Transport Assessment

Forest Hill Planning Proposal

for

Wakefield Ashurst Developments

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v4	3/11/2021	Final 1	A. Reisch

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1 Introduction

1.1 Overview

arc traffic + transport has been engaged by Wakefield Ashurst Developments to prepare a Transport Assessment (TA) relating to a Planning Proposal providing for residential and industrial development on land to the west of Elizabeth Avenue, Forest Hill (the Site). The Planning Proposal includes:

- R1 General Residential zoned land in the northern portion of the site, adjacent to Brunslea Estate (catering for approximately 280 standard residential lots);
- R5 Large Lot Residential zoned land to the southern portion of the site, with minimum 2000m^2 lot size adjoining the R1 zone (catering for approximately 165 lots) and 4000 m^2 minimum lot size adjoining Inglewood Road (catering for approximately 50 lots);
- IN1 General Industrial zoned land to the west of the site - opposite Wagga Wagga Airport (approximately 3.5ha); and
- RE1 Public Recreation zoned land.

Full details of the Planning Proposal are provided in the broader submission to Wagga Wagga City Council (Council) which this TA accompanies.

1.2 Transport Assessment Tasks

This TA provides an assessment of the relevant access, traffic and parking characteristics of the Planning Proposal; this has included consideration of the following:

- Existing and future base traffic and transport conditions within and external to the Site;
- Existing and future public and active transport services and infrastructure;
- Future peak Site vehicle trip generation, and the potential impact of those trips on the local road network; and
- A general assessment of the internal road network, access, car parking and servicing requirements for the Site.

From the outset, it is also important to state that this TA provides an assessment of a Planning Proposal, not a DA or the like. In assessing a Planning Proposal, arc traffic + transport's role is inherently to determine whether the Planning Proposal has general merit, and moreover can be supported further to broader considerations of the operation of the road, public and active transport networks providing for the Site.

1.3 Reference Documents

1.3.1 Planning Controls and Strategies

The Site lies within the Wagga Wagga Local Government Area (LGA); key Council planning and strategic documents referenced in the preparation of this TA include:

- Wagga Wagga Local Environmental Plan 2010 (Wagga LEP);

- Wagga Wagga Development Control Plan 2010 (Wagga DCP);
- Wagga Wagga Engineering Guidelines for Subdivisions and Development Standards 2017 (Wagga Engineering Guidelines);
- Wagga Wagga Contributions Plan (Wagga Contributions Plan);
- Wagga Wagga Local Strategic Planning Statement 2021 (Wagga LSPS);
- Wagga Wagga Community Strategic Plan 2040 (Wagga Community Plan);
- Wagga Wagga Local Environmental Study 2008 (Wagga LES);
- Wagga Wagga Spatial Plan 2008 (Wagga Spatial Plan);
- Wagga Wagga Integrated Transport Strategy & Implementation Plan 2040 (Wagga ITSIP); and
- Riverina Murray Regional Plan 2036 (RM Regional Plan).

1.3.2 Background Reports

A number of traffic and transport assessments have been prepared for other developments in the vicinity of the Site which provide insights into existing and future traffic conditions in the area, as well as defining development (primarily residential) which remains to be completed in the area. In this regard, this TA references the following reports:

- Brunslea Park Development Traffic Study 2016, prepared by GHD (BP Traffic Study);
- Brunslea Park Traffic Study Addendum 2017, prepared by GHD (BP Traffic Addendum); and
- Wagga Wagga Airport Masterplan 2010, prepared by Rehbein AOS Airport Consulting (Wagga Airport MP 2010).

1.3.3 Traffic and Transport Guidelines

This TA also references general traffic and transport guidelines, including:

- Guide to Traffic Generating Developments 2002, Roads & Maritime Services (RMS Guide);
- Guide to Traffic Generating Developments – Updated Traffic Surveys 2013, Roads & Maritime (RMS Guide Update);
- Small Suburban Shopping Centre Data Report 2018, Bitzios Consulting on behalf of Roads & Maritime (Small Shopping Centre Report);
- Australian Standard 2890 (AS 2890);
- Austroads Guide to Road Design (Austroads GRD);
- Environmental Impact Statement Guidelines, Department of Planning & Environment; and
- Transport for NSW (TfNSW) Guide to Transport Impact Assessments.

1.4 Consultation

Through the preparation of this TA and the broader Planning Proposal, representatives of Wakefield Ashurst Developments and arc traffic + transport have had the opportunity to discuss local issues and future growth in the area with TfNSW, Roads & Maritime and Council officers. A summary of our discussions is provided below.

- **Roads & Maritime:** Maurice Morgan, Team Leader, Development Services South, noted that Roads & Maritime do not have any plans at this time for any upgrades of the local road network in the vicinity of the Site. However, it was noted that future traffic conditions – and specifically further to any expansion of Wagga Airport – had the potential to require local upgrades of:
  - The intersection of Sturt Highway & Elizabeth Avenue & Braehour Road;
  - Elizabeth Avenue; and
  - Ingleburn Road.
- **Council:** Crystal Atkinson, Senior Strategic Planner, noted that Council does not have any further information in regard to the potential expansion of Wagga Airport, and were instead still relying on Airport MP 2010 as part of broader background strategic planning. It was agreed that the scope of the expansion in Airport MP 2010 appears to be somewhat 'aspirational', but a revised Airport Master Plan has yet to be finalised.

  The following issues were also noted:

  - The Strategic Planning team will shortly provide recommendations to Councillors that the Sturt Highway to Don Kendell Drive link road (through the Site and Brunslea Estate) as proposed in Airport MP 2010 be not perused further by Council; one of the primary reasons for this recommendation is that the cost-benefit analysis for the link road does not provide support for its construction. As such, all future access to Wagga Airport is expected to be via Don Kendell Drive and Elizabeth Avenue.
  - Big River Building Products at 128 Elizabeth Avenue Forest Hill will be closing in the near future. While the site is zoned for industrial development, it was agreed that no significant industrial development of the site is anticipated given the proximity of resident dwellings. Moreover, it was also agreed that the trip generation of the site – which is captured in the surveys of existing traffic volumes undertaken for this TA – would likely be higher than any future trip generation of the Site.
  - Council is aware of existing constraints at the intersection Sturt Highway & Elizabeth Avenue & Braehour Road and the immediately adjacent intersection of Elizabeth Avenue & Allonby Avenue. Queues in Elizabeth Avenue (on the approach to Sturt Highway) can block vehicles turning right from Allonby Avenue, and the simultaneous turning movements to/from Allonby Avenue and Sturt Highway have potential safety implications.
  - Council is aware of increasing traffic in Ingleburn Road, Elizabeth Avenue and at the intersection of Sturt Highway & Elizabeth Avenue & Braehour Road generated by the southern parts of Wagga to/from the Airport, Forest Hill and Sturt Highway. As with our discussions with Roads & Maritime, it was agreed that upgrades of these roads would be required over time, particularly if the Wagga Airport expansion proceeds.

arc traffic + transport acknowledges the insights provided by these officers in regard to local conditions, and their assistance in developing the scope of work provided in this TA.

2 The Site

2.1 Location

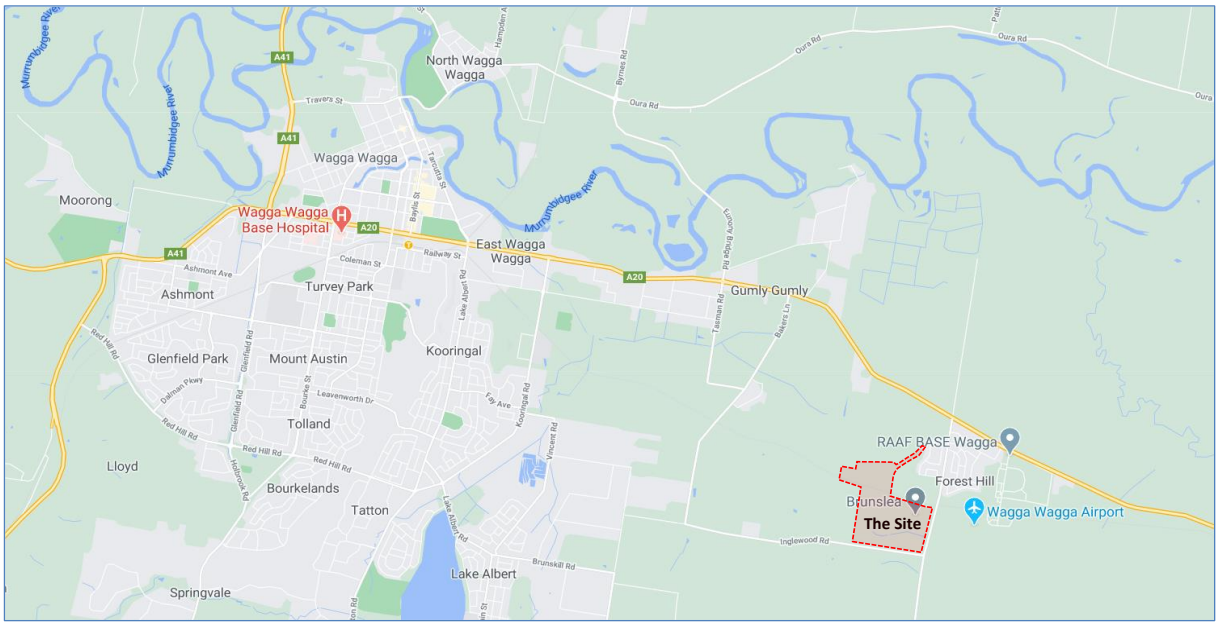
The Site consists of 4 lots, including:

- Lot 1 DP 1220149;
- Lot 2 DP 1077748;
- Lot 1401 DP 126 2802; and;
- Lot 2 DP 1262040.

The Site is generally bordered by approved residential development within Brunslea Park to the north, Inglewood Road to the south, Elizabeth Avenue to the east and rural land to the west. The Site is shown in its local context in Figure 1 and in relation to Wagga City in Figure 2.

Figure 1: Site Location Local Context

Figure 2: Site Location Wagga City Context



2.2 Zoning

The Site is currently zoned RU1: Primary Production; importantly, the Wagga LEP allows for dwelling houses and industrial floorspace to be development on RU1 zoned land (subject to Council approval).

2.3 Current Site Characteristics

2.3.1 Land Use

The Site is currently largely unused other than for low intensity pasturing.

2.3.2 Access

Site access is currently available via a number of informal access points to Elizabeth Avenue and Inglewood Road; however, it is noted that the development of the Brunslea Park road network has specifically provided for future expansion into the Site, with Mangrove Crescent designed to extend west into the Site, and Paperbark Drive designed to extend south into the Site.

2.3.3 Traffic Generation

The Site generates no vehicle trips on a regular basis, and only occasional maintenance and pasturing vehicle trips.

3 Strategic Context

3.1 Wagga Wagga Integrated Transport Strategy & Implementation Plan 2040

3.1.1 Overview

The Wagga ITSIP provides a blueprint for future travel in Wagga through 2040, and was developed further to extensive research and consultation with the Wagga community so as to specifically determine both current and future transport needs. The Wagga ITSIP focuses on 6 key areas, all of which are relevant to the Planning Proposal, being:

- Integrated land use planning;
- Parking;
- Freight and logistics;
- Road network;
- Active transport; and
- Public transport.

3.1.2 General Forest Hill Strategies and Plans

While much of the Wagga ITSIP relates to the City Centre and immediately adjacent suburban and industrial areas, the ongoing development of Forest Hill is nonetheless an important consideration, particularly with regard to public and active transport. In this regard, the Wagga ITSIP provides the following in its Implementation Plan of relevance to the Planning Proposal:

- **Integrated Land Use Planning:**

  ILU2.1: *Encourage residential development based upon activity and transport corridors;*

  ILU2.2: *Ensure that future residential growth is connected to sufficient road networks to minimise congestion on key corridors;*

  ILU2.3: *Ensure that pedestrians and active travel modes are a priority in all future infill and greenfield development;*

  ILU2.4: *Ensure that private vehicles are not the only form of transport to be connected in Wagga Wagga; and*

  ILU2.5: *Ensure key sites and corridors are preserved for density where appropriate*.

- **Active Transport:**

  AT1.1: *Identify a legible, connected and accessible layered network of cycle facilities; and*

  AT1.3: *Implement commuter link along rail corridor from CBD to Forest Hill.*

- **Public Transport:**

  PT 1.1: *Review all forms of public transport to better serve the entire community;*

  PT 1.2: *Review bus timetables in accordance with work, shopping, school and business hours;*

PT 1.3: *Rationalise bus routes based on potential utilisation rather than coverage. More services to areas that have lower car ownership;*

PT 1.4: *Develop an innovative transport trial that supports a flexible public transport system in collaboration with TfNSW;*

PT 1.5: *Investigate accessibility to and viability of public transport for villages.*

PT1.6: *Investigate alternative public transport, including taxis and community and care group bus services, to better serve people with a disability;*

PT1.7: *Develop and implement Regional Airport Master Plan, investigate the surrounding road network and protect the flight path from the impact of future residential development; and*

PT4.6: *Ensure all new suburban release areas identify major transport routes and corridors to link efficiently with existing network.*

3.1.3 Forest Hill Strategies and Plans

Further to the above, more detailed strategies and plans for Forest Hill include:

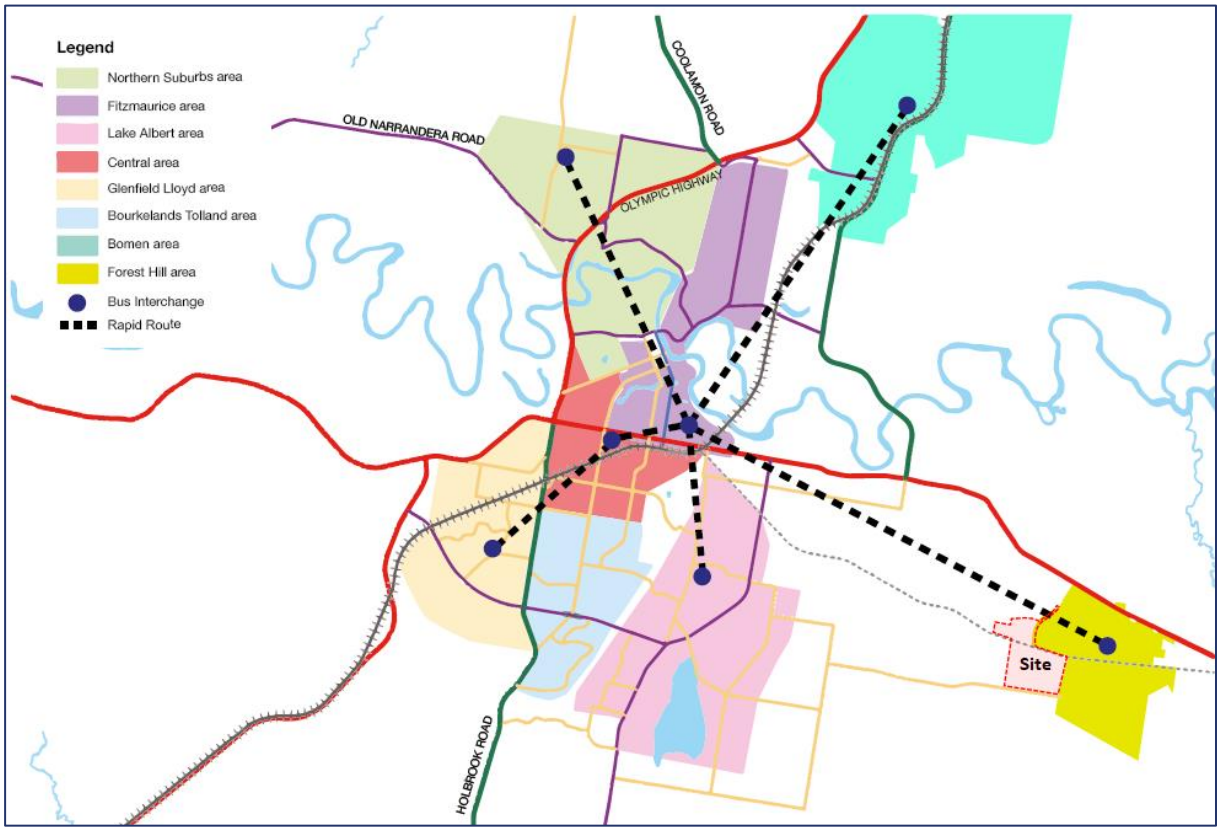
- The construction of an active transport corridor linking Wagga City with Forest Hill along the so call Rail Trail (which runs directly through the Site); and
- Implementing a Rapid Bus network, again with a key connection between Wagga City with Forest Hill.

These two strategies are illustrated in Figure 3 and Figure 4 respectively.

Figure 3: Preferred Active Transport Corridors

Source: Wagga ITSIP

Figure 4: Indicative Rapid Bus Network



Source: Wagga ITSIP

3.2 Wagga Community Strategic Plan

The Wagga Community Plan was developed by Council with significant input from the community as a means of holistically determining *what the community wants the future to look like, and the best means of getting there*; having set these directions, the Wagga Community Plan in turn underlies many of the broader Council strategic documents.

The Wagga Community Plan outlines 5 key strategic directions, being:

- Ongoing community consultation;
- Safety and health;
- Growing the local economy;
- Maintaining Wagga's unique identify and sense of place; and
- Protecting the environment.

These strategic directions have all been taken into account in the development of the Planning Proposal.

3.3 Wagga Spatial Plan

3.3.1 Overview

The Wagga Spatial Plan is the key strategic planning document for directing and managing urban growth and change across the LGA through 2040, and provides a detailed framework and set of performance benchmarks to specifically guide land use planning outcomes.

3.3.2 Forest Hill Specific Strategies

The Wagga Spatial Plan provides a number of key strategies specific to Forest Hill and the broader area which includes the Site and Wagga Airport. These include:

- **Area 8 – Sturt Highway / Hazelwood Drive, Forest Hill:** The Wagga Spatial Plan recognises the potential for residential growth in this area as an extension of existing residential development, but notes additional studies will be required in regard to the potential impacts of the expansion of operations at Wagga Airport (for example, noise) on its residential viability and flood levels. The Planning Proposal specifically responds to this strategy by providing for such residential growth adjacent to the existing Forest Hill urban area.
- **Area 16 – Elizabeth Avenue, Forest Hill:** The Wagga Spatial Plan identifies the potential for employment land in this area directly involving or related to Wagga Airport, noting that Airport MP 2010 identified land to the west of the airport (i.e. the Site) for mixed land uses that that could complement Wagga Airport's growth. The Planning Proposal specifically responds to this strategy by providing significant industrial floorspace immediately adjacent to Wagga Airport.

Importantly, the Wagga Spatial Plan provides residential development forecasts through 2043; for Forest Hill, it suggests the potential for some 437 residential lots to be developed by 2043. This forecast has obviously changed further to the approval of Brunslea Park, and would of course further change if the Planning Proposal is approved.

One of the other key forecasts provided in the Wagga Spatial Plan relates to retail and mixed-use development, with Forest Hill nominated to provide a *neighbourhood centre anchored by a supermarket with six smaller tenancies*, noting that the earlier Wagga Spatial Plan 2007 similarly nominated Forest Hill to provide a new local centre with approximately 3,000m^2 of retail and mixed-use floorspace.

With reference to Section 5.3, the Brunslea Park residential yields and local centre proposals are in line with the Wagga Spatial Plan estimates.

3.4 Riverina Murray Regional Plan

The RM Regional Plan provides forecasts in regard to future housing demand across the Region, and the infrastructure, social and environmental plans required to accommodate that growth. It notes significant release areas around Thurgoona and Wirlinga in Albury; Estella, Lloyd and Boorooma in Wagga Wagga; and Hanwood and Lake Wyangan in Griffith, the sum of which it concludes *will provide sufficient housing to accommodate the projected demand for approximately 12,600 new dwellings.*

With regard to specific actions (detailed for the broader LGA, but readily applicable to the Planning Proposal), the RM Regional Plan provides the following:

- *Prepare local housing strategies that provide housing choice and affordable housing;*
- *Facilitate increased housing choice, including townhouses, villas and apartments in regional cities and locations close to existing services and jobs;*
- *Align infrastructure planning with land release areas to provide adequate infrastructure; and*
- *Locate higher-density development close to town centres to capitalise on existing infrastructure and to provide increased housing choice*.

With regard to Wagga, the RM Regional Plan also provides the following priority actions relevant to the Planning Proposal:

- *Support industrial land development, including at Bomen Business Park in Wagga Wagga;*
- *Support the delivery of residential release areas in the council's proposed local plan review and increase the range of housing options in existing urban areas; and*
- *Facilitate a greater share of the national freight activity by improving and developing the city's road, rail and air connections to Australia's major cities and sea ports*.

These actions have again been taken into account in the development of the Planning Proposal.

4 The Local Road Network

4.1 Key Roads

4.1.1 Sturt Highway

Sturt Highway is a National Highway that generally runs east-west between Hume Highway at Mount Adrah and Adelaide. In the vicinity of the Site it provides 1 traffic lane in each direction with wide sealed verges. Sturt Highway through Forest Hill has a posted speed limit of 80km/h.

4.1.2 Elizabeth Avenue

Elizabeth Avenue is a wide collector road which runs north-south between Sturt Highway and Gregadoo East Road. In the vicinity of the Site, it provides 1 traffic lane in each direction and kerbside parking on both sides of the road. Elizabeth Avenue has a posted speed limit of 50km/h through Forest Hill, and then a nominal 100km/h speed limit south of Wagga Airport.

4.1.3 Mangrove Crescent

Mangrove Crescent is a local road providing access to Elizabeth Avenue from the northern and central parts of Brunslea Park, and currently terminates west of Melaleuca Drive. It provides 1 traffic lane in each direction, kerbside parking on both sides of the road, and has a nominal speed limit of 50km/h.

4.1.4 Hazelwood Drive

Hazelwood Drive is a local road providing access to Elizabeth Avenue from the southern part of Brunslea Park. It provides 1 traffic lane in each direction, kerbside parking on both sides of the road, and has a nominal speed limit of 50km/h.

4.1.5 Don Kendell Drive

Don Kendell Drive provides access between Elizabeth Avenue and Wagga Airport. It provides 1 traffic lane in each direction east of Elizabeth Avenue, and then a one-way system through the Terminal and car park areas. Don Kendell Drive has a posted speed limit of 50km/h.

4.1.6 Inglewood Road

Inglewood Road is a local road that runs east-west between Elizabeth Avenue and Mitchell Road. In the vicinity of the Site it provides 1 traffic lane in each direction, and generally wide informal verges. Inglewood Road has a nominal speed limit of 100km/h.

4.1.7 Mitchell Road

Mitchell Road is a local road that runs north-south between Kyeamba Avenue and Gregadoo Road East, and plays an important role providing access between southern Wagga (via Brunskill Road, Gregadoo Road and Inglewood Road) and Wagga Airport and Sturt Highway (at Elizabeth Avenue). Mitchell Road (and the other south Wagga roads noted above) generally provides 1 traffic lane in each direction, wide formal and/or informal verges, and a speed limit of 80km/h outside of urban areas.

4.2 Key Intersections

4.2.1 Sturt Highway & Elizabeth Avenue & Braehour Road

This intersection operates under priority (Give Way) control, with priority to Sturt Highway. It provides a channelised right turn lane (CHR) from Sturt Highway to Elizabeth Avenue, but only Basic treatments on all other approaches.

Based on our observations, the northbound lane in Elizabeth Avenue widens on the approach to Sturt Highway such that – under some conditions – 2 vehicles can stand adjacent to one another. However, this is not always the case, and as this approach was modelled as a single lane in the BP Traffic Study and BP Traffic Addendum, Elizabeth Avenue has been modelled as providing a single lane approach in this assessment.

Importantly, the BP Traffic Study and BP Traffic Addendum recommended that this intersection be upgraded to a roundabout further to the development of Brunslea Park. However, this upgrade was not specified in the subsequent Brunslea Park approval, and based on our discussions with TfNSW, this recommendation was not discussed with TfNSW at the time. Moreover, TfNSW has indicated that there are no current plans to upgrade the intersection.

4.2.2 Elizabeth Avenue & Mangrove Crescent & Dunn Avenue

This intersection operates under priority (Give Way) control, with priority to Elizabeth Avenue. Basic treatments are provided on all approaches.

The BP Traffic Study and BP Traffic Addendum both recommended that this intersection be upgraded to a roundabout further to the development of Brunslea Park. However, this upgrade was again not specified in the subsequent Brunslea Park approval, and there is no information available at this time in regard to if or when such an upgrade would occur.

4.2.3 Elizabeth Avenue & Hazelwood Drive & Sackville Drive

This intersection operates under priority (Give Way) control, with priority to Elizabeth Avenue. Basic treatments are provided on all approaches.

4.2.4 Elizabeth Avenue & Don Kendell Drive

This intersection operates under priority (Give Way) control, with priority to Elizabeth Avenue. Basic treatments are provided on all approaches.

4.2.5 Elizabeth Avenue & Inglewood Road

This intersection currently operates under priority (Give Way) control, with priority to Elizabeth Avenue. Basic treatments are provided on all approaches.

4.2.7 Elizabeth Avenue & Local Roads

All other local intersections to Elizabeth Avenue between Sturt Highway and Inglewood Road operate under priority (Give Way) control, and provide Basic treatments on all approaches.

4.3 Existing Traffic Volumes

4.3.1 Traffic Surveys

arc traffic + transport commissioned peak period traffic surveys at each of the key intersections detailed in Section 4.2. The surveys were undertaken by Matrix Traffic & Transport Data in October 2020.

It is noted that the surveys were undertaken at a time when the effects of COVID had largely abated, particularly in regional centres such as Wagga, and as such the surveys provide an appropriate data set upon which to base the traffic assessment.

4.3.2 Peak Hour Traffic Volumes

Further to a review of the traffic surveys, the AM and PM peak hours at the intersection of Sturt Highway & Elizabeth Avenue & Braehour Road were selected as the reference peak hours for all of the key intersections. In the AM, the peak hour is 8:00am – 9:00am, and in the PM the peak hour is 4:30pm – 5:30pm.

Existing traffic volumes during these peak hours are shown in Figure 5 and Figure 6 respectively.

Figure 5: 2020 AM Peak Hour Traffic Volumes

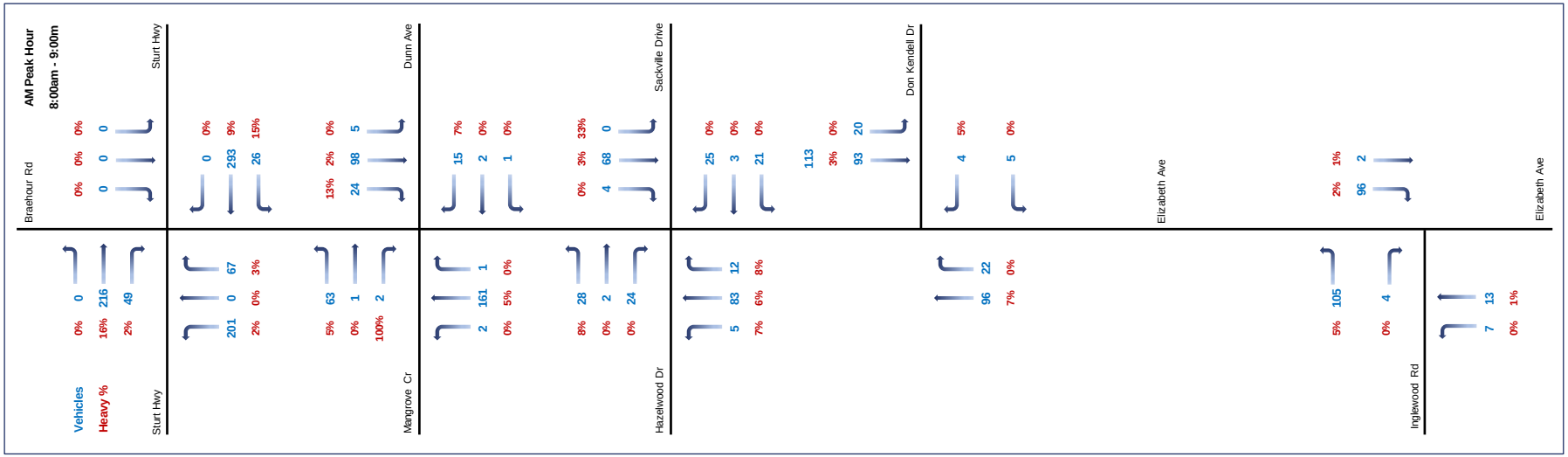
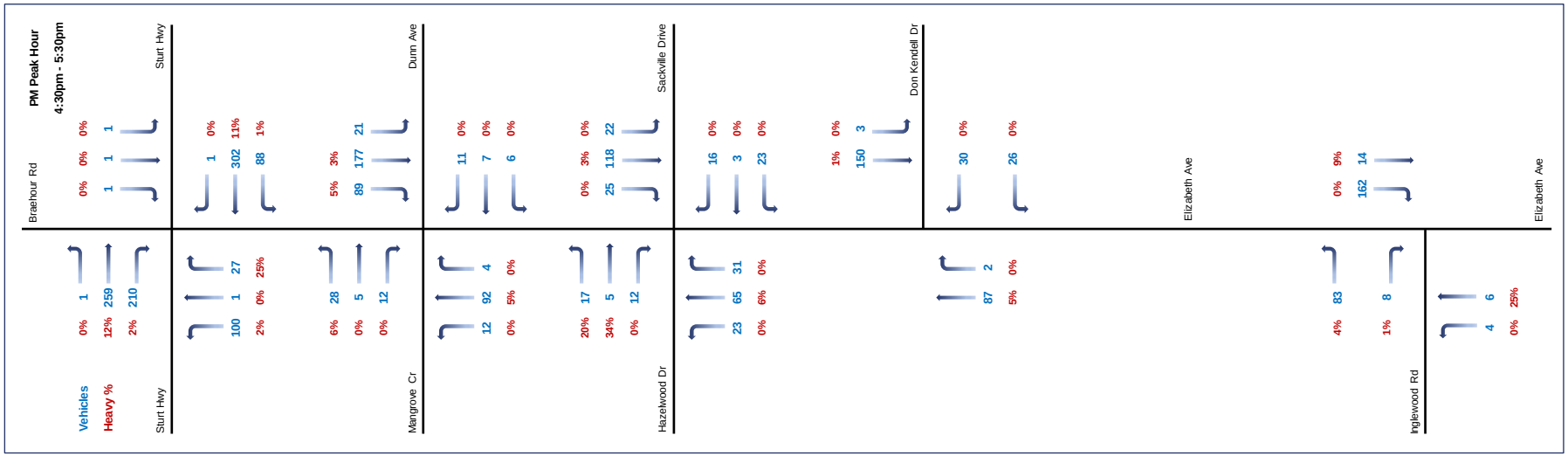


Figure 6: 2020 PM Peak Hour Traffic Volumes



4.4 Intersection Operations

4.4.1 SIDRA

The existing operation of the key intersections has been assessed using the SIDRA intersection model; as discussed and agreed with TfNSW, the SIDRA model provides the most appropriate model for the assessment given that there is no coordination between any of the local intersections, and moreover trip distribution patterns in this part of Wagga are unlikely to change further to the Planning Proposal such as would potentially warrant the development of a Microsimulation model or the like.

SIDRA provides a number of outputs by which to measure the performance of an intersection, including:

- **Degree of Saturation:** Degree of Saturation (DOS) is defined as the ratio of demand (arrival) flow to capacity. Degrees of Saturation above 1.0 represent over-saturated conditions (demand flows exceed capacity) and degrees of saturation below 1.0 represent under-saturated conditions (demand flows are below capacity)
- **Average Vehicle Delay:** Average Vehicle Delay (AVD) represents the difference between interrupted and uninterrupted travel times through an intersection, and is measured in seconds per vehicle in this assessment. Delays include queued vehicles accelerating and decelerating from/to the intersection stop, as well as general delays to all vehicles travelling through the intersection.

  With reference to the LOS criteria below, the average intersection delay for signals and roundabouts represents an average of delays to all vehicles on all approaches, while for priority intersections the average delay for the worst movement is used.
- **Level of Service:** Level of Service (LOS) is a basic performance parameter assigned to an intersection based on average delay; we note that we have assessed the intersections using the RTA parameters which use only delay in the calculation of LOS.

  For signalised and roundabout intersections, LOS is based on the average delay to all vehicles, while at priority controlled intersections LOS is based on the worst minor approach movement delay.

Table 1 provides a summary of the SIDRA recommended criteria for the assessment of intersections.

Table 1: SIDRA Level of Service Criteria

Level of Service	Average Delay (seconds per vehicle)	Traffic Signals & Roundabouts	Stop & Give Way
A	less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode
F	More than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

Source: SIDRA Systems

4.4.2 Existing Intersection Operations

Table 2 provides a summary of the results of the SIDRA assessment of existing intersection operations; detailed SIDRA outputs are provided in electronic format as Appendix A.

Table 2: Existing Intersection Operations

Intersection	Worst Delay (s)		Worst Delay LOS		Degree of Saturation	
	AM	PM	AM	PM	AM	PM
Sturt Hwy & Elizabeth Ave & Braehour Rd	11.0	14.3	A	A	0.308	0.255
Elizabeth Ave & Mangrove Cr & Dunn Ave	6.7	7.3	A	A	0.090	0.159
Elizabeth Ave & Hazelwood Dr & Sackville Dr	5.9	6.4	A	A	0.069	0.107
Elizabeth Ave & Don Kendell Dr	5.3	5.5	A	A	0.069	0.119
Elizabeth Dr & Inglewood Rd	4.8	4.9	A	A	0.074	0.053

With reference to Table 2, all of the key intersections currently operate at LOS A, with very minor delays and significant spare capacity.

5 Base 2036 Traffic Volumes

5.1 Overview

In order to determine the potential traffic impacts associated with the Planning Proposal, it is first necessary to determine future intersection operations under 'Base' conditions, i.e. how would the road network be operating without the Planning Proposal, and indeed what upgrades or the like would potentially be required to accommodate those future base traffic volumes regardless of the Planning Proposal.

Sections below provide an assessment of that background growth, with specific reference to Average Annual Growth in Sturt Highway; the ongoing development of Brunslea Park; and the proposed expansion of operations at Wagga Airport.

5.2 Sturt Highway Average Annual Growth

5.2.1 2036 Traffic Volumes

Background traffic growth has been determined with reference to Roads & Maritime historical average daily traffic (ADT) data collected at a number of sample count station along Sturt Highway, noting that no permanent count stations are located in Sturt Highway in the vicinity of Wagga.

2 stations in close proximity to Elizabeth Avenue provide data for both 2006 and 2010, while a third also provides data for 2011. The reported daily traffic volumes at each of these stations is summarised in Table 3, while Table 4 provides a summary of average growth referencing the sample data and the 2020 surveyed peak hour volumes.

Table 3: Sturt Highway Daily Traffic Volumes and Growth

Sturt Highway Count Stations	2006	2010	2011	Annual Growth
Station 95174 West of Elizabeth Avenue	7,806		9,193	1.30%
Station 95060 East of Smith Street	4,865	5,041		0.90%
Station 95001 East of Tumbarumba Road	3,809	4,106		1.90%

Source: Roads & Maritime

Table 4: Sturt Highway Peak Hour Traffic Volumes and Growth

Station 95174	2011	2020	Annual Growth
AM Peak Hour	673	732	0.93%
PM Peak Hour	937	906	-0.38%

While the peak hour data indicates marginal average growth in the AM peak, and indeed an average reduction in growth in the PM peak, arc traffic + transport has adopted the annual daily growth rates reported in Table 4 for the traffic assessment, noting these are the same rates referenced in the BP Traffic Study.

These growth rates have been applied to through trips in Sturt Highway only; growth in the local roads providing access for the Site is essentially a function of local projects only (such as Brunslea Park and the expansion of operations at Wagga Airport), not sub-regional traffic changes.

5.3 Brunslea Park

5.3.1 Approved Master Plan

With reference to the available Brunslea Park assessment reports and approvals, the land uses and yields provided for in the original Brunslea Park Master Plan are summarised in Table 5, while the Brunslea Park Master Plan itself is shown in Figure 7.

Table 5: Brunslea Park Approved Master Plan Yield

Land Use	Yield
Standard Residential Lots	874
Farmlets	14
Residual Lots	35
Tavern	2,000m^2
Motel	48 rooms
Sports Complex	5 fields, clubhouse, convention centre
Village Hub	~5,440m^2 GLFA
Child Care Centre	100 children
Industrial Park	21,400m^2 GFA

Source: Wakefield Ashurst

Figure 7: Brunslea Park Approved Master Plan

Source: brunsleapark.com.au

5.3.2 Revised Brunslea Park Development

With reference to the above, it is noted that the yields (and indeed landuses) initially identified in the Brunslea Park Master Plan have been revised from those originally assessed and approved in 2016 and 2017; while the general structure of the Brunslea Park Master Plan – and particularly the road network - remains essentially the same, a recently submitted DA now provides for standard residential lots (195) in the southern portion of Brunslea Park between Hazelwood Drive and the existing rail corridor (the Rail Trail), bringing the total number of residential lots in Brunslea Park to 515, some 40 fewer lots than original proposed in the Brunslea Park Master Plan.

In addition, the revised development provides no industrial floorspace, and the potential commercial and retail floorspace originally proposed is undefined, though it is anticipated that a Local Centre in line with that identified in the Wagga Spatial Plan will be developed at some time.

The land uses and yields in the revised Brunslea Park Master Plan are summarised in Table 6.

Table 6: Revised Brunslea Park Land Uses and Yields

Land Use	Yield
Standard Residential Lots	515
Village Hub	~1,500m^2 GLFA
Sports Complex	Fields and ancillary infrastructure
Tavern	~2,000m^2 GFA

Source: Wakefield Ashurst

5.3.3 Current Development

320 dwellings have been constructed in the Brunslea Park, while as discussed, a DA was recently approved by Council for the remaining 195 residential lots.

5.3.4 Local Centre

At this time, there is no specific timeframe in regard to the development or indeed specific location and access to the Local Centre, but available information suggests that it would be of a similar size to the nearby Fife Street shops, with approximately 1,500m^2 of Gross Leasable Floor Area (GLFA).

Given that the Local Centre would overwhelmingly generate trips to/from Brunslea Park, the Site and Forest Hill, there is little potential for those trips to impact on the key Elizabeth Avenue intersections, and as such they have not been included further in the assessment.

5.3.5 Sports Complex and Tavern

At this time, there is no information available in regard to the potential components of the Sports Centre or of the Tavern, nor when each might be constructed. Regardless, it is noted that there is little potential for either the Sports Centre or Tavern to generate any significant level of vehicular traffic in the AM and PM peak periods, and as such they have not been included further in the assessment at this time.

5.3.6 Public & Active Transport

The Brunslea Park Master Plan provides for a series of active transport links along key desire lines though Brunslea Park, including connections to Elizabeth Avenue and the Rail Trail.

With regard to bus services, while no buses currently operate through the completed parts of Brunslea Park, key roads including Mangrove Crescent, Melaleuca Drive and Hazelwood Drive have been constructed as bus capable roads, noting that the use of these roads (to provide a loop service to/from Elizabeth Avenue) would generally provide bus services within 400m for all Brunslea Park residents.

5.3.7 Trip Generation

The recent traffic surveys reflect the development which has occurred across the Brunslea Park to date, i.e. some 320 residential dwellings. As such, to provide base flow for the assessment of future conditions, the trip generation of the remaining approved Brunslea Park dwellings needs to be determined.

In this regard, the assessment has adopted a trip rate of 0.7 trips per dwelling in both the AM and PM peak hours, which is line with the trip rates used in the BP Traffic Study and with the surveyed traffic volumes.

5.3.9 Trip Distribution

With reference to the recent traffic surveys and an analysis of primary attractors in the sub-region, there is no information to suggest that the trip distribution of the remaining residential lots within Brunslea Park would have different characteristics to those surveyed, particularly in regard to movements to/from Mangrove Crescent and Hazelwood Drive. As such the remaining Brunslea Park residential trips have been assigned in the same manner as the surveyed residential trips.

5.3.10 Trip Assignment

Further to the above, the future additional (2036) Brunslea Park trips to the key local roads and intersections are shown in Figure 8 and Figure 9 for the AM and PM peak hours respectively.

Figure 8: Brunslea Park Additional AM Peak Hour Trip Generation

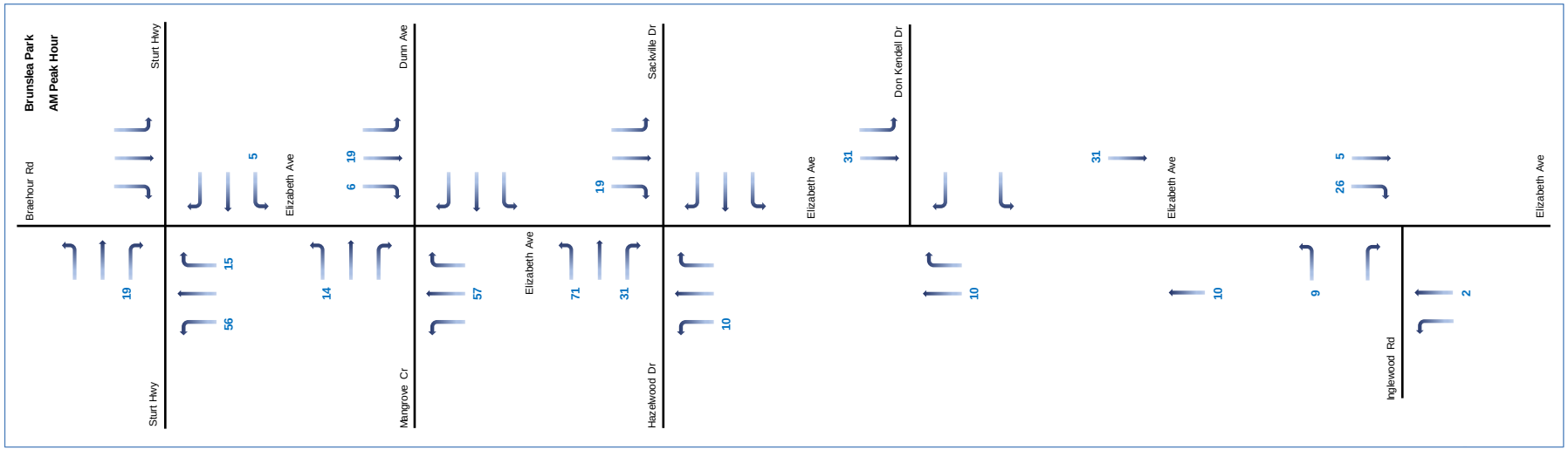
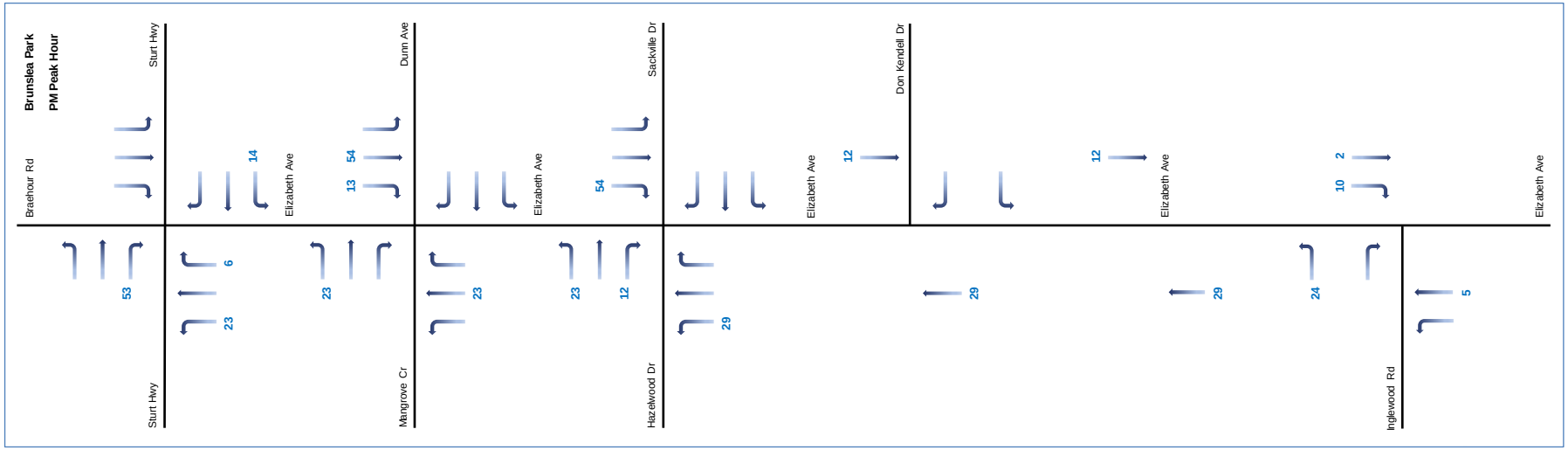


Figure 9: Brunslea Park Additional PM Peak Hour Trip Generation



5.4 Wagga Airport Expansion

5.4.1 Airport Master Plan 2010

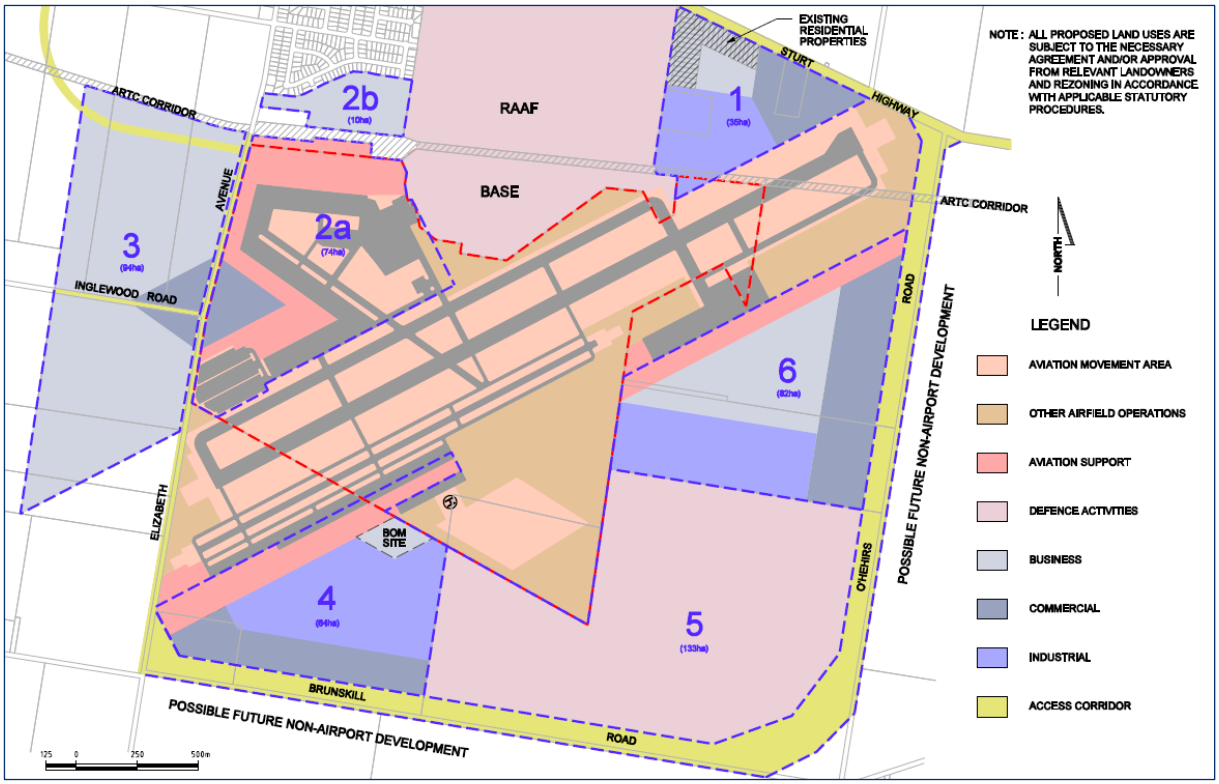
Airport MP 2010 details the required infrastructure to support the long-term growth of Wagga Airport through 2030, including the development of adjacent areas to provide supporting land-uses. Underpinning Wagga Airport MP 2010 is a strategic desire to establish Wagga as a *world-class aviation education and training city*, and Wagga Airport as a *Centre of National Aviation Significance*.

As discussed, it was the understanding of arc traffic + transport that a revised Wagga Airport Master Plan was originally to have been exhibited early in 2021; however - and as confirmed in our consultation with Council - no revised Wagga Airport Master Plan has been prepared at this time, and Council is still relying on Airport MP 2010 when considering broader strategic planning in Wagga. As such, sections below rely on the expansion proposals as detailed in Airport MP 2010 to establish future base conditions.

5.4.2 Wagga Airport Expansion & Development Precincts

Along with an expansion of Wagga Airport operations, Airport MP 2010 provides for significant commercial, business and industrial floorspace. The Airport MP 2010 *Development Precincts & Land Use Plan* is reproduced in Figure 10, while Table 7 provides a summary of the anticipated operation/development of each of the Wagga Airport precincts.

Figure 10: Airport Master Plan 2010 Development Precincts and Land Use Plan



Source: Wagga Airport MP 2010

Table 7: Wagga Airport Master Plan 2010 Precinct Operations and Development

Precinct	Core activities	Potential Demand	Competition	Land Development Costs	Potential Yield/Multipliers
1	Prime Commercial Food/beverage Accommodation Defence supply chain Quasi-govt orgs Small business	High (Short-term)	Low (but area limited)	Low	High
2A	Aviation support Aviation-related education & training	High (Short-term)	Moderate (May require some incentives in lease costs and fees)	Low	Moderate
2B	Defence or aviation training related businesses	Moderate (Short-term)	Moderate	Low	Moderate
3	Education & training Conventions Accommodation Hospitality Sport	Moderate (Medium-term)	Moderate (Mainly from larger cities or special locations)	Moderate	High
4	Aviation support Industrial park Sustainable technologies	Low (Long-term)	Moderate	High	Moderate
5	Department of Defence activities	Not considered			
6	Passenger terminal Freight/logistics	Moderate (Medium-term)	Moderate	High	High

Source: Wagga Airport MP 2010

With reference to Figure 10 and Table 7, Airport MP 2010 provides for the following:

An expansion of Wagga Airport operations, including significant increases in passenger movements;
An expansion of military and civil operations; and
New business, commercial and industrial sub-precincts synergising with the broader airport operations.

5.4.3 Future Wagga Airport Traffic Generation

While Airport MP 2010 does not provide a detailed assessment of the traffic generation characteristics of the expansion and development of Wagga Airport, it provides some estimates and assumptions in regard to future trip generation, with Section 10 stating:

At the present time it is estimated that there are between 200 – 250 employees working on the existing airport site. On the basis of the proposed Master Plan this number is expected to at least double by 2030 due to the development of vacant land in Precinct 2A.

Added to this, the passenger traffic is forecast to increase to between 1.8 and 3.5 times the existing levels. These increases in staff and passengers will result in a significant increase in vehicular traffic accessing the airport. On the basis of existing traffic volumes on Don Kendell Drive the increase in passenger and staff numbers could increase traffic accessing the airport to well over 3,000 vehicles per day.

In addition to the development of the existing airport site, this Master Plan envisages development of a significant adjacent area. Of the proposed development precincts indicated on Drawing B09065A010 at Appendix B [reproduced in Figure 10 above]*, Precincts 2b, 3 and 4 would derive most or all of their ground access needs from Elizabeth Avenue. The total area to be developed is approximately 2-3 times that of the existing development at the airport.*

With reference to the above, the additional trip generation of employees and passenger movements alone are anticipated to increase the Wagga Airport's trip generation to over 3,000vpd, or approximately 300vph. However, the trip generation of the other Airport MP 2010 components would be significantly higher than this total.

As an example, over 100 hectares of industrial floorspace is indicated in Airport MP 2010, which could realistically yield hundreds of thousands of m^2 GFA. Using TfNSW trip rates for regional industrial sites, 100,000m^2 GFA of industrial floorspace alone would generate approximately 300vph - 400vph, suggesting that development of Wagga Airport in line with Airport MP 2010 could literally generate thousands of peak hour and daily vehicle trips.

Given that a revised Wagga Airport Master Plan will be prepared at some future date, and moreover that the trip generation outlined above would have a significant impact on road network operations (something of course that would need to be further assessed in any formal Wagga Airport expansion reports), arc traffic + transport has adopted the trip generation increase for passenger movements (to 300vph in the peak periods) and a very moderate generation of 300vph by other components of Wagga Airport identified in Airport MP 2010.

5.4.4 Trip Distribution

Acknowledging the potential for significant trip generation increases further to an expansion of Wagga Airport operations, Airport MP 2010 states the following in regard to road network access:

Given the increased traffic demand the potential development in and around the airport is likely to generate, it is suggested that the current form and nature of Elizabeth Avenue is inappropriate as the principal access to the western half of the airport. Such access should be provided via a high standard, higher order direct road link.

The existing access from the north via the Sturt Highway and Elizabeth Avenue has some significant constraints that would prevent it from ever being upgraded to a high order road. These constraints include:

The existing direct frontage residential accesses that are provided north of the airport access;

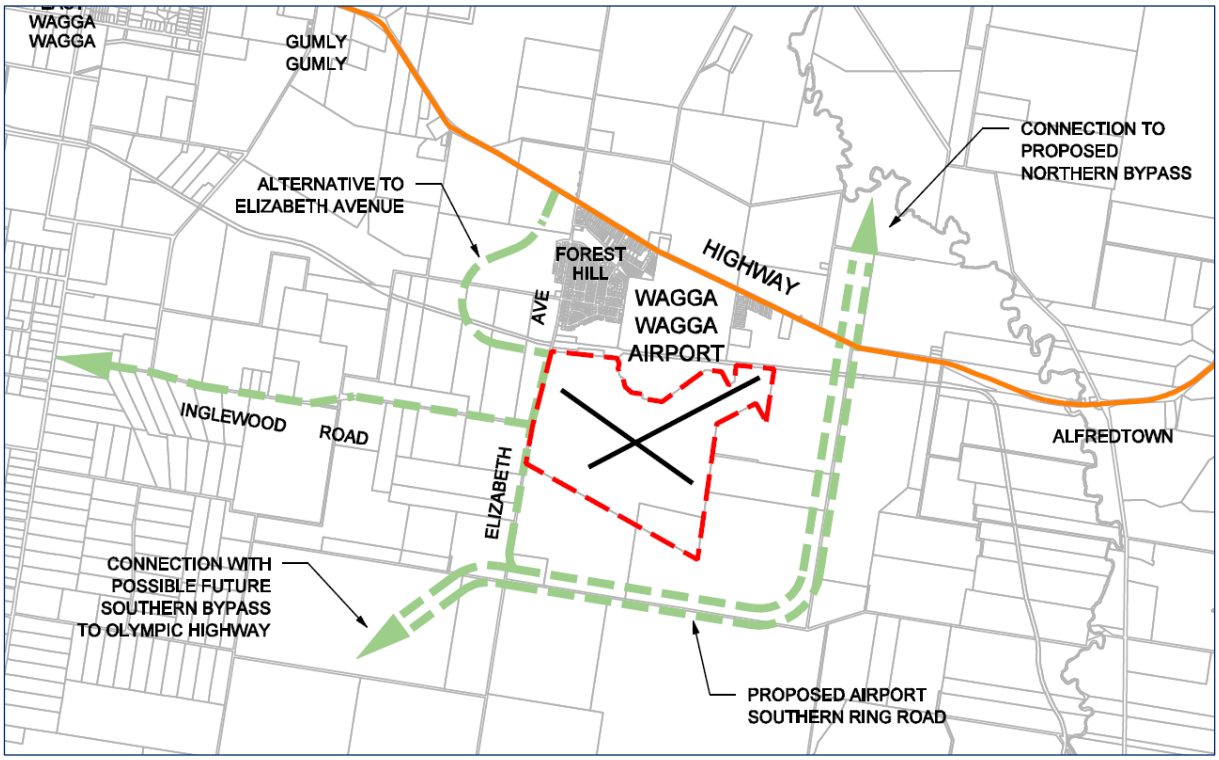
The significant volume of residential traffic that utilises Elizabeth Avenue to access the Forest Hill catchment; and

The existing form of the Elizabeth Avenue / Sturt Highway intersection, including the unsealed fourth approach at the adjacent service road intersection would create significant obstacles to upgrading this intersection to provide addition through carrying or right turning capacity.

To facilitate future development of the airport, the provision of a high standard, high-speed alternative link between the Sturt Highway and Don Kendell Drive would provide superior access to the future upgraded airport than that provided via the constrained Elizabeth Avenue link, whilst enhancing the road safety through the residential area. A possible alignment for such a link is indicated on Drawing B09065A020 at Appendix B.

The relevant part of Drawing B09065A020 in Airport MP 2010 is reproduced in Figure 11.

Figure 11: Wagga Airport Master Plan 2010 Road Network Access



Source: Airport MP 2010

With reference to Figure 11, arc traffic + transport notes the following:

- **Proposed Sturt Highway to Don Kendell Drive Link:** Based on our discussions with Wakefield Ashurst and Council, the proposed *high standard, high-speed alternative link between the Sturt Highway and Don Kendell Drive* through the Site will not be pursued further by Council and the cost-benefit analysis undertaken by Council does not supports its construction. Based on our discussions with TfNSW, this option was not reviewed by TfNSW.
- **Alternative Access Options:** With the Sturt Highway to Don Kendell Drive link road ruled out, this leaves Wagga Airport access to be provided via:
  - Elizabeth Avenue;
  - A potential new link to one of the existing Sturt Highway intersections to the north-east of Wagga Airport (for example an upgraded O'Herirs Road) or north west of the Site (for example via Inglewood Road and Bakers Lane, an option we understand has been previously examined by both Council and TfNSW but is no longer being pursued); or
  - A combination of options, with a target of keeping the Elizabeth Avenue trip generation as low as possible.

Notwithstanding - and as agreed with TfNSW - as no information is available in regard to these other access options, and moreover options such as Bakers Lane are likely impossible due to flooding issues, arc traffic + transport has necessarily assigned the additional Wagga Airport trips to the only access route that is available, i.e. Elizabeth Avenue.

5.4.5 Wagga Airport Expansion Trip Assignment

Further to sections above, the future additional (2036) Wagga Airport trips to the key local roads and intersections are shown in Figure 12 and Figure 13 for the AM and PM peak hours respectively.

5.5 Base 2036 Traffic Volumes

With reference to sections above, the total Base 3026 traffic volumes in key local roads and intersections are shown in Figure 14 and Figure 15 for the AM and PM peak hours respectively, noting again that these volumes do not include the Planning Proposal.

Figure 12: Wagga Airport Additional AM Peak Hour Traffic Generation

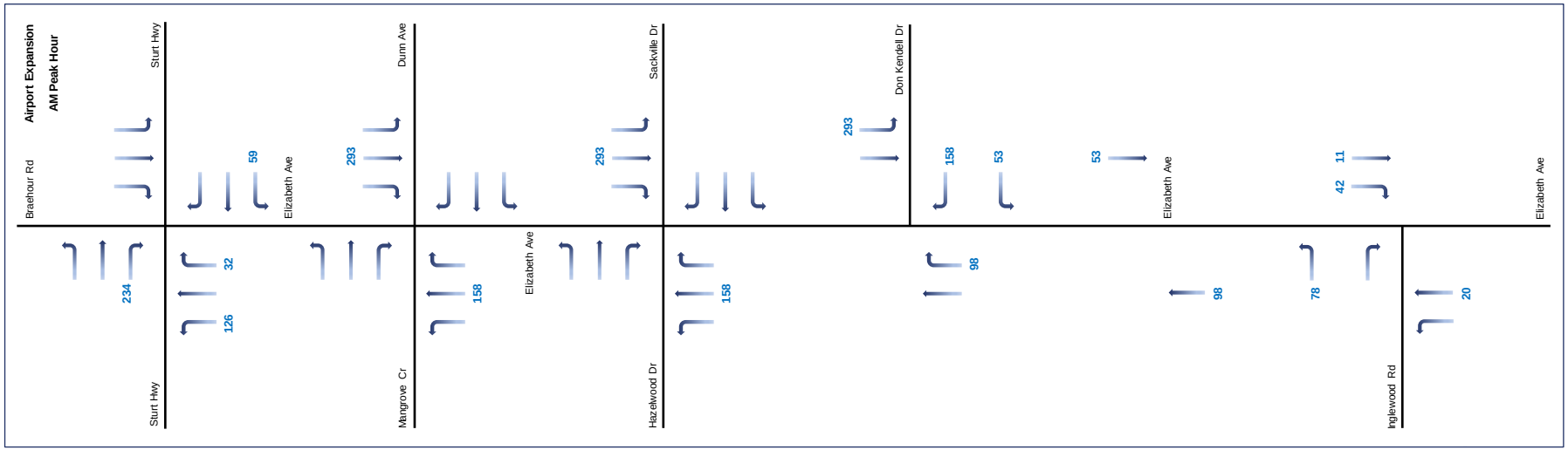


Figure 13: Wagga Airport Additional PM Peak Hour Traffic Generation

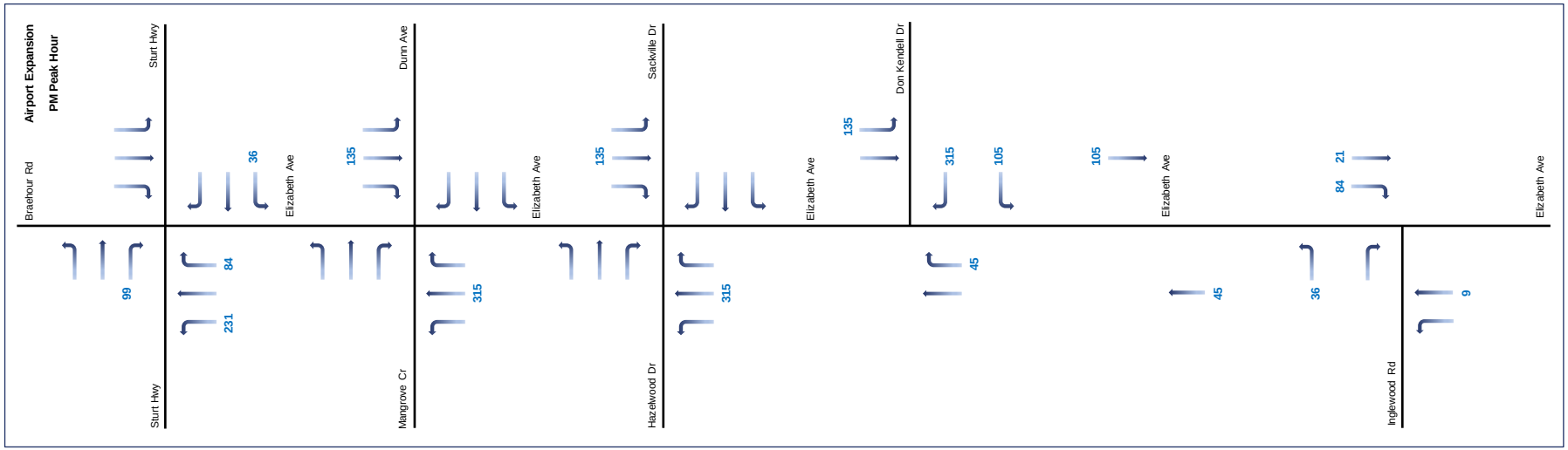


Figure 14: Base 2036 Total AM Peak Hour Traffic Volumes

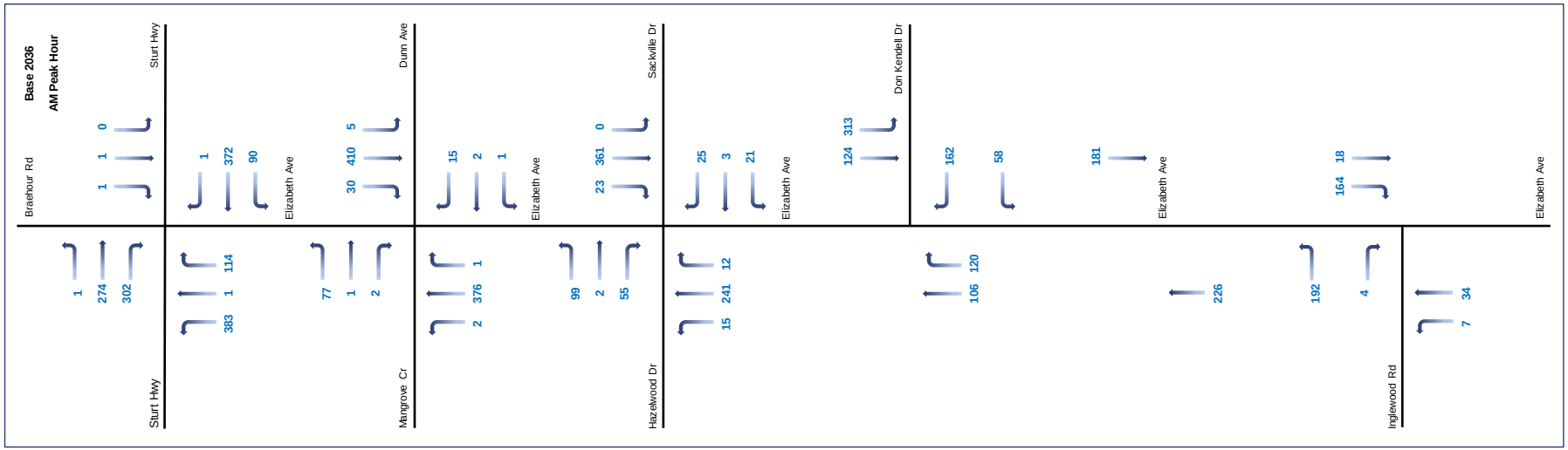
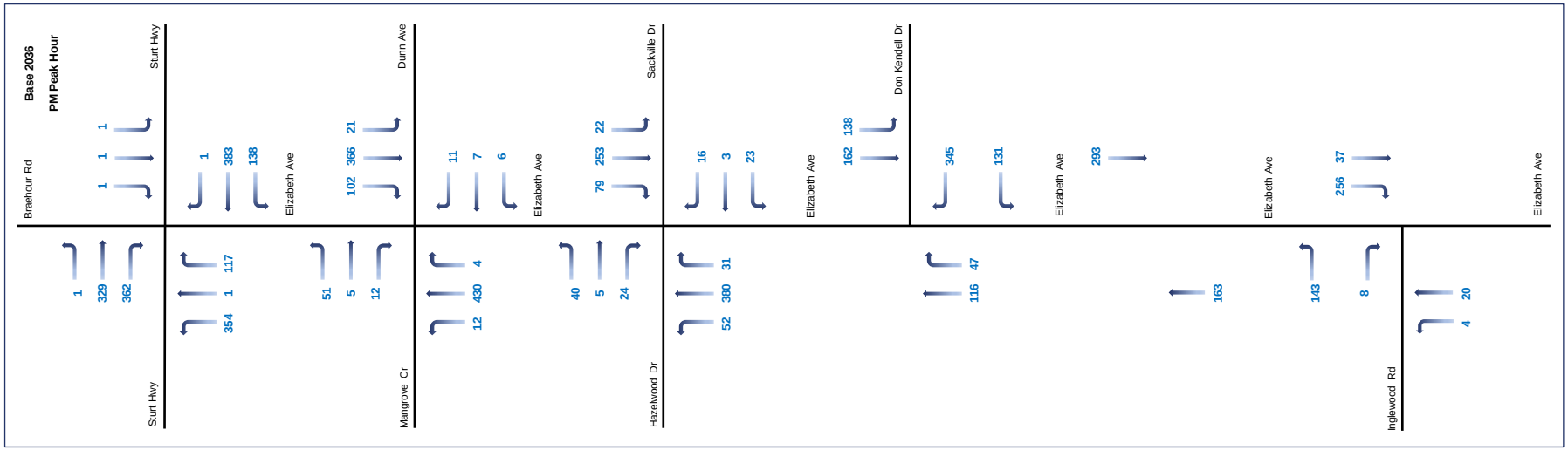


Figure 15: Base 2036 Total PM Peak Hour Traffic Volumes



5.6 Base 2036 Intersection Operations

SIDRA has again been utilised to assess the operation of the key intersections in the Base 2036 forecast year. The results of this analysis are provided in Table 8, while detailed SIDRA outputs are provided in Appendix A.

Table 8: Base 2036 Intersection Operations

Intersection	Worst Delay (s)		Worst Delay LOS		Average Delay (s)		Average Delay LOS		Degree of Saturation	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Sturt Hwy & Elizabeth Ave Priority	108.3	148.8	F	F					1.022	1.066
Sturt Hwy & Elizabeth Ave 1 Lane Roundabout					9.5	9.8	A	A	0.600	0.595
Elizabeth Ave & Mangrove Cr & Dunn Ave	12.8	13.0	A	A					0.258	0.294
Elizabeth Ave & Hazelwood Dr & Sackville Dr	10.6	10.5	A	A					0.219	0.236
Elizabeth Ave & Don Kendell Dr	8.2	8.1	A	A					0.286	0.463
Elizabeth Ave & Inglewood Rd	5.5	5.9	A	A					0.135	0.168

With reference to Table 8, the performance of the intersection of Sturt Highway & Elizabeth Avenue & Braehour Road deteriorates further to average annual growth; the additional Brunslea Park trip generation; and - in particular – the additional Wagga Airport trip generation. As a result, the intersection would operate at LOS F in both peak hours, with significant delays particularly associated with the right turn movement from Elizabeth Avenue to Sturt Highway.

As previously discussed, both the BP Traffic Study and BP Traffic Addendum recommended the provision of a roundabout at the intersection of Sturt Highway & Elizabeth Avenue & Braehour Road (to accommodate traffic generated by the development of Brunslea Park). The results of the Base 2036 assessment strongly indicate that a roundabout (or signalised intersection) will be required, particularly to accommodate the trip generation of the Wagga Airport expansion which as noted has the real potential to generate significantly more trips than those assigned in the Base 2036 scenario.

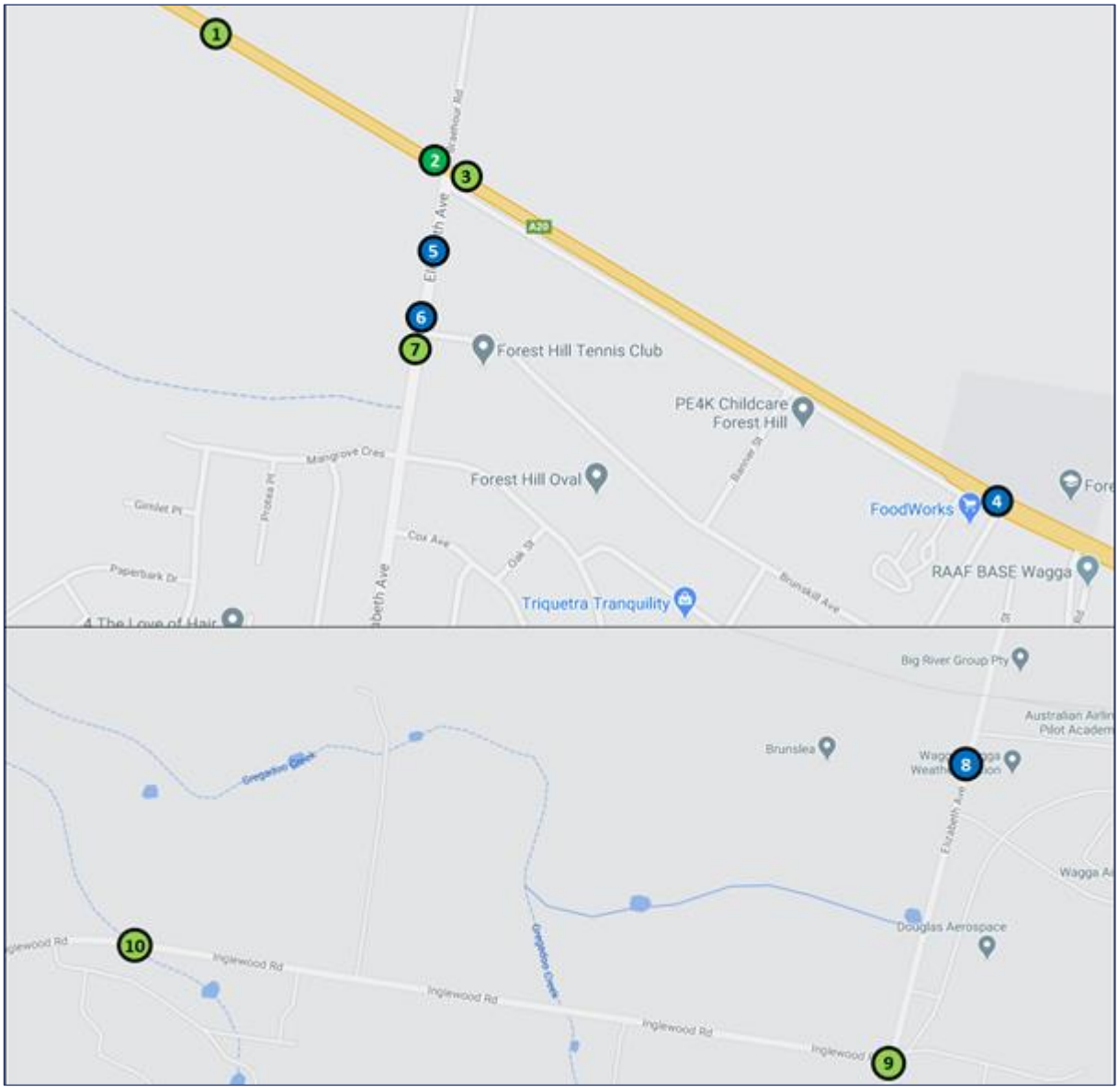
While our discussions with TfNSW indicate that no upgrade of the intersection is planned at this time, as agreed with TfNSW arc traffic + transport has modelled the intersection in SIDRA operating under roundabout control; the results of this analysis (also shown in Table 8) indicate that a single lane roundabout would accommodate the Base 2036 traffic volumes, operating at LOS A in both peak hours with reasonable capacity and minimal queueing.

All of the other local intersections continue to operate at an appropriate LOS, including the intersection of Elizabeth Avenue & Mangrove Crescent & Dunn Avenue which as discussed, the BP Traffic Study and BP Traffic Addendum recommended be upgraded to a roundabout. However, with the reduction of development in the revised Brunslea Park Master Plan – and specifically the removal of the higher trip generating components such as commercial, industrial and (higher) retail floorspace - this intersection operates at a significantly better LOS than reported in the BP Traffic Study.

5.7 Crash Data

TfNSW's Centre for Road Safety provides summary crash data for the 5-year period 2014 to 2018. A summary of crash location in key roads in the vicinity of the Site is provided in Figure 16, while Table 9 provides a summary of the available details relating to each of these crashes.

Figure 16: Crash Locations



Source: TfNSW Centre for Road Safety

Table 9: Crash Summary Details

Map ID #	Degree of Crash	RUM	Time of Day	Number Injured
1	Minor/Other	U turn	Daylight	1
2	Non-casualty	Rear end	Daylight	
3	Non-casualty	Rear end	Darkness	
4	Moderate injury	Off road left object	Daylight	1
5	Serious Injury	Run off Road	Dawn	2
6	Serious Injury	Off road left	Daylight	1
7	Non-casualty	Right through	Daylight	
8	Serious Injury	Rear end	Darkness	1
9	Moderate injury	n/a	Dawn	1
10	Non-casualty	Off left/right bend object		

Source: TfNSW Centre for Road Safety

With reference to the above, the only real trend identified in the crash data is the prevalence of rear end crashes in Sturt Highway either at or in the vicinity of the intersection of Elizabeth Avenue. Given the geometry of both roads and the intersection is good, as is sight distance, this suggests perhaps that the transition in speed zones west of Elizabeth Avenue (from 80km/h eastbound to 60km/h) may be a contributing factor.

Notwithstanding, the Centre for Road Safety has recently stopped reporting on crashes where no-one is injured, i.e. simply a tow-away. Application of this new reporting measure to the crashes reported above would again suggest no systematic issue in Sturt Highway at or adjacent to Elizabeth Avenue.

The crashes along Elizabeth Avenue do not appear to have any significant correlation, with a variety of crashes at different times of the day in what is a 50km/h area again providing good road and intersection geometry.

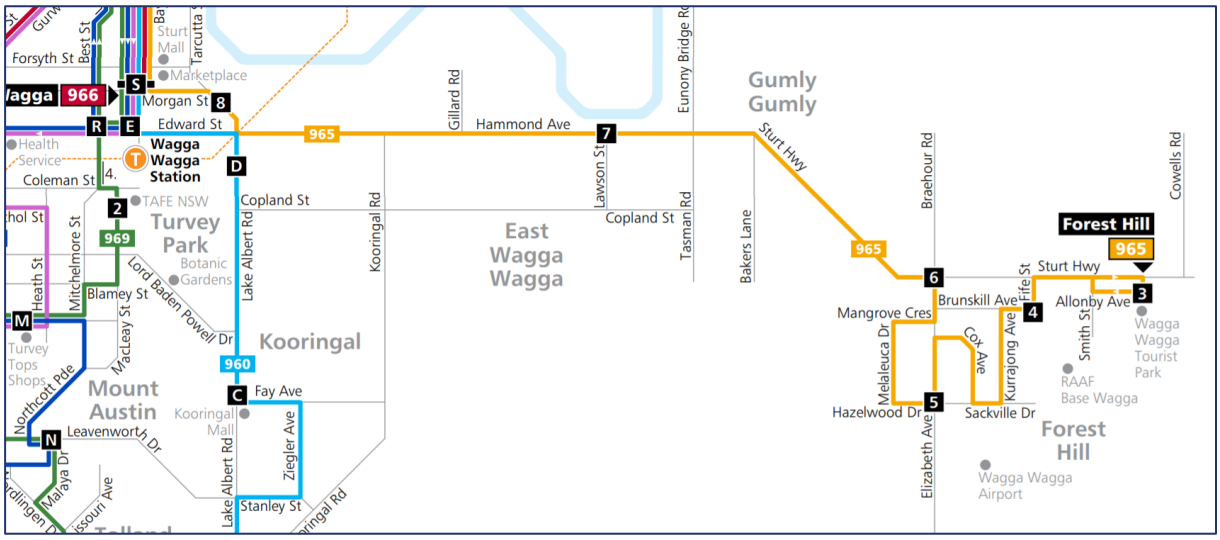
6 Public & Active Transport

6.1 Bus Services

6.1.1 Existing Bus Services

Bus services in Wagga are operated by Busabout, with Route 965 providing a link between Forest Hill and Wagga City, as shown in Figure 17.

Figure 17: Bus Route 965



Source: Busabout

Route 965 services only operate every 2 hours between 7:00am and 7:00pm on weekdays; between 9:00am and 7:00pm on Saturdays and between 9:00am and 3:00pm on Sundays. Additional school term only and school holiday only buses are also provided in the school peak periods.

6.1.2 Future Bus Services

As discussed in Section 3.1.3, the Wagga ITSIP provides a recommendation for the provision of Rapid Bus services between central Wagga and Forest Hill; while a timeframe for such services has yet to be determined, it is important to note that increasing the residential population in Forest Hill will be a key driver in the introduction of such services.

6.2 Active Transport

6.2.1 Existing Active Transport

Pedestrian and particularly cycle/shared paths are generally provided only within Wagga City and immediately surrounding suburbs. In the vicinity of the Site, marked cycle lanes (shared with parking) are provided in some sections of Elizabeth Avenue, and a network of shared paths are provided in the residential areas to the east of Elizabeth Avenue, generally near local recreational facilities.

6.2.3 Future Active Transport

As discussed in Section 3.1.3, the Wagga ITSIP provides a recommendation for the implementation of an active transport connection between central Wagga and Forest Hill along the Rail Trail. As with Rapid Bus services, while a timeframe the Rail Trail to be built has not been determined, the increasing residential population in Forest Hill will again be a key driver in the Rail Trail construction timetable.

Council's forward planning also includes new footpaths and shared paths across Forest Hill, while development controls similarly require active transport infrastructure for all new developments. This infrastructure will necessarily be built into the final stages of Brunslea Park, and in the Site as discussed in Section 7.4.2.

7 The Planning Proposal

7.1 Land Use & Yield

As discussed previously, the Concept Plan provides for:

- 250 standard residents lots;
- 165 small rural residential lots;
- 50 large rural residential lots; and
- Approximately 35,000m^2 GFA of industrial floorspace.

The industrial GFA estimate is based on the Wagga LEP Industrial Floor Space Ratio (FSR) allowance of 1:1 for industrial sites in other industrial areas across the LGA, noting that no FSR Map is available for the Site in the Wagga LEP. The Concept Plan for the Site is provided in Figure 18.

Figure 18: Planning Proposal Concept Plan

Source: Wakefield Ashurst

7.2 Access

7.2.1 Mangrove Crescent

Access to the standard residential lots to/from the north will be provided via an extension of Mangrove Crescent, which will then run south parallel to Paperbark Drive to an intersection with Lacebark Drive.

7.2.2 Hazelwood Drive

Hazelwood Drive will provide access to the standard residential lots for trips to/from the south and west (Inglewood Road).

7.2.3 Road 1

Road 1 will extend south from Mangrove Crescent to the Rail Trail, and will be the primary internal access road for the general residential areas in the north of the Site.

7.2.4 Road 2

New Road 2 will extend north from Inglewood Road to the Rail Trail, and will be the primary internal access road for the small and large rural residential lots in the south/south-east of the Site.

7.2.5 Road 3

New Road 3 will extend north from Inglewood Road, and will be the primary internal access road for the large rural residential lots in the south/south-west of the Site.

7.2.6 Road 4

New Road 4 will extend north from Inglewood Road, and will be the minor internal access road for the large rural residential lots in the south/south west of the Site; it is noted that Road 4 has also been provided with provide compliance with emergency vehicle (fire) vehicles.

7.2.7 Industrial Road

Industrial lots will be accessed from Elizabeth Avenue.

7.2.8 Additional Access Scenario

An additional access scenario has also been examined which provides a road link across the Rail Trail connecting the northern and south-eastern parts of the Site (i.e. it would connect Road 1 and Road 2).

7.3 Internal Road Profiles

All internal roads would be constructed in accordance with the Wagga DCP and Wagga Engineering Guidelines' requirements. The general profiles for new roads are detailed in Table 2.5.1 of the Wagga Engineering Guidelines, which is reproduced below.

Table 10: Wagga Engineering Guidelines Road Profiles

Classification of Road	Target Design Speed (km/h)	Max. No of Lots	Minimum Width (metres)			Footpath	Cycleways	Kerb Type	Indicative Design ESAs
			Road Reserve	Carriageway	Verge				
Lane	25	10	14.5	7.5	2 x 3.5	None	On road shared	As discussed with Council staff	1 x 10^5
Access Street (Shareway)	25	10	14.5	7.5	2 x 3.5	None	On road shared	Barrier or fully mountable	1 x 10^5
Cul-de-sac	50	10	14.5 18.5*	7.5 7.5	2 x 3.5 2 x 5.5*	None	On road shared	Barrier or fully mountable	1 x 10^5
Local Access	50	100	20	9	2 x 5.5	1.5m one side	On road shared	Barrier	2 x 10^5
Collector	60	300	24	13	2 x 5.5	1.5m one side	Marked	Barrier	3 x 10^6
Sub Arterial	80	500-750	30	19	2 x 5.5	1.5m one side	2.5m wide shared cycleway footpath on one side	Barrier	Subject to traffic study but not less than 6 x 10^6
Industrial	60	-	30	19	2 x 5.5		Marked	Barrier	Subject to traffic study but not less than 1 x 10^7

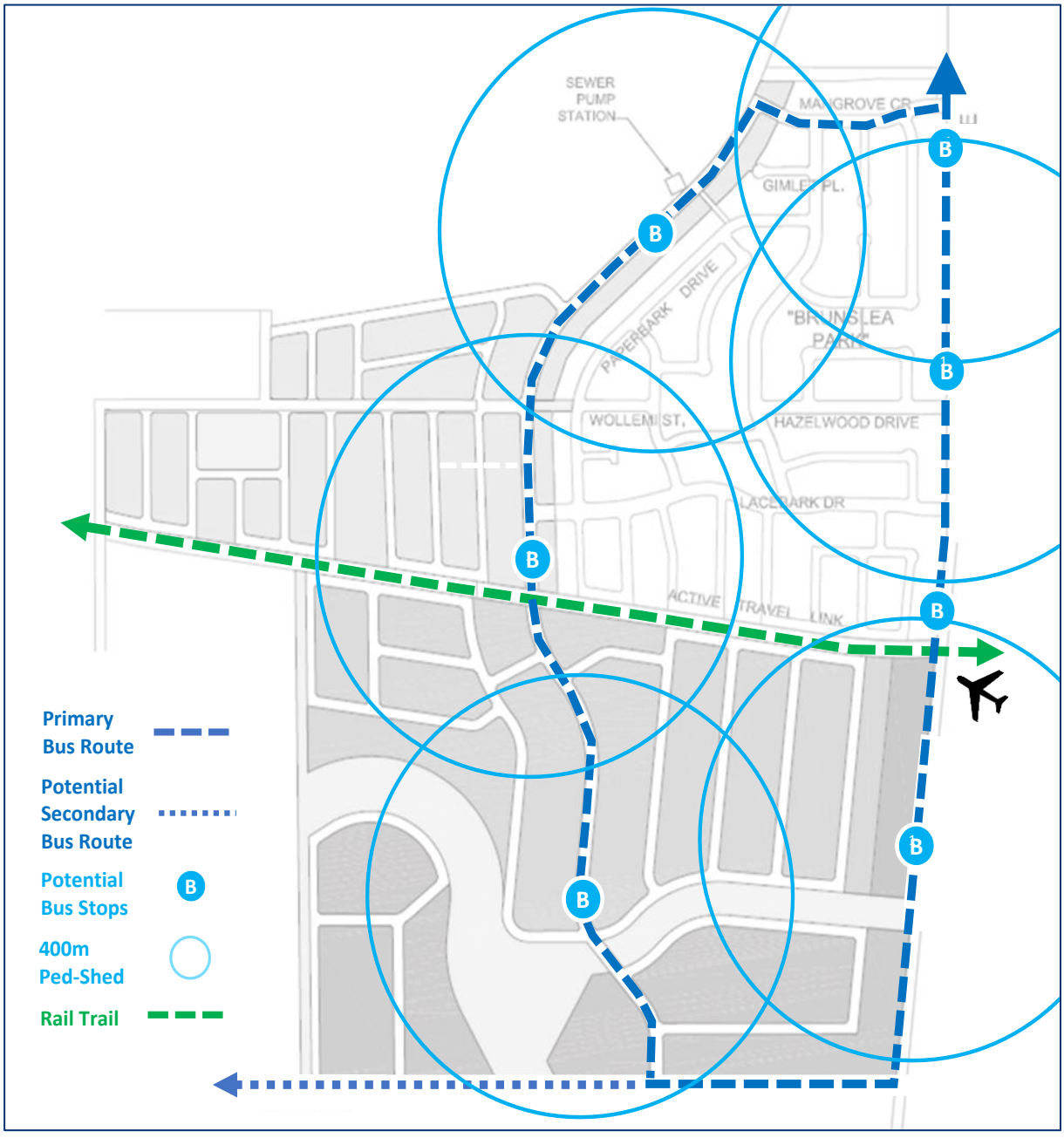
Source: Wagga Engineering Guidelines

7.4 Public & Active Transport

7.4.1 Bus Routes

It is anticipated that a new bus route will be provided along Road 1 linking Elizabeth Avenue (at Mangrove Crescent) and Inglewood Road utilising the Rail Trail crossing (regardless of whether it is also open to general traffic). This route could then either return to Elizabeth Avenue or continue west along Inglewood Road. These routes are shown in Figure 19, along with potential bus stop locations and resulting catchments.

Figure 19: Planning Proposal Potential Bus Routes



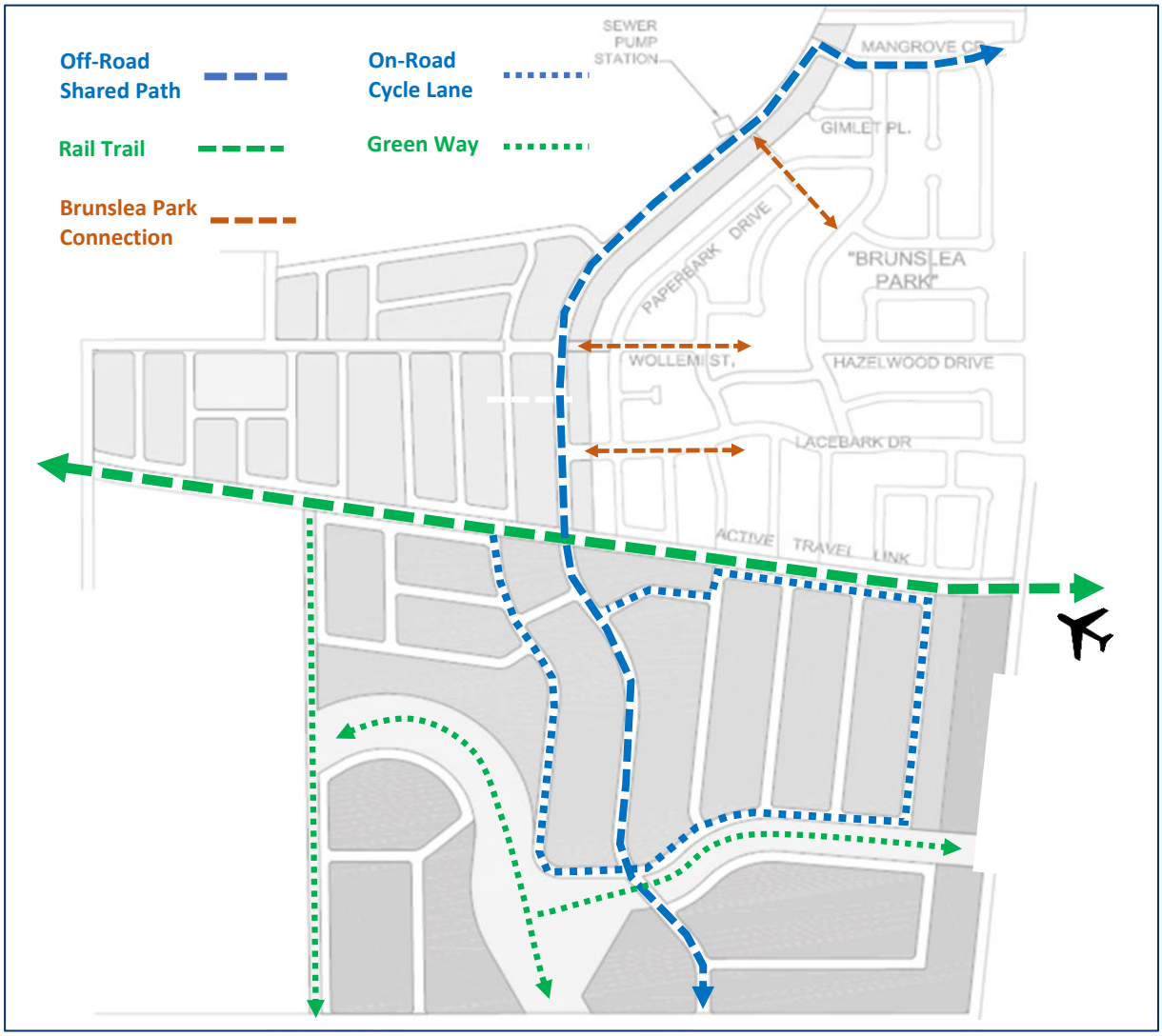
7.4.2 Active Transport

The Planning Proposal provides excellent connections to key external origins/destinations as well as internal active transport links. Key connections along open space corridors or roads with pedestrian/shared paths include:

- Connections north to Sturt Highway and the proposed Local Centre within Brunslea Park;
- Connections east to Elizabeth Avenue, and in turn to the residential and recreational areas east of Elizabeth Avenue; and
- Connections to the Rail Trail, and in turn west toward central Wagga.

These key active transport paths are shown in Figure 20.

Figure 20: Active Transport Connections



7.5 Trip Generation

7.5.1 Residential Trip Rates

The assessment has adopted the same trip rates for the residential component of the Planning Proposal as adopted for the assessment of the Brunslea Park residential dwellings, being 0.7 trips per dwelling in both the AM and PM peak hours. This trip rate has been applied to all dwellings, noting that both small and large rural residential lots generally have lower trip rates than standard residential lots.

Application of this trip rate suggests the residential component of the Planning Proposal would generate some 290vph in both the AM and PM peak periods.

7.5.2 Industrial Trip Rates

A number of the regional industrial sites surveyed by Roads & Maritime include significant office and retail space, which increase trip generation when compared to warehouse space with small offices and no retail as proposed; these survey sites include:

- Anambah Business Park, Rutherford;
- Freeway Business Park, Beresfield; and
- Taylors Beach Industrial Estate.

The trip generation characteristics of these sites are summarised in Table 11.

Table 11: Roads & Maritime Regional Warehouse Trip Characteristics

Vehicle Trips per 100m^2 GFA	Rutherford	Beresfield	Taylors Beach	Average
Daily	6.024	6.581	3.777	**5.461**
Site Peak	0.581	0.564	0.392	**0.512**
AM Peak	0.373	0.554	0.322	**0.416**
PM Peak	0.427	0.396	0.211	**0.345**
Truck Trips	15.5%	18.3%	8.9%	**14.2%**

Source: RMS Guide Update

The assessment has adopted the average trip generation rates shown in Table 11, being 0.416 trips and 0.345 trips per 100m^2 in the AM and PM peak hours respectively; application of these trip rates provides an estimate of 146 vph and 120 vph in the AM and PM peak periods respectively.

Again, referencing the Roads & Maritime surveys, it is estimated that approximately 15% of these trips would be made by heavy vehicles.

7.6 Trip Distribution & Assignment Scenario 1

Scenario 1 provides an assessment of trip distribution based on there being no road link across the Rail Trail; the resulting distribution characteristics are detailed below.

7.6.1 Residential Trips

It is anticipated that the broader trip distribution of residential trips would have the same characteristics as determined in the traffic surveys, specifically in relation to the percentage of trips travelling to/from the east and west via Sturt Highway, the south via Elizabeth Avenue and west via Inglewood Road.

With specific regard to the distribution of trips at the key intersections:

- Trips to/from the northern part of the Site would use the intersection Elizabeth Avenue & Mangrove Crescent & Dunn Avenue for trips to/from the north-west and east; and Elizabeth Avenue & Hazelwood Drive & Sackville Drive for trips to/from the south and south-west; and
- Trips to/from the southern parts of the Site would use the intersections of Elizabeth Avenue & Inglewood Road for trips to/from the north-west, east and south; and Inglewood Road for trips to/from the south-west and west.

7.6.2 Industrial Trips

It is anticipated that the broader distribution of industrial trips would have similar characteristics to Wagga Airport trips, with Elizabeth Avenue providing access to the north-west, east and south, and Inglewood Road for trips to the south-west and west. No industrial trips would be generated to the internal residential road network.

7.6.3 Scenario 1 Trip Assignment

With reference to sections above, residential and industrial trips generated by the Site under Scenario 1 have been assigned to the future road network, and are shown in Figure 21 and Figure 22 or the AM and PM peak hour respectively.

Figure 21: Site Trip Generation Scenario 1 AM Peak Hour

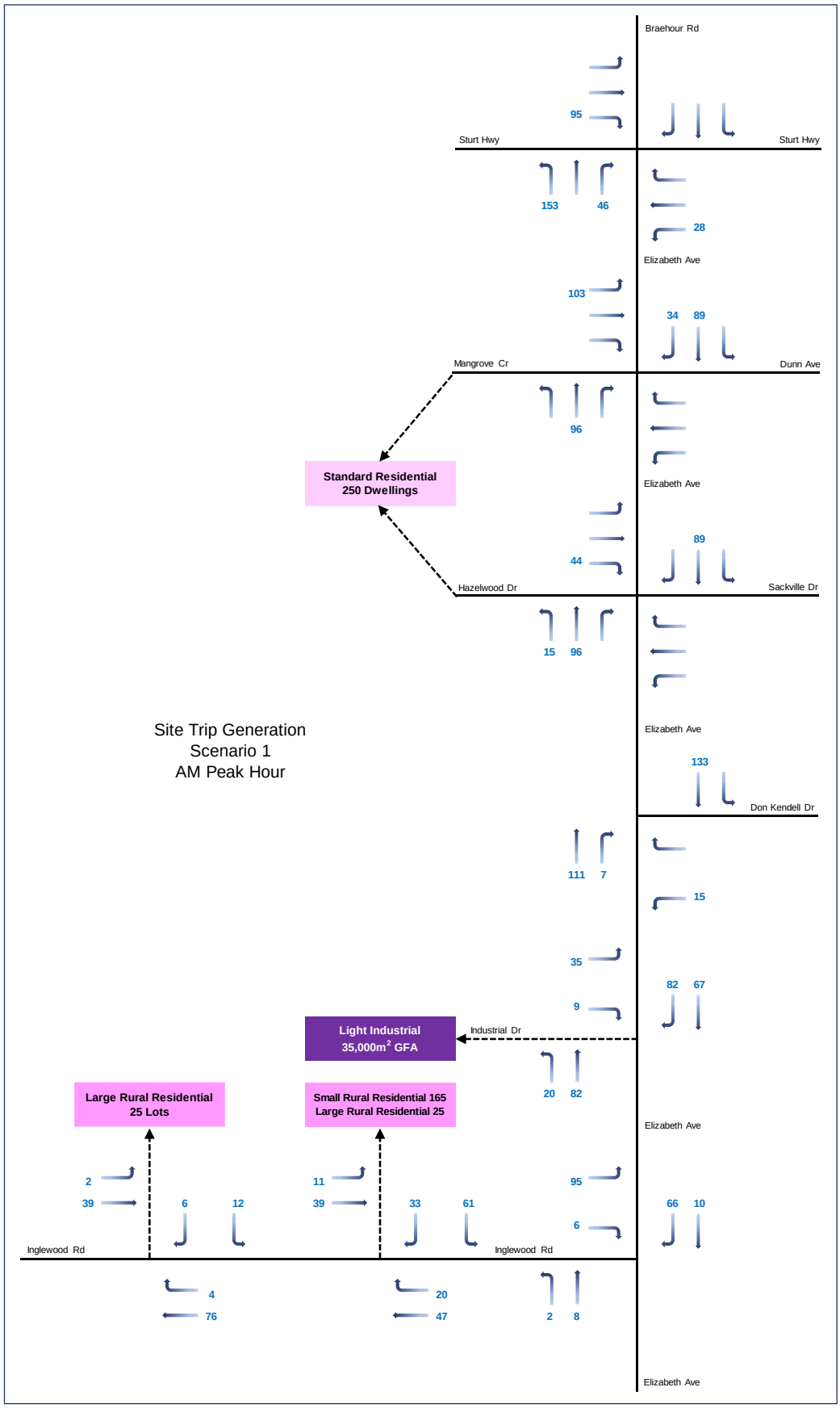
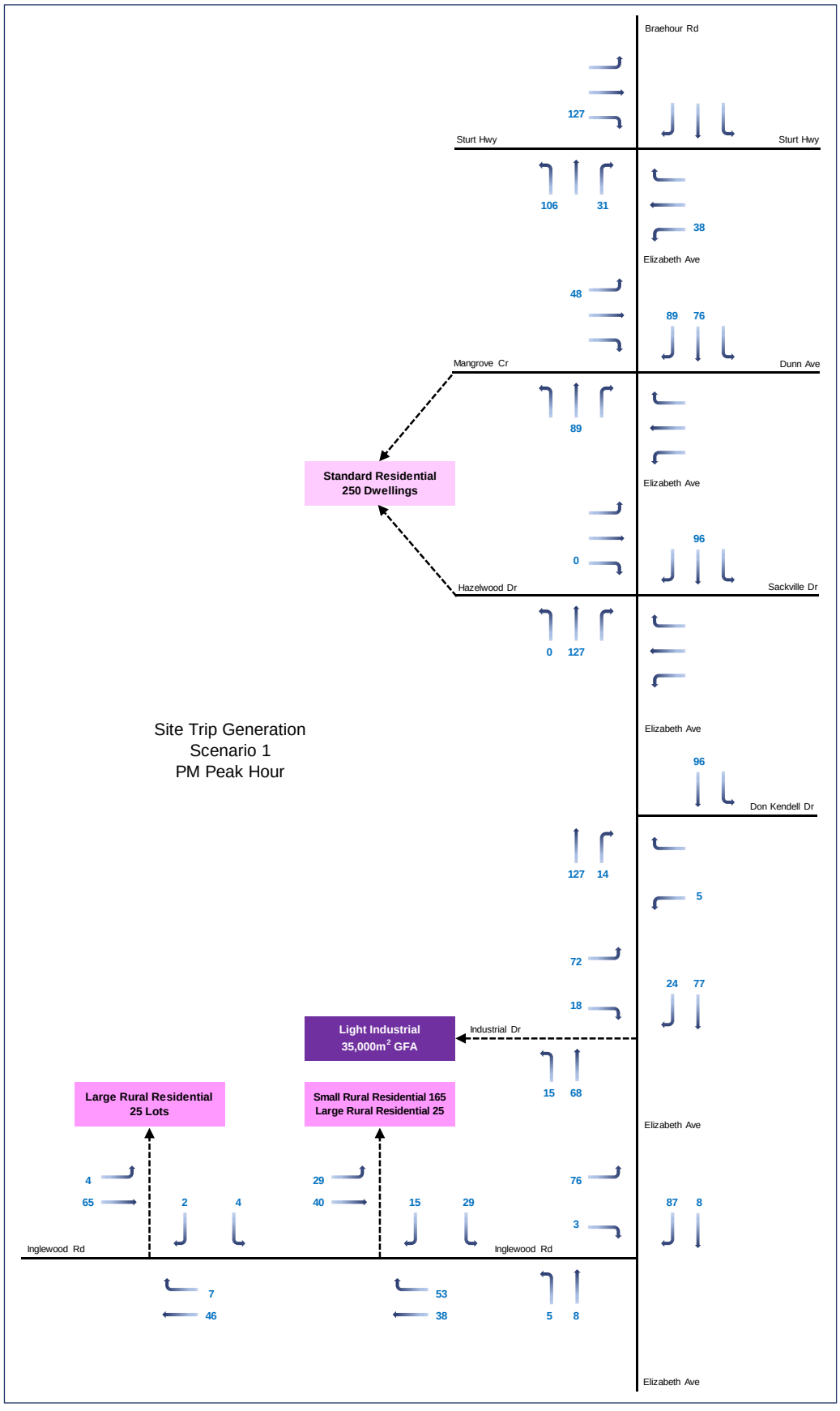


Figure 22: Site Trip Generation Scenario 1 PM Peak Hour



7.7 Trip Distribution & Assignment Scenario 2

Scenario 2 provides an assessment of trip distribution based on a road link being provided across the Rail Trail; the resulting distribution characteristics are detailed below.

7.7.1 Residential Trips

It is anticipated that the broader trip distribution of residential trips would have the same characteristics as determined in the surveys with specific regard to the percentage of trips travel to the east and west via Sturt Highway, the south via Elizabeth Avenue and west via Inglewood Road.

With specific regard to the distribution of trips at the key intersections:

- Trips to/from the northern part of the Site would use the intersection of Elizabeth Avenue & Mangrove Crescent & Dunn Avenue for trips to/from the north-west and east; and Road 2 to Inglewood Road for trips to/from the south and south-west; and
- Trips to/from the southern parts of the Site would use Road 1 and Road 2 to the intersection of Elizabeth Avenue & Mangrove Crescent & Dunn Avenue for trips to/from the north-east and east; Inglewood Road for trips to/from the west; and the intersection of Elizabeth Avenue & Inglewood Road for trips to/from the south.

It is also anticipated that trips generated by Brunslea Park residents to/from the west would use Road 2 to Inglewood Road.

7.7.2 Industrial Trips

Industrial trips would have the same distribution profile as for Scenario 1.

7.7.3 Scenario 2 Trip Assignment

With reference to sections above, residential and industrial trips generated by the Site under Scenario 2 have been assigned to the future road network, and are shown in Figure 23 and Figure 24 for the AM and PM peak hour respectively.

Figure 23: Site Trip Generation Scenario 2 AM Peak Hour

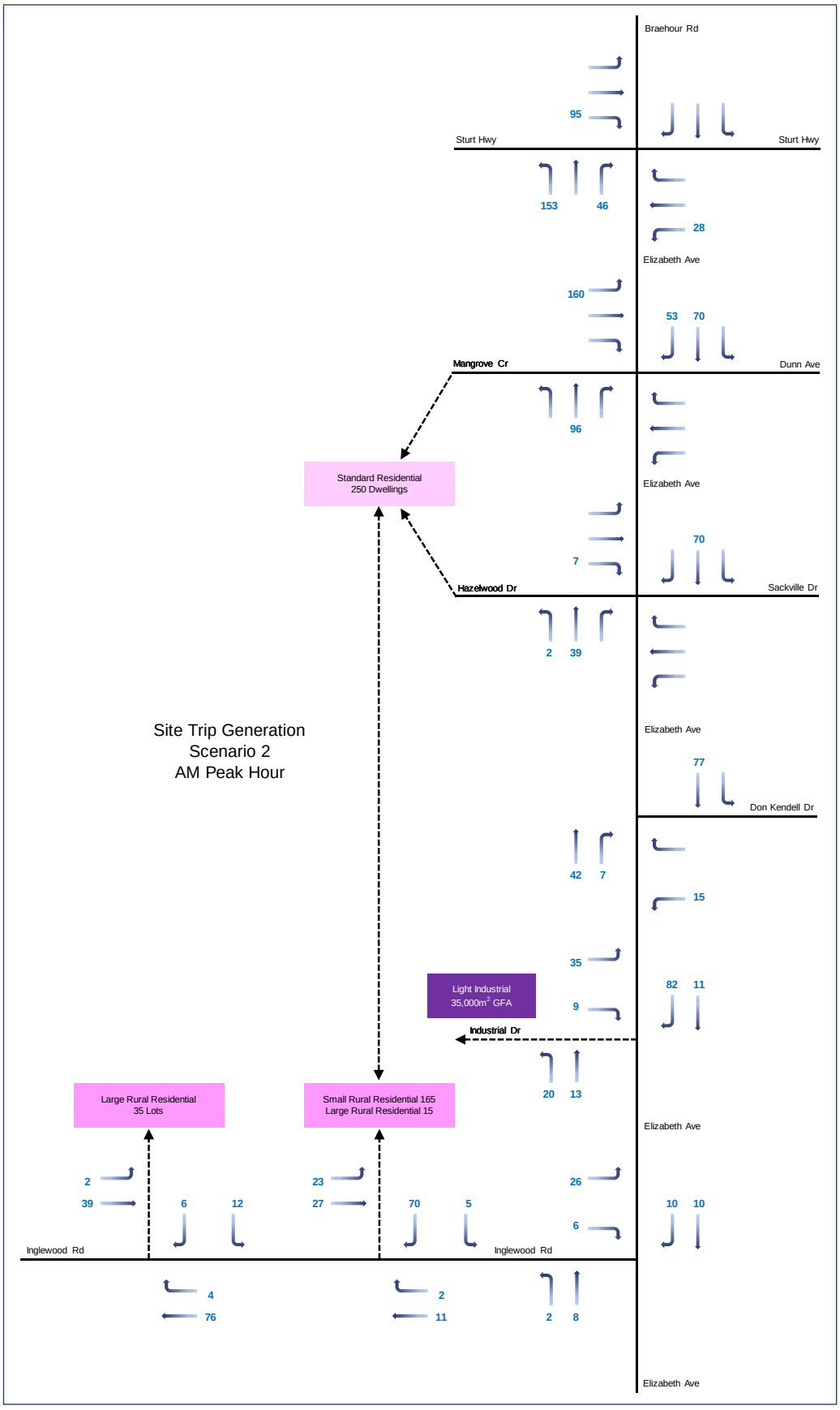
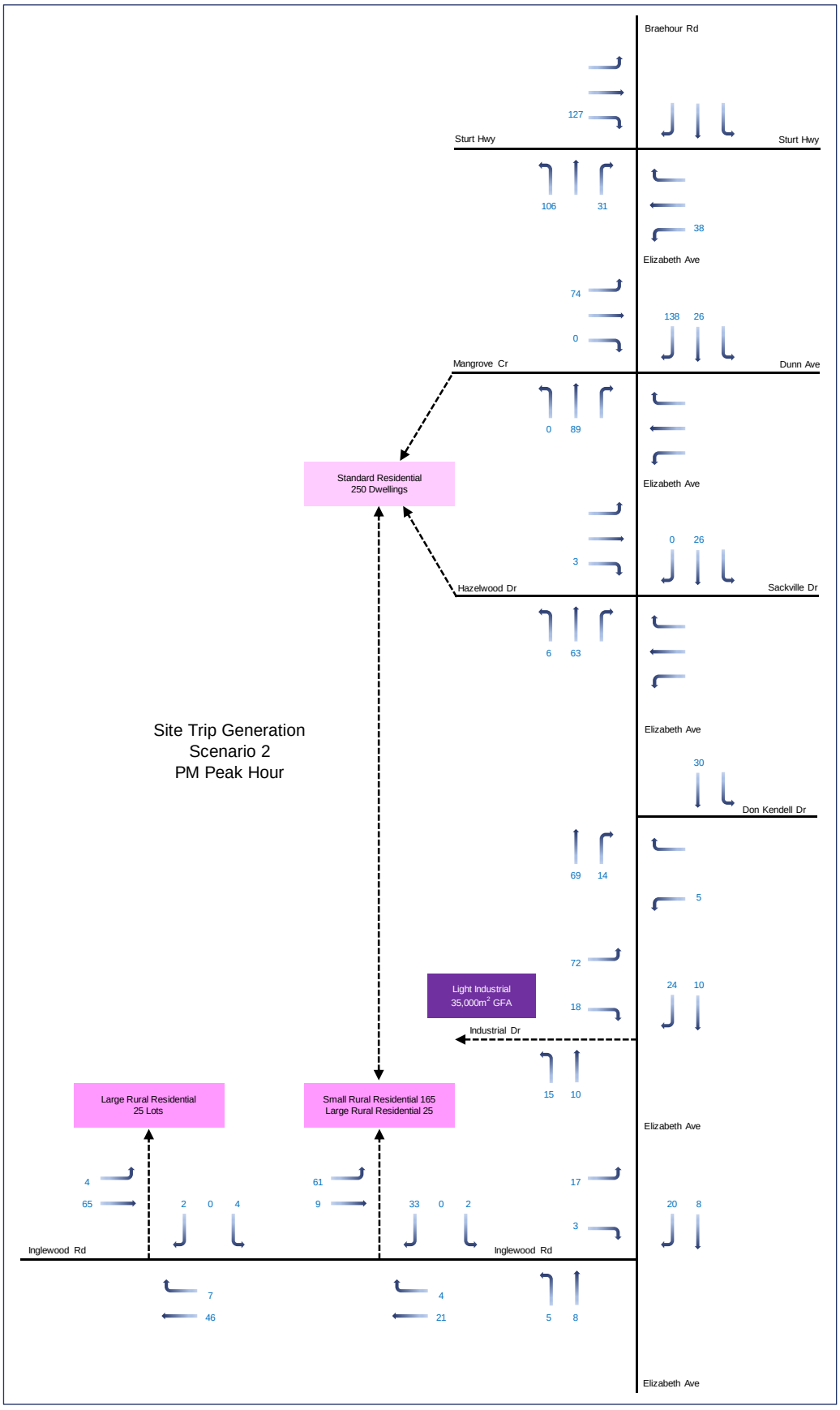


Figure 24: Site Trip Generation Scenario 2 PM Peak Hour



7.8 Base 2036 + Planning Proposal Scenario 1

With reference to sections above, the total network traffic volumes forecast for 2036, being the Base 2036 traffic volumes (further to average annual growth, the completion of Brunslea Park and Wagga Airport expansion) plus the Scenario 1 Site trips are shown in Figure 25 and Figure 26 for the AM and PM peak hour respectively.

7.9 Base 2036 + Planning Proposal Scenario 2

With reference to sections above, the total network traffic volumes forecast for 2036, being the Base 2036 traffic volumes (further to average annual growth, the completion of Brunslea Park and the Wagga Airport expansion) plus the Scenario 2 Site trips, are shown in Figure 27 and Figure 28 for the AM and PM peak hour respectively.

Figure 25: 2036 Total Trips Scenario 1 AM Peak Hour

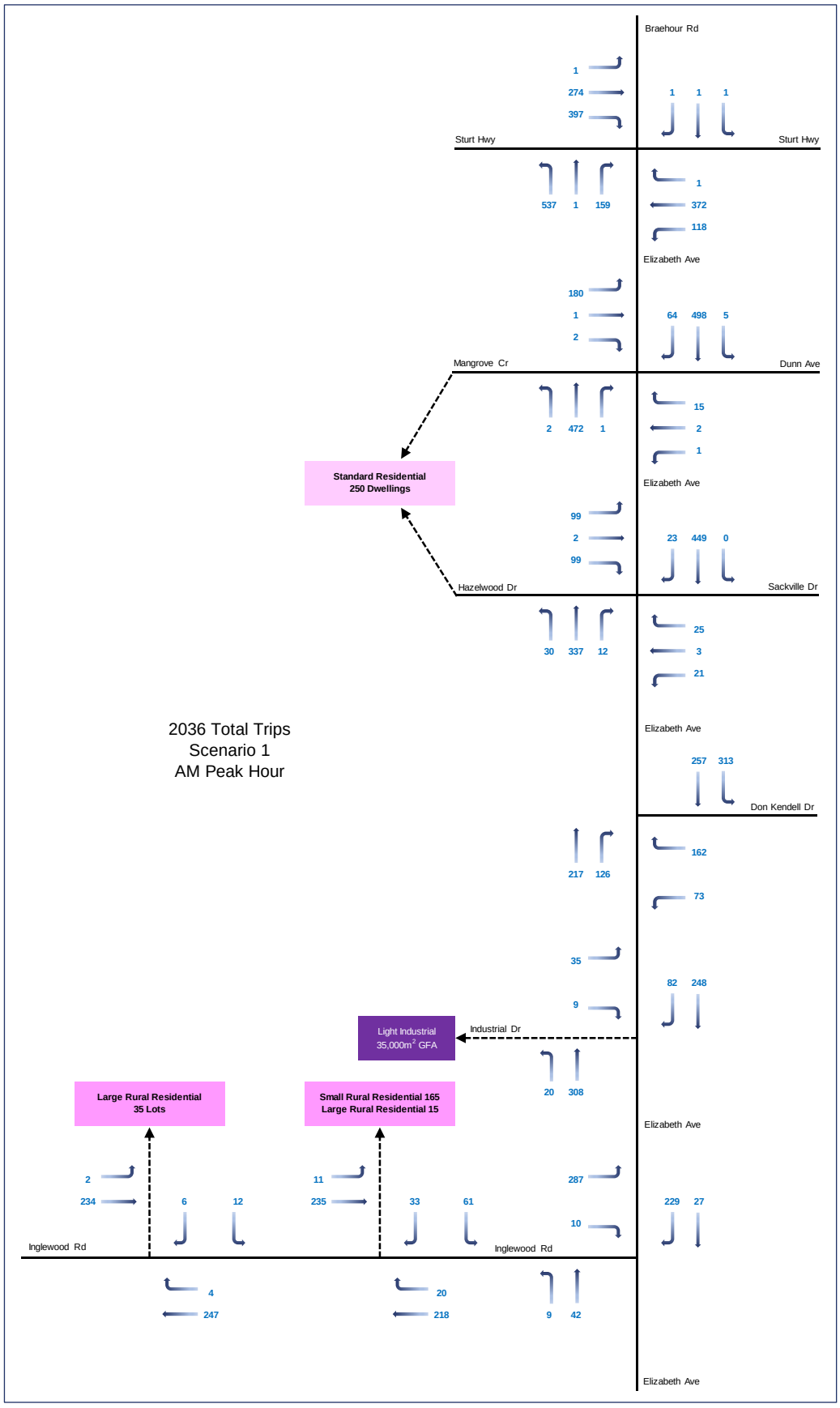


Figure 26: 2036 Total Trips Scenario 1 PM Peak Hour

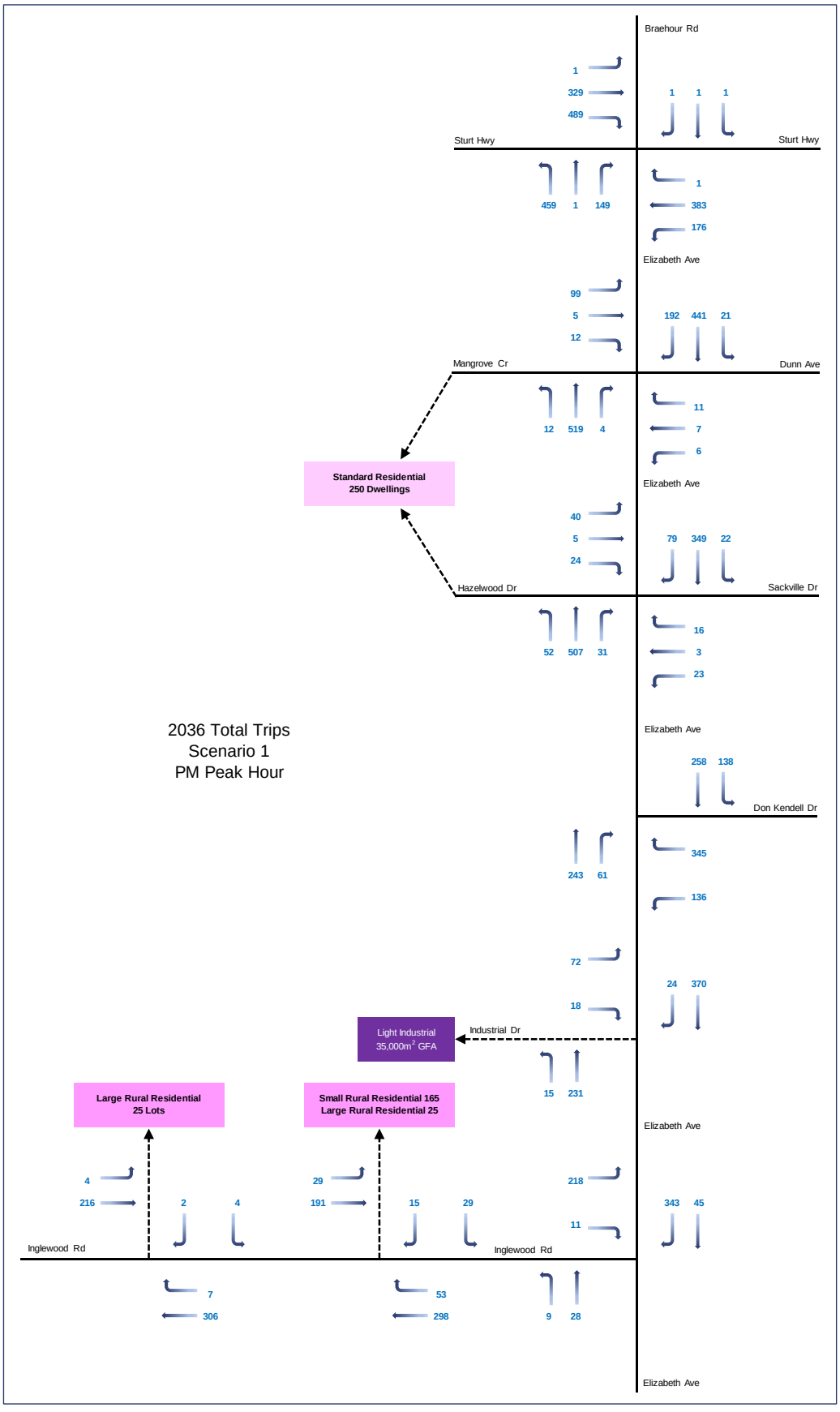


Figure 27: 2036 Total Trips Scenario 2 AM Peak Hour

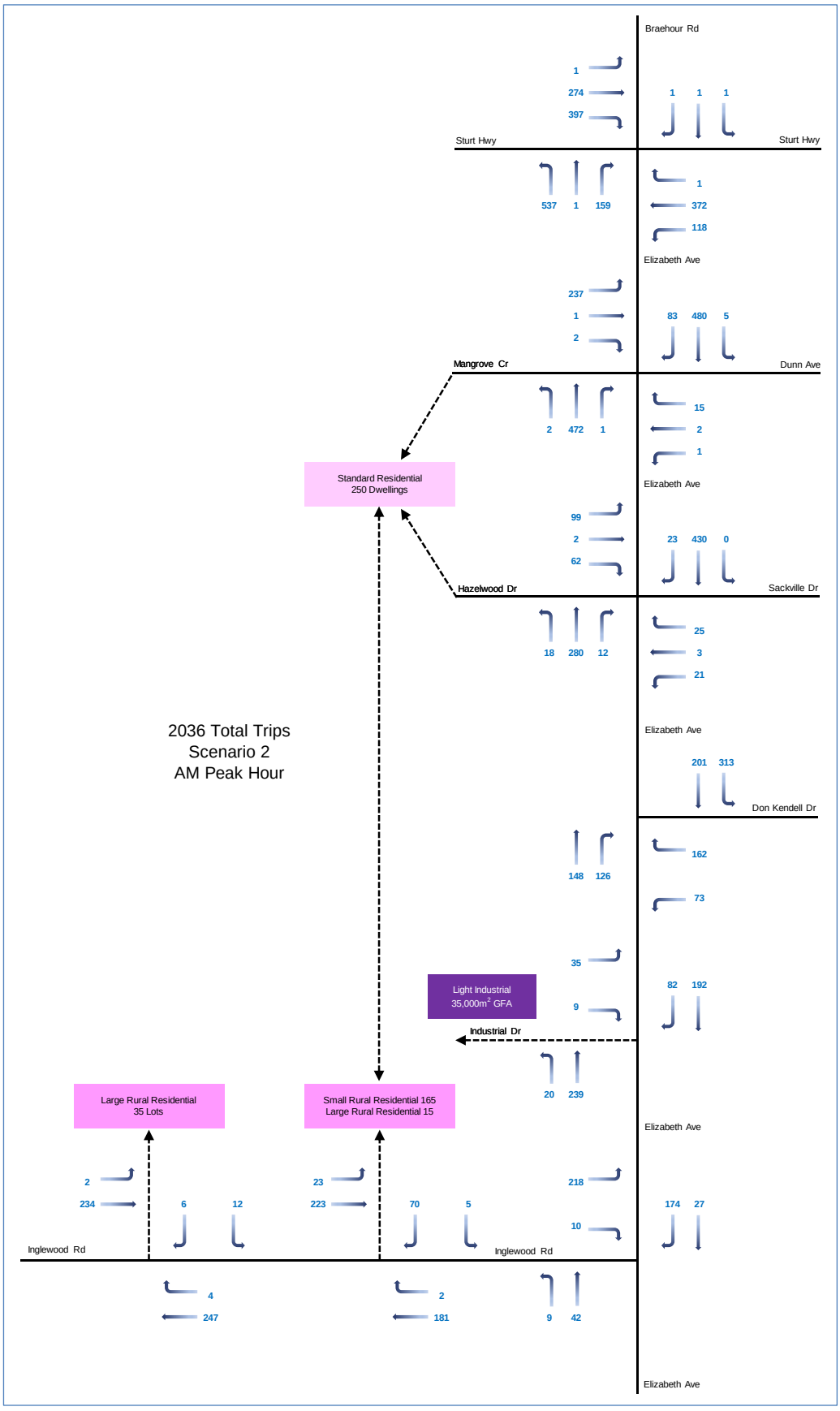
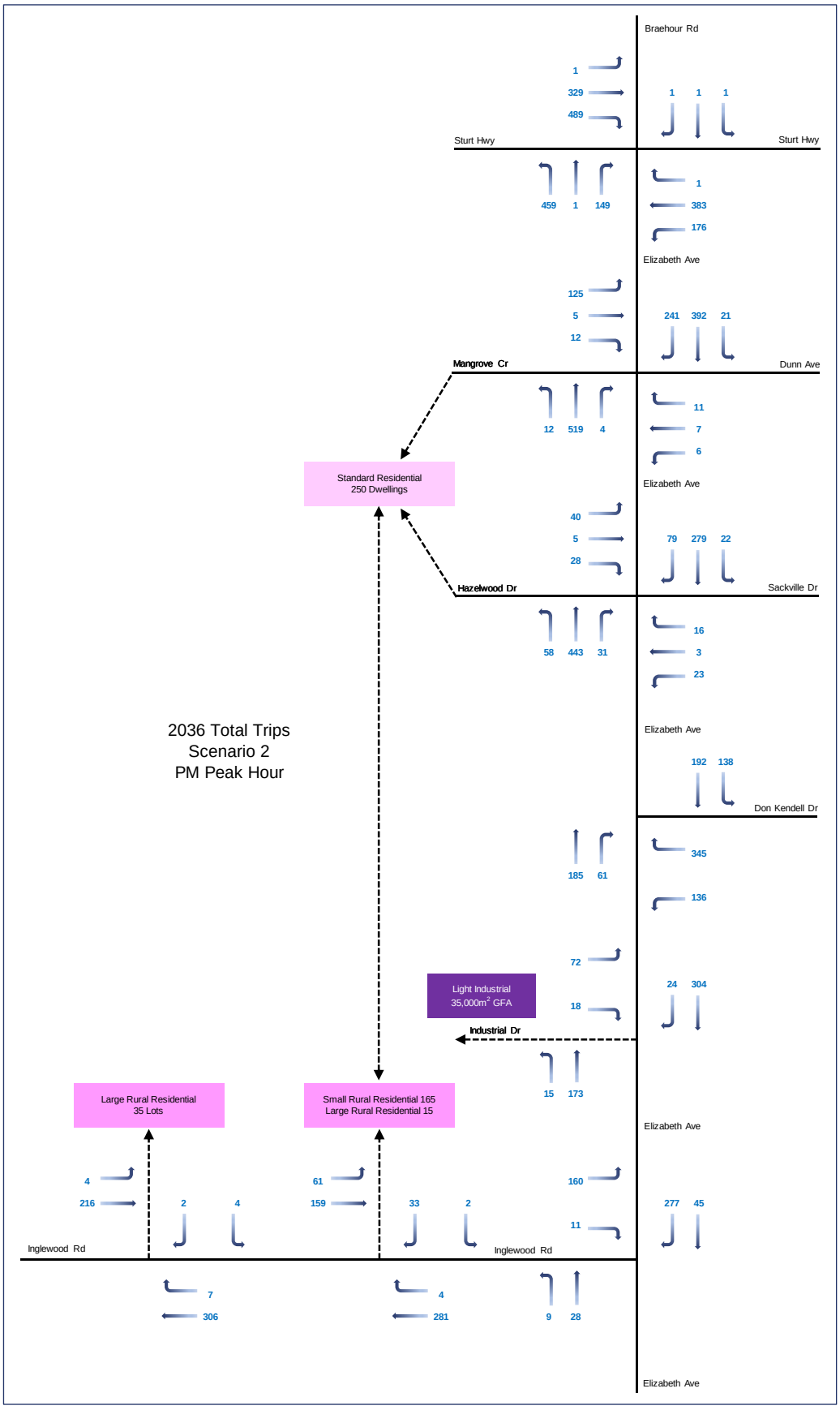


Figure 28: 2036 Total Trips Scenario 2 PM Peak Hour



7.10 Future Intersection Operations

SIDRA has again been used for the assessment of future intersection operations under both Scenario 1 and Scenario 2. The results of the SIDRA analysis are summarised in the tables below, while detailed SIDRA outputs are again provided in Appendix A.

Table 12: 2036 Scenario 1 Intersection Operations

Intersection	Worst Delay (s)		Worst Delay LOS		Average Delay (s)		Average Delay LOS		Degree of Saturation	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Sturt Hwy & Elizabeth Ave Priority	>300	>300	F	F					1.646	1.788
Sturt Hwy & Elizabeth Ave 1 Lane Roundabout					13.7	13.4	A	A	0.893	0.766
Elizabeth Ave & Mangrove Cr & Dunn Ave	22.0	21.9	B	B					0.344	0.437
Elizabeth Ave & Hazelwood Dr & Sackville Dr	15.4	14.6	B	B					0.381	0.309
Elizabeth Ave & Don Kendell Dr	12.1	12.2	A	A					0.404	0.601
Elizabeth Dr & Inglewood Rd	6.2	6.7	A	A					0.208	0.228
Elizabeth Ave & Industrial	8.8	8.7	A	A					0.217	0.217
Inglewood Rd & Road 2	6.9	7.2	A	A					0.137	0.197
Inglewood Rd & Road 2	6.7	6.8	A	A					0.141	0.168

Table 13: 2036 Scenario 2 Intersection Operations

Intersection	Worst Delay (s)		Worst Delay LOS		Average Delay (s)		Average Delay LOS		Degree of Saturation	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Sturt Hwy & Elizabeth Ave Priority	>300	>300	F	F					1.646	1.788
Sturt Hwy & Elizabeth Ave 1 Lane Roundabout					13.7	13.4	A	A	0.893	0.766
Elizabeth Ave & Mangrove Cr & Dunn Ave	23.8	20.5	B	B					0.353	0.409
Elizabeth Ave & Hazelwood Dr & Sackville Dr	12.3	12.1	A	A					0.259	0.274
Elizabeth Ave & Don Kendell Dr	10.0	9.8	A	A					0.346	0.520
Elizabeth Dr & Inglewood Rd	5.7	6.2	A	A					0.160	0.187
Elizabeth Ave & Industrial	7.7	7.6	A	A					0.179	0.179
Inglewood Rd & Road 2	6.5	6.6	A	A					0.137	0.152
Inglewood Rd & Road 3	6.7	6.8	A	A					0.141	0.168

With reference to the tables above, the Planning Proposal further exacerbates delays at the intersection of Sturt Highway & Elizabeth Avenue & Braehour Road, though given the poor operation of the intersection under Base 2036 conditions, the additional trips somewhat disproportionally increase delays. Notwithstanding, these results again indicate that a roundabout is required at the intersection, firstly to accommodate Base 2036 volumes, and then the additional Planning Proposal trips.

7.11 Preferred Scenario

With reference to the tables above, there is no significant difference between the operation of the key intersections further to Scenario 1 or Scenario 2 other than at the intersection of Elizabeth Avenue & Hazelwood Drive & Sackville Drive, where Scenario 1 reports a LOS B in both peak periods, while Scenario 2 reports a LOS A in both peak periods. However, the actual delay is not significantly different.

arc traffic + transport would recommend the Scenario 2 access network, as it provides:

- Greater internal connectivity between all of the residential areas east of Elizabeth Avenue; and
- A more legible and efficient network for both buses and active transport links.

Further details in regard to the possible design of the Rail Trail road link are provided in Section 8.2.

8 Impact Mitigation

8.1 Road Network Upgrades

8.1.1 New Site Intersections

The SIDRA analysis indicates that the new Site intersections to Elizabeth Avenue and to Inglewood Road all operate at a good LOS under simple priority control. As such, it is anticipated that these intersections will be designed in a similar manner to the existing intersections to Elizabeth Avenue north of the Site (i.e. at Hazelwood Drive and Mangrove Crescent), though the Industrial Road approach to Elizabeth Avenue will need to be further widened to accommodate heavy vehicle movements in accordance with AS 2890.2.

8.1.2 Sturt Highway & Elizabeth Avenue & Braehour Road

As discussed above, a roundabout (or signals) will be required at the intersection of Sturt Highway & Elizabeth Avenue & Braehour Road to accommodate future Base 2036 traffic volumes regardless of the Proposal, with the timing of the upgrade of the intersection likely to be related to the growth of Wagga Airport.

8.1.3 Elizabeth Avenue & Mangrove Crescent & Dunn Avenue

As discussed, the BP Traffic Study recommended a roundabout at the intersection of Elizabeth Avenue & Mangrove Crescent & Dunn Avenue. However, this recommendation was based on Brunslea Park generating a significant amount of commercial, retail and industrial traffic which is no longer proposed in the revised Brunslea Park Master Plan. The SIDRA analysis indicates that the intersection will operate at a good LOS under priority control.

8.1.4 Elizabeth Avenue & Don Kendell Drive

The intersection of Elizabeth Avenue & Don Kendell Drive is likely to be upgraded not only to appropriately accommodate traffic volumes, but so as to provide an appropriate gateway to the Airport itself; a roundabout is likely to be the preferred upgrade, and would be constructed by others.

8.1.5 Elizabeth Avenue & Inglewood Road

While this intersection continues to operate well through 2036, the high demand for movements between Elizabeth Avenue north and Inglewood Road west (and vice versa) suggests that the priority of the intersection could be revised, providing priority for these movements rather than to the Elizabeth Avenue northbound approach.

8.1.7 Inglewood Road

As discussed, Inglewood Road is currently in relatively poor condition. As shown in the surveys of existing traffic, Inglewood Road provides an important route for trips between the southern parts of Wagga and both Wagga Airport and Sturt Highway, and that role is likely to increase rather than decrease further to development across Wagga. As such, it is anticipated that Inglewood Road will be upgraded in the short-medium term by Council.

8.1.8 Upgrade Contributions

A number of local road works will be the specific responsibility of the Site developer, for example the new intersections and internal roads.

With reference to sections above, while contributions towards other upgrades would be in accordance with the Wagga Contributions Plan, it is important to note that many of the likely network upgrades over the next 10 – 20 years will be required to accommodate existing and future base traffic volumes, not the Planning Proposal.

8.2 Rail Trail Road Link

8.2.1 Design Principles

As discussed, Scenario 2 provides for a road link between Road 1 and Road 2 across the Rail Trail. In determining an appropriate design for the road link, key considerations have included:

- The trip demands of pedestrians/cyclists along the Rail Trail, the vehicles across the road link;
- The safety of users of both the Rail Trail and the road link;
- The adjacent residential environment and character; and
- The benefits of providing a road link between the northern and southern parts of the Site (as discussed in Section 7.11).

8.2.2 User Demands

While the timing of any formalisation of the Rail Trail remains unknown, it is anticipated that if constructed the demand (in this section of the Rail Trail) would primarily be driven by commuters, students and recreational users. Quantifying these numbers is not possible at this time, but it is unlikely that the demand at the proposed road link would be for any more than 10 - 20 pedestrian/cycle trips in a peak hour.

With regard to vehicle trips using the road link across the Rail Trail, the Scenario 2 trip assignment indicates that the road link would generate approximately 130vph – 140vph in a peak hour.

8.2.3 Crossing Options

Based on the user demands outlined above, the pedestrian/cyclist demand along the Rail Trail would not warrant the provision of a formal crossing point. However, it is acknowledged that the provision of the road link itself does require a more formal crossing given that without its introduction, no consideration of a crossing would be required.

Further to a review of road crossing of other Rail Trails around Australia and New Zealand, and a review of road crossings of key parkland trails and the like provided in many new residential areas, there are a number of viable options for the road link which provide the following basic characteristics:

- A narrowing of the road link to reduce vehicle speeds and reduce the crossing distance for pedestrians/cyclists;
- The provision of a different carriageway treatment/texture to notify drivers that they are in a different environment; and
- Appropriate warning signage or markers (built environment) for both pedestrians/cyclists and motorists defining the priority of movements.

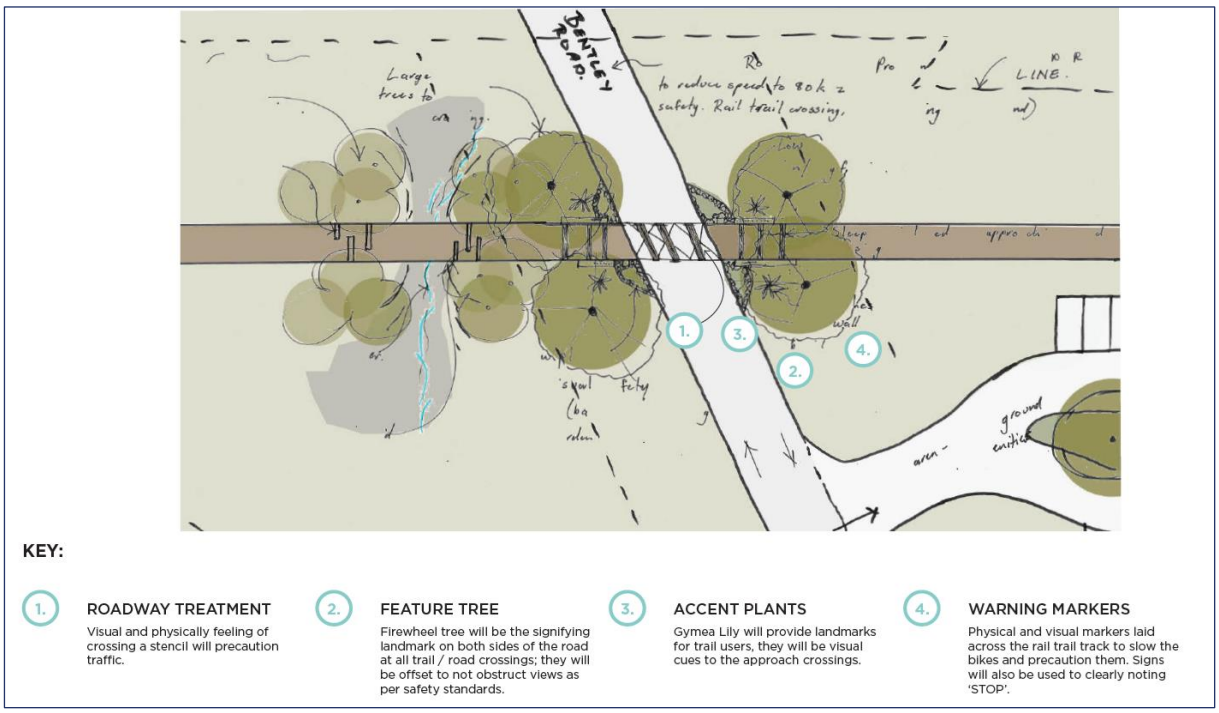
Further to these considerations, some examples of the type of treatment anticipated to be provided are detailed below.

Figure 29: Gledswood Hills Environmental Corridor Road Crossing

In Gledswood Hills, a wide environmental corridor runs through the estate, and provides recreational facilities and numerous cycle and shared path infrastructure.

At key road crossings – such as at Fairbank Drive as shown above – the carriageway is narrowed, and a median refuge provided for pedestrian and cyclists. The change in roadside environment – including planting and the widened median – indicates the change of environment to drivers without the need for excessive signage.

Figure 30: Northern Rivers Rail Trail Road Crossing



Source: Northern Rivers Rail Trail Masterplan

For road crossings of the proposed Northern Rivers Rail Trail, road treatments are again augmented with distinctive planting (that does not impact sight lines) and signage to warn pedestrians and cyclists of the need to stop before crossing.

Ultimately, there is no question that a suitable design for the road link crossing can be provided that recognises the unique nature of the crossing as well as meeting the appropriate guidelines and standards to ensure appropriate safety and efficiency for all movements.

8.3 Parking Rates

Parking rates for future development within the Site are anticipated to align with those provided in the Wagga DCP for other residential and industrial subdivisions in the LGA.

9 Conclusions

Further to a detailed assessment of the Planning Proposal, as well as the existing and future road network providing access to the Site, arc traffic + transport provides the following Conclusions:

- While traffic volumes in the local network are currently very moderate, volume increase associated with average annual growth, the completion of Brunslea Park and – most significantly – the expansion of operations at Wagga Airport means that road network upgrades will be required to accommodate base traffic volumes by 2036.
- The upgrades are expected to include the intersection of Sturt Highway & Elizabeth Avenue & Braehour Road, likely to a roundabout; the intersection of Elizabeth Avenue & Don Kendell Drive (likely also to a roundabout); and a general upgrade of the Elizabeth Road and Inglewood Road carriageways.
- Further to the Planning Proposal, all key local intersections would continue to operate at a good LOS A or B, though it is again noted that this will be dependent on the required upgrade of Sturt Highway & Elizabeth Avenue & Braehour Road.
- Scenario 2, which provides a road link across the Rail Trail, joining the northern and southern parts of the Site internally between Elizabeth Avenue at Mangrove Crescent and Inglewood Road, is preferred over Scenario 1 as it provides better internal connectivity between the residential areas east of Elizabeth Avenue, and a more legible and efficient network for both buses and active transport links. Importantly, there is no information to suggest that a safe and efficient road link across the Rail Trail could not be provided.
- All internal roads and intersections, and new intersections to Elizabeth Avenue and Inglewood Road, would necessarily be constructed in accordance with the appropriate Council and TfNSW guidelines and Australian Standards.

In summary, arc traffic + transport would fully support the Planning Proposal further to consideration of traffic and transport issues.

Appendix A: SIDRA Reports

- 2020 Base
- 2036 Base
- 2036 Base + Proposal + Network 1
- 2036 Base + Proposal + Network 2

AM 2020 Base

MOVEMENT SUMMARY

Site: 101 [Sturt Highway & Elizabeth Avenue (Site Folder: General)]

2020 AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	201	2.0	212	2.0	0.308	6.1	LOS A	1.4	10.2	0.50	0.69	0.52	51.7
3	R2	67	3.0	71	3.0	0.308	11.0	LOS A	1.4	10.2	0.50	0.69	0.52	51.1
Approach		268	2.3	282	2.3	0.308	7.3	LOS A	1.4	10.2	0.50	0.69	0.52	51.6
East: Sturt Highway														
4	L2	26	15.0	27	15.0	0.184	7.2	LOS A	0.0	0.0	0.00	0.05	0.00	67.7
5	T1	293	9.0	308	9.0	0.184	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	79.0
Approach		319	9.5	336	9.5	0.184	0.6	NA	0.0	0.0	0.00	0.05	0.00	77.9
West: Sturt Highway														
11	T1	216	16.0	227	16.0	0.130	2.1	LOS A	0.0	0.0	0.00	0.30	0.00	75.8
12	R2	49	2.0	52	2.0	0.041	7.9	LOS A	0.2	1.2	0.42	0.64	0.42	53.0
Approach		265	13.4	279	13.4	0.130	3.2	NA	0.2	1.2	0.08	0.36	0.08	70.2
All Vehicles		852	8.4	897	8.4	0.308	3.5	NA	1.4	10.2	0.18	0.35	0.19	65.2

MOVEMENT SUMMARY

Site: 101 [Elizabeth Avenue & Mangrove Crescent & Dunn Avenue (Site Folder: General)]

2020 AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	2	0.0	2	0.0	0.090	4.7	LOS A	0.0	0.1	0.00	0.01	0.00	49.4
2	T1	161	2.0	169	2.0	0.090	0.0	LOS A	0.0	0.1	0.00	0.01	0.00	49.9
3	R2	1	0.0	1	0.0	0.090	4.9	LOS A	0.0	0.1	0.00	0.01	0.00	49.0
Approach		164	2.0	173	2.0	0.090	0.1	NA	0.0	0.1	0.00	0.01	0.00	49.9
East: Dunn Avenue														
4	L2	1	0.0	1	0.0	0.024	4.8	LOS A	0.1	0.6	0.37	0.59	0.37	45.6
5	T1	2	0.0	2	0.0	0.024	4.4	LOS A	0.1	0.6	0.37	0.59	0.37	45.7
6	R2	15	5.0	16	5.0	0.024	6.6	LOS A	0.1	0.6	0.37	0.59	0.37	45.2
Approach		18	4.2	19	4.2	0.024	6.3	LOS A	0.1	0.6	0.37	0.59	0.37	45.2
North: Elizabeth Avenue														
7	L2	5	0.0	5	0.0	0.073	5.1	LOS A	0.2	1.3	0.13	0.12	0.13	48.5
8	T1	98	2.0	103	2.0	0.073	0.2	LOS A	0.2	1.3	0.13	0.12	0.13	48.9
9	R2	24	0.0	25	0.0	0.073	5.1	LOS A	0.2	1.3	0.13	0.12	0.13	48.0
Approach		127	1.5	134	1.5	0.073	1.3	NA	0.2	1.3	0.13	0.12	0.13	48.7
West: Mangrove Crescent														
10	L2	63	0.0	66	0.0	0.051	5.1	LOS A	0.2	1.4	0.26	0.52	0.26	46.0
11	T1	1	0.0	1	0.0	0.051	4.5	LOS A	0.2	1.4	0.26	0.52	0.26	46.1
12	R2	2	0.0	2	0.0	0.051	6.1	LOS A	0.2	1.4	0.26	0.52	0.26	45.6
Approach		66	0.0	69	0.0	0.051	5.1	LOS A	0.2	1.4	0.26	0.52	0.26	46.0
All Vehicles		375	1.6	395	1.6	0.090	1.7	NA	0.2	1.4	0.11	0.17	0.11	48.5

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Hazelwood Drive & Sackville Drive (Site Folder: General)]

2020 AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	5	1.0	5	1.0	0.056	4.7	LOS A	0.1	0.6	0.05	0.09	0.05	48.8
2	T1	83	2.0	87	2.0	0.056	0.0	LOS A	0.1	0.6	0.05	0.09	0.05	49.3
3	R2	12	1.0	13	1.0	0.056	4.8	LOS A	0.1	0.6	0.05	0.09	0.05	48.4
Approach		100	1.8	105	1.8	0.056	0.8	NA	0.1	0.6	0.05	0.09	0.05	49.2
East: Sackville Drive														
4	L2	21	0.0	22	0.0	0.047	4.8	LOS A	0.2	1.2	0.19	0.53	0.19	46.2
5	T1	3	0.0	3	0.0	0.047	3.9	LOS A	0.2	1.2	0.19	0.53	0.19	46.3
6	R2	25	5.0	26	5.0	0.047	5.7	LOS A	0.2	1.2	0.19	0.53	0.19	45.7
Approach		49	2.6	52	2.6	0.047	5.2	LOS A	0.2	1.2	0.19	0.53	0.19	46.0
North: Elizabeth Avenue														
7	L2	1	0.0	1	0.0	0.041	4.8	LOS A	0.0	0.2	0.03	0.04	0.03	49.2
8	T1	68	2.0	72	2.0	0.041	0.0	LOS A	0.0	0.2	0.03	0.04	0.03	49.7
9	R2	4	15.0	4	15.0	0.041	5.0	LOS A	0.0	0.2	0.03	0.04	0.03	48.5
Approach		73	2.7	77	2.7	0.041	0.4	NA	0.0	0.2	0.03	0.04	0.03	49.6
West: Hazelwood Drive														
10	L2	28	5.0	29	5.0	0.049	4.9	LOS A	0.2	1.3	0.20	0.53	0.20	46.1
11	T1	2	0.0	2	0.0	0.049	3.9	LOS A	0.2	1.3	0.20	0.53	0.20	46.2
12	R2	24	0.0	25	0.0	0.049	5.5	LOS A	0.2	1.3	0.20	0.53	0.20	45.8
Approach		54	2.6	57	2.6	0.049	5.1	LOS A	0.2	1.3	0.20	0.53	0.20	46.0
All Vehicles		276	2.3	291	2.3	0.056	2.3	NA	0.2	1.3	0.10	0.24	0.10	48.0

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Don Kendall Drive (Site Folder: General)]

2020 AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
2	T1	96	2.0	101	2.0	0.067	0.1	LOS A	0.1	1.0	0.09	0.10	0.09	49.2
3	R2	22	1.0	23	1.0	0.067	4.9	LOS A	0.1	1.0	0.09	0.10	0.09	48.2
Approach		118	1.8	124	1.8	0.067	1.0	NA	0.1	1.0	0.09	0.10	0.09	49.0
East: Don Kendall Drive														
4	L2	5	0.0	5	0.0	0.008	4.8	LOS A	0.0	0.2	0.20	0.51	0.20	46.2
6	R2	4	0.0	4	0.0	0.008	5.3	LOS A	0.0	0.2	0.20	0.51	0.20	45.8
Approach		9	0.0	9	0.0	0.008	5.1	LOS A	0.0	0.2	0.20	0.51	0.20	46.0
North: Elizabeth Avenue														
7	L2	20	1.0	21	1.0	0.062	4.6	LOS A	0.0	0.0	0.00	0.10	0.00	48.9
8	T1	93	2.0	98	2.0	0.062	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	49.4
Approach		113	1.8	119	1.8	0.062	0.8	NA	0.0	0.0	0.00	0.10	0.00	49.3
All Vehicles		240	1.8	253	1.8	0.067	1.1	NA	0.1	1.0	0.05	0.12	0.05	49.0

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Inglewood Road (Site Folder: General)]

2020 AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	7	0.0	7	0.0	0.011	4.6	LOS A	0.0	0.0	0.00	0.19	0.00	48.4
2	T1	13	5.0	14	5.0	0.011	0.0	LOS A	0.0	0.0	0.00	0.19	0.00	48.9
Approach		20	3.3	21	3.3	0.011	1.6	NA	0.0	0.0	0.00	0.19	0.00	48.7
North: Elizabeth Avenue														
8	T1	2	10.0	2	10.0	0.060	0.1	LOS A	0.3	2.1	0.08	0.52	0.08	46.9
9	R2	96	5.0	101	5.0	0.060	4.7	LOS A	0.3	2.1	0.08	0.52	0.08	46.0
Approach		98	5.1	103	5.1	0.060	4.6	NA	0.3	2.1	0.08	0.52	0.08	46.0
West: Inglewood Road														
10	L2	105	2.0	111	2.0	0.073	4.6	LOS A	0.3	2.1	0.06	0.51	0.06	46.5
12	R2	4	0.0	4	0.0	0.073	5.0	LOS A	0.3	2.1	0.06	0.51	0.06	46.1
Approach		109	1.9	115	1.9	0.073	4.6	LOS A	0.3	2.1	0.06	0.51	0.06	46.5
All Vehicles		227	3.4	239	3.4	0.073	4.3	NA	0.3	2.1	0.06	0.49	0.06	46.4

PM 2020 Base

MOVEMENT SUMMARY

▽ Site: 101 [Sturt Highway & Elizabeth Avenue (Site Folder: General)]

2020 PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	100	2.0	105	2.0	0.167	5.8	LOS A	0.6	4.6	0.49	0.66	0.49	51.4
3	R2	27	5.0	28	5.0	0.167	14.3	LOS A	0.6	4.6	0.49	0.66	0.49	50.5
Approach		127	2.6	134	2.6	0.167	7.6	LOS A	0.6	4.6	0.49	0.66	0.49	51.2
East: Sturt Highway														
4	L2	88	1.0	93	1.0	0.225	7.0	LOS A	0.0	0.0	0.00	0.15	0.00	71.6
5	T1	302	11.0	318	11.0	0.225	0.0	LOS A	0.0	0.0	0.00	0.15	0.00	77.0
Approach		390	8.7	411	8.7	0.225	1.6	NA	0.0	0.0	0.00	0.15	0.00	75.7
West: Sturt Highway														
11	T1	259	12.0	273	12.0	0.152	2.1	LOS A	0.0	0.0	0.00	0.30	0.00	75.9
12	R2	210	2.0	221	2.0	0.190	8.5	LOS A	0.9	6.2	0.50	0.73	0.50	52.8
Approach		469	7.5	494	7.5	0.190	5.0	NA	0.9	6.2	0.23	0.49	0.23	63.5
All Vehicles		986	7.4	1038	7.4	0.225	4.0	NA	0.9	6.2	0.17	0.38	0.17	65.6

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Mangrove Crescent & Dunn Avenue (Site Folder: General)]

2020 PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	12	0.0	13	0.0	0.061	4.7	LOS A	0.0	0.3	0.04	0.08	0.04	48.9
2	T1	92	5.0	97	5.0	0.061	0.0	LOS A	0.0	0.3	0.04	0.08	0.04	49.4
3	R2	4	0.0	4	0.0	0.061	5.2	LOS A	0.0	0.3	0.04	0.08	0.04	48.5
Approach		108	4.3	114	4.3	0.061	0.8	NA	0.0	0.3	0.04	0.08	0.04	49.3
East: Dunn Avenue														
4	L2	6	0.0	6	0.0	0.029	5.1	LOS A	0.1	0.7	0.37	0.58	0.37	45.8
5	T1	7	0.0	7	0.0	0.029	5.0	LOS A	0.1	0.7	0.37	0.58	0.37	45.9
6	R2	11	0.0	12	0.0	0.029	7.0	LOS A	0.1	0.7	0.37	0.58	0.37	45.4
Approach		24	0.0	25	0.0	0.029	5.9	LOS A	0.1	0.7	0.37	0.58	0.37	45.6
North: Elizabeth Avenue														
7	L2	21	0.0	22	0.0	0.170	4.9	LOS A	0.7	4.7	0.17	0.20	0.17	48.0
8	T1	177	2.0	186	2.0	0.170	0.2	LOS A	0.7	4.7	0.17	0.20	0.17	48.4
9	R2	89	5.0	94	5.0	0.170	5.0	LOS A	0.7	4.7	0.17	0.20	0.17	47.4
Approach		287	2.8	302	2.8	0.170	2.0	NA	0.7	4.7	0.17	0.20	0.17	48.1
West: Mangrove Crescent														
10	L2	28	6.0	29	6.0	0.044	4.9	LOS A	0.2	1.1	0.21	0.53	0.21	46.0
11	T1	5	0.0	5	0.0	0.044	5.1	LOS A	0.2	1.1	0.21	0.53	0.21	46.2
12	R2	12	0.0	13	0.0	0.044	6.8	LOS A	0.2	1.1	0.21	0.53	0.21	45.7
Approach		45	3.7	47	3.7	0.044	5.4	LOS A	0.2	1.1	0.21	0.53	0.21	46.0
All Vehicles		464	3.1	488	3.1	0.170	2.3	NA	0.7	4.7	0.15	0.23	0.15	48.0

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Hazelwood Drive & Sackville Drive (Site Folder: General)]

2020 PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	25	0.0	26	0.0	0.071	4.9	LOS A	0.2	1.7	0.17	0.23	0.17	47.7
2	T1	65	5.0	68	5.0	0.071	0.2	LOS A	0.2	1.7	0.17	0.23	0.17	48.1
3	R2	31	0.0	33	0.0	0.071	5.0	LOS A	0.2	1.7	0.17	0.23	0.17	47.2
Approach		121	2.7	127	2.7	0.071	2.4	NA	0.2	1.7	0.17	0.23	0.17	47.8
East: Sackville Drive														
4	L2	23	0.0	24	0.0	0.040	4.9	LOS A	0.1	1.0	0.25	0.54	0.25	46.1
5	T1	3	0.0	3	0.0	0.040	4.4	LOS A	0.1	1.0	0.25	0.54	0.25	46.2
6	R2	16	0.0	17	0.0	0.040	6.0	LOS A	0.1	1.0	0.25	0.54	0.25	45.7
Approach		42	0.0	44	0.0	0.040	5.3	LOS A	0.1	1.0	0.25	0.54	0.25	46.0
North: Elizabeth Avenue														
7	L2	22	0.0	23	0.0	0.094	4.7	LOS A	0.2	1.4	0.08	0.15	0.08	48.4
8	T1	118	3.0	124	3.0	0.094	0.1	LOS A	0.2	1.4	0.08	0.15	0.08	48.9
9	R2	25	0.0	26	0.0	0.094	4.9	LOS A	0.2	1.4	0.08	0.15	0.08	47.9
Approach		165	2.1	174	2.1	0.094	1.4	NA	0.2	1.4	0.08	0.15	0.08	48.7
West: Hazelwood Drive														
10	L2	17	5.0	18	5.0	0.032	4.8	LOS A	0.1	0.8	0.18	0.52	0.18	46.2
11	T1	5	5.0	5	5.0	0.032	4.4	LOS A	0.1	0.8	0.18	0.52	0.18	46.3
12	R2	12	0.0	13	0.0	0.032	6.0	LOS A	0.1	0.8	0.18	0.52	0.18	45.8
Approach		34	3.2	36	3.2	0.032	5.2	LOS A	0.1	0.8	0.18	0.52	0.18	46.1
All Vehicles		362	2.2	381	2.2	0.094	2.6	NA	0.2	1.7	0.14	0.26	0.14	47.8

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Don Kendall Drive (Site Folder: General)]

2020 PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
2	T1	87	5.0	92	5.0	0.050	0.0	LOS A	0.0	0.1	0.00	0.01	0.00	49.9
3	R2	2	5.0	2	5.0	0.050	4.7	LOS A	0.0	0.1	0.00	0.01	0.00	48.9
Approach		89	5.0	94	5.0	0.050	0.1	NA	0.0	0.1	0.00	0.01	0.00	49.9
East: Don Kendall Drive														
4	L2	26	5.0	27	5.0	0.045	4.7	LOS A	0.2	1.2	0.06	0.53	0.06	46.4
6	R2	30	5.0	32	5.0	0.045	5.0	LOS A	0.2	1.2	0.06	0.53	0.06	46.0
Approach		56	5.0	59	5.0	0.045	4.8	LOS A	0.2	1.2	0.06	0.53	0.06	46.2
North: Elizabeth Avenue														
7	L2	3	5.0	3	5.0	0.010	4.6	LOS A	0.0	0.0	0.00	0.09	0.00	48.9
8	T1	15	5.0	16	5.0	0.010	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	49.5
Approach		18	5.0	19	5.0	0.010	0.8	NA	0.0	0.0	0.00	0.09	0.00	49.4
All Vehicles		163	5.0	172	5.0	0.050	1.8	NA	0.2	1.2	0.02	0.20	0.02	48.5

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Inglewood Road (Site Folder: General)]

2020 PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	4	0.0	4	0.0	0.006	4.6	LOS A	0.0	0.0	0.00	0.22	0.00	48.3
2	T1	6	5.0	6	5.0	0.006	0.0	LOS A	0.0	0.0	0.00	0.22	0.00	48.7
Approach		10	3.0	11	3.0	0.006	1.8	NA	0.0	0.0	0.00	0.22	0.00	48.6
North: Elizabeth Avenue														
8	T1	14	9.0	15	9.0	0.104	0.0	LOS A	0.5	3.6	0.06	0.50	0.06	47.1
9	R2	162	0.0	171	0.0	0.104	4.6	LOS A	0.5	3.6	0.06	0.50	0.06	46.3
Approach		176	0.7	185	0.7	0.104	4.2	NA	0.5	3.6	0.06	0.50	0.06	46.3
West: Inglewood Road														
10	L2	83	4.0	87	4.0	0.063	4.6	LOS A	0.3	1.8	0.02	0.52	0.02	46.5
12	R2	8	0.0	8	0.0	0.063	5.3	LOS A	0.3	1.8	0.02	0.52	0.02	46.1
Approach		91	3.6	96	3.6	0.063	4.7	LOS A	0.3	1.8	0.02	0.52	0.02	46.5
All Vehicles		277	1.8	292	1.8	0.104	4.3	NA	0.5	3.6	0.04	0.49	0.04	46.5

AM 2036 Base

MOVEMENT SUMMARY

Site: 101 [Sturt Highway & Elizabeth Avenue (Site Folder: General)]

AM Base 2036
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	383	5.0	403	5.0	1.022	73.4	LOS F	34.6	252.5	1.00	3.34	6.58	25.0
2	T1	1	0.0	1	0.0	1.022	97.3	LOS F	34.6	252.5	1.00	3.34	6.58	24.3
3	R2	114	5.0	120	5.0	1.022	108.3	LOS F	34.6	252.5	1.00	3.34	6.58	24.9
Approach		498	5.0	524	5.0	1.022	81.4	LOS F	34.6	252.5	1.00	3.34	6.58	25.0
East: Sturt Highway														
4	L2	90	5.0	95	5.0	0.270	7.1	LOS A	0.0	0.1	0.00	0.13	0.00	59.4
5	T1	372	12.0	392	12.0	0.270	0.0	LOS A	0.0	0.1	0.00	0.13	0.00	77.5
6	R2	1	0.0	1	0.0	0.270	6.8	LOS A	0.0	0.1	0.00	0.13	0.00	64.0
Approach		463	10.6	487	10.6	0.270	1.4	NA	0.0	0.1	0.00	0.13	0.00	73.1
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.016	6.4	LOS A	0.0	0.3	0.74	0.77	0.74	43.5
8	T1	1	0.0	1	0.0	0.016	18.4	LOS B	0.0	0.3	0.74	0.77	0.74	43.7
9	R2	1	0.0	1	0.0	0.016	39.3	LOS C	0.0	0.3	0.74	0.77	0.74	43.3
Approach		3	0.0	3	0.0	0.016	21.4	LOS B	0.0	0.3	0.74	0.77	0.74	43.5
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.159	7.0	LOS A	0.0	0.0	0.00	0.30	0.00	71.5
11	T1	274	9.0	288	9.0	0.159	2.1	LOS A	0.0	0.0	0.00	0.30	0.00	75.9
12	R2	302	5.0	318	5.0	0.310	9.5	LOS A	1.6	11.7	0.59	0.82	0.64	52.0
Approach		577	6.9	607	6.9	0.310	6.0	NA	1.6	11.7	0.31	0.58	0.33	61.2
All Vehicles		1541	7.4	1622	7.4	1.022	29.0	NA	34.6	252.5	0.44	1.33	2.25	43.1

MOVEMENT SUMMARY

Site: 101v [Sturt Highway & Elizabeth Avenue - Copy - Conversion (Site Folder: General)]

AM Base 2036
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	383	5.0	403	5.0	0.600	8.4	LOS A	6.3	46.0	0.87	0.88	1.00	50.2
2	T1	1	0.0	1	0.0	0.600	9.5	LOS A	6.3	46.0	0.87	0.88	1.00	48.3
3	R2	114	5.0	120	5.0	0.600	12.9	LOS A	6.3	46.0	0.87	0.88	1.00	50.8
Approach		498	5.0	524	5.0	0.600	9.4	LOS A	6.3	46.0	0.87	0.88	1.00	50.3
East: Sturt Highway														
4	L2	90	5.0	95	5.0	0.514	8.6	LOS A	4.3	32.5	0.75	0.73	0.75	52.8
5	T1	372	12.0	392	12.0	0.514	9.5	LOS A	4.3	32.5	0.75	0.73	0.75	61.0
6	R2	1	0.0	1	0.0	0.514	11.6	LOS A	4.3	32.5	0.75	0.73	0.75	58.5
Approach		463	10.6	487	10.6	0.514	9.4	LOS A	4.3	32.5	0.75	0.73	0.75	59.2
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.005	8.6	LOS A	0.0	0.2	0.76	0.59	0.76	50.9
8	T1	1	0.0	1	0.0	0.005	8.8	LOS A	0.0	0.2	0.76	0.59	0.76	52.0
9	R2	1	0.0	1	0.0	0.005	13.5	LOS A	0.0	0.2	0.76	0.59	0.76	52.0
Approach		3	0.0	3	0.0	0.005	10.3	LOS A	0.0	0.2	0.76	0.59	0.76	51.6
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.485	4.9	LOS A	4.8	35.3	0.53	0.60	0.53	56.6
11	T1	274	9.0	288	9.0	0.485	7.5	LOS A	4.8	35.3	0.53	0.60	0.53	57.8
12	R2	302	5.0	318	5.0	0.485	12.0	LOS A	4.8	35.3	0.53	0.60	0.53	54.0
Approach		577	6.9	607	6.9	0.485	9.8	LOS A	4.8	35.3	0.53	0.60	0.53	55.7
All Vehicles		1541	7.4	1622	7.4	0.600	9.5	LOS A	6.3	46.0	0.71	0.73	0.75	54.8

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Mangrove Crescent & Dunn Avenue (Site Folder: General)]

AM Base 2036
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	2	0.0	2	0.0	0.212	5.4	LOS A	0.0	0.1	0.00	0.00	0.00	49.5
2	T1	376	5.0	396	5.0	0.212	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	50.0
3	R2	1	0.0	1	0.0	0.212	6.7	LOS A	0.0	0.1	0.00	0.00	0.00	49.0
Approach		379	5.0	399	5.0	0.212	0.1	NA	0.0	0.1	0.00	0.00	0.00	50.0
East: Dunn Avenue														
4	L2	1	0.0	1	0.0	0.051	6.1	LOS A	0.2	1.1	0.68	0.84	0.68	42.6
5	T1	2	0.0	2	0.0	0.051	8.8	LOS A	0.2	1.1	0.68	0.84	0.68	42.6
6	R2	15	0.0	16	0.0	0.051	12.8	LOS A	0.2	1.1	0.68	0.84	0.68	42.2
Approach		18	0.0	19	0.0	0.051	12.0	LOS A	0.2	1.1	0.68	0.84	0.68	42.3
North: Elizabeth Avenue														
7	L2	5	0.0	5	0.0	0.258	6.4	LOS A	0.4	2.6	0.10	0.05	0.10	49.0
8	T1	410	5.0	432	5.0	0.258	0.2	LOS A	0.4	2.6	0.10	0.05	0.10	49.5
9	R2	30	0.0	32	0.0	0.258	6.6	LOS A	0.4	2.6	0.10	0.05	0.10	48.5
Approach		445	4.6	468	4.6	0.258	0.7	NA	0.4	2.6	0.10	0.05	0.10	49.4
West: Mangrove Crescent														
10	L2	77	0.0	81	0.0	0.080	6.1	LOS A	0.3	2.1	0.44	0.63	0.44	45.6
11	T1	1	0.0	1	0.0	0.080	9.2	LOS A	0.3	2.1	0.44	0.63	0.44	45.7
12	R2	2	0.0	2	0.0	0.080	12.2	LOS A	0.3	2.1	0.44	0.63	0.44	45.2
Approach		80	0.0	84	0.0	0.080	6.2	LOS A	0.3	2.1	0.44	0.63	0.44	45.6
All Vehicles		922	4.3	971	4.3	0.258	1.1	NA	0.4	2.6	0.10	0.09	0.10	49.1

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Hazelwood Drive & Sackville Drive (Site Folder: General)]

AM Base 2036
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	15	0.0	16	0.0	0.153	5.4	LOS A	0.2	1.1	0.07	0.05	0.07	49.0
2	T1	241	5.0	254	5.0	0.153	0.1	LOS A	0.2	1.1	0.07	0.05	0.07	49.5
3	R2	12	0.0	13	0.0	0.153	6.2	LOS A	0.2	1.1	0.07	0.05	0.07	48.5
Approach		268	4.5	282	4.5	0.153	0.7	NA	0.2	1.1	0.07	0.05	0.07	49.4
East: Sackville Drive														
4	L2	21	0.0	22	0.0	0.083	5.9	LOS A	0.3	2.0	0.52	0.72	0.52	44.4
5	T1	3	0.0	3	0.0	0.083	7.2	LOS A	0.3	2.0	0.52	0.72	0.52	44.5
6	R2	25	0.0	26	0.0	0.083	10.6	LOS A	0.3	2.0	0.52	0.72	0.52	44.1
Approach		49	0.0	52	0.0	0.083	8.4	LOS A	0.3	2.0	0.52	0.72	0.52	44.2
North: Elizabeth Avenue														
7	L2	1	0.0	1	0.0	0.219	5.7	LOS A	0.2	1.6	0.06	0.04	0.06	49.1
8	T1	361	5.0	380	5.0	0.219	0.1	LOS A	0.2	1.6	0.06	0.04	0.06	49.6
9	R2	23	0.0	24	0.0	0.219	5.7	LOS A	0.2	1.6	0.06	0.04	0.06	48.7
Approach		385	4.7	405	4.7	0.219	0.5	NA	0.2	1.6	0.06	0.04	0.06	49.6
West: Hazelwood Drive														
10	L2	99	0.0	104	0.0	0.202	5.5	LOS A	0.8	5.3	0.43	0.65	0.43	45.1
11	T1	2	0.0	2	0.0	0.202	7.6	LOS A	0.8	5.3	0.43	0.65	0.43	45.1
12	R2	55	0.0	58	0.0	0.202	10.4	LOS A	0.8	5.3	0.43	0.65	0.43	44.7
Approach		156	0.0	164	0.0	0.202	7.3	LOS A	0.8	5.3	0.43	0.65	0.43	44.9
All Vehicles		858	3.5	903	3.5	0.219	2.2	NA	0.8	5.3	0.16	0.19	0.16	48.3

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Don Kendall Drive (Site Folder: General)]

AM Base 2036
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
2	T1	106	5.0	112	5.0	0.185	2.0	LOS A	1.0	7.3	0.51	0.37	0.51	47.0
3	R2	120	10.0	126	10.0	0.185	7.0	LOS A	1.0	7.3	0.51	0.37	0.51	46.0
Approach		226	7.7	238	7.7	0.185	4.7	NA	1.0	7.3	0.51	0.37	0.51	46.5
East: Don Kendall Drive														
4	L2	58	10.0	61	10.0	0.286	5.3	LOS A	1.2	8.7	0.39	0.69	0.41	44.9
6	R2	162	10.0	171	10.0	0.286	8.2	LOS A	1.2	8.7	0.39	0.69	0.41	44.5
Approach		220	10.0	232	10.0	0.286	7.4	LOS A	1.2	8.7	0.39	0.69	0.41	44.6
North: Elizabeth Avenue														
7	L2	313	10.0	329	10.0	0.259	4.7	LOS A	0.0	0.0	0.00	0.38	0.00	47.2
8	T1	124	5.0	131	5.0	0.259	0.1	LOS A	0.0	0.0	0.00	0.38	0.00	47.8
Approach		437	8.6	460	8.6	0.259	3.4	NA	0.0	0.0	0.00	0.38	0.00	47.4
All Vehicles		883	8.7	929	8.7	0.286	4.7	NA	1.2	8.7	0.23	0.46	0.23	46.4

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Inglewood Road (Site Folder: General)]

AM Base 2036
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	7	0.0	7	0.0	0.023	4.6	LOS A	0.0	0.0	0.00	0.09	0.00	49.0
2	T1	34	5.0	36	5.0	0.023	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	49.4
Approach		41	4.1	43	4.1	0.023	0.8	NA	0.0	0.0	0.00	0.09	0.00	49.4
North: Elizabeth Avenue														
8	T1	18	5.0	19	5.0	0.113	0.1	LOS A	0.6	4.0	0.13	0.47	0.13	47.0
9	R2	164	5.0	173	5.0	0.113	4.7	LOS A	0.6	4.0	0.13	0.47	0.13	46.1
Approach		182	5.0	192	5.0	0.113	4.3	NA	0.6	4.0	0.13	0.47	0.13	46.2
West: Inglewood Road														
10	L2	192	5.0	202	5.0	0.135	4.7	LOS A	0.6	4.3	0.11	0.50	0.11	46.3
12	R2	4	0.0	4	0.0	0.135	5.5	LOS A	0.6	4.3	0.11	0.50	0.11	45.9
Approach		196	4.9	206	4.9	0.135	4.7	LOS A	0.6	4.3	0.11	0.50	0.11	46.3
All Vehicles		419	4.9	441	4.9	0.135	4.2	NA	0.6	4.3	0.11	0.45	0.11	46.5

PM 2036 Base

MOVEMENT SUMMARY

Site: 101 [Sturt Highway & Elizabeth Avenue (Site Folder: General)]

PM Base 2036
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	315	5.0	332	5.0	1.066	108.4	LOS F	37.6	274.2	1.00	3.80	7.75	19.9
2	T1	1	0.0	1	0.0	1.066	135.7	LOS F	37.6	274.2	1.00	3.80	7.75	19.5
3	R2	103	5.0	108	5.0	1.066	148.8	LOS F	37.6	274.2	1.00	3.80	7.75	19.9
Approach		419	5.0	441	5.0	1.066	118.4	LOS F	37.6	274.2	1.00	3.80	7.75	19.9
East: Sturt Highway														
4	L2	132	5.0	139	5.0	0.298	7.1	LOS A	0.0	0.1	0.00	0.17	0.00	59.0
5	T1	383	10.0	403	10.0	0.298	0.0	LOS A	0.0	0.1	0.00	0.17	0.00	76.8
6	R2	1	0.0	1	0.0	0.298	7.3	LOS A	0.0	0.1	0.00	0.17	0.00	63.6
Approach		516	8.7	543	8.7	0.298	1.8	NA	0.0	0.1	0.00	0.17	0.00	71.3
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.018	6.7	LOS A	0.1	0.4	0.79	0.81	0.79	42.1
8	T1	1	0.0	1	0.0	0.018	23.6	LOS B	0.1	0.4	0.79	0.81	0.79	42.3
9	R2	1	0.0	1	0.0	0.018	42.1	LOS C	0.1	0.4	0.79	0.81	0.79	42.0
Approach		3	0.0	3	0.0	0.018	24.1	LOS B	0.1	0.4	0.79	0.81	0.79	42.1
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.190	7.0	LOS A	0.0	0.0	0.00	0.30	0.00	71.5
11	T1	329	9.0	346	9.0	0.190	2.1	LOS A	0.0	0.0	0.00	0.30	0.00	75.9
12	R2	345	5.0	363	5.0	0.381	10.5	LOS A	2.2	16.3	0.63	0.90	0.79	51.3
Approach		675	6.9	711	6.9	0.381	6.4	NA	2.2	16.3	0.32	0.61	0.41	60.9
All Vehicles		1613	7.0	1698	7.0	1.066	34.1	NA	37.6	274.2	0.40	1.30	2.19	40.8

MOVEMENT SUMMARY

Site: 101v [Sturt Highway & Elizabeth Avenue - Copy - Conversion (Site Folder: General)]

PM Base 2036
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	315	5.0	332	5.0	0.518	7.1	LOS A	4.6	33.8	0.83	0.82	0.88	51.0
2	T1	1	0.0	1	0.0	0.518	8.3	LOS A	4.6	33.8	0.83	0.82	0.88	49.0
3	R2	103	5.0	108	5.0	0.518	11.7	LOS A	4.6	33.8	0.83	0.82	0.88	51.7
Approach		419	5.0	441	5.0	0.518	8.3	LOS A	4.6	33.8	0.83	0.82	0.88	51.2
East: Sturt Highway														
4	L2	132	5.0	139	5.0	0.595	10.5	LOS A	6.0	45.2	0.83	0.82	0.93	52.3
5	T1	383	10.0	403	10.0	0.595	11.3	LOS A	6.0	45.2	0.83	0.82	0.93	60.7
6	R2	1	0.0	1	0.0	0.595	13.4	LOS A	6.0	45.2	0.83	0.82	0.93	57.8
Approach		516	8.7	543	8.7	0.595	11.1	LOS A	6.0	45.2	0.83	0.82	0.93	58.3
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.005	9.6	LOS A	0.0	0.2	0.81	0.61	0.81	50.1
8	T1	1	0.0	1	0.0	0.005	9.9	LOS A	0.0	0.2	0.81	0.61	0.81	51.3
9	R2	1	0.0	1	0.0	0.005	14.5	LOS B	0.0	0.2	0.81	0.61	0.81	51.2
Approach		3	0.0	3	0.0	0.005	11.3	LOS A	0.0	0.2	0.81	0.61	0.81	50.9
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.552	4.9	LOS A	6.0	44.3	0.55	0.59	0.55	56.6
11	T1	329	9.0	346	9.0	0.552	7.5	LOS A	6.0	44.3	0.55	0.59	0.55	57.7
12	R2	345	5.0	363	5.0	0.552	12.0	LOS A	6.0	44.3	0.55	0.59	0.55	54.0
Approach		675	6.9	711	6.9	0.552	9.8	LOS A	6.0	44.3	0.55	0.59	0.55	55.8
All Vehicles		1613	7.0	1698	7.0	0.595	9.8	LOS A	6.0	45.2	0.71	0.72	0.76	55.2

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Mangrove Crescent & Dunn Avenue (Site Folder: General)]

PM Base 2036
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	12	0.0	13	0.0	0.227	5.6	LOS A	0.2	1.2	0.05	0.03	0.05	49.2
2	T1	377	5.0	397	5.0	0.227	0.1	LOS A	0.2	1.2	0.05	0.03	0.05	49.7
3	R2	12	0.0	13	0.0	0.227	6.4	LOS A	0.2	1.2	0.05	0.03	0.05	48.7
Approach		401	4.7	422	4.7	0.227	0.4	NA	0.2	1.2	0.05	0.03	0.05	49.6
East: Dunn Avenue														
4	L2	6	0.0	6	0.0	0.055	5.8	LOS A	0.2	1.2	0.60	0.76	0.60	43.5
5	T1	7	0.0	7	0.0	0.055	9.3	LOS A	0.2	1.2	0.60	0.76	0.60	43.6
6	R2	11	0.0	12	0.0	0.055	13.0	LOS A	0.2	1.2	0.60	0.76	0.60	43.2
Approach		24	0.0	25	0.0	0.055	10.1	LOS A	0.2	1.2	0.60	0.76	0.60	43.4
North: Elizabeth Avenue														
7	L2	21	0.0	22	0.0	0.294	6.5	LOS A	1.2	8.4	0.30	0.16	0.30	47.9
8	T1	343	5.0	361	5.0	0.294	0.8	LOS A	1.2	8.4	0.30	0.16	0.30	48.3
9	R2	102	0.0	107	0.0	0.294	6.7	LOS A	1.2	8.4	0.30	0.16	0.30	47.4
Approach		466	3.7	491	3.7	0.294	2.3	NA	1.2	8.4	0.30	0.16	0.30	48.1
West: Mangrove Crescent														
10	L2	51	0.0	54	0.0	0.094	6.1	LOS A	0.3	2.3	0.49	0.67	0.49	45.0
11	T1	5	0.0	5	0.0	0.094	9.7	LOS A	0.3	2.3	0.49	0.67	0.49	45.0
12	R2	12	0.0	13	0.0	0.094	12.6	LOS A	0.3	2.3	0.49	0.67	0.49	44.6
Approach		68	0.0	72	0.0	0.094	7.5	LOS A	0.3	2.3	0.49	0.67	0.49	44.9
All Vehicles		959	3.8	1009	3.8	0.294	2.1	NA	1.2	8.4	0.22	0.16	0.22	48.4

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Hazelwood Drive & Sackville Drive (Site Folder: General)]

PM Base 2036
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	52	0.0	55	0.0	0.236	5.1	LOS A	0.4	2.7	0.10	0.11	0.10	48.6
2	T1	328	5.0	345	5.0	0.236	0.1	LOS A	0.4	2.7	0.10	0.11	0.10	49.1
3	R2	31	0.0	33	0.0	0.236	5.7	LOS A	0.4	2.7	0.10	0.11	0.10	48.1
Approach		411	4.0	433	4.0	0.236	1.2	NA	0.4	2.7	0.10	0.11	0.10	48.9
East: Sackville Drive														
4	L2	23	0.0	24	0.0	0.061	5.3	LOS A	0.2	1.5	0.42	0.63	0.42	45.0
5	T1	3	0.0	3	0.0	0.061	7.9	LOS A	0.2	1.5	0.42	0.63	0.42	45.0
6	R2	16	0.0	17	0.0	0.061	10.3	LOS A	0.2	1.5	0.42	0.63	0.42	44.6
Approach		42	0.0	44	0.0	0.061	7.4	LOS A	0.2	1.5	0.42	0.63	0.42	44.8
North: Elizabeth Avenue														
7	L2	22	0.0	23	0.0	0.211	6.2	LOS A	0.8	6.0	0.30	0.18	0.30	47.8
8	T1	231	5.0	243	5.0	0.211	0.8	LOS A	0.8	6.0	0.30	0.18	0.30	48.2
9	R2	79	0.0	83	0.0	0.211	6.4	LOS A	0.8	6.0	0.30	0.18	0.30	47.3
Approach		332	3.5	349	3.5	0.211	2.5	NA	0.8	6.0	0.30	0.18	0.30	48.0
West: Hazelwood Drive														
10	L2	40	0.0	42	0.0	0.100	5.8	LOS A	0.4	2.5	0.48	0.68	0.48	44.9
11	T1	5	0.0	5	0.0	0.100	7.9	LOS A	0.4	2.5	0.48	0.68	0.48	44.9
12	R2	24	0.0	25	0.0	0.100	10.5	LOS A	0.4	2.5	0.48	0.68	0.48	44.5
Approach		69	0.0	73	0.0	0.100	7.6	LOS A	0.4	2.5	0.48	0.68	0.48	44.7
All Vehicles		854	3.3	899	3.3	0.236	2.5	NA	0.8	6.0	0.22	0.21	0.22	48.0

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Don Kendall Drive (Site Folder: General)]

PM Base 2036
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
2	T1	116	5.0	122	5.0	0.099	0.5	LOS A	0.3	2.5	0.23	0.15	0.23	48.6
3	R2	40	10.0	42	10.0	0.099	5.9	LOS A	0.3	2.5	0.23	0.15	0.23	47.5
Approach		156	6.3	164	6.3	0.099	1.9	NA	0.3	2.5	0.23	0.15	0.23	48.3
East: Don Kendall Drive														
4	L2	114	10.0	120	10.0	0.463	6.2	LOS A	2.8	21.5	0.46	0.75	0.59	44.8
6	R2	293	10.0	308	10.0	0.463	8.1	LOS A	2.8	21.5	0.46	0.75	0.59	44.4
Approach		407	10.0	428	10.0	0.463	7.6	LOS A	2.8	21.5	0.46	0.75	0.59	44.5
North: Elizabeth Avenue														
7	L2	116	10.0	122	10.0	0.161	4.7	LOS A	0.0	0.0	0.00	0.22	0.00	48.1
8	T1	162	5.0	171	5.0	0.161	0.0	LOS A	0.0	0.0	0.00	0.22	0.00	48.7
Approach		278	7.1	293	7.1	0.161	2.0	NA	0.0	0.0	0.00	0.22	0.00	48.4
All Vehicles		841	8.3	885	8.3	0.463	4.7	NA	2.8	21.5	0.27	0.47	0.33	46.4

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Inglewood Road (Site Folder: General)]

PM Base 2036
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	4	0.0	4	0.0	0.012	4.6	LOS A	0.0	0.0	0.00	0.10	0.00	48.9
2	T1	18	5.0	19	5.0	0.012	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	49.4
Approach		22	4.1	23	4.1	0.012	0.8	NA	0.0	0.0	0.00	0.10	0.00	49.3
North: Elizabeth Avenue														
8	T1	34	5.0	36	5.0	0.168	0.1	LOS A	0.9	6.4	0.10	0.47	0.10	47.2
9	R2	242	5.0	255	5.0	0.168	4.7	LOS A	0.9	6.4	0.10	0.47	0.10	46.2
Approach		276	5.0	291	5.0	0.168	4.1	NA	0.9	6.4	0.10	0.47	0.10	46.3
West: Inglewood Road														
10	L2	137	5.0	144	5.0	0.101	4.7	LOS A	0.4	3.1	0.06	0.51	0.06	46.4
12	R2	8	0.0	8	0.0	0.101	5.9	LOS A	0.4	3.1	0.06	0.51	0.06	46.1
Approach		145	4.7	153	4.7	0.101	4.7	LOS A	0.4	3.1	0.06	0.51	0.06	46.4
All Vehicles		443	4.9	466	4.9	0.168	4.2	NA	0.9	6.4	0.08	0.46	0.08	46.5

AM 2036 Base + Proposal + Network 1

MOVEMENT SUMMARY

Site: 101 [Sturt Highway & Elizabeth Avenue (Site Folder: General)]

AM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	537	5.0	565	5.0	1.646	597.0	LOS F	194.0	1416.3	1.00	10.44	23.49	5.4
2	T1	1	0.0	1	0.0	1.646	614.8	LOS F	194.0	1416.3	1.00	10.44	23.49	5.4
3	R2	159	5.0	167	5.0	1.646	623.4	LOS F	194.0	1416.3	1.00	10.44	23.49	5.4
Approach		697	5.0	734	5.0	1.646	603.0	LOS F	194.0	1416.3	1.00	10.44	23.49	5.4
East: Sturt Highway														
4	L2	118	5.0	124	5.0	0.285	7.0	LOS A	0.0	0.1	0.00	0.16	0.00	59.1
5	T1	372	11.0	392	11.0	0.285	0.0	LOS A	0.0	0.1	0.00	0.16	0.00	77.0
6	R2	1	0.0	1	0.0	0.285	6.9	LOS A	0.0	0.1	0.00	0.16	0.00	63.7
Approach		491	9.5	517	9.5	0.285	1.7	NA	0.0	0.1	0.00	0.16	0.00	71.7
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.026	5.5	LOS A	0.1	0.5	0.82	0.80	0.82	38.7
8	T1	1	0.0	1	0.0	0.026	21.6	LOS B	0.1	0.5	0.82	0.80	0.82	34.8
9	R2	1	0.0	1	0.0	0.026	67.6	LOS E	0.1	0.5	0.82	0.80	0.82	38.6
Approach		3	0.0	3	0.0	0.026	31.6	LOS C	0.1	0.5	0.82	0.80	0.82	37.3
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.158	7.0	LOS A	0.0	0.0	0.00	0.30	0.00	71.5
11	T1	274	9.0	288	9.0	0.158	2.1	LOS A	0.0	0.0	0.00	0.30	0.00	75.9
12	R2	397	5.0	418	5.0	0.423	10.6	LOS A	2.7	19.9	0.64	0.91	0.84	51.2
Approach		672	6.6	707	6.6	0.423	7.1	NA	2.7	19.9	0.38	0.66	0.50	59.1
All Vehicles		1863	6.8	1961	6.8	1.646	228.7	NA	194.0	1416.3	0.51	4.19	8.97	12.7

MOVEMENT SUMMARY

Site: 101v [Sturt Highway & Elizabeth Avenue (Site Folder: General)]

AM Base 2036 + Proposal Network 1
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	537	5.0	565	5.0	0.839	16.3	LOS B	16.2	117.9	1.00	1.19	1.56	45.3
2	T1	1	0.0	1	0.0	0.839	17.3	LOS B	16.2	117.9	1.00	1.19	1.56	43.8
3	R2	159	5.0	167	5.0	0.839	20.8	LOS B	16.2	117.9	1.00	1.19	1.56	45.8
Approach		697	5.0	734	5.0	0.839	17.3	LOS B	16.2	117.9	1.00	1.19	1.56	45.4
East: Sturt Highway														
4	L2	118	5.0	124	5.0	0.618	11.8	LOS A	6.6	50.3	0.89	0.90	1.05	51.3
5	T1	372	11.0	392	11.0	0.618	12.8	LOS A	6.6	50.3	0.89	0.90	1.05	59.1
6	R2	1	0.0	1	0.0	0.618	14.7	LOS B	6.6	50.3	0.89	0.90	1.05	56.5
Approach		491	9.5	517	9.5	0.618	12.6	LOS A	6.6	50.3	0.89	0.90	1.05	57.0
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.006	9.3	LOS A	0.0	0.3	0.85	0.61	0.85	50.1
8	T1	1	0.0	1	0.0	0.006	9.3	LOS A	0.0	0.3	0.85	0.61	0.85	44.6
9	R2	1	0.0	1	0.0	0.006	13.8	LOS A	0.0	0.3	0.85	0.61	0.85	50.8
Approach		3	0.0	3	0.0	0.006	10.8	LOS A	0.0	0.3	0.85	0.61	0.85	48.3
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.606	5.5	LOS A	6.7	49.7	0.71	0.65	0.71	55.7
11	T1	274	9.0	288	9.0	0.606	8.2	LOS A	6.7	49.7	0.71	0.65	0.71	56.9
12	R2	397	5.0	418	5.0	0.606	12.6	LOS A	6.7	49.7	0.71	0.65	0.71	53.2
Approach		672	6.6	707	6.6	0.606	10.8	LOS A	6.7	49.7	0.71	0.65	0.71	54.7
All Vehicles		1863	6.8	1961	6.8	0.839	13.7	LOS A	16.2	117.9	0.87	0.92	1.12	51.3

MOVEMENT SUMMARY

Site: 101v [Sturt Highway & Elizabeth Avenue 2 Lane (Site Folder: General)]

AM Base 2036 + Proposal Network 1
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	537	5.0	565	5.0	0.594	7.3	LOS A	5.7	41.3	0.80	0.82	0.90	51.6
2	T1	1	0.0	1	0.0	0.280	8.1	LOS A	1.6	11.6	0.67	0.80	0.67	47.1
3	R2	159	5.0	167	5.0	0.280	11.5	LOS A	1.6	11.6	0.67	0.80	0.67	49.5
Approach		697	5.0	734	5.0	0.594	8.2	LOS A	5.7	41.3	0.77	0.82	0.85	51.1
East: Sturt Highway														
4	L2	118	5.0	124	5.0	0.198	9.7	LOS A	1.0	7.6	0.62	0.76	0.62	52.9
5	T1	372	11.0	392	11.0	0.426	9.3	LOS A	2.9	22.2	0.69	0.74	0.69	61.2
6	R2	1	0.0	1	0.0	0.426	11.4	LOS A	2.9	22.2	0.69	0.74	0.69	58.5
Approach		491	9.5	517	9.5	0.426	9.4	LOS A	2.9	22.2	0.67	0.74	0.67	59.0
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.005	6.2	LOS A	0.0	0.1	0.62	0.61	0.62	52.2
8	T1	1	0.0	1	0.0	0.005	6.2	LOS A	0.0	0.1	0.62	0.61	0.62	46.3
9	R2	1	0.0	1	0.0	0.005	10.7	LOS A	0.0	0.1	0.62	0.61	0.62	53.0
Approach		3	0.0	3	0.0	0.005	7.7	LOS A	0.0	0.1	0.62	0.61	0.62	50.3
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.280	5.1	LOS A	1.8	13.3	0.45	0.57	0.45	58.2
11	T1	274	9.0	288	9.0	0.280	7.5	LOS A	1.8	13.3	0.45	0.57	0.45	59.6
12	R2	397	5.0	418	5.0	0.345	11.9	LOS A	2.4	17.5	0.45	0.67	0.45	52.9
Approach		672	6.6	707	6.6	0.345	10.1	LOS A	2.4	17.5	0.45	0.63	0.45	55.4
All Vehicles		1863	6.8	1961	6.8	0.594	9.2	LOS A	5.7	41.3	0.63	0.73	0.66	54.6

MOVEMENT SUMMARY

Site: 101 [Elizabeth Avenue & Mangrove Crescent & Dunn Avenue (Site Folder: General)]

AM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	2	0.0	2	0.0	0.265	5.9	LOS A	0.0	0.1	0.00	0.00	0.00	49.5
2	T1	472	5.0	497	5.0	0.265	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	50.0
3	R2	1	0.0	1	0.0	0.265	7.6	LOS A	0.0	0.1	0.00	0.00	0.00	49.0
Approach		475	5.0	500	5.0	0.265	0.1	NA	0.0	0.1	0.00	0.00	0.00	50.0
East: Dunn Avenue														
4	L2	1	0.0	1	0.0	0.091	6.6	LOS A	0.3	2.0	0.82	0.91	0.82	38.9
5	T1	2	0.0	2	0.0	0.091	12.3	LOS A	0.3	2.0	0.82	0.91	0.82	39.0
6	R2	15	5.0	16	5.0	0.091	22.0	LOS B	0.3	2.0	0.82	0.91	0.82	38.6
Approach		18	4.2	19	4.2	0.091	20.0	LOS B	0.3	2.0	0.82	0.91	0.82	38.6
North: Elizabeth Avenue														
7	L2	5	0.0	5	0.0	0.344	7.6	LOS A	1.0	7.6	0.20	0.08	0.23	48.5
8	T1	498	5.0	524	5.0	0.344	0.7	LOS A	1.0	7.6	0.20	0.08	0.23	49.0
9	R2	64	0.0	67	0.0	0.344	7.7	LOS A	1.0	7.6	0.20	0.08	0.23	48.0
Approach		567	4.4	597	4.4	0.344	1.5	NA	1.0	7.6	0.20	0.08	0.23	48.8
West: Mangrove Crescent														
10	L2	180	5.0	189	5.0	0.211	7.0	LOS A	0.8	6.2	0.53	0.73	0.53	45.1
11	T1	1	0.0	1	0.0	0.211	14.1	LOS A	0.8	6.2	0.53	0.73	0.53	45.2
12	R2	2	0.0	2	0.0	0.211	18.5	LOS B	0.8	6.2	0.53	0.73	0.53	44.7
Approach		183	4.9	193	4.9	0.211	7.2	LOS A	0.8	6.2	0.53	0.73	0.53	45.1
All Vehicles		1243	4.7	1308	4.7	0.344	2.1	NA	1.0	7.6	0.18	0.16	0.20	48.5

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Hazelwood Drive & Sackville Drive (Site Folder: General)]

AM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	30	0.0	32	0.0	0.216	5.4	LOS A	0.2	1.4	0.06	0.06	0.06	49.0
2	T1	337	5.0	355	5.0	0.216	0.1	LOS A	0.2	1.4	0.06	0.06	0.06	49.5
3	R2	12	0.0	13	0.0	0.216	7.0	LOS A	0.2	1.4	0.06	0.06	0.06	48.5
Approach		379	4.4	399	4.4	0.216	0.8	NA	0.2	1.4	0.06	0.06	0.06	49.4
East: Sackville Drive														
4	L2	21	0.0	22	0.0	0.107	6.4	LOS A	0.4	2.5	0.61	0.77	0.61	43.4
5	T1	3	0.0	3	0.0	0.107	9.5	LOS A	0.4	2.5	0.61	0.77	0.61	43.5
6	R2	25	0.0	26	0.0	0.107	13.7	LOS A	0.4	2.5	0.61	0.77	0.61	43.0
Approach		49	0.0	52	0.0	0.107	10.3	LOS A	0.4	2.5	0.61	0.77	0.61	43.2
North: Elizabeth Avenue														
7	L2	1	0.0	1	0.0	0.271	6.5	LOS A	0.3	2.0	0.07	0.03	0.07	49.2
8	T1	449	5.0	473	5.0	0.271	0.2	LOS A	0.3	2.0	0.07	0.03	0.07	49.6
9	R2	23	0.0	24	0.0	0.271	6.5	LOS A	0.3	2.0	0.07	0.03	0.07	48.7
Approach		473	4.7	498	4.7	0.271	0.5	NA	0.3	2.0	0.07	0.03	0.07	49.6
West: Hazelwood Drive														
10	L2	99	0.0	104	0.0	0.381	7.2	LOS A	1.8	12.3	0.59	0.84	0.79	42.9
11	T1	2	5.0	2	5.0	0.381	12.2	LOS A	1.8	12.3	0.59	0.84	0.79	42.9
12	R2	99	0.0	104	0.0	0.381	15.4	LOS B	1.8	12.3	0.59	0.84	0.79	42.6
Approach		200	0.1	211	0.1	0.381	11.3	LOS A	1.8	12.3	0.59	0.84	0.79	42.7
All Vehicles		1101	3.6	1159	3.6	0.381	3.0	NA	1.8	12.3	0.19	0.22	0.22	47.8

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Don Kendall Drive (Site Folder: General)]

AM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
2	T1	217	5.0	228	5.0	0.282	2.8	LOS A	1.7	12.8	0.53	0.29	0.59	46.8
3	R2	126	10.0	133	10.0	0.282	8.8	LOS A	1.7	12.8	0.53	0.29	0.59	45.8
Approach		343	6.8	361	6.8	0.282	5.0	NA	1.7	12.8	0.53	0.29	0.59	46.5
East: Don Kendall Drive														
4	L2	73	10.0	77	10.0	0.404	6.9	LOS A	1.9	14.5	0.56	0.84	0.77	43.2
6	R2	162	10.0	171	10.0	0.404	12.1	LOS A	1.9	14.5	0.56	0.84	0.77	42.9
Approach		235	10.0	247	10.0	0.404	10.5	LOS A	1.9	14.5	0.56	0.84	0.77	43.0
North: Elizabeth Avenue														
7	L2	313	10.0	329	10.0	0.333	4.8	LOS A	0.0	0.0	0.00	0.29	0.00	47.6
8	T1	257	5.0	271	5.0	0.333	0.1	LOS A	0.0	0.0	0.00	0.29	0.00	48.2
Approach		570	7.7	600	7.7	0.333	2.7	NA	0.0	0.0	0.00	0.29	0.00	47.9
All Vehicles		1148	7.9	1208	7.9	0.404	5.0	NA	1.9	14.5	0.27	0.40	0.33	46.4

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Inglewood Road (Site Folder: General)]

AM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	9	0.0	9	0.0	0.029	4.6	LOS A	0.0	0.0	0.00	0.10	0.00	48.9
2	T1	42	5.0	44	5.0	0.029	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	49.4
Approach		51	4.1	54	4.1	0.029	0.8	NA	0.0	0.0	0.00	0.10	0.00	49.3
North: Elizabeth Avenue														
8	T1	27	5.0	28	5.0	0.160	0.2	LOS A	0.8	6.0	0.16	0.47	0.16	47.0
9	R2	229	5.0	241	5.0	0.160	4.8	LOS A	0.8	6.0	0.16	0.47	0.16	46.0
Approach		256	5.0	269	5.0	0.160	4.3	NA	0.8	6.0	0.16	0.47	0.16	46.1
West: Inglewood Road														
10	L2	287	5.0	302	5.0	0.208	4.8	LOS A	1.0	7.1	0.13	0.50	0.13	46.2
12	R2	10	0.0	11	0.0	0.208	6.2	LOS A	1.0	7.1	0.13	0.50	0.13	45.9
Approach		297	4.8	313	4.8	0.208	4.8	LOS A	1.0	7.1	0.13	0.50	0.13	46.2
All Vehicles		604	4.8	636	4.8	0.208	4.3	NA	1.0	7.1	0.13	0.46	0.13	46.4

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Industrial (Site Folder: General)]

AM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	20	15.0	21	15.0	0.184	4.7	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
2	T1	308	5.0	324	5.0	0.184	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	49.8
Approach		328	5.6	345	5.6	0.184	0.3	NA	0.0	0.0	0.00	0.03	0.00	49.7
North: Elizabeth Avenue														
8	T1	248	5.0	261	5.0	0.217	0.8	LOS A	0.8	6.3	0.28	0.15	0.28	48.5
9	R2	82	15.0	86	15.0	0.217	6.5	LOS A	0.8	6.3	0.28	0.15	0.28	47.4
Approach		330	7.5	347	7.5	0.217	2.2	NA	0.8	6.3	0.28	0.15	0.28	48.2
West: Inglewood Road														
10	L2	35	15.0	37	15.0	0.050	6.0	LOS A	0.2	1.4	0.42	0.61	0.42	45.3
12	R2	9	15.0	9	15.0	0.050	8.8	LOS A	0.2	1.4	0.42	0.61	0.42	44.9
Approach		44	15.0	46	15.0	0.050	6.6	LOS A	0.2	1.4	0.42	0.61	0.42	45.2
All Vehicles		702	7.1	739	7.1	0.217	1.6	NA	0.8	6.3	0.16	0.12	0.16	48.7

MOVEMENT SUMMARY

▽ Site: 101 [Ingleburn + Road 2 (Site Folder: General)]

AM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: RoadName														
5	T1	218	5.0	229	5.0	0.137	0.1	LOS A	0.2	1.2	0.08	0.05	0.08	59.2
6	R2	20	0.0	21	0.0	0.137	6.4	LOS A	0.2	1.2	0.08	0.05	0.08	52.8
Approach		238	4.6	251	4.6	0.137	0.7	NA	0.2	1.2	0.08	0.05	0.08	58.6
North: RoadName														
7	L2	61	0.0	64	0.0	0.093	5.4	LOS A	0.3	2.4	0.36	0.60	0.36	48.9
9	R2	33	0.0	35	0.0	0.093	6.9	LOS A	0.3	2.4	0.36	0.60	0.36	48.4
Approach		94	0.0	99	0.0	0.093	5.9	LOS A	0.3	2.4	0.36	0.60	0.36	48.7
West: RoadName														
10	L2	11	0.0	12	0.0	0.137	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	58.1
11	T1	235	5.0	247	5.0	0.137	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.7
Approach		246	4.8	259	4.8	0.137	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.6
All Vehicles		578	3.9	608	3.9	0.137	1.4	NA	0.3	2.4	0.09	0.13	0.09	57.1

MOVEMENT SUMMARY

▽ Site: 101 [Ingleburn + Road 3 (Site Folder: General)]

AM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: RoadName														
5	T1	247	5.0	260	5.0	0.141	0.0	LOS A	0.0	0.3	0.01	0.01	0.01	59.8
6	R2	4	0.0	4	0.0	0.141	6.4	LOS A	0.0	0.3	0.01	0.01	0.01	53.3
Approach		251	4.9	264	4.9	0.141	0.1	NA	0.0	0.3	0.01	0.01	0.01	59.7
North: RoadName														
7	L2	12	0.0	13	0.0	0.018	5.3	LOS A	0.1	0.4	0.34	0.56	0.34	48.9
9	R2	6	0.0	6	0.0	0.018	6.7	LOS A	0.1	0.4	0.34	0.56	0.34	48.5
Approach		18	0.0	19	0.0	0.018	5.8	LOS A	0.1	0.4	0.34	0.56	0.34	48.8
West: RoadName														
10	L2	2	0.0	2	0.0	0.132	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.3
11	T1	234	5.0	246	5.0	0.132	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach		236	5.0	248	5.0	0.132	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles		505	4.8	532	4.8	0.141	0.3	NA	0.1	0.4	0.02	0.03	0.02	59.3

PM 2036 Base + Proposal + Network 1

MOVEMENT SUMMARY

Site: 101 [Sturt Highway & Elizabeth Avenue (Site Folder: General)]

PM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	421	5.0	443	5.0	1.788	727.1	LOS F	173.8	1268.7	1.00	10.14	23.06	4.5
2	T1	1	0.0	1	0.0	1.788	746.9	LOS F	173.8	1268.7	1.00	10.14	23.06	4.5
3	R2	135	5.0	142	5.0	1.788	758.6	LOS F	173.8	1268.7	1.00	10.14	23.06	4.5
Approach		557	5.0	586	5.0	1.788	734.7	LOS F	173.8	1268.7	1.00	10.14	23.06	4.5
East: Sturt Highway														
4	L2	170	5.0	179	5.0	0.322	7.0	LOS A	0.0	0.1	0.00	0.20	0.00	58.6
5	T1	383	11.0	403	11.0	0.322	0.0	LOS A	0.0	0.1	0.00	0.20	0.00	76.2
6	R2	1	0.0	1	0.0	0.322	8.5	LOS A	0.0	0.1	0.00	0.20	0.00	58.1
Approach		554	9.1	583	9.1	0.322	2.2	NA	0.0	0.1	0.00	0.20	0.00	69.8
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.029	5.7	LOS A	0.1	0.6	0.86	0.83	0.86	37.3
8	T1	1	0.0	1	0.0	0.029	31.1	LOS C	0.1	0.6	0.86	0.83	0.86	33.6
9	R2	1	0.0	1	0.0	0.029	68.6	LOS E	0.1	0.6	0.86	0.83	0.86	37.2
Approach		3	0.0	3	0.0	0.029	35.1	LOS C	0.1	0.6	0.86	0.83	0.86	36.0
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.192	7.0	LOS A	0.0	0.0	0.00	0.30	0.00	71.6
11	T1	329	11.0	346	11.0	0.192	2.1	LOS A	0.0	0.0	0.00	0.30	0.00	75.9
12	R2	472	5.0	497	5.0	0.553	12.5	LOS A	4.2	31.0	0.71	1.02	1.16	49.9
Approach		802	7.5	844	7.5	0.553	8.2	NA	4.2	31.0	0.42	0.73	0.68	58.1
All Vehicles		1916	7.2	2017	7.2	1.788	217.7	NA	173.8	1268.7	0.47	3.31	6.99	13.2

MOVEMENT SUMMARY

Site: 101v [Sturt Highway & Elizabeth Avenue 1 Lane (Site Folder: General)]

PM Base 2036 + Proposal Network 1
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	421	5.0	443	5.0	0.700	10.7	LOS A	9.1	66.6	0.97	1.00	1.23	48.6
2	T1	1	0.0	1	0.0	0.700	10.5	LOS A	9.1	66.6	0.97	1.00	1.23	44.1
3	R2	135	5.0	142	5.0	0.700	15.2	LOS B	9.1	66.6	0.97	1.00	1.23	49.2
Approach		557	5.0	586	5.0	0.700	11.8	LOS A	9.1	66.6	0.97	1.00	1.23	48.8
East: Sturt Highway														
4	L2	170	5.0	179	5.0	0.766	18.0	LOS B	11.3	85.3	1.00	1.10	1.48	47.2
5	T1	383	11.0	403	11.0	0.766	19.0	LOS B	11.3	85.3	1.00	1.10	1.48	53.9
6	R2	1	0.0	1	0.0	0.766	22.9	LOS B	11.3	85.3	1.00	1.10	1.48	48.6
Approach		554	9.1	583	9.1	0.766	18.7	LOS B	11.3	85.3	1.00	1.10	1.48	51.6
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.007	11.2	LOS A	0.1	0.4	0.92	0.64	0.92	48.8
8	T1	1	0.0	1	0.0	0.007	11.2	LOS A	0.1	0.4	0.92	0.64	0.92	43.6
9	R2	1	0.0	1	0.0	0.007	15.7	LOS B	0.1	0.4	0.92	0.64	0.92	49.5
Approach		3	0.0	3	0.0	0.007	12.7	LOS A	0.1	0.4	0.92	0.64	0.92	47.2
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.692	7.3	LOS A	9.0	67.0	0.76	0.63	0.76	51.6
11	T1	329	11.0	346	11.0	0.692	8.2	LOS A	9.0	67.0	0.76	0.63	0.76	56.6
12	R2	472	5.0	497	5.0	0.692	12.6	LOS A	9.0	67.0	0.76	0.63	0.76	53.1
Approach		802	7.5	844	7.5	0.692	10.8	LOS A	9.0	67.0	0.76	0.63	0.76	54.5
All Vehicles		1916	7.2	2017	7.2	0.766	13.4	LOS A	11.3	85.3	0.89	0.88	1.10	51.9

MOVEMENT SUMMARY

Site: 101v [Sturt Highway & Elizabeth Avenue 2 Lane (Site Folder: General)]

PM Base 2036 + Proposal Network 1
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	421	5.0	443	5.0	0.431	4.9	LOS A	3.2	23.6	0.71	0.68	0.71	53.4
2	T1	1	0.0	1	0.0	0.205	5.1	LOS A	1.2	8.5	0.63	0.75	0.63	45.6
3	R2	135	5.0	142	5.0	0.205	10.7	LOS A	1.2	8.5	0.63	0.75	0.63	50.8
Approach		557	5.0	586	5.0	0.431	6.3	LOS A	3.2	23.6	0.69	0.69	0.69	52.7
East: Sturt Highway														
4	L2	170	5.0	179	5.0	0.240	9.1	LOS A	1.4	10.0	0.66	0.75	0.66	54.2
5	T1	383	11.0	403	11.0	0.421	9.2	LOS A	2.9	22.4	0.72	0.73	0.72	62.4
6	R2	1	0.0	1	0.0	0.421	14.7	LOS B	2.9	22.4	0.72	0.73	0.72	56.1
Approach		554	9.1	583	9.1	0.421	9.2	LOS A	2.9	22.4	0.70	0.73	0.70	59.7
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.005	5.5	LOS A	0.0	0.1	0.63	0.59	0.63	53.0
8	T1	1	0.0	1	0.0	0.005	5.3	LOS A	0.0	0.1	0.63	0.59	0.63	47.3
9	R2	1	0.0	1	0.0	0.005	10.7	LOS A	0.0	0.1	0.63	0.59	0.63	54.2
Approach		3	0.0	3	0.0	0.005	7.2	LOS A	0.0	0.1	0.63	0.59	0.63	51.3
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.309	6.3	LOS A	2.0	15.5	0.42	0.52	0.42	55.0
11	T1	329	11.0	346	11.0	0.309	7.0	LOS A	2.0	15.5	0.42	0.52	0.42	61.3
12	R2	472	5.0	497	5.0	0.367	12.6	LOS A	2.7	19.4	0.42	0.65	0.42	54.0
Approach		802	7.5	844	7.5	0.367	10.3	LOS A	2.7	19.4	0.42	0.60	0.42	56.7
All Vehicles		1916	7.2	2017	7.2	0.431	8.8	LOS A	3.2	23.6	0.58	0.66	0.58	56.3

MOVEMENT SUMMARY

Site: 101 [Elizabeth Avenue & Mangrove Crescent & Dunn Avenue (Site Folder: General)]

PM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	12	0.0	13	0.0	0.270	5.3	LOS A	0.1	0.5	0.02	0.02	0.02	49.4
2	T1	466	5.0	491	5.0	0.270	0.0	LOS A	0.1	0.5	0.02	0.02	0.02	49.8
3	R2	4	0.0	4	0.0	0.270	7.1	LOS A	0.1	0.5	0.02	0.02	0.02	48.9
Approach		482	4.8	507	4.8	0.270	0.2	NA	0.1	0.5	0.02	0.02	0.02	49.8
East: Dunn Avenue														
4	L2	6	0.0	6	0.0	0.091	6.2	LOS A	0.3	2.0	0.75	0.84	0.75	40.9
5	T1	7	0.0	7	0.0	0.091	13.9	LOS A	0.3	2.0	0.75	0.84	0.75	40.9
6	R2	11	5.0	12	5.0	0.091	21.9	LOS B	0.3	2.0	0.75	0.84	0.75	40.5
Approach		24	2.3	25	2.3	0.091	15.6	LOS B	0.3	2.0	0.75	0.84	0.75	40.7
North: Elizabeth Avenue														
7	L2	21	0.0	22	0.0	0.437	8.2	LOS A	3.3	23.5	0.49	0.26	0.65	46.8
8	T1	419	5.0	441	5.0	0.437	2.2	LOS A	3.3	23.5	0.49	0.26	0.65	47.2
9	R2	192	0.0	202	0.0	0.437	8.3	LOS A	3.3	23.5	0.49	0.26	0.65	46.3
Approach		632	3.3	665	3.3	0.437	4.3	NA	3.3	23.5	0.49	0.26	0.65	46.9
West: Mangrove Crescent														
10	L2	99	0.0	104	0.0	0.176	6.7	LOS A	0.6	4.4	0.56	0.74	0.56	44.5
11	T1	5	0.0	5	0.0	0.176	15.2	LOS B	0.6	4.4	0.56	0.74	0.56	44.5
12	R2	12	0.0	13	0.0	0.176	19.5	LOS B	0.6	4.4	0.56	0.74	0.56	44.1
Approach		116	0.0	122	0.0	0.176	8.4	LOS A	0.6	4.4	0.56	0.74	0.56	44.4
All Vehicles		1254	3.6	1320	3.6	0.437	3.3	NA	3.3	23.5	0.32	0.22	0.40	47.6

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Hazelwood Drive & Sackville Drive (Site Folder: General)]

PM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	52	0.0	55	0.0	0.309	5.4	LOS A	0.5	3.4	0.10	0.08	0.10	48.7
2	T1	455	5.0	479	5.0	0.309	0.2	LOS A	0.5	3.4	0.10	0.08	0.10	49.2
3	R2	31	0.0	33	0.0	0.309	6.5	LOS A	0.5	3.4	0.10	0.08	0.10	48.3
Approach		538	4.2	566	4.2	0.309	1.1	NA	0.5	3.4	0.10	0.08	0.10	49.1
East: Sackville Drive														
4	L2	23	0.0	24	0.0	0.082	5.8	LOS A	0.3	1.9	0.53	0.70	0.53	43.9
5	T1	3	0.0	3	0.0	0.082	11.1	LOS A	0.3	1.9	0.53	0.70	0.53	44.0
6	R2	16	0.0	17	0.0	0.082	14.2	LOS A	0.3	1.9	0.53	0.70	0.53	43.5
Approach		42	0.0	44	0.0	0.082	9.4	LOS A	0.3	1.9	0.53	0.70	0.53	43.8
North: Elizabeth Avenue														
7	L2	22	0.0	23	0.0	0.278	7.3	LOS A	1.1	8.2	0.31	0.15	0.32	47.8
8	T1	329	5.0	346	5.0	0.278	1.0	LOS A	1.1	8.2	0.31	0.15	0.32	48.3
9	R2	79	0.0	83	0.0	0.278	7.6	LOS A	1.1	8.2	0.31	0.15	0.32	47.4
Approach		430	3.8	453	3.8	0.278	2.6	NA	1.1	8.2	0.31	0.15	0.32	48.1
West: Hazelwood Drive														
10	L2	40	0.0	42	0.0	0.135	6.5	LOS A	0.5	3.2	0.58	0.75	0.58	43.8
11	T1	5	0.0	5	0.0	0.135	11.0	LOS A	0.5	3.2	0.58	0.75	0.58	43.8
12	R2	24	0.0	25	0.0	0.135	14.6	LOS B	0.5	3.2	0.58	0.75	0.58	43.4
Approach		69	0.0	73	0.0	0.135	9.7	LOS A	0.5	3.2	0.58	0.75	0.58	43.6
All Vehicles		1079	3.6	1136	3.6	0.309	2.5	NA	1.1	8.2	0.23	0.17	0.24	48.1

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Don Kendall Drive (Site Folder: General)]

PM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
2	T1	243	5.0	256	5.0	0.187	0.6	LOS A	0.6	4.2	0.22	0.11	0.22	48.9
3	R2	53	10.0	56	10.0	0.187	6.6	LOS A	0.6	4.2	0.22	0.11	0.22	47.7
Approach		296	5.9	312	5.9	0.187	1.7	NA	0.6	4.2	0.22	0.11	0.22	48.6
East: Don Kendall Drive														
4	L2	118	10.0	124	10.0	0.601	8.2	LOS A	4.2	31.9	0.62	0.97	1.07	43.0
6	R2	293	10.0	308	10.0	0.601	12.2	LOS A	4.2	31.9	0.62	0.97	1.07	42.6
Approach		411	10.0	433	10.0	0.601	11.1	LOS A	4.2	31.9	0.62	0.97	1.07	42.7
North: Elizabeth Avenue														
7	L2	116	10.0	122	10.0	0.214	4.7	LOS A	0.0	0.0	0.00	0.17	0.00	48.4
8	T1	258	5.0	272	5.0	0.214	0.1	LOS A	0.0	0.0	0.00	0.17	0.00	49.0
Approach		374	6.6	394	6.6	0.214	1.5	NA	0.0	0.0	0.00	0.17	0.00	48.8
All Vehicles		1081	7.7	1138	7.7	0.601	5.2	NA	4.2	31.9	0.30	0.46	0.47	46.2

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Inglewood Road (Site Folder: General)]

PM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	9	0.0	9	0.0	0.020	4.6	LOS A	0.0	0.0	0.00	0.14	0.00	48.7
2	T1	26	5.0	27	5.0	0.020	0.0	LOS A	0.0	0.0	0.00	0.14	0.00	49.2
Approach		35	3.7	37	3.7	0.020	1.2	NA	0.0	0.0	0.00	0.14	0.00	49.0
North: Elizabeth Avenue														
8	T1	42	0.0	44	0.0	0.228	0.1	LOS A	1.3	9.2	0.14	0.47	0.14	47.1
9	R2	329	5.0	346	5.0	0.228	4.7	LOS A	1.3	9.2	0.14	0.47	0.14	46.1
Approach		371	4.4	391	4.4	0.228	4.2	NA	1.3	9.2	0.14	0.47	0.14	46.2
West: Inglewood Road														
10	L2	212	5.0	223	5.0	0.157	4.7	LOS A	0.7	5.0	0.08	0.51	0.08	46.4
12	R2	11	0.0	12	0.0	0.157	6.7	LOS A	0.7	5.0	0.08	0.51	0.08	46.0
Approach		223	4.8	235	4.8	0.157	4.8	LOS A	0.7	5.0	0.08	0.51	0.08	46.3
All Vehicles		629	4.5	662	4.5	0.228	4.3	NA	1.3	9.2	0.11	0.46	0.11	46.4

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Industrial (Site Folder: General)]

PM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	15	15.0	16	15.0	0.134	4.7	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
2	T1	224	5.0	236	5.0	0.134	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.8
Approach		239	5.6	252	5.6	0.134	0.3	NA	0.0	0.0	0.00	0.03	0.00	49.7
North: Elizabeth Avenue														
8	T1	352	5.0	371	5.0	0.217	0.1	LOS A	0.2	1.8	0.07	0.04	0.07	49.6
9	R2	24	15.0	25	15.0	0.217	5.9	LOS A	0.2	1.8	0.07	0.04	0.07	48.4
Approach		376	5.6	396	5.6	0.217	0.5	NA	0.2	1.8	0.07	0.04	0.07	49.5
West: Industrial Road														
10	L2	72	15.0	76	15.0	0.095	5.6	LOS A	0.4	2.8	0.36	0.59	0.36	45.5
12	R2	18	15.0	19	15.0	0.095	8.7	LOS A	0.4	2.8	0.36	0.59	0.36	45.1
Approach		90	15.0	95	15.0	0.095	6.2	LOS A	0.4	2.8	0.36	0.59	0.36	45.4
All Vehicles		705	6.8	742	6.8	0.217	1.2	NA	0.4	2.8	0.08	0.11	0.08	49.0

MOVEMENT SUMMARY

▽ Site: 101 [Ingleburn + Road 2 (Site Folder: General)]

PM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Inglewood Road														
5	T1	284	5.0	299	5.0	0.197	0.2	LOS A	0.4	3.2	0.13	0.10	0.13	58.6
6	R2	53	0.0	56	0.0	0.197	6.3	LOS A	0.4	3.2	0.13	0.10	0.13	52.3
Approach		337	4.2	355	4.2	0.197	1.2	NA	0.4	3.2	0.13	0.10	0.13	57.5
North: Road 2														
7	L2	29	0.0	31	0.0	0.044	5.2	LOS A	0.2	1.1	0.31	0.57	0.31	49.0
9	R2	15	0.0	16	0.0	0.044	7.2	LOS A	0.2	1.1	0.31	0.57	0.31	48.5
Approach		44	0.0	46	0.0	0.044	5.9	LOS A	0.2	1.1	0.31	0.57	0.31	48.8
West: Inglewood Road														
10	L2	29	0.0	31	0.0	0.120	5.6	LOS A	0.0	0.0	0.00	0.08	0.00	57.6
11	T1	185	5.0	195	5.0	0.120	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	59.2
Approach		214	4.3	225	4.3	0.120	0.8	NA	0.0	0.0	0.00	0.08	0.00	59.0
All Vehicles		595	3.9	626	3.9	0.197	1.4	NA	0.4	3.2	0.10	0.13	0.10	57.2

MOVEMENT SUMMARY

▽ Site: 101 [Ingleburn + Road 3 (Site Folder: General)]

PM Base 2036 + Proposal Network 1
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Inglewood Road														
5	T1	292	5.0	307	5.0	0.168	0.0	LOS A	0.1	0.4	0.02	0.01	0.02	59.8
6	R2	7	0.0	7	0.0	0.168	6.3	LOS A	0.1	0.4	0.02	0.01	0.02	53.3
Approach		299	4.9	315	4.9	0.168	0.2	NA	0.1	0.4	0.02	0.01	0.02	59.6
North: Road 3														
7	L2	4	0.0	4	0.0	0.006	5.2	LOS A	0.0	0.1	0.32	0.53	0.32	49.0
9	R2	2	0.0	2	0.0	0.006	6.8	LOS A	0.0	0.1	0.32	0.53	0.32	48.5
Approach		6	0.0	6	0.0	0.006	5.8	LOS A	0.0	0.1	0.32	0.53	0.32	48.8
West: Inglewood Road														
10	L2	4	0.0	4	0.0	0.119	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.2
11	T1	210	5.0	221	5.0	0.119	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach		214	4.9	225	4.9	0.119	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles		519	4.8	546	4.8	0.168	0.2	NA	0.1	0.4	0.02	0.02	0.02	59.5

AM 2036 Base + Proposal + Network 2

MOVEMENT SUMMARY

Site: 101 [Sturt Highway & Elizabeth Avenue (Site Folder: General)]

AM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	537	5.0	565	5.0	0.530	8.2	LOS A	4.1	30.1	0.60	0.88	0.86	50.5
2	T1	1	0.0	1	0.0	1.116	178.4	LOS F	18.8	136.9	1.00	2.47	6.04	14.1
3	R2	159	5.0	167	5.0	1.116	186.3	LOS F	18.8	136.9	1.00	2.47	6.04	14.3
Approach		697	5.0	734	5.0	1.116	49.0	LOS D	18.8	136.9	0.70	1.25	2.05	32.0
East: Sturt Highway														
4	L2	118	5.0	124	5.0	0.285	7.0	LOS A	0.0	0.1	0.00	0.16	0.00	59.1
5	T1	372	11.0	392	11.0	0.285	0.0	LOS A	0.0	0.1	0.00	0.16	0.00	77.0
6	R2	1	0.0	1	0.0	0.285	6.9	LOS A	0.0	0.1	0.00	0.16	0.00	63.7
Approach		491	9.5	517	9.5	0.285	1.7	NA	0.0	0.1	0.00	0.16	0.00	71.7
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.026	5.5	LOS A	0.1	0.5	0.82	0.80	0.82	38.7
8	T1	1	0.0	1	0.0	0.026	21.6	LOS B	0.1	0.5	0.82	0.80	0.82	34.8
9	R2	1	0.0	1	0.0	0.026	67.6	LOS E	0.1	0.5	0.82	0.80	0.82	38.6
Approach		3	0.0	3	0.0	0.026	31.6	LOS C	0.1	0.5	0.82	0.80	0.82	37.3
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.158	7.0	LOS A	0.0	0.0	0.00	0.30	0.00	71.5
11	T1	274	9.0	288	9.0	0.158	2.1	LOS A	0.0	0.0	0.00	0.30	0.00	76.1
12	R2	397	5.0	418	5.0	0.423	10.8	LOS A	2.7	19.9	0.64	0.91	0.84	51.4
Approach		672	6.6	707	6.6	0.423	7.2	NA	2.7	19.9	0.38	0.66	0.50	59.3
All Vehicles		1863	6.8	1961	6.8	1.116	21.5	NA	18.8	136.9	0.40	0.75	0.95	46.5

MOVEMENT SUMMARY

Site: 101v [Sturt Highway & Elizabeth Avenue (Site Folder: General)]

AM Base 2036 + Proposal Network 2
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	537	5.0	565	5.0	0.839	16.3	LOS B	16.2	117.9	1.00	1.19	1.56	45.3
2	T1	1	0.0	1	0.0	0.839	17.3	LOS B	16.2	117.9	1.00	1.19	1.56	43.8
3	R2	159	5.0	167	5.0	0.839	20.8	LOS B	16.2	117.9	1.00	1.19	1.56	45.8
Approach		697	5.0	734	5.0	0.839	17.3	LOS B	16.2	117.9	1.00	1.19	1.56	45.4
East: Sturt Highway														
4	L2	118	5.0	124	5.0	0.618	11.8	LOS A	6.6	50.3	0.89	0.90	1.05	51.3
5	T1	372	11.0	392	11.0	0.618	12.8	LOS A	6.6	50.3	0.89	0.90	1.05	59.1
6	R2	1	0.0	1	0.0	0.618	14.7	LOS B	6.6	50.3	0.89	0.90	1.05	56.5
Approach		491	9.5	517	9.5	0.618	12.6	LOS A	6.6	50.3	0.89	0.90	1.05	57.0
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.006	9.3	LOS A	0.0	0.3	0.85	0.61	0.85	50.1
8	T1	1	0.0	1	0.0	0.006	9.3	LOS A	0.0	0.3	0.85	0.61	0.85	44.6
9	R2	1	0.0	1	0.0	0.006	13.8	LOS A	0.0	0.3	0.85	0.61	0.85	50.8
Approach		3	0.0	3	0.0	0.006	10.8	LOS A	0.0	0.3	0.85	0.61	0.85	48.3
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.606	5.5	LOS A	6.7	49.7	0.71	0.65	0.71	55.7
11	T1	274	9.0	288	9.0	0.606	8.2	LOS A	6.7	49.7	0.71	0.65	0.71	56.9
12	R2	397	5.0	418	5.0	0.606	12.6	LOS A	6.7	49.7	0.71	0.65	0.71	53.2
Approach		672	6.6	707	6.6	0.606	10.8	LOS A	6.7	49.7	0.71	0.65	0.71	54.7
All Vehicles		1863	6.8	1961	6.8	0.839	13.7	LOS A	16.2	117.9	0.87	0.92	1.12	51.3

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Mangrove Crescent & Dunn Avenue (Site Folder: General)]

AM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	2	0.0	2	0.0	0.265	5.8	LOS A	0.0	0.1	0.00	0.00	0.00	49.5
2	T1	472	5.0	497	5.0	0.265	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	50.0
3	R2	1	0.0	1	0.0	0.265	7.5	LOS A	0.0	0.1	0.00	0.00	0.00	49.0
Approach		475	5.0	500	5.0	0.265	0.1	NA	0.0	0.1	0.00	0.00	0.00	50.0
East: Dunn Avenue														
4	L2	1	0.0	1	0.0	0.099	6.5	LOS A	0.3	2.1	0.84	0.92	0.84	38.3
5	T1	2	0.0	2	0.0	0.099	12.4	LOS A	0.3	2.1	0.84	0.92	0.84	38.3
6	R2	15	5.0	16	5.0	0.099	23.8	LOS B	0.3	2.1	0.84	0.92	0.84	37.9
Approach		18	4.2	19	4.2	0.099	21.6	LOS B	0.3	2.1	0.84	0.92	0.84	38.0
North: Elizabeth Avenue														
7	L2	5	0.0	5	0.0	0.353	7.7	LOS A	1.3	9.7	0.25	0.10	0.29	48.2
8	T1	480	5.0	505	5.0	0.353	0.9	LOS A	1.3	9.7	0.25	0.10	0.29	48.7
9	R2	83	0.0	87	0.0	0.353	7.7	LOS A	1.3	9.7	0.25	0.10	0.29	47.8
Approach		568	4.2	598	4.2	0.353	1.9	NA	1.3	9.7	0.25	0.10	0.29	48.5
West: Mangrove Crescent														
10	L2	237	5.0	249	5.0	0.274	7.2	LOS A	1.2	8.7	0.55	0.76	0.57	45.0
11	T1	1	0.0	1	0.0	0.274	14.7	LOS B	1.2	8.7	0.55	0.76	0.57	45.1
12	R2	2	0.0	2	0.0	0.274	19.3	LOS B	1.2	8.7	0.55	0.76	0.57	44.6
Approach		240	4.9	253	4.9	0.274	7.4	LOS A	1.2	8.7	0.55	0.76	0.57	45.0
All Vehicles		1301	4.6	1369	4.6	0.353	2.5	NA	1.3	9.7	0.22	0.20	0.25	48.1

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Hazelwood Drive & Sackville Drive (Site Folder: General)]

AM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	18	0.0	19	0.0	0.178	5.6	LOS A	0.2	1.3	0.07	0.05	0.07	49.0
2	T1	280	5.0	295	5.0	0.178	0.1	LOS A	0.2	1.3	0.07	0.05	0.07	49.5
3	R2	12	0.0	13	0.0	0.178	6.7	LOS A	0.2	1.3	0.07	0.05	0.07	48.5
Approach		310	4.5	326	4.5	0.178	0.7	NA	0.2	1.3	0.07	0.05	0.07	49.4
East: Sackville Drive														
4	L2	21	0.0	22	0.0	0.097	6.3	LOS A	0.3	2.3	0.57	0.75	0.57	43.8
5	T1	3	0.0	3	0.0	0.097	8.4	LOS A	0.3	2.3	0.57	0.75	0.57	43.9
6	R2	25	0.0	26	0.0	0.097	12.3	LOS A	0.3	2.3	0.57	0.75	0.57	43.5
Approach		49	0.0	52	0.0	0.097	9.5	LOS A	0.3	2.3	0.57	0.75	0.57	43.6
North: Elizabeth Avenue														
7	L2	1	0.0	1	0.0	0.259	6.0	LOS A	0.2	1.8	0.06	0.03	0.06	49.2
8	T1	430	5.0	453	5.0	0.259	0.1	LOS A	0.2	1.8	0.06	0.03	0.06	49.7
9	R2	23	0.0	24	0.0	0.259	6.0	LOS A	0.2	1.8	0.06	0.03	0.06	48.7
Approach		454	4.7	478	4.7	0.259	0.4	NA	0.2	1.8	0.06	0.03	0.06	49.6
West: Hazelwood Drive														
10	L2	99	0.0	104	0.0	0.246	5.7	LOS A	0.9	6.4	0.49	0.69	0.49	44.5
11	T1	2	5.0	2	5.0	0.246	9.4	LOS A	0.9	6.4	0.49	0.69	0.49	44.5
12	R2	62	0.0	65	0.0	0.246	12.3	LOS A	0.9	6.4	0.49	0.69	0.49	44.1
Approach		163	0.1	172	0.1	0.246	8.3	LOS A	0.9	6.4	0.49	0.69	0.49	44.4
All Vehicles		976	3.6	1027	3.6	0.259	2.3	NA	0.9	6.4	0.16	0.18	0.16	48.3

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Don Kendall Drive (Site Folder: General)]

AM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
2	T1	148	5.0	156	5.0	0.230	2.5	LOS A	1.3	9.4	0.54	0.35	0.54	46.9
3	R2	126	10.0	133	10.0	0.230	7.8	LOS A	1.3	9.4	0.54	0.35	0.54	45.9
Approach		274	7.3	288	7.3	0.230	4.9	NA	1.3	9.4	0.54	0.35	0.54	46.4
East: Don Kendall Drive														
4	L2	73	10.0	77	10.0	0.346	6.1	LOS A	1.6	11.9	0.49	0.76	0.59	44.2
6	R2	162	10.0	171	10.0	0.346	10.0	LOS A	1.6	11.9	0.49	0.76	0.59	43.8
Approach		235	10.0	247	10.0	0.346	8.8	LOS A	1.6	11.9	0.49	0.76	0.59	43.9
North: Elizabeth Avenue														
7	L2	313	10.0	329	10.0	0.302	4.7	LOS A	0.0	0.0	0.00	0.33	0.00	47.5
8	T1	201	5.0	212	5.0	0.302	0.1	LOS A	0.0	0.0	0.00	0.33	0.00	48.1
Approach		514	8.0	541	8.0	0.302	2.9	NA	0.0	0.0	0.00	0.33	0.00	47.7
All Vehicles		1023	8.3	1077	8.3	0.346	4.8	NA	1.6	11.9	0.26	0.43	0.28	46.4

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Inglewood Road (Site Folder: General)]

AM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	9	0.0	9	0.0	0.029	4.6	LOS A	0.0	0.0	0.00	0.10	0.00	48.9
2	T1	42	5.0	44	5.0	0.029	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	49.4
Approach		51	4.1	54	4.1	0.029	0.8	NA	0.0	0.0	0.00	0.10	0.00	49.3
North: Elizabeth Avenue														
8	T1	27	5.0	28	5.0	0.125	0.2	LOS A	0.6	4.5	0.15	0.46	0.15	47.1
9	R2	174	5.0	183	5.0	0.125	4.8	LOS A	0.6	4.5	0.15	0.46	0.15	46.1
Approach		201	5.0	212	5.0	0.125	4.2	NA	0.6	4.5	0.15	0.46	0.15	46.3
West: Inglewood Road														
10	L2	218	5.0	229	5.0	0.160	4.8	LOS A	0.7	5.2	0.13	0.51	0.13	46.3
12	R2	10	0.0	11	0.0	0.160	5.7	LOS A	0.7	5.2	0.13	0.51	0.13	45.9
Approach		228	4.8	240	4.8	0.160	4.8	LOS A	0.7	5.2	0.13	0.51	0.13	46.2
All Vehicles		480	4.8	505	4.8	0.160	4.1	NA	0.7	5.2	0.13	0.44	0.13	46.6

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Industrial (Site Folder: General)]

AM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	20	15.0	21	15.0	0.146	4.7	LOS A	0.0	0.0	0.00	0.04	0.00	49.0
2	T1	239	5.0	252	5.0	0.146	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.7
Approach		259	5.8	273	5.8	0.146	0.4	NA	0.0	0.0	0.00	0.04	0.00	49.7
North: Elizabeth Avenue														
8	T1	192	5.0	202	5.0	0.179	0.6	LOS A	0.7	5.4	0.27	0.18	0.27	48.4
9	R2	82	15.0	86	15.0	0.179	6.0	LOS A	0.7	5.4	0.27	0.18	0.27	47.2
Approach		274	8.0	288	8.0	0.179	2.2	NA	0.7	5.4	0.27	0.18	0.27	48.1
West: Industrial Road														
10	L2	35	15.0	37	15.0	0.045	5.6	LOS A	0.2	1.3	0.36	0.57	0.36	45.6
12	R2	9	15.0	9	15.0	0.045	7.7	LOS A	0.2	1.3	0.36	0.57	0.36	45.1
Approach		44	15.0	46	15.0	0.045	6.1	LOS A	0.2	1.3	0.36	0.57	0.36	45.5
All Vehicles		577	7.5	607	7.5	0.179	1.7	NA	0.7	5.4	0.16	0.15	0.16	48.6

MOVEMENT SUMMARY

▽ Site: 101 [Inglewood Road + Road 2 (Site Folder: General)]

AM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Inglewood Road														
5	T1	181	5.0	191	5.0	0.102	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	59.9
6	R2	2	0.0	2	0.0	0.102	6.4	LOS A	0.0	0.1	0.01	0.01	0.01	53.3
Approach		183	4.9	193	4.9	0.102	0.1	NA	0.0	0.1	0.01	0.01	0.01	59.8
North: Road 2														
7	L2	5	0.0	5	0.0	0.091	5.3	LOS A	0.3	2.1	0.41	0.66	0.41	48.6
9	R2	70	0.0	74	0.0	0.091	6.5	LOS A	0.3	2.1	0.41	0.66	0.41	48.2
Approach		75	0.0	79	0.0	0.091	6.4	LOS A	0.3	2.1	0.41	0.66	0.41	48.2
West: Inglewood Road														
10	L2	23	0.0	24	0.0	0.137	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	57.8
11	T1	223	5.0	235	5.0	0.137	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	59.4
Approach		246	4.5	259	4.5	0.137	0.6	NA	0.0	0.0	0.00	0.06	0.00	59.2
All Vehicles		504	4.0	531	4.0	0.137	1.3	NA	0.3	2.1	0.06	0.13	0.06	57.5

MOVEMENT SUMMARY

▽ Site: 101 [Inglewood Road + Road 3 (Site Folder: General)]

AM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Inglewood Road														
5	T1	247	5.0	260	5.0	0.141	0.0	LOS A	0.0	0.3	0.01	0.01	0.01	59.8
6	R2	4	0.0	4	0.0	0.141	6.4	LOS A	0.0	0.3	0.01	0.01	0.01	53.3
Approach		251	4.9	264	4.9	0.141	0.1	NA	0.0	0.3	0.01	0.01	0.01	59.7
North: Road 3														
7	L2	12	0.0	13	0.0	0.018	5.3	LOS A	0.1	0.4	0.34	0.56	0.34	48.9
9	R2	6	0.0	6	0.0	0.018	6.7	LOS A	0.1	0.4	0.34	0.56	0.34	48.5
Approach		18	0.0	19	0.0	0.018	5.8	LOS A	0.1	0.4	0.34	0.56	0.34	48.8
West: Inglewood Road														
10	L2	2	0.0	2	0.0	0.132	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.3
11	T1	234	5.0	246	5.0	0.132	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach		236	5.0	248	5.0	0.132	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles		505	4.8	532	4.8	0.141	0.3	NA	0.1	0.4	0.02	0.03	0.02	59.3

PM 2036 Base + Proposal + Network 2

MOVEMENT SUMMARY

Site: 101 [Sturt Highway & Elizabeth Avenue (Site Folder: General)]

PM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	421	5.0	443	5.0	0.422	7.5	LOS A	2.6	18.9	0.56	0.80	0.70	50.9
2	T1	1	0.0	1	0.0	1.366	390.8	LOS F	29.9	218.4	1.00	2.99	8.11	7.5
3	R2	135	5.0	142	5.0	1.366	401.2	LOS F	29.9	218.4	1.00	2.99	8.11	7.6
Approach		557	5.0	586	5.0	1.366	103.6	LOS F	29.9	218.4	0.67	1.34	2.51	21.4
East: Sturt Highway														
4	L2	170	5.0	179	5.0	0.322	7.0	LOS A	0.0	0.1	0.00	0.20	0.00	58.7
5	T1	383	11.0	403	11.0	0.322	0.0	LOS A	0.0	0.1	0.00	0.20	0.00	76.2
6	R2	1	0.0	1	0.0	0.322	8.5	LOS A	0.0	0.1	0.00	0.20	0.00	58.1
Approach		554	9.1	583	9.1	0.322	2.2	NA	0.0	0.1	0.00	0.20	0.00	69.8
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.029	5.7	LOS A	0.1	0.6	0.86	0.83	0.86	37.3
8	T1	1	0.0	1	0.0	0.029	31.1	LOS C	0.1	0.6	0.86	0.83	0.86	33.6
9	R2	1	0.0	1	0.0	0.029	68.7	LOS E	0.1	0.6	0.86	0.83	0.86	37.2
Approach		3	0.0	3	0.0	0.029	35.1	LOS C	0.1	0.6	0.86	0.83	0.86	36.0
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.192	7.0	LOS A	0.0	0.0	0.00	0.30	0.00	71.5
11	T1	329	11.0	346	11.0	0.192	2.1	LOS A	0.0	0.0	0.00	0.30	0.00	76.1
12	R2	472	5.0	497	5.0	0.553	12.6	LOS A	4.2	31.0	0.71	1.02	1.16	50.1
Approach		802	7.5	844	7.5	0.553	8.3	NA	4.2	31.0	0.42	0.73	0.68	58.3
All Vehicles		1916	7.2	2017	7.2	1.366	34.3	NA	29.9	218.4	0.37	0.75	1.02	40.1

MOVEMENT SUMMARY

Site: 101v [Sturt Highway & Elizabeth Avenue 1 Lane (Site Folder: General)]

PM Base 2036 + Proposal Network 2
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	421	5.0	443	5.0	0.725	10.0	LOS A	9.0	65.6	0.95	1.02	1.21	49.4
2	T1	1	0.0	1	0.0	0.725	9.6	LOS A	9.0	65.6	0.95	1.02	1.21	45.0
3	R2	135	5.0	142	5.0	0.725	15.1	LOS B	9.0	65.6	0.95	1.02	1.21	50.1
Approach		557	5.0	586	5.0	0.725	11.2	LOS A	9.0	65.6	0.95	1.02	1.21	49.6
East: Sturt Highway														
4	L2	170	5.0	179	5.0	0.751	17.0	LOS B	10.7	81.1	1.00	1.08	1.44	48.0
5	T1	383	11.0	403	11.0	0.751	17.9	LOS B	10.7	81.1	1.00	1.08	1.44	55.3
6	R2	1	0.0	1	0.0	0.751	22.6	LOS B	10.7	81.1	1.00	1.08	1.44	50.1
Approach		554	9.1	583	9.1	0.751	17.7	LOS B	10.7	81.1	1.00	1.08	1.44	52.8
North: Braehour Road														
7	L2	1	0.0	1	0.0	0.007	11.0	LOS A	0.0	0.3	0.91	0.64	0.91	49.1
8	T1	1	0.0	1	0.0	0.007	10.9	LOS A	0.0	0.3	0.91	0.64	0.91	43.8
9	R2	1	0.0	1	0.0	0.007	15.7	LOS B	0.0	0.3	0.91	0.64	0.91	50.0
Approach		3	0.0	3	0.0	0.007	12.5	LOS A	0.0	0.3	0.91	0.64	0.91	47.5
West: Sturt Highway														
10	L2	1	0.0	1	0.0	0.720	6.9	LOS A	8.8	65.5	0.74	0.64	0.74	52.1
11	T1	329	11.0	346	11.0	0.720	8.0	LOS A	8.8	65.5	0.74	0.64	0.74	57.2
12	R2	472	5.0	497	5.0	0.720	12.9	LOS A	8.8	65.5	0.74	0.64	0.74	53.7
Approach		802	7.5	844	7.5	0.720	10.9	LOS A	8.8	65.5	0.74	0.64	0.74	55.0
All Vehicles		1916	7.2	2017	7.2	0.751	12.9	LOS A	10.7	81.1	0.88	0.88	1.08	52.7

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Mangrove Crescent & Dunn Avenue (Site Folder: General)]

PM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	12	0.0	13	0.0	0.270	5.2	LOS A	0.1	0.5	0.02	0.02	0.02	49.4
2	T1	466	5.0	491	5.0	0.270	0.0	LOS A	0.1	0.5	0.02	0.02	0.02	49.8
3	R2	4	0.0	4	0.0	0.270	6.7	LOS A	0.1	0.5	0.02	0.02	0.02	48.9
Approach		482	4.8	507	4.8	0.270	0.2	NA	0.1	0.5	0.02	0.02	0.02	49.8
East: Dunn Avenue														
4	L2	6	0.0	6	0.0	0.084	5.9	LOS A	0.3	1.8	0.72	0.82	0.72	41.3
5	T1	7	0.0	7	0.0	0.084	12.6	LOS A	0.3	1.8	0.72	0.82	0.72	41.4
6	R2	11	5.0	12	5.0	0.084	20.5	LOS B	0.3	1.8	0.72	0.82	0.72	40.9
Approach		24	2.3	25	2.3	0.084	14.6	LOS B	0.3	1.8	0.72	0.82	0.72	41.2
North: Elizabeth Avenue														
7	L2	21	0.0	22	0.0	0.409	8.0	LOS A	3.0	21.4	0.50	0.28	0.64	46.7
8	T1	369	5.0	388	5.0	0.409	2.2	LOS A	3.0	21.4	0.50	0.28	0.64	47.1
9	R2	192	0.0	202	0.0	0.409	8.1	LOS A	3.0	21.4	0.50	0.28	0.64	46.3
Approach		582	3.2	613	3.2	0.409	4.4	NA	3.0	21.4	0.50	0.28	0.64	46.8
West: Mangrove Crescent														
10	L2	125	0.0	132	0.0	0.196	6.7	LOS A	0.7	5.1	0.55	0.74	0.55	44.7
11	T1	5	0.0	5	0.0	0.196	14.0	LOS A	0.7	5.1	0.55	0.74	0.55	44.8
12	R2	12	0.0	13	0.0	0.196	18.1	LOS B	0.7	5.1	0.55	0.74	0.55	44.3
Approach		142	0.0	149	0.0	0.196	7.9	LOS A	0.7	5.1	0.55	0.74	0.55	44.7
All Vehicles		1230	3.4	1295	3.4	0.409	3.3	NA	3.0	21.4	0.32	0.24	0.39	47.6

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Hazelwood Drive & Sackville Drive (Site Folder: General)]

PM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	58	0.0	61	0.0	0.274	5.1	LOS A	0.4	3.0	0.10	0.10	0.10	48.7
2	T1	390	5.0	411	5.0	0.274	0.1	LOS A	0.4	3.0	0.10	0.10	0.10	49.1
3	R2	31	0.0	33	0.0	0.274	5.9	LOS A	0.4	3.0	0.10	0.10	0.10	48.2
Approach		479	4.1	504	4.1	0.274	1.1	NA	0.4	3.0	0.10	0.10	0.10	49.0
East: Sackville Drive														
4	L2	23	0.0	24	0.0	0.068	5.5	LOS A	0.2	1.6	0.45	0.65	0.45	44.6
5	T1	3	0.0	3	0.0	0.068	9.1	LOS A	0.2	1.6	0.45	0.65	0.45	44.7
6	R2	16	0.0	17	0.0	0.068	11.7	LOS A	0.2	1.6	0.45	0.65	0.45	44.2
Approach		42	0.0	44	0.0	0.068	8.1	LOS A	0.2	1.6	0.45	0.65	0.45	44.5
North: Elizabeth Avenue														
7	L2	22	0.0	23	0.0	0.231	6.7	LOS A	0.9	6.7	0.32	0.17	0.32	47.8
8	T1	257	5.0	271	5.0	0.231	0.9	LOS A	0.9	6.7	0.32	0.17	0.32	48.2
9	R2	79	0.0	83	0.0	0.231	6.9	LOS A	0.9	6.7	0.32	0.17	0.32	47.3
Approach		358	3.6	377	3.6	0.231	2.6	NA	0.9	6.7	0.32	0.17	0.32	48.0
West: Hazelwood Drive														
10	L2	40	0.0	42	0.0	0.124	6.1	LOS A	0.4	3.0	0.54	0.72	0.54	44.3
11	T1	5	0.0	5	0.0	0.124	9.0	LOS A	0.4	3.0	0.54	0.72	0.54	44.4
12	R2	28	0.0	29	0.0	0.124	12.1	LOS A	0.4	3.0	0.54	0.72	0.54	43.9
Approach		73	0.0	77	0.0	0.124	8.6	LOS A	0.4	3.0	0.54	0.72	0.54	44.2
All Vehicles		952	3.4	1002	3.4	0.274	2.6	NA	0.9	6.7	0.23	0.20	0.23	48.0

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Don Kendall Drive (Site Folder: General)]

PM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
2	T1	185	5.0	195	5.0	0.151	0.5	LOS A	0.5	3.6	0.23	0.13	0.23	48.7
3	R2	53	10.0	56	10.0	0.151	6.1	LOS A	0.5	3.6	0.23	0.13	0.23	47.6
Approach		238	6.1	251	6.1	0.151	1.8	NA	0.5	3.6	0.23	0.13	0.23	48.5
East: Don Kendall Drive														
4	L2	118	10.0	124	10.0	0.520	6.9	LOS A	3.4	26.0	0.53	0.84	0.78	44.1
6	R2	293	10.0	308	10.0	0.520	9.8	LOS A	3.4	26.0	0.53	0.84	0.78	43.7
Approach		411	10.0	433	10.0	0.520	8.9	LOS A	3.4	26.0	0.53	0.84	0.78	43.8
North: Elizabeth Avenue														
7	L2	116	10.0	122	10.0	0.177	4.7	LOS A	0.0	0.0	0.00	0.20	0.00	48.2
8	T1	192	5.0	202	5.0	0.177	0.1	LOS A	0.0	0.0	0.00	0.20	0.00	48.8
Approach		308	6.9	324	6.9	0.177	1.8	NA	0.0	0.0	0.00	0.20	0.00	48.6
All Vehicles		957	8.0	1007	8.0	0.520	4.9	NA	3.4	26.0	0.28	0.46	0.39	46.4

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Inglewood Road (Site Folder: General)]

PM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	9	0.0	9	0.0	0.020	4.6	LOS A	0.0	0.0	0.00	0.14	0.00	48.7
2	T1	26	5.0	27	5.0	0.020	0.0	LOS A	0.0	0.0	0.00	0.14	0.00	49.2
Approach		35	3.7	37	3.7	0.020	1.2	NA	0.0	0.0	0.00	0.14	0.00	49.0
North: Elizabeth Avenue														
8	T1	42	0.0	44	0.0	0.187	0.1	LOS A	1.0	7.2	0.13	0.45	0.13	47.2
9	R2	263	5.0	277	5.0	0.187	4.7	LOS A	1.0	7.2	0.13	0.45	0.13	46.2
Approach		305	4.3	321	4.3	0.187	4.1	NA	1.0	7.2	0.13	0.45	0.13	46.3
West: Inglewood Road														
10	L2	154	5.0	162	5.0	0.117	4.7	LOS A	0.5	3.6	0.08	0.51	0.08	46.4
12	R2	11	0.0	12	0.0	0.117	6.2	LOS A	0.5	3.6	0.08	0.51	0.08	46.0
Approach		165	4.7	174	4.7	0.117	4.8	LOS A	0.5	3.6	0.08	0.51	0.08	46.3
All Vehicles		505	4.4	532	4.4	0.187	4.1	NA	1.0	7.2	0.11	0.45	0.11	46.5

MOVEMENT SUMMARY

▽ Site: 101 [Elizabeth Avenue & Industrial (Site Folder: General)]

PM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Elizabeth Avenue														
1	L2	15	15.0	16	15.0	0.101	4.7	LOS A	0.0	0.0	0.00	0.04	0.00	49.0
2	T1	165	5.0	174	5.0	0.101	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.7
Approach		180	5.8	189	5.8	0.101	0.4	NA	0.0	0.0	0.00	0.04	0.00	49.7
North: Elizabeth Avenue														
8	T1	286	5.0	301	5.0	0.179	0.1	LOS A	0.2	1.6	0.07	0.04	0.07	49.6
9	R2	24	15.0	25	15.0	0.179	5.5	LOS A	0.2	1.6	0.07	0.04	0.07	48.4
Approach		310	5.8	326	5.8	0.179	0.5	NA	0.2	1.6	0.07	0.04	0.07	49.5
West: Industrial Road														
10	L2	72	15.0	76	15.0	0.086	5.3	LOS A	0.3	2.6	0.29	0.56	0.29	45.7
12	R2	18	15.0	19	15.0	0.086	7.6	LOS A	0.3	2.6	0.29	0.56	0.29	45.3
Approach		90	15.0	95	15.0	0.086	5.8	LOS A	0.3	2.6	0.29	0.56	0.29	45.6
All Vehicles		580	7.2	611	7.2	0.179	1.3	NA	0.3	2.6	0.08	0.12	0.08	48.9

MOVEMENT SUMMARY

Site: 101 [Inglewood Road + Road 2 (Site Folder: General)]

PM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Inglewood Road														
5	T1	267	5.0	281	5.0	0.152	0.0	LOS A	0.0	0.2	0.01	0.01	0.01	59.9
6	R2	4	0.0	4	0.0	0.152	6.3	LOS A	0.0	0.2	0.01	0.01	0.01	53.3
Approach		271	4.9	285	4.9	0.152	0.1	NA	0.0	0.2	0.01	0.01	0.01	59.8
North: Road 2														
7	L2	2	0.0	2	0.0	0.044	5.0	LOS A	0.1	1.0	0.41	0.65	0.41	48.5
9	R2	33	0.0	35	0.0	0.044	6.6	LOS A	0.1	1.0	0.41	0.65	0.41	48.1
Approach		35	0.0	37	0.0	0.044	6.5	LOS A	0.1	1.0	0.41	0.65	0.41	48.1
West: Inglewood Road														
10	L2	61	0.0	64	0.0	0.120	5.6	LOS A	0.0	0.0	0.00	0.17	0.00	56.8
11	T1	153	5.0	161	5.0	0.120	0.0	LOS A	0.0	0.0	0.00	0.17	0.00	58.4
Approach		214	3.6	225	3.6	0.120	1.6	NA	0.0	0.0	0.00	0.17	0.00	57.9
All Vehicles		520	4.0	547	4.0	0.152	1.2	NA	0.1	1.0	0.03	0.12	0.03	58.1

MOVEMENT SUMMARY

Site: 101 [Inglewood Road + Road 3 (Site Folder: General)]

PM Base 2036 + Proposal Network 2
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Inglewood Road														
5	T1	292	5.0	307	5.0	0.168	0.0	LOS A	0.1	0.4	0.02	0.01	0.02	59.8
6	R2	7	0.0	7	0.0	0.168	6.3	LOS A	0.1	0.4	0.02	0.01	0.02	53.3
Approach		299	4.9	315	4.9	0.168	0.2	NA	0.1	0.4	0.02	0.01	0.02	59.6
North: Road 3														
7	L2	4	0.0	4	0.0	0.006	5.2	LOS A	0.0	0.1	0.32	0.53	0.32	49.0
9	R2	2	0.0	2	0.0	0.006	6.8	LOS A	0.0	0.1	0.32	0.53	0.32	48.5
Approach		6	0.0	6	0.0	0.006	5.8	LOS A	0.0	0.1	0.32	0.53	0.32	48.8
West: Inglewood Road														
10	L2	4	0.0	4	0.0	0.119	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.2
11	T1	210	5.0	221	5.0	0.119	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach		214	4.9	225	4.9	0.119	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles		519	4.8	546	4.8	0.168	0.2	NA	0.1	0.4	0.02	0.02	0.02	59.5