



SEATON RESIDENTIAL MASTER PLAN
TRANSPORT AND PARKING INVESTIGATIONS



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1. INTRODUCTION

CIRQA has been engaged to provide traffic impact investigations in relation to the proposed Seaton Residential Master Plan. Specifically, CIRQA's investigations relate to the development options for the land located between West Lakes Boulevard and Glenburnie Street in Seaton. The investigations have been based on concept plans prepared by Forum Studio (contained within Appendix A).

This report includes assessment of the forecast traffic generation associated with the proposed development, the associated impact on the adjacent existing road network, active and sustainable transport provisions and consideration of potential infrastructure provisions.

2. BACKGROUND

2.1 MASTER PLAN SITE

The Seaton Residential Master Plan site comprises land south-east of the intersection of West Lakes Boulevard and Frederick Road in Seaton. The Master Plan site is bounded by West Lakes Boulevard, Arnold Street and Pedlar Street to the north, Tapleys Hill Road to the east, Glenburnie Street, Lark Avenue and Matthews Avenue to the south and Frederick Road to the west. Figure 1 illustrates the location of the Master Plan site with regard to the adjacent road network.

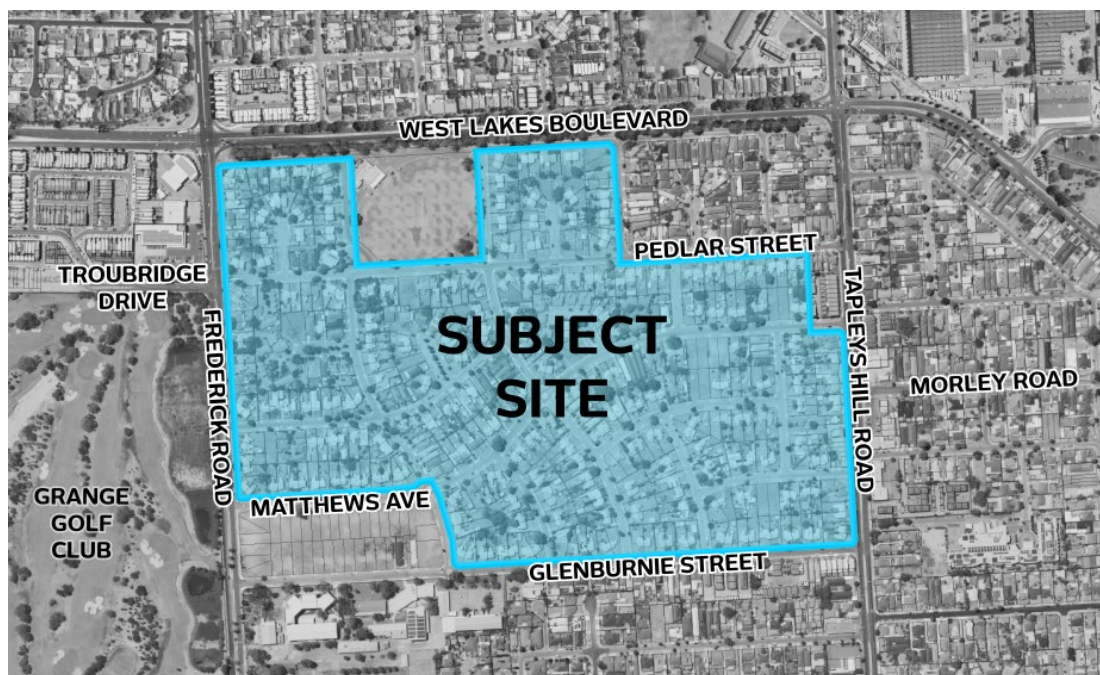


Figure 1 – Location of the Master Plan site with regard to the adjacent road network

The Planning and Design Code identifies that the majority of the site is located within a Housing Diversity Neighbourhood Zone., with the following Overlays typically applying to allotments within the Master Plan site:

- Airport Building Heights (Regulated) (All structures over 110 metres);
- Major Urban Transport Routes;
- Prescribed Wells Area;
- Regulated and Significant Tree;
- Stormwater Management;
- Traffic Generating Development;
- Urban Transport Routes;
- Urban Tree Canopy; and

- Water Resources.

The Planning and Design Code also identifies that a portion of the Master Plan site is located within a Local Activity Centre Zone, with the following Overlays applicable:

- Airport Building Heights (Regulated) (All structures over 110 metres);
- Hazards (Flooding - General);
- Major Urban Transport Routes;
- Prescribed Wells Area;
- Regulated and Significant Tree; and
- Traffic Generating Development.

The majority of the Master Plan site is currently occupied by residential development, with a small portion of the site (within the Local Activity Centre Zone) occupied by commercial development. It is estimated that there are 514 existing dwellings within the Master Plan site.

Vehicle access to the Master Plan site is provided via two intersections on Frederick Road (not including Glenburnie Street), four intersections on Glenburnie Street and four intersections on Tapleys Hill Road, at which all turning movements are permitted. In addition, many of the allotments located on the roads that bound the Master Plan site include access points located on the roads that bound the Master Plan site.

2.2 ROAD NETWORK

2.2.1 KEY ROADS

West Lakes Boulevard is an arterial road under the care and control of the Department for Infrastructure and Transport (DIT). Adjacent the site, West Lakes Boulevard comprises two traffic lanes and a bicycle lane in each direction, with eastbound and westbound traffic lanes separated by a central median island. Traffic data obtained from DIT indicates that the section of Frederick Road adjacent the site has an Annual Average Daily Traffic (AADT) volume in the order of 17,600 vehicles per day (vpd), of which approximately 3.0% are commercial vehicles. Adjacent the site, a 60 km/h speed limit applies on West Lakes Boulevard.

Frederick Road is an arterial road under the care and control of DIT. Adjacent the site, Frederick Road comprises two traffic lanes in a northbound direction and two traffic lanes and an indented parking lane in a southbound direction, with

northbound and southbound lanes separated by a central median island (which accommodates right-turn lanes at adjacent side streets). Traffic data obtained from DIT indicates that the section of Frederick Road adjacent the site has an AADT volume in the order of 13,700 vpd, of which approximately 3.0% are commercial vehicles. Adjacent the site, a 60 km/h speed limit applies on Frederick Road.

Tapleys Hill Road is an arterial road under the care and control of DIT. Adjacent the site, Tapleys Hill Road comprises two traffic lanes in a northbound direction and two traffic lanes and a bicycle lane in each direction, with northbound and southbound lanes separated by a central median island (which accommodates right-turn lanes at adjacent side streets). Traffic data obtained from DIT indicates that the section of Tapleys Hill Road adjacent the site has an AADT volume in the order of 21,600 vpd, of which approximately 5.5% are commercial vehicles. Adjacent the site, a 60 km/h speed limit applies on Tapleys Hill Road.

Glenburnie Street is a collector road under the care and control of the City of Charles Sturt. Glenburnie Street comprises an 9.0 m carriageway (approximate) with a single (unmarked) traffic lane in each direction. Road humps have been installed on the section of Glenburnie Street west of Lark Avenue as part of a local area traffic management scheme. Traffic data obtained from the City of Charles Sturt indicates that Glenburnie Street has an AADT volume in the order of 1,100 vpd. The urban default speed limit of 50km/h applies on Glenburnie Street, albeit a 25km/h school zone speed limit applies adjacent Seaton High School when children are present.

Pedlar Street is a local road under the care and control of the City of Charles Sturt. Pedlar Street comprises a carriageway that varies in width between 7.7 m and 9.0 m (approximate), with a single (unmarked) traffic lane in each direction. The urban default speed limit of 50km/h applies on Pedlar Street.

The remaining roads within the Master Plan site comprise low-volume local roads on which the urban default speed limit of 50km/h applies. The road network comprises a combination of straight roads and roads with a curvilinear alignment. Intersection treatments within the Master Plan road network include three-way (T-intersections) at which standard 'Give Way' priority control applies and roundabouts at four-way intersections.

2.2.2 KEY INTERSECTIONS

The following key intersections are located adjacent the Master Plan site:

- West Lakes Boulevard and Frederick Road form a four-way signalised intersection;

- West Lakes Boulevard and Tapleys Hill Road form a four-way signalised intersection;
- Frederick Road and Troubridge Drive form a three-way signalised intersection;
- Parker Avenue, Matthews Avenue and Glenburnie Street form three separate priority-controlled (Give Way) T-intersections with Frederick Road (with priority assigned to Frederick Road at each intersection); and
- Pedlar Street, Matthews Avenue, Barrey Avenue and Glenburnie Street form four separate priority-controlled (Give Way) T-intersections with Tapleys Hill Road (with priority assigned to Tapleys Hill Road at each intersection).

2.3 WALKING, CYCLING AND PUBLIC TRANSPORT

Sealed footpaths are provided on both sides of most roads within the Master Plan site (with the exception of roads adjacent Pedlar Reserve and cul-de-sacs within the site), servicing both pedestrians and cyclists. Cyclists are also able to ride within bicycle lanes (where provided on West Lakes Boulevard, Frederick Road and Tapleys Hill Road) and on-street sharing the road with motorists (where bicycle lanes are not provided).

Pedestrian actuated crossings are provided across West Lakes Boulevard (approximately 150 m west of Tapleys Hill Road), Tapleys Hill Road (approximately 50 m south of Glenburnie Street) and Frederick Road a (approximately 80 m south of Glenburnie Street). Pedestrian actuated signalisation (i.e. a push-button crossing facility) is also incorporated into the adjacent signalised intersections. Pedestrian refuge islands are provided on West Lakes Boulevard (approximately 180 m east of Frederick Road and approximately 300 m west of Tapleys Hill Road) and Tapleys Hill Road (approximately 70 m north of Glenburnie Street).

Strava heat mapping for all activities (including running and cycling) identifies that the adjacent arterial roads are the roads adjacent the Master Plan site that are most utilised by pedestrians and cyclists, with Green Avenue, Glenburnie Street, Fidock Avenue, Pedlar Street and South Parade also frequently used for running and cycling activities (as shown in Figure 2).

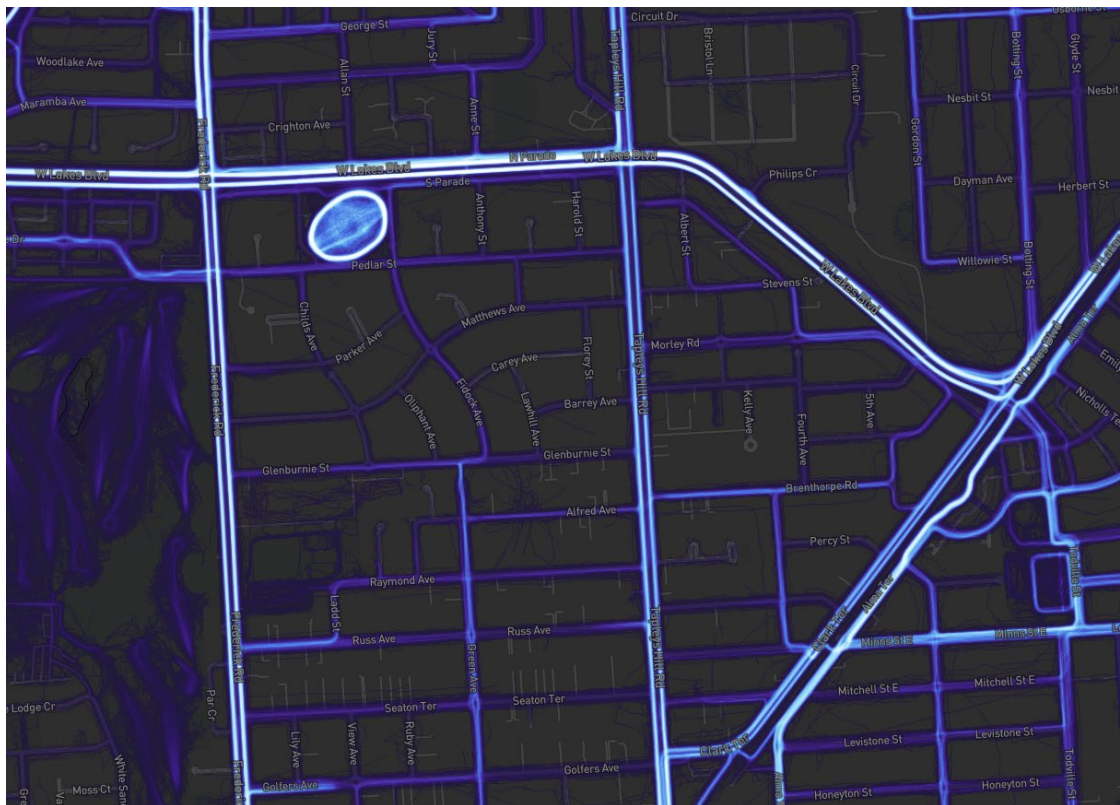


Figure 2 – Strava ('all activities') heat map for site locality (Source: Strava Inc.)

High-frequency public bus services operate in the vicinity of the subject site, with stops (included within 'Go Zones') located within close proximity of the Master Plan site (and typically within 500 m walking distance from any given allotment within the site), on both sides of West Lakes Boulevard, Frederick Road and Tapleys Hill Road. These stops are serviced by the following bus routes:

- 110 - West Lakes Centre Interchange to City;
- 115 - West Lakes Centre Interchange to City;
- 117 - Port Adelaide Interchange to City;
- 118 - Port Adelaide Interchange to City;
- 155 - West Lakes Centre Interchange to City;
- 157 - Largs Bay to City;
- J7 - West Lakes Centre Interchange to Marion Centre Interchange;
- J7M - West Lakes Centre Interchange / Marion Centre Interchange to Camden Park; and
- J8 - West Lakes Centre Interchange to Marion Centre Interchange.

Additional bus services are also available at West Lakes Interchange, which is located approximately 1 km west of the Master Plan site.

In addition, the Seaton Park Railway Station is located approximately 670 m south-east of the Master Plan site and the Albert Park Railway Station located approximately 950 m east of the Master Plan site. Both the Seaton Park and Albert Park Railway Stations are serviced by trains operating on the Grange Railway Line, which provides access to the Adelaide CBD and destinations to the north-west of the CBD such as Grange and Woodville.

The existing transport infrastructure, including pedestrian crossings, cycling facilities and public transport stops within and adjacent the Master Plan site, is shown in Figure 3.



Figure 3 – Transport facilities in the vicinity of the Master Plan site (source: Government of South Australia LocationSA website)

3. PROPOSED MASTER PLAN

3.1 LAND USE AND YIELD

The Master Plan proposes future residential development over land within the Master Plan site located within the Housing Diversity Neighbourhood Zone. For the purposes of these investigations, it has been assumed that the subject site could accommodate in the order of 1,315 new dwellings, comprising:

- 450 high-density residential dwellings;
- 476 medium-density residential dwellings; and
- 389 low-density residential dwellings.

3.2 GENERAL MASTER PLAN DESIGN PRINCIPLES (TRANSPORT AND PARKING)

The general principles for the planning of road and path infrastructure within and adjacent the Master Plan site are as follows:

- the pedestrian/cycling network should maximise connectivity to public transport stops (including bus stops and rail stations);
- the pedestrian/cycling network should include new and/or improved crossing facilities across arterial roads;
- the cycling network should maximise alignment with strategic cycling corridors, such as the BikeDirect network and existing on-road facilities on West Lakes Boulevard, Frederick Road and Tapleys Hill Road and the shared use corridor north of the Grange Golf Club;
- the cycling network should aim to provide separated paths wherever possible (i.e. paths that separate bicycle traffic and motor vehicle traffic);
- four-way intersections within the road network should be treated with physical traffic control devices, such as roundabouts or raised platforms (with the exception of intersections that include low-volume, low-speed roads, such as laneways), to minimise the potential for traffic conflict;
- non-local cut-through traffic should be discouraged from using the site's internal road network by avoiding provision of uninterrupted connections through the site between the adjacent arterial and distributor roads;
- removal of existing road closures within the site is possible, provided that consideration is given to the benefits and disadvantages associated with increased connectivity through the site;
- improved streetscape amenity and road design consistent with a 40 km/h speed limited area would assist in improving amenity and safety for all road users (consideration should also be given to formalising an area-wide

40 km/h speed limit bounded by West Lakes Boulevard, Tapleys Hill Road, Glenburnie Street and Frederick Road as part of the Master Plan);

- provision of local roads at least 7.2 m in width would allow parking on both sides of the carriageway and clearance for through traffic (single vehicle width) in the centre of the road;
- provision of a laneway network would allow rear-loading of medium-density and high-density development sites, which has the potential to minimise the impacts of parking and access points on the adjacent road network;
- the number and size of access points and intersections on arterial roads should be minimised;
- new access points and intersections should be located with adequate clearance to existing intersections; and
- on-street parking opportunities should be maximised by minimising the number and size of crossovers.

3.3 VEHICLE ACCESS AND ROAD INFRASTRUCTURE

The existing network and hierarchy of roads within the Master Plan site are proposed to be retained, with a number of new local roads and laneways proposed to provide 'finer grain' access through the site (including provision for rear-loading of future development sites).

The Master Plan includes consideration of a new road connection via West Lakes Boulevard, adjacent Pedlar Reserve. Direct private access for a number of allotments via Frederick Road and Tapleys Hill Road is also envisaged in the Master Plan.

The proposed connection to West Lakes Boulevard comprises a new access point on an arterial road through a public reserve (requiring revocation of community land status) and therefore will also require further discussion with DIT and Council. The number of permitted movements at this access point may require restriction (i.e. permitting left-in only or left-out movements only). Given the significant demand for movement to/from the east of the site, permitting left-in movements may be of greatest benefit (should DIT support a new access on West Lakes Boulevard but seek to minimise potential traffic conflict). Nevertheless, there would also be benefit in accommodating left-out movements. Accommodating left-out movements would provide a safer and more direct option for drivers exiting the Master Plan site seeking to access destinations to the west (such as West Lakes Shopping Centre) than undertaking unsignalised right-out movements onto Frederick Road.

The Master Plan would cater for the following road network street typologies:

- **local roads** – a road reserve between 12.2 m and 18.0 m in width, allowing for provision of a 7.2 m-wide carriageway (permitting on-street parallel parking on both sides) and verges which would accommodate 1.5 m-wide footpaths on at least one side;
- **laneways** – a road reserve between 8.0 m and 10.0 m in width, allowing for provision of a 6.0 m-wide carriageway and verges of between 1.0 m and 3.0 m in width (including indented parallel parking on one side where verge width allows).

Traffic control devices at existing intersections within the Master Plan site would typically be retained (for example, existing 'Give Way' priority control and roundabouts). New intersections comprising at least one laneway leg would typically be designed as four-way intersections controlled by 'Give Way' priority control. New four-way intersections of local roads would typically be treated with physical traffic control devices, such as roundabouts or raised platforms.

Whilst allotments adjacent intersections would typically comprise corner cut-offs to assist in providing adequate vehicle and pedestrian sightlines, it should be noted that assessment of the design of the various intersections and access driveway locations within the Master Plan road network would be undertaken as part of a development application for each development stage.

Footpaths (of at least 1.5 m in width) would be provided throughout the Development, on at least one side of each road (excluding laneways, where a verge at least 1.0 m in width will be provided).

The Master Plan includes potential for provision of separated shared use (pedestrian and bicycle) paths along key north-south routes through the site (for example, adjacent Fidock Avenue and Crane Place) linking strategic cycling routes along Pedlar Street, Glenburnie Street and Green Avenue. All other bicycle movements would be undertaken on paths (in a shared arrangement with pedestrians) or on the roadway (in a shared arrangement with motor vehicles).

Road alignments would be designed to accommodate the turning movements of service vehicles that require access to the network on a regular basis (including Council's refuse collection vehicles). Again, this would be subject to assessment as part of future development applications for each development stage.

4. PARKING ASSESSMENT

The Planning and Design Code seeks the provision of 0.33 on-street parking spaces per new residential allotment created. The Master Plan would result in creation of approximately 895 new allotments and therefore would be associated with a requirement for provision of 296 on-street parking spaces to satisfy the criteria specified in the Planning and Design Code.

On-street parking is proposed to be accommodated on the various carriageways throughout the site in the form of parallel on-street parking spaces. Given the extent of carriageways proposed throughout the Master Plan (including those that front rear-loaded allotments where driveways would not restrict on-street parking), it is considered that the level of on-street parking provision sought by the Planning and Design Code would be readily achieved. In any event, detailed assessment of on-street parking provision would be undertaken as part of the development application for each future development stage.

5. TRAFFIC GENERATION AND DISTRIBUTION

In order to determine the potential traffic impact of the Master Plan on the adjacent road network, traffic volumes associated with existing dwellings identified for demolition, as well as that associated with the proposed future dwellings, have been forecast for the site. The assessment has been based on am peak hour, pm peak hour, and daily traffic generation.

5.1 FORECAST EXISTING MOVEMENTS

In order to identify the potential change in traffic volumes associated with future development of the site compared to existing conditions, a forecast of the traffic generation associated with the site's existing dwellings identified for demolition has been undertaken. These existing traffic volumes have been forecast using rates adopted from the RTA *"Guide to Traffic Generating Developments"* and its subsequent updates (the RTA Guide). Accordingly, the following traffic generation rates have been applied:

- **low-density residential dwellings:**
 - 0.8 am and 0.8 pm trips per dwelling during the respective peak hours and 8.0 daily trips per dwelling); and
- **medium-density residential dwellings** (i.e. units and townhouses):
 - 0.65 am and 0.65 pm trips per dwelling during the respective peak hours and 6.5 daily trips per dwelling; and

Based on the above, it is estimated that the existing residential dwellings identified for demolition within the Master Plan site has the potential to generate in the order of:

- 266 am and pm peak hour trips; and
- 2,660 daily trips.

5.2 FORECAST FUTURE MOVEMENTS

In addition to future traffic generation associated with development within the boundary of the subject site, as identified in Figure 1, future traffic movements will also be generated by development within the approved (but undeveloped at the time of writing) Stage 1 site bounded by Matthews Avenue, Lark Avenue, Glenburnie Street and Frederick Road. The Stage 1 site is associated with the following development yields:

- 138 new dwellings comprising:
 - 64 high-density residential dwellings;
 - 33 medium-density residential dwellings; and

- 41 low density residential dwellings.

Future traffic volumes for the Master Plan (Figure 1) and Stage 1 sites have been forecast using rates adopted from the RTA Guide. Accordingly, in addition to the rates specified in Section 5.1, the following traffic generation rate has been applied:

- **high-density residential dwellings** (apartments):
 - 0.53 am and 0.32 pm trips per dwelling during the respective peak hours (and 4.6 daily trips per dwelling).

On the basis of the proposed development yields and the above rates, future development of the Master Plan site (accounting for both the Master Plan Figure 1 and Stage 1 sites) is forecast to generate in the order of 940 am peak hour trips, 832 pm peak hour trips and 9,023 daily vehicle trips.

5.3 DIFFERENTIAL VOLUMES

Based on the above forecasts, the difference between forecast existing traffic movements and forecast future traffic movements equates to:

- an increase of 674 am peak hour trips;
- an increase of 566 pm peak hour trips; and
- an increase of 6,363 daily trips.

5.4 TRAFFIC DISTRIBUTION

The distribution of future movements associated with the Master Plan has been estimated using demographic data from the 2021 ABS Census and consideration of the location of key destinations and the connections provided via the adjacent road network. This included demographic data for the City of Charles Sturt in relation to the location of residents' places of work. Figure 4 illustrates the broad distribution of traffic adopted for this assessment.

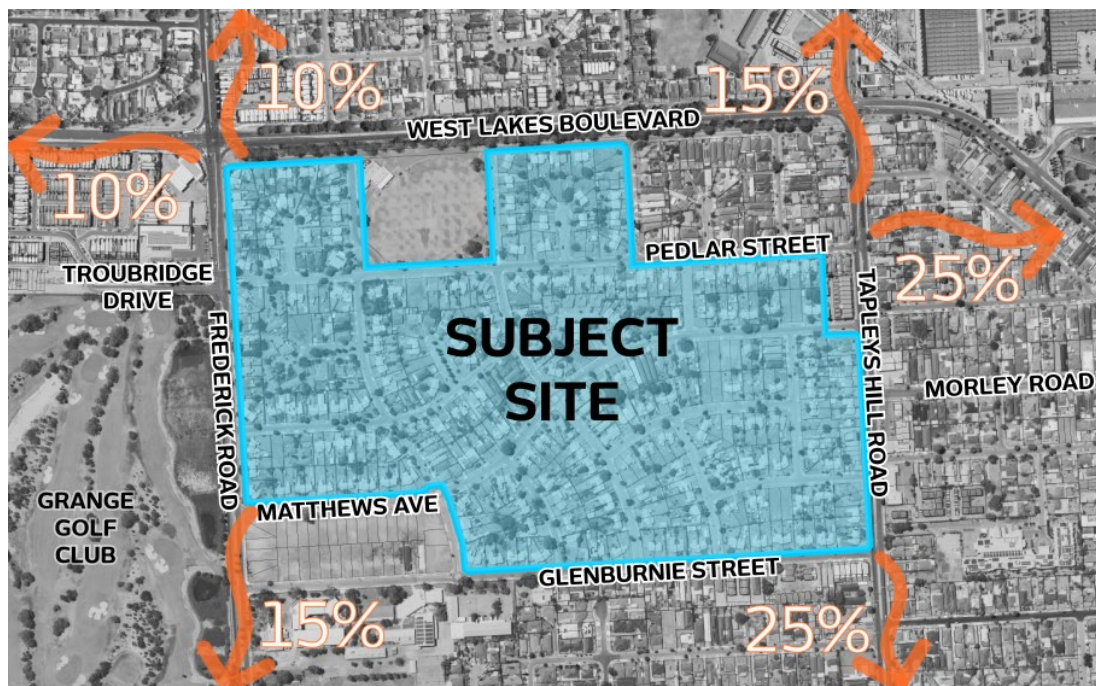


Figure 4 - Broad distribution of future traffic movements to/from the wider area adopted for the assessment

The resulting distribution of additional daily vehicle movements at the Master Plan site's arterial access points is identified in Figure 5. For the purposes of this assessment, it has been assumed that existing arterial connections will be retained (i.e. the assessment does not include the new road network connection on West Lakes Boulevard mentioned in Section 3.3).

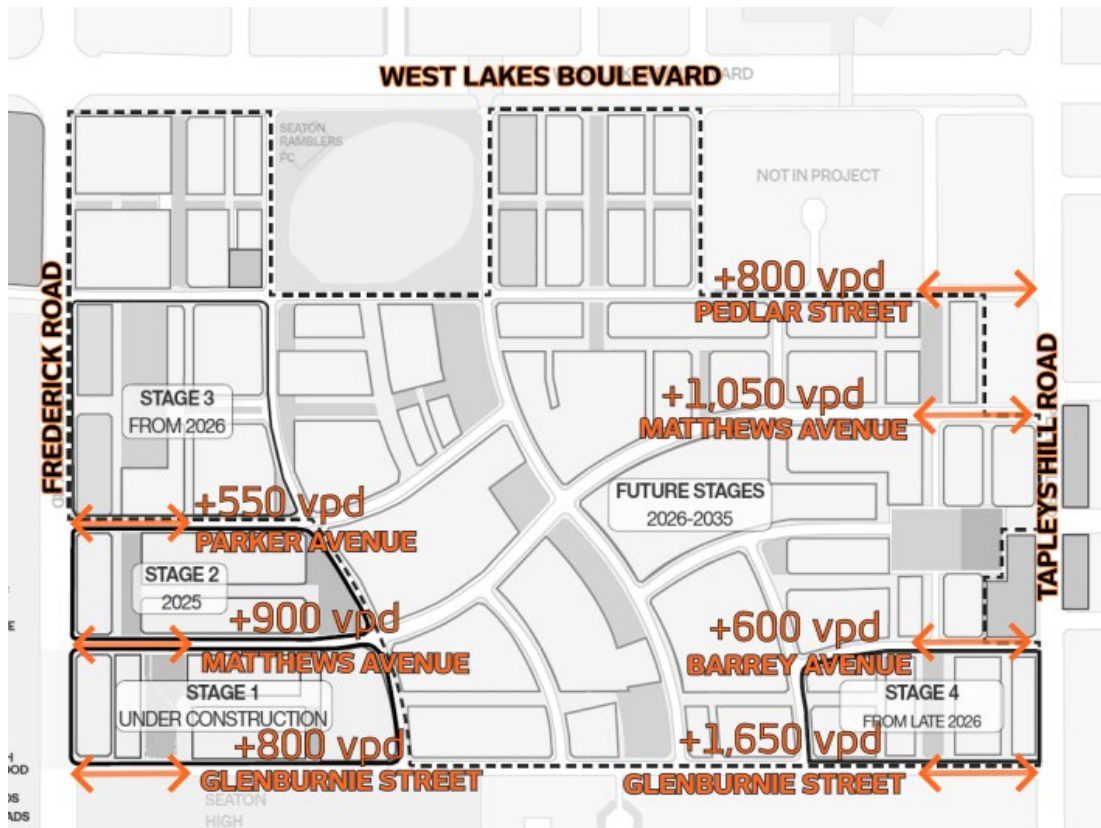


Figure 5 - Distribution of additional daily vehicle movements associated with Master Plan

In addition to the assessment of additional daily vehicle movements above, it has been assumed that the proposed residential uses will be associated with inbound/outbound splits of 30% in/70% out in the am commuter peak hour and 70% in/30% out in the pm commuter peak hour. The resulting distributions of am and pm vehicle movements at key access intersections associated with the Master Plan site are illustrated in Figure 6.

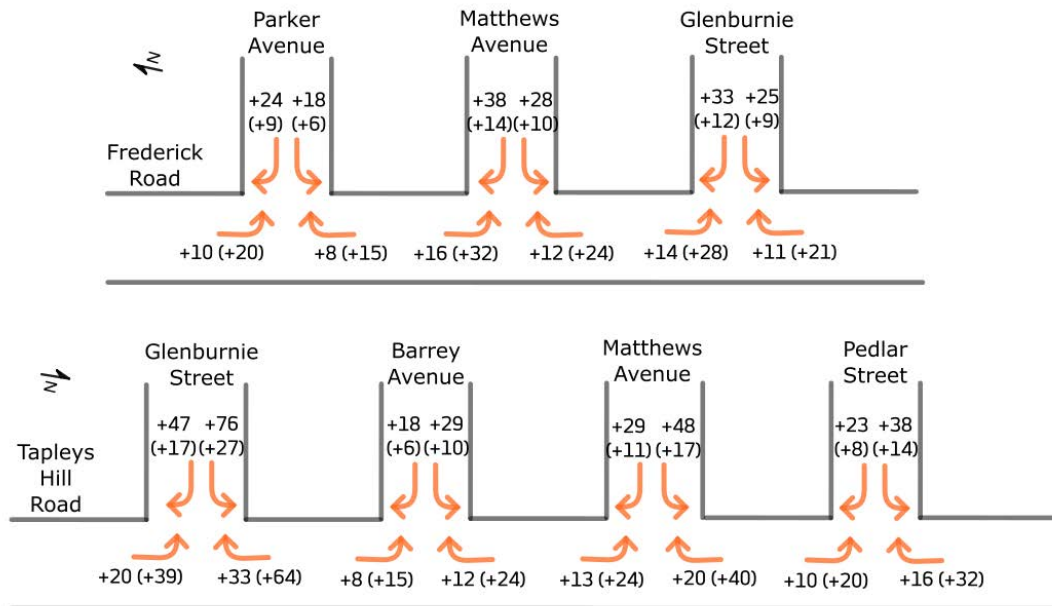


Figure 6 - Distribution of vehicle movements at the site's key access points on Frederick Road and Tapleys Hill Road during am (and pm) peak hour

6. TRAFFIC IMPACT ANALYSES

6.1 ROAD HIERARCHY

In order to determine the potential traffic impact of the proposed Master Plan, a comparison of existing and forecast daily traffic volumes has been undertaken for key roads within the Master Plan site. The existing and forecast daily traffic volumes for these roads are illustrated below in Table 1.

Table 1 – Daily traffic volumes forecast on key roads within the Master Plan site

Road	Type	Theoretical capacity (vpd)	Estimated existing volume (vpd)	Forecast volume (vpd)
Parker Avenue	Local	1,500	400	950
Matthews Avenue (west)	Local	1,500	600	1,500
Glenburnie Street (west)	Collector	3,000	1,100	1,900
Pedlar Street	Local	1,500	600	1,425
Matthews Avenue (east)	Local	1,500	650	1,700
Barrey Avenue	Local	1,500	450	1,050
Glenburnie Street (east)	Collector	3,000	1,100	2,750

The IPWEA Guide identifies theoretical capacity for local roads of 1,500 vehicles per day for local roads and 3,000 vehicles per day for collector roads. As illustrated in Table 1, most roads within the site will continue to carry a daily traffic volume less than their respective theoretical capacities (upon realisation of the forecast development yields). However, Pedlar Street and Matthews Avenue are likely to have volumes approaching (or slightly exceeding) the theoretical capacity of a local street, therefore consideration should be given to reviewing the status in the road hierarchy of Pedlar Street and Matthews Avenue for example, designating these roads as 'local collector' streets and designing the road cross-section accordingly) as part of Master Plan delivery.

6.2 KEY INTERSECTION TRAFFIC MODELLING

SIDRA INTERSECTION 9.1 modelling software has been utilised for the modelling of the five (5) key intersections. The modelling has been undertaken taking into consideration the Department for Infrastructure and Transport's *Traffic Modelling Guidelines – SIDRA Intersection* Version 2.1, dated August 2022.

The Department for Infrastructure and Transport (DIT) has provided base volumes for the following key signalised intersections (with the DIT base data provided in Appendix B):

- intersection of West Lakes Boulevard and Frederick Road (dated August 2023);
- intersection of West Lakes Boulevard and Tapleys Hill Road (dated August 2023); and
- intersection of Frederick Road and Troubridge Drive ('Brebner Drive') (dated April 2021).

The peak hour base volumes for the intersection of Frederick Road and Glenburnie Street and the intersection of Tapleys Hill Road and Glenburnie Street were determined by turning movement surveys undertaken by Austraffic on Tuesday 17 June 2025. The surveys identified the following peak hours at these intersections:

- at the intersection of Frederick Road and Glenburnie Street:
 - am peak hour between 8:00 am and 9:00 am; and
 - pm peak hour between 4:30 pm and 5:30 pm; and
- at the intersection of Tapleys Hill Road and Glenburnie Street:
 - am peak hour between 7:45 am and 8:45 am; and
 - pm peak hour between 3:45 pm and 4:45 pm.

The peak hour base volume data summary for both Glenburnie Street intersections is included in Appendix B.

The SIDRA models for the five (5) key intersections were prepared based on the existing intersection geometries as well as default inputs (unless specified by the DIT Guidelines). The base case and future case modelling results are summarised in the following sections, with detailed outputs of the modelling provided in Appendix C and Appendix D.

6.2.1 INTERSECTION OF WEST LAKES BOULEVARD AND FREDERICK ROAD

Table 2 summarises the key results from the SIDRA analysis of the intersection of West Lakes Boulevard and Frederick Road for the base case and future case scenarios in the am and pm peak hours.

Table 2 – West Lakes Boulevard/Frederick Road intersection modelling results during the am and pm peak hours

	Degree of Saturation (Level of Service)			
	Base Case am	Future Case am	Base Case pm	Future Case pm
Frederick Road (S)				
Left	0.706 (B)	0.720 (C)	0.839 (D)	0.844 (D)
Through	0.706 (D)	0.720 (D)	0.839 (E)	0.844 (E)
Right	0.696 (E)	0.594 (E)	0.624 (E)	0.645 (E)
West Lakes Boulevard (E)				
Left	0.761 (B)	0.736 (B)	0.792 (B)	0.896 (C)
Through	0.761 (D)	0.736 (D)	0.792 (D)	0.896 (E)
Right	0.462 (E)	0.446 (E)	0.625 (E)	0.485 (E)
Frederick Road (N)				
Left	0.640 (B)	0.598 (B)	0.623 (B)	0.643 (B)
Through	0.640 (D)	0.598 (D)	0.623 (D)	0.643 (D)
Right	0.797 (E)	0.741 (E)	0.908 (E)	0.902 (E)
West Lakes Boulevard (W)				
Left	0.142 (A)	0.147 (A)	0.280 (B)	0.284 (B)
Through	0.419 (C)	0.468 (C)	0.562 (D)	0.636 (D)
Right	0.501 (D)	0.725 (E)	0.881 (E)	0.862 (E)

The SIDRA analysis indicates that the Levels of Service (LoS) would generally be within acceptable levels, with only a single movement (northbound through movement on Frederick Road) decreasing to an LoS 'E' (all other movements remain LoS 'E', as per the base case, or remain within an acceptable limit).

The modelling identifies that the pm peak hour is the more critical of the peak hours, with notably higher existing traffic volumes compared to that of the am peak hour. The proposed development is forecast to increase volumes at the intersection by a (modest) 113 vehicles during the critical (pm) peak hour, equivalent to an increase of only 3.5%.

6.2.2 INTERSECTION OF WEST LAKES BOULEVARD AND TAPLEYS HILL ROAD

Table 2 summarises the key results from the SIDRA analysis of the intersection of West Lakes Boulevard and Tapleys Hill Road for the base case and future case scenarios in the am and pm peak hours.

Table 2 – West Lakes Boulevard/Tapleys Hill Road intersection modelling results during the am and pm peak hours

	Degree of Saturation (Level of Service)			
	Base Case am	Future Case am	Base Case pm	Future Case pm
Tapleys Hill Road (S)				
Left	0.885 (C)	0.998 (E)	0.910 (C)	0.824 (C)
Through	0.885 (E)	0.998 (F)	0.910 (E)	0.824 (D)
Right	0.553 (E)	0.954 (F)	0.535 (E)	0.836 (E)
West Lakes Boulevard (E)				
Left	0.636 (E)	0.757 (E)	0.790 (D)	0.842 (E)
Through	0.636 (D)	0.757 (E)	0.790 (D)	0.842 (D)
Right	0.833 (E)	0.937 (F)	0.657 (E)	0.607 (E)
Tapleys Hill Road (N)				
Left	0.649 (D)	0.694 (D)	0.841 (E)	0.845 (D)
Through	0.649 (C)	0.694 (C)	0.841 (D)	0.845 (D)
Right	0.625 (E)	0.416 (E)	0.639 (E)	0.800 (E)
West Lakes Boulevard (W)				
Left	0.843 (D)	0.988 (E)	0.575 (C)	0.624 (C)
Through	0.843 (E)	0.988 (F)	0.575 (D)	0.624 (D)
Right	0.611 (E)	0.786 (E)	0.632 (E)	0.827 (E)

The SIDRA analyses indicate that the operation of the intersection will remain akin to existing conditions whilst accommodating additional traffic volumes associated with the development and realisation of the Seaton Master Plan. Minor increases in Degree of Saturation were reported for the majority of movements, however some movements also reported improved Levels of Service. Again, improved Levels of Service are the result of more 'balanced' signal operation arising from phasing changes for future scenario modelling (i.e. improved signal efficiency). Importantly, queue distances remain largely consistent under the future scenarios and, where increased, remain within the storage lengths of the separated turn lanes.

Based upon the modelling, it is considered that the intersection will continue to operate satisfactorily.

6.2.3 INTERSECTION OF FREDERICK ROAD AND TROUBRIDGE DRIVE ('BREBNER DRIVE')

Table 3 summarises the key results from the SIDRA analysis of the intersection of Frederick Road and Troubridge Drive for the base case and future case scenarios in the am and pm peak hours.

Table 3 –Frederick Road/Troubridge Drive intersection modelling results during the am and pm peak hours

	Degree of Saturation (Level of Service)			
	Base Case am	Future Case am	Base Case pm	Future Case pm
Frederick Road (S)				
Left	0.324 (B)	0.362 (B)	0.298 (B)	0.317 (B)
Through	0.324 (A)	0.362 (A)	0.298 (A)	0.317 (A)
Frederick Road (N)				
Through	0.272 (A)	0.282 (A)	0.255 (A)	0.312 (A)
Right	0.121 (B)	0.131 (B)	0.208 (A)	0.241 (B)
Troubridge Drive (W)				
Left	0.379 (D)	0.352 (D)	0.490 (C)	0.312 (D)
Right	0.338 (D)	0.352 (E)	0.490 (C)	0.312 (D)

The SIDRA analysis indicates that the intersection currently operates satisfactorily with an appropriate Degree of Saturation and Level of Service reported for all movements. The additional traffic forecast to be generated by the Seaton Master Plan will not detrimentally impact upon the intersection's operation, with the modelling indicating that movements will remain within acceptable limits, with the intersection capable of accommodating significantly higher volumes than that forecast within future scenario modelling.

6.2.4 INTERSECTION OF FREDERICK ROAD AND GLENBURNIE STREET

Table 4 summarises the key results from the SIDRA analysis of the intersection of Frederick Road and Glenburnie Street for the base case and future case scenarios in the am and pm peak hours.

Table 4 –Frederick Road/Glenburnie Street intersection modelling results during the am and pm peak hours

	Degree of Saturation (Level of Service)			
	Base Case am	Future Case am	Base Case pm	Future Case pm
Frederick Road (S)				
Through	0.172 (A)	0.177 (A)	0.154 (A)	0.165 (A)
Right	0.066 (A)	0.085 (A)	0.003 (A)	0.033 (A)
Glenburnie Street (E)				
Left	0.429 (A)	0.701 (B)	0.137 (A)	0.252 (A)
Right	0.429 (D)	0.701 (E)	0.137 (C)	0.252 (D)
Frederick Road (N)				
Left	0.166 (A)	0.183 (A)	0.191 (A)	0.204 (A)
Through	0.166 (A)	0.183 (A)	0.191 (A)	0.204 (A)

The SIDRA analysis indicates that the intersection currently operates satisfactorily and will continue to do in the future case scenario. Whilst the Level of Service was reported to decrease from 'D' to 'E' at the intersection in the am peak hour, the decrease represents a delay increase of approximately 15 seconds. The increase in delay is not considered substantial and is unlikely to result in a change in driver travel patterns through the intersection.

The modelling indicates that the am peak hour is the most critical for intersection performance, noting that this period is when turning movements from Frederick Road are highest (and overall traffic volumes are highest), predominately due to traffic associated with Seaton High School. However, during the am period, most of the traffic generated by the development will be travelling outbound (i.e. the number of additional vehicles seeking to turn onto Glenburnie Street from Frederick Road are low).

The 95th percentile queue distance on the right turn lane on Frederick Road is forecast to increase by only 0.6 m during the am peak hour (queue distances during the pm peak hour are even lower). Such queue distance (2.3 m) is within the storage length of the turn lane and would not detrimentally impact the flow of traffic on Frederick Road.

6.2.5 INTERSECTION OF TAPLEYS HILL ROAD AND GLENBURNIE STREET

Table 5 summarises the key results from the SIDRA analysis of the intersection of Tapleys Hill Road and Glenburnie Street for the base case and future case scenarios in the am and pm peak hours.

Table 5 – Tapleys Hill Road/Glenburnie Street intersection modelling results during the am and pm peak hours

	Degree of Saturation (Level of Service)			
	Base Case am	Future Case am	Base Case pm	Future Case pm
Tapleys Hill Road (S)				
Left	0.304 (A)	0.319 (A)	0.280 (A)	0.308 (A)
Through	0.304 (A)	0.319 (A)	0.280 (A)	0.308 (A)
Tapleys Hill Road (N)				
Through	0.225 (A)	0.245 (A)	0.286 (A)	0.294 (A)
Right	0.213 (B)	0.308 (B)	0.052 (B)	0.294 (B)
Glenburnie Street (W)				
Left	0.328 (A)	1.580 (F)	0.299 (A)	0.949 (F)
Right	0.328 (F)	1.580 (F)	0.299 (F)	0.949 (F)

The SIDRA analysis indicates that the Glenburnie Street approach will become oversaturated in the am peak hour. However, this analysis assumes that this approach will continue to function with a single lane of egress (as was observed

during site observations due to the relative ease of turning onto Tapleys Hill Road). In reality, should lengthy queues regularly form on Glenburnie Street in peak hour, it is likely that drivers will acknowledge this capacity issue and queue side-by-side within the 4.5 m wide (approximate) eastbound lane, thereby resulting in a higher level of throughput than suggested by the modelling. Alternatively, drivers will adjust their travel patterns and change their route to avoid the intersection should they consider delays excessive. The resultant conditions are therefore considered to be akin to many unsignalised T-intersections within the metropolitan arterial road network.

Similarly to the assessment of the Frederick Road and Glenburnie Street intersection, the modelling indicates the am peak hour as the most critical for intersection performance (again due to a more pronounced school peak). The 95th percentile queue distance for the right turn lane on Tapleys Hill Road was only reported to increase from 5.1 m to 8.1 m during the am peak hour (queue distances during the pm peak hour are even lower). Such a queue distance is well within the storage length of the turn lane and would not detrimentally impact the flow of traffic on Tapleys Hill Road.

6.2.6 OTHER INTERSECTIONS ON FREDERICK ROAD

The assessment in Section 6.2.4 identifies that the intersection of Frederick Road and Glenburnie Street will function satisfactorily at the completion of the Master Plan development. Notably, traffic volumes at local street intersections on Frederick Road north of Glenburnie Street would be significantly lower than traffic volumes at the intersection of Frederick Road and Glenburnie Street (a collector street which is used by the majority of school traffic turning from Frederick Road).

Also of relevance, right-turn lane storage capacity at all Master Plan site intersections along Frederick Road are comparable. Given the modelling results show the right turn queues of the Frederick Road/Glenburnie Street intersection are contained within the available storage length, it is reasonable to assume that the intersection of Frederick Road and Parker Avenue and the intersection of Frederick Road and Matthews Avenue will function satisfactorily at the completion of the Master Plan.

6.2.7 OTHER INTERSECTIONS ON TAPLEYS HILL ROAD

SIDRA analysis of the intersection of Tapleys Hill Road and Glenburnie Street identifies potential future oversaturation in the am peak hour, primarily associated with eastbound outbound movements from the Master Plan site. Potential for outbound movements to redistribute to intersections to the north (i.e. Barrey Avenue, Matthews Avenue and Pedlar Street) has been identified. Again, traffic volumes at local street intersections north of Glenburnie Street would be significantly lower than traffic volumes at the intersection of Tapleys

Hill Road and Glenburnie Street, therefore these intersections are likely to have capacity to accommodate additional outbound movements.

With regard to inbound movements, the SIDRA analysis of the intersection of Tapleys Hill Road and Glenburnie Street identifies a maximum 95th percentile right-turn queue of 1.1 vehicles (8.1 m) during the am peak hour (primarily due to school traffic). Given that traffic volumes at local street intersections north of Glenburnie Street would be significantly lower than traffic volumes at the intersection of Tapleys Hill Road and Glenburnie Street, and given that school-related traffic is unlikely to enter the Master Plan site via intersections north of Glenburnie Street, the intersections with Barrey Avenue, Matthews Avenue and Pedlar Street are likely to have capacity to accommodate future inbound movements (including accommodation of queues within the right-turn lanes on Tapleys Hill Road).

7. SUMMARY

The proposed Master Plan proposes future residential redevelopment over the subject site. It is anticipated that approximately 1,315 residential dwellings could ultimately be developed within the subject site.

The Master Plan proposes to maintain access via the existing road network, however the Master Plan also includes consideration of a potential additional access point on West Lakes Boulevard, which will require further traffic impact analysis and discussion with DIT and Council.

Forecasting of the site's existing and future traffic generation has been undertaken using the existing yields and anticipated Master Plan yields respectively. The assessment identifies that the proposed Master Plan will generate in the order of 674 additional am peak hour trips, 566 additional pm peak hour trips and 6,363 additional daily trips on the adjacent road network.

Vehicle movements are anticipated to be readily accommodated on most roads within the Master Plan site's road network with some roads potentially requiring changes to road classification (i.e. change in classification from 'local street' to 'local collector street').

SIDRA analysis has been undertaken for five (5) key intersections associated with the Seaton Residential Master Plan site, namely:

- the intersection of West Lakes Boulevard and Frederick Road;
- the intersection of West Lakes Boulevard and Tapleys Hill Road;
- the intersection of Frederick Road and Troubridge Drive (formerly 'Brebner Drive');
- the intersection of Frederick Road and Glenburnie Street; and
- the intersection of Tapleys Hill Road and Glenburnie Street.

The SIDRA analysis indicates that the additional traffic forecast to be generated by the Seaton Master Plan will not detrimentally impact upon the operation of the West Lakes Boulevard/Frederick Road intersection, the West Lakes Boulevard/Tapleys Hill Road intersection and the Frederick Road/Troubridge Drive intersection. With regard to the intersections with Glenburnie Street, the analysis indicates that, whilst increased queue lengths and reduced levels of service are forecast in the am peak hour, some degree of re-routing and changes in queueing behaviour are likely to result. In general, the Glenburnie Street intersections are expected to operate satisfactorily and in a manner akin to many unsignalised T-intersections across the metropolitan arterial road network.

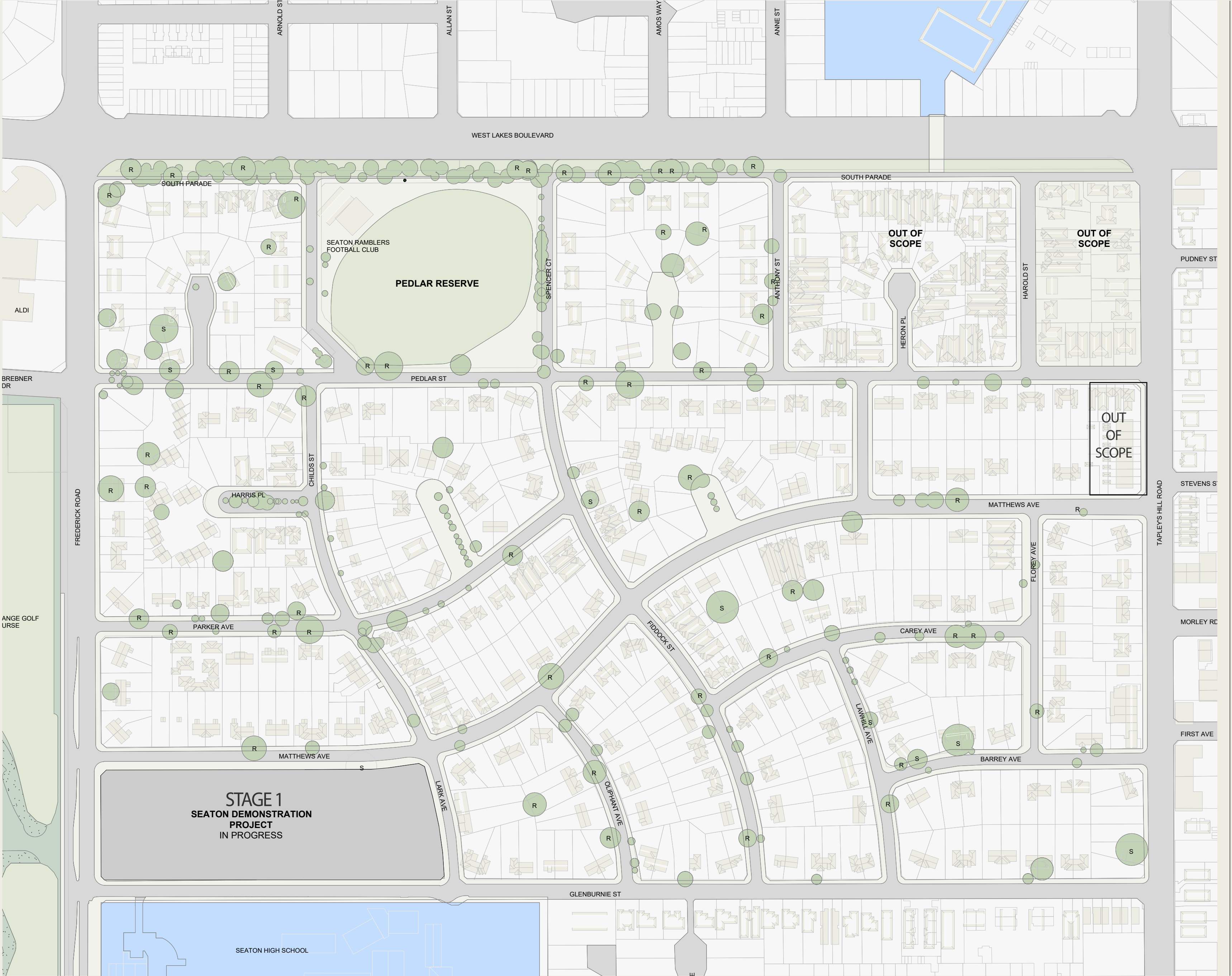
APPENDIX A

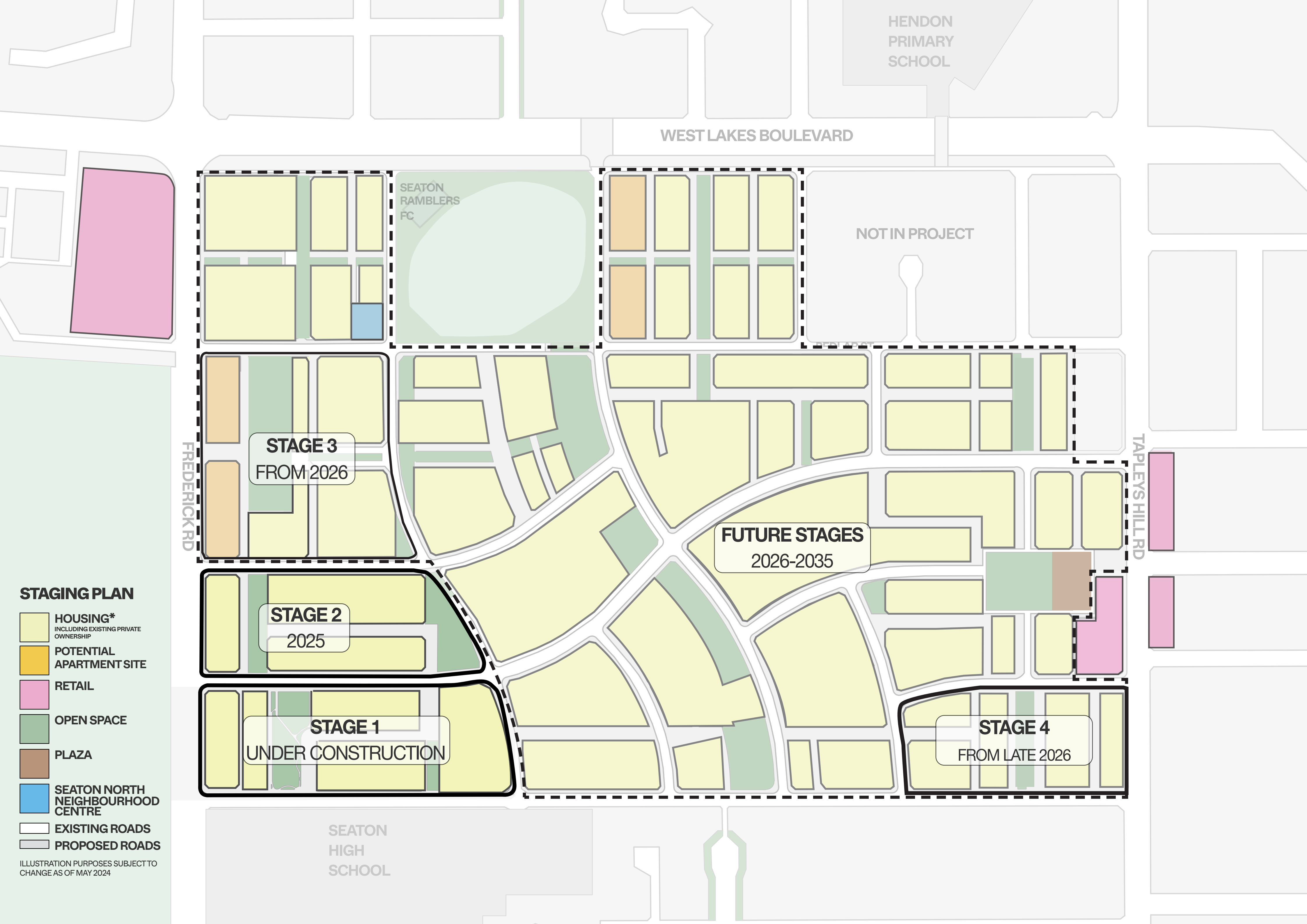
PLANS PREPARED BY FORUM STUDIO

Existing Site Plan

514
Existing
Dwellings
including
SAHT
(Approx)

+
112 New
Stage 1
Dwellings





APPENDIX B

BASE TRAFFIC DATA

Intersection of: WEST LAKES BOULEVARD / FREDERICK ROAD

Locality: WEST LAKES

AMG Reference: TG717373

Date of Count: 10/08/2023

Day: Thursday

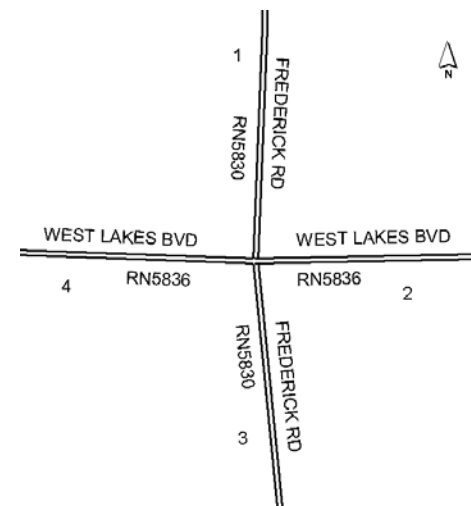
Weather: Dry

Control: SIGNALS

Survey Status:

Arm	Road Number - Name
1	5830 - FREDERICK ROAD
2	5836 - WEST LAKES BOULEVARD
3	5830 - FREDERICK ROAD
4	5836 - WEST LAKES BOULEVARD

	Arm Exit Arm	1 2 (L)	3	4 (R)	2 3 (L)	4	1 (R)	3 4 (L)	1	2 (R)	4 1 (L)	2	3 (R)
11 hour totals	Cars	856	2844	2489	569	5659	604	1720	2593	722	2277	4796	1301
	CV	48	84	76	10	166	32	59	79	18	80	160	66
	Total	904	2928	2565	579	5825	636	1779	2672	740	2357	4956	1367
AM Peak hour (08:15)	Cars	89	324	241	58	498	51	174	327	94	153	399	148
	CV	4	10	4	1	25	1	4	5	1	5	17	6
	Total	93	334	245	59	523	52	178	332	95	158	416	154
PM Peak hour (16:30)	Cars	94	377	336	76	729	92	204	276	70	283	494	142
	CV	2	5	3	0	9	1	5	2	1	5	13	5
	Total	96	382	339	76	738	93	209	278	71	288	507	147



		1				2				3				4			
One-way Flows	11 Hour Totals	(IN) 6397 (OUT) 5665				(IN) 7040 (OUT) 6600				(IN) 5191 (OUT) 4874				(IN) 8680 (OUT) 10169			
	AM Peak Hour	08:00 701 08:00 556				08:30 647 07:45 611				08:00 606 08:00 595				11:30 848 11:30 1010			
	PM Peak Hour	16:30 817 16:15 664				16:45 942 14:30 699				16:00 567 16:00 623				16:30 942 16:45 1305			
Two-way Flows	AM Peak Hour	08:00 1257				11:30 1239				08:00 1201				11:30 1858			
	PM Peak Hour	16:30 1476				16:45 1601				16:00 1190				16:30 2228			
All Vehicles	11 Hour Totals	12062 3.3% CV				13640 3.2% CV				10065 3.1% CV				18849 3.2% CV			
	Estimated AADT	15300 SF(1.00) ZF(1.27)				17300 SF(1.00) ZF(1.27)				12800 SF(1.00) ZF(1.27)				23900 SF(1.00) ZF(1.27)			

AADT - Annual Average Daily Traffic SF - Seasonal Factor ZF - Zone Factor CV - Commercial Vehicles

Intersection of: WEST LAKES BOULEVARD / TAPLEYS HILL ROAD

Locality: SEATON

AMG Reference: TG726373

Date of Count: 10/08/2023

Day: Thursday

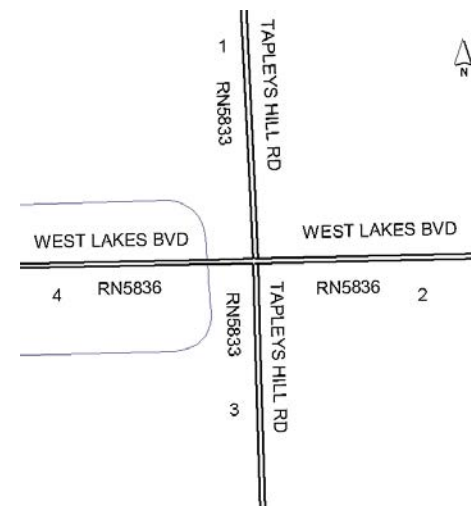
Weather: Dry

Control: SIGNALS

Survey Status:

Arm	Road Number - Name
1	5833 - TAPLEYS HILL ROAD
2	5836 - WEST LAKES BOULEVARD
3	5833 - TAPLEYS HILL ROAD
4	5836 - WEST LAKES BOULEVARD

	Arm	1			2			3			4		
	Exit Arm	2 (L)	3	4 (R)	3 (L)	4	1 (R)	4 (L)	1	2 (R)	1 (L)	2	3 (R)
11 hour totals	Cars	535	6096	1210	403	4117	627	1595	6150	490	1222	3880	1607
	CV	25	294	29	33	123	11	60	337	32	50	115	71
	Total	560	6390	1239	436	4240	638	1655	6487	522	1272	3995	1678
AM Peak hour (08:00)	Cars	37	624	101	24	304	86	144	822	65	102	443	140
	CV	0	42	3	9	20	1	4	30	4	6	10	8
	Total	37	666	104	33	324	87	148	852	69	108	453	148
PM Peak hour (16:45)	Cars	60	808	150	19	595	80	201	644	41	116	342	158
	CV	0	8	1	0	6	0	5	17	1	2	8	5
	Total	60	816	151	19	601	80	206	661	42	118	350	163



		1				2				3				4			
One-way Flows	11 Hour Totals	(IN) 8189		(OUT) 8397		(IN) 5314		(OUT) 5077		(IN) 8664		(OUT) 8504		(IN) 6945		(OUT) 7134	
	AM Peak Hour	08:00 807		08:00 1047		08:15 492		08:00 559		08:00 1069		08:00 847		08:00 709		08:30 657	
	PM Peak Hour	16:45 1027		14:45 913		16:30 706		14:30 570		15:30 931		15:30 1046		14:30 769		16:45 958	
Two-way Flows	AM Peak Hour	08:00 1854		08:15 1035		08:00 1916		08:15 1356									
	PM Peak Hour	15:30 1896		16:00 1167		15:30 1977		16:45 1589									
All Vehicles	11 Hour Totals	16586 4.5% CV		10391 3.3% CV		17168 4.8% CV		14079 3.2% CV									
	Estimated AADT	21100 SF(1.00) ZF(1.27)		13200 SF(1.00) ZF(1.27)		21800 SF(1.00) ZF(1.27)		17900 SF(1.00) ZF(1.27)									

AADT - Annual Average Daily Traffic SF - Seasonal Factor ZF - Zone Factor CV - Commercial Vehicles

Intersection of: FREDERICK ROAD / BREBNER DRIVE

Locality: SEATON

AMG Reference: TG717371

Date of Count: 08/04/2021

Day: Thursday

Weather: Dry

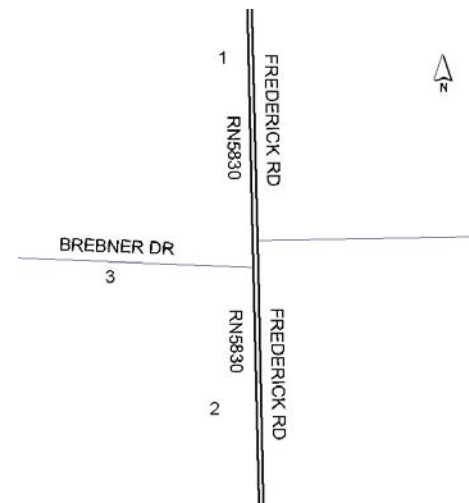
Control: SIGNALS

Survey Status:

Brebner Drive high increase after ALDI store in 2017, subdivision opening 2019

Arm Road Number - Name

- 1 5830 - FREDERICK ROAD
- 2 5830 - FREDERICK ROAD
- 3 BREBNER DRIVE



	Arm	1		2		3	
	Exit Arm	2	3 (R)	3 (L)	1	1 (L)	2 (R)
11 hour totals	Cars	4394	1305	2532	4242	1631	2714
	CV	128	30	16	161	70	39
	Total	4522	1335	2548	4403	1701	2753
AM Peak hour (08:00)	Cars	527	99	175	604	119	119
	CV	9	5	3	16	8	5
	Total	536	104	178	620	127	124
PM Peak hour (17:00)	Cars	564	193	288	432	151	343
	CV	8	0	1	7	2	0
	Total	572	193	289	439	153	343

		1				2				3			
One-way Flows	11 Hour Totals	(IN) 5857 (OUT) 6104				(IN) 6951 (OUT) 7275				(IN) 4454 (OUT) 3883			
	AM Peak Hour	08:00	640	08:00	747	08:15	809	08:00	660	11:15	474	10:45	415
	PM Peak Hour	17:00	765	15:00	631	17:15	739	17:00	915	14:00	512	17:15	486
Two-way Flows	AM Peak Hour	08:00 1387				08:00 1458				10:45 887			
	PM Peak Hour	17:00 1357				17:00 1643				17:00 978			
All Vehicles	11 Hour Totals	11961 3.3% CV				14226 2.4% CV				8337 1.9% CV			
	Estimated AADT	14800 SF(1.00) ZF(1.24)				17600 SF(1.00) ZF(1.24)				10300 SF(1.00) ZF(1.24)			

AADT - Annual Average Daily Traffic SF - Seasonal Factor ZF - Zone Factor CV - Commercial Vehicles

INTERSECTION OF FREDERICK ROAD AND GLENBURNIE STREET, SEATON

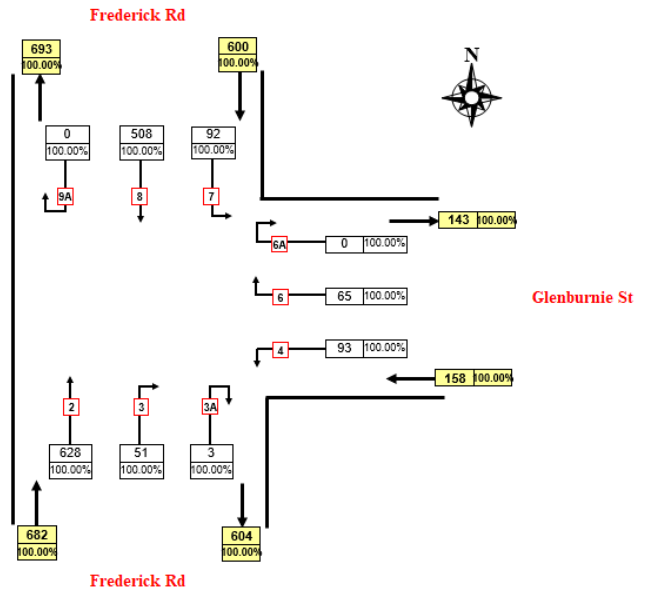
AM Peak Hour Turn Movement Summary

Summary

Intersection Count :
AM Peak : Hour ending - 8:00 - 9:00
PM Peak : Hour ending - 16:30 - 17:30

Hourly Time Period : 8:00 - 9:00

On-road classification: Total Vehicles



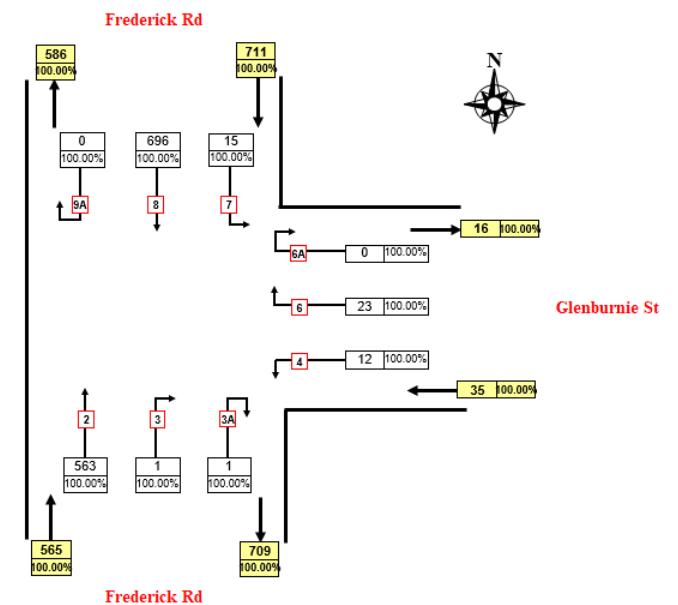
PM Peak Hour Turn Movement Summary

Summary

Intersection Count :
AM Peak : Hour ending - 8:00 - 9:00
PM Peak : Hour ending - 16:30 - 17:30

Hourly Time Period : 16:30 - 17:30

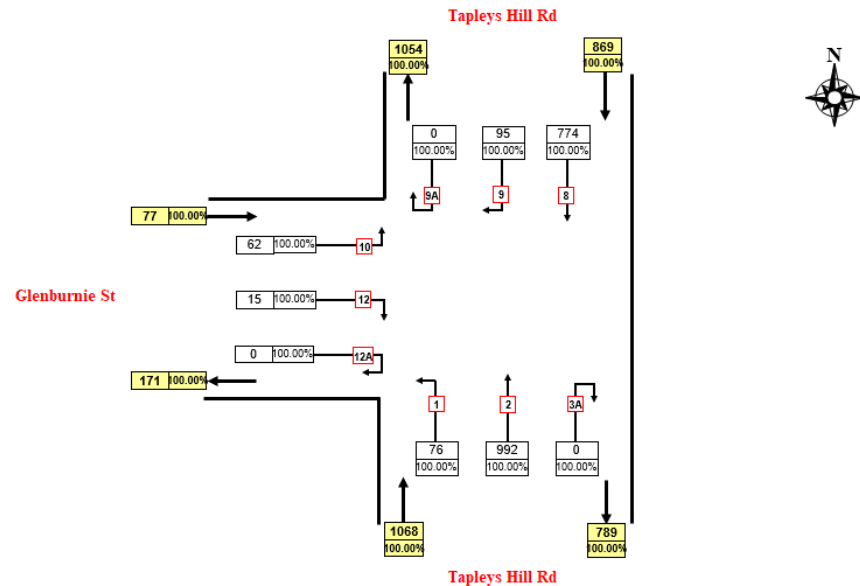
On-road classification: Total Vehicles



INTERSECTION OF TAPLEYS HILL ROAD AND GLENBURNIE STREET, SEATON

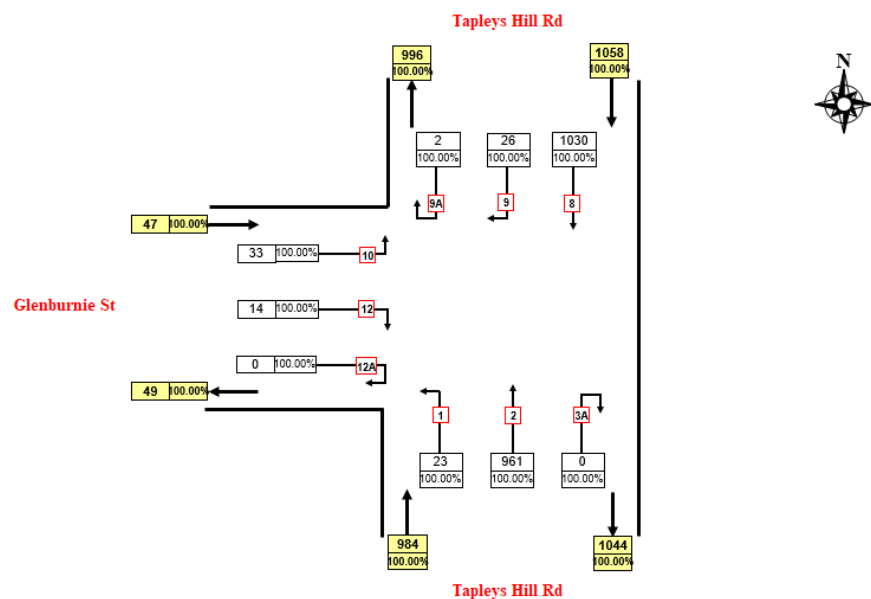
AM Peak Hour Turn Movement Summary

Summary Intersection Count :
AM Peak : Hour ending - 7:45 - 8:45
PM Peak : Hour ending - 15:45 - 16:45
Hourly Time Period : 7:45 - 8:45
On-road classification: Total Vehicles



PM Peak Hour Turn Movement Summary

Summary Intersection Count :
AM Peak : Hour ending - 7:45 - 8:45
PM Peak : Hour ending - 15:45 - 16:45
Hourly Time Period : 15:45 - 16:45
On-road classification: Total Vehicles



APPENDIX C

SIDRA SUMMARIES (BASE CASE)

Site: 101 [EXAM - WEST LAKES/FREDERICK (Site Folder: EXISTING)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 105 seconds (Site User-Given Phase Times)

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

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: FREDERICK ROAD (S)												
P1	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
East: WEST LAKES BOULEVARD (E)												

P2 Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
North: FREDERICK ROAD (N)											
P3 Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
West: WEST LAKES BOULEVARD (W)											
P4 Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
All Pedestrians	200	211	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00

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.

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped Dist]		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: FREDERICK ROAD (S)												
P1	Full	50	53	52.3	LOS E	0.2	0.2	0.95	0.95	206.1	200.0	0.97
East: WEST LAKES BOULEVARD (E)												

P2 Full	50	53	52.3	LOS E	0.2	0.2	0.95	0.95	206.1	200.0	0.97
North: FREDERICK ROAD (N)											
P3 Full	50	53	52.3	LOS E	0.2	0.2	0.95	0.95	206.1	200.0	0.97
West: WEST LAKES BOULEVARD (W)											
P4 Full	50	53	52.3	LOS E	0.2	0.2	0.95	0.95	206.1	200.0	0.97
All Pedestrians	200	211	52.3	LOS E	0.2	0.2	0.95	0.95	206.1	200.0	0.97

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.

Site: 101 [EXAM - WEST LAKES/TAPLEYS HILL (Site Folder: EXISTING)]

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

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

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: TAPLEYS HILL ROAD (S)												
P1	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
East: WEST LAKES BOULEVARD (E)												

P2 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
North: TAPLEYS HILL ROAD (N)											
P3 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
West: WEST LAKES BOULEVARD (W)											
P4 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
All Pedestrians	200	211	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96

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.

Site: 101 [EXPM - WEST LAKES/TAPLEYS HILL (Site Folder: EXISTING)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 116 seconds (Site User-Given Phase Times)

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

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: TAPLEYS HILL ROAD (S)												
P1	Full	50	53	52.3	LOS E	0.2	0.2	0.95	0.95	206.1	200.0	0.97
East: WEST LAKES BOULEVARD (E)												

P2 Full	50	53	52.3	LOS E	0.2	0.2	0.95	0.95	206.1	200.0	0.97
North: TAPLEYS HILL ROAD (N)											
P3 Full	50	53	52.3	LOS E	0.2	0.2	0.95	0.95	206.1	200.0	0.97
West: WEST LAKES BOULEVARD (W)											
P4 Full	50	53	52.3	LOS E	0.2	0.2	0.95	0.95	206.1	200.0	0.97
All Pedestrians	200	211	52.3	LOS E	0.2	0.2	0.95	0.95	206.1	200.0	0.97

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 [EXAM - FREDERICK / TROUBRIDGE (Site Folder: EXISTING)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site User-Given Phase Times)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				km/h
			veh/h		veh/h		v/c	sec							
South: FREDERICK ROAD (S)															
1	L2	All MCs	192	1.6	192	1.6	0.324	10.6	LOS B	7.2	51.0	0.38	0.50	0.38	43.2
2	T1	All MCs	671	2.5	671	2.5	* 0.324	5.0	LOS A	7.5	53.4	0.38	0.39	0.38	52.2
Approach			862	2.3	862	2.3	0.324	6.3	LOS A	7.5	53.4	0.38	0.42	0.38	49.1
North: FREDERICK ROAD (N)															
8	T1	All MCs	688	1.7	688	1.7	0.272	2.4	LOS A	4.2	29.6	0.26	0.23	0.26	56.5
9	R2	All MCs	48	4.3	48	4.3	* 0.121	10.3	LOS B	0.7	5.1	0.38	0.66	0.38	36.2
Approach			737	1.9	737	1.9	0.272	3.0	LOS A	4.2	29.6	0.27	0.26	0.27	54.5
West: TROUBRIDGE DRIVE (W)															
10	L2	All MCs	65	6.5	65	6.5	0.379	47.8	LOS D	3.1	22.6	0.95	0.76	0.95	22.5
12	R2	All MCs	62	5.1	62	5.1	* 0.338	48.1	LOS D	2.9	21.0	0.95	0.75	0.95	28.7
Approach			127	5.8	127	5.8	0.379	48.0	LOS D	3.1	22.6	0.95	0.76	0.95	25.8
All Vehicles			1726	2.4	1726	2.4	0.379	7.9	LOS A	7.5	53.4	0.38	0.38	0.38	47.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: FREDERICK ROAD (S)												
P1	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: FREDERICK ROAD (N)												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
West: TROUBRIDGE DRIVE (W)												
P4	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians		150	158	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 **Site: 101 [EXPM - FREDERICK / TROUBRIDGE (Site Folder: EXISTING)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 65 seconds (Site User-Given Phase Times)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				km/h
			veh/h		veh/h		v/c	sec							
South: FREDERICK ROAD (S)															
1	L2	All MCs	284	0.4	284	0.4	0.298	10.5	LOS B	4.7	33.0	0.45	0.65	0.45	42.3
2	T1	All MCs	437	1.7	437	1.7	* 0.298	5.0	LOS A	4.9	34.9	0.45	0.43	0.45	52.5
Approach			721	1.2	721	1.2	0.298	7.2	LOS A	4.9	34.9	0.45	0.52	0.45	46.9
North: FREDERICK ROAD (N)															
8	T1	All MCs	627	1.5	627	1.5	0.255	2.0	LOS A	2.8	19.6	0.29	0.25	0.29	57.1
9	R2	All MCs	100	0.0	100	0.0	* 0.208	9.7	LOS A	1.1	7.7	0.47	0.69	0.47	36.5
Approach			727	1.3	727	1.3	0.255	3.1	LOS A	2.8	19.6	0.31	0.31	0.31	53.0
West: TROUBRIDGE DRIVE (W)															
10	L2	All MCs	62	1.7	62	1.7	0.490	32.4	LOS C	3.0	21.2	0.96	0.78	0.96	26.4
12	R2	All MCs	135	0.0	135	0.0	* 0.490	33.3	LOS C	3.2	22.4	0.97	0.78	0.97	32.6
Approach			197	0.5	197	0.5	0.490	33.0	LOS C	3.2	22.4	0.96	0.78	0.96	30.9
All Vehicles			1645	1.2	1645	1.2	0.490	8.4	LOS A	4.9	34.9	0.45	0.46	0.45	45.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: FREDERICK ROAD (S)												
P1	Full	50	53	26.8	LOS C	0.1	0.1	0.91	0.91	180.7	200.0	1.11
North: FREDERICK ROAD (N)												
P3	Full	50	53	26.8	LOS C	0.1	0.1	0.91	0.91	180.7	200.0	1.11
West: TROUBRIDGE DRIVE (W)												
P4	Full	50	53	26.8	LOS C	0.1	0.1	0.91	0.91	180.7	200.0	1.11
All Pedestrians		150	158	26.8	LOS C	0.1	0.1	0.91	0.91	180.7	200.0	1.11

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

▼ Site: 101 [EXAM - FREDERICK / GLENBURNIE (Site Folder: EXISTING)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: FREDERICK ROAD (S)															
2	T1	All MCs	661	1.8	661	1.8	0.172	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	All MCs	57	0.0	57	0.0	0.066	8.1	LOS A	0.2	1.7	0.49	0.69	0.49	47.6
Approach			718	1.6	718	1.6	0.172	0.7	NA	0.2	1.7	0.04	0.05	0.04	58.6
East: GLENBURNIE STREET (E)															
4	L2	All MCs	98	0.0	98	0.0	0.429	8.0	LOS A	2.5	17.2	0.77	0.83	1.09	42.2
6	R2	All MCs	68	0.0	68	0.0	0.429	29.8	LOS D	2.5	17.2	0.77	0.83	1.09	40.6
Approach			166	0.0	166	0.0	0.429	17.0	LOS C	2.5	17.2	0.77	0.83	1.09	41.6
North: FREDERICK ROAD (N)															
7	L2	All MCs	97	0.0	97	0.0	0.166	5.6	LOS A	0.0	0.0	0.00	0.18	0.00	55.4
8	T1	All MCs	535	3.9	535	3.9	0.166	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	59.1
Approach			632	3.3	632	3.3	0.166	0.9	NA	0.0	0.0	0.00	0.09	0.00	58.5
All Vehicles			1516	2.2	1516	2.2	0.429	2.6	NA	2.5	17.2	0.10	0.15	0.14	55.9

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

MOVEMENT SUMMARY

Site: 101 [EXPM - FREDERICK / GLENBURNIE (Site Folder: EXISTING)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: FREDERICK ROAD (S)															
2	T1	All MCs	593	2.1	593	2.1	0.154	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	All MCs	2	0.0	2	0.0	0.003	8.4	LOS A	0.0	0.1	0.51	0.60	0.51	47.4
Approach			595	2.1	595	2.1	0.154	0.1	NA	0.0	0.1	0.00	0.00	0.00	59.9
East: GLENBURNIE STREET (E)															
4	L2	All MCs	13	0.0	13	0.0	0.137	6.1	LOS A	0.4	3.1	0.72	0.85	0.72	42.2
6	R2	All MCs	24	0.0	24	0.0	0.137	22.7	LOS C	0.4	3.1	0.72	0.85	0.72	40.6
Approach			37	0.0	37	0.0	0.137	17.0	LOS C	0.4	3.1	0.72	0.85	0.72	41.2
North: FREDERICK ROAD (N)															
7	L2	All MCs	16	0.0	16	0.0	0.191	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	56.9
8	T1	All MCs	733	0.9	733	0.9	0.191	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			748	0.8	748	0.8	0.191	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.7
All Vehicles			1380	1.4	1380	1.4	0.191	0.6	NA	0.4	3.1	0.02	0.03	0.02	59.0

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

MOVEMENT SUMMARY

Site: 101 [EXAM - TAPLEYS HILL RD / GLENBURNIE (Site Folder: EXISTING)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: TAPLEYS HILL RD (S)															
1	L2	All MCs	80	0.0	80	0.0	0.304	5.6	LOS A	0.0	0.0	0.00	0.08	0.00	56.6
2	T1	All MCs	1044	4.8	1044	4.8	0.304	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	59.4
Approach			1124	4.5	1124	4.5	0.304	0.5	NA	0.0	0.0	0.00	0.04	0.00	59.2
North: TAPLEYS HILL RD (N)															
8	T1	All MCs	815	7.0	815	7.0	0.225	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	100	1.1	100	1.1	0.213	13.1	LOS B	0.7	5.1	0.75	0.91	0.79	43.1
Approach			915	6.3	915	6.3	0.225	1.5	NA	0.7	5.1	0.08	0.10	0.09	57.4
West: GLENBURNIE STREET (W)															
10	L2	All MCs	65	0.0	65	0.0	0.328	8.8	LOS A	1.2	8.3	0.81	0.93	1.01	38.8
12	R2	All MCs	16	0.0	16	0.0	0.328	69.2	LOS F	1.2	8.3	0.81	0.93	1.01	40.5
Approach			81	0.0	81	0.0	0.328	20.5	LOS C	1.2	8.3	0.81	0.93	1.01	39.2
All Vehicles			2120	5.1	2120	5.1	0.328	1.7	NA	1.2	8.3	0.07	0.10	0.08	57.3

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

MOVEMENT SUMMARY

Site: 101 [EXPM - TAPLEYS HILL RD / GLENBURNIE (Site Folder: EXISTING)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: TAPLEYS HILL RD (S)															
1	L2	All MCs	24	0.0	24	0.0	0.280	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	57.1
2	T1	All MCs	1012	4.8	1012	4.8	0.280	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
Approach			1036	4.7	1036	4.7	0.280	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.6
North: TAPLEYS HILL RD (N)															
8	T1	All MCs	1084	2.2	1084	2.2	0.286	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	All MCs	27	0.0	27	0.0	0.052	11.3	LOS B	0.2	1.2	0.68	0.86	0.68	44.2
Approach			1112	2.2	1112	2.2	0.286	0.3	NA	0.2	1.2	0.02	0.02	0.02	59.3
West: GLENBURNIE STREET (W)															
10	L2	All MCs	35	0.0	35	0.0	0.299	9.2	LOS A	1.0	6.8	0.85	0.96	1.00	35.6
12	R2	All MCs	15	0.0	15	0.0	0.299	72.0	LOS F	1.0	6.8	0.85	0.96	1.00	37.5
Approach			49	0.0	49	0.0	0.299	27.9	LOS D	1.0	6.8	0.85	0.96	1.00	36.2
All Vehicles			2197	3.3	2197	3.3	0.299	0.9	NA	1.0	6.8	0.03	0.04	0.03	58.6

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

APPENDIX D

SIDRA SUMMARIES (FUTURE SCENARIO)

Site: 101 [FUAM - WEST LAKES/FREDERICK (Site Folder: FUTURE - OPTION 2)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 114 seconds (Site Optimum Cycle Time - Minimum Degree of Saturation)

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

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped ped Dist] ped m		Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: FREDERICK ROAD (S)												
P1	Full	50	53	51.3	LOS E	0.2	0.2	0.95	0.95	205.1	200.0	0.98
East: WEST LAKES BOULEVARD (E)												

P2 Full	50	53	51.3	LOS E	0.2	0.2	0.95	0.95	205.1	200.0	0.98
North: FREDERICK ROAD (N)											
P3 Full	50	53	51.3	LOS E	0.2	0.2	0.95	0.95	205.1	200.0	0.98
West: WEST LAKES BOULEVARD (W)											
P4 Full	50	53	51.3	LOS E	0.2	0.2	0.95	0.95	205.1	200.0	0.98
All Pedestrians	200	211	51.3	LOS E	0.2	0.2	0.95	0.95	205.1	200.0	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.

Site: 101 [FUPM - WEST LAKES/FREDERICK (Site Folder: FUTURE - OPTION 2)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum)

Degree of Saturation)

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

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

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

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

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

- * Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: FREDERICK ROAD (S)												
P1	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
East: WEST LAKES BOULEVARD (E)												

P2 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
North: FREDERICK ROAD (N)											
P3 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
West: WEST LAKES BOULEVARD (W)											
P4 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
All Pedestrians	200	211	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96

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.

Site: 101 [FUAM - WEST LAKES/TAPLEYS HILL (Site Folder: FUTURE - OPTION 2)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Degree of Saturation)

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

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: TAPLEYS HILL ROAD (S)												
P1	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
East: WEST LAKES BOULEVARD (E)												

P2 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
North: TAPLEYS HILL ROAD (N)											
P3 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
West: WEST LAKES BOULEVARD (W)											
P4 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
All Pedestrians	200	211	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96

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.

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: TAPLEYS HILL ROAD (S)												
P1	Full	50	53	53.3	LOS E	0.2	0.2	0.95	0.95	207.1	200.0	0.97
East: WEST LAKES BOULEVARD (E)												

P2 Full	50	53	53.3	LOS E	0.2	0.2	0.95	0.95	207.1	200.0	0.97
North: TAPLEYS HILL ROAD (N)											
P3 Full	50	53	53.3	LOS E	0.2	0.2	0.95	0.95	207.1	200.0	0.97
West: WEST LAKES BOULEVARD (W)											
P4 Full	50	53	53.3	LOS E	0.2	0.2	0.95	0.95	207.1	200.0	0.97
All Pedestrians	200	211	53.3	LOS E	0.2	0.2	0.95	0.95	207.1	200.0	0.97

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 [FUAM - FREDERICK / TROUBRIDGE (Site Folder: FUTURE - OPTION 2)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 118 seconds (Site Optimum Cycle Time - Minimum Degree of Saturation)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	[Dist]				
			veh/h		veh/h		v/c	sec		veh	m				km/h
South: FREDERICK ROAD (S)															
1	L2	All MCs	192	1.6	192	1.6	0.362	11.8	LOS B	9.8	69.8	0.40	0.50	0.40	42.8
2	T1	All MCs	772	2.5	772	2.5	* 0.362	6.2	LOS A	10.2	72.9	0.40	0.41	0.40	51.0
Approach			963	2.3	963	2.3	0.362	7.3	LOS A	10.2	72.9	0.40	0.43	0.40	48.4
North: FREDERICK ROAD (N)															
8	T1	All MCs	732	1.7	732	1.7	0.282	2.3	LOS A	4.7	33.6	0.24	0.21	0.24	56.7
9	R2	All MCs	49	6.4	49	6.4	* 0.131	10.8	LOS B	0.8	6.2	0.37	0.66	0.37	35.9
Approach			781	2.0	781	2.0	0.282	2.9	LOS A	4.7	33.6	0.25	0.24	0.25	54.7
West: TROUBRIDGE DRIVE (W)															
10	L2	All MCs	65	6.5	65	6.5	0.352	52.5	LOS D	3.6	26.9	0.93	0.76	0.93	21.5
12	R2	All MCs	62	5.1	62	5.1	* 0.352	57.2	LOS E	3.6	26.9	0.96	0.76	0.96	26.9
Approach			127	5.8	127	5.8	0.352	54.8	LOS D	3.6	26.9	0.94	0.76	0.94	24.4
All Vehicles			1872	2.4	1872	2.4	0.362	8.7	LOS A	10.2	72.9	0.37	0.37	0.37	46.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped]	[Dist]			sec	m	m/sec
						ped	m					
South: FREDERICK ROAD (S)												
P1	Full	50	53	53.3	LOS E	0.2	0.2	0.95	0.95	207.1	200.0	0.97
North: FREDERICK ROAD (N)												
P3	Full	50	53	53.3	LOS E	0.2	0.2	0.95	0.95	207.1	200.0	0.97
West: TROUBRIDGE DRIVE (W)												
P4	Full	50	53	53.3	LOS E	0.2	0.2	0.95	0.95	207.1	200.0	0.97
All Pedestrians		150	158	53.3	LOS E	0.2	0.2	0.95	0.95	207.1	200.0	0.97

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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23196 SIDRA.sip9

MOVEMENT SUMMARY

 Site: 101 [FUPM - FREDERICK / TROUBRIDGE (Site Folder: FUTURE - OPTION 2)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 118 seconds (Site Optimum Cycle Time - Minimum Degree of Saturation)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: FREDERICK ROAD (S)															
1	L2	All MCs	284	0.4	284	0.4	0.317	15.0	LOS B	9.1	64.5	0.47	0.65	0.47	40.3
2	T1	All MCs	474	1.8	474	1.8	* 0.317	9.5	LOS A	9.6	68.1	0.47	0.46	0.47	47.7
Approach			758	1.3	758	1.3	0.317	11.6	LOS B	9.6	68.1	0.47	0.53	0.47	43.8
North: FREDERICK ROAD (N)															
8	T1	All MCs	712	1.5	712	1.5	0.312	5.9	LOS A	7.3	51.8	0.38	0.33	0.38	52.2
9	R2	All MCs	100	0.0	100	0.0	* 0.241	15.4	LOS B	2.4	17.0	0.51	0.71	0.51	33.6
Approach			812	1.3	812	1.3	0.312	7.1	LOS A	7.3	51.8	0.39	0.38	0.39	48.9
West: TROUBRIDGE DRIVE (W)															
10	L2	All MCs	62	1.7	62	1.7	0.312	43.5	LOS D	4.6	32.2	0.87	0.76	0.87	23.4
12	R2	All MCs	135	0.0	135	0.0	* 0.312	45.4	LOS D	5.0	35.2	0.88	0.76	0.88	29.5
Approach			197	0.5	197	0.5	0.312	44.8	LOS D	5.0	35.2	0.87	0.76	0.87	27.8
All Vehicles			1766	1.2	1766	1.2	0.317	13.2	LOS B	9.6	68.1	0.48	0.49	0.48	42.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: FREDERICK ROAD (S)												
P1	Full	50	53	53.3	LOS E	0.2	0.2	0.95	0.95	207.1	200.0	0.97
North: FREDERICK ROAD (N)												
P3	Full	50	53	53.3	LOS E	0.2	0.2	0.95	0.95	207.1	200.0	0.97
West: TROUBRIDGE DRIVE (W)												
P4	Full	50	53	53.3	LOS E	0.2	0.2	0.95	0.95	207.1	200.0	0.97
All Pedestrians		150	158	53.3	LOS E	0.2	0.2	0.95	0.95	207.1	200.0	0.97

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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\23196 SIDRA.sip9

MOVEMENT SUMMARY

▼ Site: 101 [FUAM - FREDERICK / GLENBURNIE (Site Folder: FUTURE - OPTION 2)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: FREDERICK ROAD (S)															
2	T1	All MCs	682	1.9	682	1.9	0.177	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	All MCs	68	1.5	68	1.5	0.085	8.6	LOS A	0.3	2.3	0.52	0.72	0.52	47.3
Approach			751	1.8	751	1.8	0.177	0.8	NA	0.3	2.3	0.05	0.07	0.05	58.3
East: GLENBURNIE STREET (E)															
4	L2	All MCs	124	0.8	124	0.8	0.701	14.9	LOS B	6.0	42.3	0.97	1.21	2.02	37.2
6	R2	All MCs	103	1.0	103	1.0	0.701	44.7	LOS E	6.0	42.3	0.97	1.21	2.02	35.5
Approach			227	0.9	227	0.9	0.701	28.4	LOS D	6.0	42.3	0.97	1.21	2.02	36.5
North: FREDERICK ROAD (N)															
7	L2	All MCs	112	0.9	112	0.9	0.183	5.6	LOS A	0.0	0.0	0.00	0.19	0.00	55.3
8	T1	All MCs	583	3.8	583	3.8	0.183	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	59.1
Approach			695	3.3	695	3.3	0.183	0.9	NA	0.0	0.0	0.00	0.10	0.00	58.4
All Vehicles			1673	2.3	1673	2.3	0.701	4.6	NA	6.0	42.3	0.15	0.23	0.30	53.7

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

MOVEMENT SUMMARY

Site: 101 [FUPM - FREDERICK / GLENBURNIE (Site Folder: FUTURE - OPTION 2)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: FREDERICK ROAD (S)															
2	T1	All MCs	634	2.2	634	2.2	0.165	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	All MCs	24	4.3	24	4.3	0.033	9.1	LOS A	0.1	0.9	0.53	0.71	0.53	46.9
Approach			658	2.2	658	2.2	0.165	0.4	NA	0.1	0.9	0.02	0.03	0.02	59.2
East: GLENBURNIE STREET (E)															
4	L2	All MCs	22	4.8	22	4.8	0.252	7.2	LOS A	0.9	6.3	0.77	0.91	0.88	40.3
6	R2	All MCs	37	2.9	37	2.9	0.252	29.1	LOS D	0.9	6.3	0.77	0.91	0.88	38.7
Approach			59	3.6	59	3.6	0.252	20.9	LOS C	0.9	6.3	0.77	0.91	0.88	39.3
North: FREDERICK ROAD (N)															
7	L2	All MCs	45	2.3	45	2.3	0.204	5.6	LOS A	0.0	0.0	0.00	0.07	0.00	56.3
8	T1	All MCs	751	1.0	751	1.0	0.204	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
Approach			796	1.1	796	1.1	0.204	0.4	NA	0.0	0.0	0.00	0.03	0.00	59.4
All Vehicles			1513	1.7	1513	1.7	0.252	1.2	NA	0.9	6.3	0.04	0.06	0.04	58.1

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

MOVEMENT SUMMARY

Site: 101 [FUAM - TAPLEYS HILL RD / GLENBURNIE (Site Folder: FUTURE - OPTION 2)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: TAPLEYS HILL RD (S)															
1	L2	All MCs	101	2.1	101	2.1	0.319	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	56.4
2	T1	All MCs	1076	4.8	1076	4.8	0.319	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	59.3
Approach			1177	4.6	1177	4.6	0.319	0.6	NA	0.0	0.0	0.00	0.05	0.00	59.0
North: TAPLEYS HILL RD (N)															
8	T1	All MCs	888	6.6	888	6.6	0.245	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	135	1.6	135	1.6	0.308	14.8	LOS B	1.1	8.1	0.79	0.95	0.93	42.2
Approach			1023	6.0	1023	6.0	0.308	2.0	NA	1.1	8.1	0.10	0.13	0.12	56.7
West: GLENBURNIE STREET (W)															
10	L2	All MCs	145	1.4	145	1.4	1.580	538.6	LOS F	52.2	369.0	1.00	5.25	12.56	5.1
12	R2	All MCs	65	1.6	65	1.6	1.580	630.7	LOS F	52.2	369.0	1.00	5.25	12.56	5.7
Approach			211	1.5	211	1.5	1.580	567.1	LOS F	52.2	369.0	1.00	5.25	12.56	5.3
All Vehicles			2411	4.9	2411	4.9	1.580	50.7	NA	52.2	369.0	0.13	0.54	1.15	30.6

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

MOVEMENT SUMMARY

▼ Site: 101 [FUPM - TAPLEYS HILL RD / GLENBURNIE (Site Folder: FUTURE - OPTION 2)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: TAPLEYS HILL RD (S)															
1	L2	All MCs	65	1.6	65	1.6	0.308	5.6	LOS A	0.0	0.0	0.00	0.07	0.00	56.7
2	T1	All MCs	1074	4.7	1074	4.7	0.308	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	59.5
Approach			1139	4.5	1139	4.5	0.308	0.4	NA	0.0	0.0	0.00	0.03	0.00	59.3
North: TAPLEYS HILL RD (N)															
8	T1	All MCs	1111	2.3	1111	2.3	0.294	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	All MCs	95	2.2	95	2.2	0.209	13.4	LOS B	0.7	5.0	0.76	0.91	0.79	42.9
Approach			1205	2.3	1205	2.3	0.294	1.1	NA	0.7	5.0	0.06	0.07	0.06	58.0
West: GLENBURNIE STREET (W)															
10	L2	All MCs	64	1.6	64	1.6	0.949	65.3	LOS F	5.7	40.3	0.99	1.71	2.99	20.0
12	R2	All MCs	33	3.2	33	3.2	0.949	164.6	LOS F	5.7	40.3	0.99	1.71	2.99	21.7
Approach			97	2.2	97	2.2	0.949	98.7	LOS F	5.7	40.3	0.99	1.71	2.99	20.6
All Vehicles			2441	3.3	2441	3.3	0.949	4.7	NA	5.7	40.3	0.07	0.12	0.15	54.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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