

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2018/990

Date: 12 SEP 2019



Traffic Engineering Report

Residential Care Facility

At 17 Weinam St & 52 Hamilton St, Redland Bay

On behalf of Palm Lake Works Pty Ltd



About TTM

For 30 years, we've been at the centre of the Australian development and infrastructure industry. Our unique combination of acoustics, data, traffic and waste services is fundamental to the success of any architectural or development project.

We have over 50 staff, with an unrivalled depth of experience. Our industry knowledge, technical expertise and commercial insight allow us to deliver an exceptional and reliable service.

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Revision Record

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1.	K. Parsons	I. Blackburn	Draft	04/07/2018
2.	K. Parsons	I. Blackburn	DA Rev 1	20/08/2018
3.	K. Parsons	I. Blackburn	DA Rev 2	16/10/2018
4.				
5.				

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1 Introduction

1.1 Background

TTM Consulting has been engaged by Palm Lake Works Pty Ltd to prepare a traffic engineering report investigating a proposed residential care development located in Redland Bay. It is understood that a Development Application will be lodged with Redland City Council.

1.2 Scope

This report investigates the transport aspects associated with the proposed development. The scope of the transport aspects investigated includes:

- Parking supply required to cater for development demand;
- Parking layout to provide efficient and safe internal manoeuvring;
- Identification of likely traffic volumes and traffic distribution from the future development;
- Identification of likely traffic impact of development on the public road network;
- Access configuration to provide efficient and safe manoeuvring between the site and the public road network;
- Internal road layout to provide efficient and safe internal manoeuvring for service vehicles;
- Suitability of access and internal facilities to provide for pedestrian and cyclist operation, and;
- Access to suitable level of public transport.

To assess the proposed transport arrangements, the development plans have been assessed against the following guidelines and planning documents:

- Redland City Plan 2018 adopted on 8th of October, specifically:
 - Version 1.0 Part 9 – Development Codes – Section 9.3.5 – Transport, servicing, access and parking code
- Australian Standard 2890

1.3 Site Location

The site is located at 17 Weinam Street and 52 Hamilton Street, Redland Bay as shown in Figure 1.1. The property description is Lot 1 on SP169111 and Lot 2 on SP115173. The site has road frontages to Weinam Street, Hamilton Street and Pitt Street, and is currently occupied by a Palm Lakes Aged Care Development. Access is currently from Hamilton Street via two separate category 1 driveway crossovers. Currently parking and service vehicle provision for the site is provided onsite.

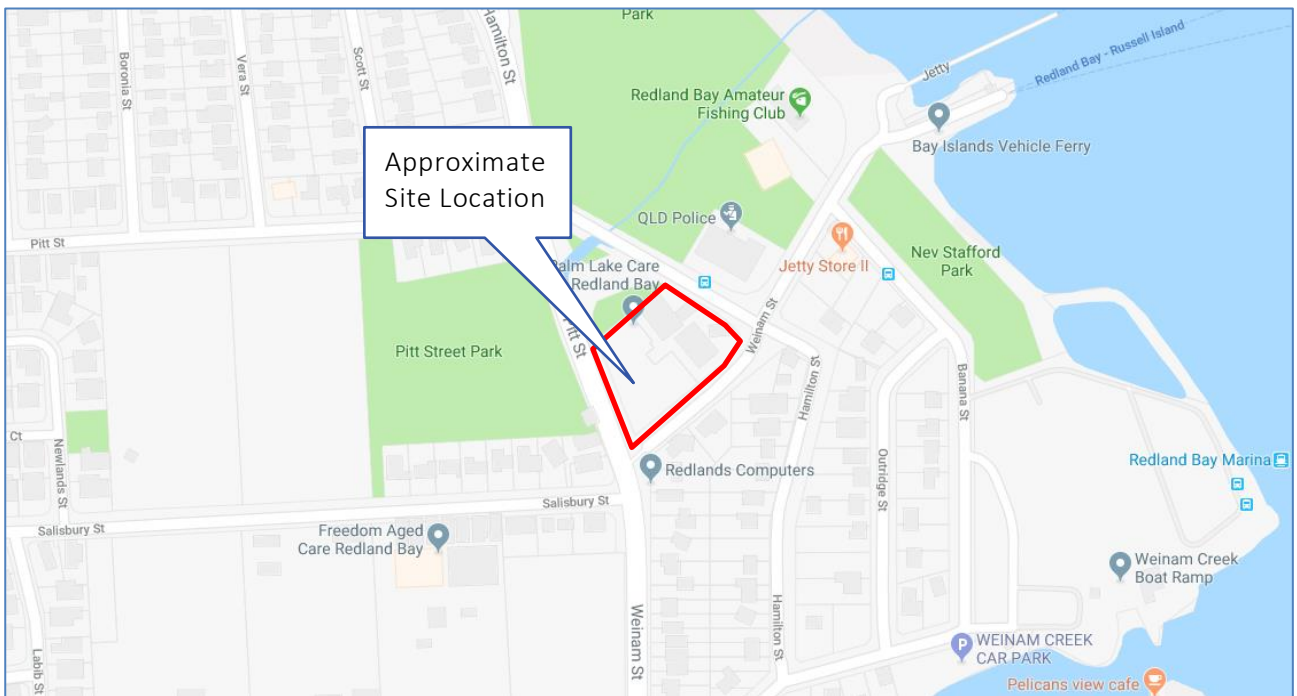


Figure 1.1: Site location



Figure 1.2: Site aerial

1.4 Development Profile

The development proposal is to construct a 5-storey high level aged care facility consisting of 188 rooms. The current development will be knocked down and re developed.

1.5 Access

The development plan includes the following access arrangements:

- Hamilton Street Access located at the Eastern side of the subject site. The characteristics of this access include:
 - Type 1 drive way access
 - 3.5m wide at the property boundary
 - Priority control
 - Access in only
- Hamilton Street Access located at the Western side of the subject site. The characteristics of this access include:
 - Type 1 drive way access
 - 3.5m wide at the property boundary
 - Priority control
 - Access out only
- Pitt Street Access located at the Western side of the subject site. The characteristics of this access include:
 - Modified Type 1 driveway access to cater for service vehicle movements
 - 6.5m wide at the property boundary
 - Priority control
 - Service only, Left in/left out only

1.6 Parking

The development proposal includes 69 spaces as follows:

- 30 staff spaces, which are located on-grade.
- 38 visitor spaces, including 2 PWD spaces which are located on-grade.
- 1 Bus/ Ambulance space, which is located on-grade.

2 Existing Transport Infrastructure

2.1 The Road Network

All roads in the immediate vicinity of the site are administered by Redland City Council. The hierarchy and characteristics of roads in the immediate vicinity of the site are shown below in Table 2.1.

Table 2.1: Local Road Hierarchy

Road	Speed Limit	Lanes	Classification	Road Authority
Weinam Street	50kph	2 (undivided)	Local Road	RCC
Hamilton Street	60kph	2 (undivided, plus parking)	Local Road	RCC
Pitt Street	60kph	2 (undivided)	Local Road	RCC

Hamilton Street has a 14m wide carriageway at the site frontage. The intersection of Hamilton Street and Weinam Street is a priority-controlled intersection.

2.2 Road Planning

TTM have reviewed the planning of the future road network in the vicinity of the subject site with the Redland City Council. Council have not specified other works in the vicinity of the site which will impact upon or be impacted by the proposed development.

2.3 Active Transport Facilities

Public Transport

Access to public transport from the site is good with bus stops located directly on the sites frontage of Hamilton Street. Additional stops are located approximately 170m to the north-east along Banana Street. The bus lines have services that include:

- 250 – Redland Bay, Victoria Pt, Cleveland, Capalaba, Carindale City – running every half hour
- 282 – Logan Hyperdome, Cornubia, Mt Cotton, Redland Bay - running hourly
- 280 – Redland Bay, Victoria Pt, Sheldon, Garden City, Griffith Uni – running hourly

Pedestrians & Cyclists

The nearest formal pedestrian footpaths are located on both sides of Hamilton Street and along the property boundary of Weinam Street.

Outlined in Redland City Councils Cycling and Walking Guide, shown in Figure 2.1, both on-road and off-road bikeways are provided within the surrounding vicinity of the development.

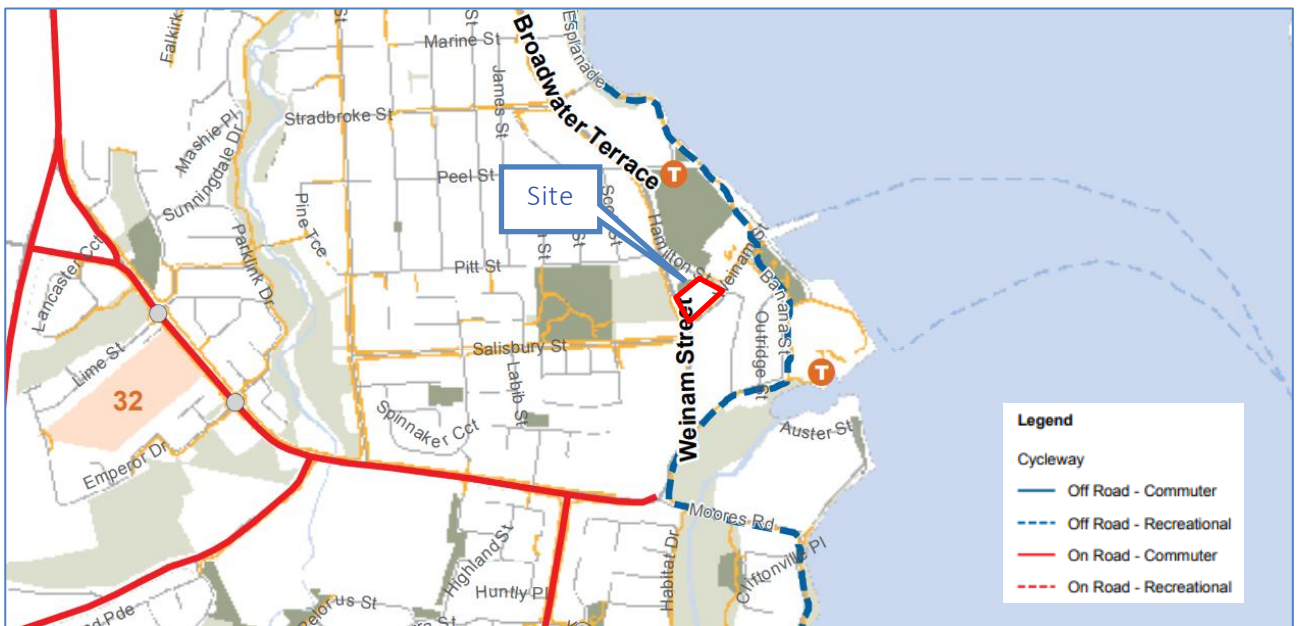


Figure 2.1: Cycle facilities

3 Car Parking Arrangements

3.1 Council Parking Supply Requirement

Council parking requirements for this type of development are identified in Table 3.1.

Table 3.1: Parking Supply Requirement

Land Use	Council Requirement	Extent	Requirement	Provision
1 Bedroom suites (dependent)				
– Visitor	1 space/ 10 beds	188 Beds	19	38
– Manager	1 space/ employee on duty	1 Manager + 29 employees	30	30
– Bus/Ambulance	1 space/ Bus/Ambulance standing area that does not impede other vehicle movements	1 bus/ ambulance	1	1
Total			50	69

3.2 Parking Provision

The proposed parking supply complies with Council requirements; therefore, TTM consider this area of the development adequate.

3.3 Car Park Layout

Table 3.2 identifies the characteristics of the proposed parking area with respect to the Council requirements. The last column identifies the compliance of each design aspect. Where compliance with Council is not achieved, further information is provided below.

Table 3.2: Parking Design Requirements

Design Aspect	Minimum Council Standard	Proposed Provision	Compliance
Parking space length:			
– Standard bay	5.4m	5.4m	Compliant
– Tandem bay	10.8m	10.8m	Compliant
Parking space width:			
– Staff	2.4m	2.4m (min)	Compliant
– Visitor	2.6m	2.6m	Compliant
– Tandem bay	2.4m	2.4m	Compliant
Aisle Width:			
– Parking aisle	6.2m	6.2m	Compliant
Parking envelope clearance – Column adjacent to bay	Located between 0.75m and 1.75m of aisle	Located 0.8m of aisle (All parking)	Complaint
Parking envelope clearance – space adjacent to wall	Space 0.3m clear of wall	Space 0.3m clear of wall	Compliant
Maximum Gradient:			
– PWD parking	1:40 (2.5%)	Flat	Compliant

Design Aspect	Minimum Council Standard	Proposed Provision	Compliance
– Parking bay	1:15 (6.7%)	Flat	Compliant
– Parking aisle	1:20 (5.0%)	Flat	Compliant
Height Clearance			
– General Min.	2.3m	3m	Compliant
– Over PWD bay	2.5m	3m	Compliant

The proposed parking arrangements comply with council requirements, therefore, TTM consider this layout to be adequate.

4 Existing Traffic Volumes

4.1 Peak Hour

TTM conducted an intersection movement survey at the Pitt Street and Hamilton Street intersection, from 7:00am to 9:00am and 4:00pm to 6:00pm on Tuesday 29th May 2018. The peak hours were found to be 7:45am to 8:45am and 4:00pm to 5:00pm. The results of the survey are shown below in Figure 4.1.

The survey results indicate that the AM / PM peak hour traffic volumes on Pitt Street adjacent to the subject site are in the order of 320vph / 420vph. Truck (i.e. non-car) content on Pitt Street was approximately 9% in the AM peak and 4% in the PM peak.

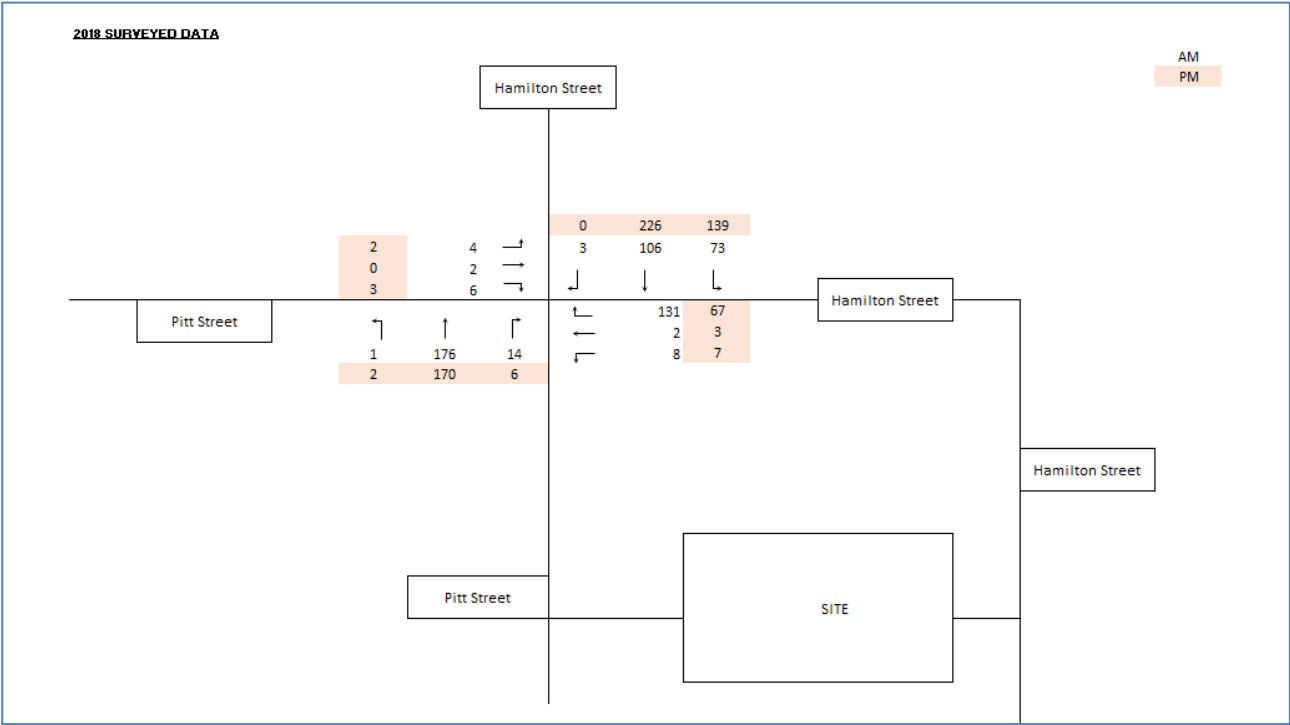


Figure 4.1: Existing (Surveyed) Peak Hour Traffic Volumes 2018

5 Estimated Future Transport Demands

5.1 Development Scenarios

For the purpose of assessing the future traffic demands TTM has adopted an annual growth rate of 2.0%. This is a conservative estimate based on the future population projections of approximately 1.0% within the Redland Bay area, as sourced from the Office of Economic and Statistical Research, Queensland Treasury and Trade.

TTM have highlighted three assessment periods for the road network as follows:

5.1.1 Current Traffic Scenario

This assessment period includes the 2018 traffic volumes modelled over the existing road network. This analysis has been conducted during both AM and PM peaks.

5.1.2 Opening Year (2020) Traffic Scenario

This assessment period includes a 2.0% per annum increase in the background traffic volume for a period of 2 years from the most recent survey (2018).

5.1.3 2030 Traffic Scenario

This scenario incorporates a 2.0% per annum increase in the background traffic volume for a period of 10 years past the opening year.

5.2 Estimated Development Traffic Generation

5.2.1 Proposed Development Traffic Volume

Residential trip generation has been based on RMS¹ advice for housing for seniors. This manual specifies a weekday peak rate of 0.4 vehicle trips per dwelling per hour must be adopted.

Application of these rates to the proposed development, results in the following estimate of development site traffic generation:

- Weekday peak hour traffic generation = 0.4vph/dwelling (188 units) = 76vph (in+out)

¹ Guide to Traffic Generating Developments Updated traffic surveys – TDT 2013/04a

5.3 Opening Day (2020) Base Traffic Demands

Figure 5.2 shows the opening day (2020) base traffic demands, based on an application of an annual growth rate of 2.0% for a period of 2 years (i.e. 2 years past the date of the traffic surveys) to the 2018 traffic survey volumes.

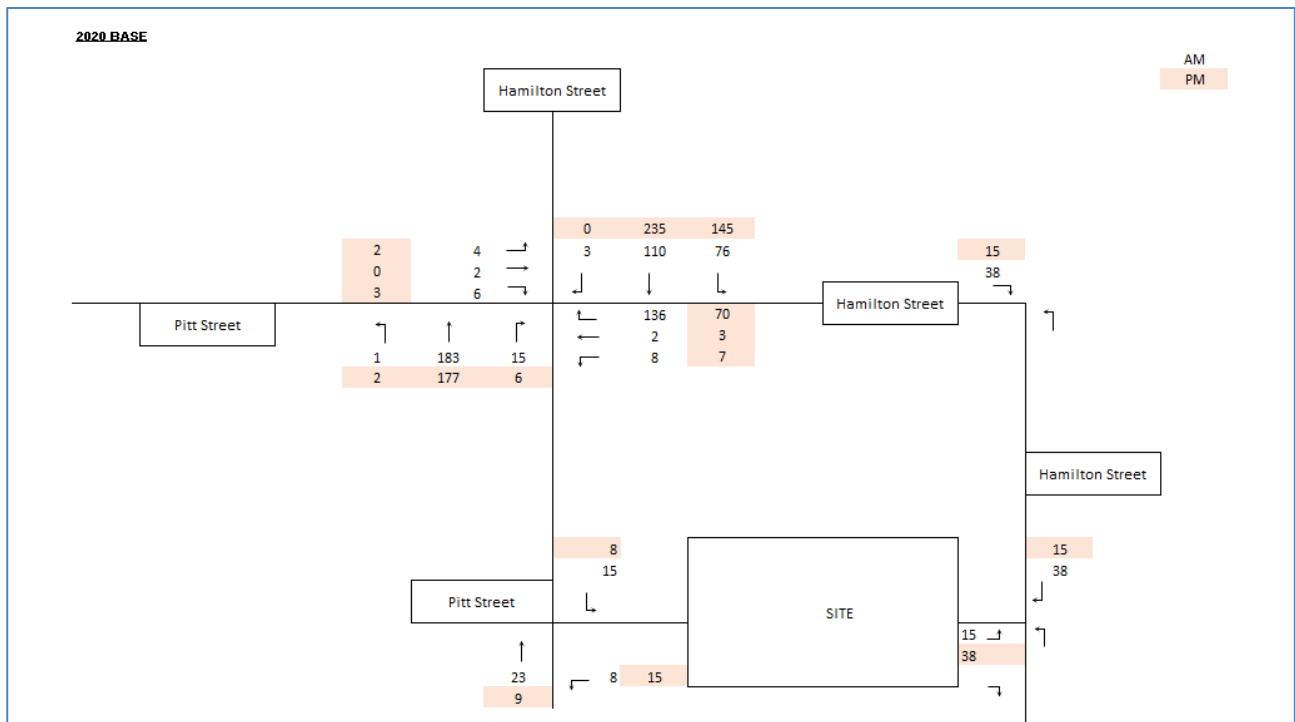


Figure 5.2: Estimated 2020 Peak Hour Traffic, Without Development (2.0%pa growth)

5.4 Opening Day (2020) Project Traffic Demands

The opening day project case scenario is obtained by the addition of development traffic generation shown in Figure 5.1 to the base traffic volumes shown in Figure 5.2. These expected traffic movements are shown in Figure 5.3.

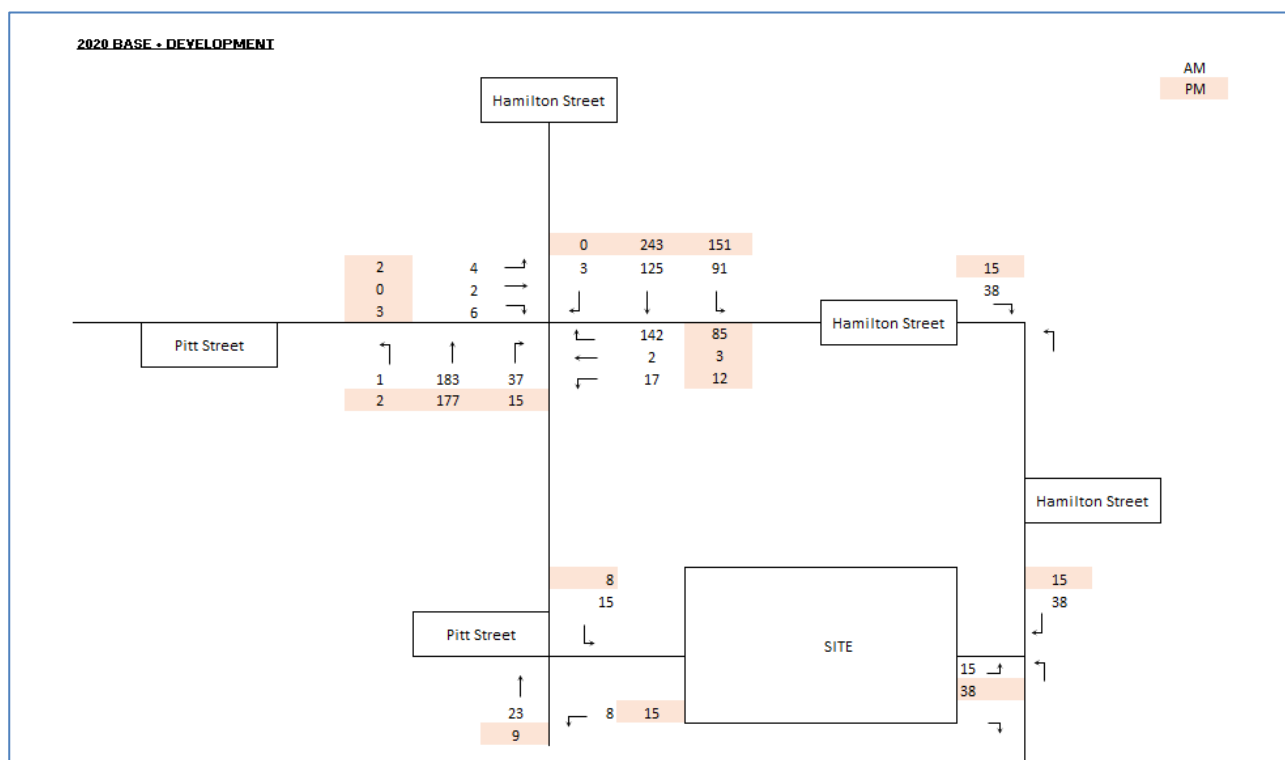
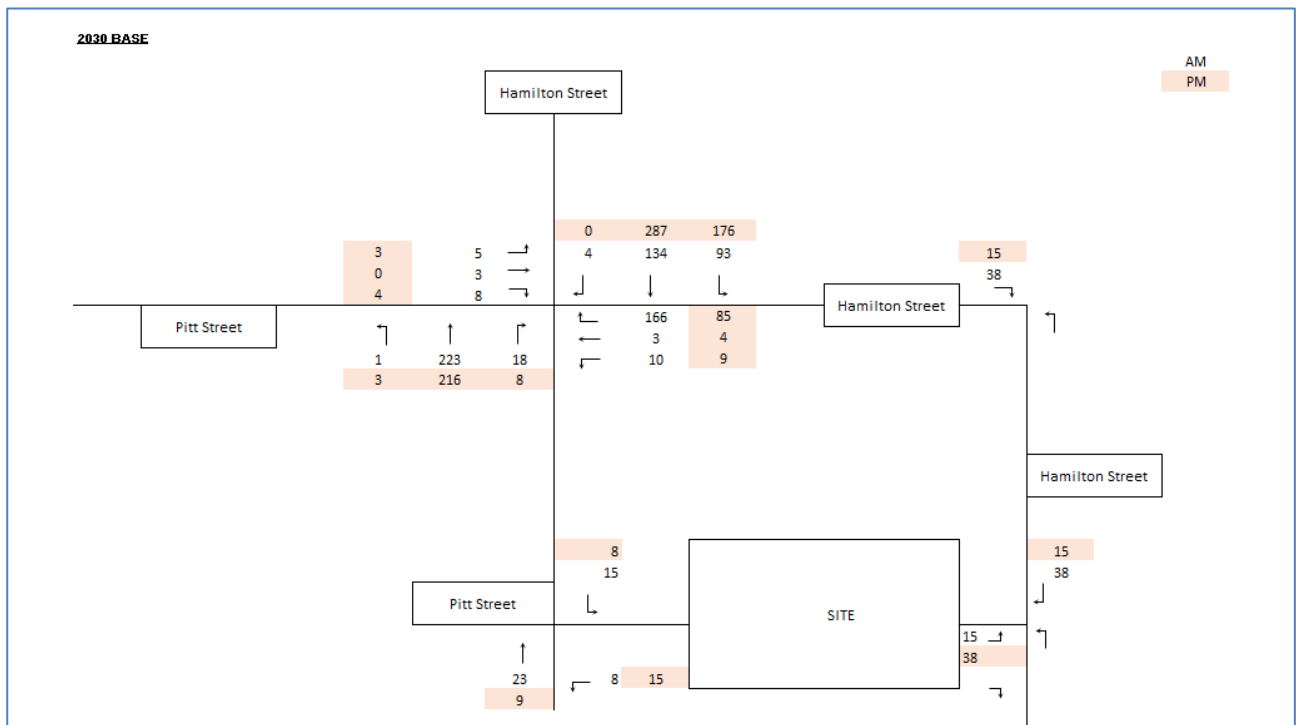


Figure 5.3: Estimated 2020 Peak Hour Traffic, With Development

5.5 Future (2030) Base Traffic Demands

Figure 5.4 shows the future (2030) base traffic demands, based on an application of an annual growth rate of 2.0% for a period of 12 years (i.e. 10 years past an assumed 2020 completion date of the project) to the 2018 traffic volumes.



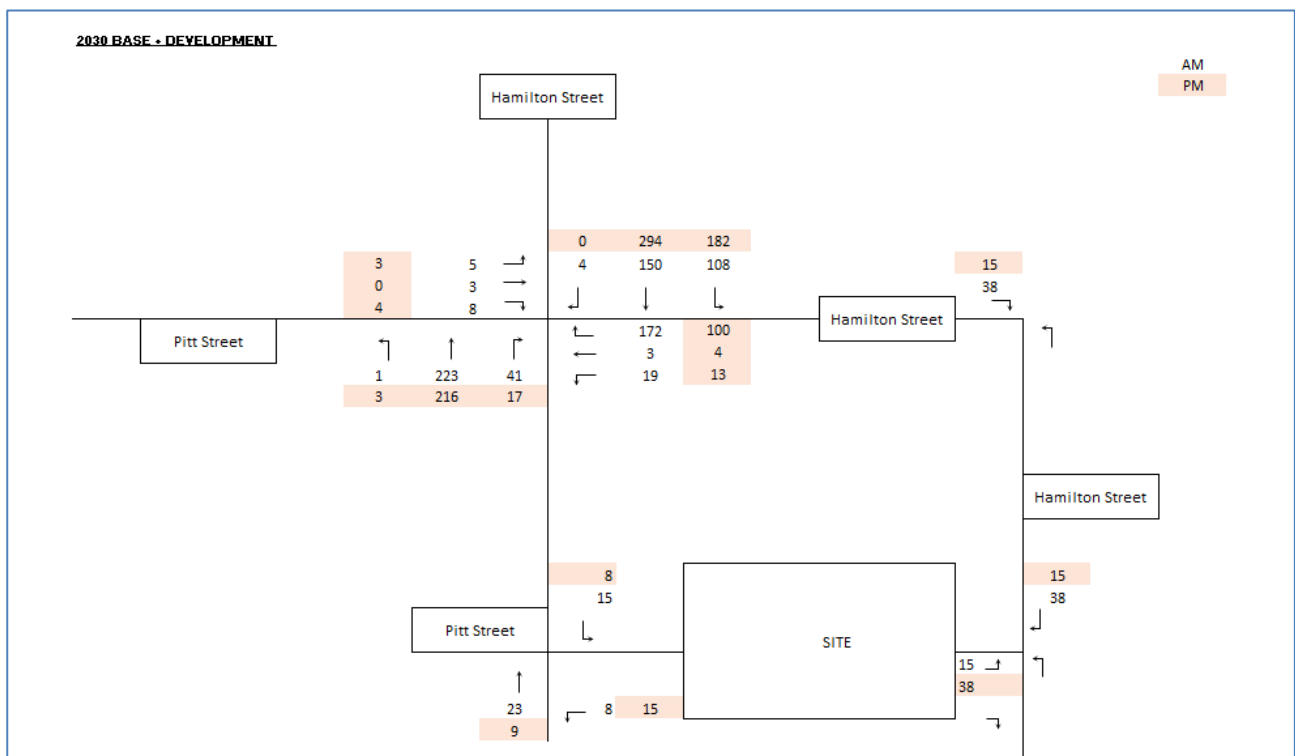


Figure 5.5: Estimated 2030 Peak Hour Traffic, With Development

6 Road Network Performance

6.1 Intersection Configuration

TTM has assessed the performance of the Pitt Street and Hamilton Street intersection utilising Sidra analysis software (version 7). For this intersection, TTM has assessed all development scenarios up to 2030.

TTM has adopted the Sidra default values for the gap acceptance parameters.

6.2 Analysis Results of Pitt Street and Hamilton Street Intersection

The Sidra layout identified for this intersection is shown in Figure 6.1. This layout is generally based on the existing intersection arrangements also shown in Figure 6.1.

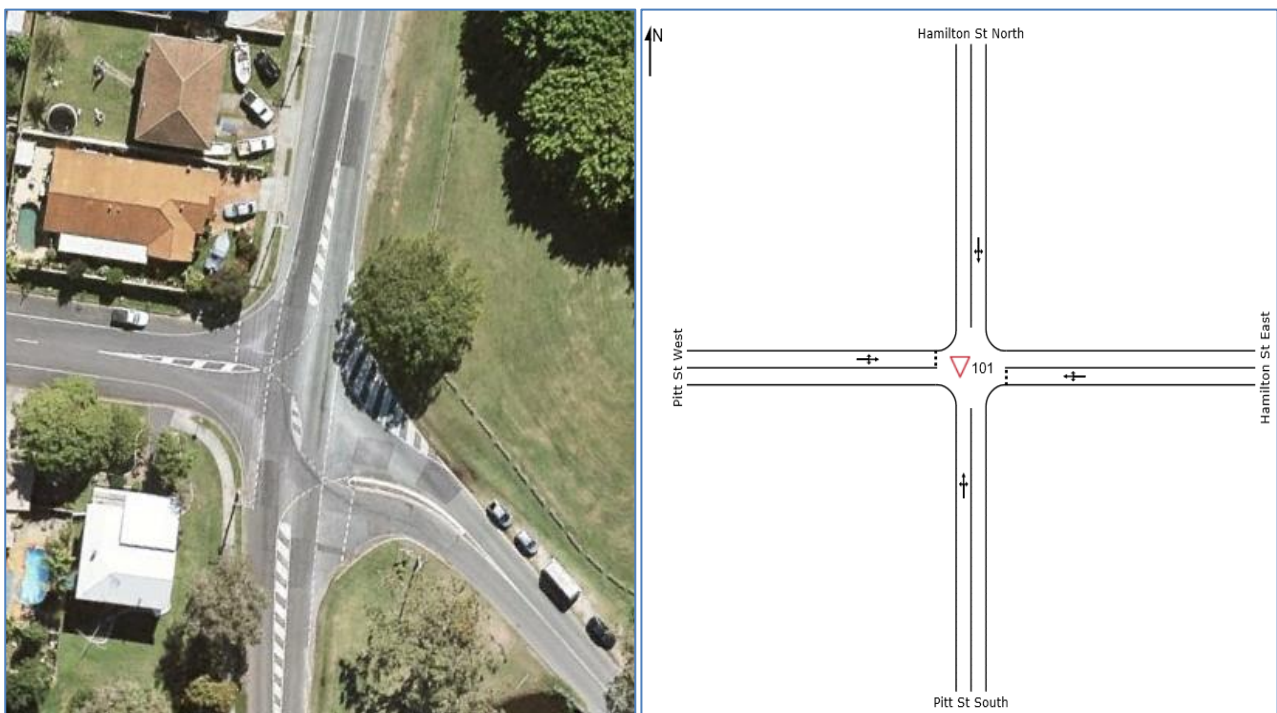


Figure 6.1: Pitt St and Hamilton St Intersection Layout

Table 6.1 gives a summary of the outputs for the various traffic cases applied to the intersection. The detailed outputs for this analysis are provided in Appendix C.

Table 6.1: Summary of Sidra Outputs (Pitt St and Hamilton St Intersection)

Case	Degree of Saturation	Average Delay	Level of Service	95th Percentile Critical Queue (m)			
				South	East	North	West
2018 AM Current Case	20.5%	3.3	NA	0.1	0.8	-	-
2020 AM Base Case	21.6%	3.4	NA	0.1	0.8	-	-
2020 AM Project Case	24.6%	3.7	NA	0.3	0.9	-	0.1

2030 AM Base Case	29.5%	3.8	NA	0.2	1.2	0.1	0.1
2030 AM Project Case	33.3%	4.2	NA	0.4	1.5	0.1	0.1
2018 PM Current Case	21.1%	2.5	NA	0.1	0.4	-	-
2020 PM Base Case	22.0%	2.5	NA	0.1	0.5	-	-
2020 PM Project Case	22.8%	2.9	NA	0.2	0.6	-	-
2030 PM Base Case	26.8%	2.7	NA	0.1	0.7	-	-
2030 PM Project Case	27.5%	3.1	NA	0.2	0.9	-	-

6.3 Analysis Conclusions

As shown in Table 6.1, the existing intersection arrangement is expected to be sufficient to cater for anticipated traffic increase from the proposed development. Therefore, the proposed development is not expected to 'significantly worsen' the operations of the Pitt Street and Hamilton Street Intersection and as a result do not require upgrades.

7 Site Access Arrangements

The proposed Hamilton Street (minor road) and Pitt Street (minor road) access driveway requirements are specified in Table 7.1.

Table 7.1: Typical Driveway Requirements for the Access Crossovers

Design Aspect	Council Requirement	Proposed Provision	Compliance
Distance from a minor intersection	10m (min)	11m	Compliant
Distance from a major intersection	20m (min)	22m	Compliant
Distance from another driveway	3m (min)	20m	Compliant
Distance from a traffic signals	Clear of queue areas and turning lanes	N/A	Compliant
Sight Distance – 60kph	Desirable – 83m Minimum - 65m		
- Hamilton Street (West) - Pitt Street		140m 150m	Compliant Compliant
Design Type			
- Hamilton Street (East) - Hamilton Street (West) - Pitt Street	Category 1 Category 1 Category 1	Category 1 Category 1 Category 2	Compliant Compliant Performance Solution
Width/ Entry and Exit Widths			
Hamilton Street	3.0m – 5.5m	3.5m	Compliant
Pitt Street	3.0m - 5.5m	6.2m	Performance Solution
Minimum Queuing Provisions	2 cars to traffic control point	2 cars to traffic control point	Compliant

The proposed access arrangements generally comply with Council Requirements; however, the following issues are resolved with alternative solutions.

Design Type

Council requires that for a development such as this, category 1 type driveway accesses should be implemented. The Pitt Street access has been modified to cater for service vehicle movements. TTM have conducted a swept path analysis that demonstrates that these design types and modifications will not affect the vehicle movements or the surrounding infrastructure and is therefore considered adequate.

Width/Entry and Exit Widths

Council requires that for a category 1 driveway access, the width of the entry and exits should be between 3.0m and 5.5m. The proposed development Pitt Street access has been designed and modified at 6.2m wide to allow for heavy vehicle access. Therefore, sufficient width is provided and is considered adequate.

7.1 Pitt Street Service Access / Driveway

The Pitt Street access has been designed to accommodate for service vehicles facilitating the residential care development. The proposed service vehicle access is a left-in/ left-out modified type 1 driveway that spans 6.5m at the property boundary.

The position of this access will improve the internal road network of the development and will assist in preventing the two-way flow from becoming congested.

The location of the service vehicle access has been designed to limit the overall effect the new development will have on the surrounding road network. From a traffic and planning perspective, the service vehicle access driveway is positioned in a safe and functional location that prevents road upgrades and overall development costs. TTM have conducted a comparative analysis that involves two service vehicle access points, as shown in Figure 7.1, with highlights of their advantages and disadvantages presented in Table 7.2.



Figure 7.1: Service Vehicle Access Options

Table 7.2: Comparative Analysis for Service Vehicle Access Options

Service Vehicle Access	Advantages	Disadvantages
Pitt Street (1)	- Minimal road upgrades - Functional - Improves internal development network - Easy access to servicing area	- May impact surrounding traffic flow
Weinam Street (2)	- Functional	- May impact traffic flow - Disturbance for surrounding residents - Large cost for road upgrades and earthworks - Building height will need to be redesigned to ensure servicing can be accommodated on-site - Loss of parking spaces

Hamilton Street (3)	- Functional - Replace Pitt Street access which will improve traffic flow	- May impact traffic flow approaching from Weinam street - Tarnish internal development network - Building height will need to be redesigned in order to service vehicle to reach waste area - Hamilton Street access will need to be redesigned to accommodate for service vehicle entering/exiting
Pitt Street (North) (4)	- Functional - Would provide much larger gap between surrounding intersection; therefore, creating a safer passage	- Having an access further north along Pitt Street may affect the Hamilton Street/ Pitt Street 4-leg intersection - An access in this location would fall within the Flood and Storm Tide Hazard Overlay shown in Figure 7.3 - Possible loss in parking spaces - Larger cost for driveway construction

The comparative analysis has demonstrated that the most appropriate service vehicle access to develop would be situated along Pitt Street. This access can accommodate for the Council requirement of an HRV but after communication with Palm Lakes, an MRV is a more common vehicle type.

The Pitt Street access is proposed to be designed as a left-in/left-out driveway access which will minimise the impact on the surrounding road network. In accordance with Table 1 of the Planning Scheme Policy 2 - Infrastructure Works, Council specify that there must be a 30m minimum distance between a driveway and a major intersection. The proposed plan indicates that this distance is 22m which is short of compliance; however, given the service vehicle access is a left-in/left-out operation, TTM consider this to cause no impact on the Salisbury Street/Pitt Street. TTM have conducted a swept path analysis, as shown in , that demonstrates a HRV (largest vehicle requirement) service vehicle leaving the development and travelling towards the Salisbury Street/Pitt Street intersection. The swept path analysis further demonstrates vehicles entering Salisbury Street via the right-turn movement to showcase the effect the service vehicle access would have, which evidently, is negligible. It should be further noted that all service vehicles can enter and exit the site in a forward gear.

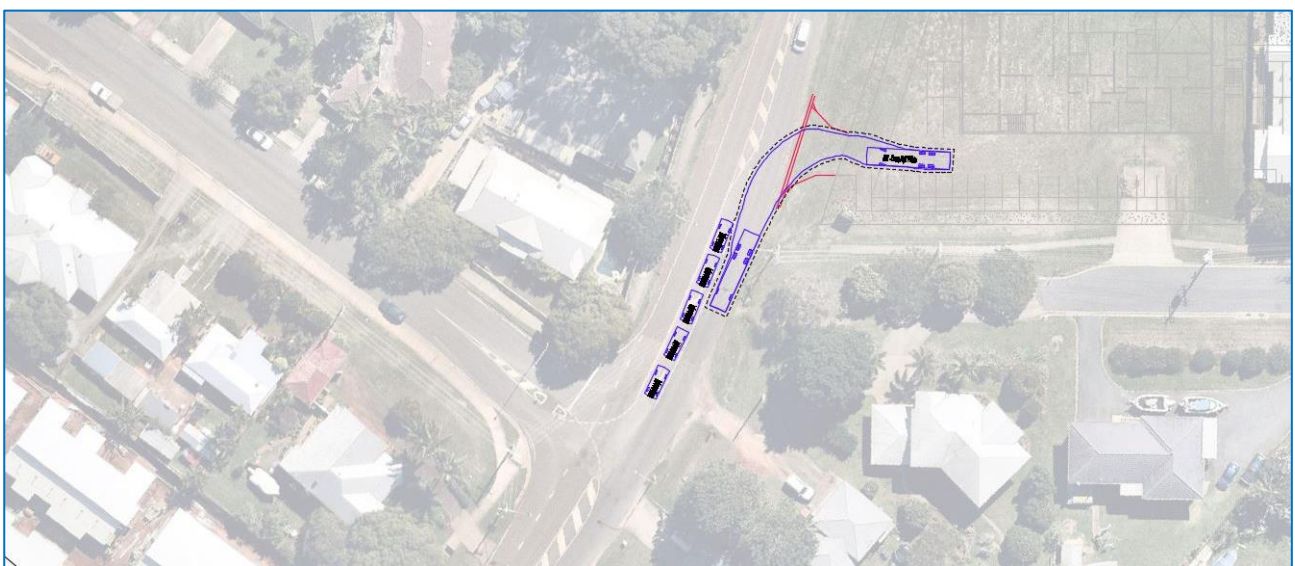


Figure 7.2: Service Vehicle Access – Impact on Salisbury Street/ Pitt Street Intersection

One point of impact the Pitt Street service access may have on the Salisbury Street/ Pitt Street intersection, is the right-hand turn into Salisbury Street with all other movements considered sufficient. As demonstrated in Figure 7.2, the right turning movements from Pitt Street into Salisbury Street are not affected by the exiting manoeuvre of the HRV service vehicle; therefore, TTM consider the location of the service vehicle access does not negatively impact on the safety or operation of Pitt Street and nearby intersections.

The Pitt Street access is also located outside of the Flood and Storm Tide Hazard Overlay shown in Figure 7.3. The darker coloured blue sections demonstrate the area predicted to be inundated during a 1%AEP Storm Tide event in the year 2016. The lighter coloured blue dots represent the areas predicted to be inundated during a 1%AEP Storm Tide event in the year 2100. As clearly demonstrated in Figure 7.3, the Hamilton Street access would be out of use if the flooding event had occurred leaving only Pitt Street or Weinam Street as development access points.

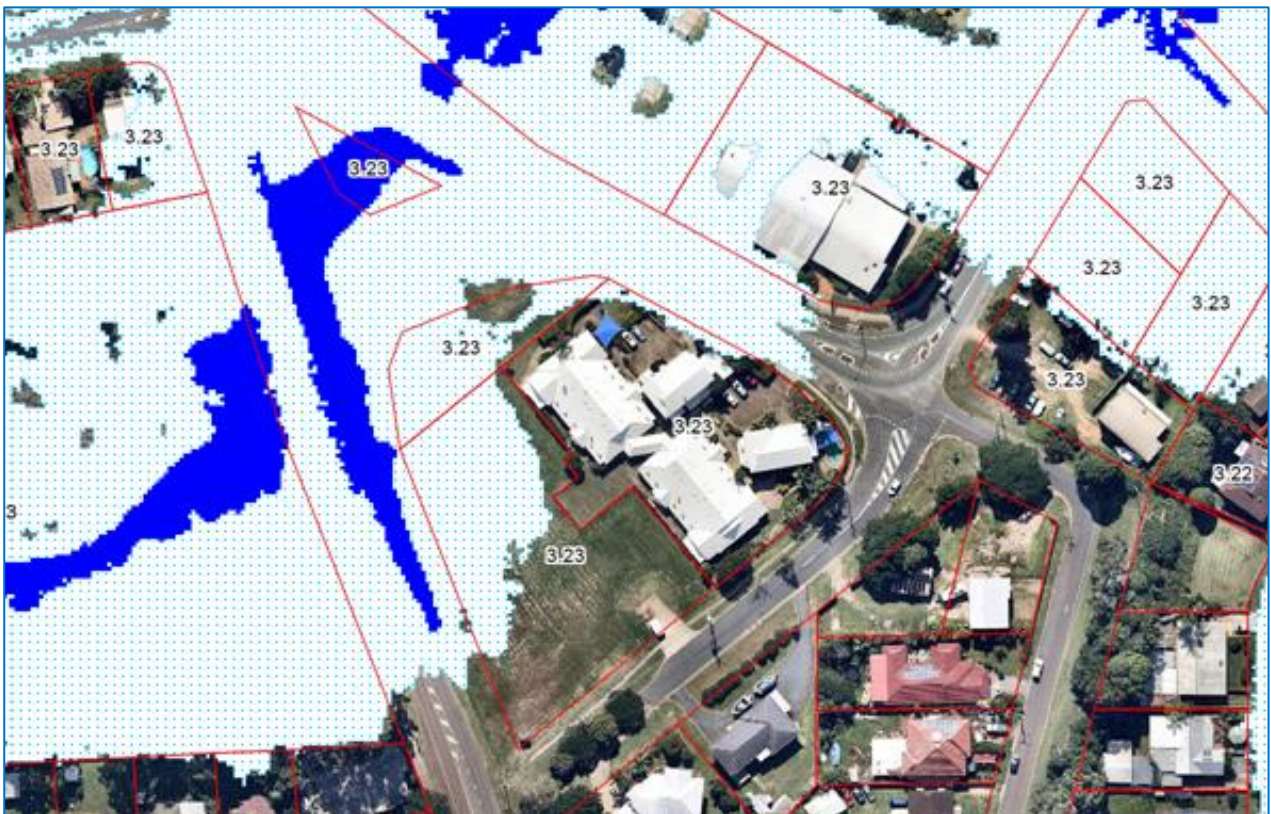


Figure 7.3: Flood and Storm Tide Hazard Overlay - RCC

Given the Pitt Street access will operate as a left-in/left-out, no through movements along Pitt Street will be impacted. Motorists travelling north along Pitt Street will not be affected as there are no right turn movements into the development. Motorists travelling south along Pitt Street will be greeted by the service vehicle exiting the development but given that the road is predominately flat through this section, sufficient sight distance is achieved giving motorists time to react and make their decision; therefore, TTM consider this access location to be a safe and functional outcome.

8 Service Vehicle Arrangements

To assess the required number of service bays for the development, TTM has referred to the Redland City Council requirements for service vehicles. Other service vehicle provisions are generally in accordance with AS2890.2.

8.1 Council Requirements

The proposed development includes residential use only.

For a development such as this, Council require full on-site manoeuvring for a WCV service vehicle (similar to HRV design vehicle). The loading bay for this service vehicle must be at least 12.5m in length, 3.5m in width and have a minimum vertical clearance of 4.5m. Although this is Council requirement, we have been advised that due to the development having private contractors for refuse collection, an MRV is considered adequate as it has been implemented in existing Palm Lakes Aged Care developments.

8.2 Proposed Service Vehicle Arrangements and Their Adequacy

The development proposal includes a service vehicle area, suitable to cater for the larger vehicle requirements. All movements in the preceding figures allow a minimum 500mm clearance to all parts of the structure.

TTM have accommodated for the Council requirement of an HRV (refer Appendix B), but after communication with Palm Lakes, an MRV is a more common vehicle type with their developments. Therefore, TTM have also provided a swept path analysis (refer Appendix B) for an MRV to service the site even when all car parks are occupied.

With respect to refuse collection, a height clearance of at least 4.5m will need to be provided for the service vehicle to complete its required manoeuvring. This refuse collection is likely to occur off peak, allowing full utilisation of the service vehicle area for standing and manoeuvring. The general waste will be collected weekly with the recycled waste being collected every fortnight. If an HRV is to service the development, the parking spaces near this area will need to be managed during this time.

The existing site conditions are considered adequate for the proposed Palm Lakes Aged Care Development. All internal onsite design complies with 2890.2-2002 Parking Facilities Part 2 Off-street commercial design.

9 Summary and Conclusions

9.1 Development Summary

The access points are recommended as Category 1 and Category 2 accesses which is expected to meet regulations. The development will provide 2 cars queue provision which is sufficient.

9.2 Car Parking Arrangements

The development provides a total of 68 parking spaces of which 38 are available to visitors which exceeds the Redland City Council requirements.

The geometry of the proposed car park layout complies with Council and AS2890.1 requirements.

Overall, TTM considers the proposed car parking arrangements for this development are adequate.

9.3 Impact on Surrounding Road Network

Assessment of the proposed development indicates that the development will not have a significant impact on the future road network. As such, no further mitigating road works are required.

9.4 Service Vehicle Arrangements

Based upon the development being wholly residential, it is expected that waste collection will be facilitated on-site. This manoeuvring was demonstrated by TTM who have conducted a swept path analysis (refer Appendix B) showing an MRV and an WCV (HRV) completing all movements.

Overall, the proposed service vehicle arrangements are considered adequate to meet the needs of the proposed development.

9.5 Active Transport Facilities

The current public transport infrastructure and proposed site provisions for pedestrian/bicycle facilities is considered adequate for the development.

9.6 Conclusion

Based on the assessment contained within this report, TTM see no traffic engineering reason why the relevant approvals should not be granted.

Appendix A Proposed Site Plan

RPD: LOT 1 ON SP169111 AND LOT 2 ON SP115173 LOT 1 3544m ² , LOT 2 3482m ² 55-61 HAMILTON STREET, REDLAND BAY	
SITE AREA:	7026m ²
TOTAL ROOMS	188
TOTAL GFA	13800m ²
IMPERVIOUS AREAS: ROOFED AREA 3708m ² SEALED SURFACES 1475m ² (including carpark, footpaths & service courts)	
TOTAL	5183m ²
SITE COVER:	52.7%
LANDSCAPED AREA	1889m ² 26.8%



PLAN LEGEND

A	ACTIVITIES / FUNCTIONS
ADM	ADMINISTRATION AREA
AM	AMENITIES
ARCH	ARCHIVES
BS	BIN STORE
C	COLUMN
CHEM	CHEMICAL STORE
CLN	CLEANER
CO	COMMS
CON	CONSULTANT ROOM
CR	COLD/COOL ROOM
CRT	COURTYARD (STAFF)
DL	DIRTY LINEN
HS	HAIR SALON
L	LIFT
LC	LAUNDRY CHUTE
LI	LINEN
LL	LITTLE LOUNGE
M	MAINTENANCE
MP	MAINS POWER
NS	NURSE STATION
OF	OFFICE
P/C	PALLIATIVE CARE ROOM
PD	PRIVATE DINING
PWD	UNISEX PWD
PY	PANTRY
RA	RECREATION AREA
RE	RECEPTION
RC	RUBBISH CHUTE
RR	RUBBISH ROOM
RS	RUBBISH STORE
S	STAIR
SA	SERVICE AREA
SC	SERVICE COURT
SF	STAFF FACILITIES
SH	SHOP
ST	STORE
STAFF	STAFF ROOM
STAFF A	STAFF AMENITIES
STAFF K	STAFF KITCHEN
T	TERRACE
TH	THEATRE
TR	TRAINING ROOM

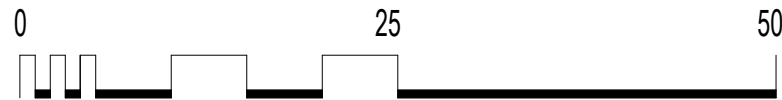
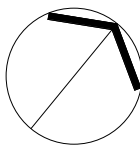
SITE PLAN & LEVEL 1

PALM LAKE CARE 55-61 HAMILTON STREET, REDLAND BAY

PALM LAKE WORKS

20170030 LA 101. 1

SCALE 1:500 @ A3 14/08/18

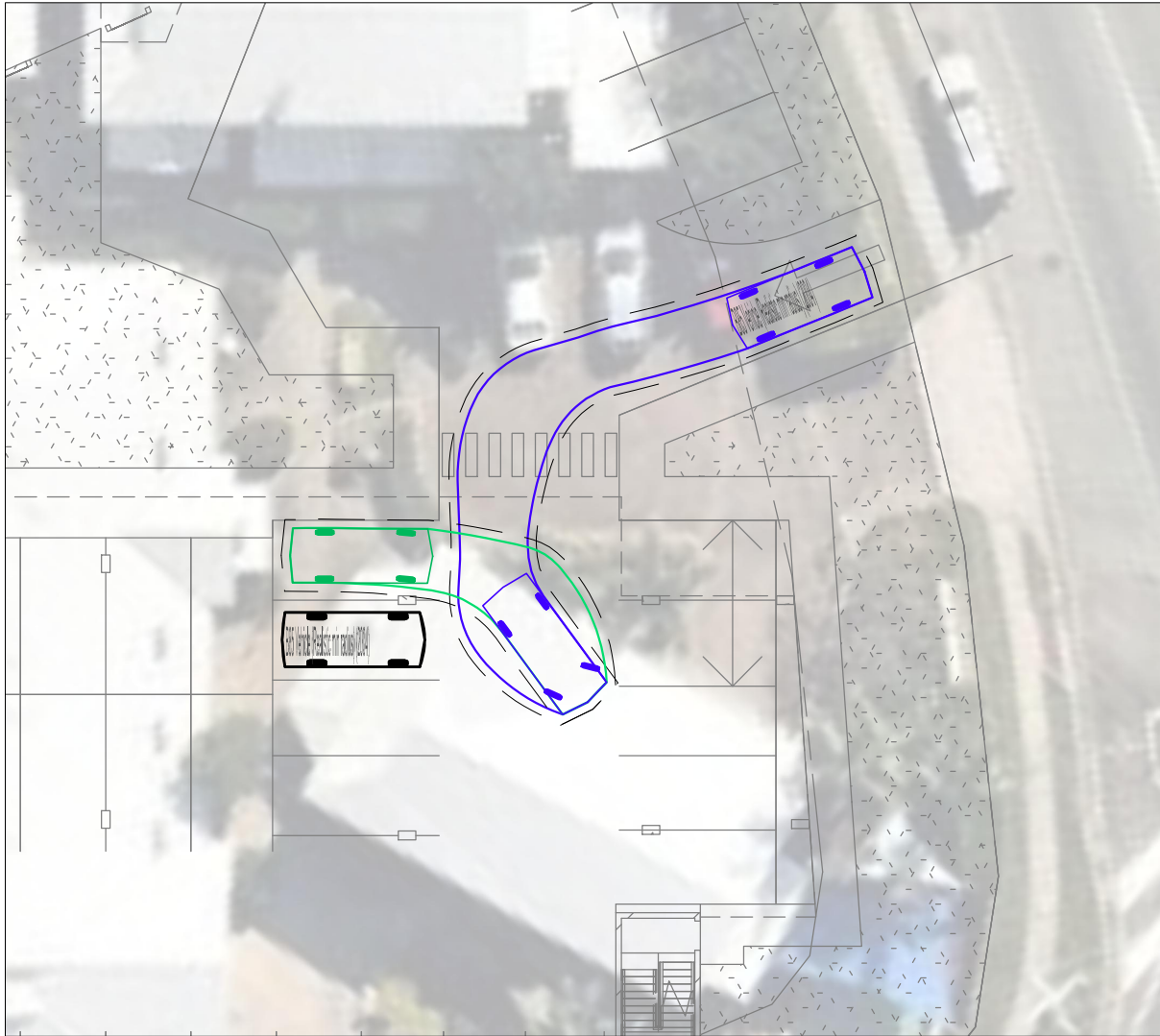


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Unit 13, 62 Main Street, Pialba Q 4655 T: 07 4124 5088 F: 07 4124 5313 E: hbay@pwarch.com.au

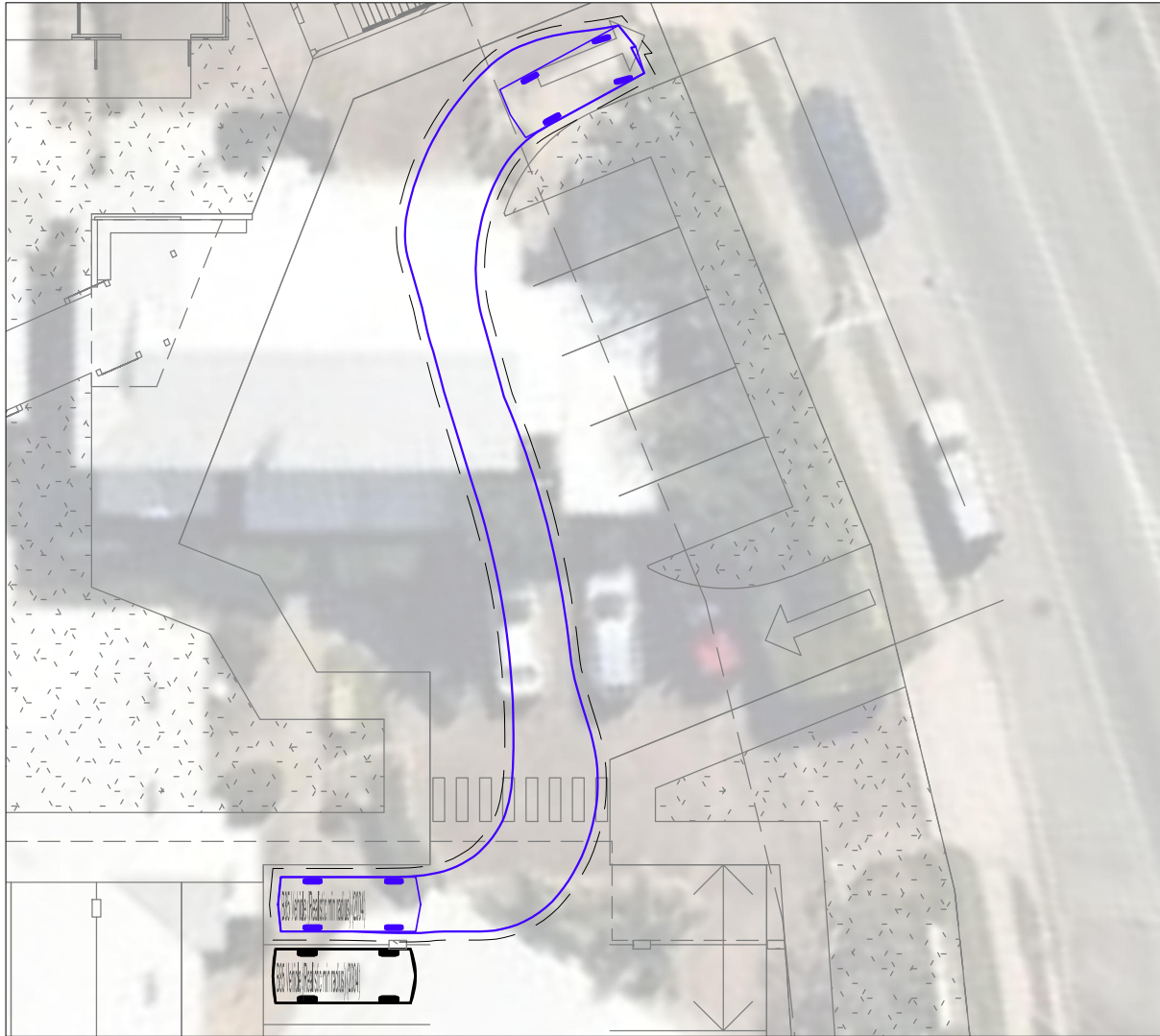


Appendix B Vehicle Swept Paths

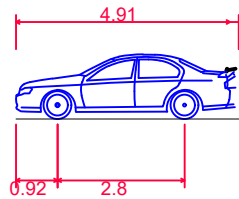
\\ttm\projects\18gct\18gct0098\17 weinam st & 52 hamilton st. redland bay - aged care facility\3 - plans\18gct0098 - [updated plans]\18gct0098 - rev e.dwg



B85 PARKING OPTION A - ENTRY



B85 PARKING OPTION A - EXIT



B85 Vehicle (Realistic min radius) (2004)
Overall Length 4.910m
Overall Width 1.870m
Overall Body Height 1.421m
Min Body Ground Clearance 0.159m
Track Width 1.770m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 5.750m

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
E	16-08-18	AUTOCAD SITE PLAN UPDATED	LD	KP	IB
D	29-06-18	AUTOCAD SITE PLAN UPDATED	LD	KP	IB
A	20-06-18	ORIGINAL ISSUE	LD	KP	IB

SCALE
0 2.5 5 7.5 10 12.5m
SCALE 1:250 AT ORIGINAL SIZE

NORTH

CLIENT
PALM LAKE WORKS

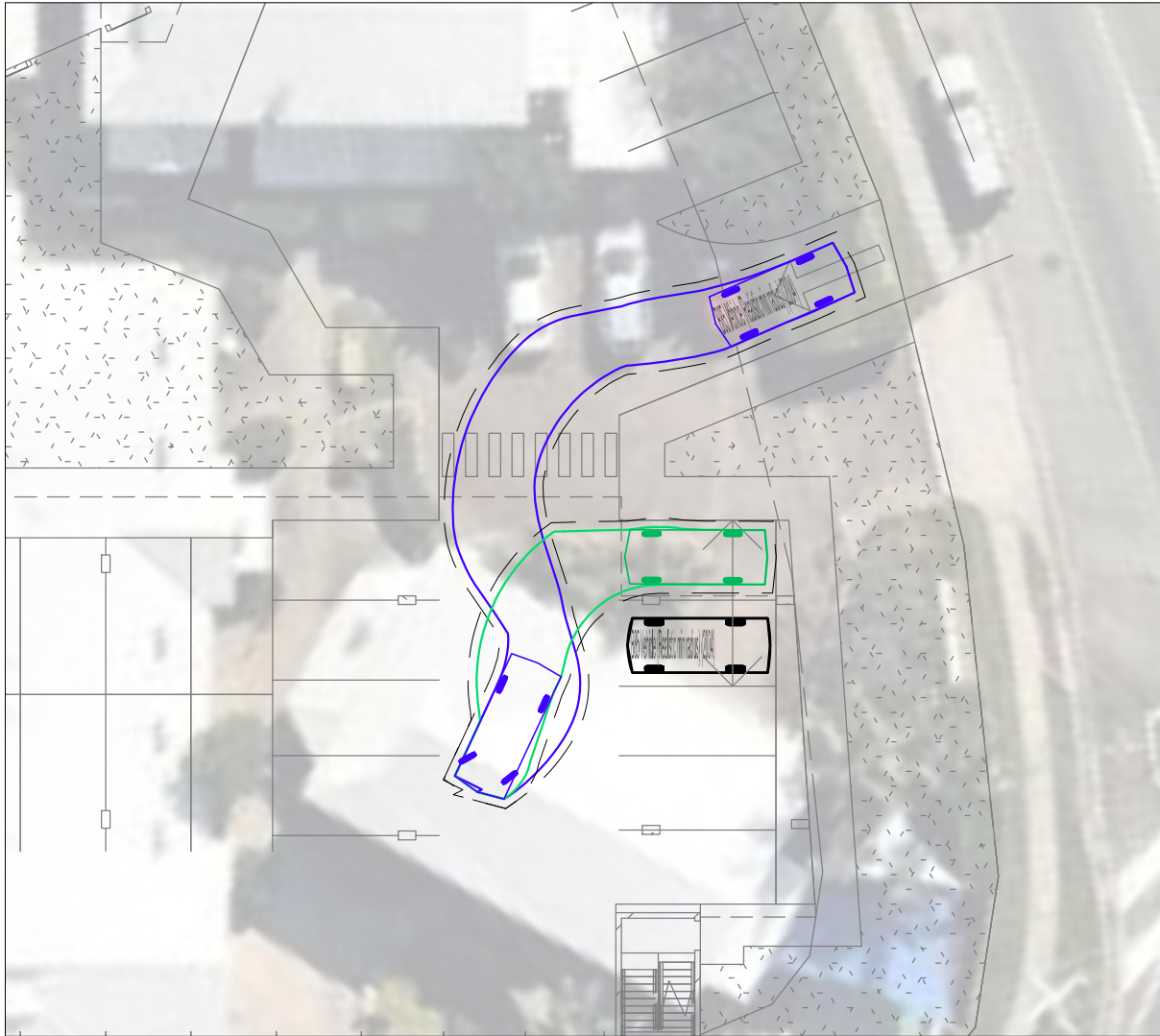


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E: ttmgc@ttmgroup.com.au W: www.ttmgroup.com.au

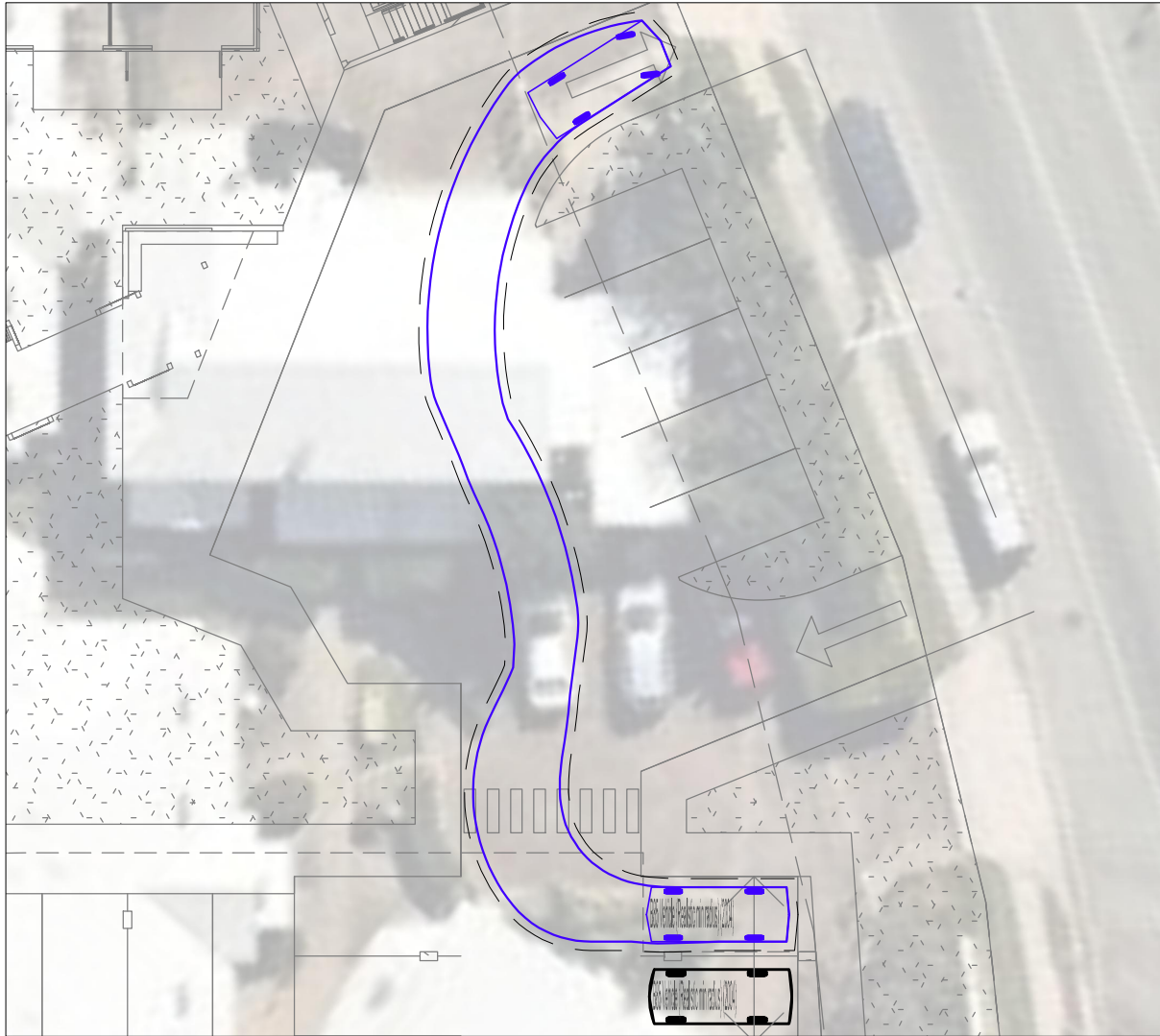
PROJECT	17 WEINAM STREET & 52 HAMILTON STREET, REDLAND BAY
DRAWING TITLE	PARKING OPTION A ENTRY & EXIT - SWEEP PATH ANALYSIS B85 DESIGN VEHICLE

PROJECT NUMBER	18GCT0098	ORIGINAL SIZE	A3
DRAWING NUMBER	18GCT0098-01	REVISION	E
DATE	16 Aug 2018	SHEET	1 OF 5

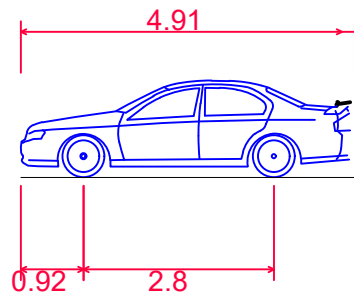
\\ttm\projects\18gct\18gct0098\17 weinam st & 52 hamilton st, redland bay - aged care facility\3 - plans\18gct0098 - [updated plans]\18gct0098 - rev e.dwg



B85 PARKING OPTION B - ENTRY



B85 PARKING OPTION B - EXIT



B85 Vehicle (Realistic min radius) (2004)
Overall Length 4.910m
Overall Width 1.870m
Overall Body Height 1.421m
Min Body Ground Clearance 0.159m
Track Width 1.770m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 5.750m

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
E	16-08-18	AUTOCAD SITE PLAN UPDATED	LD	KP	IB
D	29-06-18	AUTOCAD SITE PLAN UPDATED	LD	KP	IB
A	20-06-18	ORIGINAL ISSUE	LD	KP	IB

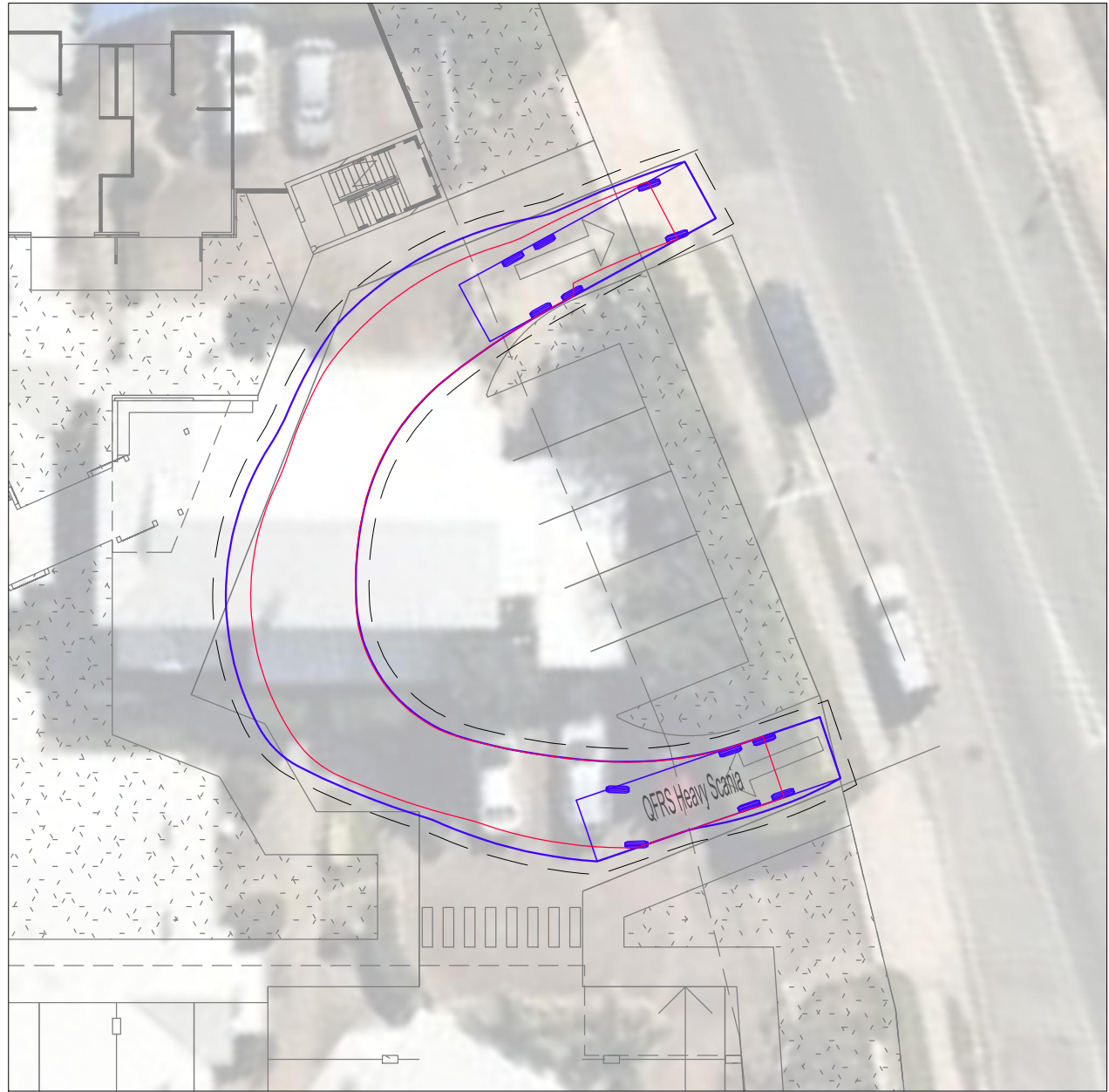
SCALE 0 2.5 5 7.5 10 12.5m SCALE 1:250 AT ORIGINAL SIZE	NORTH CLIENT PALM LAKE WORKS
---	------------------------------------



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PROJECT 17 WEINAM STREET & 52 HAMILTON STREET, REDLAND BAY	PROJECT NUMBER 18GCT0098
DRAWING TITLE PARKING OPTION B ENTRY & EXIT - SWEEP PATH ANALYSIS B85 DESIGN VEHICLE	DRAWING NUMBER 18GCT0098-02
	DATE 16 Aug 2018

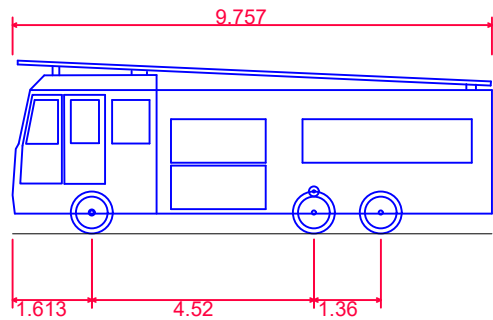
ORIGINAL SIZE A3	REVISION E
SHEET 2 OF 5	



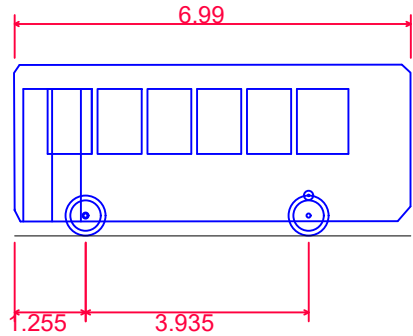
QFRS HEAVY SCANIA- DROP OFF ZONE



21 SEAT MINI BUS- DROP OFF ZONE

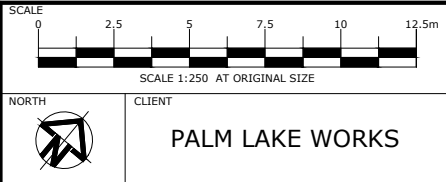


QFRS Heavy Scania
Overall Length 9.757m
Overall Width 2.450m
Overall Body Height 3.524m
Min Body Ground Clearance 0.409m
Track Width 2.450m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 9.600m



TOYOTA Coaster 21 Seat Mini Bus
Overall Length 6.990m
Overall Width 2.025m
Overall Body Height 3.018m
Min Body Ground Clearance 0.254m
Track Width 2.025m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 7.200m

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
E	16-08-18	AUTOCAD SITE PLAN UPDATED	LD	KP	IB
D	29-06-18	AUTOCAD SITE PLAN UPDATED	LD	KP	IB
A	20-06-18	ORIGINAL ISSUE	LD	KP	IB



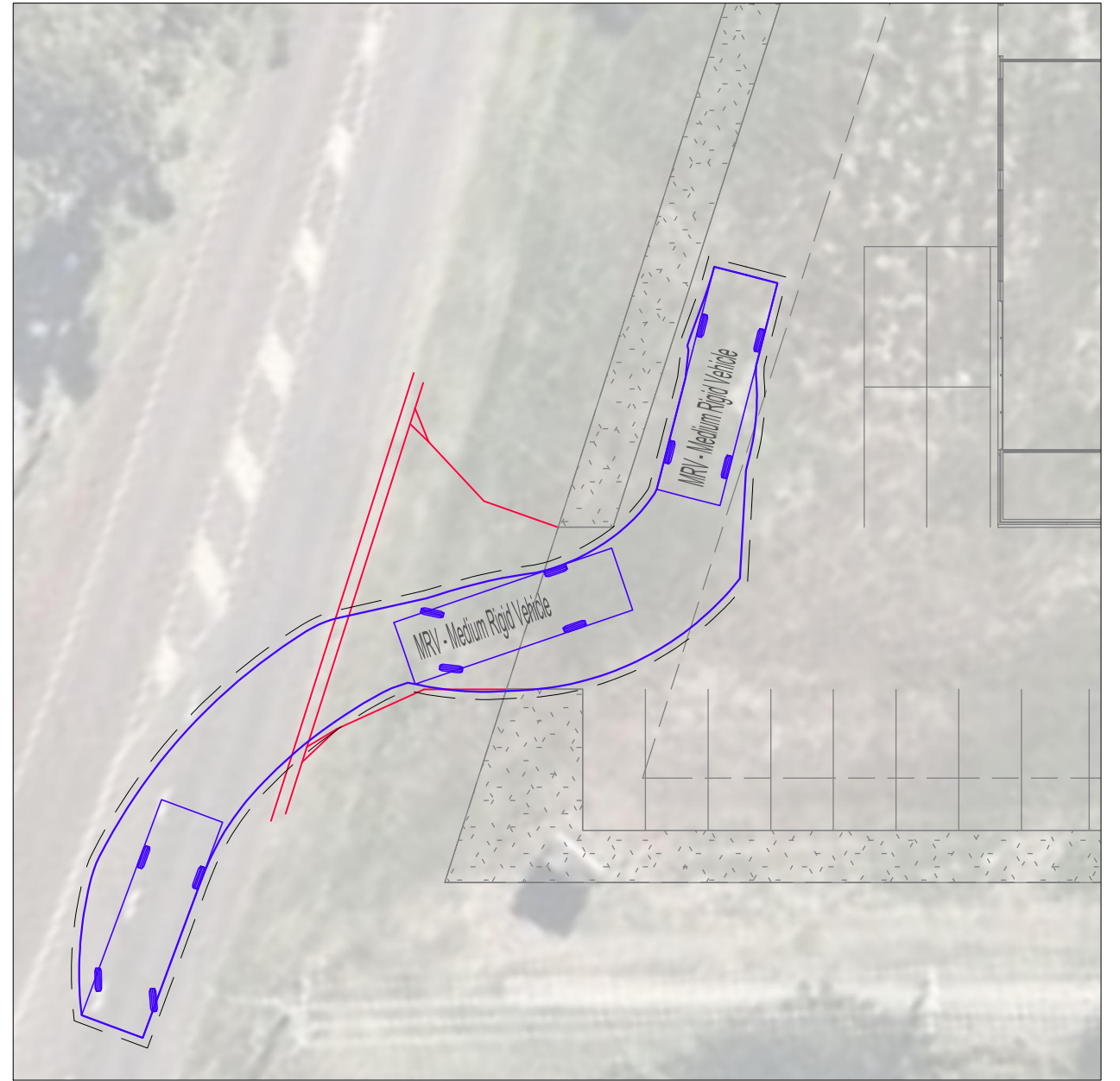
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PROJECT	17 WEINAM STREET & 52 HAMILTON STREET, REDLAND BAY
DRAWING TITLE	DROP OFF ZONE ENTRY & EXIT - SWEEP PATH ANALYSIS QFRS HEAVY SCANIA & 21 SEATED BUS DESIGN VEHICLE

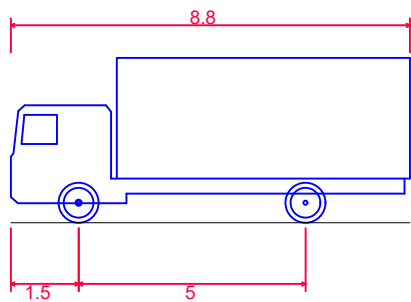
PROJECT NUMBER	18GCT0098	ORIGINAL SIZE	A3
DRAWING NUMBER	18GCT0098-03	REVISION	E
DATE	16 Aug 2018	SHEET	3 OF 5



MRV LOADING BAY - ENTRY



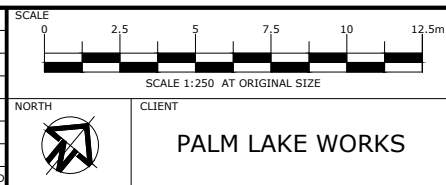
MRV LOADING BAY - EXIT



MRV - Medium Rigid Vehicle

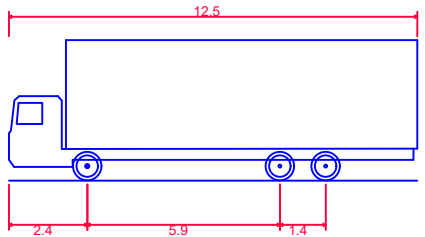
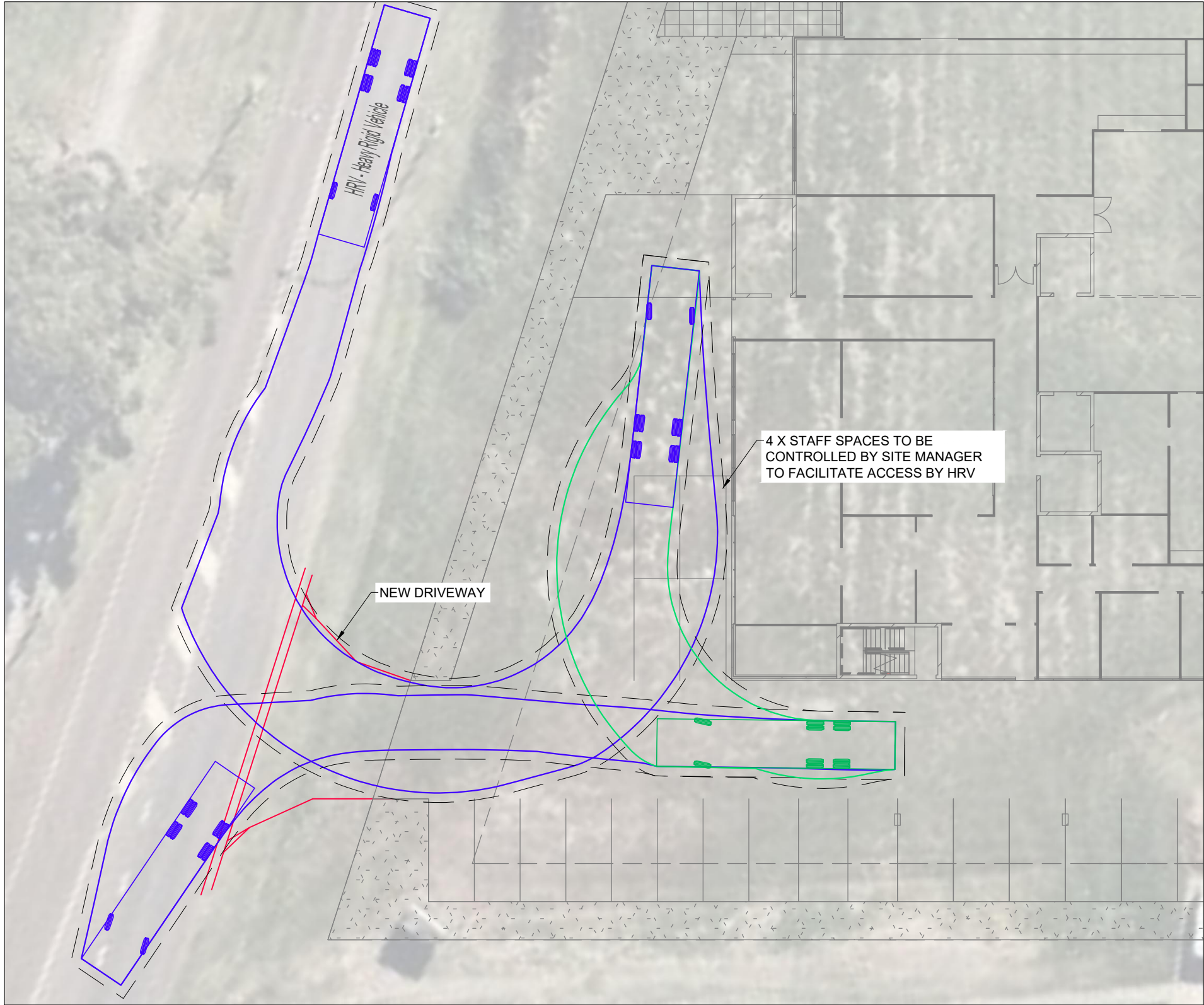
Overall Length 8.800m
Overall Width 2.500m
Overall Body Height 3.633m
Min Body Ground Clearance 0.428m
Track Width 2.500m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 10.000m

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
E	16-08-18	AUTOCAD SITE PLAN UPDATED	LD	KP	IB
D	29-06-18	AUTOCAD SITE PLAN UPDATED	LD	KP	IB
A	20-06-18	ORIGINAL ISSUE	LD	KP	IB



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PROJECT 17 WEINAM STREET & 52 HAMILTON STREET, REDLAND BAY	PROJECT NUMBER 18GCT0098	ORIGINAL SIZE A3
DRAWING TITLE LOADING BAY ENTRY & EXIT - SWEEP PATH ANALYSIS MRV DESIGN VEHICLE	DRAWING NUMBER 18GCT0098-04	REVISION E
	DATE 16 Aug 2018	SHEET 4 OF 5



HRV - Heavy Rigid Vehicle

Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

HRV LOADING BAY - ENTRY & EXIT

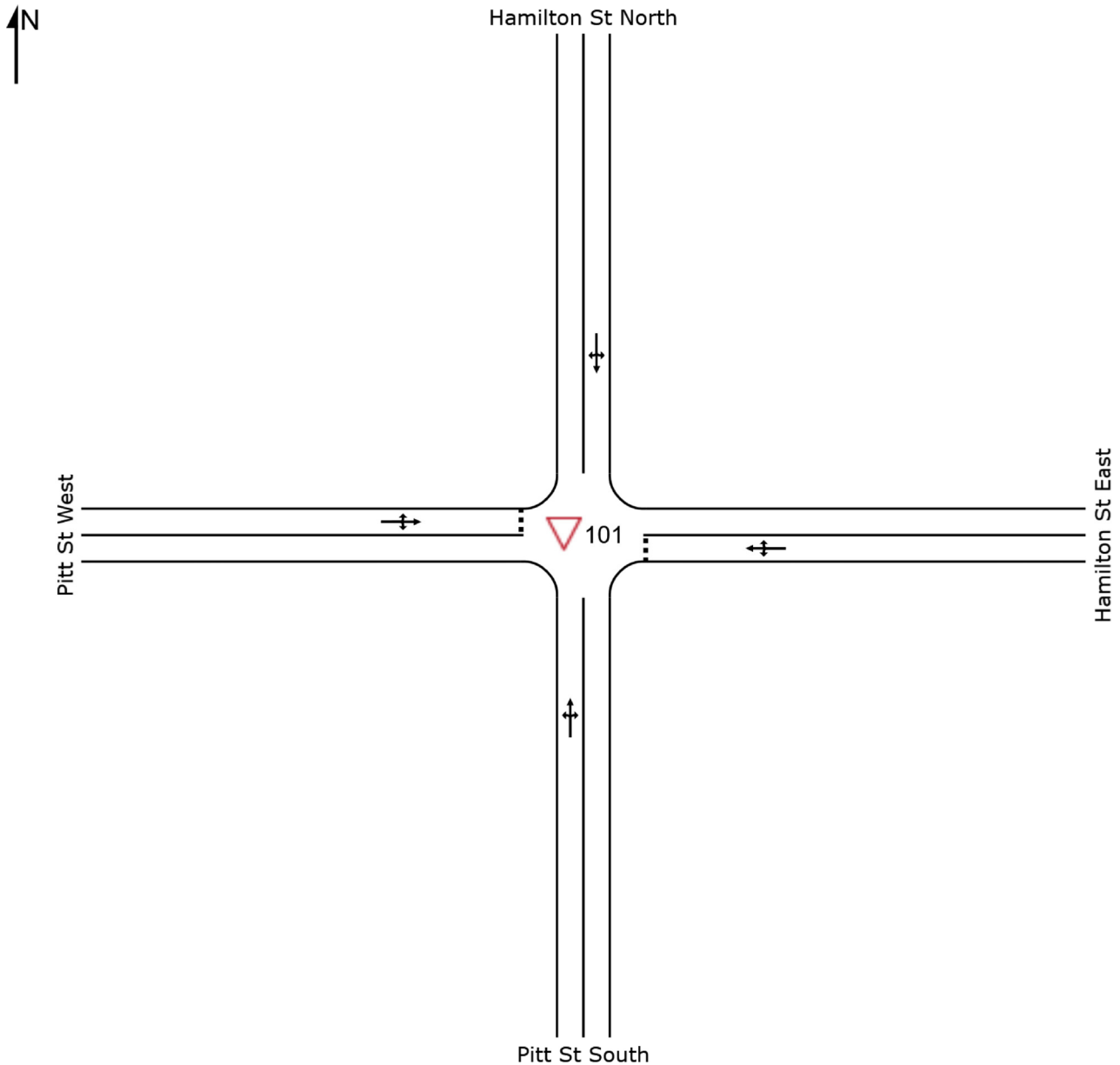
						SCALE 0 2.5 5 7.5 10 12.5m SCALE 1:250 AT ORIGINAL SIZE			NORTH CLIENT PALM LAKE WORKS	ttm TTM CONSULTING PTY LTD ABN 65 010 868 621 41A Quay Street, Sanctuary Cove, QLD, 4212 P.O. BOX 930, Sanctuary Cove, QLD, 4212 T: (07) 5514 8000 F: (07) 5514 8144 E: ttmgc@ttmgroup.com.au W: www.ttmgroup.com.au			PROJECT 17 WEINAM STREET & 52 HAMILTON STREET, REDLAND BAY DRAWING TITLE LOADING BAY ENTRY & EXIT - SWEEP PATH ANALYSIS HRV DESIGN VEHICLE			PROJECT NUMBER 18GCT0098	ORIGINAL SIZE A3
													DRAWING NUMBER 18GCT0098-05	REVISION E			
													DATE 16 Aug 2018	SHEET 5 OF 5			
REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED												
E	16-08-18	AUTOCAD SITE PLAN UPDATED	LD	KP	IB												
D	29-06-18	AUTOCAD SITE PLAN UPDATED	LD	KP	IB												
A	20-06-18	ORIGINAL ISSUE	LD	KP	IB												

Appendix C Sidra Intersection Analysis

SITE LAYOUT

▽ Site: 101 [2018 Existing AM Peak]

18GCT0098 - 17 Weinam St & 52 Hamilton St - Redland Bay -
Pitt Street / Hamilton Street.
Giveaway / Yield (Two-Way)



LANE SUMMARY

▽ Site: 101 [2018 Existing AM Peak]

18GCT0098 - 17 Weinam St & 52 Hamilton St - Redland Bay -
Pitt Street / Hamilton Street.
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Total veh/h	Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
								Veh	Dist m				
South: Pitt St South													
Lane 1	203	9.0	1797	0.113	100	0.6	LOS A	0.1	0.9	Full	500	0.0	0.0
Approach	203	9.0		0.113		0.6	NA	0.1	0.9				
East: Hamilton St East													
Lane 1	150	9.0	732	0.205	100	8.0	LOS A	0.8	5.7	Full	500	0.0	0.0
Approach	150	9.0		0.205		8.0	LOS A	0.8	5.7				
North: Hamilton St North													
Lane 1	194	9.0	1793	0.108	100	2.4	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	194	9.0		0.108		2.4	NA	0.0	0.3				
West: Pitt St West													
Lane 1	13	9.0	885	0.014	100	6.8	LOS A	0.0	0.4	Full	500	0.0	0.0
Approach	13	9.0		0.014		6.8	LOS A	0.0	0.4				
Intersection	560	9.0		0.205		3.3	NA	0.8	5.7				

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

Lane LOS values are based on average delay per lane.

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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LANE SUMMARY

▽ Site: 101 [2020 Base AM Peak]

18GCT0098 - 17 Weinam St & 52 Hamilton St - Redland Bay -
Pitt Street / Hamilton Street.
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
								Veh	Dist m				
South: Pitt St South													
Lane 1	212	9.0	1794	0.118	100	0.6	LOS A	0.1	1.0	Full	500	0.0	0.0
Approach	212	9.0		0.118		0.6	NA	0.1	1.0				
East: Hamilton St East													
Lane 1	155	9.0	718	0.216	100	8.2	LOS A	0.8	6.0	Full	500	0.0	0.0
Approach	155	9.0		0.216		8.2	LOS A	0.8	6.0				
North: Hamilton St North													
Lane 1	201	9.0	1793	0.112	100	2.4	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	201	9.0		0.112		2.4	NA	0.0	0.3				
West: Pitt St West													
Lane 1	13	9.0	872	0.015	100	6.9	LOS A	0.0	0.4	Full	500	0.0	0.0
Approach	13	9.0		0.015		6.9	LOS A	0.0	0.4				
Intersection	581	9.0		0.216		3.4	NA	0.8	6.0				

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

Lane LOS values are based on average delay per lane.

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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LANE SUMMARY

▽ Site: 101 [2020 Project AM Peak]

18GCT0098 - 17 Weinam St & 52 Hamilton St - Redland Bay -
Pitt Street / Hamilton Street.
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
								Veh	Dist m				
South: Pitt St South													
Lane 1	235	9.0	1729	0.136	100	1.3	LOS A	0.3	2.4	Full	500	0.0	0.0
Approach	235	9.0		0.136		1.3	NA	0.3	2.4				
East: Hamilton St East													
Lane 1	171	9.0	696	0.246	100	8.6	LOS A	0.9	7.0	Full	500	0.0	0.0
Approach	171	9.0		0.246		8.6	LOS A	0.9	7.0				
North: Hamilton St North													
Lane 1	233	9.0	1793	0.130	100	2.5	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	233	9.0		0.130		2.5	NA	0.0	0.3				
West: Pitt St West													
Lane 1	13	9.0	830	0.015	100	7.2	LOS A	0.1	0.4	Full	500	0.0	0.0
Approach	13	9.0		0.015		7.2	LOS A	0.1	0.4				
Intersection	652	9.0		0.246		3.7	NA	0.9	7.0				

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

Lane LOS values are based on average delay per lane.

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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LANE SUMMARY

▽ Site: 101 [2030 Base AM Peak]

18GCT0098 - 17 Weinam St & 52 Hamilton St - Redland Bay -
Pitt Street / Hamilton Street.
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
								Veh	Dist m				
South: Pitt St South													
Lane 1	257	9.0	1787	0.144	100	0.6	LOS A	0.2	1.3	Full	500	0.0	0.0
Approach	257	9.0		0.144		0.6	NA	0.2	1.3				
East: Hamilton St East													
Lane 1	190	9.0	646	0.295	100	9.4	LOS A	1.2	9.2	Full	500	0.0	0.0
Approach	190	9.0		0.295		9.4	LOS A	1.2	9.2				
North: Hamilton St North													
Lane 1	246	9.0	1790	0.137	100	2.4	LOS A	0.1	0.4	Full	500	0.0	0.0
Approach	246	9.0		0.137		2.4	NA	0.1	0.4				
West: Pitt St West													
Lane 1	17	9.0	791	0.022	100	7.4	LOS A	0.1	0.5	Full	500	0.0	0.0
Approach	17	9.0		0.022		7.4	LOS A	0.1	0.5				
Intersection	711	9.0		0.295		3.8	NA	1.2	9.2				

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

Lane LOS values are based on average delay per lane.

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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Project: M:\Synergy\Projects\18GCT\18GCT0098 17 Weinam St & 52 Hamilton St, Redland Bay - Aged Care Facility\6 - Analysis\18GCT0098-Pitt Street and Hamilton Street Intersection Design.sip7

LANE SUMMARY

▽ Site: 101 [2030 Project AM Peak]

18GCT0098 - 17 Weinam St & 52 Hamilton St - Redland Bay -
Pitt Street / Hamilton Street.
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %						Veh	Dist m				
South: Pitt St South													
Lane 1	282	9.0	1719	0.164	100	1.3	LOS A	0.4	2.9	Full	500	0.0	0.0
Approach	282	9.0		0.164		1.3	NA	0.4	2.9				
East: Hamilton St East													
Lane 1	206	9.0	620	0.333	100	10.1	LOS B	1.5	11.1	Full	500	0.0	0.0
Approach	206	9.0		0.333		10.1	LOS B	1.5	11.1				
North: Hamilton St North													
Lane 1	279	9.0	1791	0.156	100	2.5	LOS A	0.1	0.4	Full	500	0.0	0.0
Approach	279	9.0		0.156		2.5	NA	0.1	0.4				
West: Pitt St West													
Lane 1	17	9.0	748	0.023	100	7.7	LOS A	0.1	0.6	Full	500	0.0	0.0
Approach	17	9.0		0.023		7.7	LOS A	0.1	0.6				
Intersection	784	9.0		0.333		4.2	NA	1.5	11.1				

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

Lane LOS values are based on average delay per lane.

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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LANE SUMMARY

▽ Site: 101 [2018 Existing PM Peak]

18GCT0098 - 17 Weinam St & 52 Hamilton St - Redland Bay -
Pitt Street / Hamilton Street.
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
								Veh	Dist m				
South: Pitt St South													
Lane 1	191	4.0	1858	0.103	100	0.4	LOS A	0.1	0.5	Full	500	0.0	0.0
Approach	191	4.0		0.103		0.4	NA	0.1	0.5				
East: Hamilton St East													
Lane 1	83	4.0	649	0.128	100	8.7	LOS A	0.4	3.2	Full	500	0.0	0.0
Approach	83	4.0		0.128		8.7	LOS A	0.4	3.2				
North: Hamilton St North													
Lane 1	394	4.0	1862	0.211	100	2.1	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	394	4.0		0.211		2.1	NA	0.0	0.1				
West: Pitt St West													
Lane 1	6	4.0	812	0.008	100	7.3	LOS A	0.0	0.2	Full	500	0.0	0.0
Approach	6	4.0		0.008		7.3	LOS A	0.0	0.2				
Intersection	674	4.0		0.211		2.5	NA	0.4	3.2				

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

Lane LOS values are based on average delay per lane.

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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LANE SUMMARY

▽ Site: 101 [2020 Base PM Peak]

18GCT0098 - 17 Weinam St & 52 Hamilton St - Redland Bay -
Pitt Street / Hamilton Street.
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
								Veh	Dist m				
South: Pitt St South													
Lane 1	199	4.0	1858	0.107	100	0.4	LOS A	0.1	0.5	Full	500	0.0	0.0
Approach	199	4.0		0.107		0.4	NA	0.1	0.5				
East: Hamilton St East													
Lane 1	86	4.0	631	0.136	100	8.9	LOS A	0.5	3.4	Full	500	0.0	0.0
Approach	86	4.0		0.136		8.9	LOS A	0.5	3.4				
North: Hamilton St North													
Lane 1	410	4.0	1862	0.220	100	2.1	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	410	4.0		0.220		2.1	NA	0.0	0.1				
West: Pitt St West													
Lane 1	6	4.0	795	0.008	100	7.4	LOS A	0.0	0.2	Full	500	0.0	0.0
Approach	6	4.0		0.008		7.4	LOS A	0.0	0.2				
Intersection	701	4.0		0.220		2.5	NA	0.5	3.4				

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

Lane LOS values are based on average delay per lane.

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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LANE SUMMARY

▽ Site: 101 [2020 Project PM Peak]

18GCT0098 - 17 Weinam St & 52 Hamilton St - Redland Bay -
Pitt Street / Hamilton Street.
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
								Veh	Dist m				
South: Pitt St South													
Lane 1	209	4.0	1800	0.116	100	0.9	LOS A	0.2	1.2	Full	500	0.0	0.0
Approach	209	4.0		0.116		0.9	NA	0.2	1.2				
East: Hamilton St East													
Lane 1	108	4.0	624	0.172	100	9.2	LOS A	0.6	4.4	Full	500	0.0	0.0
Approach	108	4.0		0.172		9.2	LOS A	0.6	4.4				
North: Hamilton St North													
Lane 1	425	4.0	1862	0.228	100	2.2	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	425	4.0		0.228		2.2	NA	0.0	0.1				
West: Pitt St West													
Lane 1	6	4.0	776	0.008	100	7.5	LOS A	0.0	0.2	Full	500	0.0	0.0
Approach	6	4.0		0.008		7.5	LOS A	0.0	0.2				
Intersection	747	4.0		0.228		2.9	NA	0.6	4.4				

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

Lane LOS values are based on average delay per lane.

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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LANE SUMMARY

▽ Site: 101 [2030 Base PM Peak]

18GCT0098 - 17 Weinam St & 52 Hamilton St - Redland Bay -
Pitt Street / Hamilton Street.
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
								Veh	Dist m				
South: Pitt St South													
Lane 1	244	4.0	1842	0.133	100	0.5	LOS A	0.1	0.8	Full	500	0.0	0.0
Approach	244	4.0		0.133		0.5	NA	0.1	0.8				
East: Hamilton St East													
Lane 1	105	4.0	539	0.195	100	10.3	LOS B	0.7	4.9	Full	500	0.0	0.0
Approach	105	4.0		0.195		10.3	LOS B	0.7	4.9				
North: Hamilton St North													
Lane 1	499	4.0	1862	0.268	100	2.1	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	499	4.0		0.268		2.1	NA	0.0	0.1				
West: Pitt St West													
Lane 1	9	4.0	721	0.012	100	8.0	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	9	4.0		0.012		8.0	LOS A	0.0	0.3				
Intersection	857	4.0		0.268		2.7	NA	0.7	4.9				

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

Lane LOS values are based on average delay per lane.

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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LANE SUMMARY

▽ Site: 101 [2030 Project PM Peak]

18GCT0098 - 17 Weinam St & 52 Hamilton St - Redland Bay -
Pitt Street / Hamilton Street.
Giveaway / Yield (Two-Way)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
								Veh	Dist m				
South: Pitt St South													
Lane 1	254	4.0	1782	0.142	100	1.0	LOS A	0.2	1.6	Full	500	0.0	0.0
Approach	254	4.0		0.142		1.0	NA	0.2	1.6				
East: Hamilton St East													
Lane 1	126	4.0	530	0.237	100	10.8	LOS B	0.9	6.3	Full	500	0.0	0.0
Approach	126	4.0		0.237		10.8	LOS B	0.9	6.3				
North: Hamilton St North													
Lane 1	513	4.0	1862	0.275	100	2.2	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	513	4.0		0.275		2.2	NA	0.0	0.1				
West: Pitt St West													
Lane 1	9	4.0	705	0.012	100	8.1	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	9	4.0		0.012		8.1	LOS A	0.0	0.3				
Intersection	901	4.0		0.275		3.1	NA	0.9	6.3				

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

Lane LOS values are based on average delay per lane.

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

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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