PROPOSED SUBDIVISION

88-90 MELALEUCA STREET, BURONGA

TRAFFIC IMPACT ASSESSMENT REPORT

SALT³

PROPOSED SUBDIVISION – 88-90 MELALEUCA STREET, BURONGA
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F01	Claudia Goodliffe	Project Traffic Engineer	29 May 2025	Tony Togany	Senior Associate	29 May 2025	Tony Togany	Senior Associate	29 May 2025

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1   INTRODUCTION

SALT has been engaged by MH2 to undertake a traffic engineering assessment of the proposed residential subdivision to be located at 88–90 Melaleuca Street in Buronga.

In the course of preparing this report:

- The subdivision plans and background material have been reviewed;
- SIDRA intersection modelling has been conducted; and
- The traffic implications of the proposal have been assessed.

The following sets out SALT's findings with respect to the traffic engineering matters of the subdivision

2   EXISTING CONDITIONS
2.1   LOCATION AND LAND USE

The subject site is situated on the north-eastern corner of Melaleuca Street and Pitman Avenue in Buronga. The site is currently occupied by farming land and associated building toward the Melaleuca Street frontage. Surrounding land is a mix of farming land, residential and undeveloped land.

Figure 1 depicts the location of the site with respect to surrounding land uses and road network. An aerial view of the site is provided in Figure 2.
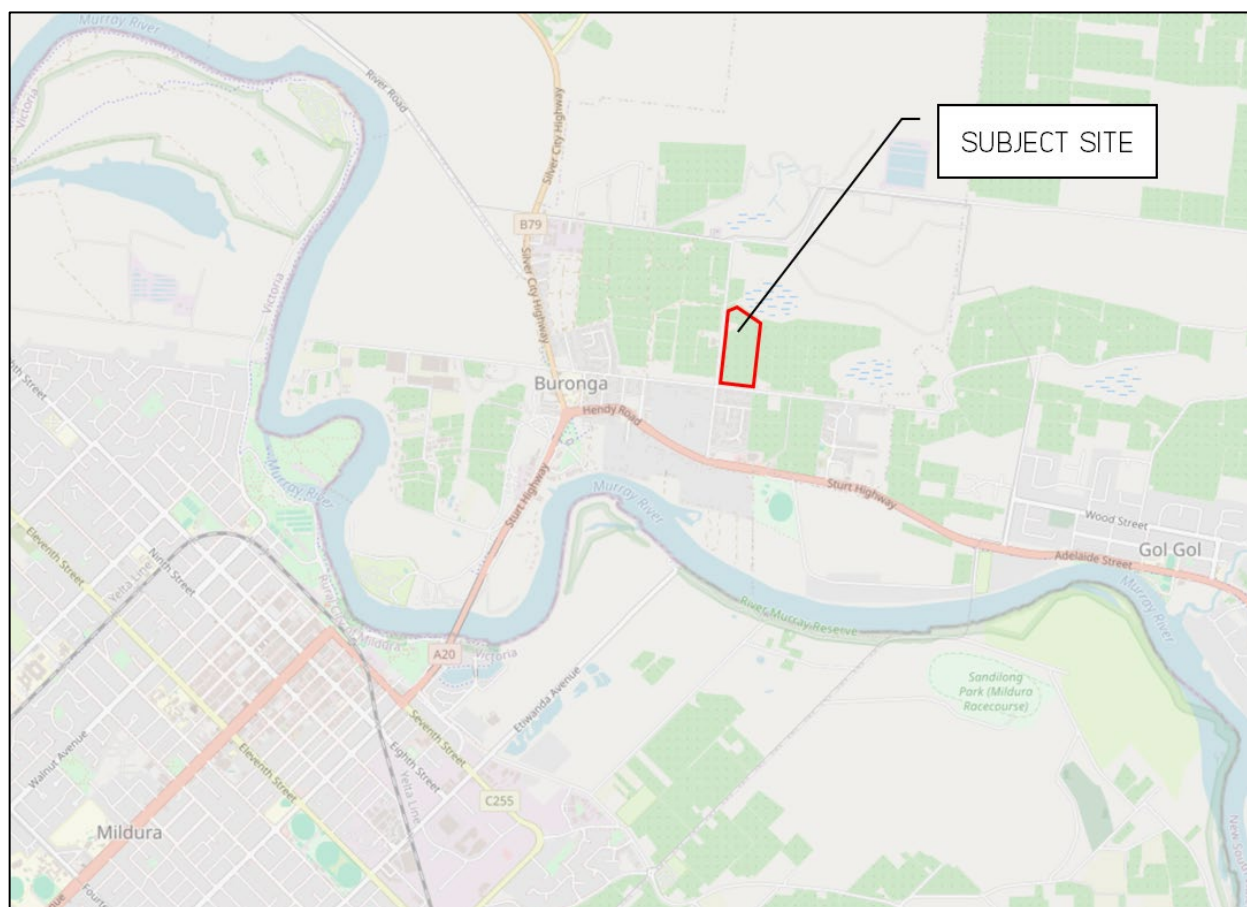
Figure 1   Subject site locality

TRAFFIC ENGINEERS / TRANSPORT PLANNERS / WASTE EXPERTS / ENVIRONMENTAL CONSULTANTS

Figure 2   Aerial view of site

2.2   ZONING

The subject site is located within Wentworth Shire. It is currently zoned as RU4 – Primary Production Small Lots. The local land use zoning map is provided in Figure 3.
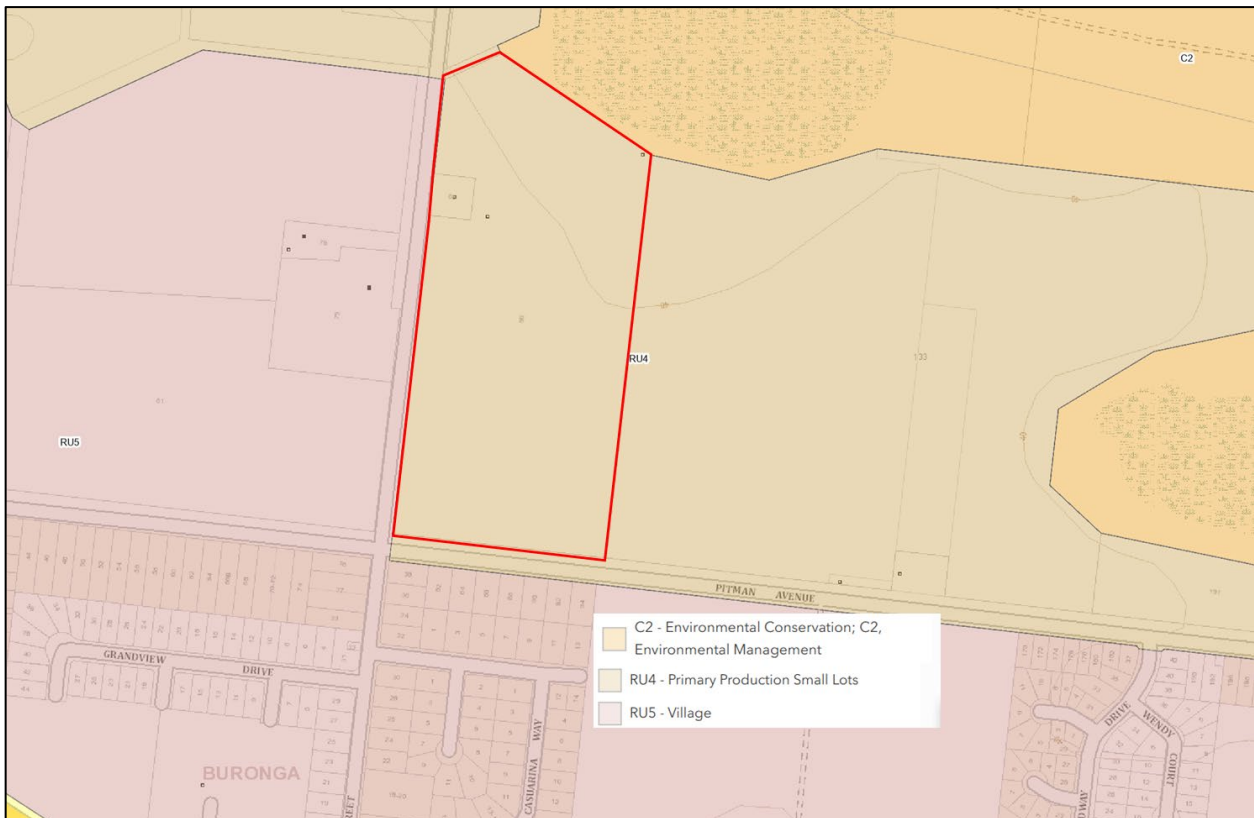
Figure 3   Local zoning map

2.3   ROAD NETWORK
2.3.1   MELALEUCA STREET

Melaleuca Street is a local street under the jurisdiction of Wentworth Shire. It extends in a general north–south alignment along the western boundary of the site. The carriageway features a single traffic lane in each direction.

2.3.2   PITMAN AVENUE

Pitman Avenue is a collector road under the jurisdiction of Wentworth Shire. It extends in a general east–west alignment along the southern boundary of the site. The carriageway features a single traffic lane in each direction.

2.4   CRASH STATISTICS

TfNSW crash statistics database indicates that there have been no recorded crashes along the site's frontages on Melaleuca Street or Pitman Avenue, nor in a 500m radius of the site during the last five years of available data.

3 PROPOSAL

It is proposed to construct a residential subdivision with a total of 87 lots on the site.

Vehicular access is proposed via two (2) road connections to Melaleuca Street toward the north and south of the site. These are to connect to an internal road network providing vehicular access to each lot. Lots 01–11 fronting Pitman Avenue are to be accessed directly from Pitman Avenue.

The subdivision plans assessed by this report are provided in APPENDIX 1.

4 TRAFFIC CONSIDERATIONS
4.1 EXISTING TRAFFIC VOLUMES

SALT has sourced available traffic volume data from the Traffic Impact Assessment report prepared by TrafficWorks for the DA of the residential subdivision at the adjacent site at 61 Pitman Avenue, Buronga (report dated 12/07/2022).

As part of their assessment, TrafficWorks collected traffic volume data at various intersections including Melaleuca Street / Pitman Avenue. The surveys were undertaken on Wednesday 1 June 2022. The peak hours occurred between 8:00am–9:00am and 4:30pm–5:30pm.

Since the data was collected three years ago, for the purpose of this assessment the traffic volumes have been scaled up. A conservative annual compounding growth of 2% has been applied to all legs of the intersection to estimate the current-day volumes at the intersection.

The existing peak hour traffic volumes at the intersection of Melaleuca Street / Pitman Avenue are therefore presented in Figure 4.
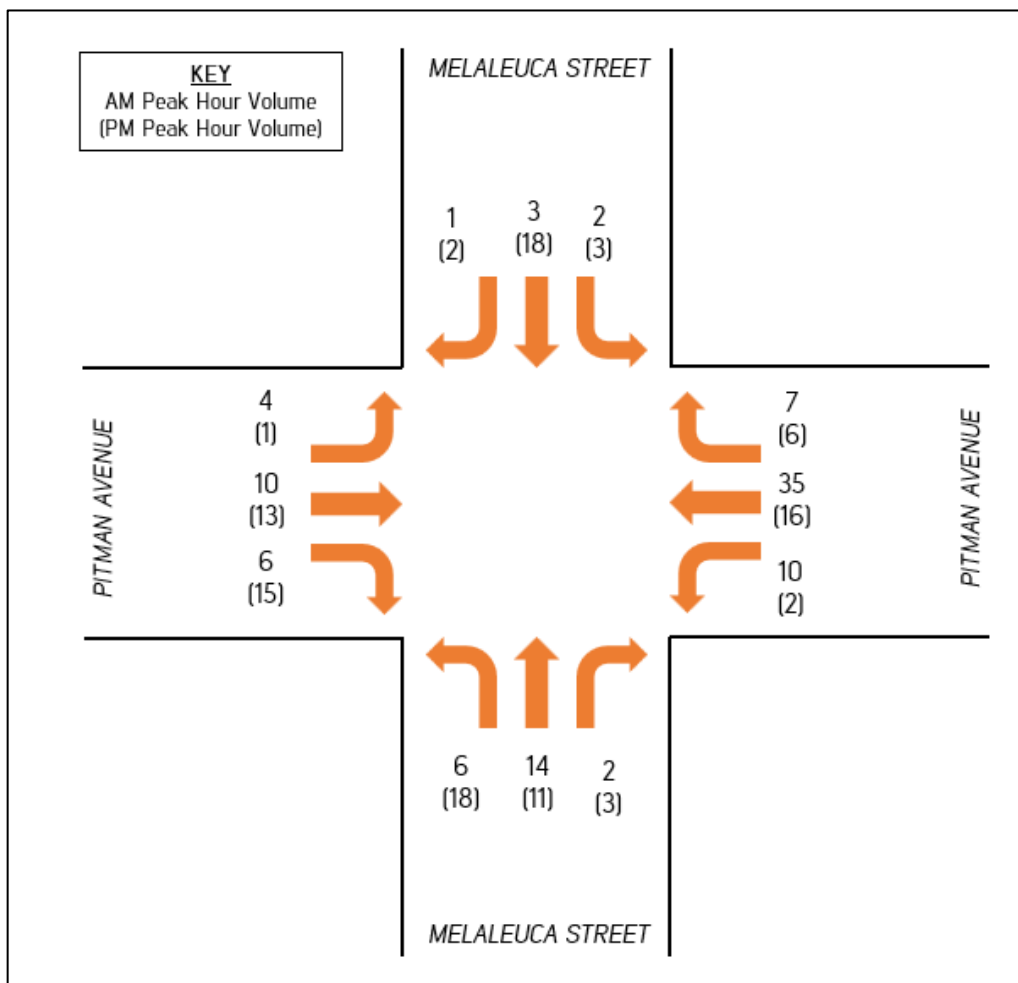
Figure 4   Existing traffic volumes (2025)

4.2 TRAFFIC GENERATION

The TfNSW Guide to Transport Impact Assessment (2024) provides a consolidated source of traffic generation rates based on surveys undertaken at similar established sites.

The traffic generation rates applicable to low-density residential dwellings in a regional location, are summarised in Table 1.

Table 1   Traffic generation

Time Period	No. of Lots	Traffic Generation Rate	Traffic Generated
AM peak hour		0.83 vehicle trips per dwelling	72 trips
PM peak hour	87 lots	0.84 vehicle trips per dwelling	73 trips
Daily		7.53 vehicle trips per dwelling	655 trips

The following inbound / outbound splits are typical for residential developments:

- AM peak hour: 20% inbound / 80% outbound
- PM peak hour: 60% inbound / 40% outbound

Applying these splits to the traffic generation in Table 1 results in the following traffic generation expected:

- AM peak hour: 14 vehicles in / 58 vehicles out
- PM peak hour: 44 vehicles in / 29 vehicles out

4.3 TRAFFIC DISTRIBUTION

The distribution of traffic can be estimated based on the layout of the surrounding road network and locations of nearby employment precincts.

In this case, approximately 10% of the trips will occur to/from residences fronting Pitman Avenue directly. The remaining 90% are assumed to be evenly split between the two points of access on Melaleuca Street.

Beyond the site, it is conservatively assumed that all vehicles will be distributed to/from the adjacent intersection of Melaleuca Street / Pitman Avenue, majority of which will travel west on Pitman Avenue towards Mildura with the remaining vehicles heading south to Sturt Highway. A small percentage are assumed to travel east on Pitman Avenue.

The resulting estimated traffic distribution is presented in Figure 5 and Figure 6 for the entering and exiting vehicles respectively.

KEY
Vehicle access via Melaleuca Street
Vehicles with direct access to Pitman Avenue

6
(20)

7
(20)

8
(27)

1
(2)

1
(4)

1
(2)

0
(2)

4
(11)
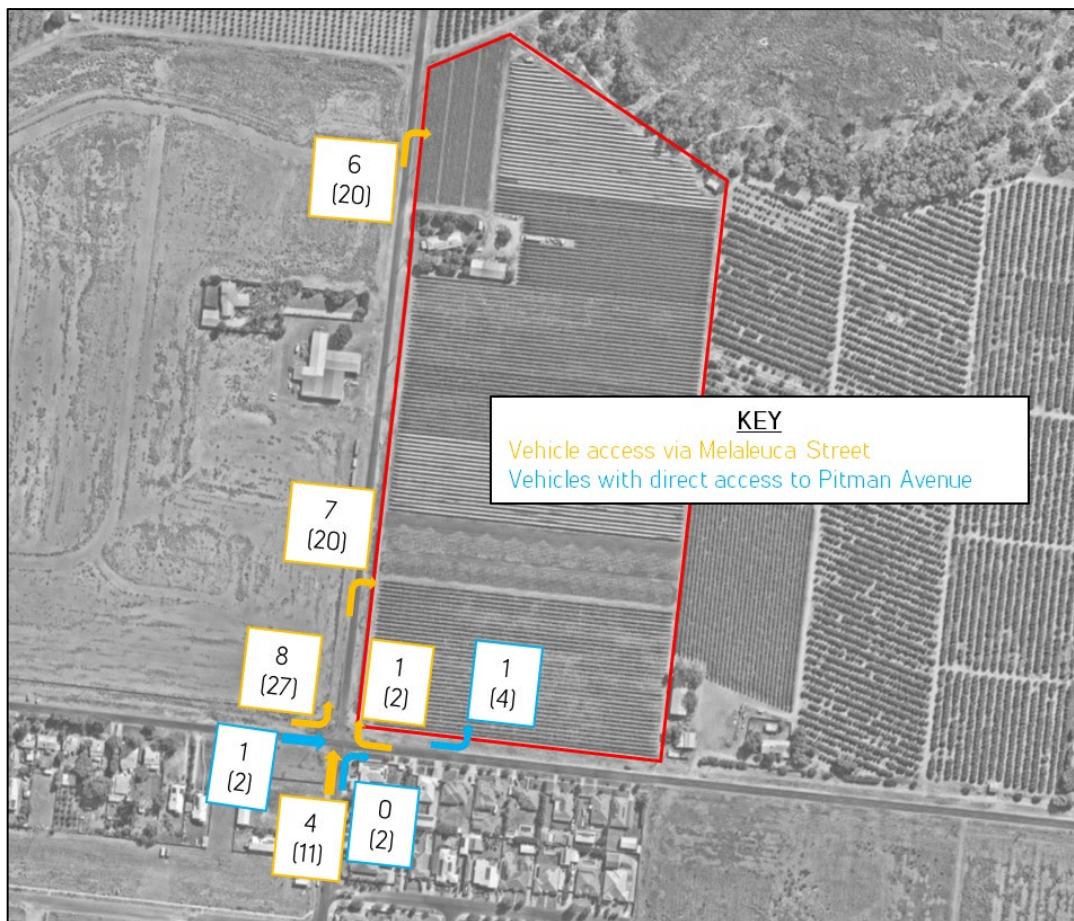
Figure 5   AM (PM) Distribution of entering vehicles

KEY
Vehicle access via Melaleuca Street
Vehicles with direct access to Pitman Avenue

26
(13)

26
(13)

14
(7)

3
(2)

6
(3)

35
(17)

3
(2)

3
(1)
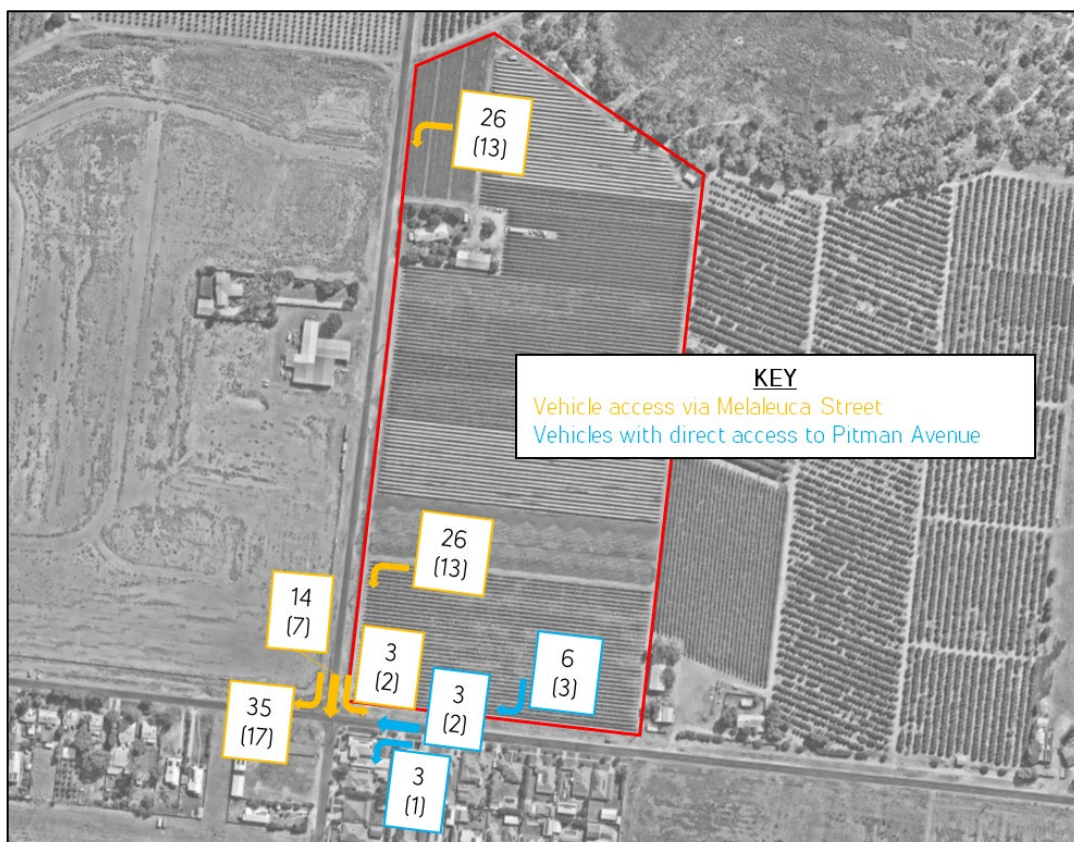
Figure 6   AM (PM) Distribution of exiting vehicles

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4.4 POST-DEVELOPMENT TRAFFIC VOLUMES

In addition to the traffic generated by the proposed subdivision, the post-development conditions are assumed to also include the traffic generated by the adjacent residential subdivision assessed by the TrafficWorks report. By review of the TrafficWorks TIA, it can be concluded that the adjacent subdivision is expected to generate traffic at Melaleuca Street / Pitman Avenue as presented in Figure 7.
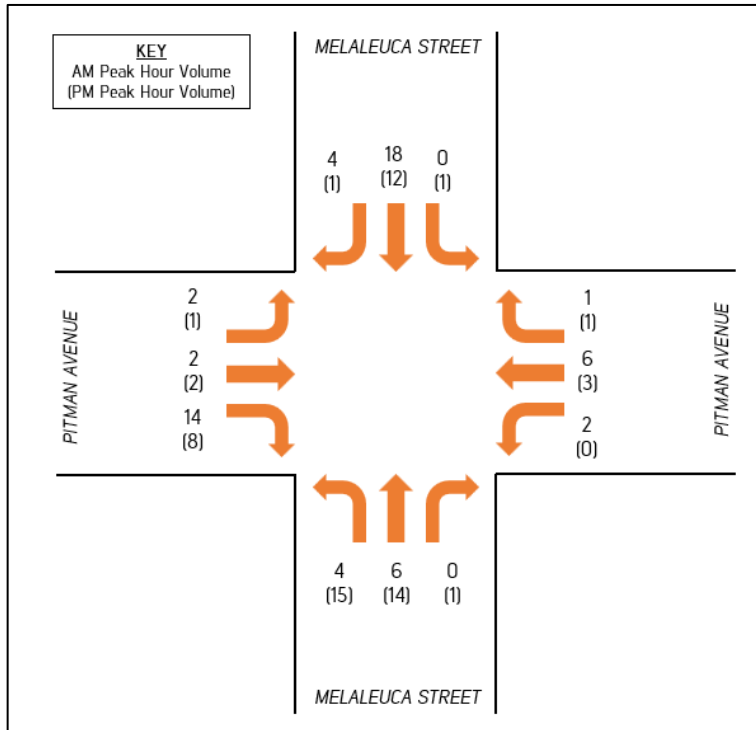
Figure 7   Adjacent development traffic generation

Therefore, the post-development traffic volumes at the adjacent intersection of Melaleuca Street / Pitman Avenue are presented in Figure 8, calculated as the sum of existing traffic volumes (Figure 4), traffic generated by the proposal (Figure 5 and Figure 6) and traffic generated by the adjacent development (Figure 7).
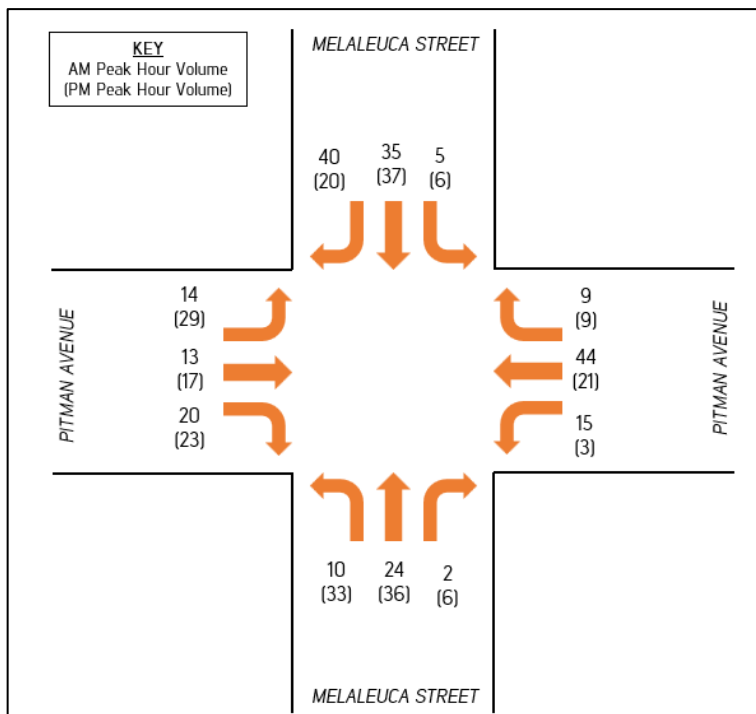
Figure 8   Post-development intersection traffic volumes

In the long–term, traffic volumes are likely to increase as development occurs in the vicinity of the site. Conservatively, a compounding traffic volume of 2% is applied to the existing traffic volumes at Melaleuca Street / Pitman Avenue (from Figure 4) over a 10–year period. Adding the proposed development traffic and adjacent development traffic, results in the estimated long–term (10–year) traffic volumes as presented in Figure 9.
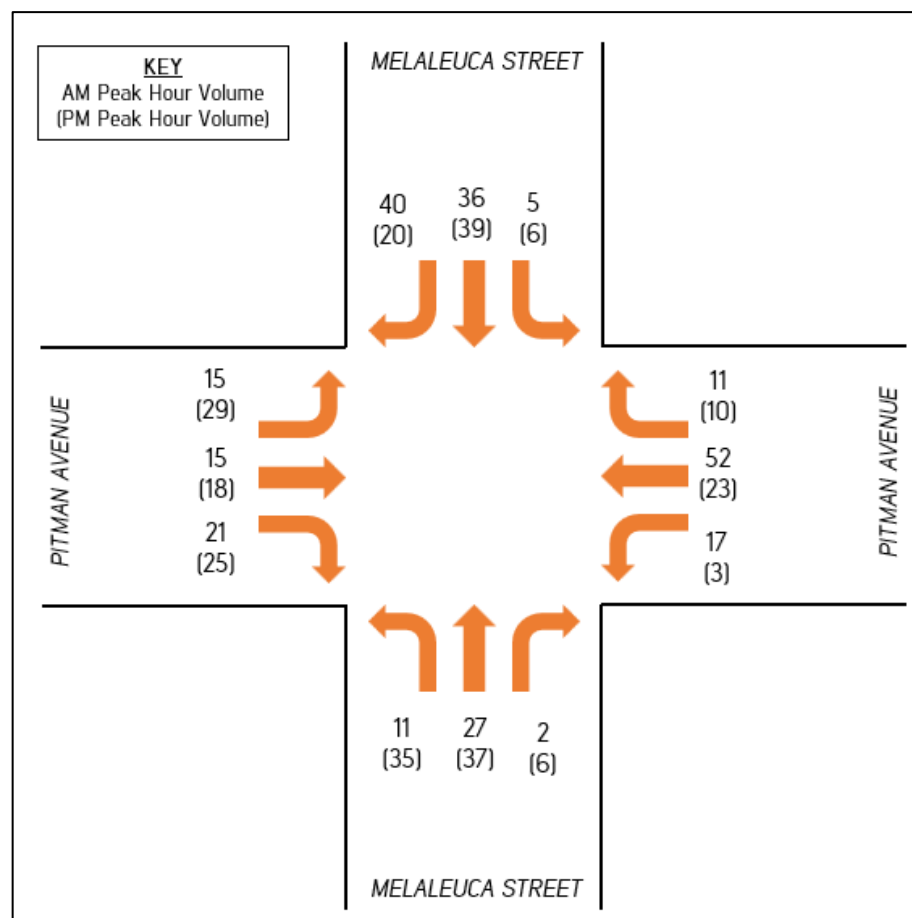
Figure 9   Long–term post–development intersection traffic volumes

4.5   SIDRA ANALYSIS

The operation of the adjacent intersection of Pitman Avenue and Melaleuca Street can be assessed using SIDRA Intersection v10. SIDRA is an advanced micro–analytical traffic evaluation tool that provides estimates of capacity and performance statistics (delay, queue lengths etc) on a lane–by–lane basis.

The operation of the intersection is modelled for the weekday AM and PM peak hours, under existing, post–development and the long–term (10–year) conditions.

Key performance criteria include:

Degree of Saturation (DOS):	This represents the ratio of traffic volume to capacity. Generally speaking, a DOS of below 0.9 indicates acceptable performance. A DOS of over 1.0 indicates that capacity has been exceeded.
Level of Service (LOS):	An index of the operational performance of traffic based on service measures such as delay, degree of saturation, density and speed during a given flow period. A guide to LOS ratings is provided in Table 2.
Average Delay:	The average delay time that can be expected for a given movement.
95th Percentile Queue:	The maximum queue length that can be expected in 95% of all observed queue lengths during the hour.

Table 2 Control delay for vehicle LoS calculations (RTA NSW Method)

Level of Service	Control delay per vehicle in seconds (d) (including geometric delay) All intersection types	Traffic Signals, Roundabout	Give Way and Stop Signs Good operation
A	d < 14	Good operation	Good operation
B	d < 15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	d < 29 to 42	Satisfactory	Satisfactory, but accident study required
D	d < 43 to 56	Operating near capacity	Near capacity & accident study required
E	d ≤ 57 to 70	At capacity, at signals, incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	d > 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

The default SIDRA settings have been adopted for the purpose of this assessment.

The key SIDRA outputs are summarised in Table 3 and Table 4 for the AM and PM peak hours respectively, with the detailed SIDRA outputs provided in APPENDIX 2.

Table 3 SIDRA results — AM peak hour

Leg	Existing Conditions				Post-Development Conditions				Long-Term Scenario			
	DOS	LOS	Delay (s)	95th %ile queue (m)	DOS	LOS	Delay (s)	95th %ile queue (m)	DOS	LOS	Delay (s)	95th %ile queue (m)
Melaleuca Street (south)	0.018	A	4.8	0.4	0.030	A	4.9	0.8	0.034	A	5.0	0.9
Pitman Avenue (east)	0.029	A	1.8	0.4	0.038	A	1.0	0.5	0.045	A	1.9	0.6
Melaleuca Street (north)	0.005	A	5.0	0.1	0.077	A	5.4	1.9	0.079	A	5.5	2.0
Pitman Avenue (west)	0.011	A	2.8	03	0.027	A	4.1	0.8	0.030	A	4.0	0.9

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Table 4 SIDRA results — PM peak hour

Leg	Existing Conditions				Post-Development Conditions				Long-Term Scenario			
	DOS	LOS	Delay (s)	95th %ile queue (m)	DOS	LOS	Delay (s)	95th %ile queue (m)	DOS	LOS	Delay (s)	95th %ile queue (m)
Melaleuca Street (south)	0.024	A	5.2	0.6	0.059	A	5.1	1.6	0.062	A	5.1	1.6
Pitman Avenue (east)	0.014	A	1.8	0.3	0.019	A	2.1	0.4	0.021	A	2.1	0.4
Melaleuca Street (north)	0.019	A	4.6	0.5	0.058	A	5.1	1.4	0.060	A	5.1	1.5
Pitman Avenue (west)	0.017	A	3.0	05	0.040	A	4.2	1.0	0.041	A	4.2	1.1

4.6 TRAFFIC IMPACTS

The level of traffic anticipated to be generated is low in traffic engineering terms. The addition of up to 26 vehicles entering or exiting the site via the access points during the peak hours, equates to one vehicle every 2–3 minutes on average.

Based on the preceding SIDRA results, it can be concluded that the intersection of Melaleuca Street / Pitman Avenue will operate well within satisfactory limits with the additional traffic of the proposal and in the long–term scenario.

Very minimal queueing and delays are expected for all movements at the intersection with all movements remaining at a LOS A (excellent), with DOS values well less than 1.0.

Therefore, it can be concluded that the level of traffic generated by the development can be adsorbed by the surrounding road network with no significant adverse impacts.

5 DESIGN CONSIDERATIONS
5.1 EXTERNAL VEHICLE ACCESS

Access to the subdivision will be via two T–intersections with the internal road network and Melaleuca Street. Considering the low level of traffic that is expected to be generated by the development, as well as the low levels of existing through traffic on Melaleuca Street, it is considered appropriate for these intersections to operate as standard T–intersections without the need for deceleration / turn lanes.

5.2 ROAD LAYOUT

The subdivision plans shown the internal road network to consist of internal road reserves of 23m wide. This is a generous width which will readily accommodate the required carriageway widths as well as footpaths on one or both sides of the carriageway.

The internal roads are expected to function as local access streets and carry low traffic volumes given the relatively low number of dwellings to which they provide access.

The intersections of internal roads are proposed in the form of T-intersections which is generally preferred (over cross-intersections) on safety and functionality grounds.

5.3 EMERGENCY AND SERVICE VEHICLE ACCESS

The proposed internal road network will provide generous road reserve widths, allowing sufficient space for carriageways to accommodate fire truck access. For reference, a minimum 4.5m carriageway width is required for a general fire appliance, or 6.0m for a specialist fire appliance. The internal road cross sections are to be designed to accommodate the required emergency and service vehicles.

5.4 SIGHT DISTANCES

Under the Austroads Guide to Road Design Part 4A, the minimum Safe Intersection Sight Distance (SISD) requirement for a 50km/hr design speed is 97m.

This is achieved at all intersections within the subdivision, with the critical sight lines toward the bends in the internal road network presented in Figure 10 and Figure 11.

Figure 10 Northern intersection sight distance

Figure 11 Southern intersection sight distance

6   CONCLUSIONS

Based on the considerations outlined in this report, it is concluded that:

- It is proposed to construct a residential subdivision of 87 lots;
- Vehicle access is proposed via two (2) connections to Melaleuca Street, as well as a portion of lots accessed directly from Pitman Avenue;
- The proposed road reserves provide adequate width to provide the required road carriageways and footpaths;
- Adequate sight distance is achieved at internal road intersections;
- The level of traffic anticipated to be generated by the development is low in traffic engineering terms and can be adequately accommodated by the surrounding road network; and
- SIDRA modelling of the adjacent intersection of Melaleuca Street / Pitman Avenue finds the intersection to operate under excellent conditions post-development and in the long-term scenario.

Having regard to the above, SALT is supportive of the development from a traffic engineering perspective.

APPENDIX 1   SUBDIVISION PLAN
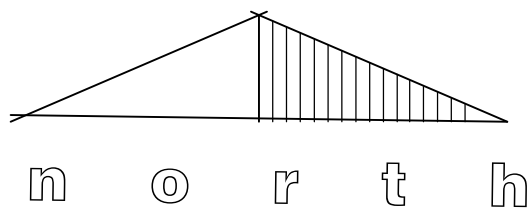
SALT³

north

CROWN LAND
DRAINAGE RESERVE

68.415m 66°00'50"

200.50m 124°34'20"

104.30m 7°16'40"

46.00m 97°16'40"

N.I.S

46.00m 277°16'40"

46.20m 187°16'40"

187°16'40"

99.59m 7°16'40"

M E L A L E U C A   S T R E E T

255.80m 7°16'40"

192.85m 187°09'10"

252.80m 187°09'10"

237.62m 277°09'10"

P I T M A N   A V E N U E

CROWN LAND
DRAINAGE RESERVE

68.415m 66°00'50"

200.50m 124°34'20"

PROPOSED STANDARD ROAD #1

PROPOSED STANDARD ROAD #1

104.30m 7°16'40"

46.00m 97°16'40"

18°16'40"

N.I.S

46.20m

46.00m 277°16'40"

99.59m 7°16'40"

192.85m 187°09'10"

PROPOSED STANDARD ROAD #1

PROPOSED STANDARD ROAD #1

MELALEUCA STREET

252.80m 7°16'40"

PROPOSED STANDARD ROAD #1

255.80m 187°09'10"

237.62m 277°09'10"

PITMAN AVENUE

north

DRG NO: MH2 2022-069
SHEET NO: 2 OF 3
PROJECT:
87 ALLOTMENT RESIDENTIAL SUBDIVISION
DRAWING:
PROPOSED SUBDIVISION PLAN
CLIENT:
90 MELALEUCA STREET PTY LTD
ADDRESS:
90 MELALEUCA STREET, BURONGA
SCALE: 1:1000   DATE: MAY '22
REVISION: A   SHEET SIZE: A1

PRELIMINARY ISSUE

A1

CROWN   LAND
DRAINAGE RESERVE

PROPOSED STANDARD ROAD #1

N.I.S

PROPOSED STANDARD ROAD #1

PROPOSED STANDARD ROAD #1

PROPOSED STANDARD ROAD #1

PROPOSED STANDARD ROAD #1

CROWN   LAND

MELALEUCA   STREET

ROSE   STREET

PITMAN   AVENUE

north

A1

APPENDIX 2 SIDRA RESULTS

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MOVEMENT SUMMARY

▽ **Site: [1] Pitman / Melaleuca - AM peak - Existing** (Folder1)
  Output produced by SIDRA INTERSECTION Version: 10.0.5.217

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total	HV]	Arrival Flows [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.	Dist]	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Melaleuca Street															
1	L2	All MCs	6	0.0	6	0.0	0.018	5.6	LOS A	0.1	0.4	0.13	0.52	0.13	53.2
2	T1	All MCs	15	0.0	15	0.0	0.018	4.4	LOS A	0.1	0.4	0.13	0.52	0.13	53.6
3	R2	All MCs	2	0.0	2	0.0	0.018	5.7	LOS A	0.1	0.4	0.13	0.52	0.13	52.9
Approach			23	0.0	23	0.0	0.018	4.8	LOS A	0.1	0.4	0.13	0.52	0.13	53.4
East: Pitman Avenue															
4	L2	All MCs	11	0.0	11	0.0	0.029	5.5	LOS A	0.1	0.4	0.02	0.19	0.02	55.8
5	T1	All MCs	37	2.0	37	2.0	0.029	0.0	LOS A	0.1	0.4	0.02	0.19	0.02	58.2
6	R2	All MCs	7	0.0	7	0.0	0.029	5.5	LOS A	0.1	0.4	0.02	0.19	0.02	55.5
Approach			55	1.3	55	1.3	0.029	1.8	NA	0.1	0.4	0.02	0.19	0.02	57.3
North: Melaleuca Street															
7	L2	All MCs	2	0.0	2	0.0	0.005	5.6	LOS A	0.0	0.1	0.08	0.53	0.08	53.2
8	T1	All MCs	3	0.0	3	0.0	0.005	4.4	LOS A	0.0	0.1	0.08	0.53	0.08	53.6
9	R2	All MCs	1	0.0	1	0.0	0.005	5.8	LOS A	0.0	0.1	0.08	0.53	0.08	52.9
Approach			6	0.0	6	0.0	0.005	5.0	LOS A	0.0	0.1	0.08	0.53	0.08	53.4
West: Pitman Avenue															
10	L2	All MCs	4	0.0	4	0.0	0.011	5.6	LOS A	0.0	0.3	0.09	0.30	0.09	54.8
11	T1	All MCs	11	2.0	11	2.0	0.011	0.1	LOS A	0.0	0.3	0.09	0.30	0.09	57.0
12	R2	All MCs	6	0.0	6	0.0	0.011	5.6	LOS A	0.0	0.3	0.09	0.30	0.09	54.5
Approach			21	1.0	21	1.0	0.011	2.8	NA	0.0	0.3	0.09	0.30	0.09	55.8
All Vehicles			105	0.9	105	0.9	0.029	2.9	NA	0.1	0.4	0.07	0.31	0.07	55.9

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

SALT³

MOVEMENT SUMMARY

▽ **Site: [1 (2)] Pitman / Melaleuca - AM peak - Post development** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total	HV]	Arrival Flows [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.	Dist]	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Melaleuca Street
1	L2	All MCs	11	0.0	11	0.0	0.030	5.7	LOS A	0.1	0.8	0.17	0.52	0.17	53.1
2	T1	All MCs	25	0.0	25	0.0	0.030	4.5	LOS A	0.1	0.8	0.17	0.52	0.17	53.5
3	R2	All MCs	2	0.0	2	0.0	0.030	6.1	LOS A	0.1	0.8	0.17	0.52	0.17	52.8
Approach			38	0.0	38	0.0	0.030	4.9	LOS A	0.1	0.8	0.17	0.52	0.17	53.4
East: Pitman Avenue
4	L2	All MCs	16	0.0	16	0.0	0.038	5.6	LOS A	0.1	0.5	0.04	0.21	0.04	55.6
5	T1	All MCs	46	2.0	46	2.0	0.038	0.0	LOS A	0.1	0.5	0.04	0.21	0.04	58.0
6	R2	All MCs	9	0.0	9	0.0	0.038	5.5	LOS A	0.1	0.5	0.04	0.21	0.04	55.3
Approach			72	1.3	72	1.3	0.038	2.0	NA	0.1	0.5	0.04	0.21	0.04	57.1
North: Melaleuca Street
7	L2	All MCs	5	0.0	5	0.0	0.077	5.6	LOS A	0.3	1.9	0.18	0.54	0.18	52.9
8	T1	All MCs	37	0.0	37	0.0	0.077	4.6	LOS A	0.3	1.9	0.18	0.54	0.18	53.3
9	R2	All MCs	42	0.0	42	0.0	0.077	6.1	LOS A	0.3	1.9	0.18	0.54	0.18	52.6
Approach			84	0.0	84	0.0	0.077	5.4	LOS A	0.3	1.9	0.18	0.54	0.18	52.9
West: Pitman Avenue
10	L2	All MCs	15	0.0	15	0.0	0.027	5.7	LOS A	0.1	0.8	0.13	0.41	0.13	53.7
11	T1	All MCs	14	2.0	14	2.0	0.027	0.1	LOS A	0.1	0.8	0.13	0.41	0.13	55.9
12	R2	All MCs	21	0.0	21	0.0	0.027	5.6	LOS A	0.1	0.8	0.13	0.41	0.13	53.4
Approach			49	0.6	49	0.6	0.027	4.1	NA	0.1	0.8	0.13	0.41	0.13	54.1
All Vehicles			243	0.5	243	0.5	0.077	4.0	NA	0.3	1.9	0.13	0.42	0.13	54.4

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

SALT³

MOVEMENT SUMMARY

▽ **Site: [1 (3)] Pitman / Melaleuca - AM peak - Long term** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total	HV]	Arrival Flows [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.	Dist]	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Melaleuca Street															
1	L2	All MCs	12	0.0	12	0.0	0.034	5.7	LOS A	0.1	0.9	0.19	0.52	0.19	53.1
2	T1	All MCs	28	0.0	28	0.0	0.034	4.6	LOS A	0.1	0.9	0.19	0.52	0.19	53.5
3	R2	All MCs	2	0.0	2	0.0	0.034	6.2	LOS A	0.1	0.9	0.19	0.52	0.19	52.8
Approach			42	0.0	42	0.0	0.034	5.0	LOS A	0.1	0.9	0.19	0.52	0.19	53.3
East: Pitman Avenue															
4	L2	All MCs	18	0.0	18	0.0	0.045	5.6	LOS A	0.1	0.6	0.04	0.21	0.04	55.6
5	T1	All MCs	55	2.0	55	2.0	0.045	0.0	LOS A	0.1	0.6	0.04	0.21	0.04	58.0
6	R2	All MCs	12	0.0	12	0.0	0.045	5.5	LOS A	0.1	0.6	0.04	0.21	0.04	55.3
Approach			84	1.3	84	1.3	0.045	1.9	NA	0.1	0.6	0.04	0.21	0.04	57.1
North: Melaleuca Street															
7	L2	All MCs	5	0.0	5	0.0	0.079	5.6	LOS A	0.3	2.0	0.20	0.55	0.20	52.8
8	T1	All MCs	38	0.0	38	0.0	0.079	4.6	LOS A	0.3	2.0	0.20	0.55	0.20	53.3
9	R2	All MCs	42	0.0	42	0.0	0.079	6.2	LOS A	0.3	2.0	0.20	0.55	0.20	52.6
Approach			85	0.0	85	0.0	0.079	5.5	LOS A	0.3	2.0	0.20	0.55	0.20	52.9
West: Pitman Avenue															
10	L2	All MCs	16	0.0	16	0.0	0.030	5.7	LOS A	0.1	0.9	0.14	0.41	0.14	53.7
11	T1	All MCs	16	2.0	16	2.0	0.030	0.2	LOS A	0.1	0.9	0.14	0.41	0.14	55.9
12	R2	All MCs	22	0.0	22	0.0	0.030	5.6	LOS A	0.1	0.9	0.14	0.41	0.14	53.4
Approach			54	0.6	54	0.6	0.030	4.0	NA	0.1	0.9	0.14	0.41	0.14	54.2
All Vehicles			265	0.5	265	0.5	0.079	4.0	NA	0.3	2.0	0.13	0.41	0.13	54.5

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

SALT³

MOVEMENT SUMMARY

▽ **Site: [1 (4)] Pitman / Melaleuca - PM peak - Existing** (Folder1)
  Output produced by SIDRA INTERSECTION Version: 10.0.5.217

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total	HV]	Arrival Flows [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.	Dist]	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Melaleuca Street															
1	L2	All MCs	19	0.0	19	0.0	0.024	5.6	LOS A	0.1	0.6	0.08	0.54	0.08	53.0
2	T1	All MCs	12	0.0	12	0.0	0.024	4.3	LOS A	0.1	0.6	0.08	0.54	0.08	53.4
3	R2	All MCs	3	0.0	3	0.0	0.024	5.8	LOS A	0.1	0.6	0.08	0.54	0.08	52.7
Approach			34	0.0	34	0.0	0.024	5.2	LOS A	0.1	0.6	0.08	0.54	0.08	53.1
East: Pitman Avenue															
4	L2	All MCs	2	0.0	2	0.0	0.014	5.6	LOS A	0.0	0.3	0.04	0.20	0.04	55.7
5	T1	All MCs	17	2.0	17	2.0	0.014	0.0	LOS A	0.0	0.3	0.04	0.20	0.04	58.1
6	R2	All MCs	6	0.0	6	0.0	0.014	5.5	LOS A	0.0	0.3	0.04	0.20	0.04	55.4
Approach			25	1.3	25	1.3	0.014	1.8	NA	0.0	0.3	0.04	0.20	0.04	57.2
North: Melaleuca Street															
7	L2	All MCs	3	0.0	3	0.0	0.019	5.6	LOS A	0.1	0.5	0.11	0.51	0.11	53.4
8	T1	All MCs	19	0.0	19	0.0	0.019	4.3	LOS A	0.1	0.5	0.11	0.51	0.11	53.8
9	R2	All MCs	2	0.0	2	0.0	0.019	5.8	LOS A	0.1	0.5	0.11	0.51	0.11	53.1
Approach			24	0.0	24	0.0	0.019	4.6	LOS A	0.1	0.5	0.11	0.51	0.11	53.7
West: Pitman Avenue															
10	L2	All MCs	1	0.0	1	0.0	0.017	5.6	LOS A	0.1	0.5	0.07	0.32	0.07	54.6
11	T1	All MCs	14	2.0	14	2.0	0.017	0.0	LOS A	0.1	0.5	0.07	0.32	0.07	56.9
12	R2	All MCs	16	0.0	16	0.0	0.017	5.5	LOS A	0.1	0.5	0.07	0.32	0.07	54.4
Approach			31	0.9	31	0.9	0.017	3.0	NA	0.1	0.5	0.07	0.32	0.07	55.5
All Vehicles			114	0.5	114	0.5	0.024	3.7	NA	0.1	0.6	0.07	0.40	0.07	54.7

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

SALT³

MOVEMENT SUMMARY

▽ **Site: [1 (5)] Pitman / Melaleuca - PM peak - Post development** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total	HV]	Arrival Flows [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.	Dist]	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Melaleuca Street															
1	L2	All MCs	35	0.0	35	0.0	0.059	5.6	LOS A	0.2	1.6	0.12	0.53	0.12	53.1
2	T1	All MCs	38	0.0	38	0.0	0.059	4.5	LOS A	0.2	1.6	0.12	0.53	0.12	53.5
3	R2	All MCs	6	0.0	6	0.0	0.059	6.0	LOS A	0.2	1.6	0.12	0.53	0.12	52.8
Approach			79	0.0	79	0.0	0.059	5.1	LOS A	0.2	1.6	0.12	0.53	0.12	53.2
East: Pitman Avenue															
4	L2	All MCs	3	0.0	3	0.0	0.019	5.7	LOS A	0.1	0.4	0.08	0.22	0.08	55.4
5	T1	All MCs	22	2.0	22	2.0	0.019	0.1	LOS A	0.1	0.4	0.08	0.22	0.08	57.8
6	R2	All MCs	9	0.0	9	0.0	0.019	5.6	LOS A	0.1	0.4	0.08	0.22	0.08	55.1
Approach			35	1.3	35	1.3	0.019	2.1	NA	0.1	0.4	0.08	0.22	0.08	56.8
North: Melaleuca Street															
7	L2	All MCs	6	0.0	6	0.0	0.058	5.6	LOS A	0.2	1.4	0.17	0.53	0.17	53.1
8	T1	All MCs	39	0.0	39	0.0	0.058	4.5	LOS A	0.2	1.4	0.17	0.53	0.17	53.5
9	R2	All MCs	21	0.0	21	0.0	0.058	6.2	LOS A	0.2	1.4	0.17	0.53	0.17	52.8
Approach			66	0.0	66	0.0	0.058	5.1	LOS A	0.2	1.4	0.17	0.53	0.17	53.2
West: Pitman Avenue															
10	L2	All MCs	31	0.0	31	0.0	0.040	5.6	LOS A	0.1	1.0	0.07	0.43	0.07	53.7
11	T1	All MCs	18	2.0	18	2.0	0.040	0.0	LOS A	0.1	1.0	0.07	0.43	0.07	55.9
12	R2	All MCs	24	0.0	24	0.0	0.040	5.5	LOS A	0.1	1.0	0.07	0.43	0.07	53.5
Approach			73	0.5	73	0.5	0.040	4.2	NA	0.1	1.0	0.07	0.43	0.07	54.2
All Vehicles			253	0.3	253	0.3	0.059	4.4	NA	0.2	1.6	0.11	0.46	0.11	54.0

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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MOVEMENT SUMMARY

▽ **Site: [1 (6)] Pitman / Melaleuca - PM peak - Long term** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total	HV]	Arrival Flows [Total	HV]	Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.	Dist]	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Melaleuca Street															
1	L2	All MCs	37	0.0	37	0.0	0.062	5.6	LOS A	0.2	1.6	0.12	0.53	0.12	53.0
2	T1	All MCs	39	0.0	39	0.0	0.062	4.6	LOS A	0.2	1.6	0.12	0.53	0.12	53.5
3	R2	All MCs	6	0.0	6	0.0	0.062	6.0	LOS A	0.2	1.6	0.12	0.53	0.12	52.8
Approach			82	0.0	82	0.0	0.062	5.1	LOS A	0.2	1.6	0.12	0.53	0.12	53.2
East: Pitman Avenue															
4	L2	All MCs	3	0.0	3	0.0	0.021	5.7	LOS A	0.1	0.4	0.08	0.22	0.08	55.4
5	T1	All MCs	24	2.0	24	2.0	0.021	0.1	LOS A	0.1	0.4	0.08	0.22	0.08	57.8
6	R2	All MCs	11	0.0	11	0.0	0.021	5.6	LOS A	0.1	0.4	0.08	0.22	0.08	55.1
Approach			38	1.3	38	1.3	0.021	2.1	NA	0.1	0.4	0.08	0.22	0.08	56.8
North: Melaleuca Street															
7	L2	All MCs	6	0.0	6	0.0	0.060	5.6	LOS A	0.2	1.5	0.17	0.53	0.17	53.0
8	T1	All MCs	41	0.0	41	0.0	0.060	4.5	LOS A	0.2	1.5	0.17	0.53	0.17	53.5
9	R2	All MCs	21	0.0	21	0.0	0.060	6.3	LOS A	0.2	1.5	0.17	0.53	0.17	52.8
Approach			68	0.0	68	0.0	0.060	5.1	LOS A	0.2	1.5	0.17	0.53	0.17	53.2
West: Pitman Avenue															
10	L2	All MCs	31	0.0	31	0.0	0.041	5.6	LOS A	0.2	1.1	0.07	0.43	0.07	53.7
11	T1	All MCs	19	2.0	19	2.0	0.041	0.0	LOS A	0.2	1.1	0.07	0.43	0.07	55.9
12	R2	All MCs	26	0.0	26	0.0	0.041	5.5	LOS A	0.2	1.1	0.07	0.43	0.07	53.5
Approach			76	0.5	76	0.5	0.041	4.2	NA	0.2	1.1	0.07	0.43	0.07	54.2
All Vehicles			264	0.3	264	0.3	0.062	4.4	NA	0.2	1.6	0.12	0.46	0.12	54.0

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

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

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

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

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

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

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

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

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

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MELBOURNE
Level 6, 350 Collins St Melbourne VIC 3000
T: +61 3 9020 4225
SYDNEY
Level 6, 201 Kent St Sydney NSW 2000
T: +61 2 9068 7995
HOBART
Level 5, 24 Davey St Hobart TAS 7000
T: +61 400 535 634
CANBERRA
Level 2, 28 Ainslie Pl Canberra ACT 2601
T: +61 2 9068 7995
ADELAIDE
Level 21, 25 Grenfell St Adelaide SA 5000
T: +61 8 8484 2331
DARWIN
Level 1 Suite 2A, 82 Smith St Darwin City NT 0800
T: +61 8 8484 2331
PERTH
Level 25, 108 St Georges Tce, Perth WA 6000
T: +61 8 6557 8888

www.salt3.com.au

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