs	2	0.0	2	0.0	0.013	8.1	LOS A	0.0	0.4	0.29	0.95	0.29	43.9
3	R2	All MCs	7	14.3	7	14.3	0.013	9.1	LOS A	0.0	0.4	0.29	0.95	0.29	43.1
Approach			11	20.0	11	20.0	0.013	9.6	LOS A	0.0	0.4	0.29	0.95	0.29	42.9
East: Boundary Rd															
4	L2	All MCs	6	0.0	6	0.0	0.055	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.5
5	T1	All MCs	98	2.2	98	2.2	0.055	0.0	LOS A	0.0	0.1	0.01	0.04	0.01	49.8
6	R2	All MCs	1	0.0	1	0.0	0.055	4.6	LOS A	0.0	0.1	0.01	0.04	0.01	48.3
Approach			105	2.0	105	2.0	0.055	0.3	NA	0.0	0.1	0.01	0.04	0.01	49.7
North: Lease Rd															
7	L2	All MCs	2	0.0	2	0.0	0.220	7.7	LOS A	0.9	6.3	0.34	0.90	0.34	44.2
8	T1	All MCs	7	0.0	7	0.0	0.220	8.3	LOS A	0.9	6.3	0.34	0.90	0.34	44.2
9	R2	All MCs	175	1.2	175	1.2	0.220	8.4	LOS A	0.9	6.3	0.34	0.90	0.34	44.0
Approach			184	1.1	184	1.1	0.220	8.4	LOS A	0.9	6.3	0.34	0.90	0.34	44.0
West: Arcadia Dr															
10	L2	All MCs	25	0.0	25	0.0	0.052	4.6	LOS A	0.0	0.1	0.01	0.15	0.01	47.9
11	T1	All MCs	69	1.5	69	1.5	0.052	0.0	LOS A	0.0	0.1	0.01	0.15	0.01	49.1
12	R2	All MCs	2	0.0	2	0.0	0.052	4.7	LOS A	0.0	0.1	0.01	0.15	0.01	47.7
Approach			97	1.1	97	1.1	0.052	1.3	NA	0.0	0.1	0.01	0.15	0.01	48.7
All Vehicles			397	1.9	397	1.9	0.220	4.6	NA	0.9	6.3	0.17	0.49	0.17	46.5

Safety Bay Road / Boundary Road

MOVEMENT SUMMARY

Site: 108 [Sc3.3b_PM_05_Safety Bay Rd / Boundary Rd (Site Folder: 3.3b_PM Peak_No GIH+Single RA)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
7	L2	All MCs	7	0.0	7	0.0	0.183	4.7	LOS A	0.9	7.1	0.27	0.45	0.27	49.4
8	T1	All MCs	218	2.9	218	2.9	0.183	5.0	LOS A	0.9	7.1	0.27	0.45	0.27	52.8
Approach			225	2.8	225	2.8	0.183	5.0	LOS A	0.9	7.1	0.27	0.45	0.27	52.7
North: Safety Bay Rd															
2	T1	All MCs	900	0.8	900	0.8	0.612	4.4	LOS A	6.9	51.1	0.11	0.44	0.11	53.7
3	R2	All MCs	107	2.0	107	2.0	0.612	8.4	LOS A	6.9	51.1	0.11	0.44	0.11	49.3
Approach			1007	0.9	1007	0.9	0.612	4.9	LOS A	6.9	51.1	0.11	0.44	0.11	53.2
West: Boundary Rd															
4	L2	All MCs	80	2.6	80	2.6	0.084	4.5	LOS A	0.5	3.6	0.43	0.51	0.43	48.7
6	R2	All MCs	6	16.7	6	16.7	0.084	8.9	LOS A	0.5	3.6	0.43	0.51	0.43	45.1
Approach			86	3.7	86	3.7	0.084	4.8	LOS A	0.5	3.6	0.43	0.51	0.43	48.4
All Vehicles			1319	1.4	1319	1.4	0.612	4.9	LOS A	6.9	51.1	0.16	0.45	0.16	52.8

Appendix G Proposed Cross Sections

Proposed Cross Sections

Based on the findings and recommendations in the preceding sections of this report, potential cross-sections have been developed for each of the roads within the study area. The cross sections below can also be used to help inform the Stage 2 excisions for the A class reserve.

Safety Bay Road

The existing cross-section of Safety Bay Road is schematically shown in the figure below. Currently, Safety Bay Road has 2.0m shoulders on both sides of the road and a single 4.0m wide traffic lane in each direction. There is also a 1.5m – 2.0m wide shared path on the southbound side, with an average 2.0m wide buffer from traffic and 0.5m wide buffer from the properties.

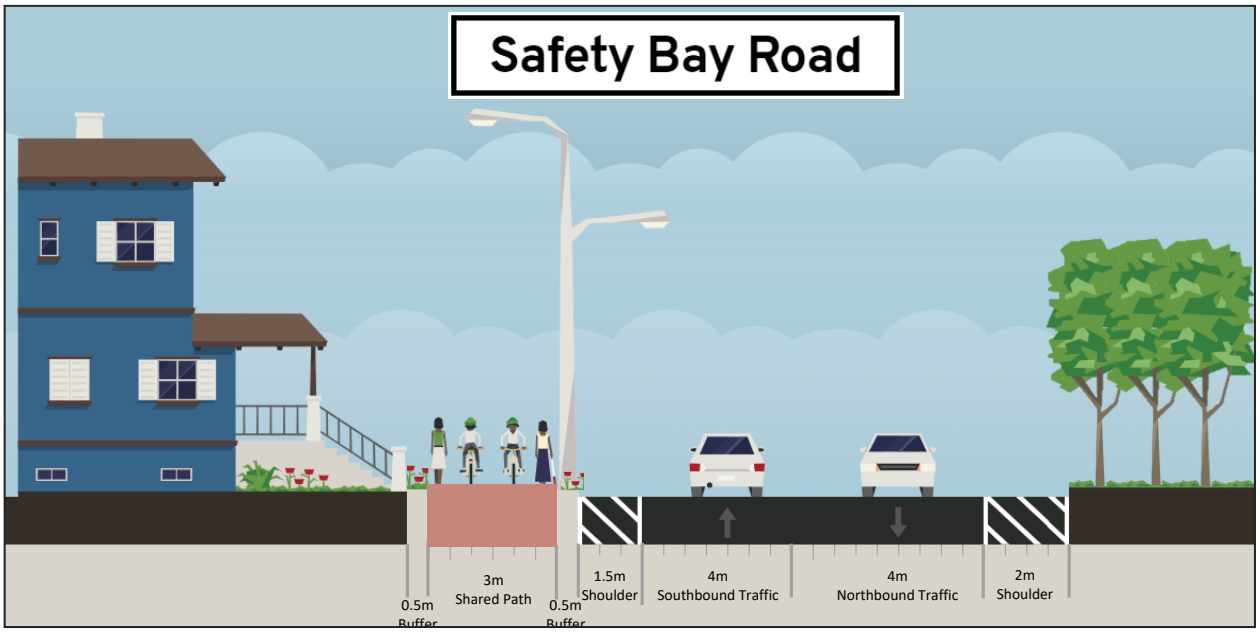
Safety Bay Road - Existing Cross Section (16m)

Source: Streetmix.net

Based on the daily midblock traffic volumes in the main report, by 2040 Safety Bay Road is expected to carry a maximum of around 9,500 vehicles per day. By 2040, it would carry up to a maximum of approximately 9,700 vpd. Based on the results of the traffic modelling exercise, widening of Safety Bay Road to accommodate additional traffic lanes is not considered to be required for the forecast traffic, although localised widening of the intersection Safety Bay Road / Boundary Road was found to be required for the 2040 scenarios.

As Safety Bay Road forms part of the primary route in the LTCN, the current 1.5m – 2.0m shared path along Safety Bay Road is proposed to be widened to 3.0m. The widened shared path will require a reduction to the buffer and shoulder widths along southbound side as schematically shown in the figure below to make the facility more appropriate for a primary route in the LTCN. This new path will connect to the newly constructed shared path along Safety Bay Road (south of Boundary Road).

Safety Bay Road - Proposed Cross Section (16m)

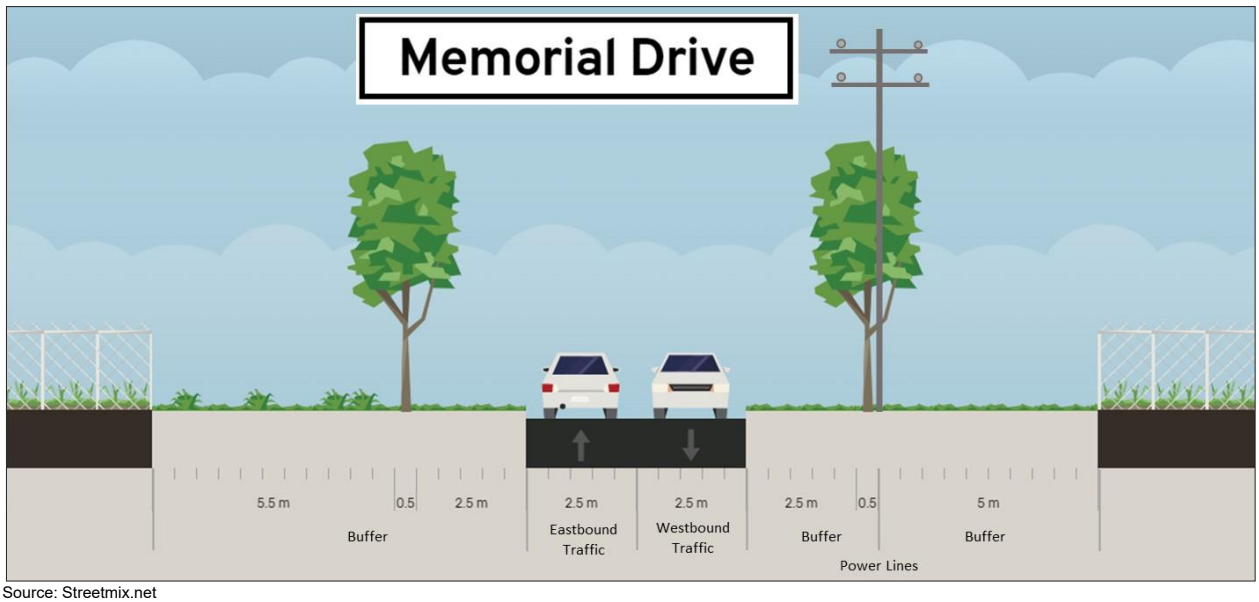


Source: Streetmix.net

Memorial Drive
Between Safety Bay Road and Lease Road

The existing cross-section of Memorial Drive between Safety Bay Road and Lease Road is shown in the figure below. Currently, this section of Memorial Drive has a sealed width of approximately 5m and does not include any line marking. It is noted that Memorial Drive is currently not a gazetted road. In the eastbound direction, there is a buffer of approximately 8.5m from the paved road to a fenced area. In the westbound direction, there is a buffer of approximately 3.0m from the paved road to a power line that is about 5.0m away from a fenced area. There are no formal pedestrian or cycling paths along this section of Memorial Drive.

Memorial Drive - between Safety Bay Road and Lease Road - Existing Cross Section (21m)



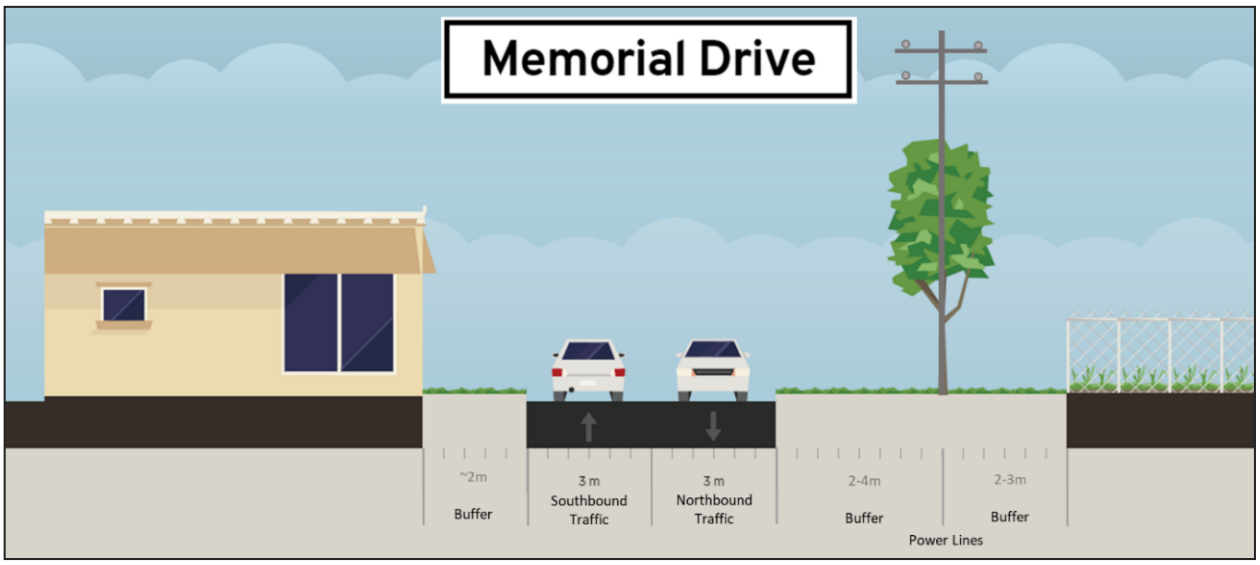
Source: Streetmix.net

As all scenarios modelled as part of this study assumes that the GIH will be constructed between 2024 to 2040, this section of Memorial Drive is not included in the models and could therefore potentially be used as a shared path or similar.

Memorial Drive between Lease Road and Point Peron Road

The existing cross-section of Memorial Drive between Lease Road and Point Peron Road is shown in the figure below. For this section of Memorial Drive, the sealed width is approximately 6.0m wide and does not include any line marking. It is noted that Memorial Drive is currently not a gazetted road. The southbound direction has a buffer of approximately 2m from the edge of the road to the nearest corner of a property. The northbound direction is restricted by a powerline that is between 2m - 4m from the edge of the road, as well as fenced properties located approximately 2-3m from the powerline. There is also vegetation close to the carriageway edge.

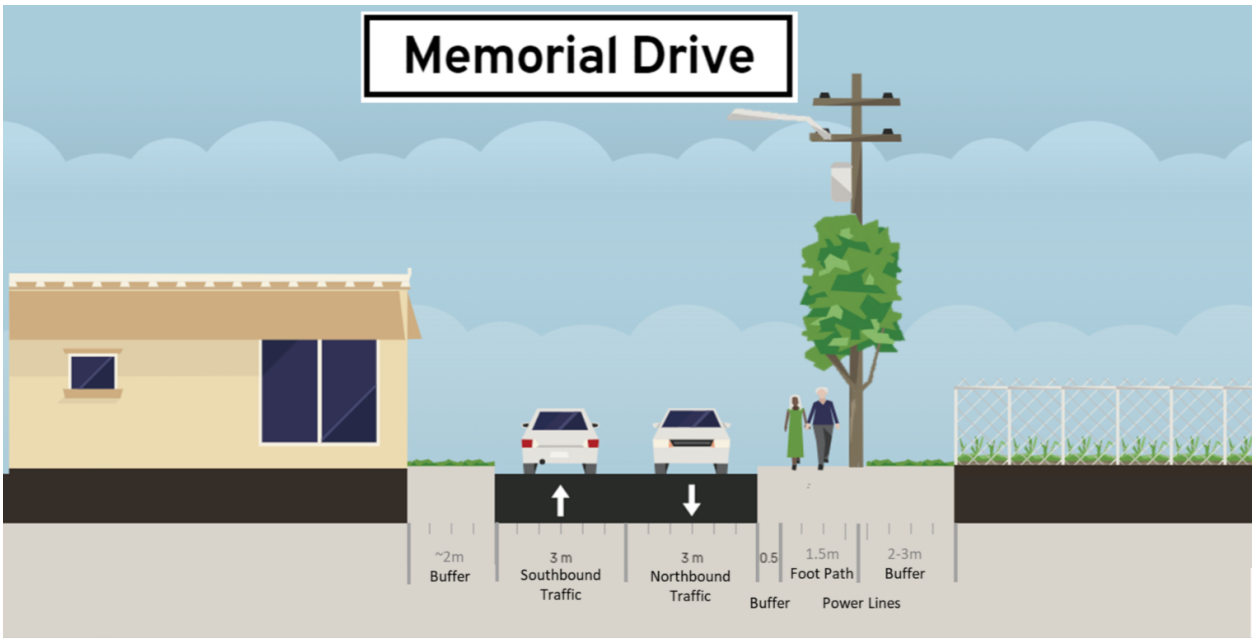
Memorial Drive - between Lease Road and Point Peron Road - Existing Cross Section (12-15m)



Source: Streetmix.net

As all scenarios modelled as part of this study assumes that the GIH will be constructed between 2024 to 2040, the model results show very low volumes of traffic on this section of Memorial Drive. As GIH is assumed to include a 4m wide shared path, this section of Memorial Drive is not considered to also include a need to provide a shared path. The proposed cross-section for this section of Memorial Drive therefore only includes the addition of a 1.5m wide footpath and a 0.5m buffer on the western side of Memorial Drive, to provide pedestrian access between the recreational areas. The proposed cross-section for Memorial Drive is shown in the figure below.

Memorial Drive - between Lease Road and Point Peron Road - Proposed Cross Section (12-13m)

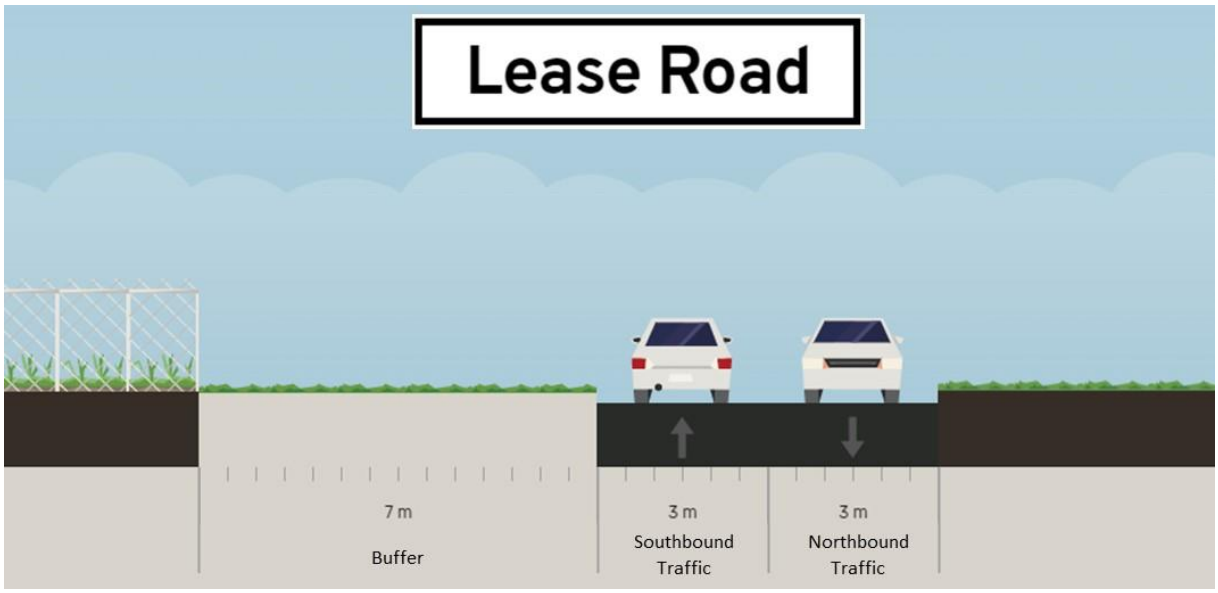


Source: Streetmix.net

Lease Road

The existing cross section of Lease Road is shown in the figure below. Currently, the sealed width ranges from 5.5m to 6.5m and does not include any line markings. It is noted that Lease Road is not a gazetted road. The northbound direction mostly contains vegetation, while the southbound direction has a 7.0m buffer to a fenced area.

Lease Road - Existing Cross Section (13m)

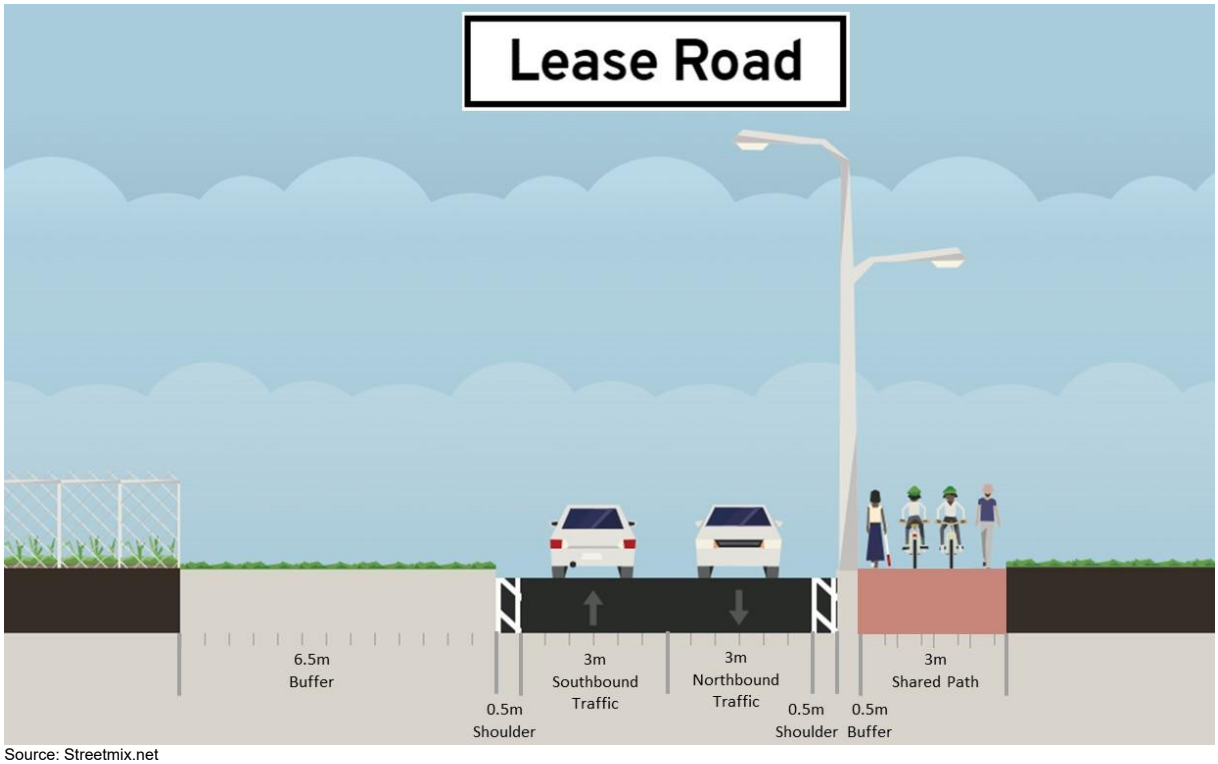


Source: Streetmix.net

Based on the daily midblock traffic volumes in the main report, by 2040 Lease Road is forecast to carry a maximum of around 1,400 vehicle per day. By 2040, it is forecast to carry a maximum of approximately 1,700 vehicles per day.

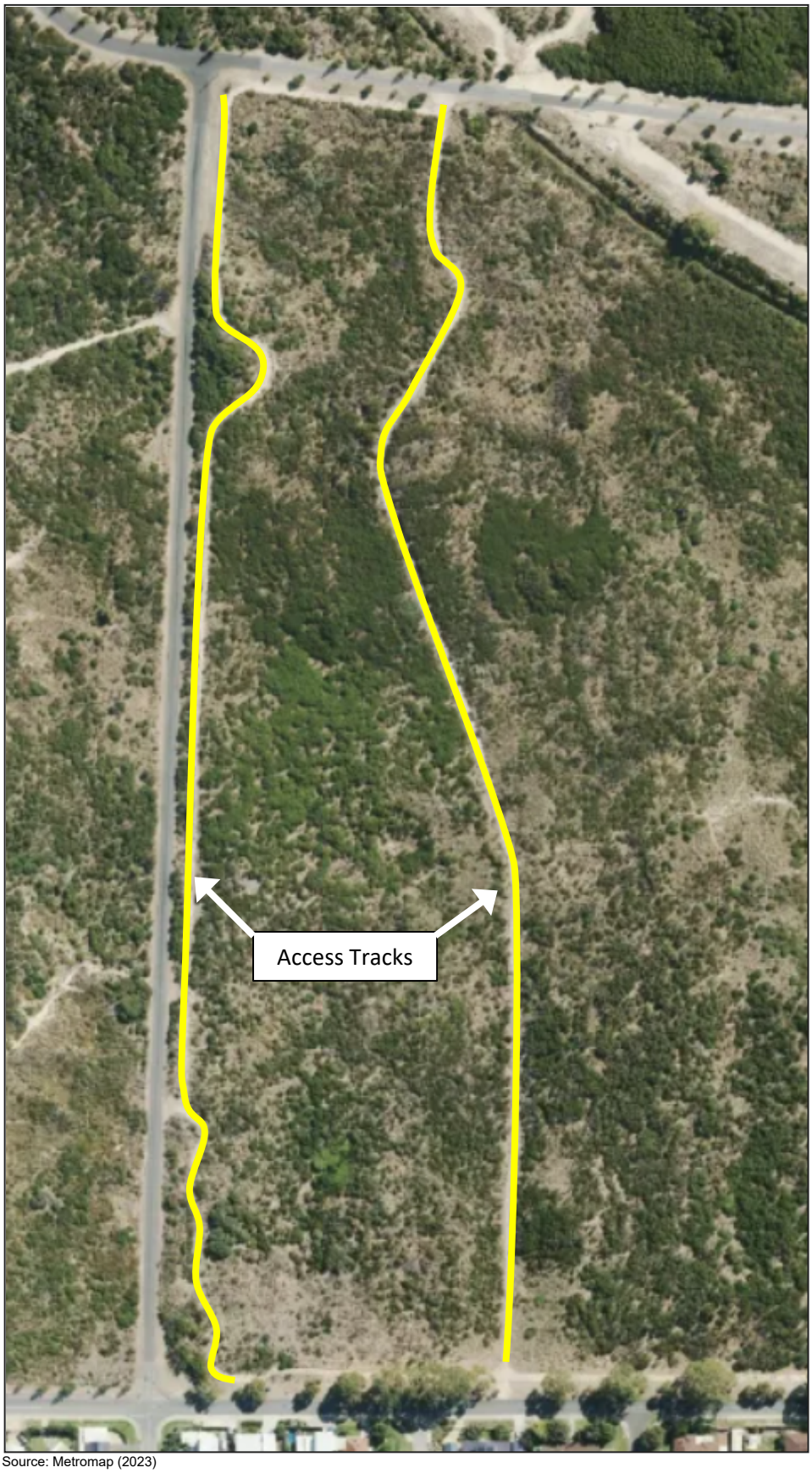
Lease Road will form part of the LTCN as a primary route and is therefore proposed to have a 3.0m wide shared path, with a 0.5m buffer from the road. It is also proposed that shoulders of 0.5m will be constructed on both sides of the road. Alternatively, there are fire access tracks east of Lease Road, that can be used to accommodate shared paths. Both are shown in the figures below. However, this would require further studies and discussions with DBCA.

Lease Road - Proposed Cross Section (17m)



Source: Streetmix.net

Lease Road – Existing Access Tracks

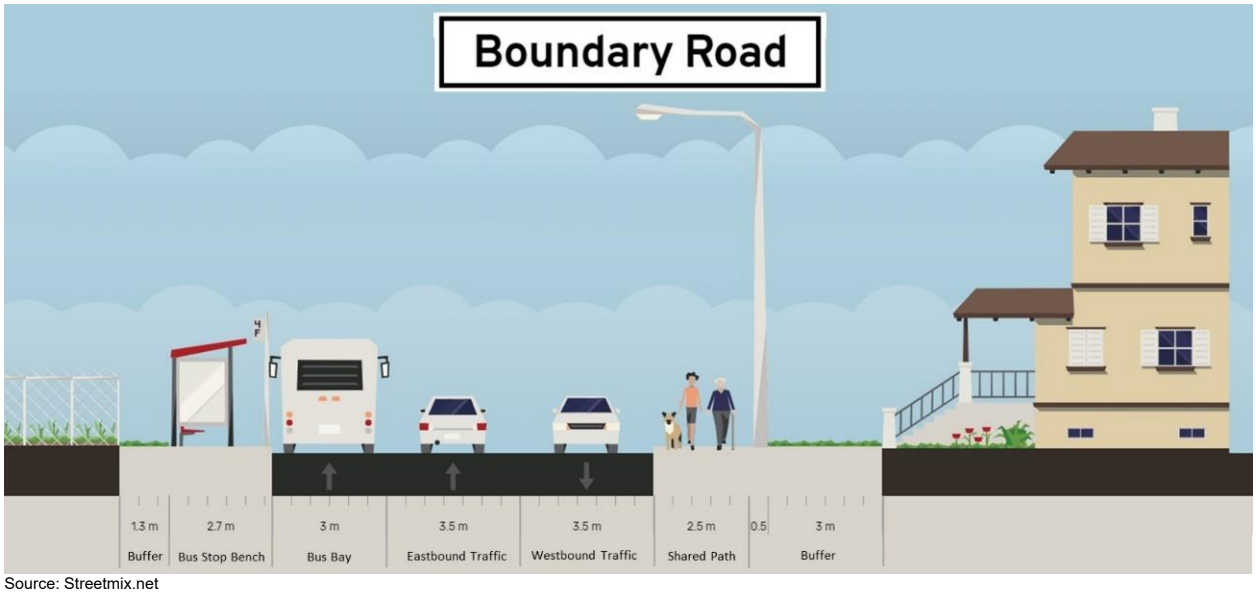


Source: Metromap (2023)

Boundary Road

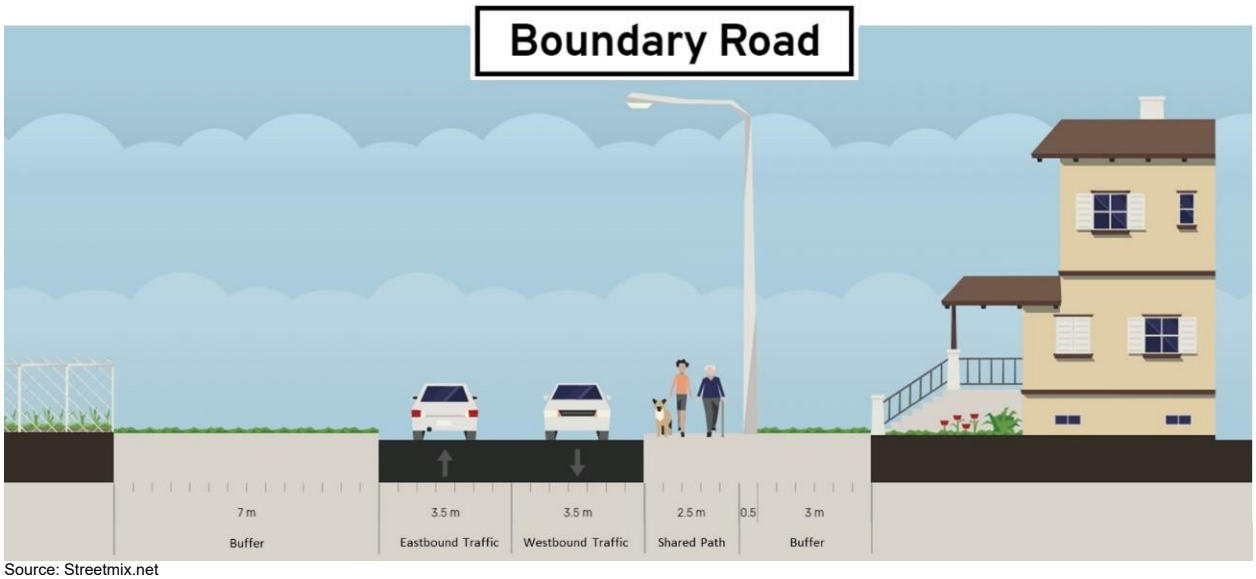
The existing cross-sections of Boundary Road are schematically shown in the figures below. Currently, the road has a sealed width of 7m, which includes a single traffic lane with a width of 3.5m in each direction, with an indented bus bay in the eastbound direction (west of Lease Road). In the westbound direction, there is a shared path with a width of approximately 2.5m, with a 3.5m buffer to the cadastre boundary.

Boundary Road - West of Lease Road – Existing Cross Section (20m)



Source: Streetmix.net

Boundary Road - East of Lease Road – Existing Cross Section (20m)

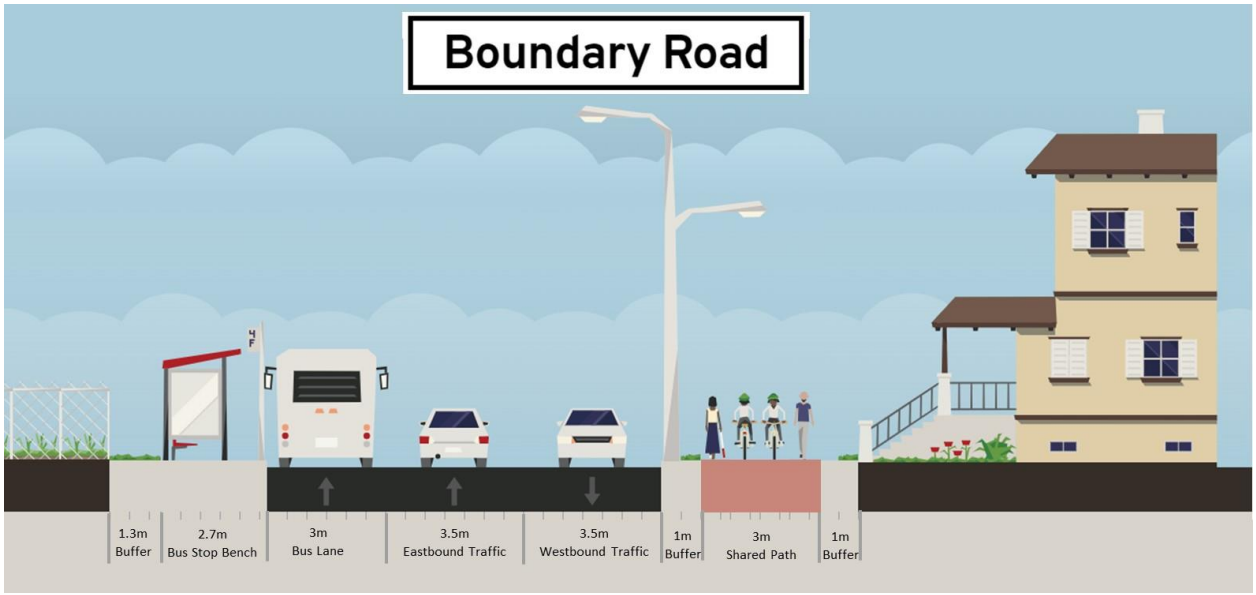


Source: Streetmix.net

Based on the daily midblock traffic volumes in the main report, by 2040 Boundary Road is forecast to carry a maximum of around 3,200 vehicles per day. By 2040, it would carry a maximum of approximately 3,600 vehicles per day.

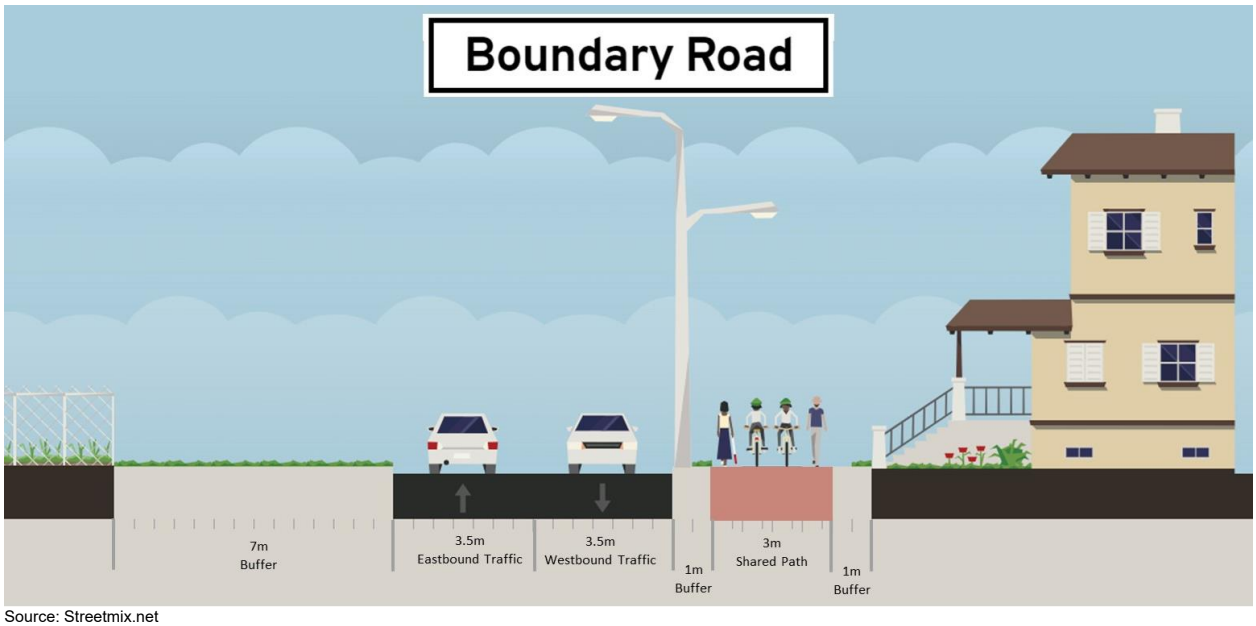
Boundary Road will form part of the LTCN as a primary route. The existing 2.5m shared path along Boundary Road is proposed to be moved slightly south and widened to 3.0m. The buffer to the residential area will be reduced and the streetlights will be relocated as shown in the figures below to make the facility more appropriate for a primary route in the LTCN.

Boundary Road - West of Lease Road - Proposed Cross Section (20m)



Source: Streetmix.net

Boundary Road - East of Lease Road - Proposed Cross Section (20m)



Source: Streetmix.net

Point Peron Road

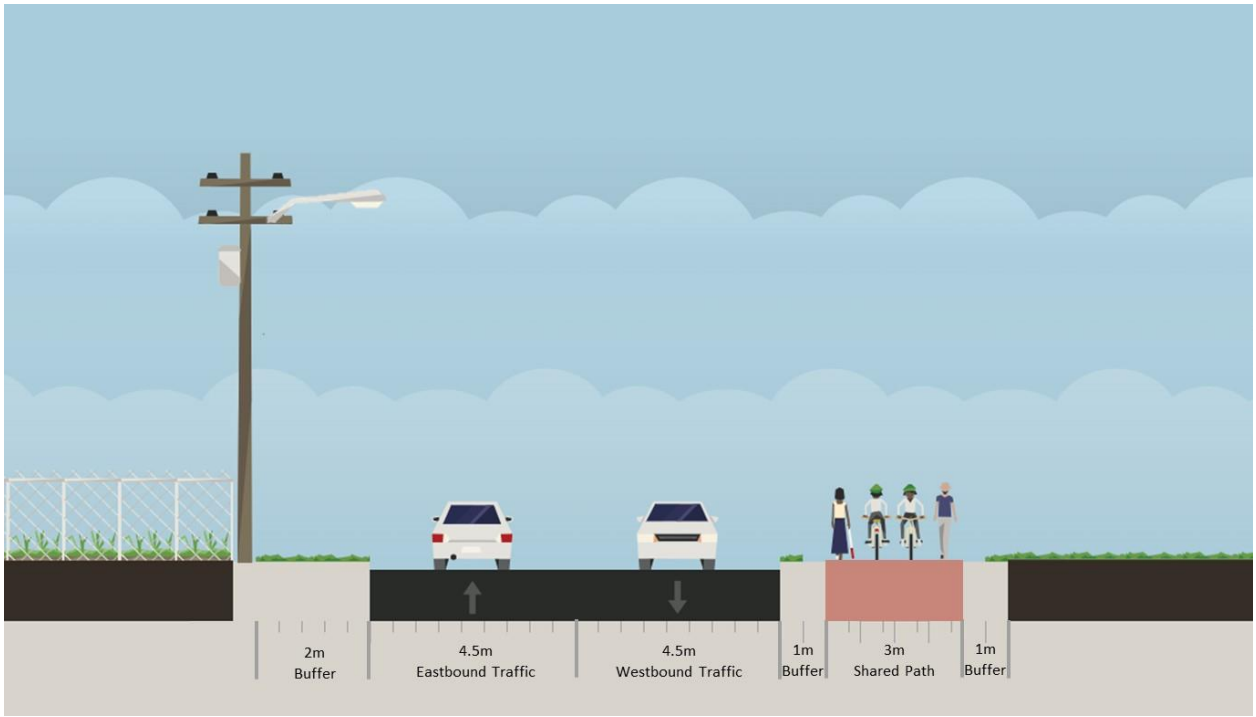
The existing cross-section of Point Peron Road is shown in the figure below. Point Peron Road currently has a single 4.5m traffic lane in each direction and no pedestrian or cycling facilities. In both directions, the distance between the edge of the road to the power lines vary between 2.0m to 5.0m.

Point Peron Road - Existing Cross Section (12.8m)

Source: Streetmix.net

Based on the daily midblock traffic volumes in the main report, by 2040 Point Peron Road is forecast to carry a maximum of approximately 10,200 vehicles per day. By 2040, it is forecast to carry a maximum of about 10,500 vehicles per day. Based on the results of the traffic modelling exercise, widening of Point Peron Road to accommodate additional traffic lanes is not considered to be required for the forecast traffic volumes.
Point Peron Road forms part of the primary route under the LTCN and a 3m wide shared path is therefore proposed in the westbound direction as there is limited space in the eastbound direction due to power lines a as shown in the figure below.

Point Peron Road - Proposed Cross Section (16m)



Source: Streetmix.net

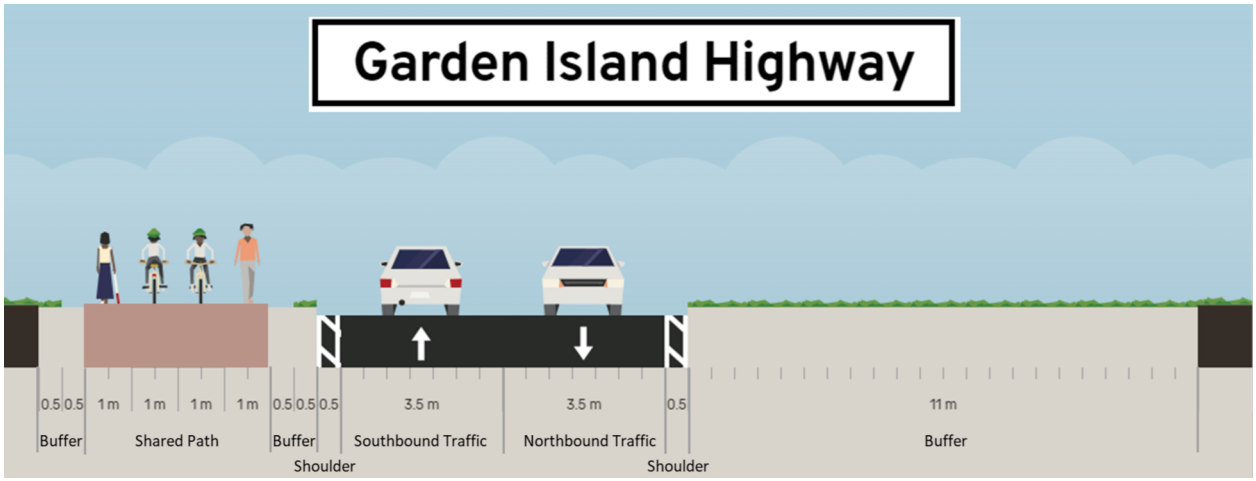
Garden Island Highway

Garden Island Highway is a new road that is forecast to carry a maximum of approximately 5,600 vehicles per day by year 2040 and approximately 7,200 vehicles per day by year 2040. Based on the results of the traffic modelling exercise, one lane in each direction is considered sufficient to accommodate the forecast traffic volumes for year 2040 but is required to be duplicated by 2040. While the forecast 2040 daily volumes would be considered relatively low for a dual carriageway road, it is emphasised that this duplication is required to accommodate the highly directional demands during the AM and PM peak periods.

Garden Island Highway will form part of the primary route of the LTCN and therefore a shared path is proposed in the southbound direction to allow a continuous shared path.

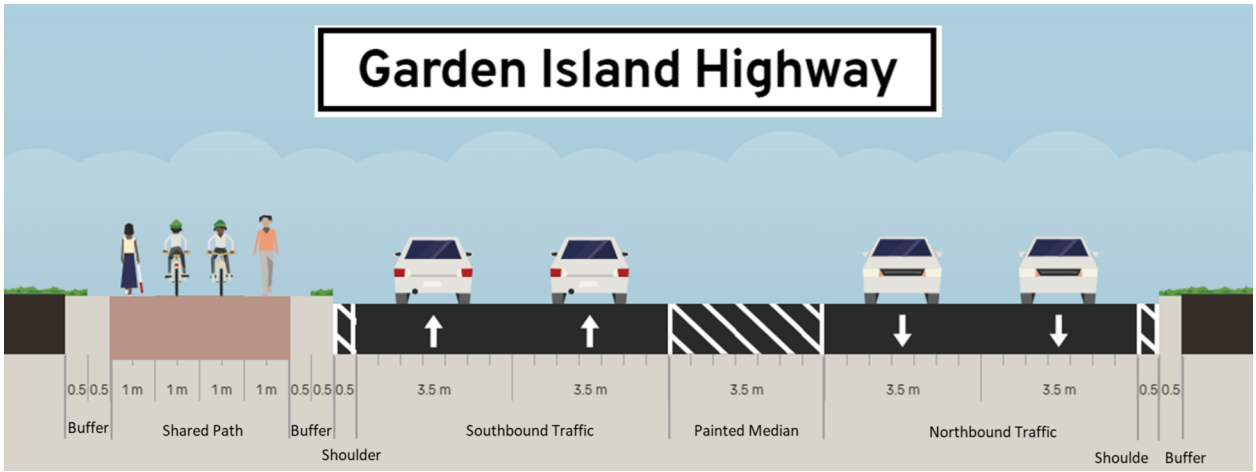
The proposed cross-sections for varying scenarios are shown in the figures below.

Garden Island Highway Single Lane Option - Proposed Cross Section (25m)



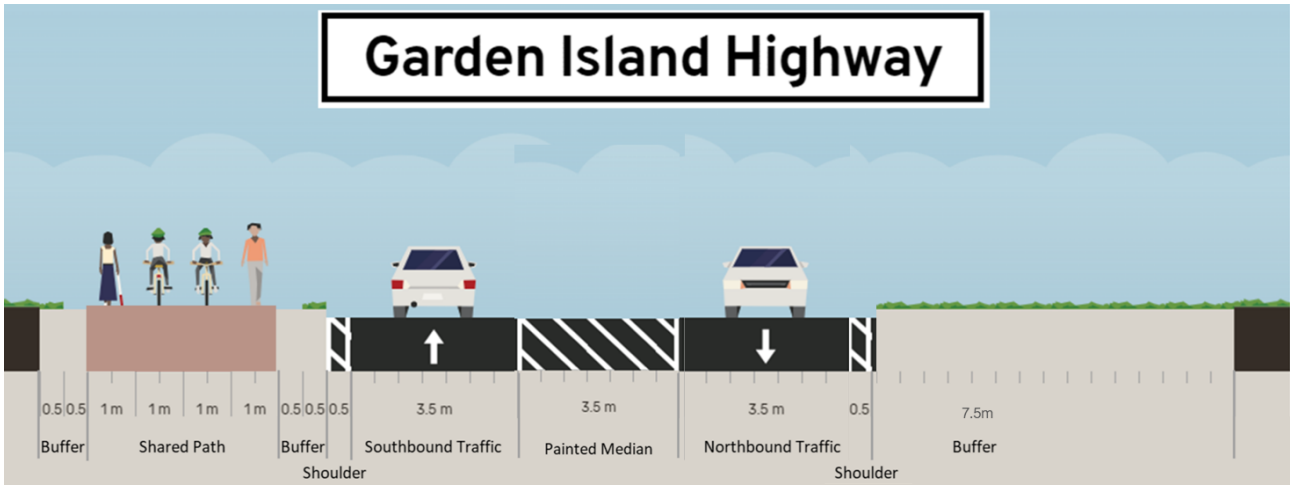
Source: Streetmix.net

Garden Island Highway Dual Lane Option - Proposed Cross Section north of Boundary Road (25m)



Source: Streetmix.net

Garden Island Highway Dual Lane Option - Proposed Cross Section south of Boundary Road (25m)



Source: Streetmix.net

Appendix H Metered Roundabout Sensitivity Test

Metered Roundabout Test

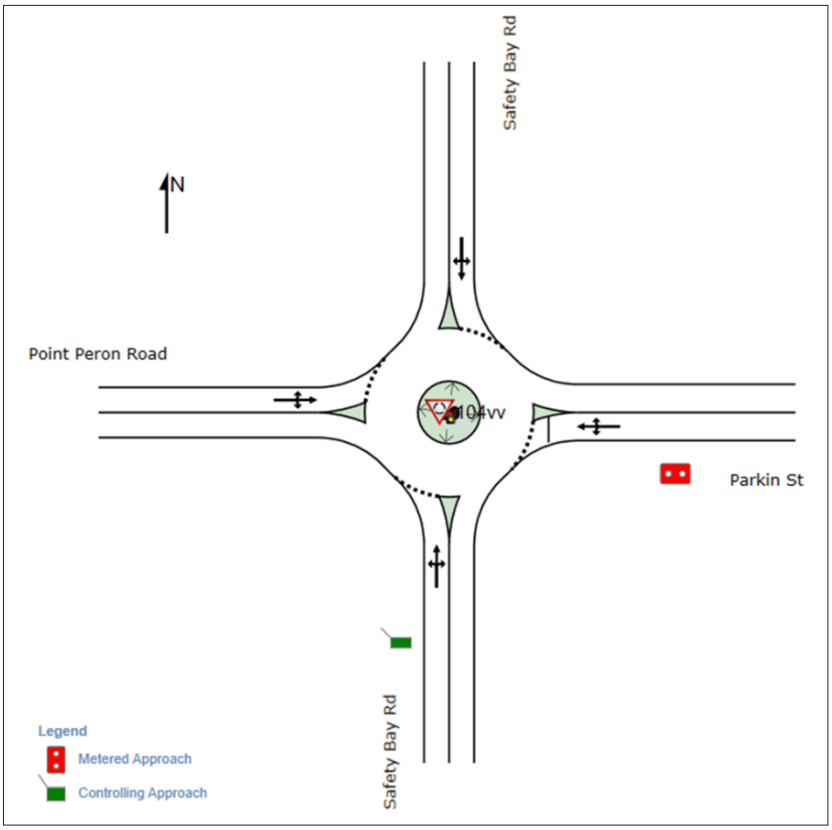
A test was undertaken to determine what year between 2030 and 2040 will a metered roundabout fail for the Parkin Street / Safety Bay Road / Point Peron Road / Hymus Street area. This will help inform when the Garden Island Highway will need to be constructed.

Metered roundabout cannot be modelled in the AIMSUN software therefore this test was undertaken only in the SIDRA modelling platform.

SIDRA Layout

The intersection was only tested as a single 4-way roundabout considering the complications in actual settings of a staggered metered roundabout. The layout of the intersection in SIDRA is shown in the figure below.

SIDRA Layout



SIDRA Modelling Parameters

The following parameters are considered when modelling a metered roundabout as defined in SIDRA:

- Metered Approach: the approach stopped by red signals which is usually the one causing problems for a downstream approach.
  - Stop Line Setback Distance: the distance between the signal stop line and the roundabout give-way / yield line on the Metered Approach.
- Controlling Approach: the approach with the queue detector which is supported by the metering signals.
  - Queue Detector Setback Distance: the distance between the advanced queue detectors and the roundabout give-way / yield line on the Controlling Approach.

SIDRA Modelling Inputs

The following are the assumptions for the metered roundabout:

- Metered Approach: Parkin Street
- Controlling Approach: Safety Bay Road
- Stop Line Setback Distance: 20 meters
- Queue Detector Setback Distance: 100 meters
- Cycle Time Option: Optimum Cycle Time

Considering that Parkin Street traffic travelling to Point Peron Road has priority over the traffic on Safety Bay Road travelling to Point Peron Road, the metered approach chosen was Parkin Street to help release traffic from Safety Bay Road. All other assumptions are kept as default while the values for the stop line setback distance and the queue detector setback distance are within the typical range provided by SIDRA.

SIDRA Results

As a preliminary test, the metered roundabout was used for the 2030 traffic volumes. The movement summary SIDRA results are shown in the figures below.

2030 AM Peak - Metered Roundabout - SIDRA Results

MOVEMENT SUMMARY

Site: 104vv [2030_AM_03_Point Peron Road / Safety Bay Rd / Parkin St (Site Folder: 2030_AM)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout Metering

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	772	1.1	772	1.1	1.131	128.3	LOS F	75.1	1136.0	1.00	4.07	9.28	16.2
5	T1	All MCs	33	9.7	33	9.7	1.131	128.8	LOS F	75.1	1136.0	1.00	4.07	9.28	16.0
6	R2	All MCs	99	6.4	99	6.4	1.131	132.0	LOS F	75.1	1136.0	1.00	4.07	9.28	16.0
Approach			903	2.0	903	2.0	1.131	128.7	LOS F	75.1	564.1	1.00	4.07	9.28	16.2
East: Parkin St															
7	L2	All MCs	53	18.0	53	18.0	1.114	238.7	LOS F	111.5	886.1	0.87	6.24	12.38	10.1
5	T1	All MCs	576	5.1	576	5.1	1.114	236.7	LOS F	111.5	886.1	0.87	6.24	12.38	12.2
9	R2	All MCs	29	3.6	29	3.6	1.114	239.7	LOS F	111.5	886.1	0.87	6.24	12.38	12.2
Approach			658	6.1	658	6.1	1.114	237.0	LOS F	111.5	886.1	0.87	6.24	12.38	12.0
North: Safety Bay Rd															
10	L2	All MCs	13	0.0	13	0.0	0.149	4.8	LOS A	0.4	2.9	0.30	0.66	0.30	51.3
11	T1	All MCs	38	11.1	38	11.1	0.149	5.3	LOS A	0.4	2.9	0.30	0.66	0.30	48.0
9	R2	All MCs	109	1.9	109	1.9	0.149	8.4	LOS A	0.4	2.9	0.30	0.66	0.30	50.4
Approach			160	3.9	160	3.9	0.149	7.4	LOS A	0.4	2.9	0.30	0.66	0.30	50.0
West: Point Peron Road															
10	L2	All MCs	16	6.7	16	6.7	0.124	5.2	LOS A	0.2	1.9	0.21	0.62	0.21	50.4
11	T1	All MCs	67	12.5	67	12.5	0.124	5.6	LOS A	0.2	1.9	0.21	0.62	0.21	49.4
12	R2	All MCs	53	6.0	53	6.0	0.124	8.7	LOS A	0.2	1.9	0.21	0.62	0.21	48.9
Approach			136	9.3	136	9.3	0.124	6.8	LOS A	0.2	1.9	0.21	0.62	0.21	49.4
All Vehicles			1857	4.1	1857	4.1	1.131	147.7	LOS F	111.5	886.1	0.84	4.29	8.94	15.9

2030 PM Peak - Metered Roundabout - SIDRA Results

MOVEMENT SUMMARY

Site: 104vv [2030_PM_03_Point Peron Road / Safety Bay Rd / Parkin St (Site Folder: 2030_AM)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

New Site
Site Category: (None)
Roundabout Metering

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. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Safety Bay Rd															
1	L2	All MCs	51	0.0	51	0.0	0.190	4.9	LOS A	0.4	3.4	0.22	0.62	0.22	50.3
5	T1	All MCs	63	0.0	63	0.0	0.190	5.2	LOS A	0.4	3.4	0.22	0.62	0.22	50.8
6	R2	All MCs	120	8.8	120	8.8	0.190	8.7	LOS A	0.4	3.4	0.22	0.62	0.22	47.1
Approach			234	4.5	234	4.5	0.190	6.9	LOS A	0.4	3.3	0.22	0.62	0.22	48.7
East: Parkin St															
7	L2	All MCs	180	2.3	180	2.3	0.837	28.0	LOS C	9.0	69.8	1.00	1.31	2.01	36.4
5	T1	All MCs	66	9.5	66	9.5	0.837	30.3	LOS C	9.0	69.8	1.00	1.31	2.01	38.5
9	R2	All MCs	15	0.0	15	0.0	0.837	31.2	LOS C	9.0	69.8	1.00	1.31	2.01	39.5
Approach			261	4.0	261	4.0	0.837	28.8	LOS C	9.0	69.8	1.00	1.31	2.01	37.2
North: Safety Bay Rd															
10	L2	All MCs	11	0.0	11	0.0	0.585	22.8	LOS C	1.8	13.3	0.93	1.07	1.38	42.1
11	T1	All MCs	101	1.0	101	1.0	0.585	23.2	LOS C	1.8	13.3	0.93	1.07	1.38	39.4
9	R2	All MCs	28	0.0	28	0.0	0.585	26.4	LOS C	1.8	13.3	0.93	1.07	1.38	41.9
Approach			140	0.8	140	0.8	0.585	23.8	LOS C	1.8	13.2	0.93	1.07	1.38	40.2
West: Point Peron Road															
10	L2	All MCs	95	4.4	95	4.4	1.148	144.8	LOS F	127.8	959.5	1.00	4.77	9.21	17.5
11	T1	All MCs	794	2.0	794	2.0	1.148	144.8	LOS F	127.8	959.5	1.00	4.77	9.21	17.6
12	R2	All MCs	501	0.4	501	0.4	1.148	148.0	LOS F	127.8	959.5	1.00	4.77	9.21	15.0
Approach			1389	1.6	1389	1.6	1.148	145.9	LOS F	127.8	959.1	1.00	4.77	9.21	16.7
All Vehicles			2024	2.2	2024	2.2	1.148	106.3	LOS F	127.8	959.1	0.91	3.59	6.70	20.2

The result from the preliminary test shows that the metered roundabout will not work starting year 2030 for both AM and PM peak periods.

For the AM peak, the amount of traffic travelling to Point Peron Road is excessive that balancing between the traffic from Safety Bay Road and Parkin Street will still result to an overall poor performance for the intersection.

For the PM peak, the dominant direction comes from Point Peron Road thus the chosen metered and controlled approaches do not provide any advantage to the high Point Peron Road traffic. Switching the metered approach to the south approach and the controlling approach to the west approach will result in LOS C for the PM peak however as this layout does not provide any advantage to the Safety Bay Road traffic this results to an overall delay of 475 seconds at LOS F for the AM peak.

Considering that the metered roundabout fails at year 2030, the interpolation of the traffic volumes between 2030 and 2040 and their assessments were not undertaken.

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