Traffix Group

Traffic Engineering Assessment

Potential Future Rezoning

Hampton Park Development Plan Review

Prepared for
Casey City Council

July 2022

G30560R-01D

Level 28, 459 Collins St
Melbourne Victoria 3000

T: 03 9822 2888
admin@traffixgroup.com.au

Traffix Group Pty Ltd
ABN: 32 100 481 570

traffixgroup.com.au

Document Control

Our Reference: G30560R-01C

Issue No.	Type	Date	Prepared By	Approved By
A	Draft	08/03/22	A. Mian	N. Woolcock
B	Draft – Comments Updated	19/04/22	A. Mian	N. Woolcock
C	Draft – Updated Scheme	05/07/22	A. Mian	N. Woolcock
D	Final – Updated Scheme	05/07/22	A. Mian	N. Woolcock

Table of Contents

List of Figures

List of Appendices

1. Introduction

1.1. Project Background

Council is currently considering appropriate land uses for land in the southern part of Hampton Park as part of further contemplation of the Hampton Park Development Plan (HPDP) area. Currently, the subject site, which is bound by residential areas to the north and east, South Gippsland Highway and Golf Club Road/Glasscocks Road to the south/southwest and Hallam Road to the west, accommodates the Hallam Road waste and resource recovery hub (known simply as 'the hub').

It is understood that the hub currently accommodates an operating landfill (which is to close between 2025 and 2030), a construction and demolition recycling facility, transfer stations, a concrete batching plant, nursery and garden supply stores and vacant land including a transmission powerline easement.

It is understood that a review of the above areas is to form the basis of a 'new' HPDP which is to include future land uses on the subject site such as public open spaces, future waste and resource recovery facilities and potential future employment in the form of 'light' commercial and 'light' industrial areas. It is further understood that this is to be an update to the previous HPDP Physical Framework Plan which predominantly identified large amounts of public open space within the hub area, in addition to small pockets of commercial and residential uses.

1.2. Purpose of this Report

Traffix Group has been engaged by Casey City Council to undertake a Traffic Engineering Assessment and to prepare a report for a review of the potential future new HPDP.

In particular, this report provides a detailed traffic engineering assessment of the potential higher order internal road layout and access arrangements and the likely impacts on the surrounding road network as a result of a potential future rezoning of the site.

2. Existing Conditions

2.1. Subject Site

The subject site comprises 'the hub' area which is bound by residential areas to the north and east, South Gippsland Highway and Golf Club Road/Glasscocks Road to the south/southwest and Hallam Road to the west.

A locality plan of the site is presented at Figure 1.

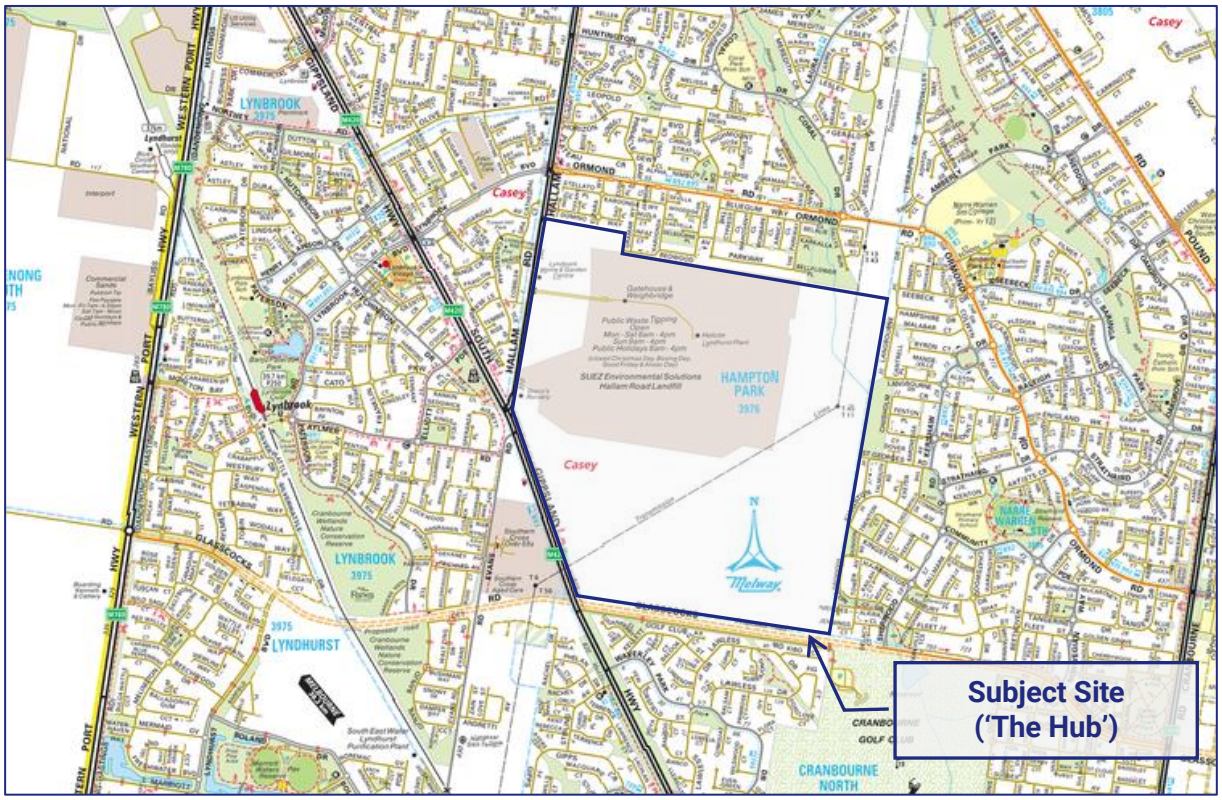


Figure 1: Locality Plan

It is noted that a significant portion of land within the site area accommodates overhead transmission powerlines. In particular, overhead transmission lines extend from the north along the eastern boundary of the hub area before deviating in a northeast-southwest direction through approximately the middle of the site. The transmission lines then extend over South Gippsland Highway, before extending to areas further to the south of the site.

2.2. Existing Site Vehicular Access

Vehicular access for the hub area is currently provided via numerous land parcels as follows:

- a left-in/left-out access via South Gippsland Highway approximately midway along the site's frontage, associated with the existing SUEZ Construction & Demolition plant,
- a left-in/left-out access via Hallam Road near its intersection with South Gippsland Highway associated with the nursery and garden supplies facility,
- a signalised T-intersection in the northern portion of the site which provides access for the SUEZ landfill and transfer station, and
- three left-in/left-out crossovers via Hallam Road near the site's northern boundary, associated with properties abutting the same road.

2.3. Current Land Zoning

The subject site includes a mixture of zones, including General Residential – Schedule 1 (GRZ1), Special Use – Schedule 1 (SUZ1) and Urban Floodway (UFZ), as shown in in the zoning map at Figure 2.

Surrounding land-uses are generally residential in nature.

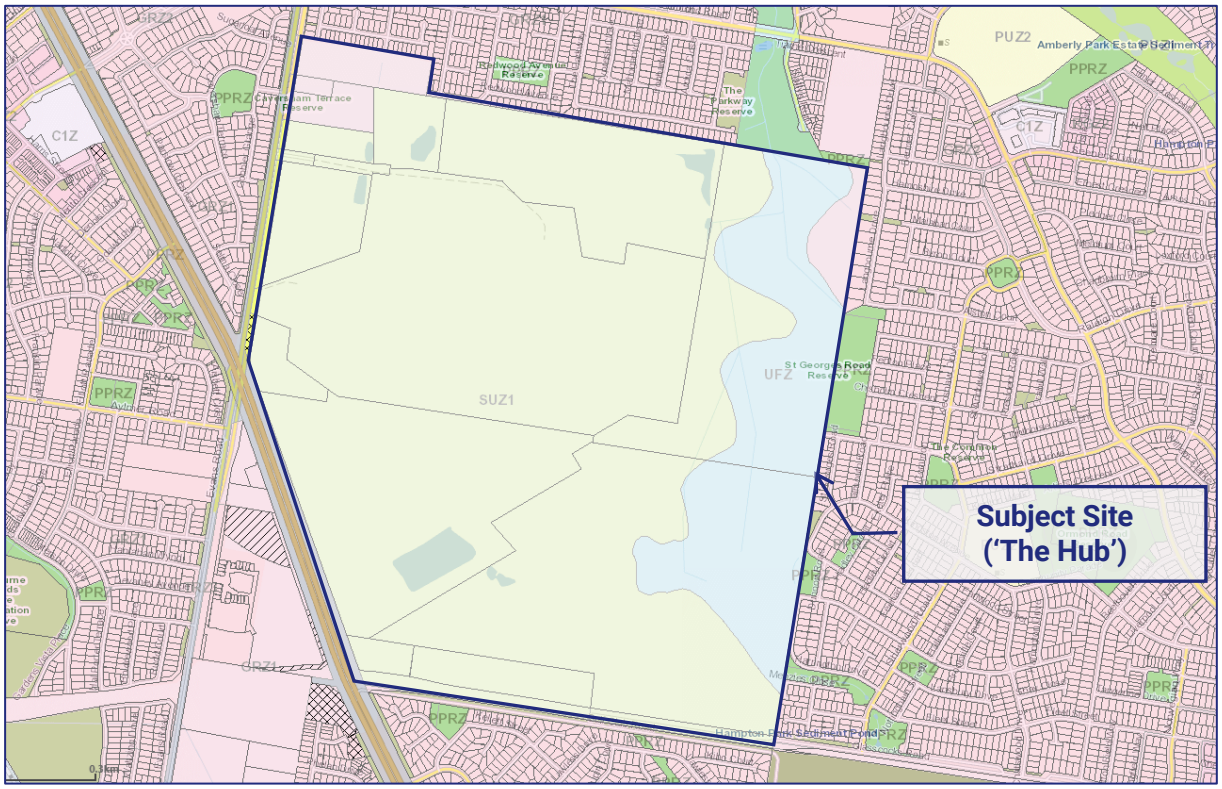


Figure 2: Land Use Zoning Map

2.4. Road Network

2.4.1. Existing Roads

Hallam Road is a VicRoads declared arterial road and is located within the Transport Zone 2 – Principal Road Network (TRZ2). In the vicinity of the site, Hallam Road generally provides for two lanes of traffic in each direction separated by a central median.

A signposted speed limit of 80km/h applies to Hallam Road in the vicinity of the subject site.

South Gippsland Highway is a VicRoads declared arterial road and is located within a Transport Zone 2 – Principal Road Network (TRZ2). In the vicinity of the site, South Gippsland Highway provides for two lanes of traffic in each direction separated by a central median.

A signposted speed limit of 80km/h applies to South Gippsland Highway in the vicinity of the subject site.

The **SUEZ Access Road** extends to the east from its signalised connection with Hallam Road and is primarily associated with access for the SUEZ landfill facility. The road generally provides for one lane for traffic in each direction, separated by a central median.

At the time of our most recent site inspection, **Glasscocks Road**, between its new future intersection with South Gippsland Highway, and its previous termination at Sherwood Road, was under construction. It is understood that this Glasscocks Road extension will provide for a 7.0m carriageway which is to provide for a single traffic lane in each direction.

Redwood Avenue is a local road that is aligned in a general east-west direction between a wire fence dead-end (to the west) and The Parkway (to the east). Redwood Avenue has a carriageway approximately 6.8m wide which accommodates a single lane for traffic when vehicles are parked on one side of the road. Alternatively, simultaneous two-way traffic would be possible where no parking occurs.

The default urban speed limit of 50km/h applies to Redwood Avenue.

A number of other local access roads immediately abut and/or terminate at the subject site along the north and east boundaries, i.e. Domino Way, Elpara Way, Kingston Avenue, etc.

2.4.2. Existing Intersections

The Hallam Road/Ormond Road/Lynbrook Boulevard signalised intersection is located a short distance to the north of the subject site. It accommodates two lanes each for through and right-turning traffic on its northern and southern legs. Its eastern and western legs accommodate one designated lane each for through and right-turning traffic in addition to a shared lane for through and right turn movements. All four legs have a designated left turn slip lane.

An aerial photograph of the intersection is shown at Figure 3.

Figure 3: Aerial Photograph of Hallam Road/Ormond Road/Lynbrook Boulevard Signalised Intersection

The Hallam Road/SUEZ Access Road signalised intersection is located near the northwestern portion of the hub area. It accommodates two lanes for through traffic and one lane for left turning traffic on its northern leg and two lanes for through traffic and one lane for right-turning traffic on its southern leg. Its eastern leg accommodates one right and left-turning lane, with its left-turn lane provided as a designated slip lane onto Hallam Road.

An aerial photograph of the intersection is shown at Figure 4.

Figure 4: Hallam Road/SUEZ Access Road Signalised Intersection

The South Gippsland Highway/Hallam Road/Evans Road signalised intersection is located at the southwest corner of the hub area. It accommodates three lanes for through traffic and one lane for right-turning traffic on its northern and southern legs. Its northwest and southeast legs accommodate three lanes for through traffic and two lanes for right turning traffic. Left-turn slip lanes are provided on each leg, noting that they are atypical due to the angle that adjacent legs intersect with each other.

A designated bus jump lane is also provided on the northwest and southeast legs.

An aerial photograph of the intersection is shown at Figure 5.

Figure 5: Aerial Photograph of South Gippsland Highway/Hallam Road/Evans Road Signalised Intersection

2.4.3. Future Intersections

The Glasscocks Road/South Gippsland Highway intersection is currently being constructed as a signalised T-intersection. Its northern leg will accommodate three lanes for through traffic and one lane for designated U-turn movements. Its southern leg will accommodate three lanes for through traffic and one lane for designated right-turn movements into Glasscocks Road. Its eastern leg will accommodate two lanes for right-turning traffic. Designated slip lanes will be provided on its northern and eastern legs.

2.5. Traffic Surveys

2.5.1. Traffic Volumes

Traffix Group undertook a combination of turning movement counts on Wednesday 1st December, 2021, from 7:00am to 9:00am, and 3:00pm to 6:30pm and/or sourced SCATS data for the same at the following locations:

- Hallam Road/Ormond Road/Lynbrook Boulevard signalised intersection,
- Hallam Road/SUEZ Access Road signalised intersection,
- South Gippsland Highway/Hallam Road/Evans Road signalised intersection, and
- South Gippsland Highway/SUEZ left-in/left-out intersection.

The results of the peak hours as determined by the turning movement counts are shown at Figure 6 to Figure 9. It is noted that, importantly, these surveys were undertaken outside of relevant Covid associated lockdown periods[1].

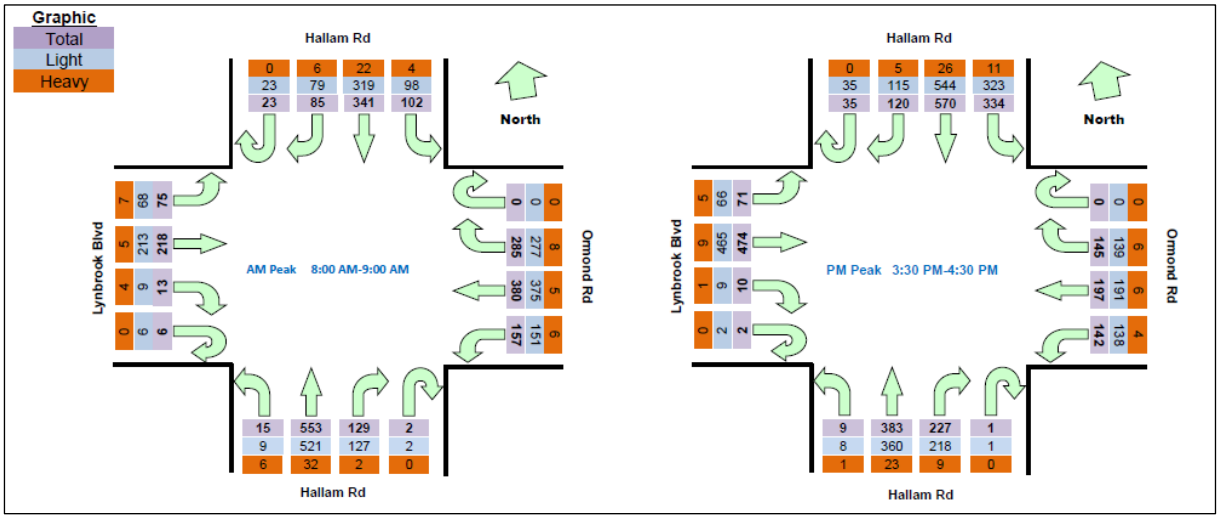


Figure 6: Turning Movement Volumes – Hallam Road/Ormond Road/Lynbrook Boulevard

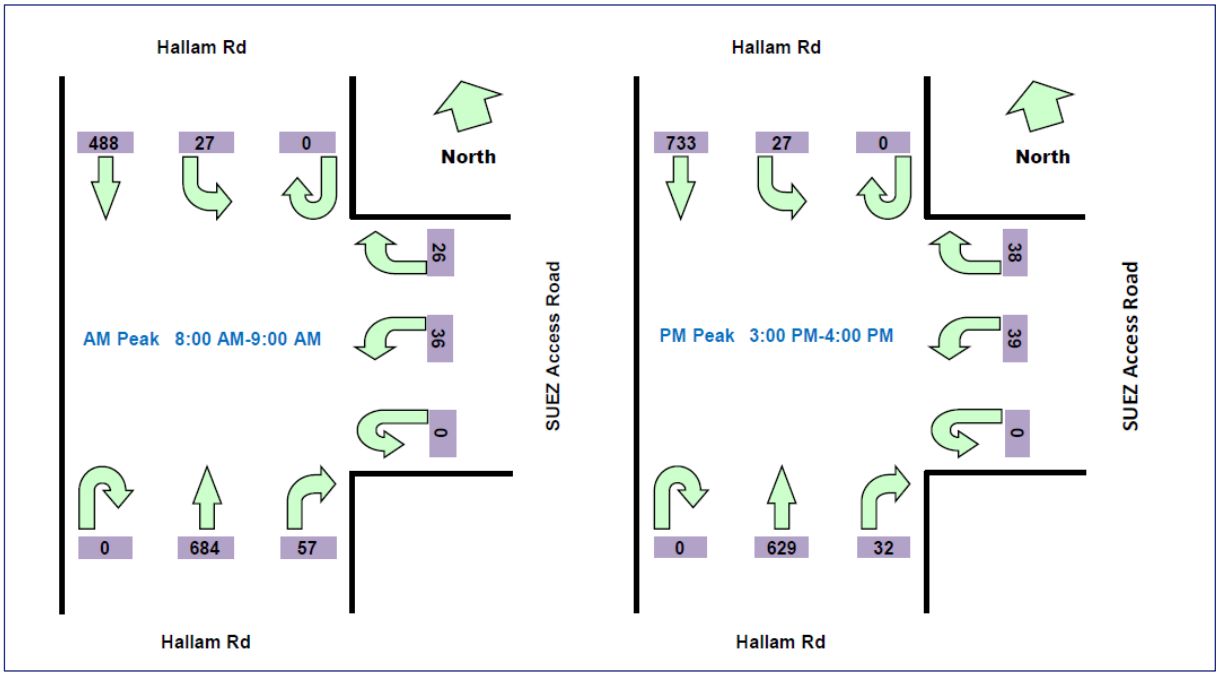


Figure 7: SCATS Turning Movement Volumes – Hallam Road/SUEZ Access Road

[1] It is also noted that for the Hallam Road/Ormond Road/Lynbrook Boulevard intersection, Sydney Coordinated Adaptive Traffic System (SCATS) data revealed that traffic volumes were approximately 18% higher during the day of the 2021 count when compared with a typical weekday in early December in 2019. Accordingly, it is considered that any Covid associated 'bias' for the intersections, which could have resulted in a reduction in traffic volumes, is not applicable.

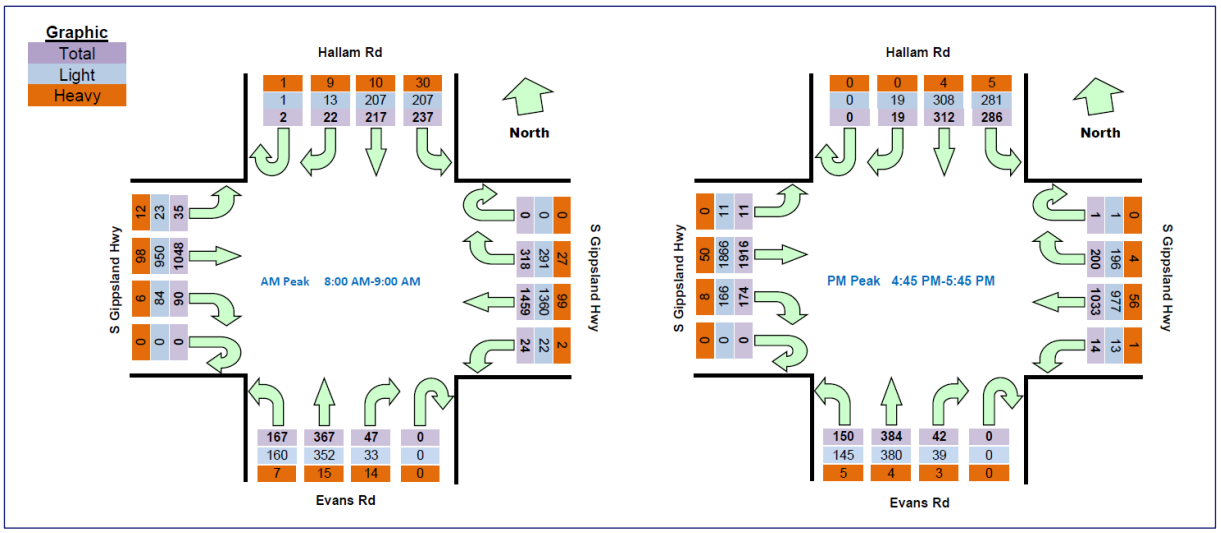


Figure 8: Turning Movement Volumes – South Gippsland Highway/Hallam Road/Evans Road

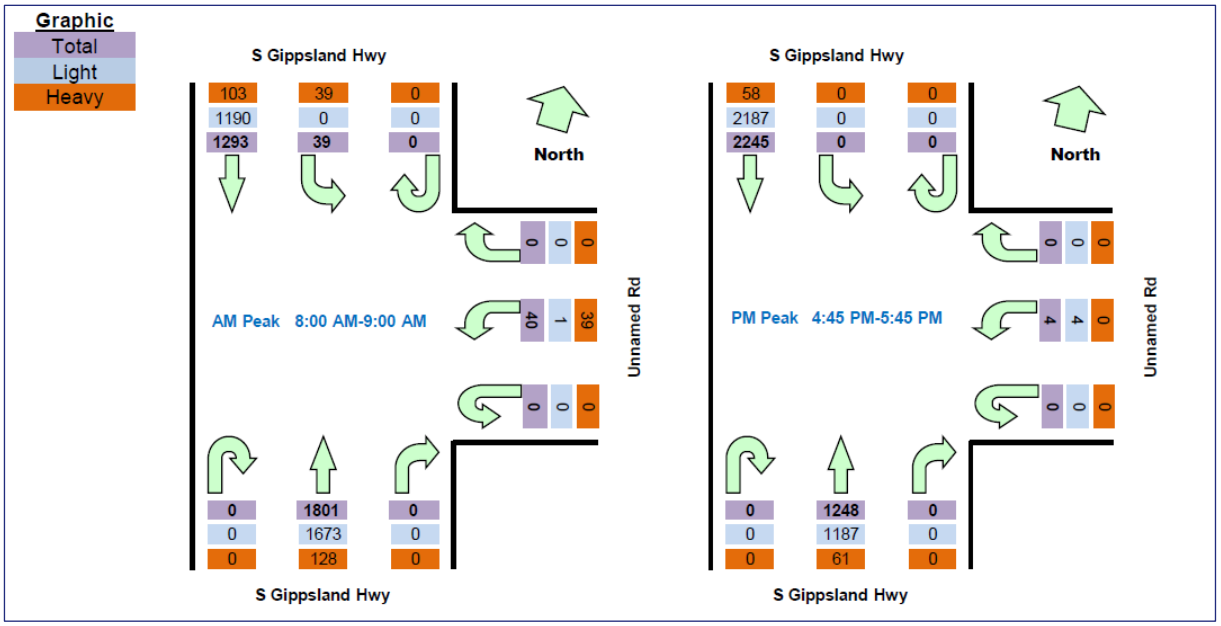


Figure 9: Turning Movement Volumes – South Gippsland Highway/SUEZ Left-in/Left-out

It is noted that, based on observations undertaken at the above intersections during the peak periods, and supported by the analysis as detailed later in this report, all intersections currently function well under acceptable operating conditions.

In particular, the SUEZ Access Road/Hallam Road intersection is currently significantly under its theoretical capacity. Accordingly, it is likely that signals to allow vehicles to enter/exit the eastern leg are likely only activated on an 'as needed' basis.

Furthermore, observations of the South Gippsland Highway and Ormond Road intersections with Hallam Road reveal that, as those intersections become more congested, cycle times for the same intersections generally trend upwards. Given that these intersections are

significantly under their theoretical capacities, it is noted that any additional traffic volumes at these intersections are likely to increase the cycle times at the same.

2.6. Public Transport

The following services operate in the vicinity of the subject site:

- **Bus Route 893** operates along South Gippsland Highway and provides a service between Cranbourne Park Shopping Centre and Dandenong Station. Bus stops are located at the Hallam Road/Evans Road/South Gippsland Highway intersection.
- **Bus Route 982** operates along Hallam Road and provides a service between Cranbourne Park Shopping Centre and Dandenong Railway Station. Bus stops are located at the Hallam Road/Evans Road/South Gippsland Highway intersection.
- **Bus Route 892** operates along Ormond Road and provides a service between Casey Central Shopping Centre and Dandenong Railway Station. Multiple bus stops are located along Ormond Road.
- **Bus Route 895** operates along Ormond Road and provides a service between Fountain Gate Shopping Centre and Narre Warren South P-12 College. Multiple bus stops are located along Ormond Road.

A public transport map of services available in the vicinity of the site is shown at Figure 10.

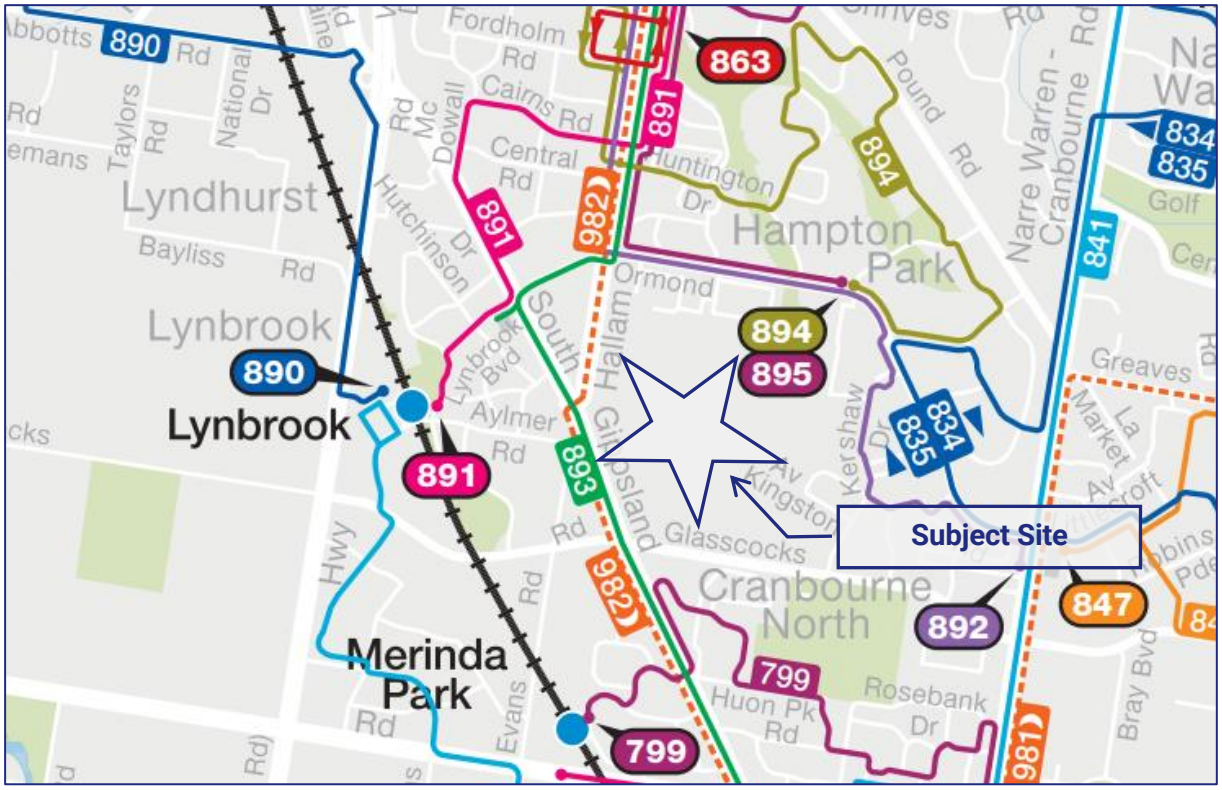


Figure 10: City of Casey Public Transport Map

2.7. Pedestrian and Cycle Paths

Shared paths are provided on both sides of Hallam Road between Ormond Road and South Gippsland Highway. Shared paths are also provided on both sides of South Gippsland Highway in the vicinity of the site, noting that the one located within the northeast verge adjacent to the subject site is gravel. A shared path has also been constructed along the north side of Glasscocks Road adjacent to much of the subject site and it is expected that this will be extended to the west to connect with South Gippsland Highway as part of the remaining work associated with the signalisation of Glasscocks Road and South Gippsland Highway. It appears as though the former Cranbourne Golf Course access road is now used by pedestrians and cyclists along the south side of the relevant section of Glasscocks Road.

Formal pedestrian crossings are provided at the existing and future signalised intersections discussed previously to ensure pedestrians and cyclists can cross safely.

Footpaths are provided on both sides of the majority of roads that abut the north and east boundaries of the subject site.

3. Hampton Park Development Plan Area

3.1. Requirements/Objectives

3.1.1. Future Land Uses

As mentioned previously, Council is undertaking a review of future uses that could be provided on the subject land. In particular, the following future land uses are being contemplated:

Public Open Spaces

A combination of active and passive open spaces is being contemplated. It is understood that delivery of active open spaces, which is likely to be within the northern portion of the site, will be in approximately 15 years. Delivery of the passive open spaces, located immediately to the south of the potential active spaces and on the existing landfill, is to be over a much longer timeframe due to the need for rehabilitation of the existing uses where possible.

It is expected that vehicle access for the public open spaces will be via the Hallam Road/SUEZ Private Road intersection.

Possible Future/Ongoing Waste and Resource Recovery

Existing waste and resource recovery facilities that are currently on the site are expected to be retained. Furthermore, the larger southern existing construction and demolition recycling facility may be expanding in the future.

Trucks are expected to continue to require access to these uses via existing access arrangements, i.e. the Hallam Road/SUEZ Private Road intersection and the left-in/left-out connection via South Gippsland Highway.

Future Employment (Potential Light Industrial and Commercial)

These uses are to form a large portion of the new HPDP, with some of these areas provided within the existing overhead powerline easement areas.

3.1.2. Road/Active Transport Network Objectives

The ultimate road and active transport network plan of the new HPDP should aim to achieve the following:

- Establish an integrated and sustainable transport network that maximises access to public transport and encourages walking and cycling to/from/within the area.
- Provide for convenient and direct access to the external road network, inclusive of a higher order north-south road link in the eastern portion of the site.
- Separation of traffic associated with commercial/industrial uses from active/open space and surrounding residential uses where possible.
- Provide for appropriate road cross-sections having consideration for all relevant future user groups that are envisaged.
- Establish a street network which reduces vehicle speeds and maximises pedestrian and cyclist safety.

3.2. Potential Parcel and Higher Order Road Network Plan

Based on the preceding requirements/objectives and in conjunction with Council, a potential parcel and higher order road network plan has been developed and is shown at Figure 11 following, noting that there is scope for some alternate connections subject to approval from relevant authorities as part of individual permit applications. For example, an all-movements interim access and/or left-in/left-out/right-in ultimate access via the site's eastern connection to Glasscocks Road.

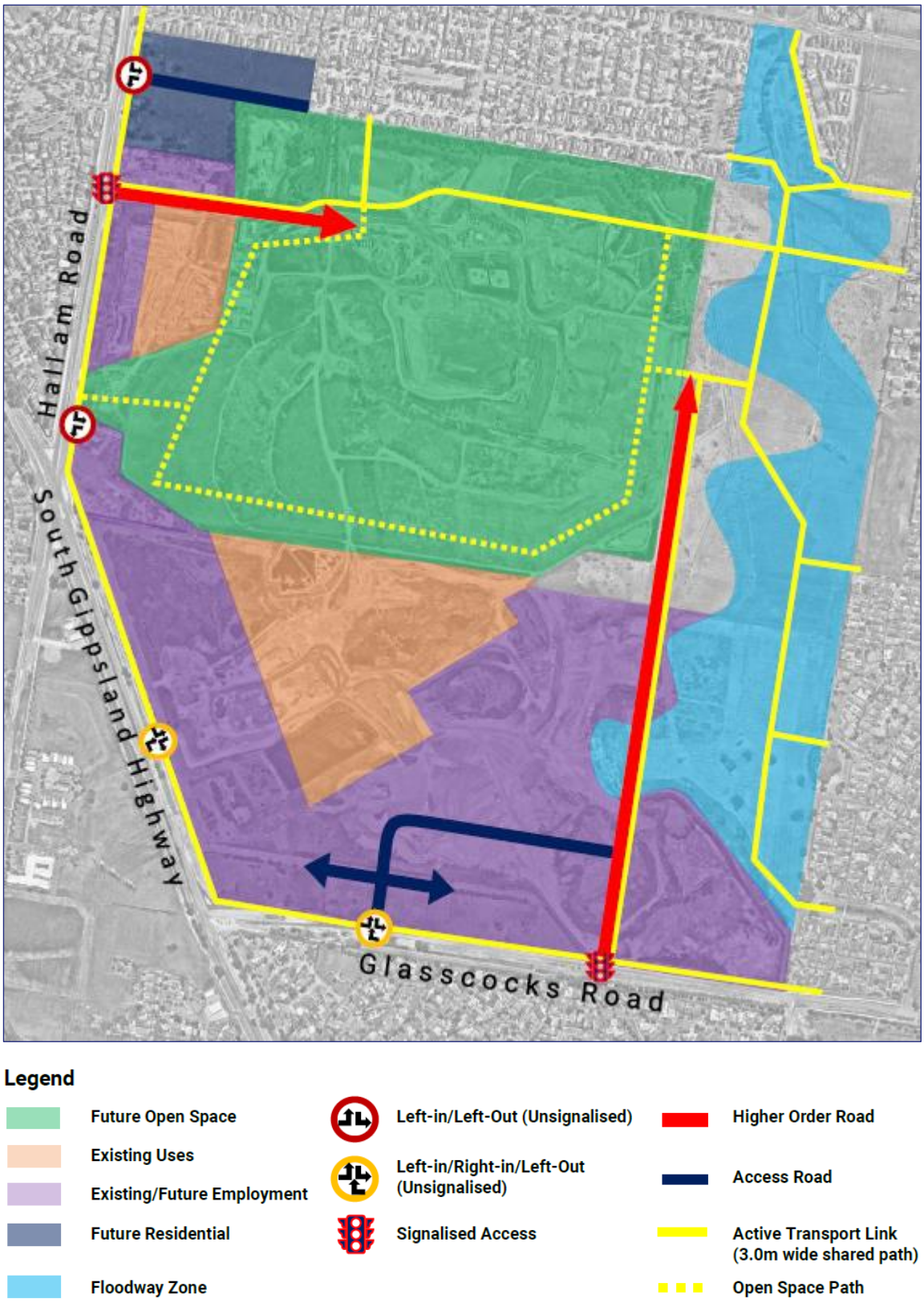


Figure 11: Parcel/Higher Order Road Network Map

The intended land uses identified in Figure 11 are shown at Table 1, noting that they have been split up into two areas, being the southern (#1) and northern (#2) areas of 'the hub', with the 'boundary' between the two being the southern extent of the future open space.

Associated approximate net developable area of the various land uses have also been included in Table 1, noting that these areas are based an earlier iteration of the development plan. It is noted that the most recent development plan contemplates a net developable area significantly less than what is identified at Table 1 and even included development within the triangular portion of land bounded by South Gippsland Highway, Evans Road and the future Glasscocks Road alignment. However, for the purposes of an extremely conservative assessment and analysis, the previous, much larger, developable areas have been used.

It is also noted that we have been informed that the 'future employment' uses could be 'light industrial'/'commercial' type uses. Accordingly, where referenced in this report, the light industrial/commercial type uses are to be interchangeable with 'future employment'.

Table 1: Intended Land Uses and Associated (Conservative) Net Areas

Area	Potential Land Uses	Net Developable Area (ha)
1	Light industrial/commercial	41.5
2	Existing Uses	50
	Future open space	84.5
	Light industrial/commercial	9

It is noted that the above areas are only intended to be connected via active transport path(s), i.e. no vehicular access is to be provided between each.

It is also noted that up to six potential active transport connections are identified with abutting land along the northern and eastern boundaries of the site. These connections are to facilitate access via active means of transport, i.e. walking or cycling.

4. Internal Traffic Matters

4.1. Road Cross-Sections

The Casey City Council adopts the Engineering Design and Construction Manual (EDCM) for new and growth areas within its locality. However, it is noted that the EDCM does not include specific cross-section examples and suggests that *"The standard cross section for various roads in new subdivisions shall be in accordance with the relevant PSP* [Precinct Structure Plan] *for the area"*.

Whilst the subject site is not subject to any specific PSP, typical Precinct Structure Plan cross-sections for associated land uses are discussed following.

4.1.1. Industrial Connector Street

As shown at Figure 11, a potential higher order road is identified in the eastern portion of the hub area. This road is likely to extend north from Glasscocks Road to the northern portion of the site and is to service the potential future light industrial/commercial areas.

This potential road could have a 25m wide road reservation which could accommodate a single lane for traffic in each direction, in addition to a parking bay on both sides of the road, a pedestrian path on one side of the road and a designated shared path on the other side of the road.

A cross-section for this potential street is presented at Figure 12.

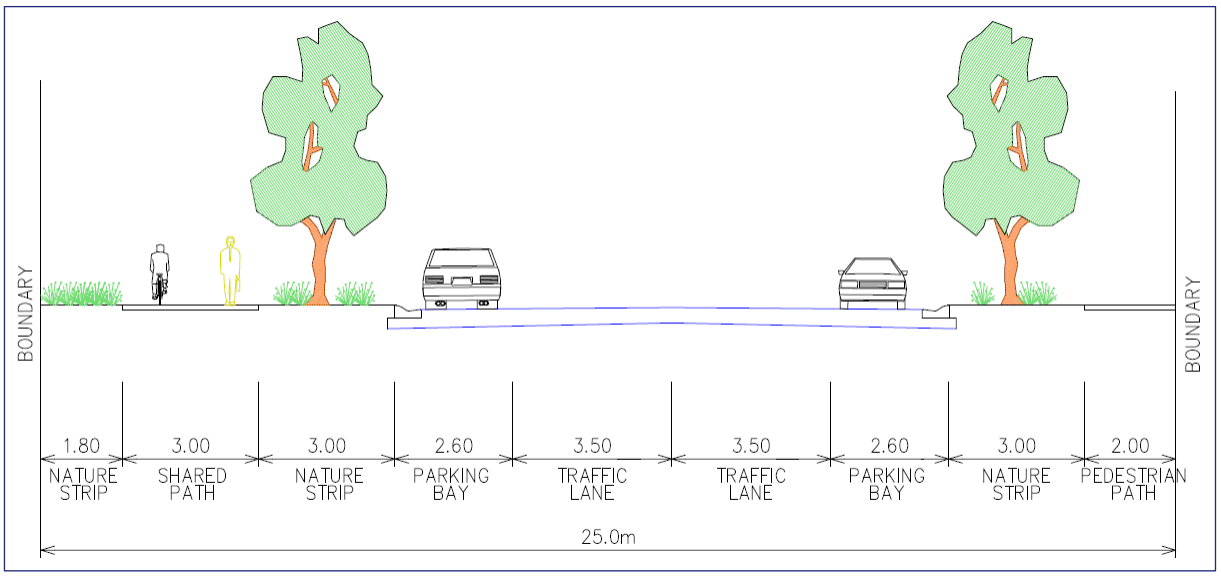


Figure 12: Industrial Connector Road Cross-Section (25m Wide)

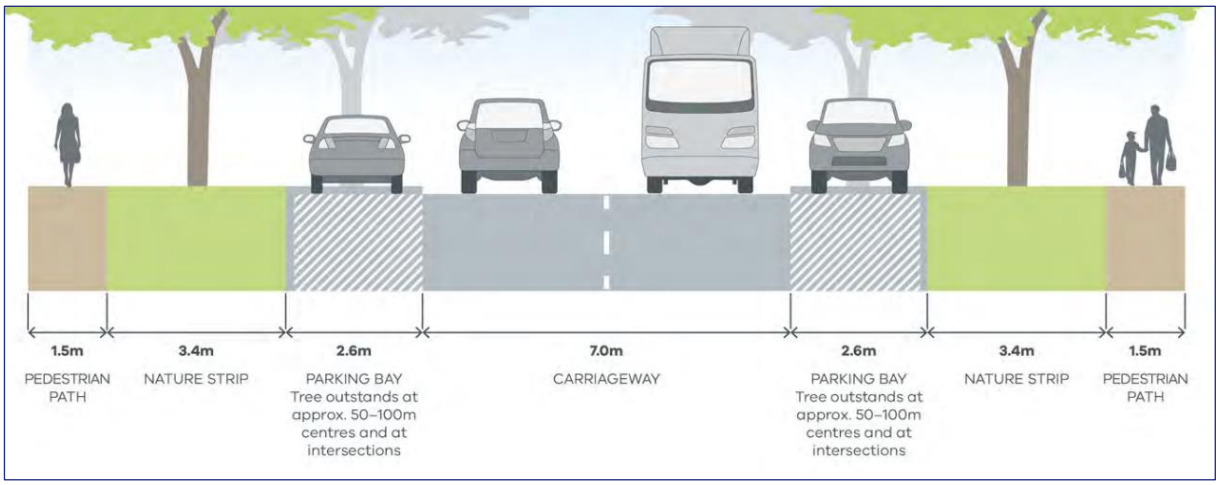
4.1.2. Industrial Local Access Street – Level 2

As also shown at Figure 11, a number of indicative lower order roads are identified within the potential new HPDP area.

Consistent with cross-sections for 'industrial local access street – level 2s' found in recent PSPs, these roads could have a 22m wide road reservation which could accommodate a single lane for traffic in each direction and a parking lane and pedestrian path[2] on both sides of the road.

A cross-section for this street as found in recent PSPs is presented at Figure 13.

[2] A shared path could instead be provided on one side of the road with a footpath provided on the other side.



Source: Shenstone Park PSP

Figure 13: Typical PSP Industrial Local Access Street – Level 2 Cross-Section (22m Wide)

4.1.3. Open Space Road

The ultimate alignment of open space roads would be subject to separate future development and will generally depend on the location of associated facilities. However, it is noted that these roads should accommodate, at a minimum, a single lane for traffic in each direction.

Depending on the specific requirements for open spaces that abut these roads, these roads could accommodate formal, informal or no parking lanes as needed. Footpaths and/or shared paths for these roads can be accommodated within abutting open space.

It is reiterated that these roads should not provide for any type of vehicular connection to the future industrial/commercial land uses that could potentially abut the eastern boundary of the hub area to ensure adequate separation of traffic between open space and commercial uses.

4.2. Road Capacities

The EDCM suggests that roads similar to the ones potentially required within the development plan area should have the following target volumes:

- Connector Street: 3,000 – 7,000 vehicles per day (vpd)
- Access Street – Level 2: 2,000 – 3,000 vpd

We are satisfied that the potential roads identified in Figure 11 would generally accord with the traffic volumes suggested by the EDCM.

4.3. Parking Provision

On-street parking should be provided via designated parking lanes along both sides of the potential future industrial streets, consistent with the relevant typical PSP road cross-sections identified previously.

As mentioned previously, depending on the specific requirements for open spaces, roads that abut these spaces could accommodate formal, informal no parking lanes as needed.

The identified provision of on-street parking is consistent with good current traffic engineering practice and is considered by Traffix Group to be an appropriate outcome for potential future development of the subject site.

On-site car parking for future development uses, including open space uses, should be provided at the rates specified within Clause 52.06 of the Planning Scheme, noting that an application can be made to have the statutory requirements reduced (including to zero) subject to appropriate justification being presented. Detailed parking assessments must be provided at the town planning stage with which on-street parking may be considered to assist with any necessary parking dispensation where appropriate.

4.4. Access for Service and Emergency Vehicles

All carriageway widths discussed earlier will adequately facilitate relevant service and emergency vehicles and are consistent with the typical CFA requirements.

Any future temporary or permanent dead-end roads longer than 60m should be provided with an appropriate turning treatment, such as a courtbowl, hammerhead or battleaxe treatment in accordance with the typical CFA and relevant Council waste collection requirements.

4.5. Pedestrian and Cycling Access

Formal footpaths and bicycle provisions can be provided in accordance with good common practice and consistent with the requirements of the Planning Scheme. This includes the ability to provide 1.5m (minimum) wide footpaths on both sides of potential future internal roads (except for roads that may have lots on one side of the road only) and a formal 3m wide path can also be provided along the potential connector street.

Cycling and pedestrian provisions will also be included within the potential future open spaces.

Cyclists will share the carriageway with other vehicles within the future local access streets.

As identified at Figure 11, up to six 'potential active transport' connections are identified with abutting land to the north and east, in addition to one internal connection at the interface of the open space and potential future employment area within the eastern portion of the site. The intent for these connections is to provide good active transport, i.e. walking/running/cycling, access with abutting land and will encourage transport to/from/within the site by these travel modes.

The above discussed provisions will provide for connections with adjacent land and roads at a level that is consistent with the objectives of the Casey Planning Scheme and good current practice and will be appropriate to serve future development on the subject site.

4.6. Traffic Control

Any internal T-intersections within the site should be appropriately staggered in accordance with good current practice, i.e. typically a minimum of 20m (centre to centre), and potential cross-intersections should be appropriately controlled.

It is desirable for street blocks to be no more than approximately 240m long in order to ensure a safe, permeable and low speed environment. Having said this, it is not uncommon or inappropriate for higher order roads to be in the order of 500m long between speed devices, particularly if they form part of a bus route(s).

Accordingly, any future detailed layout for the site should have due consideration for the same in order to ensure that appropriate speed control can be achieved throughout the site. We are satisfied that any requirement for speed control could be addressed with Council's Traffic Engineering Department if required as part of any future subdivision application.

4.7. Public Transport Considerations

As discussed previously, the site is serviced by a limited number of public transport services along the site boundaries. The nearest public transport services operate along South Gippsland Highway (that runs between both portions of the subject site), Ormond Road (to the north of the site) and Hallam Road (to the west of the site, albeit limited).

The construction of Glasscocks Road along southern boundary of the subject site, and the fairly recent grade separation of Evans Road and the Cranbourne Railway line to the south of the subject site which has included the reopening of Evans Road to provide a continuous north-south route, means that there is opportunity for future bus services along these significant roads adjacent/nearby to the subject site.

Furthermore, the 3.5m wide traffic lanes identified for the majority of potential roads within the site means that they would also be consistent with current bus route requirements and we see no reason why a future bus route(s) could not be provided within parts of the site if required.

5. External Traffic Considerations

5.1. Location of Potential Higher Order Road Connections

It is noted that the location of potential higher order road connections identified in this document are to be subject to future detailed assessments in order to inform of specific intersection layouts and to ensure that left/right-turn lanes can be accommodated in accordance with relevant AustRoads Guides. Accordingly, the ultimate location for these intersections are subject to change, noting that, as mentioned previously, there is scope for some alternate connections subject to approval from relevant authorities as part of individual permit applications.

It is also noted that, where relevant, existing intersections have been attempted to be retained, e.g. the existing SUEZ Access Road/Hallam Road intersection.

The rationale behind the identified site connections is described following.

5.1.1. Area 1/Glasscocks Road

The two site connections identified are generally located fairly evenly between the eastern extent of the subject site and the Glasscocks Road/South Gippsland Highway future intersection and the locations are considered to provide for the most convenient access to where future development within the subject site could be located.

The western, unsignalised connection is to be located at least approximately 300m to the east of the future South Gippsland Highway intersection mentioned above which is considered sufficient to accommodate any turn lanes without having an impact on the same intersection. It is considered appropriate to accommodate right-out access for this intersection in the interim (i.e. prior to Glasscocks Road's ultimate duplication), noting that right-out access in the ultimate will be able to be controlled via the signalised intersection.

The eastern, signalised intersection is to be located relatively central to where development along the eastern portion of area 1 is to be located. Furthermore, its indicative distance is approximately 370m to the west of Golf Club Road which is sufficient to accommodate appropriate turn lanes.

The distance between the two connections is also a similar distance and is considered appropriate to accommodate turn lanes without unreasonably detrimentally affecting each site connection.

5.1.2. Area 2

The existing left-in/left-out access point associated with the plant nursery is to be retained.

As mentioned previously, the SUEZ Access Road/Hallam Road signalised intersection could be retained to service future development at the site.

A left-in/left-out connection has been identified at approximately at the middle of the frontage of the light industrial/commercial area, noting that this ensures that direct access to/from this area can be provided via a left-turn lane in accordance with relevant guidelines/standards. The existing signalised intersection to the south importantly ensures that any right turning movements can be appropriately controlled.

A left-in/right-in/left-out connection is identified to South Gippsland Highway noting that it is located approximately midway along the area's frontage and its location would provide ideal access for the majority of the developable area. It also has the benefit of being located at the existing left-in/left-out access to the existing construction and demolition recycling facility which could largely be retained. However, it is noted that its ultimate location could even be relocated along South Gippsland Highway depending on a future detailed assessment (when also having consideration for its proximity to the South Gippsland Highway/Hallam Road/Evans Road and Glasscocks Road/South Gippsland Highway signalised intersections) and the ultimate location of development fronting South Gippsland Highway.

5.2. Traffic Generation

5.2.1. Future Employment

The RTA Guide to Traffic Generating Developments (2002) (RTA Guide) sets out traffic generation rates based on survey data collected in New South Wales for a range of land uses. This guide is used by the Department of Transport (DoT) and is generally regarded as the standard for metropolitan development characteristics.

As mentioned earlier, we have been informed that the future employment is likely to comprise 'light industrial/commercial' uses. It is noted that the RTA Guide includes a range of traffic generation rates for industrial uses. Traffix Group's experience with similar rezoning or Development Plan proposals for large sites suggests that the following rates should be applied:

- *Daily vehicle trips = 4 per 100m^2 gross floor area, and*
- *Morning peak hour vehicle trips = 0.50 per 100m^2 gross floor area.*

It is noted that the areas of light industrial/commercial uses detailed at Table 1 are net areas. Our experience suggests that internal roads and other non-industrial/commercial uses within the large parcels of land will account for approximately 15% of the total area. Our experience also suggests that approximately 40% of the site area will be occupied by buildings after allowing for access, car parking, landscaping, setbacks, etc. The RTA Guide does not have a rate for PM peak hour vehicle generation, however for the purposes of a conservative assessment, it is assumed that it is identical to the AM peak hour generation.

Table 2 identifies the approximate potential floor areas and traffic generation figures associated with the potential future light industrial/commercial uses on the site, noting that, as mentioned previously, these traffic generation figures are based on a much larger development area and are therefore considered to be extremely conservative in nature[3].

Table 2: Light Industrial/Commercial Traffic Generation

Area	Potential Floor Area	Daily Traffic Generation	AM/PM Peak Hour Volume
1	140,600m^2	5,625 vte/day	703 vte/hr
2	30,800m^2	1,230 vte/day	154 vte/hr

5.2.2. Existing Uses

It is noted that the traffic generated by the existing uses on the site would have been captured as part of the traffic counts and SCATS data detailed previously in this report.

[3] As mentioned earlier, a previous iteration of the development plan identified development within the triangular portion of land bounded by South Gippsland Highway, Evans Road, and the future Glasscocks Road alignment. The traffic generated by this land was anticipated to be slightly more than 100 vte/hr and has continued to be used in the following assessments and analysis. Accordingly, this is again extremely conservative in nature.

As mentioned previously, the larger southern existing construction and demolition recycling facility, accessed directly via South Gippsland Highway, may be expanding in the future. It is expected that any expansion to the existing facility(ies) on the site are unlikely to significantly increase the traffic generated to/from the site, with the more likely scenario being that, if any, heavy vehicle movements may increase slightly as a result of any expansion(s).

In any case, any expansion(s) associated traffic is likely to be captured in the significantly conservative traffic growth assumptions detailed following.

5.2.3. Open Space

The future active and passive open spaces within the site are to be accessed only via the existing signalised Hallam Road/SUEZ Access Road. It is noted that active open spaces typically do not peak (or generate much traffic) during the commuter peak periods and so the traffic to/from the identified area is not predicted to generate much, if any, traffic during those same times.

It is noted that the employment area and future residential located at the northwest of the site is to have two higher order road connections, i.e. via a left-in/left-out and the SUEZ Access Road signalised intersection. In order to account for any (small) traffic that could be generated to/from the open space, it has been assumed that all traffic generated by the northwest area is to access the site directly via the SUEZ Access Road intersection only, noting that this is considered to be very conservative based on the preceding[4]. It is noted that it could be considered conservative again given that traffic growth, as described following, is likely to account for any (small) traffic generated by the open space.

5.2.4. Growth in Existing Traffic Volumes

For the purposes of the following assessment, growth in traffic volumes of 2% per annum for 10 years has been adopted, i.e. a total of 20% growth by the year 2032.

It is noted that this is considered extremely conservative, particularly given that the traffic generated by the future development of the site as proposed is expected to be part of the growth anticipated for the intersections in question.

Furthermore, this assessment is considered conservative again given our expectation that any growth that could reasonably be applied to the intersections in question should be applied to the through movements (i.e. through volumes along South Gippsland Highway and Hallam Road/Evans Road). This is particularly the case given that the surrounding area has largely been 'built out' and therefore turning volumes are less likely to 'grow' when compared with through volumes.

[4] It is noted that the 'future residential' at the northwest corner of the site was identified as 'future employment' in a previous iteration of Figure 11 and, as such, the assessments and analysis undertaken in this report were based on the same. However, a high level assessment reveals that the area that is now nominated as future residential is predicted to generate traffic at a slightly lower rate when compared with if the same area was light industrial/commercial. Accordingly, it is noted that the following assessments and analysis is again considered conservative in nature.

5.3. Traffic Distribution

5.3.1. Distribution To/From Intersections

Area 1

Approximately half of the developable land is located each within the eastern and western portions of the area. Accordingly, traffic distributed to/from the two Glasscocks Road connections is predicted to be split fairly evenly (with the exception of right-out movements which will need to be exclusively undertaken via the signalised connection in the ultimate).

Area 2

As discussed previously, for the purposes of a conservative assessment, all traffic associated with this area is predicted to be distributed to/from the signalised SUEZ Access Road intersection.

5.3.2. High Level Distribution

Having consideration for the site in context of the wider area, i.e. South Gippsland Highway running in a northwest-southeast orientation, Monash Freeway to the north, surrounding residential areas, Mornington Peninsula to the south, etc., and the type of uses envisaged on the site, it is predicted that traffic would be distributed to/from the site reasonably evenly via all directions. Accordingly, for the purposes of the following assessment, it has been assumed that traffic is distributed to/from all directions equally.

For example, traffic exiting the site via the potential Glasscocks Road signalised intersection would be distributed equally to the east and west. In turn, at the South Gippsland Highway/Glasscocks Road intersection, traffic would again be distributed equally to the north and south, and then dispersed to the external roads and intersections in a similar manner at other intersections.

It is also noted that the following traffic splits have been assumed in the following analysis:

- AM - 75% 'in' / 25% 'out'
- PM - 25% 'in' / 75% 'out'

5.4. Intersection Analysis/Likely Configurations

Based on the preceding assumptions, traffic predicted to be generated at each intersection post-potential development is provided at Appendix A[5].

5.4.1. Ormond Road/Hallam Road, SUEZ Access Road/Hallam Road & South Gippsland Highway/Hallam Road/Evans Road SIDRA Analysis

SIDRA Intersection 9.0 Network is a computer simulation package which assesses the operating performance of intersections.

[5] Given that Glasscocks Road, including at its intersection with South Gippsland Highway, is currently under construction past its intersection with Golf Club Road, through traffic volumes along it cannot be measured. Accordingly, only volumes predicted to be generated by the subject site are shown for the Glasscocks Road connections.

A key summary of the key output is as follows:

- **Degree of Saturation (DoS)** – The ratio of traffic volume to maximum capacity for a particular turning movement.
- **Average Delay (Avg. Delay)** – The average delay in seconds for a vehicle making a particular movement.
- **95th Percentile Queue (95% Queue)** – The length in metres which 95 per cent of all observed cycle queues fall below (or 5% exceed) during the relevant analysis period.

We have undertaken analysis for each of the signalised intersections along Hallam Road in the vicinity of the site for the two following scenarios:

- existing traffic volumes plus 10 years traffic growth, and
- post-development, which includes 10 years traffic growth over existing volumes plus full-build out of the subject site.

A summary of the analysis output is presented in the following tables[6]. Full SIDRA Intersection 9.0 Network output is provided at Appendix B.

Table 3: Hallam Road/Ormond Road/Lynbrook Boulevard SIDRA Results Summary

	Existing (with Growth)			Post Development		
	DoS	Avg. Delay(s)	95% Queue(m)	DoS	Avg. Delay(s)	95% Queue(m)
AM Peak Hour						
Hallam Road – south	0.62	43	129	0.63	44	130
Ormond Road – east	0.63	39	110	0.62	39	112
Hallam Road – north	0.38	36	73	0.46	37	88
Lynbrook Boulevard – west	0.61	42	74	0.61	43	74
PM Peak Hour						
Hallam Road – south	0.72	47	88	0.76	47	97
Ormond Road – east	0.72	47	65	0.73	47	66
Hallam Road – north	0.74	38	144	0.76	38	158
Lynbrook Boulevard – west	0.74	37	156	0.77	39	160

[6] It is noted that cycle times adopted in the SIDRA analysis are based on observations and/or Intersection Diagnostic Monitor (IDM) data provided by DoT. In particular, the cycle times adopted for the South Gippsland Highway and Ormond Road intersections with Hallam Road during both peak hours are at the upper range of the PM peak period observed/recorded cycle times. This is considered appropriate given that, as those intersections become more congested, cycle times are likely to be even higher than those adopted. Accordingly, the analysis is considered conservative in nature.

Table 4: Hallam Road/SUEZ Access Road SIDRA Results Summary

	Existing (with Growth)			Post Development		
	DoS	Avg. Delay(s)	95% Queue(m)	DoS	Avg. Delay(s)	95% Queue(m)
AM Peak Hour						
Hallam Road – south	0.33	8	49	0.33	8	49
SUEZ Access Road – east	0.12	21	9	0.27	28	20
Hallam Road – north	0.33	13	55	0.33	13	55
PM Peak Hour						
Hallam Road – south	0.34	7	46	0.45	10	55
SUEZ Access Road – east	0.18	25	14	0.46	34	50
Hallam Road – north	0.42	11	82	0.47	15	96

Table 5: South Gippsland Highway/Hallam Road/Evans Road SIDRA Results Summary

	Existing (with Growth)			Post Development		
	DoS	Avg. Delay(s)	95% Queue(m)	DoS	Avg. Delay(s)	95% Queue(m)
AM Peak Hour						
South Gippsland Highway – northwest	0.58	34	157	0.60	34	168
South Gippsland Highway – southeast	0.58	24	144	0.59	23	137
Hallam Road – north	0.34	38	64	0.47	38	104
Evans Road – south	0.57	52	86	0.62	53	87
PM Peak Hour						
South Gippsland Highway – northwest	0.77	22	253	0.83	27	306
South Gippsland Highway – southeast	0.74	27	98	0.84	28	100
Hallam Road – north	0.62	55	144	0.77	62	168
Evans Road – south	0.75	59	98	0.85	64	105

As shown in the preceding tables, the scenario with potential development of the subject site results in generally minor increases to the average delays and 95th percentile queues for the three signalised Hallam Road intersections when compared with the 10-year traffic growth on existing volumes scenario.

Based on the preceding, not only will the three signalised Hallam Road intersections easily be able to accommodate 10-year growth in existing traffic volumes, but they will also easily be able to accommodate traffic that could be generated by the site without any unreasonable detrimental impacts to the safety and capacity of the same intersections. It is further noted that, as discussed previously, the assumptions adopted to analyse the intersections and the developable areas used in this analysis are considered extremely conservative in nature.

Accordingly, we are satisfied that no mitigating works would need to be undertaken for these three signalised intersections as a result of potential development of the subject site.

5.4.2. Glasscocks Road Signalised Intersections

As previously discussed in Section 5.4, Glasscocks Road does not yet carry any traffic past its intersection with Golf Club Road. Accordingly, SIDRA analyses for the Glasscocks Road/South Gippsland Highway and signalised site access/Glasscocks Road intersections have not been undertaken. Nevertheless, the VicRoads (now DoT) Guidance for Planning Road Networks in Growth Areas working document and the Benchmark Infrastructure Report prepared by Cardno (for the Victorian Planning Authority (VPA)) provides some guidance with regards to the expected configuration of the site's intersection with Glasscocks Road, noting that its ultimate layout will be subject to future detailed assessments.

Potential configurations for the site's Glasscocks Road connection as exhibited in the above two documents are shown at Figure 14, Figure 15 and Figure 16.

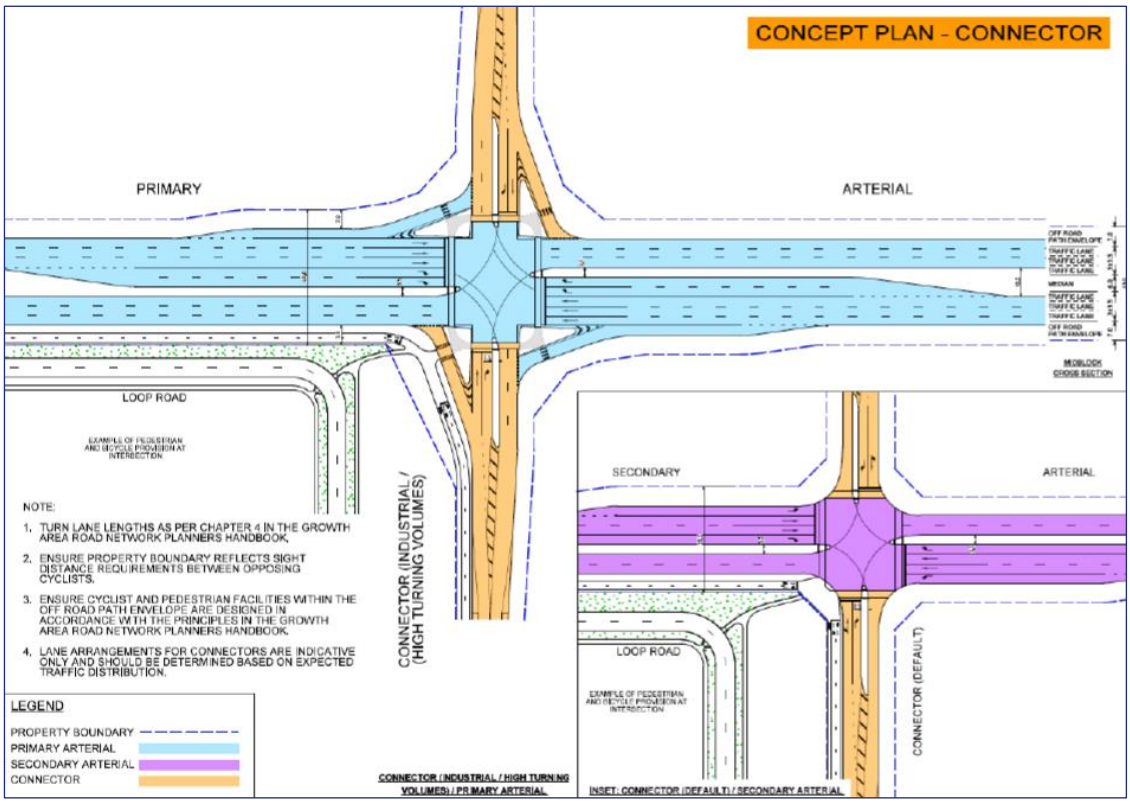


Figure 14: Guidance for Planning Road Networks in Growth Areas - Connector Road Intersection Layouts

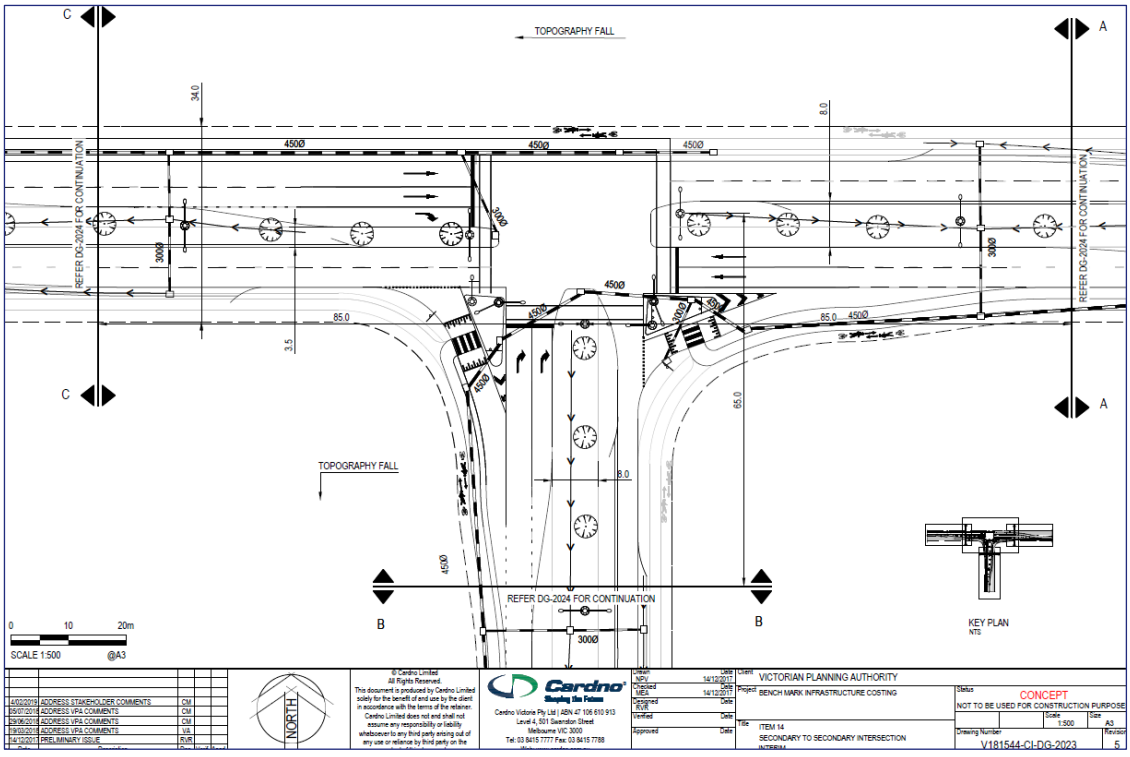


Figure 15: VPA Benchmark Infrastructure Report – Secondary to Secondary Intersection Layout

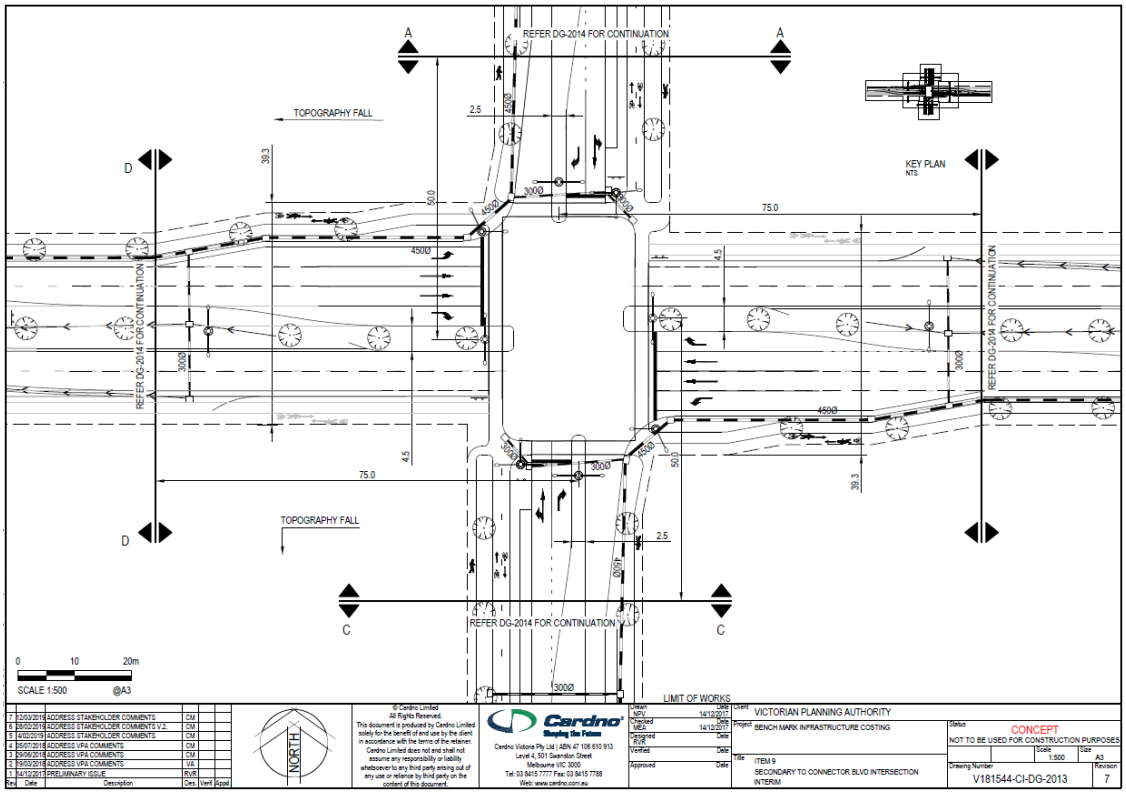


Figure 16: VPA Benchmark Infrastructure Report – Secondary to Connector Boulevard Intersection Layout

It is noted that the ultimate configuration of the Glasscocks Road signalised site connection is likely to be a 'mix' of Figure 15 and Figure 16 shown above. In particular, the site's connection is likely to have slip lanes on both its western and northern legs in order to facilitate truck turning movements as is typically the case for industrial estate intersections. This could be provided similar to what is shown at Figure 15[7], i.e. slip lanes shown in the same figure are likely to be provided on the southern leg (connector road) of the configuration of Figure 16.

This is further reiterated by commentary provided within Figure 14. In particular, that figure, for the primary arterial/connector road layout, suggests that slip lanes should be provided for 'industrial' or 'high turning' volume intersections, noting that the potential Glasscocks Road site connection is to provide access for industrial uses. Accordingly, it is apparent that slip lanes are likely to be required for such an intersection.

As mentioned previously, the Glasscocks Road/South Gippsland Highway intersection is currently under construction. It is considered that this intersection is likely to adequately accommodate traffic that could be generated by the subject site, particularly given that Glasscocks Road is intended to continue to the west past its intersection with South Gippsland Highway in the future. Nevertheless, detailed assessments/analysis should be undertaken at a future date to confirm the adequacy of the intersection.

[7] Whilst the southern leg of Figure 15 is identified as a secondary arterial road and the potential site connection is likely to be no more than a connector road, for the purposes of demonstrating the likely intersection arrangement it is considered appropriate to reference this figure.

5.5. Other Intersections

It is noted that other intersections outlined in the potential parcel/higher order road network map at Figure 11 are a mixture of potential unsignalised intersections or existing left-in/left-out connections.

Traffix Group is satisfied that the existing left-in/left-out connections will continue to operate at an acceptable level upon potential development of the subject site.

The remaining potential intersections are unsignalised left-in/left-out or left-in/right-in/left-out connections. It is considered that the identified connections will be adequate to accommodate the traffic that could be generated by future development of the subject site, noting that the ultimate location and movements permitted for these intersections are to be subject to future detailed assessment(s).

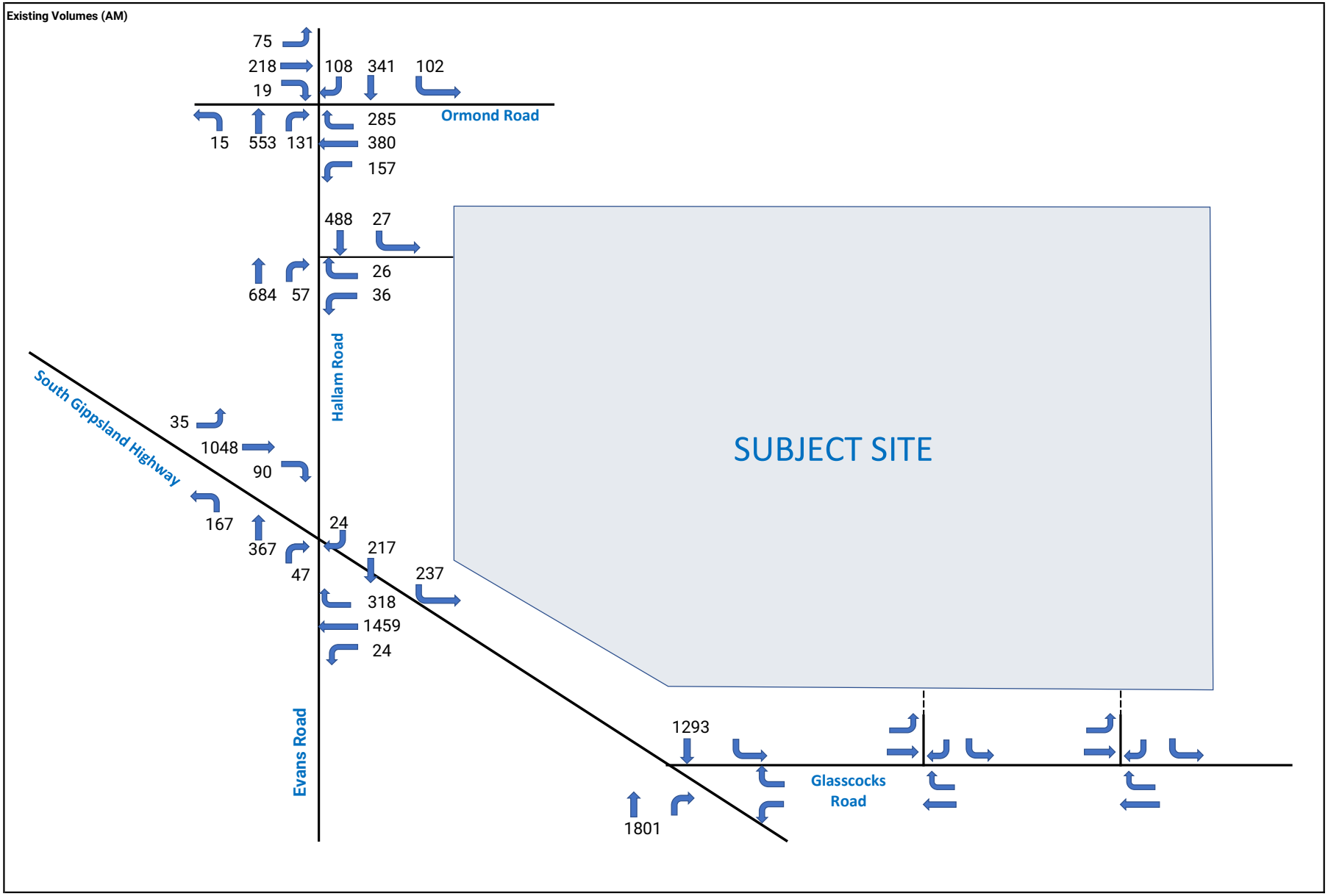
6. Conclusions

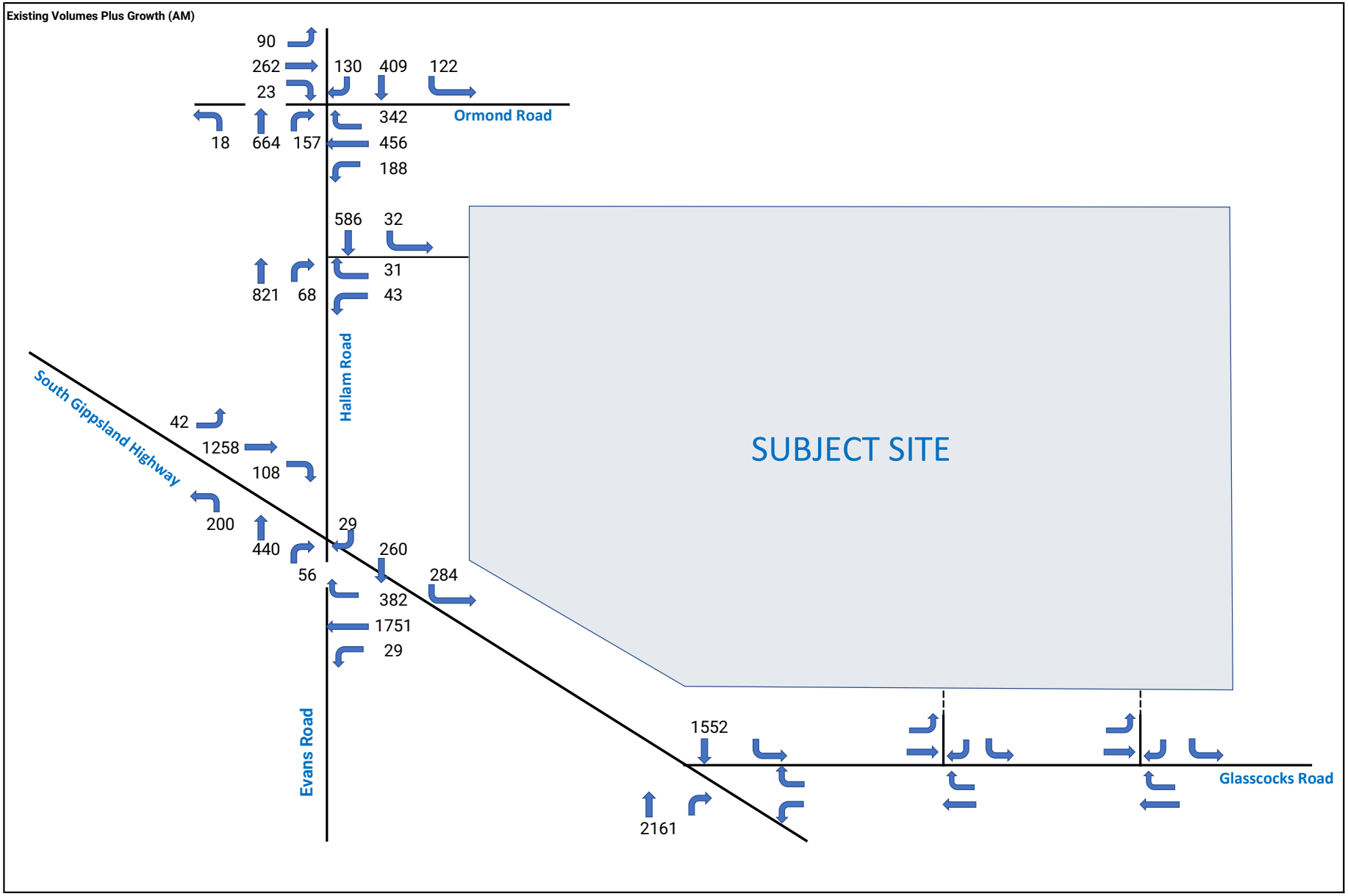
Having visited the site and its surrounds, undertaken traffic surveys, perused relevant documents and plans, prepared a potential higher order road network and parcel plan, undertaken detailed intersection analysis and undertaken other investigations and assessments, we are of the opinion that:

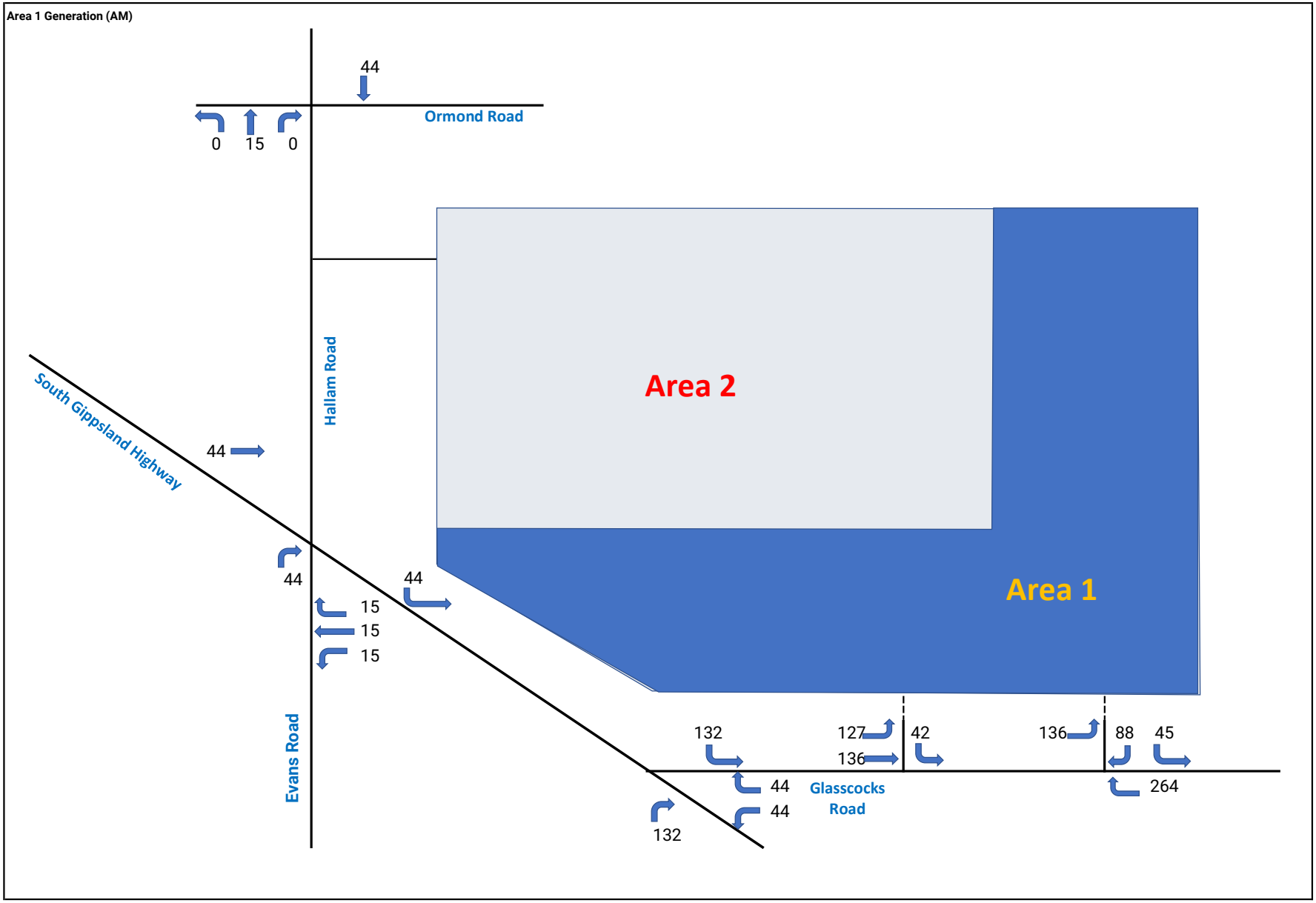
- public open spaces, possible future/ongoing waste and resource recovery and potential future employment uses are contemplated on the subject land.
- the ultimate road and active transport network plan of the new HPDP should aim to achieve the following:
  - Establish an integrated and sustainable transport network that maximises access to public transport and encourages walking and cycling to/from/within the area.
  - Provide for convenient and direct access to the external road network, inclusive of a higher order north-south road link in the eastern portion of the site.
  - Separation of traffic associated with commercial/industrial uses from active/open space and surrounding residential uses where possible.
  - Provide for appropriate road cross-sections having consideration for all relevant future user groups that are envisaged.
  - Establish a street network which reduces vehicle speeds and maximises pedestrian and cyclist safety.
- the potential road reservations are consistent with what is required to accommodate appropriate carriageways, paths, services, etc., in accordance with the objectives discussed above, relevant standards and good current practice,
- potential public transport, pedestrian and cycle provisions are identified in a manner that is consistent with the objectives discussed above, relevant standards and good current practice,
- any necessary traffic control measures within the site can be determined through consultation with Council as part of the future detailed functional design stage of the project,
- the number, location and function of existing and future intersections with the abutting road network should ensure that there is excellent accessibility and connectivity for all user groups, and
- traffic that is predicted to be generated by the potential future uses on the subject site is likely to be well accommodated by the surrounding road network and intersections without any unreasonable detrimental impacts to the safety and capacity of the same, subject to future detailed assessments.

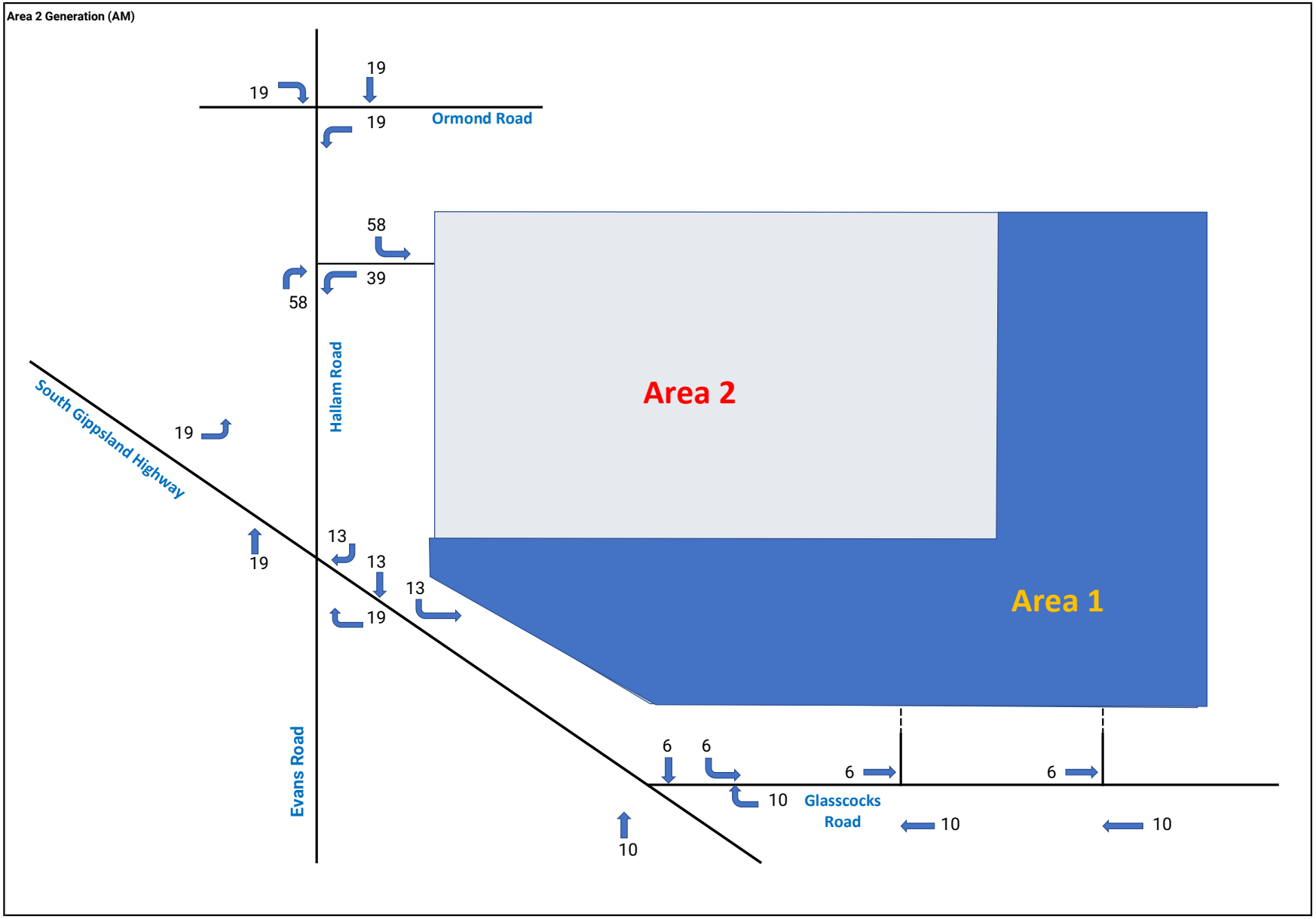
Appendix A

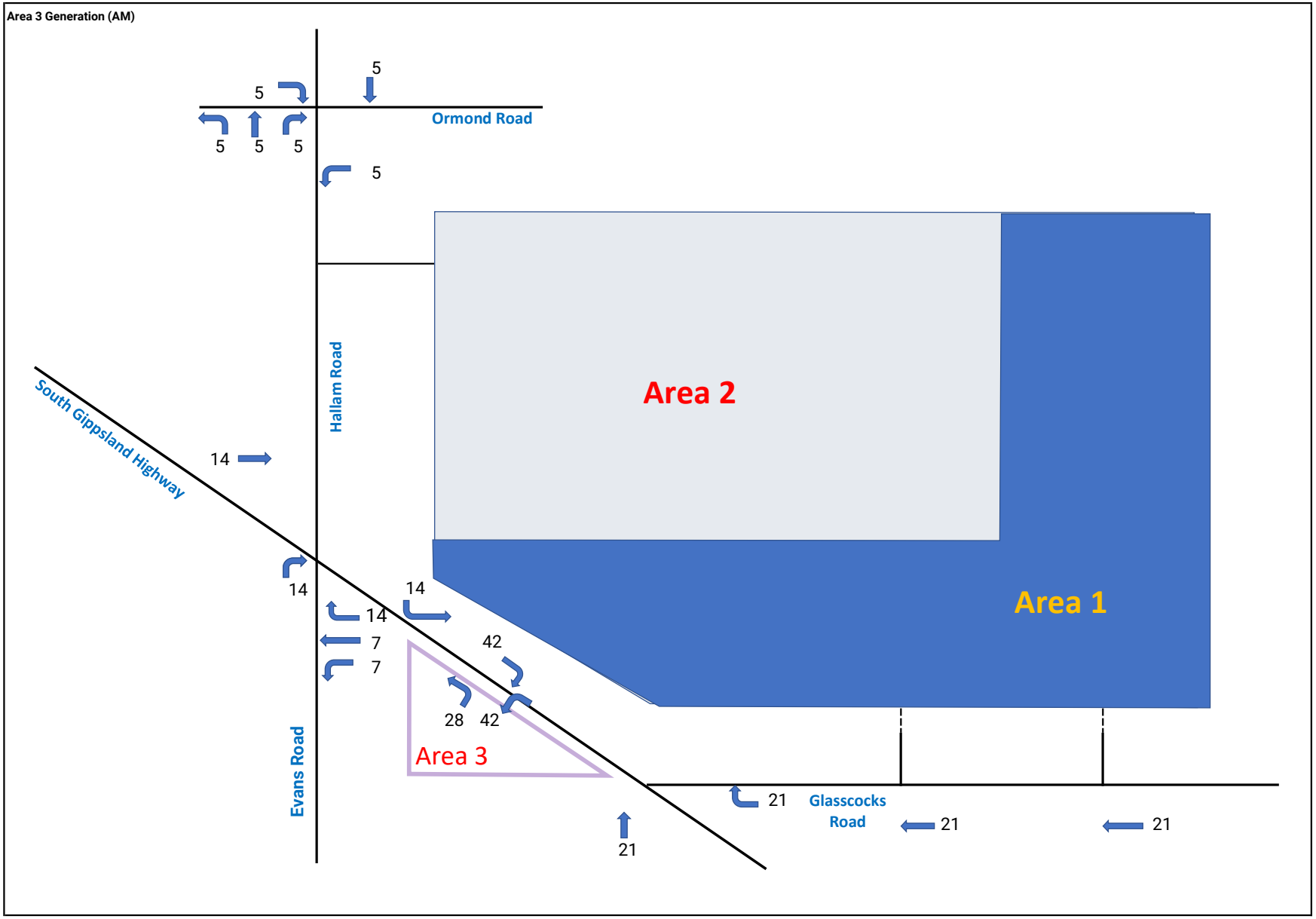
Existing and Future Predicted Traffic Volumes

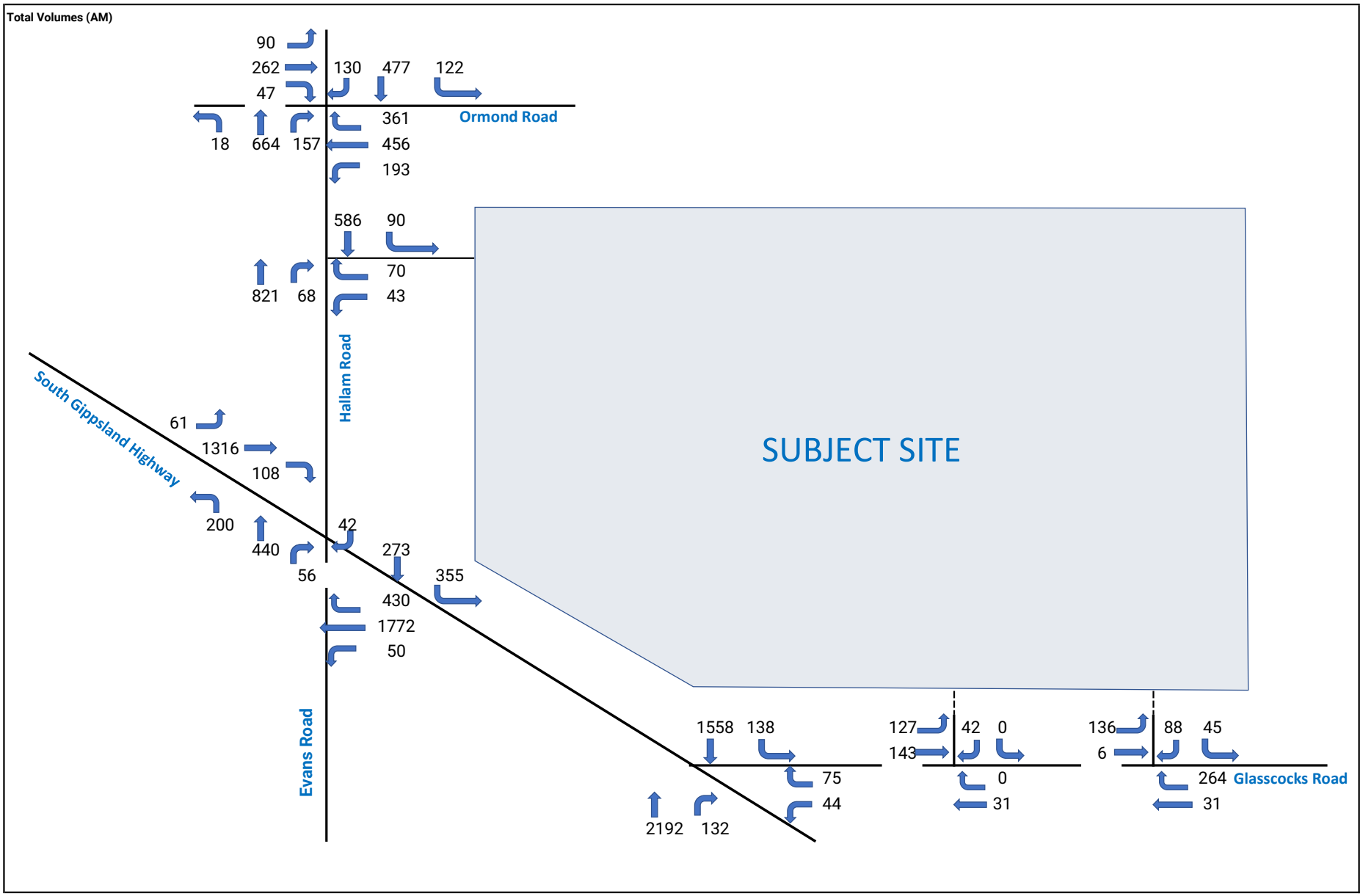

Existing Volumes (AM)
75
218
19
108
341
102
Ormond Road
15
553
131
285
380
157
488
27
26
684
57
36
Hallam Road
South Gippsland Highway
35
1048
90
167
367
47
24
217
237
318
1459
24
SUBJECT SITE
Evans Road
1293
Glasscocks Road
1801

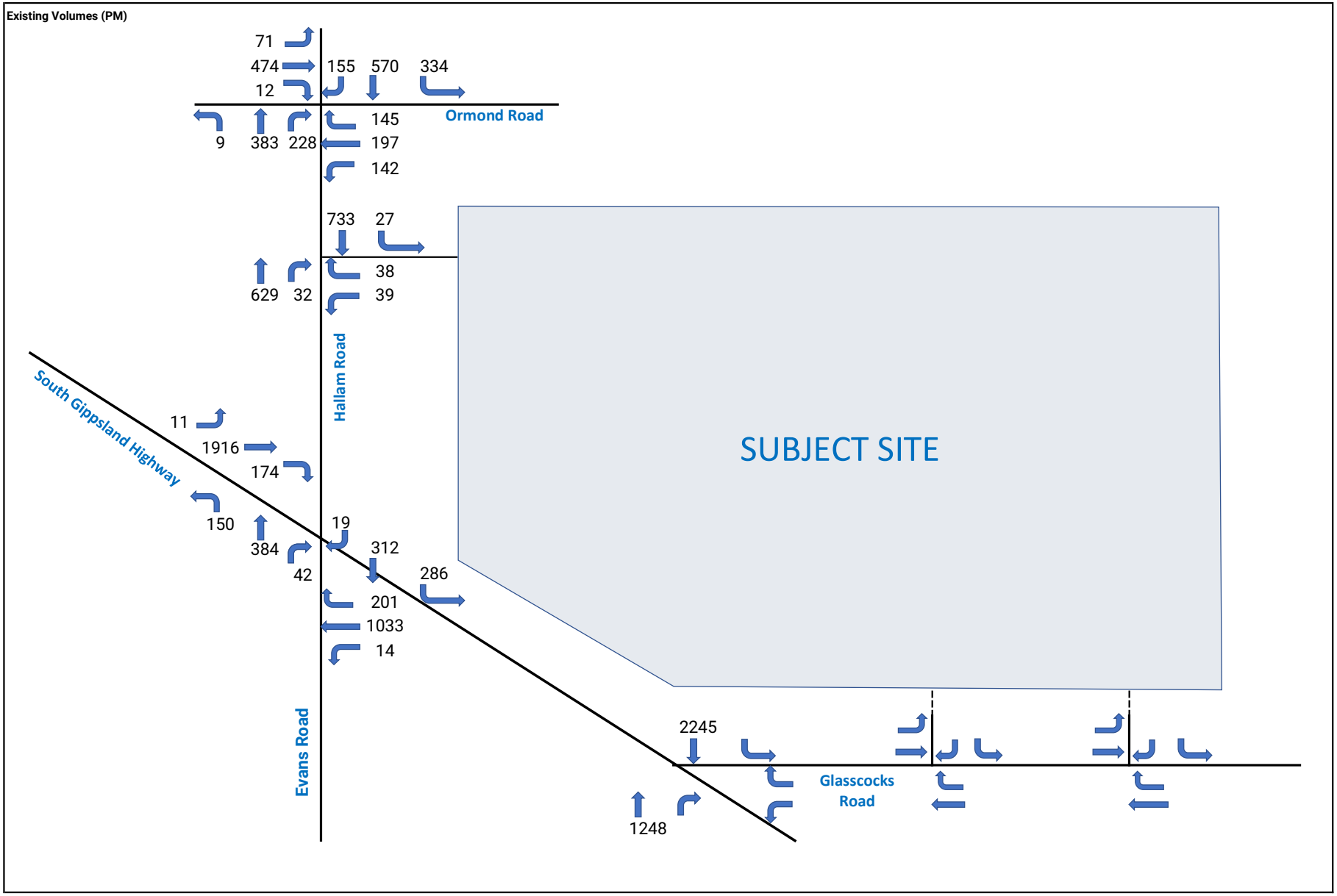

Existing Volumes Plus Growth (AM)
90
262
23
130
409
122
Ormond Road
18
664
157
342
456
188
586
32
821
68
31
43
Hallam Road
South Gippsland Highway
42
1258
108
200
440
29
56
260
284
382
1751
29
Evans Road
SUBJECT SITE
1552
2161
Glasscocks Road

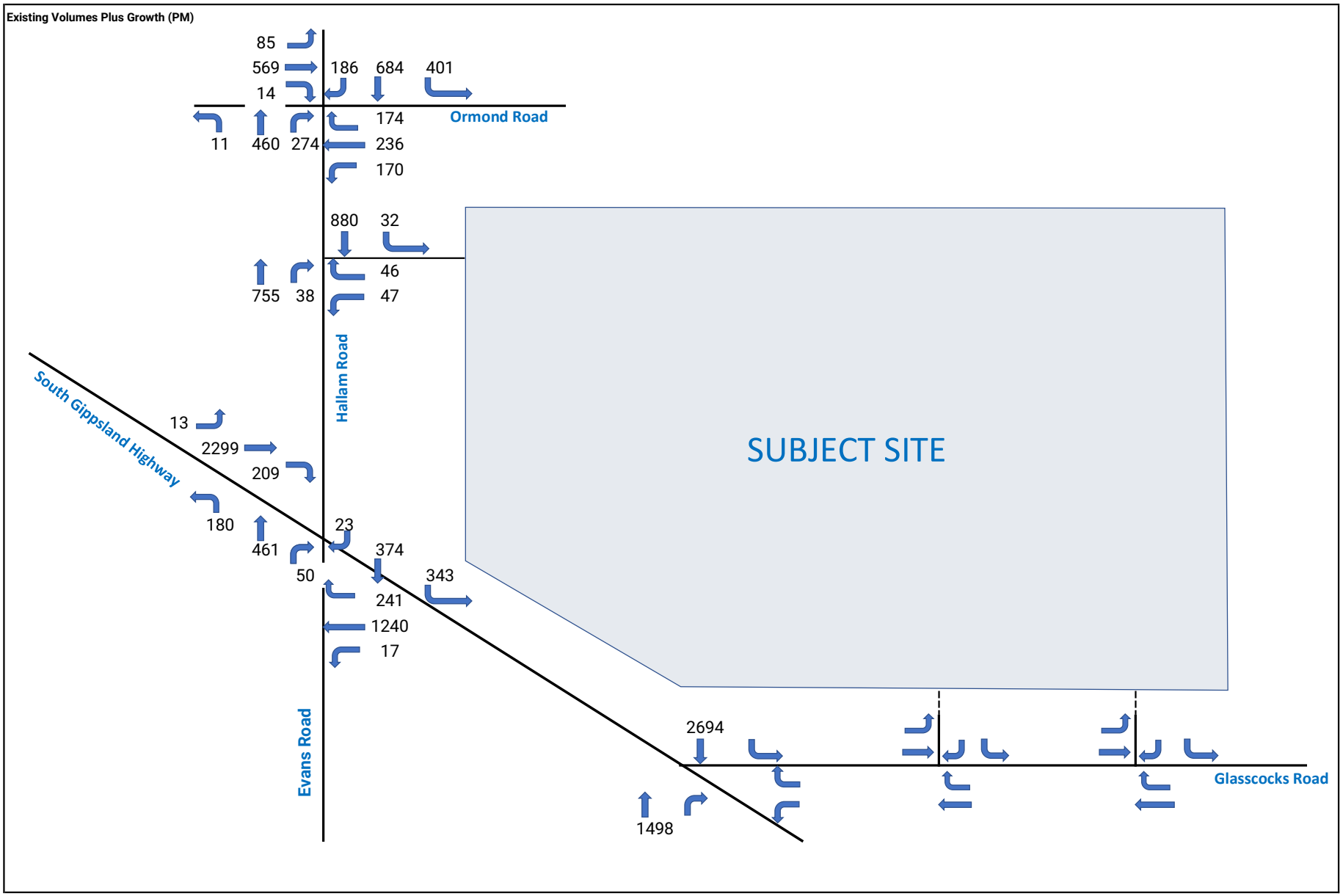

Area 1 Generation (AM)
44
Ormond Road
0
15
0
Hallam Road
Area 2
Area 1
South Gippsland Highway
44
44
44
15
15
15
Evans Road
132
127
136
42
136
88
45
44
44
Glasscocks
Road
264
132

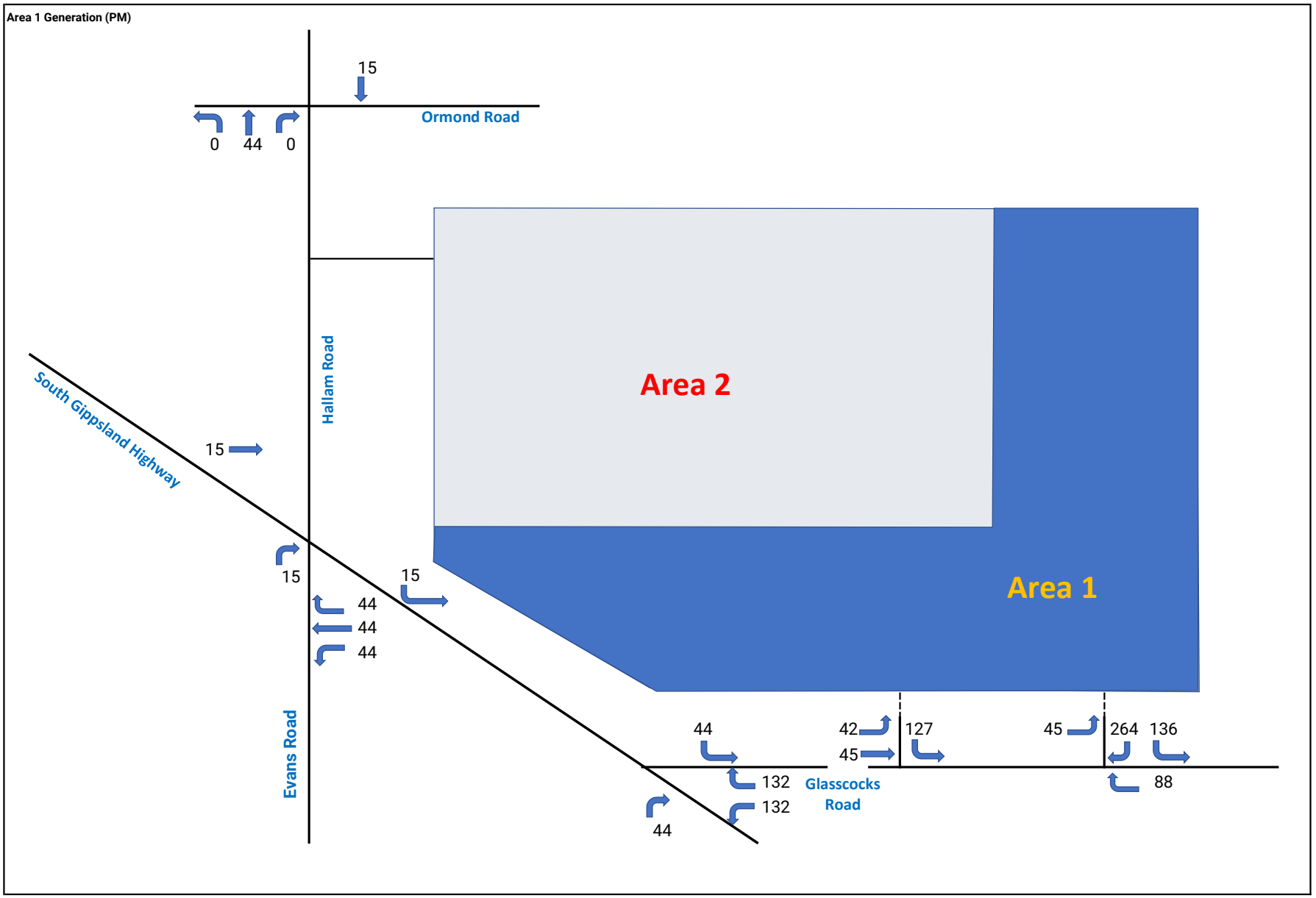

Area 2 Generation (AM)
19
19
19
19
Ormond Road
58
58
39
Hallam Road
South Gippsland Highway
19
19
13
13
13
19
Area 2
Area 1
Evans Road
6
6
6
6
10
Glasscocks
Road
10
10
10

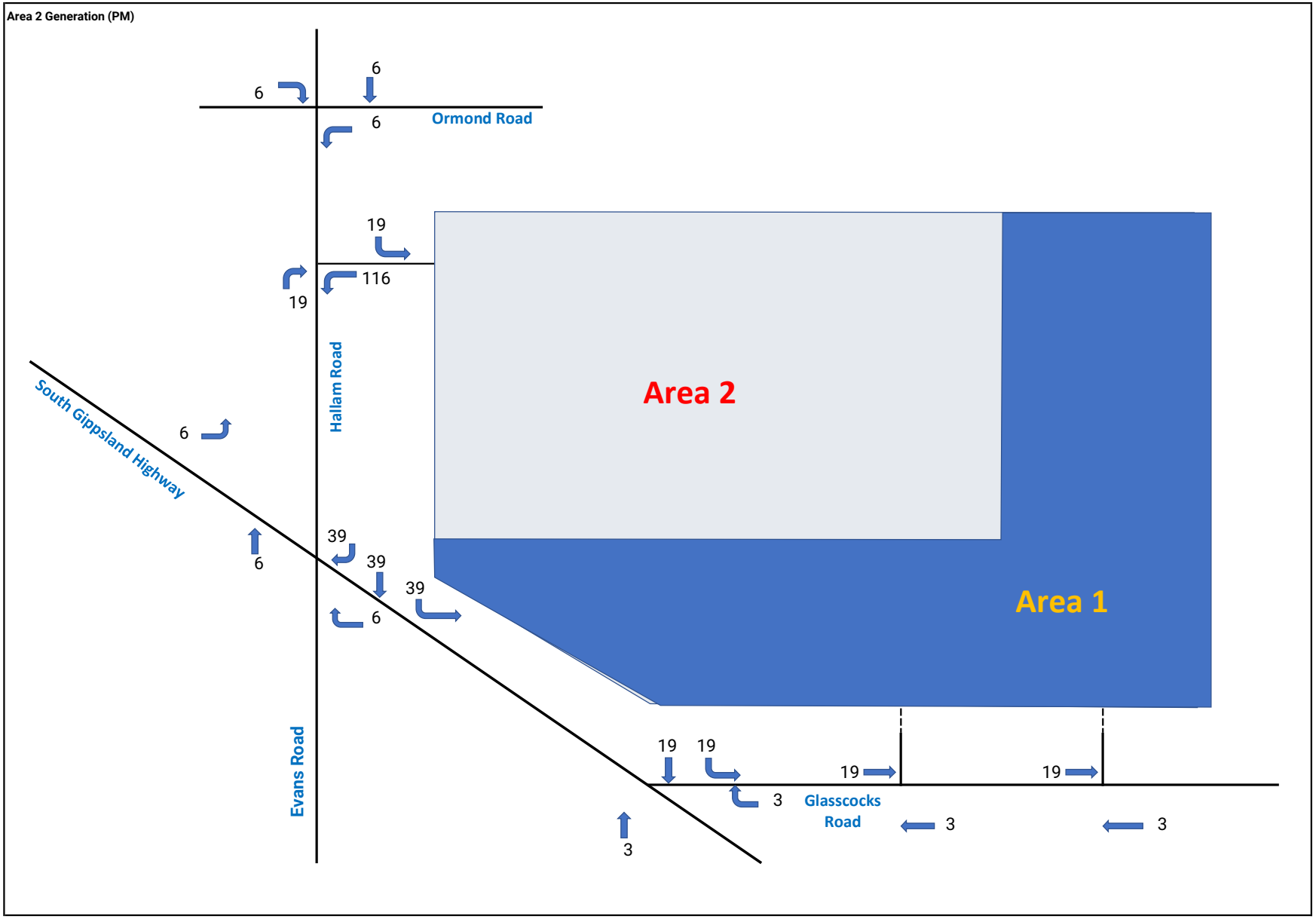

Area 3 Generation (AM)
Ormond Road
Hallam Road
South Gippsland Highway
Evans Road
Glasscocks Road
Area 2
Area 1
Area 3
5
5
5
5
5
5
14
14
14
14
7
7
42
28
42
21
21
21
21

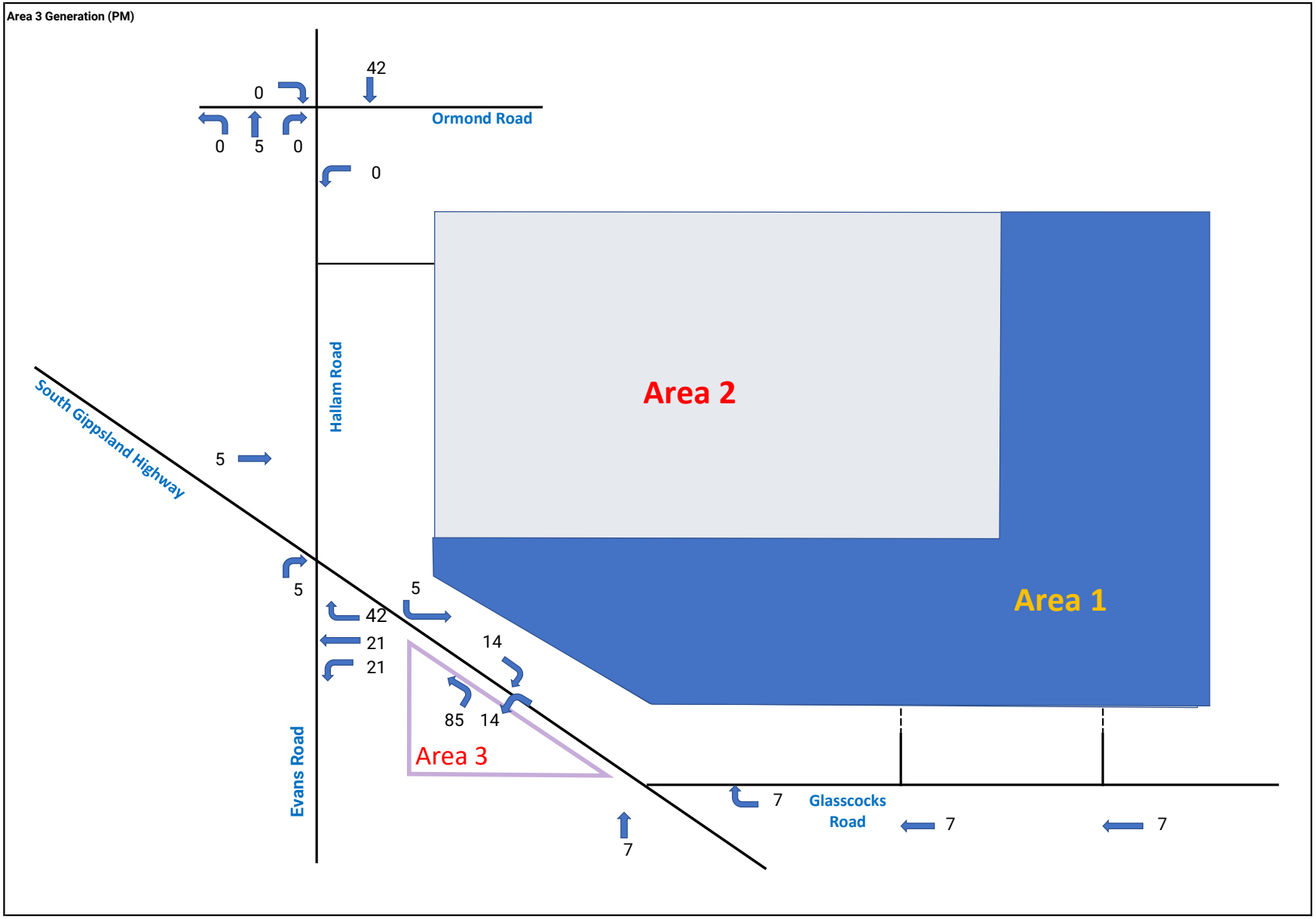

Total Volumes (AM)
90
262
47
130
477
122
Ormond Road
18
664
157
361
456
193
586
90
70
821
68
43
Hallam Road
SUBJECT SITE
South Gippsland Highway
61
1316
108
200
440
56
42
273
355
430
1772
50
Evans Road
1558
138
75
44
2192
132
127
42
0
143
0
31
136
88
45
6
264
Glasscocks Road
31

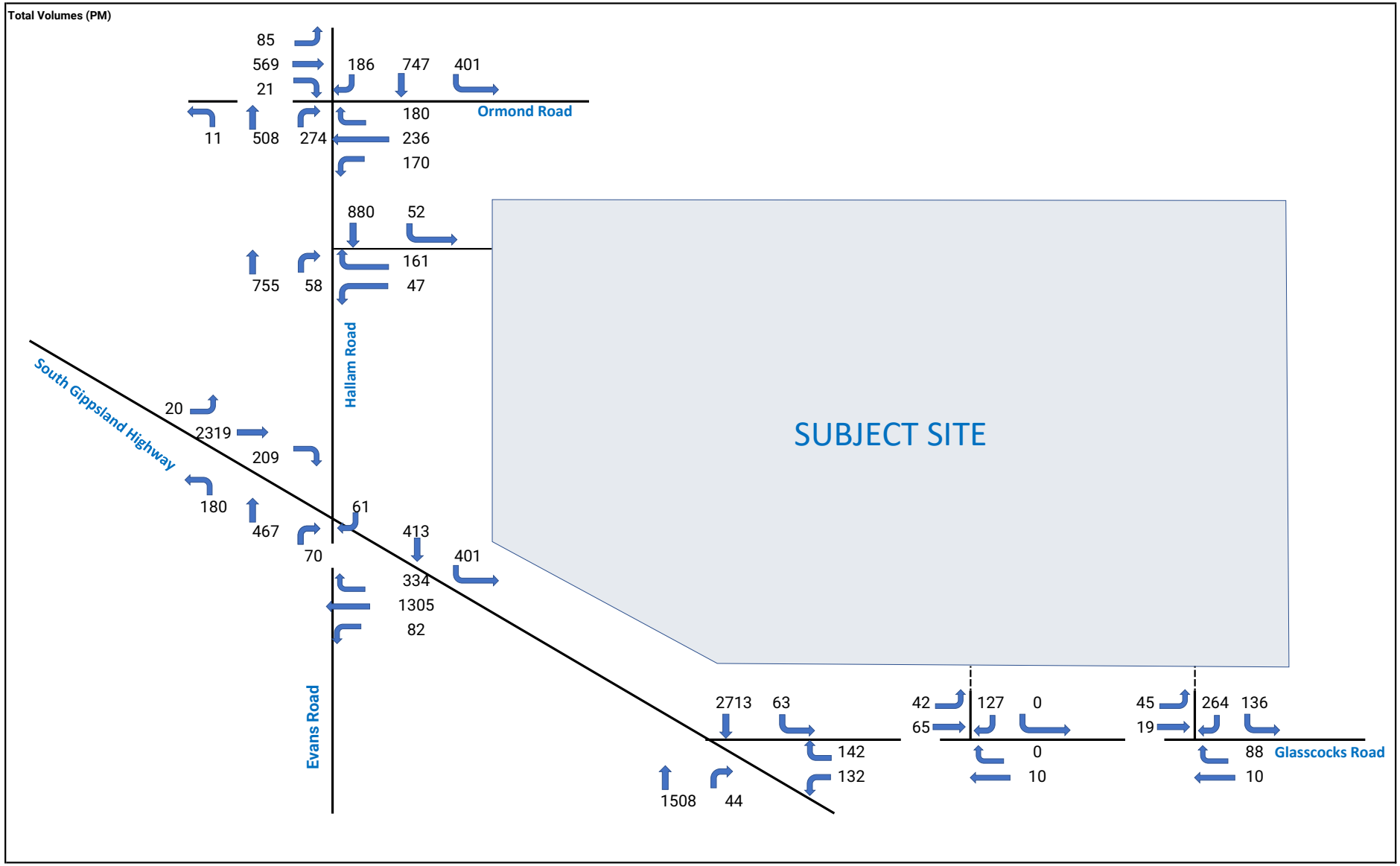

Existing Volumes (PM)
71
474
12
155
570
334
Ormond Road
9
383
228
145
197
142
733
27
38
629
32
39
Hallam Road
South Gippsland Highway
11
1916
174
150
384
42
19
312
286
201
1033
14
Evans Road
SUBJECT SITE
2245
1248
Glasscocks Road


Existing Volumes Plus Growth (PM)
85
569
14
186
684
401
Ormond Road
11
460
274
174
236
170
880
32
46
755
38
47
Hallam Road
South Gippsland Highway
13
2299
209
180
461
50
23
374
343
241
1240
17
Evans Road
SUBJECT SITE
2694
1498
Glasscocks Road


Area 1 Generation (PM)
15
Ormond Road
0
44
0
Hallam Road
Area 2
Area 1
South Gippsland Highway
15
15
15
44
44
44
Evans Road
44
42
45
127
45
264
136
132
132
Glasscocks Road
88
44


Area 2 Generation (PM)
6
6
6
Ormond Road
19
116
19
Hallam Road
Area 2
Area 1
South Gippsland Highway
6
6
39
39
39
6
Evans Road
19
19
19
19
3
Glasscocks
Road
3
3
3


Area 3 Generation (PM)
42
0
Ormond Road
0
5
0
0
Hallam Road
Area 2
South Gippsland Highway
5
Area 1
5
5
42
21
21
14
85
14
Area 3
Evans Road
7
Glasscocks
Road
7
7
7


Total Volumes (PM)
85
569
21
186
747
401
Ormond Road
180
11
508
274
236
170
880
52
161
755
58
47
Hallam Road
SUBJECT SITE
South Gippsland Highway
20
2319
209
180
467
70
61
413
401
334
1305
82
Evans Road
2713
63
142
132
1508
44
42
65
127
0
0
10
45
19
264
136
88
10
Glasscocks Road

Appendix B

SIDRA Output

MOVEMENT SUMMARY

Site: 101 [Ormond Rd-Hallam Rd-Lynbrook Blvd (AM) (Site Folder: Existing - with growth)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Hallam Rd														
1	L2	18	5.0	19	5.0	0.015	8.9	LOS A	0.2	1.8	0.28	0.60	0.28	51.6
2	T1	664	5.0	699	5.0	* 0.617	38.9	LOS D	17.6	128.5	0.92	0.79	0.92	36.7
3	R2	157	5.0	165	5.0	* 0.620	63.5	LOS E	6.6	47.8	0.99	0.79	1.01	29.2
Approach		839	5.0	883	5.0	0.620	42.9	LOS D	17.6	128.5	0.92	0.79	0.92	35.3
East: Ormond Rd														
4	L2	188	5.0	198	5.0	0.153	7.5	LOS A	2.0	14.6	0.24	0.62	0.24	52.6
5	T1	456	5.0	480	5.0	* 0.627	44.1	LOS D	15.1	110.3	0.95	0.81	0.95	34.7
6	R2	342	5.0	360	5.0	0.627	49.9	LOS D	14.9	108.6	0.95	0.83	0.95	33.1
Approach		986	5.0	1038	5.0	0.627	39.1	LOS D	15.1	110.3	0.82	0.78	0.82	36.5
North: Hallam Rd														
7	L2	122	5.0	128	5.0	0.098	9.0	LOS A	1.5	11.2	0.28	0.62	0.28	52.0
8	T1	409	5.0	431	5.0	0.380	35.6	LOS D	9.9	72.5	0.84	0.70	0.84	38.0
9	R2	130	5.0	137	5.0	0.382	62.1	LOS E	3.9	28.4	0.98	0.76	0.98	29.5
Approach		661	5.0	696	5.0	0.382	35.9	LOS D	9.9	72.5	0.76	0.70	0.76	37.7
West: Lynbrook Blvd														
10	L2	90	5.0	95	5.0	0.113	14.0	LOS B	2.0	14.9	0.45	0.67	0.45	48.2
11	T1	262	5.0	276	5.0	* 0.610	51.0	LOS D	10.2	74.3	0.96	0.78	0.96	32.9
12	R2	23	5.0	24	5.0	0.085	52.4	LOS D	1.2	8.9	0.88	0.71	0.88	32.1
Approach		375	5.0	395	5.0	0.610	42.2	LOS D	10.2	74.3	0.84	0.75	0.84	35.5
All Vehicles		2861	5.0	3012	5.0	0.627	39.9	LOS D	17.6	128.5	0.84	0.76	0.84	36.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Hallam Rd												
P11	Stage 1	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	219.0	214.2	0.98
P12	Stage 2	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	214.0	207.6	0.97
East: Ormond Rd												
P2	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98

North: Hallam Rd											
P31 Stage 1	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	219.0	214.2	0.98
P32 Stage 2	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	214.0	207.6	0.97
West: Lynbrook Blvd											
P4 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98
All Pedestrians	300	316	54.3	LOS E	0.2	0.2	0.95	0.95	219.0	214.1	0.98

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

MOVEMENT SUMMARY

Site: 101 [Ormond Rd-Hallam Rd-Lynbrook Blvd (PM) (Site Folder: Existing - with growth)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Hallam Rd														
1	L2	11	5.0	12	5.0	0.008	7.6	LOS A	0.1	0.8	0.23	0.58	0.23	52.5
2	T1	460	5.0	484	5.0	0.496	40.9	LOS D	12.1	88.4	0.90	0.76	0.90	36.0
3	R2	274	5.0	288	5.0	* 0.721	59.8	LOS E	11.4	83.1	0.98	0.83	1.03	30.2
Approach		745	5.0	784	5.0	0.721	47.4	LOS D	12.1	88.4	0.92	0.78	0.94	33.8
East: Ormond Rd														
4	L2	170	5.0	179	5.0	0.153	9.5	LOS A	2.7	19.5	0.33	0.64	0.33	51.1
5	T1	236	5.0	248	5.0	* 0.719	59.4	LOS E	8.8	64.5	1.00	0.86	1.11	30.4
6	R2	174	5.0	183	5.0	0.719	65.2	LOS E	8.7	63.6	1.00	0.86	1.11	29.1
Approach		580	5.0	611	5.0	0.719	46.5	LOS D	8.8	64.5	0.80	0.79	0.88	34.0
North: Hallam Rd														
7	L2	401	5.0	422	5.0	0.429	16.8	LOS B	11.9	86.8	0.58	0.74	0.58	46.6
8	T1	684	5.0	720	5.0	* 0.738	45.1	LOS D	19.8	144.3	0.98	0.86	1.01	34.6
9	R2	186	5.0	196	5.0	0.364	56.1	LOS E	5.3	38.4	0.94	0.78	0.94	31.0
Approach		1271	5.0	1338	5.0	0.738	37.8	LOS D	19.8	144.3	0.85	0.81	0.86	37.0
West: Lynbrook Blvd														
10	L2	85	5.0	89	5.0	0.077	9.5	LOS A	1.3	9.4	0.32	0.63	0.32	51.1
11	T1	569	5.0	599	5.0	* 0.743	41.5	LOS D	21.4	156.3	0.93	0.81	0.94	36.0
12	R2	14	5.0	15	5.0	0.029	38.6	LOS D	0.6	4.5	0.75	0.67	0.75	36.5
Approach		668	5.0	703	5.0	0.743	37.4	LOS D	21.4	156.3	0.85	0.78	0.86	37.4
All Vehicles		3264	5.0	3436	5.0	0.743	41.4	LOS D	21.4	156.3	0.86	0.80	0.88	35.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Hallam Rd												
P11	Stage 1	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	219.0	214.2	0.98
P12	Stage 2	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	214.0	207.6	0.97
East: Ormond Rd												
P2	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98

North: Hallam Rd											
P31 Stage 1	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	219.0	214.2	0.98
P32 Stage 2	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	214.0	207.6	0.97
West: Lynbrook Blvd											
P4 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98
All Pedestrians	300	316	54.3	LOS E	0.2	0.2	0.95	0.95	219.0	214.1	0.98

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

MOVEMENT SUMMARY

Site: 101 [Ormond Rd-Hallam Rd-Lynbrook Blvd (AM) (Site Folder: Post Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Hallam Rd														
1	L2	18	5.0	19	5.0	0.015	8.9	LOS A	0.2	1.8	0.28	0.60	0.28	51.6
2	T1	664	5.0	699	5.0	* 0.634	39.9	LOS D	17.8	130.1	0.93	0.80	0.93	36.4
3	R2	157	5.0	165	5.0	* 0.620	63.5	LOS E	6.6	47.8	0.99	0.79	1.01	29.2
Approach		839	5.0	883	5.0	0.634	43.6	LOS D	17.8	130.1	0.92	0.79	0.93	35.0
East: Ormond Rd														
4	L2	193	5.0	203	5.0	0.162	8.2	LOS A	2.4	17.8	0.28	0.63	0.28	52.1
5	T1	456	5.0	480	5.0	* 0.621	43.3	LOS D	15.4	112.1	0.94	0.81	0.94	35.0
6	R2	361	5.0	380	5.0	0.621	49.0	LOS D	15.1	110.1	0.94	0.83	0.94	33.4
Approach		1010	5.0	1063	5.0	0.621	38.6	LOS D	15.4	112.1	0.82	0.78	0.82	36.7
North: Hallam Rd														
7	L2	122	5.0	128	5.0	0.098	9.0	LOS A	1.5	11.2	0.28	0.62	0.28	52.0
8	T1	477	5.0	502	5.0	0.456	37.4	LOS D	12.0	87.7	0.87	0.73	0.87	37.3
9	R2	130	5.0	137	5.0	0.382	62.1	LOS E	3.9	28.4	0.98	0.76	0.98	29.5
Approach		729	5.0	767	5.0	0.456	37.0	LOS D	12.0	87.7	0.79	0.72	0.79	37.3
West: Lynbrook Blvd														
10	L2	90	5.0	95	5.0	0.114	14.0	LOS B	2.0	14.9	0.45	0.67	0.45	48.2
11	T1	262	5.0	276	5.0	* 0.610	51.0	LOS D	10.2	74.3	0.96	0.78	0.96	32.9
12	R2	47	5.0	49	5.0	0.174	53.3	LOS D	2.5	18.5	0.90	0.74	0.90	31.9
Approach		399	5.0	420	5.0	0.610	42.9	LOS D	10.2	74.3	0.84	0.75	0.84	35.3
All Vehicles		2977	5.0	3134	5.0	0.634	40.2	LOS D	17.8	130.1	0.84	0.77	0.84	36.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Hallam Rd												
P11	Stage 1	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	219.0	214.2	0.98
P12	Stage 2	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	214.0	207.6	0.97
East: Ormond Rd												
P2	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98

North: Hallam Rd											
P31 Stage 1	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	219.0	214.2	0.98
P32 Stage 2	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	214.0	207.6	0.97
West: Lynbrook Blvd											
P4 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98
All Pedestrians	300	316	54.3	LOS E	0.2	0.2	0.95	0.95	219.0	214.1	0.98

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

MOVEMENT SUMMARY

Site: 101 [Ormond Rd-Hallam Rd-Lynbrook Blvd (PM) (Site Folder: Post Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Hallam Rd														
1	L2	11	5.0	12	5.0	0.008	7.8	LOS A	0.1	0.9	0.23	0.58	0.23	52.4
2	T1	508	5.0	535	5.0	0.515	39.6	LOS D	13.3	96.8	0.90	0.76	0.90	36.5
3	R2	274	5.0	288	5.0	* 0.763	61.7	LOS E	11.7	85.3	0.98	0.85	1.07	29.7
Approach		793	5.0	835	5.0	0.763	46.8	LOS D	13.3	96.8	0.92	0.79	0.95	33.9
East: Ormond Rd														
4	L2	170	5.0	179	5.0	0.158	10.1	LOS B	2.9	21.0	0.35	0.65	0.35	50.7
5	T1	236	5.0	248	5.0	* 0.730	59.7	LOS E	9.0	65.8	1.00	0.86	1.12	30.3
6	R2	180	5.0	189	5.0	0.730	65.5	LOS E	8.9	64.7	1.00	0.86	1.12	29.1
Approach		586	5.0	617	5.0	0.730	47.1	LOS D	9.0	65.8	0.81	0.80	0.90	33.8
North: Hallam Rd														
7	L2	401	5.0	422	5.0	0.424	16.7	LOS B	11.8	86.4	0.58	0.74	0.58	46.6
8	T1	747	5.0	786	5.0	* 0.757	44.5	LOS D	21.7	158.3	0.98	0.88	1.01	34.8
9	R2	186	5.0	196	5.0	0.385	57.2	LOS E	5.3	38.9	0.95	0.78	0.95	30.7
Approach		1334	5.0	1404	5.0	0.757	37.9	LOS D	21.7	158.3	0.85	0.82	0.87	36.9
West: Lynbrook Blvd														
10	L2	85	5.0	89	5.0	0.079	9.8	LOS A	1.3	9.7	0.33	0.63	0.33	50.9
11	T1	569	5.0	599	5.0	* 0.768	43.1	LOS D	22.0	160.3	0.94	0.83	0.97	35.5
12	R2	21	5.0	22	5.0	0.045	39.6	LOS D	0.9	6.9	0.76	0.69	0.76	36.2
Approach		675	5.0	711	5.0	0.768	38.8	LOS D	22.0	160.3	0.86	0.80	0.88	36.9
All Vehicles		3388	5.0	3566	5.0	0.768	41.8	LOS D	22.0	160.3	0.86	0.81	0.90	35.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Hallam Rd												
P11	Stage 1	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	219.0	214.2	0.98
P12	Stage 2	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	214.0	207.6	0.97
East: Ormond Rd												
P2	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98

North: Hallam Rd											
P31 Stage 1	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	219.0	214.2	0.98
P32 Stage 2	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	214.0	207.6	0.97
West: Lynbrook Blvd											
P4 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98
All Pedestrians	300	316	54.3	LOS E	0.2	0.2	0.95	0.95	219.0	214.1	0.98

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

MOVEMENT SUMMARY

Site: 101 [South Gippsland Hway-Hallam Rd-Evans Rd (AM) (Site Folder: Existing (with Growth))]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Evans Rd														
1a	L1	200	5.0	211	5.0	0.376	19.5	LOS B	8.4	61.4	0.62	0.72	0.62	45.3
2	T1	440	5.0	463	5.0	* 0.570	62.9	LOS E	11.8	86.0	0.97	0.79	0.97	29.6
3b	R3	56	5.0	59	5.0	* 0.562	84.1	LOS F	4.4	32.3	1.00	0.77	1.02	25.4
Approach		696	5.0	733	5.0	0.570	52.1	LOS D	11.8	86.0	0.87	0.77	0.87	32.4
SouthEast: South Gippsland Hwy														
21b	L3	29	5.0	31	5.0	0.023	8.0	LOS A	0.3	1.9	0.16	0.62	0.16	52.9
22	T1	1751	5.0	1843	5.0	* 0.581	15.5	LOS B	19.7	143.9	0.48	0.44	0.48	48.2
23a	R1	382	5.0	402	5.0	0.563	63.1	LOS E	13.4	97.8	0.96	0.81	0.96	30.0
Approach		2162	5.0	2276	5.0	0.581	23.8	LOS C	19.7	143.9	0.56	0.51	0.56	43.5
North: Hallam Rd														
7a	L1	284	5.0	299	5.0	0.306	12.2	LOS B	8.8	64.0	0.47	0.66	0.47	49.7
8	T1	260	5.0	274	5.0	0.343	60.4	LOS E	6.8	49.5	0.93	0.73	0.93	30.3
9b	R3	29	5.0	31	5.0	0.291	82.0	LOS F	2.2	16.3	0.99	0.73	0.99	25.8
Approach		573	5.0	603	5.0	0.343	37.6	LOS D	8.8	64.0	0.70	0.70	0.70	37.1
NorthWest: South Gippsland Hwy														
27b	L3	42	5.0	44	5.0	0.039	11.0	LOS B	0.7	5.4	0.28	0.64	0.28	50.7
28	T1	1258	5.0	1324	5.0	0.577	30.7	LOS C	21.5	156.6	0.69	0.61	0.69	40.1
29a	R1	108	5.0	114	5.0	* 0.577	83.0	LOS F	4.3	31.5	1.00	0.76	1.03	25.9
Approach		1408	5.0	1482	5.0	0.577	34.1	LOS C	21.5	156.6	0.70	0.62	0.70	38.7
All Vehicles		4839	5.0	5094	5.0	0.581	32.5	LOS C	21.5	156.6	0.66	0.60	0.66	39.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Evans Rd												
P1	Full	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	244.0	227.1	0.93
SouthEast: South Gippsland Hwy												
P51	Stage 1	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P52	Stage 2	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	231.5	210.9	0.91

North: Hallam Rd											
P3 Full	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	244.0	227.1	0.93
NorthWest: South Gippsland Hwy											
P71 Stage 1	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P72 Stage 2	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	231.5	210.9	0.91
All Pedestrians	300	316	69.3	LOS F	0.2	0.2	0.96	0.96	237.3	218.5	0.92

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

MOVEMENT SUMMARY

Site: 101 [South Gippsland Hway-Hallam Rd-Evans Rd (PM) (Site Folder: Existing (with Growth))]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Evans Rd														
1a	L1	180	5.0	189	5.0	0.327	19.9	LOS B	7.0	51.3	0.58	0.70	0.58	45.0
2	T1	461	5.0	485	5.0	* 0.754	70.6	LOS E	13.4	97.5	1.00	0.85	1.06	27.9
3b	R3	50	5.0	53	5.0	* 0.717	90.3	LOS F	4.2	30.4	1.00	0.82	1.19	24.4
Approach		691	5.0	727	5.0	0.754	58.8	LOS E	13.4	97.5	0.89	0.81	0.95	30.6
SouthEast: South Gippsland Hwy														
21b	L3	17	5.0	18	5.0	0.015	9.3	LOS A	0.2	1.6	0.22	0.62	0.22	52.0
22	T1	1240	5.0	1305	5.0	0.437	16.8	LOS B	13.4	97.9	0.46	0.41	0.46	47.2
23a	R1	241	5.0	254	5.0	* 0.736	79.4	LOS E	9.5	69.7	1.00	0.86	1.11	26.6
Approach		1498	5.0	1577	5.0	0.736	26.8	LOS C	13.4	97.9	0.55	0.48	0.56	41.9
North: Hallam Rd														
7a	L1	343	5.0	361	5.0	0.561	37.8	LOS D	19.8	144.3	0.87	0.97	0.87	37.8
8	T1	374	5.0	394	5.0	0.622	67.7	LOS E	10.5	77.0	0.99	0.80	0.99	28.5
9b	R3	23	5.0	24	5.0	0.330	86.4	LOS F	1.8	13.4	1.00	0.72	1.00	25.0
Approach		740	5.0	779	5.0	0.622	54.5	LOS D	19.8	144.3	0.94	0.88	0.94	32.0
NorthWest: South Gippsland Hwy														
27b	L3	13	5.0	14	5.0	0.011	10.0	LOS B	0.2	1.4	0.24	0.62	0.24	51.4
28	T1	2299	5.0	2420	5.0	* 0.773	17.9	LOS B	34.6	252.8	0.60	0.55	0.60	47.6
29a	R1	209	5.0	220	5.0	0.425	68.3	LOS E	7.5	54.5	0.96	0.78	0.96	28.9
Approach		2521	5.0	2654	5.0	0.773	22.1	LOS C	34.6	252.8	0.63	0.57	0.63	45.1
All Vehicles		5450	5.0	5737	5.0	0.773	32.4	LOS C	34.6	252.8	0.68	0.62	0.69	39.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Evans Rd												
P1	Full	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	244.0	227.1	0.93
SouthEast: South Gippsland Hwy												
P51	Stage 1	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P52	Stage 2	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	231.5	210.9	0.91

North: Hallam Rd											
P3 Full	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	244.0	227.1	0.93
NorthWest: South Gippsland Hwy											
P71 Stage 1	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P72 Stage 2	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	231.5	210.9	0.91
All Pedestrians	300	316	69.3	LOS F	0.2	0.2	0.96	0.96	237.3	218.5	0.92

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

MOVEMENT SUMMARY

Site: 101 [South Gippsland Hway-Hallam Rd-Evans Rd (AM) (Site Folder: Post Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Evans Rd														
1a	L1	200	5.0	211	5.0	0.397	20.4	LOS C	8.9	65.0	0.65	0.74	0.65	44.9
2	T1	440	5.0	463	5.0	* 0.594	64.0	LOS E	11.9	86.8	0.97	0.79	0.97	29.4
3b	R3	56	5.0	59	5.0	* 0.624	86.2	LOS F	4.5	32.9	1.00	0.79	1.07	25.0
Approach		696	5.0	733	5.0	0.624	53.3	LOS D	11.9	86.8	0.88	0.78	0.89	32.1
SouthEast: South Gippsland Hwy														
21b	L3	50	5.0	53	5.0	0.041	8.2	LOS A	0.5	3.5	0.17	0.62	0.17	52.8
22	T1	1772	5.0	1865	5.0	0.574	14.1	LOS B	18.7	136.6	0.45	0.41	0.45	49.1
23a	R1	430	5.0	453	5.0	* 0.593	62.0	LOS E	15.0	109.8	0.96	0.82	0.96	30.3
Approach		2252	5.0	2371	5.0	0.593	23.1	LOS C	18.7	136.6	0.54	0.50	0.54	43.9
North: Hallam Rd														
7a	L1	355	5.0	374	5.0	0.385	14.7	LOS B	14.2	103.5	0.59	0.72	0.59	48.1
8	T1	273	5.0	287	5.0	0.375	61.7	LOS E	7.2	52.7	0.94	0.74	0.94	29.9
9b	R3	42	5.0	44	5.0	0.468	84.5	LOS F	3.3	24.2	1.00	0.75	1.00	25.3
Approach		670	5.0	705	5.0	0.468	38.2	LOS D	14.2	103.5	0.76	0.73	0.76	36.9
NorthWest: South Gippsland Hwy														
27b	L3	61	5.0	64	5.0	0.058	11.6	LOS B	1.2	8.5	0.30	0.65	0.30	50.3
28	T1	1316	5.0	1385	5.0	* 0.603	31.2	LOS C	22.9	167.5	0.70	0.62	0.70	39.9
29a	R1	108	5.0	114	5.0	0.577	83.1	LOS F	4.3	31.5	1.00	0.76	1.03	25.9
Approach		1485	5.0	1563	5.0	0.603	34.2	LOS C	22.9	167.5	0.71	0.64	0.71	38.7
All Vehicles		5103	5.0	5372	5.0	0.624	32.4	LOS C	22.9	167.5	0.67	0.61	0.67	39.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Evans Rd												
P1	Full	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	244.0	227.1	0.93
SouthEast: South Gippsland Hwy												
P51	Stage 1	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P52	Stage 2	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	231.5	210.9	0.91

North: Hallam Rd											
P3 Full	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	244.0	227.1	0.93
NorthWest: South Gippsland Hwy											
P71 Stage 1	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P72 Stage 2	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	231.5	210.9	0.91
All Pedestrians	300	316	69.3	LOS F	0.2	0.2	0.96	0.96	237.3	218.5	0.92

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

MOVEMENT SUMMARY

Site: 101 [South Gippsland Hway-Hallam Rd-Evans Rd (PM) (Site Folder: Post Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Evans Rd														
1a	L1	180	5.0	189	5.0	0.358	21.5	LOS C	7.5	54.7	0.62	0.71	0.62	44.2
2	T1	467	5.0	492	5.0	* 0.854	76.8	LOS E	14.4	105.2	1.00	0.92	1.18	26.7
3b	R3	70	5.0	74	5.0	* 0.780	89.7	LOS F	5.8	42.6	1.00	0.87	1.24	24.5
Approach		717	5.0	755	5.0	0.854	64.2	LOS E	14.4	105.2	0.90	0.86	1.04	29.3
SouthEast: South Gippsland Hwy														
21b	L3	82	5.0	86	5.0	0.072	9.6	LOS A	1.2	8.5	0.24	0.64	0.24	51.8
22	T1	1305	5.0	1374	5.0	0.449	15.6	LOS B	13.6	99.1	0.45	0.40	0.45	47.9
23a	R1	334	5.0	352	5.0	* 0.840	82.0	LOS F	13.8	100.4	1.00	0.94	1.22	26.1
Approach		1721	5.0	1812	5.0	0.840	28.2	LOS C	13.8	100.4	0.54	0.51	0.59	41.3
North: Hallam Rd														
7a	L1	401	5.0	422	5.0	0.650	47.6	LOS D	22.9	167.5	0.90	1.02	0.90	35.6
8	T1	413	5.0	435	5.0	0.768	72.8	LOS E	12.4	90.2	1.00	0.86	1.09	27.5
9b	R3	61	5.0	64	5.0	0.680	87.1	LOS F	5.0	36.2	1.00	0.82	1.12	24.9
Approach		875	5.0	921	5.0	0.768	62.3	LOS E	22.9	167.5	0.95	0.93	1.01	30.4
NorthWest: South Gippsland Hwy														
27b	L3	20	5.0	21	5.0	0.018	11.3	LOS B	0.4	2.7	0.28	0.63	0.28	50.6
28	T1	2319	5.0	2441	5.0	* 0.829	22.8	LOS C	42.0	306.3	0.68	0.62	0.68	45.9
29a	R1	209	5.0	220	5.0	0.470	70.6	LOS E	7.6	55.6	0.98	0.78	0.98	28.3
Approach		2548	5.0	2682	5.0	0.829	26.6	LOS C	42.0	306.3	0.70	0.64	0.70	43.7
All Vehicles		5861	5.0	6169	5.0	0.854	37.0	LOS D	42.0	306.3	0.72	0.67	0.75	38.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Evans Rd												
P1	Full	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	244.0	227.1	0.93
SouthEast: South Gippsland Hwy												
P51	Stage 1	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P52	Stage 2	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	231.5	210.9	0.91

North: Hallam Rd											
P3 Full	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	244.0	227.1	0.93
NorthWest: South Gippsland Hwy											
P71 Stage 1	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P72 Stage 2	50	53	69.3	LOS F	0.2	0.2	0.96	0.96	231.5	210.9	0.91
All Pedestrians	300	316	69.3	LOS F	0.2	0.2	0.96	0.96	237.3	218.5	0.92

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

MOVEMENT SUMMARY

Site: 102 [Hallam Rd-SUEZ Rd (AM) (Site Folder: Existing + Growth)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 84 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Hallam Rd														
2	T1	821	5.0	864	5.0	0.326	5.1	LOS A	6.7	49.2	0.41	0.37	0.41	55.3
3	R2	68	5.0	72	5.0	* 0.305	42.7	LOS D	2.8	20.2	0.94	0.76	0.94	34.6
Approach		889	5.0	936	5.0	0.326	8.0	LOS A	6.7	49.2	0.45	0.40	0.45	52.9
East: Suez Rd														
4	L2	43	5.0	45	5.0	0.043	7.2	LOS A	0.3	2.4	0.26	0.61	0.26	52.8
6	R2	31	5.0	33	5.0	* 0.118	39.4	LOS D	1.2	8.6	0.89	0.72	0.89	35.8
Approach		74	5.0	78	5.0	0.118	20.7	LOS C	1.2	8.6	0.53	0.65	0.53	44.1
North: Hallam Rd														
7	L2	32	0.0	34	0.0	0.025	8.9	LOS A	0.4	2.6	0.29	0.63	0.29	51.1
8	T1	586	5.0	617	5.0	* 0.327	13.4	LOS B	7.5	54.9	0.64	0.55	0.64	49.1
Approach		618	4.7	651	4.7	0.327	13.2	LOS B	7.5	54.9	0.62	0.55	0.62	49.2
All Vehicles		1581	4.9	1664	4.9	0.327	10.6	LOS B	7.5	54.9	0.52	0.47	0.52	50.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Hallam Rd												
P1	Full	50	53	36.3	LOS D	0.1	0.1	0.93	0.93	67.4	40.5	0.60
East: Suez Rd												
P2	Full	50	53	36.3	LOS D	0.1	0.1	0.93	0.93	59.8	30.6	0.51
All Pedestrians		100	105	36.3	LOS D	0.1	0.1	0.93	0.93	63.6	35.6	0.56

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

MOVEMENT SUMMARY

Site: 102 [Hallam Rd-SUEZ Rd (PM) (Site Folder: Existing + Growth)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 92 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Hallam Rd														
2	T1	755	5.0	795	5.0	0.293	4.9	LOS A	6.3	45.8	0.38	0.34	0.38	55.5
3	R2	38	5.0	40	5.0	* 0.342	53.2	LOS D	1.8	13.5	0.99	0.73	0.99	31.5
Approach		793	5.0	835	5.0	0.342	7.2	LOS A	6.3	45.8	0.41	0.36	0.41	53.5
East: Suez Rd														
4	L2	47	5.0	49	5.0	0.059	8.0	LOS A	0.5	3.5	0.29	0.62	0.29	52.2
6	R2	46	5.0	48	5.0	* 0.177	43.2	LOS D	1.9	14.2	0.91	0.74	0.91	34.5
Approach		93	5.0	98	5.0	0.177	25.4	LOS C	1.9	14.2	0.60	0.68	0.60	41.7
North: Hallam Rd														
7	L2	32	5.0	34	5.0	0.023	7.5	LOS A	0.3	2.1	0.21	0.61	0.21	52.0
8	T1	880	5.0	926	5.0	* 0.418	11.1	LOS B	11.3	82.2	0.59	0.52	0.59	50.8
Approach		912	5.0	960	5.0	0.418	11.0	LOS B	11.3	82.2	0.57	0.52	0.57	50.8
All Vehicles		1798	5.0	1893	5.0	0.418	10.1	LOS B	11.3	82.2	0.50	0.46	0.50	51.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Hallam Rd												
P1	Full	50	53	40.3	LOS E	0.1	0.1	0.94	0.94	71.4	40.5	0.57
East: Suez Rd												
P2	Full	50	53	40.3	LOS E	0.1	0.1	0.94	0.94	63.8	30.6	0.48
All Pedestrians		100	105	40.3	LOS E	0.1	0.1	0.94	0.94	67.6	35.6	0.53

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

MOVEMENT SUMMARY

Site: 102 [Hallam Rd-SUEZ Rd (AM) (Site Folder: Post Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 84 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Hallam Rd														
2	T1	821	5.0	864	5.0	0.326	5.1	LOS A	6.7	49.2	0.41	0.37	0.41	55.3
3	R2	68	5.0	72	5.0	* 0.305	42.7	LOS D	2.8	20.2	0.94	0.76	0.94	34.6
Approach		889	5.0	936	5.0	0.326	8.0	LOS A	6.7	49.2	0.45	0.40	0.45	52.9
East: Suez Rd														
4	L2	43	5.0	45	5.0	0.043	7.2	LOS A	0.3	2.4	0.26	0.61	0.26	52.8
6	R2	70	5.0	74	5.0	* 0.266	40.5	LOS D	2.8	20.1	0.92	0.76	0.92	35.4
Approach		113	5.0	119	5.0	0.266	27.8	LOS C	2.8	20.1	0.67	0.70	0.67	40.5
North: Hallam Rd														
7	L2	90	5.0	95	5.0	0.073	9.1	LOS A	1.1	8.0	0.30	0.65	0.30	50.8
8	T1	586	5.0	617	5.0	* 0.327	13.4	LOS B	7.5	54.9	0.64	0.55	0.64	49.1
Approach		676	5.0	712	5.0	0.327	12.9	LOS B	7.5	54.9	0.59	0.56	0.59	49.4
All Vehicles		1678	5.0	1766	5.0	0.327	11.3	LOS B	7.5	54.9	0.52	0.48	0.52	50.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Hallam Rd												
P1	Full	50	53	36.3	LOS D	0.1	0.1	0.93	0.93	67.4	40.5	0.60
East: Suez Rd												
P2	Full	50	53	36.3	LOS D	0.1	0.1	0.93	0.93	59.8	30.6	0.51
All Pedestrians		100	105	36.3	LOS D	0.1	0.1	0.93	0.93	63.6	35.6	0.56

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

MOVEMENT SUMMARY

Site: 102 [Hallam Rd-SUEZ Rd (PM) (Site Folder: Post Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 92 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Hallam Rd														
2	T1	755	5.0	795	5.0	0.317	7.0	LOS A	7.5	54.8	0.46	0.40	0.46	53.8
3	R2	58	5.0	61	5.0	* 0.447	52.5	LOS D	2.8	20.5	1.00	0.75	1.00	31.7
Approach		813	5.0	856	5.0	0.447	10.3	LOS B	7.5	54.8	0.50	0.43	0.50	51.2
East: Suez Rd														
4	L2	47	5.0	49	5.0	0.055	8.5	LOS A	0.5	3.9	0.31	0.62	0.31	51.9
6	R2	161	5.0	169	5.0	* 0.458	40.9	LOS D	6.8	49.9	0.92	0.80	0.92	35.3
Approach		208	5.0	219	5.0	0.458	33.6	LOS C	6.8	49.9	0.79	0.76	0.79	38.1
North: Hallam Rd														
7	L2	52	5.0	55	5.0	0.038	7.7	LOS A	0.5	3.7	0.22	0.62	0.22	51.8
8	T1	880	5.0	926	5.0	* 0.470	14.9	LOS B	13.1	95.5	0.68	0.60	0.68	48.2
Approach		932	5.0	981	5.0	0.470	14.5	LOS B	13.1	95.5	0.65	0.60	0.65	48.4
All Vehicles		1953	5.0	2056	5.0	0.470	14.8	LOS B	13.1	95.5	0.60	0.55	0.60	48.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Hallam Rd												
P1	Full	50	53	40.3	LOS E	0.1	0.1	0.94	0.94	71.4	40.5	0.57
East: Suez Rd												
P2	Full	50	53	40.3	LOS E	0.1	0.1	0.94	0.94	63.8	30.6	0.48
All Pedestrians		100	105	40.3	LOS E	0.1	0.1	0.94	0.94	67.6	35.6	0.53

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