



Coffs Harbour Affordable Housing Transport Impact Assessment

Prepared for:
Homes NSW

3 September 2025

The Transport Planning Partnership

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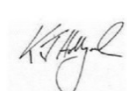
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APPENDICES

- A. ARCHITECTURAL PLANS
- B. SWEEP PATH ASSESSMENT
- C. SIDRA MODELLING RESULT

1 Introduction

1.1 Background

This Transport Impact Assessment (TIA) has been prepared by The Transport Planning Partnership (TPPP) Pty Ltd on behalf of Homes NSW for a State Significant Development Application (SSD-83294209) for construction of a residential flat building up to four storeys with a total of 60 apartments for the purpose of affordable housing at 211A-215 Harbour Drive, Coffs Harbour.

1.2 Secretary’s Environmental Assessment Requirements

The purpose of this TIA is to assess the transport impacts of the proposed development and to address the Secretary’s Environmental Assessment Requirements (SEARs) for the project issued on 2 May 2025 which identified the specific assessment requirements as summarised in Table 1.1. The relevant section where each requirement is addressed within this TIA is also provided.

Table 1.1: SEARS Requirements

9. TRANSPORT	
SEARS Requirements	Addressed in Report
<ul style="list-style-type: none"> Provide a Transport Impact Assessment (TIA) in accordance with the processes and methodology recommended in the Guide to Transport Impact Assessment (GTIA) published by TfNSW. 	Throughout this report Section 1.5, Section 5, Section 6
<ul style="list-style-type: none"> If the construction of the development would cause interruptions to regular pedestrian and transport routes (including public transport, active transport or general traffic), a preliminary Construction Traffic (or Transport) Management Plan (CTMP) should be prepared as part of the TIA to mitigate any such impacts. 	Section 8

1.3 Pre-SDDA Consultation

1.3.1 Coffs Harbour City Council

Homes NSW undertook consultation with Coffs Harbour City Council to gain an understanding of council’s engineering advice during the design development process.

Table 1.2: Council Requirements (30 April 2025)

Council Requirements	Addressed in Report
Access & Traffic	
<ul style="list-style-type: none"> A Traffic Impact Assessment in accordance with Guide to Transport Impact Assessment V1.1 is required for the development. This will include an assessment of the intersection of North St and Harbour Drive. 	This report Section 1.5, Section 5, Section 6

<ul style="list-style-type: none"> The preferred access location is onto North St (to comply with DCP F1.1(1)) 	Section 3.3.1
<ul style="list-style-type: none"> The driveway location on North Street is within 6m of the tangent of Millward Lane, subsequently the traffic assessment will need to consider the access as a 4-way intersection. 	Section 3.3.1
<ul style="list-style-type: none"> Vehicular Access from Harbour Drive would be problematic due to the traffic impact on Harbour Drive. If access were allowed to be obtained off Harbour Drive, works would be required to stop right turn movements in and out of the site (i.e. the inclusion of a concrete median), this would require approvals for regulatory signage through 'Transport Forum'. 	Section 3.3.2 to 3.3.2.4
<ul style="list-style-type: none"> Access of North Street allows various methods of getting back on to Harbour Drive including accessing the exiting traffic lights on the intersection of Curacoa Street and Harbour Drive. 	Section 3.3.1
Carparking and Manoeuvring	
<ul style="list-style-type: none"> Long-sections for getting into the parking area are required. 	Appendix B
<ul style="list-style-type: none"> Turning from the access road down the ramp and into the basement parking is required to ensure 2 cars can pass where required. (B99 on the inner circle) 	Appendix B
<ul style="list-style-type: none"> The area that appears the most problematic is the manoeuvres from the access road onto the ramp and vice versa. This manoeuvres also needs to ensure that water on the access road does not traverse into the basement parking area 3.3.2. 	Section 3.3.2 – the proposed driveway is located at the lowest point of the site Section 4.5
<ul style="list-style-type: none"> Although the DCP for Coffs does not require bike parking areas, is it possible to include some, as it is envisaged that there would be occupiers that wished to use bikes. 	Section 4.3

Homes NSW prepared a number of options for driveway and waste collection for Council's review. Table 1.3 documents council's requirements associated with a driveway located near the western end of the Harbour Drive frontage.

Table 1.3: Council Requirements (6 June 2025)

Council Requirements	Addressed in Report
<ul style="list-style-type: none"> Given that access and egress are limited to Harbour Drive, the TIA must assess the vehicle movements necessary for: <ul style="list-style-type: none"> Entering the site from the east, and Exiting the site to the west. 	Section 3.3.2.3
<ul style="list-style-type: none"> This assessment should include: <ul style="list-style-type: none"> The likely routes vehicles would take, The increased risks associated with U-turns required for these movements, and The resulting impact on traffic volumes at affected intersections. 	Section 3.3.2.3 Section 5.3 Section 5.5.3
<ul style="list-style-type: none"> It is noted that the site benefits from the existing traffic signals at the Harbour Drive and Curacoa Street intersection. These signals are expected to create gaps in traffic flow, facilitating safer and more efficient exit movements from the site. 	Section 3.3.2.1 Section 3.3.2.3
<ul style="list-style-type: none"> If gated access is proposed, the development must comply with the queuing requirements outlined in AS2890.1. This is essential to ensure that queuing does not impact Harbour Drive or the operation of the nearby traffic signals. 	Section 4.6 Appendix A
<ul style="list-style-type: none"> As previously advised, the installation of a concrete median would require regulatory signage and approval from the 'Transport Forum'. Approval is not guaranteed. Additionally, the inclusion of a median may necessitate the widening of Harbour Drive to maintain existing lane widths, on-street parking, and bus stop facilities. 	Noted. Section 3.3.2.2

1.3.2 Transport for New South Wales

The proposed development does not trigger the consultation requirements under the State Environmental Planning Policy (Transport & Infrastructure – T&I SEPP) 2021 as noted in Section 9 of this transport impact assessment, TPPP voluntarily initiated a Pre-SSDA consultation with Transport for New South Wales (TfNSW) on 5 August 2025. TfNSW responded on 11 August 2025 that they would provide comments in the SSDA review.

1.4 Report Structure

The contents of the report are set out as follows:

- Section 1 provides an introduction of the project background, how SEARS are addressed, pre-SSDA consultation and references adopted in the assessment.
- Section 2 discusses the existing conditions of the subject site and the future transport strategies in Coffs Harbour.
- Section 3 provides a description of the proposed development including vehicular access and waste collection arrangement.
- Section 4 assesses the parking requirements of the proposed development.
- Section 5 assesses the traffic impacts of the proposed development when fully occupied.
- Section 6 assesses the existing and target mode share, and active and public transport impacts of the proposed development.
- Section 7 reviews crash history and assesses road safety.
- Section 8 details a preliminary construction traffic management plan.
- Section 9 discusses about the State Environmental Planning Policy (Transport & Infrastructure) 2021.
- Section 10 summarises the findings of this Transport Impact Assessment.

1.5 References

Preparation of this TIA has referenced to the following guidelines and standards:

- City of Coffs Harbour Development Control Plan 2015
- State Environmental Planning Policy (Housing) 2021
- TfNSW Guide to Transport Impact Assessment 2024
- City of Coffs Harbour Affordable Housing Strategy 2024
- AS2890.1 (2004): Parking Facilities Part 1: Off-Street Car Parking
- Draft AS2890.1 (2023): Parking Facilities Part 1: Off-Street Car Parking

- AS2890.6 (2022): Off-Street Parking for People with Disabilities
- Coffs Harbour Bypass Environmental Impact Statement (EIS) Appendix F 2019
- State Transit Bus Infrastructure Guidelines 2011
- State Environmental Planning Policy (Transport & infrastructure) 2021.

2 Existing Conditions

2.1 Background

Homes NSW has identified the site as an opportunity to deliver 60 new, quality affordable housing apartments in a well-located area that is serviced by a high level of amenity, services and public active transport.

2.2 Site Description

The site is located at 211A-215 Harbour Drive, Coffs Harbour, in City of Coffs Harbour Local Government Area (LGA).

The site has a total site area of 3,807 square metres (sqm) and has two street frontages; Harbour Drive to the south-west and North Street to the east. Refer to Figure 2.1.

The site is vacant, with only some minor structures such as old property fences associated with former dwellings previously on the site. A number of existing trees are also located on the site. There are no formal driveways for the subject site.

The site is within 200m of the Coffs Harbour City Centre and is close to local schools, open space and recreational areas. A bus stop is located immediately in front of the site, along Harbour Drive and providing bus services throughout Coffs Harbour.

The site is zoned as R3 Medium Density Residential under the City of Coffs Harbour Local Environmental Plan (LEP) 2013.

Figure 2.1: Site Locality



Source: NearMaps

The site is accessible by public transport with services that run along Harbour Drive with frequent services to Toormina and surrounding sections of Coffs Harbour. The bus stop for these services is located along the site frontage providing immediate access to bus services along Harbour Drive.

The Site is located in the vicinity of the following key locations as illustrated in Figure 2.2:

- Coffs Harbour Christian Community Primary School
- Coffs Harbour Public School
- TAFE NSW – Coffs Harbour
- Legacy on Victoria – Nursing Home
- Young Explorers Preschool and Long Day Care
- Coles Coffs Harbour
- Coffs Harbour Botanic Garden.

restrictions along the majority of the road. Four parallel parking bays are marked on the west side of North Street between Harbour Drive and Millward Lane.

North Street has a posted speed limit of 50km/h but a short 40km/h school zone applies to North Street just north of Harbour Drive during the hours of 8am to 9:30am and 2:30pm to 4pm.

2.3.3 Pacific Highway

The Pacific Highway (or known as Grafton Street locally) is a four-lane two-way state road with divided carriageway, which connects with Hexham to the south and Brisbane to the north as an interstate highway.

Kerbside parking has time restrictions on either side of the Pacific Highway within the Coffs Harbour city centre, with the most common parking restrictions being 2P and 1/2P restrictions outside of peak periods. This section of the Pacific Highway has a posted speed limit of 60km/h.

2.3.4 Curacoa Street

Curacoa Street is a two-lane two-way local road with a north-south alignment. Parking is permitted on both sides of the street, but a No Parking zone is located outside Coffs Harbour Christian Community Primary School frontage for drop off and pick up between 8am to 9:30am and 2:30pm and 4pm on school days. 90-degree angled parking bays are provided along the west side of the street facing directly to Coffs Harbour Guide Hall opposite Coffs Harbour Christian School.

2.3.5 Coff Street

Coff Street is a two-lane two-way local road connecting with Curacoa Street to the west and Hardacre Road to the east. Coffs Harbour Botanical Gardens and Coffs Harbour Historic Cemetery are located on the north side of Coff Street. In the absence of speed limit signs, the NSW standard urban speed limit of 50km/h is applied. There is no parking restrictions along the road but the narrow road width prevents kerbside parking.

2.4 Public Transport

The subject Site is serviced by bus routes connecting with Coffs Harbour and Toormina. Coffs Harbour train station serves the North Coast Line which is located 1.75km southeast of the subject site.

Table 2.1 presents a summary of the existing bus and train services near the site, including their respective frequencies.

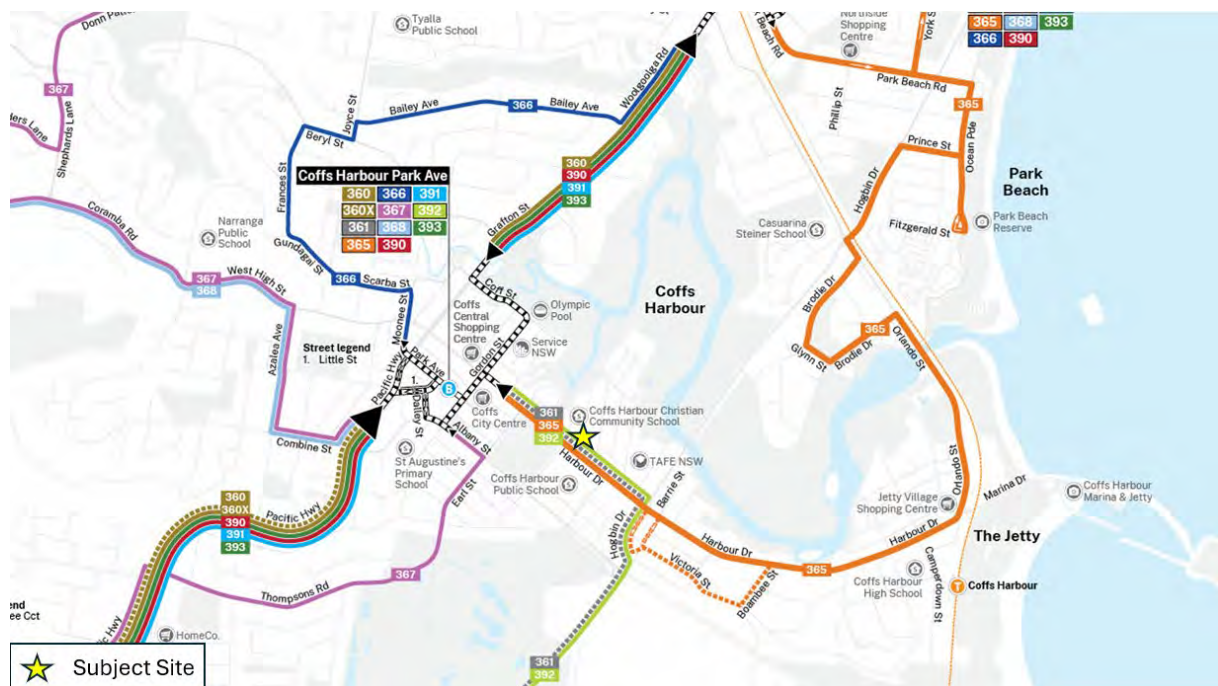
Table 2.1: Existing Public Transport Services

Public Transport	Route Number	Route Description	Bus Stop / Train Station Location	Distance from Site	Frequency	
					Weekday AM	Weekday PM
Train	North Coast Line	Sydney Central Station to Brisbane Roma Street	East side of Angus McLeod Place	1.75km	Services outside AM peak hour	1 PM service to Grafton
Bus	360X	Coffs Harbour Park Avenue to Macksville via Nambucca Heads (Express Service)	South side of Harbour Drive, east of Curacoa Street	120m	1 AM service per day (Arrives from Macksville)	1 PM service per day (Departs to Macksville)
	361	Bellington to Coffs Harbour Park Avenue via Toormina	South side of Harbour Drive, west of North Street	50m	1 AM service per day (Arrives from Bellington)	1 PM service per day (Departs to Bellington)
	365	Coffs Harbour Park Avenue to Park Beach Plaza via Jetty and Park Beach	North and south sides of Harbour Drive, east of Curacoa Street	0m to 50m	Every 30 minutes	Every 30 minutes
	392	Bonville Bambara Drive to Coffs Harbour Park Avenue via Airport	North and south sides of Harbour Drive, east of Curacoa Street	0m to 50m	Every 60 minutes	Every 60 minutes

Reference: Transport for NSW

It can be seen that the eastbound bus stop on the north side of Harbour Drive services two bus services (Route 365 and 392) which can reach Coffs Harbour town centre, Coffs Harbour train station, Jetty Beach, Park Beach Plaza, Southern Cross University and Toormina Gardens Shopping Centre etc.

Figure 2.3: Public Transport Network



Source: Transport for NSW (Coffs Harbour Bus Network Map)

Note: Whilst not shown in the above bus network map, Route 360X runs along Harbour Drive westbound with a bus stop located opposite the subject site.

Table 2.2 provides a summary of school bus routes served by the eastbound bus stop located on the subject site's Harbour Drive frontage. Coffs Harbour Public School is located on the south side of Harbour Drive, directly opposite to the subject site. This bus stop also serves regular bus services as discussed in Table 2.1 which is subject to relocation and is discussed in detail in Section 3.3.2.4.

Table 2.2: Existing School Bus Services (Eastbound) on Harbour Drive Frontage

Route Number	Route Description	Location of Service	Frequency	
			Weekday AM	Weekday PM
S141	Dairyville to St John Paul via Coffs Harbour High	Harbour Drive opp Coffs Harbour Public School	1 AM service per day	N/A
S176	Korora to Coffs Harbour High via Moonee Beach	Harbour Drive opp Coffs Harbour Public School	1 AM service per day	N/A
S180	Nana Glen to Coffs Harbour High via Bucca	Harbour Drive opp Coffs Harbour Public School	1 AM service per day	N/A
S186	Park Beach to St Augustine's	Harbour Drive opp Coffs Harbour Public School	1 AM service per day	N/A
S271	Bellington to Casuarina Steiner	Harbour Drive opp Coffs Harbour Public School	1 AM service per day	N/A
S280	Coffs Harbour Coramba Road to Coffs Harbour High	Harbour Drive opp Coffs Harbour Public School	1 AM service per day	N/A
S281	Bonville Public School to Boambee Public School via Crossmaglen and Coffs Harbour	Harbour Drive opp Coffs Harbour Public School	1 AM service per day	N/A
S284	Coffs Harbour City Centre to Narranga Public School	Harbour Drive opp Coffs Harbour Public School	1 AM service per day	N/A
S301	Coffs Harbour argyll Street to Casuarina Steiner via Coffs Harbour Jetty	Harbour Drive opp Coffs Harbour Public School	1 AM service per day	N/A
S332	Casuarina Steiner to Bellington via Coffs Harbour Education Campus	Harbour Drive opp Coffs Harbour Public School	N/A	1 PM service per day
S351	Bonville Public School to Coffs Harbour Bonville	Harbour Drive opp Coffs Harbour Public School	N/A	1 PM service per day
S841	Sapphire Beach to Korora Public School via Coffs Harbour Public School	Harbour Drive opp Coffs Harbour Public School	1 AM service per day	N/A
S910	Coffs Harbour Bible Church to Toormina via Boambee East and Sawtell	Harbour Drive opp Coffs Harbour Public School	N/A	1 PM service per day
S941	St Augustine's Primary to Korora Pacific Highway via Sapphire Beach	Harbour Drive opp Coffs Harbour Public School	N/A	1 PM service per day

Reference: Transport for NSW

2.5 Pedestrian and Cycling Facilities

In the immediate vicinity of the site, footpaths are provided along either side of Harbour Drive while North Street provides a footpath on the west side only and terminates at the Millward Lane intersection.

The footpath along Harbour Drive connects the Site to the supermarket adjacent to Earl Stret and further to Coffs Harbour city centre.

Cycling facilities are not provided in the immediate vicinity of the site but a cycleway is provided for cycling around Coffs Harbour Creek to the north of the site, near the Botanical Garden.

The cycling map provided in Figure 2.4 presents the Coffs Harbour Council's cycling network with reference to the location of the site provided.

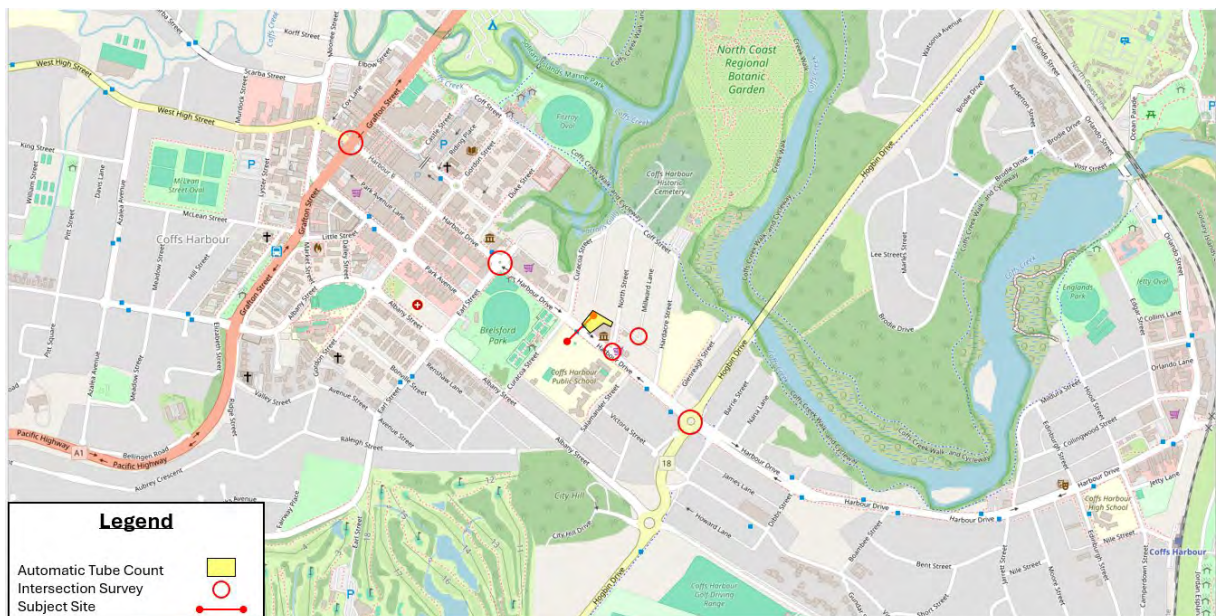
low for Wednesday and Thursday. Therefore, the Wednesday and Thursday data from week 1 was adopted in lieu of week 2 for the westbound direction to enable a robust assessment.

In addition to this, traffic intersection counts were commissioned at the following intersections on Thursday 8 May 2025 during the AM and PM peak periods (7am – 9am and 4pm – 6pm):

- Harbour Drive – West High Street – Pacific Highway (signals)
- Harbour Drive – Earl Street (roundabout)
- Harbour Drive – North Street (priority give-way)
- Harbour Drive – Hogbin Drive (roundabout)
- North Street – Millward Lane (priority give-way)

The surveyed locations are shown in Figure 2.5.

Figure 2.5: Traffic Survey Locations

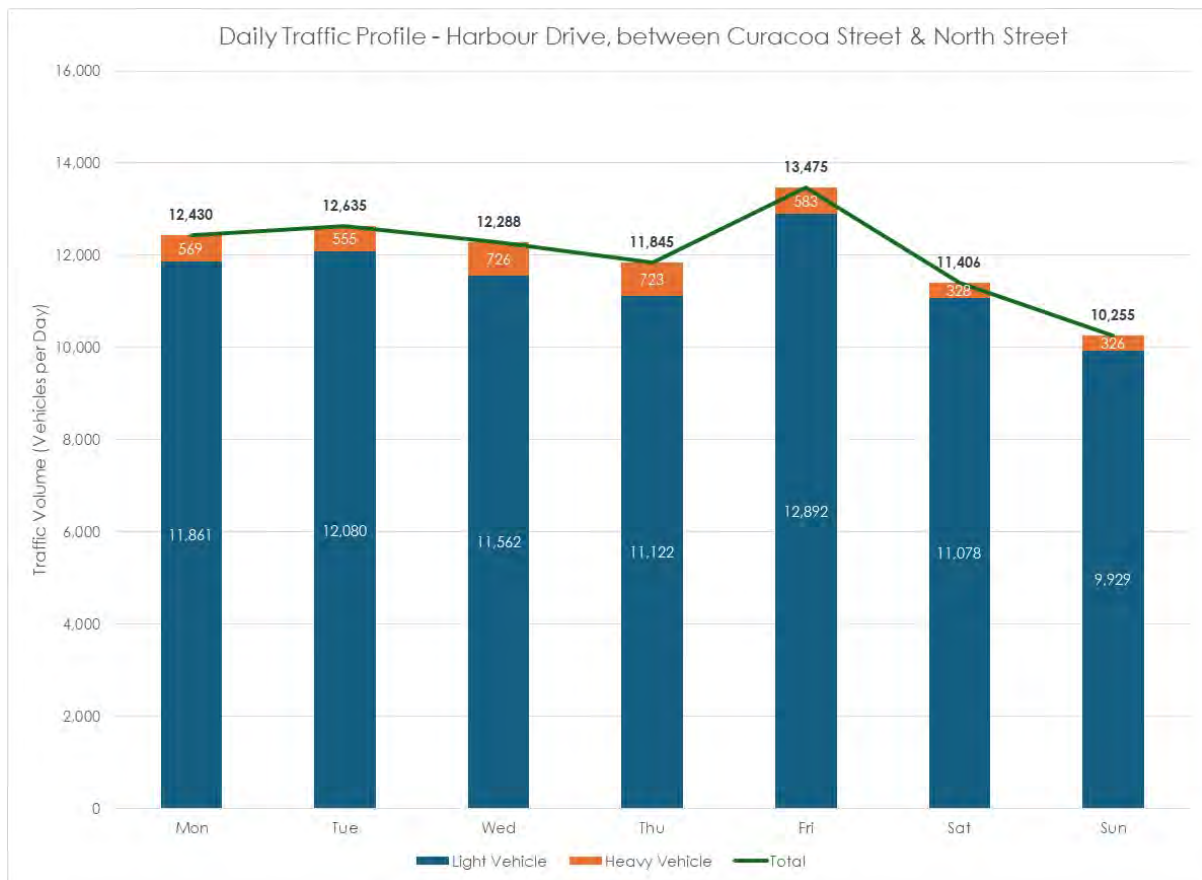


2.6.1 Automatic Tube Counts

Daily and hourly traffic profiles of the automatic tube count on Harbour Drive between Curacao Street and North Street are shown in Figure 2.6 and Figure 2.7 respectively.

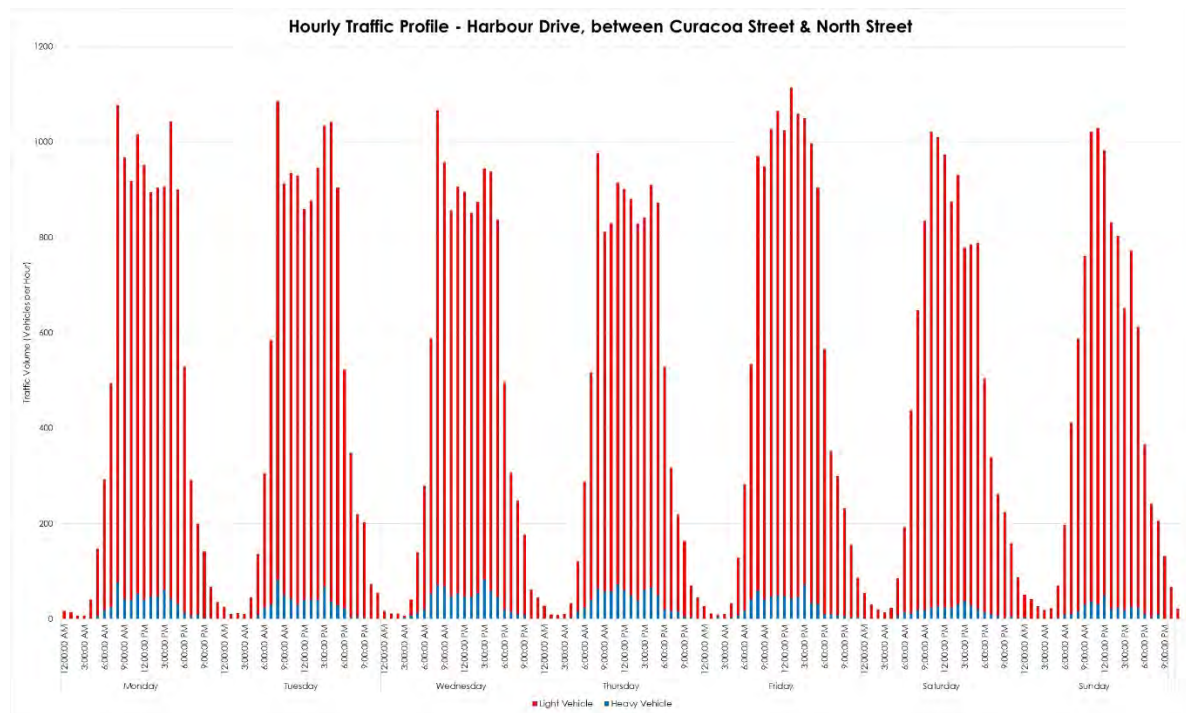
Based on Figure 2.6, the average weekday traffic volume on Harbour Drive is 12,535 vehicles per day with approximately 5.0% heavy vehicle proportion.

Figure 2.6: Daily Traffic Profile



Note: Tube count period 19 to 25 May 2025. But the Wednesday and Thursday data (21 and 22 May 2025) in the westbound direction was unusually low, therefore the earlier count data collected on 8 and 14 May 2025 was adopted for the westbound direction to enable a robust assessment.

Figure 2.7: Hourly Traffic Profile



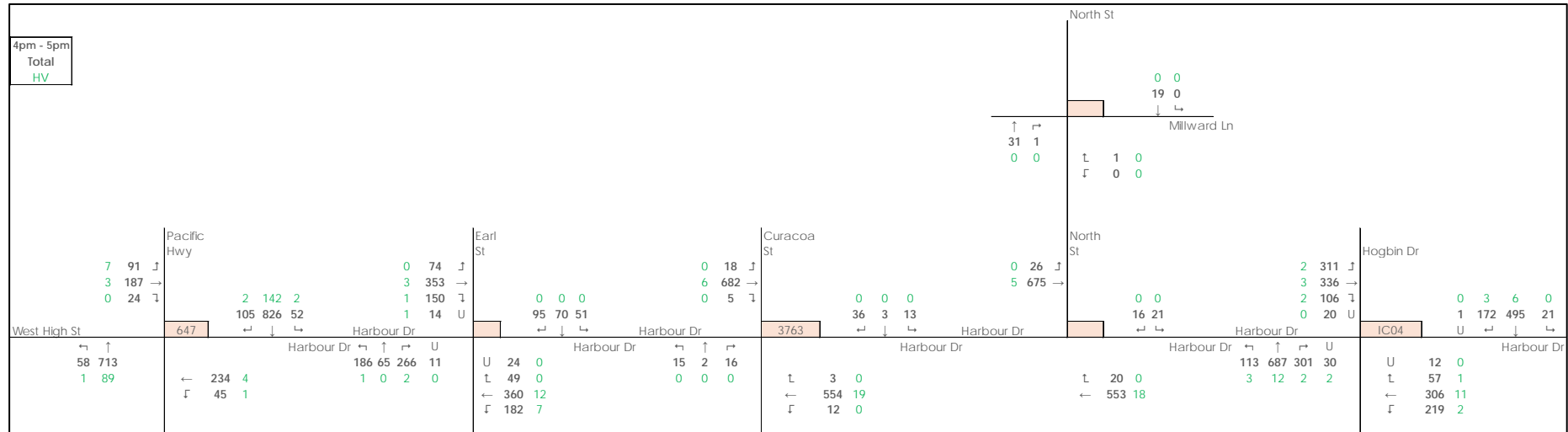
Note: Tube count period 19 to 25 May 2025. But the Wednesday and Thursday data (21 and 22 May 2025) in the westbound direction was unusually low, therefore the earlier count data collected on 8 and 14 May 2025 was adopted for the westbound direction to enable a robust assessment.

2.6.2 Intersection Surveys

Based on the traffic surveys, the identified weekday AM and PM peak hours were 8am-9am and 4pm-5pm.

The existing AM and PM peak traffic volumes are shown in Figure 2.8 and Figure 2.9, respectively.

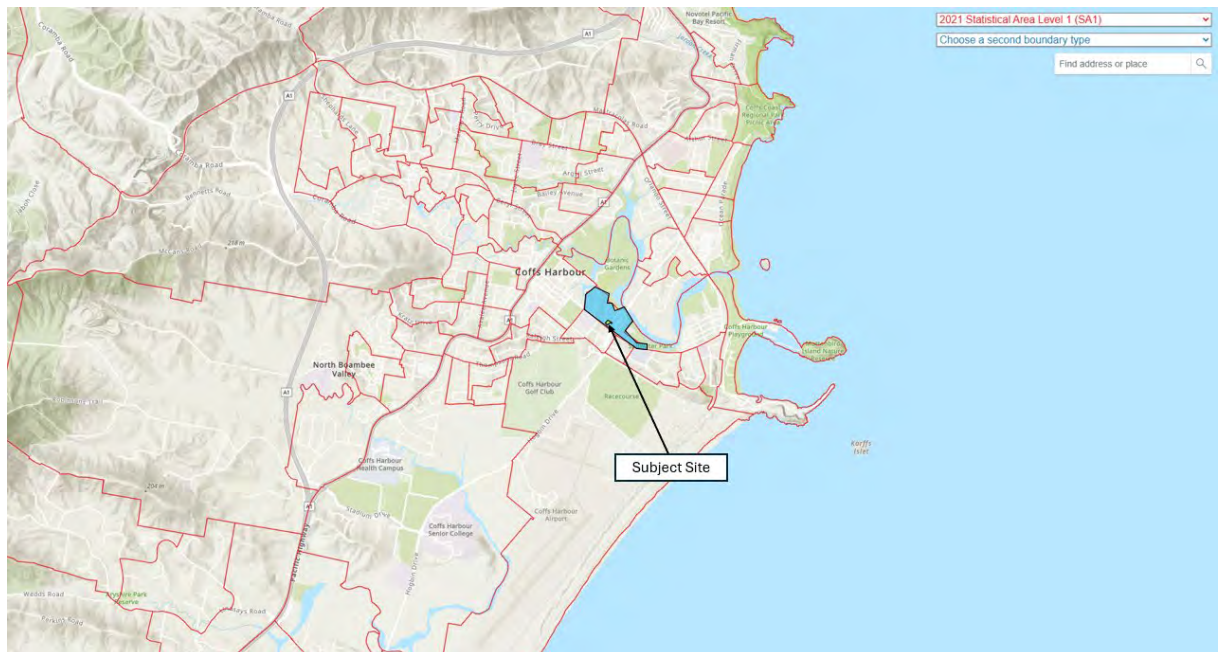
Figure 2.9: Existing PM Traffic Volumes



2.7 Journey to Work Data

Mode share patterns were analysed using the latest ABS Census data (2021) for the selected statistical areas to understand the existing travel patterns of residents and workers within the subject site and surrounding areas. The selected Statistical Area Level 1 (SA1) referenced in this assessment is shown in Figure 2.10.

Figure 2.10: Selected SA1 (2021)



Basemap Source: ABS Maps

A summary of the existing place of work for residents who drive to travel for work is shown in Table 2.3 and Figure 2.10 indicates the location of the place of work destinations relative to the subject site. Table 2.3 indicates that a large portion of employed residents within the surrounding area work within Coffs Harbour. A comparison has been made to the 2016 Census data which demonstrates 96% of employed residents worked within Coffs Harbour compared to 88% in 2021 Census. There was also an increase of 7% of employed residents that changed their workplace to Kempsey – Nambucca, which is about 1 hour drive to the south from Coffs Harbour between 2016 and 2021 census.

Table 2.3: Place Of Work (POW) (employed residents)

Place of work (SA3)	Proportion of Workers Travelling from Selected SA1 (%)	
	2016	2021
Coffs Harbour	96%	88%
Kempsey - Nambucca	0%	7%
POW No Fixed Address (NSW)	4%	5%
Total	100%	100%

Reference: Australian Bureau of Statistics (ABS)

A summary of the Journey to Work mode share of the employed residents in the same SA1 region from 2016 and 2021 is provided in Table 2.4.

Table 2.4: Method of Travel to Work (Employed Residents)

Place of work (SA3)	Proportion of Workers Travelling from Selected SA1 (%)	
	2016	2021
Car, as driver	74%	73%
Car, as passenger	0%	5%
Bus	0%	0%
Train	0%	0%
Bicycle	10%	0%
Walked Only	10%	12%
Worked at Home	6%	10%
Total	100%	100%

Reference: Australian Bureau of Statistics (ABS)

Typically, the Covid-19 pandemic influenced the mode of travel with people switching from public transport/active modes to driving. This pattern is common in many places as reflected by comparing the 2016 and 2021 mode of travel to work data.

Table 2.4 indicates that the proportion of employed residents within the selected SA1 region travelling by private car (as a driver or passenger) is similar in 2016 and 2021 at 74% and 73% respectively. The 2021 mode of travel to work for the selected SA1 region was not heavily influenced by the Covid-19 pandemic, as reflected in the relatively small proportion of residents working from home increasing from 6% to 10%. For analytical purposes, the 2021 mode of travel to work has been adopted in this traffic assessment.

2.8 Strategic Context

2.8.1 Affordable Housing Strategy 2024 (June 2024)

In June 2024, Council adopted the City of Coffs Harbour Affordable Housing Strategy, which outlines actions that council will take to assist the delivery of additional social and affordable housing in the local government area.

This Strategy adopts a target of delivery of 2,215 additional affordable housing dwellings (including social housing) by 2041 to meet additional need.

Affordable housing is housing that is appropriate for the needs of a range of very low to moderate income households and priced so that these households are also able to meet other basic living costs.

Social housing is affordable rental housing for people on low incomes with housing needs. It includes public, community and Aboriginal housing.

2.8.2 Coffs Harbour Bypass

The 14 km Coffs Harbour Bypass project is part of the Pacific Highway upgrade and is designed to divert traffic away from the Coffs Harbour city centre. An overview of Coffs Harbour Bypass is shown in Figure 2.11.

The project is under construction and is scheduled to open to traffic at the end of 2026.

Coffs Harbour Bypass Environmental Impact Statement (EIS) Appendix F 2019 predicted a daily traffic volume of 12,600 vehicles on the Pacific Highway just south of the Coffs Harbour city centre. The bypass is predicted to see a 39% traffic reduction as compared with the prediction without the bypass for Year 2034 due to the traffic shift from the existing highway to the bypass.

Figure 2.11: Overview of Coffs Harbour Bypass



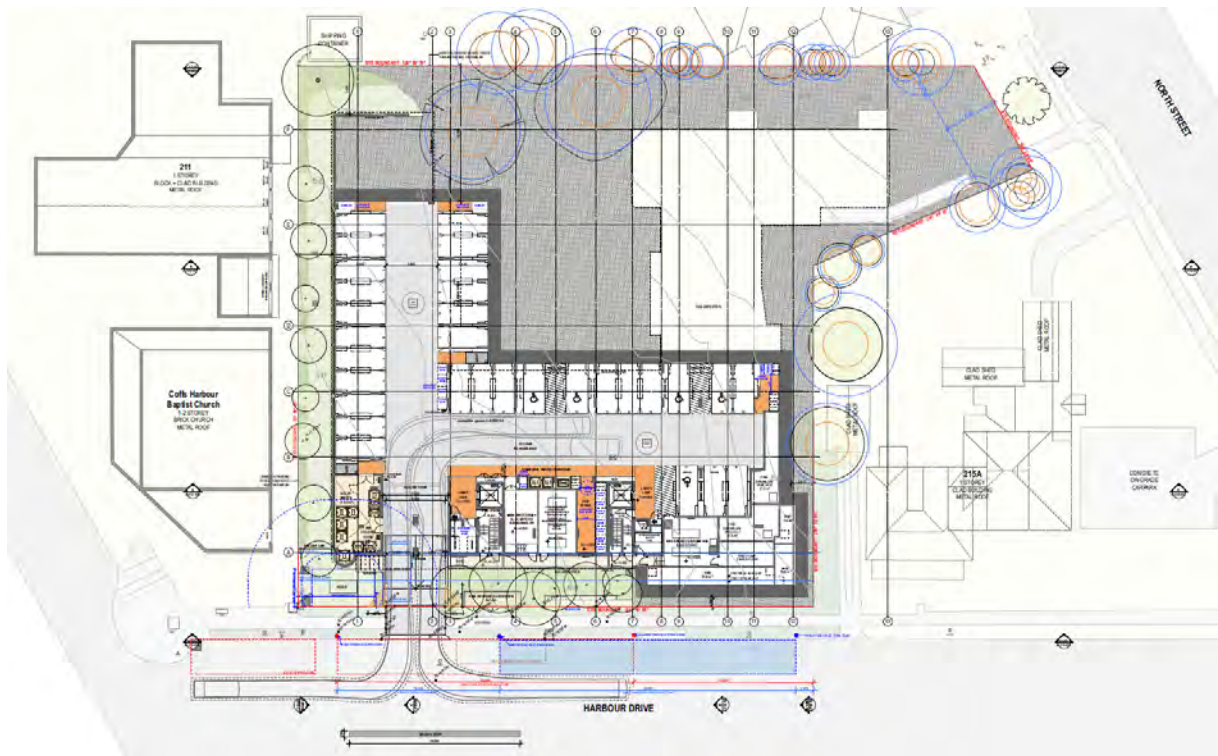
3 Proposed Development

3.1 Project Description

The proposed development comprises the construction of a new residential flat building to accommodate 60 apartments to be used for the purposes of affordable housing, a communal room, basement car parking including excavation, tree removal and associated servicing, landscaping and public domain works.

The construction includes bulk earthworks, tree removal and associated landscaping and public domain works. Refer to the proposed site layout Figure 3.1.

Figure 3.1: Proposed Site Layout



The proposed development is to deliver 60 affordable housing units as follows:

- 26 one-bedroom units
- 32 two-bedroom units
- 2 three-bedroom units.

The total of apartment provision is 26 one-bedroom units, 32 two-bedroom units and 2 three-bedroom units.

The residential units will be designed to meet the design criteria stipulated in Liveable Housing Design Guidelines 2017 (LHDG) as follows:

- All 60 affordable units are LHDG gold level
- 16 affordable units are LHDG gold level and are also compliant with Schedule 4 of the Housing SEPP.

The gold rating relates to the performance criteria established by the Liveable Housing Design Guidelines to achieve housing that allows residents to age in place.

A single level basement car park is to be provided to accommodate 31 parking spaces including five accessible spaces.

Architectural plans are provided in **Appendix A**.

3.2 Proposed Pedestrian and Cyclist Access

Pedestrian access is provided in the form of stairs and an accessible ramp near the eastern end of the Harbour Drive frontage.

Cyclist access is via the Harbour Drive driveway to the resident bicycle parking spaces located in the basement carpark. Visitor bicycle parking facilities are provided on the west side of the driveway.

3.3 Proposed Vehicle Access Arrangements

The subject site has two road frontages, namely, North Street which is a local road located to the east of the site and Harbour Drive which is a collector road (undivided road) to the south of the site. Currently, driveways are not available on neither frontage.

3.3.1 North Street

Typically, site access is provided on a lower order frontage road to minimise conflicts between the site traffic and the through traffic. Consideration has been given to providing a site access on North Street which is a lower order road compared with Harbour Drive. However, a site access on this short frontage (13m long) is not feasible because it is located on the highest point of the subject site which will impose a significant geometrical challenge to design a ramp connection to a basement car park.

Council is aware of this issue and did not object to a site access being provided on the Harbour Drive frontage subject to resolution of traffic issues.

Figure 3.2: Looking North to the North Street Frontage



3.3.2 Harbour Drive

The Harbour Drive frontage is approximately 55m long currently involving a 4m unrestricted zone, a 33m bus zone with the remaining 18m as an unrestricted zone as shown in Figure 3.3.

Figure 3.3: Looking East to the Harbour Drive Frontage



Consideration had been given to providing the driveway at the eastern end of the Harbour Drive frontage but it is deemed not feasible because the existing footpath have significantly

higher RL's than the roadway. This would have resulted in a steep and non-compliant gradient across the footpath which is not suitable for pedestrians.

3.3.2.1 *Proposed Driveway Location*

Homes NSW is proposing a driveway near the western end of the Harbour Drive frontage as shown in Figure 3.1. The benefits of this driveway location involve the following:

- The proposed driveway is located at the lowest point of the subject site which can minimise the gradient required across the verge and footpath to access the basement car park.
- The site benefits from the existing traffic signals at the Harbour Drive and Curacoa Street intersection, which can create gaps in traffic flow to facilitate safer and more efficient exit movements from the site.
- This location can maximise the length of the bus zone subject to a minor relocation within the extent of the Harbour Drive frontage.

Notwithstanding the above, the proposed driveway will require the following works to enable a safe and efficient operation:

- A median strip will be constructed to prevent right turn movements into/ out of the driveway, as such only left-in and left-out movements will be permitted. This is subject to a detailed design to maintain the existing travel lane widths
- The eastbound bus zone to be slightly repositioned approximately 18m to the east to make way for the proposed driveway. This is subject to a detailed design to maintain the existing bus stop amenities.

3.3.2.2 *Assessment of Median Strip*

To comply with Council requirements, a median strip is required on Harbour Drive to restrict right-turn movements into/ out of the site.

Harbour Drive's road shoulder and eastbound travel lanes have a combined width of 10.7m, comprising a 4.3m wide road shoulder, a 3.0m wide inside lane (i.e., adjacent to road shoulder) and a 3.4m wide outside lane (i.e., adjacent to the double barrier line).

This combined width is sufficient to incorporate the adjusted road shoulder and travel lane widths and satisfy the following operational requirements for bus routes, in accordance with State Transit Bus Infrastructure Guide (2011) in the absence of such requirements in the more recent TfNSW publications:

- Road shoulder / parking lane: 3m
- Travel lanes: 3.2m x 2
- Total width 9.4m which is less than the available 10.7m width.

The balance is 1.3m which is more than enough to incorporate the median strip width, noting a Keep Left sign is typically 600m wide. This means the existing width of Harbour Drive is sufficient to accommodate a median strip and compliant shoulder / lane widths, without the need of road widening. On this basis, the median strip will require reconfiguration of the lane line markings, including a slight shift of the eastbound lanes northward to provide two 3.2m wide travel lanes (minimum) and a 3m road shoulder (minimum). A smooth transition to the existing widths will be considered.

A detailed design will be developed by a civil engineer during the detailed design stage to confirm lane adjustment or necessity of kerbline adjustment to enable complying widths.

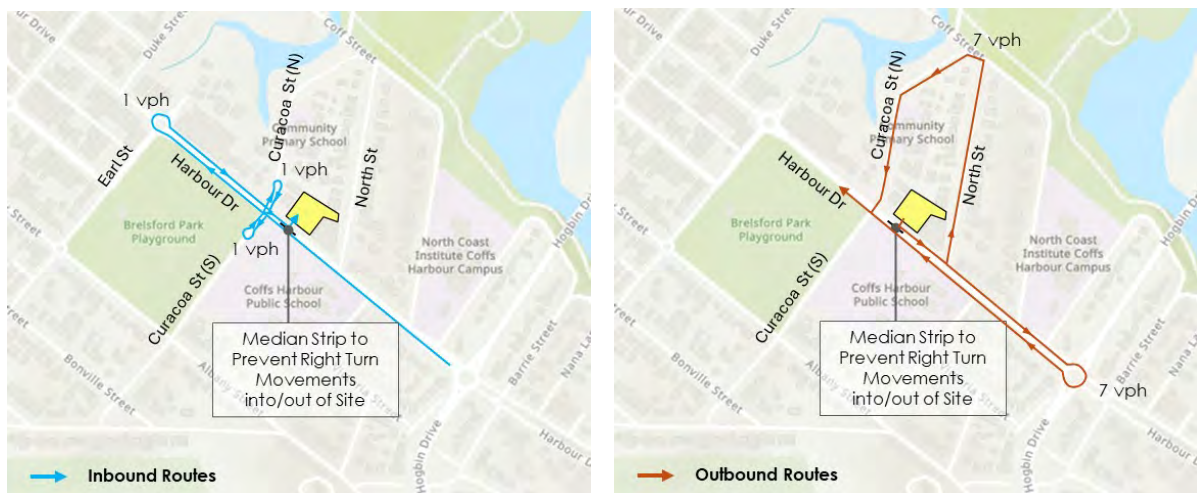
3.3.2.3 Assessment of the Turnaround Movements

The proposed driveway will permit left-in left-out movements only due to the provision of a median strip on Harbour Drive.

Turnaround turning movements can be facilitated via the roundabouts located further east and west of the site, or other local roads as follows and in Figure 3.4:

- Turnaround locations for inbound vehicles coming from the east:
 - Some drivers may turn around on Curacoa Street (north) but considering the traffic signals only allow a filtered right turn from Harbour Drive, this may cause some delays for the right turn movement depending on the availability of gaps in the traffic flow. The additional travel distance is approximately 210m in this route.
 - Some drivers may turn around on Curacoa Street (south) to avoid the filtered right turn from Harbour Drive and there are fewer manoeuvring movements to/from parking spaces, and hence safer to turnaround in this section of the road as compared with the road section north of Harbour Drive. The additional travel distance is approximately 200m in this route.
 - Some drivers may turn around at the Harbour Drive/ Earl Street roundabout if it can reduce the waiting time by staying on the main road (i.e. short green phase on the side road – SCATS data indicates about 20% green time of the total cycle time on side roads) despite a longer travel distance to turnaround at the Harbour Drive/ Earl Street roundabout. The additional travel distance is approximately 610m in this route.
- Turnaround locations for outbound vehicles to the west:
 - Some drivers may turn around at the Harbour Drive/ Hogbin Drive intersection and subsequently head west towards the site along Harbour Drive.
 - Some drivers may travel around the block via North Street and Curacoa Street.

Figure 3.4: Indicative Traffic Volume at Possible Turnaround Locations in the Worst Peak Hour



Given this is a low traffic generating development as shown in Section 5.2, the number of vehicles that will need to make turnaround movements is very low. An indicative breakdown of the turnaround traffic volumes is shown as follows and in Figure 3.4, by assuming an equal distribution across these possible routes:

- The number of inbound vehicles coming from the east that is expected to turn around in the PM peak hour assuming 80% inbound vehicles:
 - Curacoa Street (north): 1 vehicle
 - Curacoa Street (south): 1 vehicle
 - Harbour Drive/ Earl Street roundabout: 1 vehicle
- The number of outbound vehicles heading west that is expected to turn around in the AM peak hour assuming 80% outbound vehicles:
 - Harbour Drive/ Hogbin Drive roundabout: 7 vehicles
 - Travel around the block via North Street and Curacoa Street: 7 vehicles.

There would be more traffic coming from the west than the east because most of the key places including town centre and workplaces are located to the west of the site.

The turnaround location on Curacoa Street (north) is generally the road section with no centreline marking, adjacent to the 90 degree angle parking area, as shown in Figure 3.5.

Figure 3.5: Looking North to Possible Turnaround Location in Curacoa Street (North)



Considering the southern portion of the 90 degree angle parking area is setback generously from the roadway, this would enable a buffer between the Curacoa Street traffic and the traffic reversing into/out of the parking space, hence reducing the safety risk of a collision between a vehicle performing a U-turn movement and a vehicle manoeuvring to/from the parking space. Furthermore, Curacoa Street (north) is some 11.9m wide between the dish crossing and the eastern kerb which is sufficient for a light vehicle to perform a U-turn movement.

Curacoa Street (south) is 11m wide between kerbs which can provide a safe U-turn opportunity without presence of kerbside parking. The roundabout at the Harbour Drive/ Earl Street intersection is also expected to be utilised by motorists to turnaround as well.

Therefore, the low number of turnaround movements as a result of the right turn restrictions at the site access are not expected to impose any adverse impacts at these turnaround locations in both road capacity and road safety perspectives.

3.3.2.4 Assessment of Bus Zone Repositioning

The bus zone is proposed to be slightly repositioned to the east along Harbour Drive to allow for the driveway to the development to be positioned at the most practical and feasible location from a design perspective. The bus zone will maintain the 33m length with separate draw-in and draw-out lengths.

The bus stop located on the Harbour Drive frontage currently serves two regular bus routes (Route 365 and 392), 10 morning school bus routes and four afternoon school bus routes as discussed in Section 2.4.

The bus stop serves 10 school buses in the morning with a catchment primarily for students from Coffs Harbour Public School and Coffs Harbour Christian Community Primary School. Minor repositioning of the bus zone by 18m will increase the walking time by about 15 seconds to the Harbour Drive/ Curacoa Street intersection which would only make a marginal difference to the overall travel time.

In terms of school children safety, a compliant pedestrian sight triangle will be provided at the proposed driveway exit, in conjunction with installation of a STOP sign to emphasise road user priority at the driveway to enhance pedestrian safety.

Furthermore, the existing steps between the kerb and the footpath will be retained to assist passengers with alighting and boarding the buses.

3.4 Waste Collection Arrangements

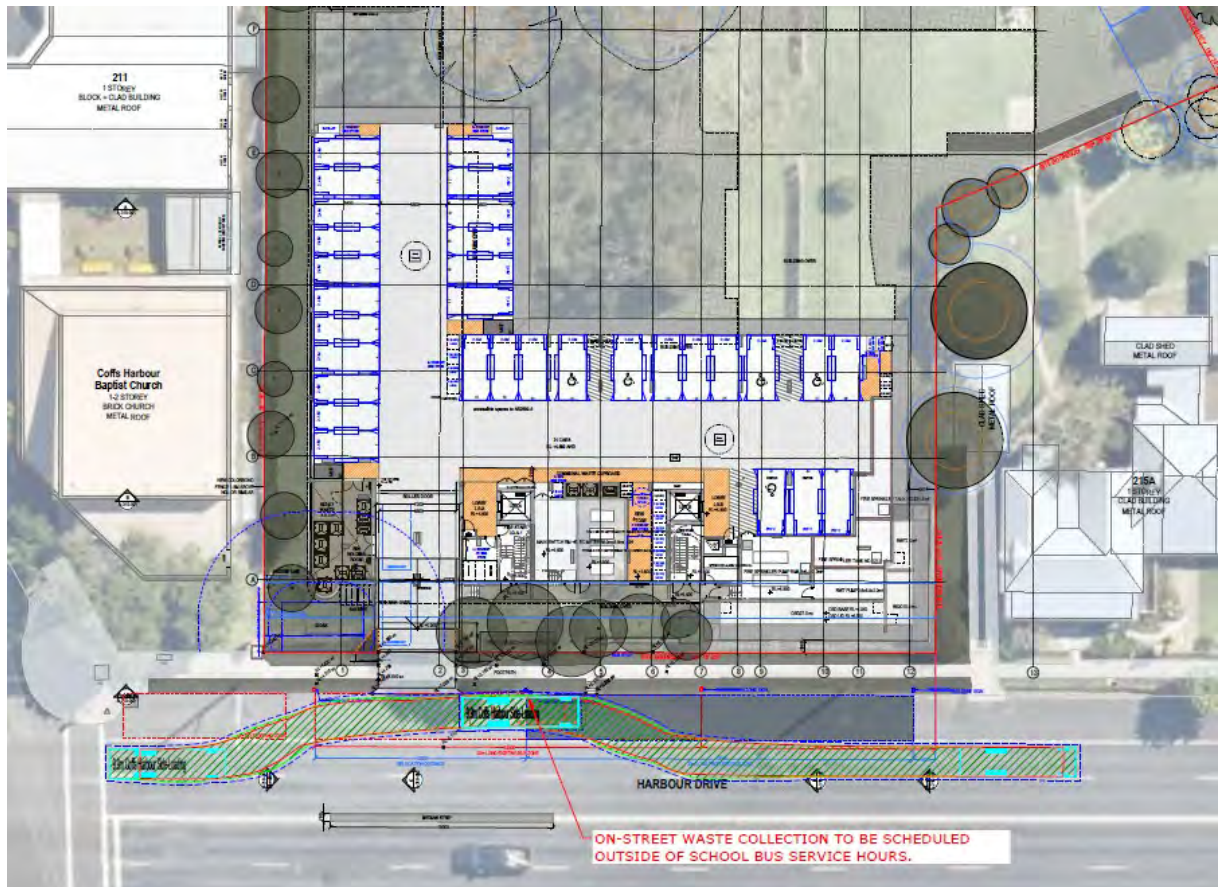
Homes NSW have consulted with Coffs Harbour Council regarding the preferred waste collection method and agreed that all waste collection would take place on the kerbside.

Kerbside waste collection will be undertaken by council's 9.9m side-loading waste truck. Given the site constraints, the only possible location for kerbside waste collection is at the back end of the 33m long bus zone on Harbour Drive, where a waste storage room can be located within a short distance from the kerb. Waste collection activities involve waste personnel manually wheeling bins to/from the waste storage room.

Kerbside waste collection would be scheduled to occur outside the school bus service periods, when there are only three regular bus services per hour for this bus stop.

When a 9.9m waste truck occupies the back end of the 33m long bus zone, there is a still sufficient space for a bus to enter the bus zone as shown in the swept path diagram in Figure 3.6 with an enlargement presented in **Appendix B**.

Figure 3.6: Bus Swept Path When a Waste Truck is in Operation



4 Parking Assessment

4.1 Car Parking

Parking requirements for the proposed development have been assessed based on the following rates set out in a number of references and guidelines:

- TfNSW Guide to Transport Impact Assessment (GTIA) 2024
- City of Coffs Harbour Development Control Plan (DCP) 2015 (amended DCP 2015)
- City of Coffs Harbour Affordable Housing Strategy’s recommended parking rates
- State Environmental Planning Policy (Housing) 2021 (Housing SEPP).

The proposed parking provision has adopted the Housing SEPP parking requirements with an explanation provided in Section 4.1.4.

4.1.1 TfNSW Parking Rates

The parking rates in the GTIA are based on broad categorisation across the state, and the GTIA acknowledges the rates may not always reflect accessibility in some areas. This applies to the subject site as it meets a number of indicators for accessibility – i.e., being within a 15 minute walk of a regional city and within 30 minutes by public transport to a regional city.

On this basis, the subject site classified as Category 3 under GTIA which also related to low or limited alternative transport options, low population density and high car mode share.

The GTIA stipulates the following parking rates under Category 3:

- 1-bedroom dwelling – 1.0 spaces per dwelling
- 2-bedroom dwelling – 1.3 spaces per dwelling
- 3 or more bedroom dwelling – 1.5 space per dwelling
- Visitor – 1 space per 5 dwellings.

A summary of the TfNSW parking requirements is provided in Table 4.1.

Table 4.1: TfNSW Car Parking Requirements

Dwelling Type	Yield	TfNSW Parking Rate (Minimum)	Car Parking Requirement (Minimum)	Proposed Parking Provision
1-bedroom	26	1.0 space per unit	26.0	29
2-bedroom	32	1.3 spaces per unit	41.6	
3-bedroom	2	1.5 spaces per unit	3.0	

Visitor	-	0.2 spaces per unit	12.0	2
Total	60		83	31

The GTIA requires a minimum of 71 parking spaces for residents and 12 parking spaces for visitors. The proposed development provides 29 residential parking spaces and two visitor parking spaces which would not meet the GTIA requirements.

The proposed parking provision has adopted the Housing SEPP parking requirements as detailed in Section 4.1.4.

4.1.2 Coffs Harbour DCP Parking Rates

Coffs Harbour DCP 2015 stipulates the following parking rates for residential flat buildings based on the size of each dwelling:

- ≤100m² GFA – one space
- >100m² GFA – two spaces
- One space per every five dwellings or part thereof.

The proposed development consists of 58 units less than 100m² and two units greater than 100m². The parking requirements for the proposed development as per the DCP are shown in Table 4.2.

Table 4.2: DCP Car Parking Requirements

Dwelling GFA	Yield	Housing SEPP Parking Rate (Minimum)	Car Parking Requirement (Minimum)	Proposed Parking Provision
≤100m ² GFA	58	1 space per unit	58	29
>100m ² GFA	2	2 spaces per unit	4	
Visitor	-	0.2 spaces per unit	12	2
Total	60		74	31

The DCP requires a minimum of 62 parking spaces for residents and 12 parking spaces for visitors. The proposed development provides 29 residential parking spaces and two visitor parking spaces which would not meet the DCP requirements.

The proposed parking provision has adopted the Housing SEPP parking requirements as detailed in Section 4.1.4.

4.1.3 City of Coffs Harbour Affordable Housing Strategy's Recommended Parking Rates

It is acknowledged that City of Coffs Harbour Affordable Housing Strategy 2024 (Action 5a – Amend Coffs Harbour DCP 2015) recommends the following minimum parking requirements for affordable dwellings located within 800m of land in Zone E1, E2 or MU1 and that are used for affordable housing for at least 15 years:

- For each dwelling containing 1 bedroom – no minimum car spaces.
- For each dwelling containing 2 bedrooms – at least 0.5 parking spaces
- For each dwelling containing at least 3 bedrooms – at least 1 parking space.

Coffs Harbour city centre is zoned E2 (commercial centre) which is located within the 800m of the subject site.

Although council has adopted the Affordable Housing Strategy in June 2024, DCP 2015 is still current with no such amendments at this stage. This parking assessment has considered the above recommended parking rates in Table 4.3.

Table 4.3: Car Parking Requirements Based on Recommended Parking Rates on Coffs Harbour Affordable Housing Strategy

Dwelling Type	Yield	Coffs Harbour Affordable Housing Strategy Recommended Parking Rates (Minimum)	Car Parking Requirement (Minimum)	Proposed Parking Provision
1-bedroom	26	0 spaces per unit	0	29
2-bedroom	32	0.5 spaces per unit	16	
3-bedroom	2	1 space per unit	2	
Visitor	0	0 spaces required	-	2
Total	60		18	31

Table 4.3 shows the minimum parking requirement is 18 car parking spaces for residents based on the recommended rates in the Coffs Harbour Affordable Housing Strategy. The parking provision provides a total of 29 residential spaces which complies with the recommended minimum parking rates in accordance with Affordable Housing Strategy 2024.

4.1.4 Housing SEPP Parking Rates

The Housing SEPP prescribes car parking rates for affordable housing within accessible areas, which in regional locations includes land within 800m walking distance of specified commercial zones.

Coffs Harbour city centre is zoned E2 (commercial centre) which is located within the 800m of the subject site. The E2 Commercial Centre zone, however, is not currently listed as a relevant zone under the Housing SEPP, and the in-fill affordable housing provisions in Chapter 2, Part 2, Division 1 of the Housing SEPP therefore do not apply to this site.

Notwithstanding this, the proposal is for affordable housing in a highly accessible location, within 200m walking distance of the Coffs Harbour City Centre and is directly serviced by a bus stop providing regular services throughout the city and therefore the Housing SEPP rates should apply.

In addition, Department of Planning, Housing and Infrastructure (DPHI) has advised through ongoing discussions with Homes NSW that it is considering amendments to the Housing SEPP to expand the definition of ‘accessible areas’ to include E2-zoned land as a ‘relevant zone’ under Section 15C(3). Once gazetted, these changes would enable the non-discretionary car parking rates for affordable housing to apply.

Given the above, it is considered appropriate to reference the non-discretionary car parking rates for in-fill affordable housing in assessing the proposal. These include the following minimum requirements:

- 1-bedroom dwelling – 0.4 spaces per dwelling
- 2-bedroom dwelling – 0.5 spaces per dwelling
- 3 or more bedroom dwelling – 1 space per dwelling.

The parking requirements for the proposed development as per the Housing SEPP are shown in Table 4.4.

Table 4.4: Housing SEPP Car Parking Requirements

Dwelling Type	Yield	Housing SEPP Parking Rate (Minimum)	Minimum Car Parking Requirement	Proposed Parking Provision
1-bedroom	26	0.4 spaces per unit	10.4	29
2-bedroom	32	0.5 spaces per unit	16.0	
3-bedroom	2	1 space per unit	2.0	
Visitor	-	0 spaces required	0	2
Total	60		29	31

The Housing SEPP requires a minimum of 29 parking spaces for residents. The proposed development provides 29 residential car spaces which can satisfy the Housing SEPP requirement.

While the Housing SEPP does not specify requirements on visitor parking, Homes NSW is proposing to provide two visitor parking spaces in the residual spaces in the car park to facilitate client service visits and building maintenance workers etc.

Therefore, the provision of 29 residential parking spaces is compliant with the Housing SEPP requirements. As explained above, the Housing SEPP is considered appropriate to reference the non-discretionary car parking rates for in-fill affordable housing in assessing the subject development.

4.2 Accessible Parking

The Housing SEPP does not specify minimum accessible parking requirements. However, given Homes NSW social housing tenants have a higher likelihood than the rest of the population to have mobility impairments, Homes NSW has set a target to design 20% of the affordable housing units to have the capacity to accommodate a tenant who relies on a wheelchair.

Homes NSW targets 20% of the car spaces required for the affordable housing units to be accessible parking spaces for the social (gold) apartments that are designed based on Schedule 4 of the Housing SEPP.

The proposed development provides four accessible spaces for residents in the basement carpark, representing 14% of the affordable housing parking provision. This is less than Homes NSW's 20% target for accessible parking.

In conjunction with one accessible parking space for visitors, there is a total of five accessible spaces in the basement carpark.

AS2890.6:2009 requires an accessible car parking space with an adjacent shared area to each have dimensions of 2.4m wide by 5.4m long with an aisle width of 5.8m. The design provides a 5.4m long and 2.4m wide accessible space and an adjacent shared area of the same size. Therefore, the design will satisfy the dimensional requirements in AS2890.6:2009.

4.3 Bicycle Parking

Coffs Harbour DCP 2015 and SEPP (Housing) 2021 do not stipulate bicycle parking rates for affordable housing developments.

The proposed basement will provide bicycle lockers that can accommodate 18 conventional bicycles and four bicycle spaces in a secured room for e-bikes (2 racks) for residents. Six visitor bicycle spaces (3 racks) are provided on the west side of the driveway outside the building.

Therefore, a total of 28 bicycle parking spaces are provided.

4.4 Motorcycle Parking

Coffs Harbour DCP 2015 and SEPP 2021 do not stipulate a motorcycle parking rate requirement for affordable housing development.

Homes NSW has set a target to provide one motorcycle parking space per 15 car parking spaces. Based on 31 parking spaces, it is proposed to provide two motorcycle parking spaces in the car park.

The Draft AS2890.1 (2023) requires the motorcycle spaces to be 1.0m wide by 2.0m long and additional 100mm clearance on each side obstructed by a wall. The current AS2890.1 (2004) requires motorcycle spaces to be 1.2m wide by 2.5m long with no other requirements on additional requirement to walls. The proposed spaces are 1.2m wide by 2.5m long and therefore complies with the current AS2890.1 (2004) and the draft AS2890.1 (2023) requirements.

4.5 Car Park Layout Review

The draft revision to standard AS 2890.1 (2004) - Parking Facilities - Part 1: Off-street car parking, recommends an increase in the length of off-street car parking spaces from 5.4 m to 5.6 m.

It is a change that would be difficult to apply post DA, and would also incur a \$4.55 modification. The revised standard is expected to be finalised in the short to medium term. Therefore, the car park has been designed to be compliant with the current AS2890.1 (2004) and the draft AS2890.1 (2023) to 'future proof' the car park design.

A review of the car park design has been undertaken and a summary of the key design elements is shown as follows:

Vehicle Access

- Vehicle access and ramp will be provided off Harbour Drive. The car park is secured behind a roller door with a control point (intercom point). Access control point is discussed in Section 4.6 of this report.
- The proposed driveway and ramp comply with the design requirements in AS2890.1 for residential car park. The proposed maximum ramp grade is 1 in 8 (or 12.5%) which is less than the maximum allowed grade of 1 in 4 (or 25%) in a private car park.
- The driveway and ramp can accommodate up to two cars queuing within the site boundary, prior to the roller door access.
- Vehicle access will not obstruct bus operation at the slightly repositioned bus zone (refer to Section 3.3.2.4) along the Harbour Drive frontage. A STOP sign will be installed at the

car park exit to emphasise road user priority at the driveway to enhance pedestrian safety.

Parking Space Dimensions

- Residential car parking spaces are designed with dimensions of 2.4m width by 5.6m length which can meet the required minimum dimensions of 2.4m width by 5.6m length for Class 1A car parking facilities. This is an addition of 200mm length from the current AS2890.1 (2004).
- Accessible residential car parking spaces are designed in accordance with AS2890.6. These accessible car parking spaces are designed as a minimum 2.4m wide by 5.6m long parking space, with the adjacent shared area adopting the same dimensions. This can meet the AS2890.6 and SEPP (Housing) Schedule 4 requirements.
- Accessible visitor parking space is designed with minimum dimensions of 2.4m width by 5.6m length with an adjacent shared area adopting the same dimensions. This can meet the AS2890.6 requirements.
- The subject site proposes to provide horizontal bicycle railings which can accommodate up to two bicycles. The horizontal parking area is marked in accordance with AS2890.3:2015 where each bicycle's envelope be 500mm wide by 1800mm long. Bicycle aisle widths are compliant with the minimum required 1500mm width. Detailed Bicycle storage design is not available at this stage.

Aisle Width and Vehicle Manoeuvring

All the car parking spaces are configured as 90-degree spaces. The existing AS2890.1 (2004) and the draft AS2890.1 (2023) require Class 1A car parking spaces to have a minimum aisle width of 5.8m. In addition, 0.3m clearance width is required to high obstructions. The proposed car park provides a 6.6m wide parking aisle and a 7.1m wide aisle (including a 0.3m clearance) against a wall. The parking aisles are compliant with the existing AS2890.1 (2004) and the draft AS2890.1 (2023).

The circulation roadway is required to have a minimum width of 3.0m for a single lane or 5.5m wide for a two-way lane, plus a 0.3m kerb to high obstructions/walls. Ramp kerbs are to be less than 0.15m in height. The design enables vehicles passing each other. The swept path assessment in **Appendix B** demonstrates that a 99th percentile car and an 85th percentile car can pass at driveway and along the aisles.

Headroom Clearance

- A minimum 2.2m headroom clearance would be provided above the circulation roadway between the car park access.
- A minimum 2.5m headroom clearance would be provided above accessible parking spaces
- The proposed headroom clearances comply with the minimum requirements set out in AS2890.1 and AS2890.6.

- A vertical clearance assessment for a B99 vehicle turning from the road into the parking area is provided in **Appendix B**.

Other Considerations

- Columns have generally been designed to be located outside of the parking space design envelope shown in Figure 6.1 of the draft AS 2890.1 (2023) to suit the additional 200mm length as required from the current AS2890.1 (2004). There are a few columns to be further amended in the detailed design.
- Appropriate pedestrian sight distance (3m x 5m) has been provided in accordance with the requirements of Figure 3.2 of the draft AS2890.1 (2023) at the access driveway. The existing requirements (2m x 2.5m) can also be satisfied.
- The internal configuration of the basement car park has generally been designed in accordance with the AS2890.1 (2004), draft AS2890.1 (2023) and AS2890.6 (2022).
- The driveway has an apex at the site boundary which can assist with drainage.

In summary, the car park and associated elements are proposed to comply with design requirements set out in the Australian Standards, namely the existing AS2890.1 (2004), draft AS2890.1 (2023) and AS2890.6 (2009). It is however envisaged that a condition of consent would be imposed requiring compliance with these standards and as such, any minor amendments can be resolved prior to the issue of a Construction Certificate.

4.6 Access Control

Homes NSW is proposing the following access control measures:

- Roller door located about 13.5m from the site boundary to access the basement parking area. A traffic median would be provided to site and intercom which visitors can use and for residents to use a fob to access the car park.
- Loops would be installed in the slab for exit movements from the car parking area.

AS2890.1 requires a minimum queue length of two vehicles at a car park with control points at entrances. The 13.5m distance enables the provision of two marked queueing bays between the roller shutter and site boundary which can satisfy this requirement so that queueing does not impact Harbour Drive footpath or the operation of the nearby traffic signals.

5 Traffic Assessment

5.1 Background Traffic Growth

Sydney's Strategic Travel Forecast Model (STFM) provided by TfNSW is a strategic transport planning model that considers population and employment growths and is used for high level of assessment of major infrastructure proposals, transport strategies and policy decision making. The STFM provides future year traffic volumes to determine the relative traffic growth between baseline traffic and future year traffic conditions. However, as advised by TfNSW, STFM data is limited and is not available for Coffs Harbour corridor.

As indicated in Section 2.8.2, reference has been made to the Coffs Harbour Bypass EIS (Table 14) which indicates the following traffic changes for Year 2034 due to a shift of traffic from the existing highway to the bypass:

- Pacific Highway (south of CBD): A reduction of 39% as compared with the no bypass scenario
- Hogbin Drive (north of Harbour Drive): A reduction of 29% as compared with the no bypass scenario.

Further, the EIS indicates the following the traffic growth rates from 2024 (without bypass) to 2034 (with bypass):

- Pacific Highway (south of CBD): A reduction of 3.6% per annum
- Hogbin Drive (north of Harbour Drive): A reduction of 2.4% per annum.

As the bypass is scheduled to open in late 2026, TPPP adopted the EIS traffic reduction to estimate the background traffic growth for a 10-year planning horizon from the existing traffic surveys undertaken in 2025 to the future case for Year 2035.

5.2 Proposed Traffic Generation

The traffic generation has been assessed and calculated by adopting the higher and more conservative traffic generation rates. A number of trip generation rates have been reviewed and compared from those stipulated in Transport of New South Wales (TfNSW) Guide to Transport Impact Assessment 2024 (2024 GTIA) and TfNSW Trip Rates from Coffs Harbour Survey Site (2024 GTIA).

TfNSW Updated Survey Technical Direction TDT2013/04a rates have been superseded by the new GTIA 2024 and was not considered in this assessment.

From the 2024 GTIA, the typical traffic generation rates for high density residential developments are shown as follows based on the number of bedrooms (B) and the number of units (U) in the development:

- AM peak hour:
 - $0.14B + 1.92$ (where $B > 55$), or
 - $0.39U - 3.06$ (where $U > 47$)
- PM peak hour:
 - $0.17B$, or
 - $0.475U - 6.66$ (where $U > 85$)
- Daily vehicle trip: $1.41B - 12.44$ (where $B > 53$)

The use of these TfNSW traffic generation rates is considered conservative for affordable housing units given the typically lower traffic generating nature of these units during the morning and afternoon peak hours in TTPP project experience. However, these typical rates have been adopted to enable a robust traffic assessment to be undertaken.

The proposed traffic generation is summarised in Table 5.1 considering the proposed development contains a total of 96 bedrooms in 60 units.

Table 5.1: Traffic Generation Estimates (GTIA 2024)

Type	Yield	TfNSW Traffic Generation Rates			Traffic Generation (vehicle trips/hour)			Traffic Generation (Vehicle Trip/hour) – (Greater Value is Taken)		
		AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily
Bedroom Number	96 bedrooms	$0.14B + 1.92$ (where $B > 55$) Or $0.39U - 3.06$ (where $U > 47$)	$0.17B$ Or $0.475U - 6.66$ (where $U > 85$)	$1.41B - 12.44$ (where $B > 53$)	16	17	123	29	23	169
Unit Number	60 units				21	NA				

Using the above trip generation rates, the 60 units (or 96 bedrooms) are anticipated to generate 16 to 21 trips in the AM peak hour, 17 trips in the PM peak hour and 123 daily trips. GTIA shows car mode is 53% of mode share but Census JTW data indicates 73% by car in the relevant SA1 in Coffs Harbour in Table 2.4. The factor between the Census data and TfNSW data for car mode is 1.38. This 1.38 factor is adopted to adjust the vehicle trips as Census shows a higher car usage in the selected SA1 around the subject site than the regional average in TfNSW data. The adjusted vehicle trip generation is shown as follows:

- AM Peak: 29 vehicles per hour
- PM Peak: 23 vehicles per hour
- Daily trip generation: 169 vehicle trips.

A further review of the TfNSW survey data was undertaken for a high density residential development at 77-79 Ocean Parade, Coffs Harbour. Adopting the above method to scale up the TfNSW traffic generation rates by a factor of 1.18 based on a comparison of the car mode share between the Census JTW data (73%) and the Coffs Harbour survey site (62%). The traffic generation estimate as shown in Table 5.2.

Table 5.2: Traffic Generation Estimates (Based on Coffs Harbour GTIA Survey)

Yield	Peak	TfNSW Guide 2024 (Coffs Harbour Site)	Vehicle Trips	Adjusted Vehicle Trips (with a Factor of 1.18 as Census shows a higher car usage in the selected SA1 around the subject site than TfNSW Site 23 at Coffs Harbour)
60 units	AM	0.257	15	18
	PM	0.233	14	16

By comparing the above two methods for trip generation, the higher and more conservative traffic generation has been adopted is as below:

- AM Peak: 39 vehicles per hour
- PM Peak: 23 vehicles per hour
- Daily trip generation: 169 vehicle trips.

5.3 Distributions and Assignment of Development Traffic

In terms of traffic distribution of the proposed residential development on the surrounding road network, the following distribution patterns have been assumed:

- AM peak: 20% inbound traffic / 80% outbound traffic movements
- PM peak: 80% inbound traffic / 20% outbound traffic movements.

A median strip is required to restrict right-turn movements into and out of the site. Turnaround turning movements can be facilitated via the roundabouts located further east and west of the site. Trip distribution of the subject site has been considered as follows based on the discussion in Section 3.3.2.3:

- Turnaround locations for inbound vehicles coming from the east
 - Curacoa Street (north)
 - Curacoa Street (south)
 - Harbour Drive/ Earl Street roundabout
- Turnaround locations for outbound vehicles to the west
 - Harbour Drive/ Hogbin Drive roundabout
 - Travel around the block via North Street and Curacoa Street.

Figure 5.1 and Figure 5.2 show the development traffic distribution for the AM and PM peak hours respectively based on the top destinations for employed residents.

Figure 5.1: Development Traffic Generation (AM Peak Hour)

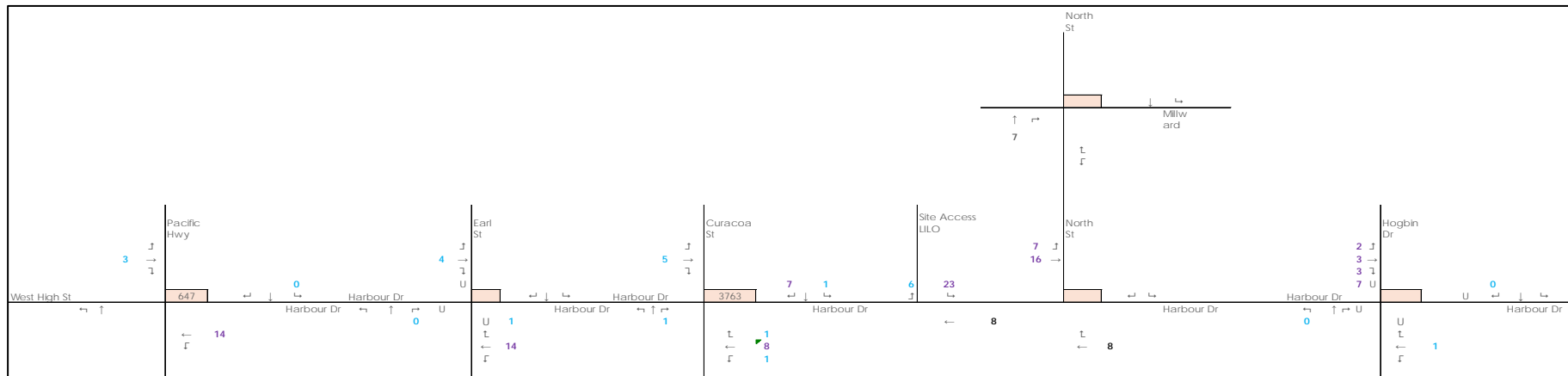
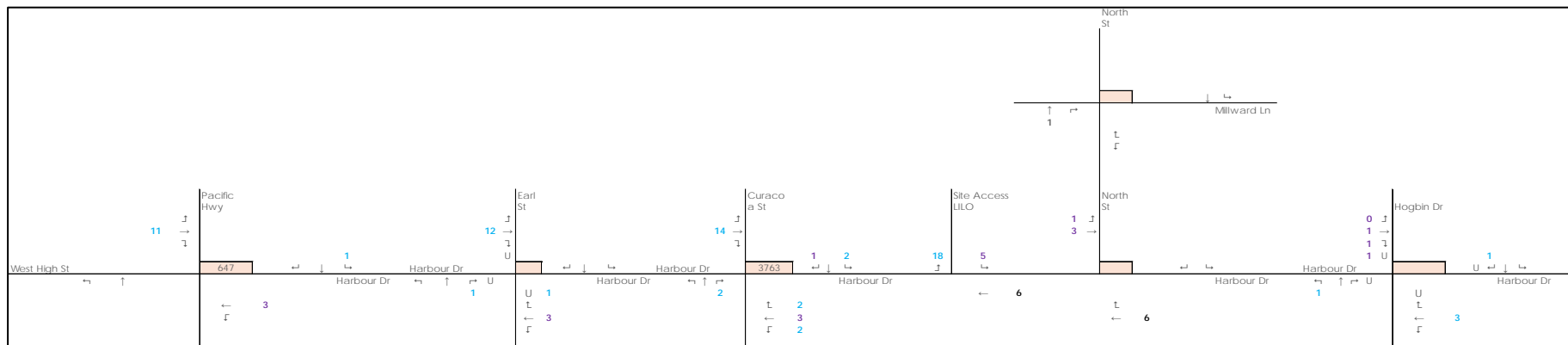


Figure 5.2: Development Traffic Generation (PM Peak Hour)



5.4 Future Traffic Volumes

The future traffic volumes are derived by adding the proposed development traffic to the future background traffic volumes for year 2035 (taking into consideration traffic reductions as a result of the Coffs Harbour Bypass construction).

The 2035 Future Base with background traffic volumes based on the Coffs Harbour Bypass EIS are shown in Figure 5.3 and Figure 5.4 respectively.

The future AM and PM peak hour traffic volumes are shown in Figure 5.5 and Figure 5.6 respectively.

Figure 5.5: Future Traffic Volume with Development for Year 2035 (AM Peak Hour)

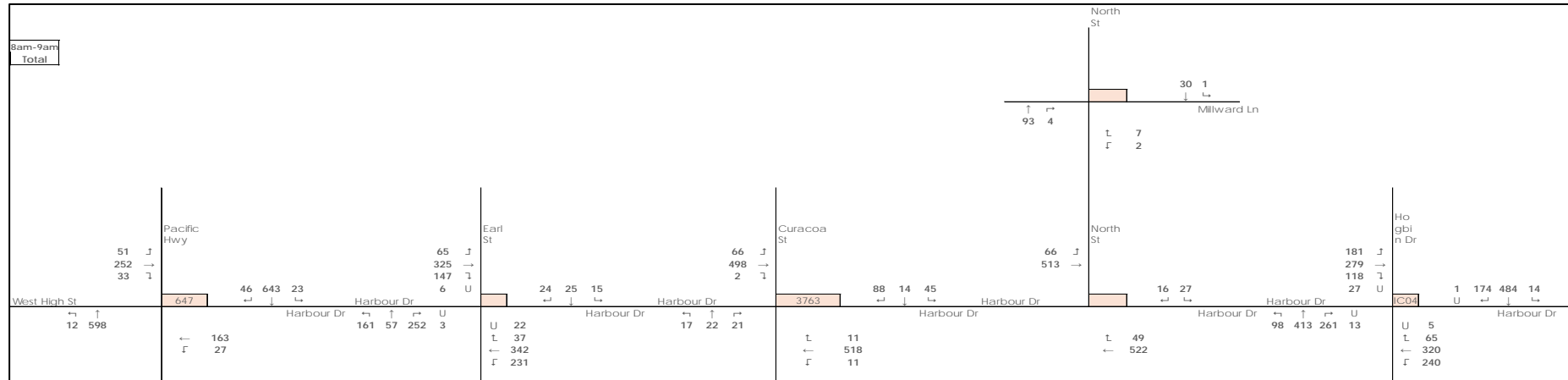
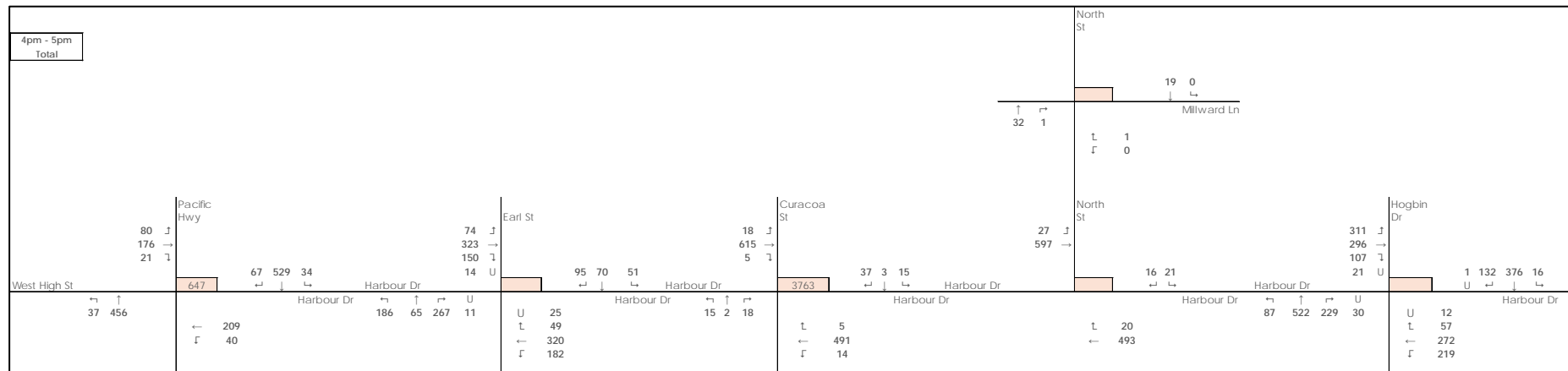


Figure 5.6: Future Traffic Volume with Development for Year 2035 (PM Peak Hour)



5.5 Intersection Capacity Analysis

5.5.1 Modelled Scenarios

Intersection capacity analysis has been conducted using SIDRA Intersection 10 modelling software on key surrounding intersections to assess the traffic implications arising from the proposal. The following scenarios have been assessed:

- **Scenario 0 (S0)** – 2025 Existing Base case
- **Scenario 1 (S1)** – 2035 Future Base with background traffic growth based on the Coffs Harbour Bypass EIS
- **Scenario 2 (S2)** – Scenario 1, plus proposed development.

5.5.2 Level of Service Criteria

TfNSW uses the performance measure level of service to define how efficient an intersection is operating under given prevailing traffic conditions. Level of service is directly related to the delays experienced by traffic travelling the intersection. Level of service ranges from LoS A to LoS F. LoS A indicates the intersection is operating with spare capacity, while LoS F indicates the intersection is operating above capacity. LoS D is the long-term desirable level of service.

At signalised intersections, the average delay is the volume weighted average of all movements. For roundabouts and priority (give way and stop sign) controlled intersections, the average delay relates to the worst movement.

Table 5.3 shows the criteria that SIDRA Intersection adopts in assessing the level of service.

Table 5.3: TfNSW Level of Service Criteria

Level of Service (LoS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	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	Greater than 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode or major treatment

5.5.3 Intersection Capacity Analysis Results

A summary of the AM and PM peak traffic modelling results is provided in Table 5.4 and Table 5.5 respectively. SIDRA output is provided in **Appendix C**.

Table 5.4: SIDRA Intersection Analysis Results – AM Peak

Intersection	Control	Existing Condition		S1: 10-Year Future Base		S2: Future Base + Development	
		Average Delay (s)	LoS	Average Delay (s)	LoS	Average Delay (s)	LoS
Harbour Dr – Pacific Hwy – W High St	Signal	28	B	27	B	28	B
Harbour Dr – East St	RAB	10	A	10	A	10	A
Harbour Dr - Curacoa St	Signal	12	A	12	A	12	A
Harbour Dr – North St	Priority	24	B	19	B	20	B
North St – Millward Ln	Priority	6	A	6	A	6	A
Harbour Dr – Hogbin Dr	RAB	19	B	14	A	14	A

Table 5.5: SIDRA Intersection Analysis Results – PM Peak

Intersection	Control	Existing Condition		S1: 10-Year Future Base		S2: Future Base + Development	
		Average Delay (s)	LoS	Average Delay (s)	LoS	Average Delay (s)	LoS
Harbour Dr – Pacific Hwy – W High St	Signal	32	C	30	C	31	C
Harbour Dr – East St	RAB	12	A	11	A	11	A
Harbour Dr - Curacoa St	Signal	7	A	7	A	7	A
Harbour Dr – North St	Priority	27	B	21	B	22	B
North St – Millward Ln	Priority	5	A	5	A	5	A
Harbour Dr – Hogbin Dr	RAB	18	B	13	A	13	A

Based on Table 5.4 and Table 5.5, all intersections currently operate at an acceptable Level of Service (LoS) of C or better during the AM and PM peak hours.

In the 10-year Future Base (S1) AM peak hour, all intersections would either continue to operate at the same LoS per existing conditions or improve from level B to level A as a result of the future Coff Harbour bypass which is expected to divert through traffic from the city centre to the bypass.

The Future Base with Development (S2) scenario modelling results indicate that additional traffic associated with the subject development would not impact the intersection LoS. The modelling results indicate a maximum of one second increase to average delay which is not anticipated to impose any material difference to the intersection performance.

Overall, from a traffic perspective the proposed development would have minimal traffic impacts to the surrounding road network. All intersections are expected to operate at similar LoS per the existing condition, with some improvements in the 10-year future base (S1) and future base with development (S2) as a result of the Coff Harbour bypass which is scheduled to open in late 2026.

6 Active and Public Transport Network

6.1 Target Mode Share

The following considerations have been given to setting a target mode share for the subject residential development:

- For work trips associated with the affordable housing units, key work destinations as shown in the Census 2021 data are predominantly located in Coffs Harbour (88%) where employment opportunities are primarily located in Coffs Harbour town centre (600m to 1km distance) and Jetty Beach (1.17km distance). These locations can be accessed on foot, or by private cars and the bus routes as shown in Section 2.4.
- As the subject site is conveniently located with easy access to bus services, with the closest bus stop located in the Harbour Drive site frontage and another one located in Park Avenue for bus services to further destinations, it is expected there will be a minor increase in the uptake of buses.
- School children can walk to the nearby schools e.g. Coffs Harbour Christian Community Primary School and Coffs Harbour Public School. School services are available to take school children to other schools in Coffs Harbour.
- Residents can walk / cycle to the nearby town centre for shopping, leisure and work.

As the above top travel locations for shopping, school, leisure and work are accessible by public transport, on foot and by bicycle, a mode shift of 4% has been targeted for the subject development to promote a modal shift towards more sustainable transport options, and also to reflect more walking trips that can be generated by the non-work trips.

A modal shift between 3%-5% is typically considered to be a significant achievement, based on knowledge on local and international green travel plans, and advice from experts in Land and Environment Court proceedings.

Table 6.1 provides a summary of the target mode share and the changes from the existing mode share.

Table 6.1: Existing and Target Mode Share

Mode Share	Existing Mode Share (based on Census 2021)	Target Mode Share
Car, as driver	73%	69% (- 4%)
Car, as passenger	5%	5% (no change)
Bus	0%	1% (+ 1%)
Bicycle	0%	1% (+ 1%)
Walk only	12%	14% (+ 2%)
Worked at home	10%	10% (no change)
Total	100%	100%

Table 6.2 provides a summary of the proposed person trips in the outbound direction in the AM peak hour. The 23 car trips are consistent with the traffic generation in Table 5.1 as it has been assumed 80% of the 29 car trips are outbound in the AM peak hour, resulting in a total of 34 person trips in the AM peak hour.

Table 6.2: Future Person Trips (Outbound) in the AM Peak Hour

Mode Share	Target Mode Share	Person Trips
Car, as driver	69%	23.2
Car, as passenger	5%	1.7
Bus	1%	0.3
Bicycle	1%	0.3
Walk only	14%	4.7
Worked at home	10%	3.4
Total	100%	34

6.2 Active and Public Transport Network

The existing active and public transport network will be retained as per the existing conditions. The proposed development would not alter these infrastructures and facilities.

Residents' mode choice for working, school, leisure and shopping would involve walking, cycling and buses considering the subject site is conveniently located with easy access to bus services and close to the town centre.

Key destinations such as town centre, commercial area and schools are located within a walkable distance from the subject site. As footpath network is available on both sides of the roads, residents have the opportunity to walk to these destinations.

In addition, bus services are available to Coffs Harbour town centre, Coffs Harbour train station, Jetty Beach, Park Beach Plaza, Southern Cross University and Toormina Gardens Shopping Centre. The nearest bus stop is located on Harbour Drive just outside the subject site.

7 Road Safety Assessment

7.1 Crash History

TTPP obtained crash data from NSW Centre of Road Safety for the period between 1 January 2019 and 31 December 2023 for Harbour Drive and North Street in the vicinity of the subject site. During this period, there has been three crashes recorded in the vicinity of the site, two at and near the intersection of Harbour Drive and Curacoa Street, and one crash was at Harbour Drive and North Street intersection.

All the crashes were isolated incidents. The majority of these were rear end crashes which are common at signalised and T-section intersections. The crash data within the vicinity of the subject site are shown in Figure 7.1.

Figure 7.1: Crash Location (2019 to 2023)



A summary of these three crashes is provided as follows:

- One crash occurred at the Harbour Drive/ Curacoa Street intersection involving a vehicle proceeding along Curacoa Street northbound that hit a cyclist that was merging from the footpath to the roadway (RUM 48). This crash resulted in injury.
- One crash occurred at the Harbour Drive/ North Street intersection involving a vehicle proceeding along Harbour Drive westbound that collided the rear of another vehicle (RUM 30) and subsequently impacted another vehicle. This towaway crash involved three vehicles.

- On crash occurred at a mid-block location on Harbour Drive just east of Curacoa Street involving a vehicle colliding the rear of a stationary vehicle (RUM 30) and subsequently impacted another stationary vehicle while proceeding along Harbour Drive westbound. This crash involved three vehicles and resulted in moderate injury.

All of these crashes occurred during daylight hours on weekdays when the weather was fine. These crashes are isolated and do not indicate any pattern or evidence of safety issues.

7.2 Harbour Drive Driveway

The proposed development would increase traffic movements along Harbour Drive. The proposed driveway will permit left-in and left-out movements to and from Harbour Drive only.

Section 3.3.2.3 provides a discussion on the vehicle turnaround routes due to the right turn restrictions as a result of the median strip on Harbour Drive. The low traffic generating nature of this development would impose a low number of turnaround movements which would be dispersed across two to three possible turnaround routes for inbound and outbound vehicles. Other than the Harbour Drive roundabouts, drivers may also turnaround on Curacoa Street (north or south) where a U-turn movement can be safely performed.

A discussion on bus zone relocation is provided in Section 3.3.2.4. A compliant pedestrian sight triangle will be provided at the proposed driveway exit, in conjunction with installation of a STOP sign to emphasise road user priority at the driveway to enhance pedestrian safety.

8 Preliminary Construction Management Plan

8.1 Description of Works

This preliminary construction traffic management plan (CTMP) has been prepared to address the SEARS requirement (No. 9 – Transport).

At this stage, a construction contractor has not been appointed and therefore, details provided in this preliminary CTMP may change subject to a detailed construction methodology which will be available during detailed design / construction certificate stage. Any changes proposed by the appointed contractor will require further approvals from the relevant consent authorities for the Construction Certificate.

The purpose of this preliminary CTMP is to detail how traffic, pedestrians and public transport will be managed during the proposed construction works. This CTMP framework will provide a strategy to reduce the impacts to traffic and access on the surrounding roads during each construction stage to provide a safe road environment, while maintaining access for all road users and the local community.

Construction works would involve construction of a four-storey residential flat building to accommodate 60 affordable housing units. At this stage, it is anticipated the construction will be completed in four stages as shown in Table 8.1.

Table 8.1: Indicative Construction Stages

Stage	Activities
Early Works / excavation	Construction of temporary driveway on Harbour Drive, minor repositioning of bus zone, construction of median strip Tree clearing, excavation, below ground services and below ground structure
Construction	Structure, roof, façade, services
Fit-out	Architectural finishes and fitout
External works	Completion of external works

8.2 Hours of Construction

The construction hours will be generally limited to:

- 7:00 am to 6:00 pm Monday to Friday
- 8:00 am to 1:00 pm on Saturdays
- No work on Sundays or Public Holidays.

resistant and DDA compliant ramps to be provided to enable a smooth transition between the existing footpath and the temporary pedestrian path.

Water-filled barriers and traffic cones will be installed to create separation for pedestrians from the construction works and general traffic. This arrangement will maintain pedestrian access to/from the bus stop located on the site frontage.

Appendix B shows the swept path of a standard bus travelling past the proposed temporary driveway when it is under construction next to the existing bus zone, as well as next to the slightly repositioned bus zone.

During the evenings, the temporary pedestrian path will be removed and a synthetic walkway (e.g. steel plate or the like) will be placed on the footpath area to maintain pedestrian access along the north side of Harbour Drive.

Notwithstanding the above, the pedestrian path is subject to DDA compliance considering the verge sits much higher than the kerb. Alternative is to temporarily close the footpath for the works area and re-direct pedestrians to the footpath on the opposite side of Harbour Drive. Designated crossing points would be the signalised crossing at the Harbour Drive/ Curacoa Street intersection and the pedestrian crossing just west of Glenreagh Street, which are located approximately 60m to the west and 280m to the east of the subject site respectively.

8.4.2 Bus Zone Relocation

Relocation of the eastbound bus zone will be necessary for approximately 18m to the east. This bus stop serves two regular bus routes (Route 365 and 392), 10 morning school bus routes and four afternoon school bus routes as discussed in Section 2.4. This will be required prior to the construction of the permanent driveway.

8.4.3 Median Strip

The proposed median strip to prevent right turn movements to/from the subject site is subject to detailed design. This can be included in the final CTMP when construction method becomes available. Nevertheless it is likely to result in the closure of one travel lane in each direction during the construction of the median strip.

Typically, lane capacity is 900 vehicle per hour per lane for an urban road. Harbour Drive carries the following volume over two lanes in the midblock location between Curacoa Street and North Street (refer to Section Figure 2.8 and Figure 2.9):

- 625 vehicles in the AM peak hour and 711 vehicles in the PM peak hour in the eastbound direction

- 599 vehicles in the AM peak hour and 569 vehicles in the PM peak hour in the westbound direction.

The remaining lane would have sufficient capacity (900 vehicles/ hour/ lane) to accommodate the above peak hour traffic volume during temporary closure of one travel lane in each direction when the median strip is being constructed.

8.5 Vehicle Access Arrangement

When the driveway has been constructed, all authorised vehicles are to enter and exit the site in a forward direction. A traffic controller will be located at the driveway to manage construction vehicle and pedestrian movements.

No queuing, marshalling or parking will be permitted on any surrounding roads. Construction vehicles are to radio or call on approach to ensure adequate access to the site is available.

8.6 Construction Work Zone

A work zone is proposed along the road shoulder on the north side of Harbour Drive. While the length of the work zone is not determined at this early stage, the available length in the Harbour Drive frontage is 55m, which means the work zone would only be a section of the road frontage outside the bus zone that will be slightly repositioned.

The work zone will be operational outside school zone hours. Specific time periods are to be considered in the final CTMP.

Loading of materials would occur over the footpath using a crane to be located within the site. Further details to be provided post DA when a building contractor is appointed.

8.7 Construction Parking

No on-site construction parking will be provided. All construction workers will be encouraged to use public transport and/or carpooling, wherever possible, to travel to/from the site.

The following measures would be implemented to encourage staff to utilise public transport:

- Provision of a secure tool storage facility on-site to allow tradespeople to safely store tools required for the project allowing them to use public transport to travel to and from the site on a daily basis.
- During the site induction phase and regular management meetings, staff would be instructed to use public transport when travelling to the site and public transport timetables.

Workers will also be informed of restricted parking conditions on-site and the surrounding road network. Workers may park on Curacoa Street and North Street but they will be encouraged to carpooling if driving is the choice of transport. These roads typically have low parking occupancy in close vicinity of the site and no adverse parking impact is anticipated.

8.8 Construction Vehicle Routes

Dedicated construction vehicle routes have been developed to provide the shortest distances to/from the arterial road network, whilst minimising the impact of construction traffic on local streets within the vicinity of the site. All truck drivers will be advised of the designated routes to/from the site.

The nominated construction vehicle routes are shown in Figure 8.2.

Figure 8.2: Construction Vehicle Routes



8.9 Vehicle Types

Construction vehicles likely to be generated by the proposed construction activities include:

- Articulated trucks for delivery of large items to the site

- Heavy Rigid Vehicles (HRV) for transportation of large construction material, including crane trucks, bogies and concrete agitators
- Utility vehicles, vans and cars for delivery of small construction material and construction workforce transportation.

8.10 Construction Traffic Generation

Construction traffic generation is to be confirmed by the contractor following appointment and as part of the construction certification process.

However, based upon our experience, it is unlikely that there would be more than 10 trucks per day entering the site or the work zone. The most intense use would likely take place during the infrequent concrete pours when 6-8 trucks might enter in an hour for a short period. However generally, there would be no more than one to two trucks per hour.

The peak construction activities may require a peak workforce of approximately 75 workers per day. Assuming all construction workers travel by car with an average car occupancy of 1.4 people per car, this would generate in the order of 54 car trips arriving before the construction start time and 54 car trips after the construction end time. These time periods generally fall outside of the road network peak periods.

8.11 Traffic Impact

Workers would commute to/from site before the construction start time and after the construction end time, which generally fall outside of the road network peak periods.

Given the construction workers car trips generally occur outside the network peak hour and the low number of construction heavy vehicles that would occur during the day, traffic impact during construction is expected to be minimal as well.

Construction workers will be encouraged to take public transport and carpooling. A secure tool storage facility can be provided on-site to allow tradespeople to safely store tools required for the project allowing them to use public transport or carpooling to and from the site on a daily basis.

Notwithstanding the above, construction vehicle impacts are to be minimised by restricting vehicle access during peak periods. Construction vehicles are to be permitted access outside of school pick up and drop off periods, to minimise impact to traffic flows along the adjoining road network.

8.12 Impact on Pedestrian and Cyclists

Class B hoarding with overhead protection is proposed along the work zone for pedestrian protection on the Harbour Drive frontage, and Class A hoarding along the North Street frontage.

During the construction of the driveway, pedestrians will be re-directed to the temporary pedestrian path within the road shoulder, with temporary skid resistant ramps to be provided to enable a smooth transition between the existing footpath and the temporary pedestrian path. Water-filled barriers and traffic cones will be installed to create separation for pedestrians from the construction works and general traffic.

In terms of school children safety, a compliant pedestrian sight triangle will be provided at the new driveway exit in conjunction with installation of a STOP sign to emphasise road user priority at the driveway to enhance pedestrian safety.

When the new driveway becomes operation, construction vehicles will be permitted to access the site outside of school pick up and drop off periods, to minimise impact to pedestrians crossing the new driveway and waiting at the nearby bus stop.

Pedestrians walking past the driveway may be temporarily held by traffic controllers and concertina gates when trucks are entering and exiting the site. Pedestrians would only be held for a short period and would not be detoured in anticipation of trucks entering the site.

Pedestrian/ cycling access on all pedestrian and cycling facilities surrounding the work site is to be maintained at all times.

All relevant permit approvals will be obtained from Council prior to the commencement of such construction works.

8.13 Impact on Public Transport

The existing bus zone will be slightly repositioned to the east along the Harbour Drive frontage to make way for the new driveway. This is subject to a detailed design to maintain the existing bus stop amenities.

Construction works and associated site access will not impact the operation of the bus zone along the Harbour Drive frontage and associated bus services. Bus operation will be maintained at all times for the duration of the construction works.

Concertina gates will be used to temporarily hold pedestrians when the driveway is in use, thereby passing pedestrians and passengers alighting from the bus would be protected from the trucks accessing and leaving the site.

In terms of public transport patronage, while the workforce would be encouraged to use public transport, the number of workers is not anticipated to generate any significant demand that could have adverse impacts on public transport services.

On this basis, no adverse impacts are expected on public transport services.

8.14 Impact on Emergency Services

The proposed construction activities are not expected to create any adverse impacts to emergency vehicle access. As such, no special provisions for emergency service vehicles would be required as part of the proposed construction activities. Emergency vehicle access is to be maintained at all times.

8.15 Community and Motorist Notification

Neighbouring residents will be notified by letterbox drop with regard to the construction works for the approved work hours, anticipated impacts and traffic management plan. Temporary advanced warning signs will advise motorists of their approach to the site access.

9 State Environmental Planning Policy (Transport & infrastructure) 2021

With regards to the State Environmental Planning Policy (Transport & infrastructure – T&I SEPP) 2021 the following is noted:

- The site does not have a direct frontage to a classified road, therefore the assessment requirements of clause 2.119 of the SEPP are not triggered.
- The site does not adjoin a road with an annual average daily traffic volume of more than 20,000 vehicles, therefore the assessment requirements of Clause 2.1.0 of the T&I SEPP are not triggered.
- The proposal contains less than 300 dwellings and is not expected to impact the operation of the local road network and is therefore not considered to be 'traffic generating development' as defined under Schedule 3 of the T&I SEPP.

10 Conclusion

The Transport Planning Partnership (TPPP) undertook a Transport Impact Assessment on behalf of Homes NSW for a State Significant Development Application for construction of a four-storey residential flat building to accommodate 60 affordable housing apartments at 211A-215 Harbour Drive, Coffs Harbour.

Key findings in this traffic and transport assessment include:

- The proposed development is subject a total statutory parking requirement of 29 car spaces in accordance with Housing SEPP. The Housing SEPP does not specify requirements on visitor parking.
- The development will provide 29 car parking spaces (including four accessible parking spaces) for residents which satisfies the Housing SEPP parking requirements. In addition, Homes NSW will provide two visitor parking spaces (including one accessible parking space) to minimise visitor parking impacts on surrounding roads.
- The proposed parking layout is generally consistent with the dimensional requirements as set out in the Australian/New Zealand Standard for Off-Street Car Parking (AS2890.1:2004, draft AS2890.1:2023 and AS2890.6:2009).
- The subject site currently does not have a driveway. A new driveway would be located near the western end of the Harbour Drive frontage, being the lowest point of the subject site which can minimise the gradient required across the verge and footpath to access the basement car park. The following works will be required to facilitate the provision of the proposed driveway on Harbour Drive frontage:
 - A median strip will be constructed to prevent right turn movements into/ out of the driveway, so that only left-in and left-out movements will be permitted. This is subject to a detailed design to integrate with the existing travel lane widths.
 - The eastbound bus zone will be slightly repositioned to the east to make way for the proposed driveway. The bus zone will maintain the 33m length and with separate draw-in and draw-out lengths. As the driveway is located adjacent a bus zone, a compliant pedestrian sight triangle will be provided at the driveway exit to satisfy the AS2890.1 requirement. In addition, a STOP sign will be installed at the car park exit to emphasise road user priority for pedestrian safety. The bus zone is subject to a detailed design to maintain the existing bus stop amenities.
- The development is expected to generate in the order of 29 and 23 vehicle trips during the weekday AM and PM peak hours, respectively. SIDRA modelling results indicate that the key assessed intersections can accommodate the additional development traffic. All intersections are expected to operate at similar LoS per the future base scenarios.

Overall, the traffic and parking aspects of the proposed development are considered to be satisfactory.

Appendix A

Architectural Plans



NOTES
 ALL LEVELS TO AUSTRALIAN HEIGHT DATUM.
 IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM ALL MEASUREMENTS ON SITE PRIOR TO COMMENCEMENT OF WORK.
 DIMENSIONS SHOULD NOT BE SCALED. WRITTEN DIMENSIONS ONLY SHOULD BE TAKEN FROM DRAWINGS. ALL DIMENSIONING IS TO SUBSTITUTE BROCKING/BLOCKWORK UNLESS OTHERWISE NOTED.
 DESIGN AND DRAWINGS REMAIN COPYRIGHT OF STUDIO JOHNSTON NOT TO BE USED FOR CONSTRUCTION.

CLIENT
Homes NSW

REV	DESCRIPTION	DATE
01	FOR COORDINATION	02/07/25
02	FOR COORDINATION	08/07/25
03	FOR COORDINATION	01/08/25
04	FOR COORDINATION	18/08/25
A	SSDA SUBMISSION	29/08/25

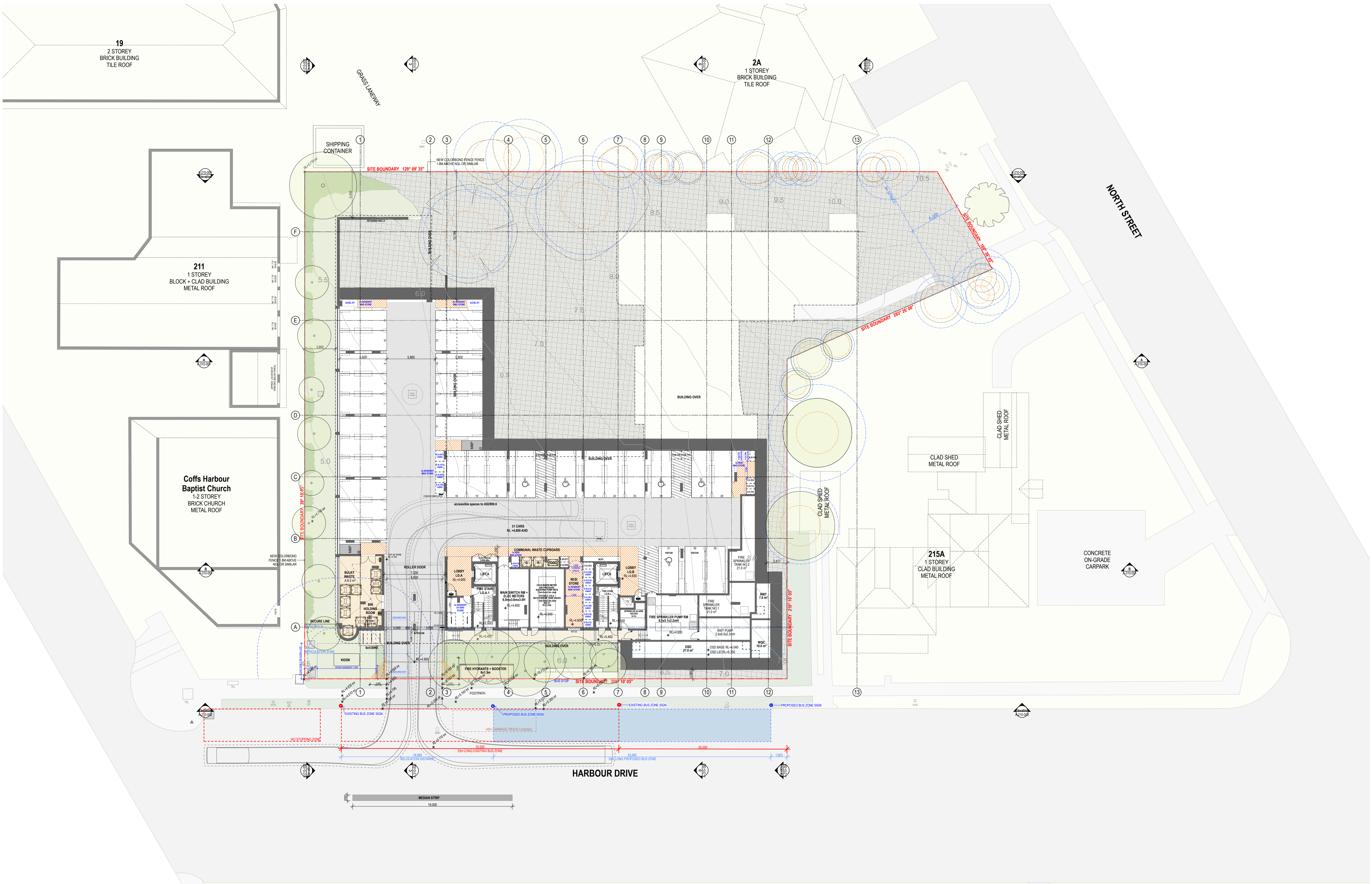
Project Title
Coffs Harbour Social Housing
 211A-215 Harbour Drive Coffs Harbour NSW 2450

Drawing Title
GA Plans
Ground Floor

Scale: 1:200 @A1, 50% @A3
 Project No: 2507
 Drawing No: A-110-001
 For SSDA SUBMISSION
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NOTES
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CLIENT
Homes NSW

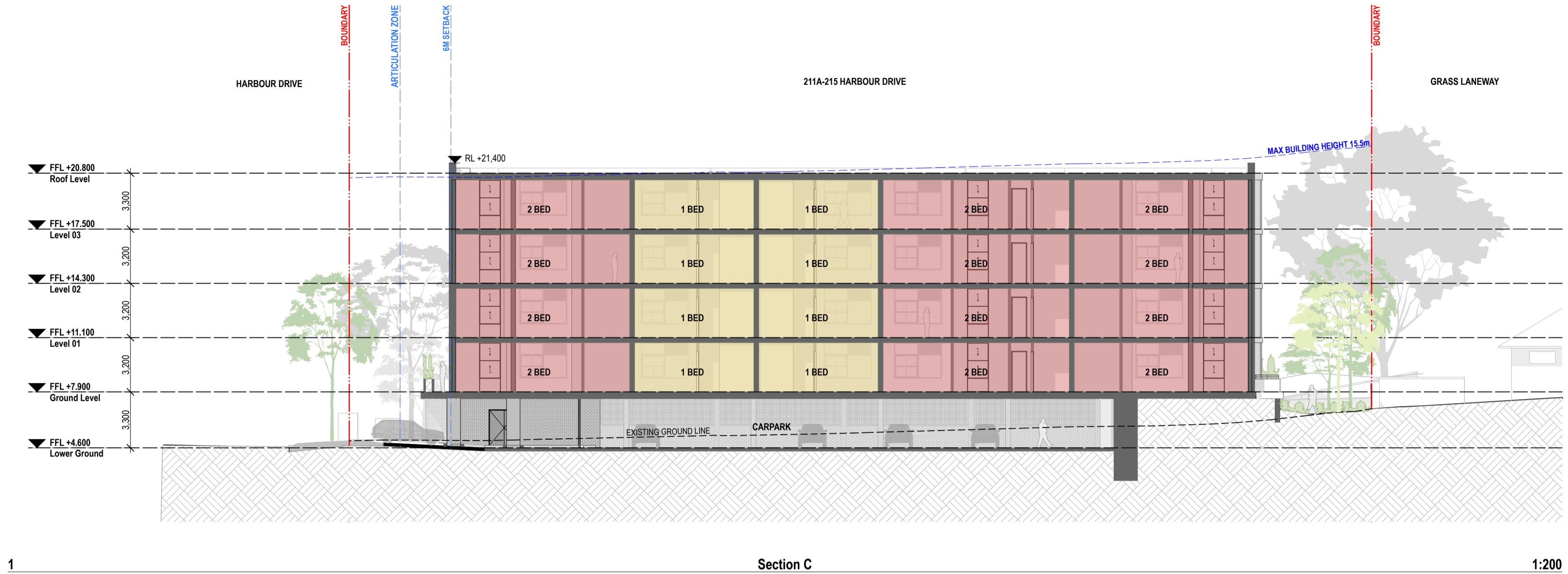
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03	FOR COORDINATION	01/08/25
04	FOR COORDINATION	18/08/25
A	SSDA SUBMISSION	29/08/25

Project Title
Coffs Harbour Social Housing
 211A-215 Harbour Drive Coffs Harbour NSW 2450

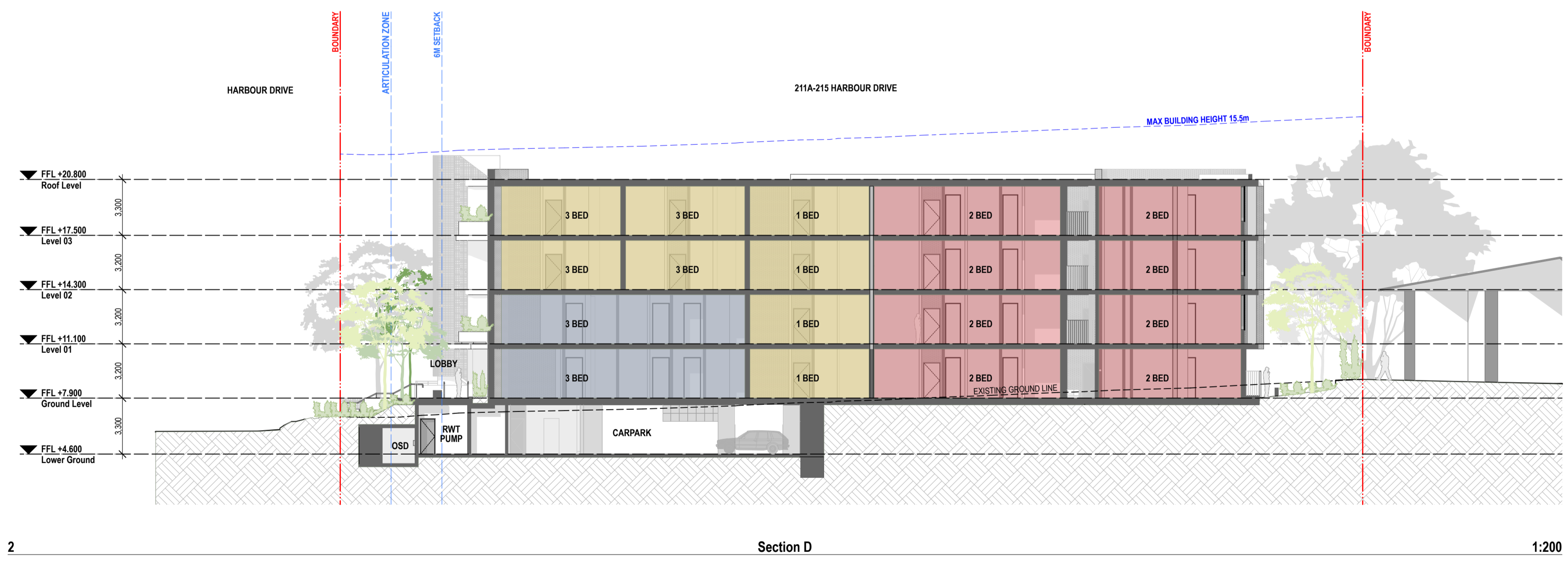
Drawing Title
GA Plans
Lower Ground

Scale: 1:200 @A1, 50% @A3
 Status: For SSDA SUBMISSION
 Project No: 2507
 Drawing No: A-110-000
 Drawn by: SJ
 Rev: A

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1



2

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REV	DESCRIPTION	DATE
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02	FOR COORDINATION	08/07/25
03	FOR COORDINATION	01/08/25
04	FOR COORDINATION	18/08/25
A	SSDA SUBMISSION	29/08/25

Project Title
 Coffs Harbour Social Housing
 211A-215 Harbour Drive Coffs Harbour NSW 2450

Scale
 1:200 @A1, 50% @A3

Project No.
 2507

Drawn by
 SJ

North

Status
 For SSDA SUBMISSION

Dwg No.
 A-310-002

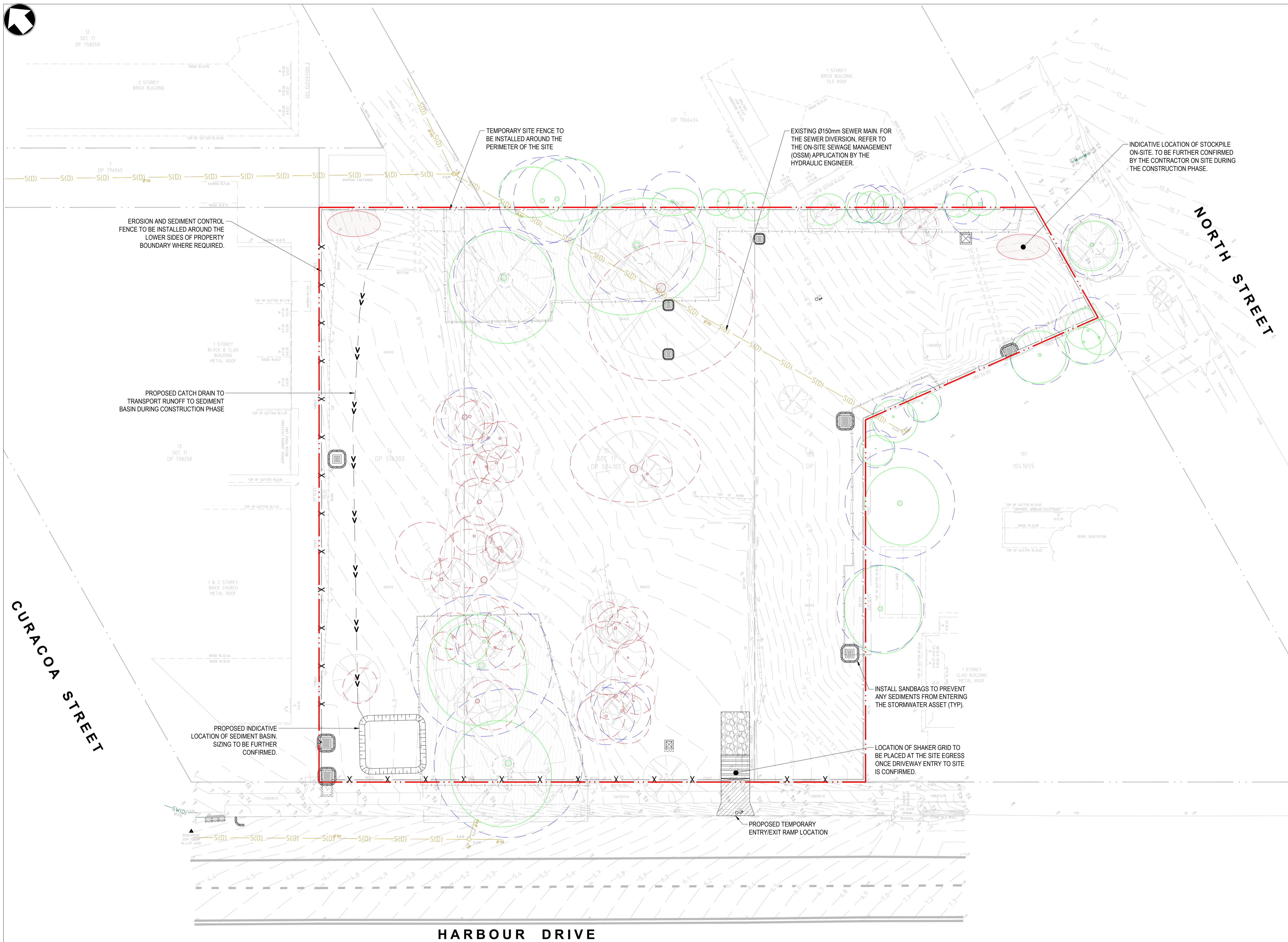
Rev
 A

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LEGEND

- SITE BOUNDARY
- ADJACENT SITE BOUNDARY LINE
- EXISTING BOUNDARY LINE TO BE REMOVED
- TEMPORARY CONSTRUCTION SITE ACCESS WITH SHAKE GRID
- SEDIMENT TRAP - SAND BAGS
- X SEDIMENT FENCE
- SITE FENCE
- TEMPORARY CATCH DRAIN
- INDICATIVE LOCATION OF STOCKPILE
- EXISTING TREES TO BE REMOVED - REFER TO SITE ARBORIST REPORT FOR DETAILS
- EXISTING TREES TO BE RETAINED - REFER TO SITE ARBORIST REPORT FOR DETAILS
- TREE PROTECTION ZONE - REFER TO SITE ARBORIST REPORT FOR DETAILS
- TREE PROTECTION AREA - REFER TO SITE ARBORIST REPORT FOR DETAILS
- TREE PROTECTION FENCE - REFER TO SITE ARBORIST REPORT FOR DETAILS

- ### GENERAL NOTES
1. CONTRACTORS TO CONFIRM PUMP-OUT FROM DEEP BASEMENT EXCAVATION.
 2. UPON INSTALLATION OF NEW STORMWATER PITS, SANDBAGS ARE TO BE PLACED AROUND PROPOSED PITS TO PREVENT AND SEDIMENT RUNOFF TO THE PITS.
 3. EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH THE PUBLICATION 'URBAN STORMWATER SOILS AND CONSTRUCTION' 'THE BLUE BOOK' 204 (4TH EDITION) PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION, EXCAVATION OR CONSTRUCTION WORKS UPON THE SITE. BUILDERS SHALL PROVIDE SEDIMENT FENCING MATERIAL DURING CONSTRUCTION TO THE LOW SIDE BOUNDARIES. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (eg PROFAB SILT FENCE OR SIMILAR) STANDING MINIMUM 500mm ABOVE GROUND AND EXTENDING 200mm BELOW GROUND.
 5. GRASS VERGES AND VEGETATION SHALL BE MAINTAINED AS MUCH AS PRACTICAL AND SHALL NOT BE CLEARED FROM NEIGHBORING SITE TO PROVIDE A BUFFER ZONE TO THE CONSTRUCTION SITE.
 6. NO PARKING OR STOCK PILING OF MATERIALS IS PERMITTED ON THE LOWER SIDE OF SEDIMENT FENCE.
 7. VEHICLE ACCESS SHALL BE RESTRICTED TO ONE DESIGNATED POINT AS SHOWN AND VEHICLE CROSSINGS ARE TO BE ADEQUATELY COVERED AT ALL TIMES WITH BLUE METAL OR THE LIKE.
 8. TEMPORARY CONSTRUCTION ENTRY/EXIT SHALL BE AS PER DRAWING 0015. BUILDER TO ENSURE ALL DROPPABLE SOIL AND SEDIMENT IS REMOVED PRIOR TO CONSTRUCTION TRAFFIC EXITING SITE USING VEHICLE WHEEL WASH, CATTLE GRID, WHEEL SHAKER OR OTHER APPROPRIATE DEVICE. BUILDER SHALL ENSURE ALL CONSTRUCTION TRAFFIC ENTERING AND LEAVING THE SITE, DO SO IN A FORWARD DIRECTION.
 9. ALL STORMWATER INCIDENT ON THE CONSTRUCTION SITE MUST BE COLLECTED AND APPROPRIATELY DISPOSED OF IN A MANNER THAT DOES NOT INCREASE THE FLOOD RISK FOR THE CATCHMENT AREA OR DEGRADE THE QUALITY OF WATER BEING DISPOSED OF TO COUNCIL STORMWATER INFRASTRUCTURE.
 10. MEASURES OUTLINED IN THE EROSION AND SEDIMENT CONTROL PLAN MUST BE IMPLEMENTED PRIOR TO AND MAINTAINED DURING AND AFTER THE CONSTRUCTION WORKS.
 11. ALL DISTURBED AREAS AND STOCKPILES TO BE STABILISED WITH 5 DAYS.
 12. TOPSOIL TO BE STRIPPED, STOCKPILED AND RE-SPREAD ON COMPLETION OF EARTHWORKS. NONE TO BE REMOVED.
 13. NO DISTURBANCE OF THE SITE OTHER THAN IMMEDIATE AREA OF WORKS.
 14. SEDIMENT BASIN WILL BE SIZED IN ACCORDANCE WITH 'SOILS AND CONSTRUCTION, VOLUME 1, MANAGING URBAN STORMWATER GUIDE'.

NOTE:
THIS PLAN IS CONCEPT ONLY. IT IS CREATED TO HIGHLIGHT SOME OF THE SEDIMENT AND EROSION CONTROL MEASURES WHICH MAY APPEAR. THE CONTRACTOR IS RESPONSIBLE FOR THE FINAL DESIGN AND ENSURING ALL MEASURES ARE TAKEN TO PROTECT THE ENVIRONMENT.

NOT FOR CONSTRUCTION

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	Level 10, 383 Kent Street Sydney, NSW 2000 Australia NSW 1230, Australia PO Box Q1678, QVB Sydney T +61 (0)2 9098 6800 W www.mottmac.com	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">Rev</th> <th style="width: 10%;">Date</th> <th style="width: 65%;">Description</th> <th style="width: 10%;">Ch'k'd</th> <th style="width: 10%;">App'd</th> </tr> </thead> <tbody> <tr> <td>02</td> <td>05.08.25</td> <td>RE-ISSUE FOR INFORMATION</td> <td>SS</td> <td>AT</td> </tr> <tr> <td>01</td> <td>13.05.25</td> <td>ISSUE FOR INFORMATION</td> <td>SS</td> <td>AT</td> </tr> </tbody> </table>	Rev	Date	Description	Ch'k'd	App'd	02	05.08.25	RE-ISSUE FOR INFORMATION	SS	AT	01	13.05.25	ISSUE FOR INFORMATION	SS	AT	SCALE 1:1000	CLIENT 	TITLE 211A - 215 HARBOUR DRIVE, COFFS HARBOUR, NSW 2450 EROSION AND SEDIMENT CONTROL PLAN	DRAWING INFORMATION Drawn: J. O Designed: S. SAIARA Checked: A TARSHAN Approved: - DRAWING NUMBER 103419-MMD-COF-XX-DR-C-0011
Rev	Date	Description	Ch'k'd	App'd																	
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01	13.05.25	ISSUE FOR INFORMATION	SS	AT																	

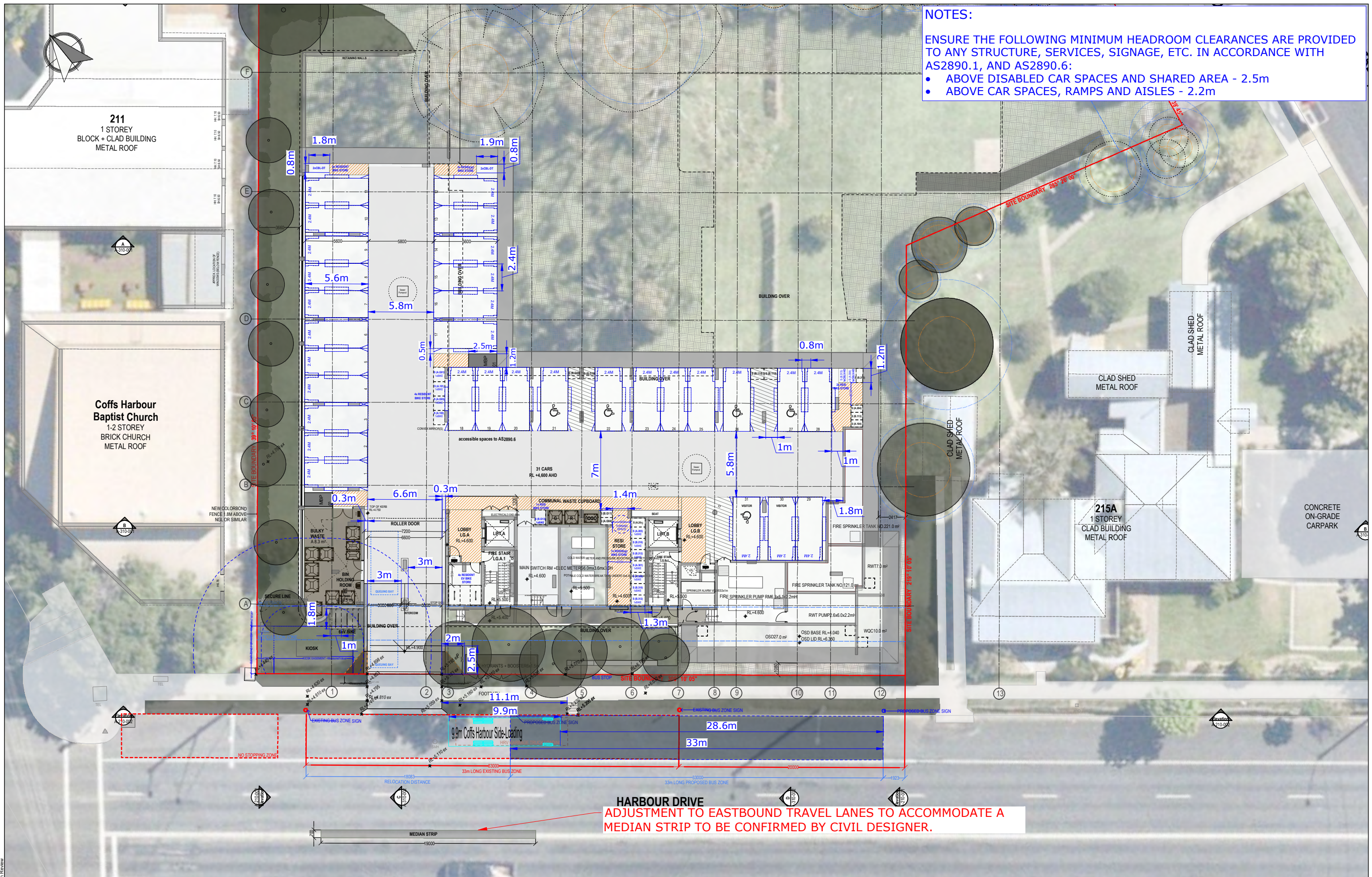
Appendix B

Swept Path Assessment

NOTES:

ENSURE THE FOLLOWING MINIMUM HEADROOM CLEARANCES ARE PROVIDED TO ANY STRUCTURE, SERVICES, SIGNAGE, ETC. IN ACCORDANCE WITH AS2890.1, AND AS2890.6:

- ABOVE DISABLED CAR SPACES AND SHARED AREA - 2.5m
- ABOVE CAR SPACES, RAMPS AND AISLES - 2.2m



HARBOUR DRIVE
 ADJUSTMENT TO EASTBOUND TRAVEL LANES TO ACCOMMODATE A
 MEDIAN STRIP TO BE CONFIRMED BY CIVIL DESIGNER.

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	03/09/25

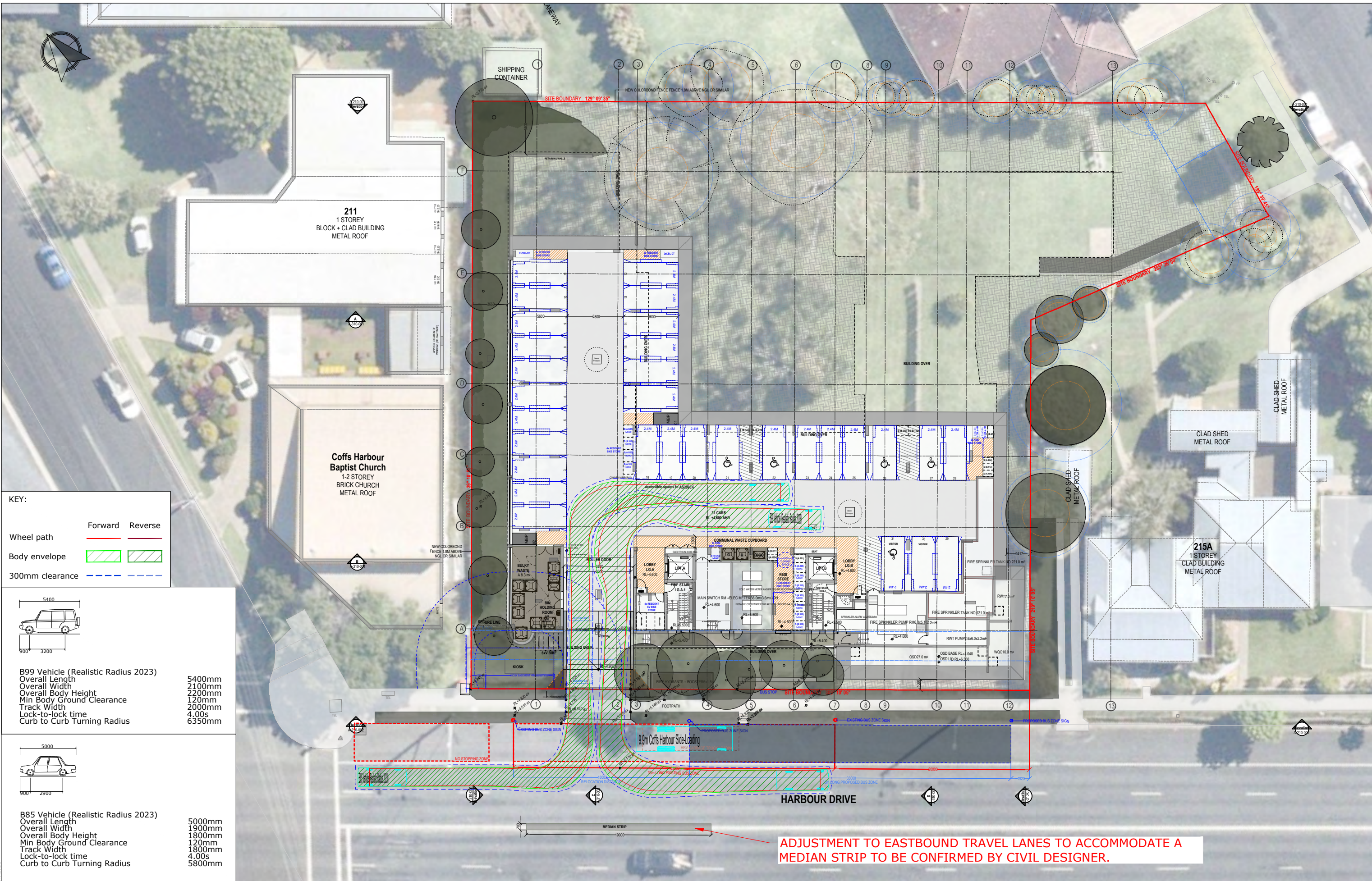


PROJECT
211A - 215 HARBOUR DRIVE, COFFS HARBOUR

TITLE
CONCEPT DESIGN REVIEW - LOWER GROUND LEVEL

DWG No. 25087CAD005		REV. A
FIGURE 1		
DATE STAMP 03 SEPTEMBER 2025		
PROJECT No. 25087	SCALE 1:300 @A3	

Filename: 25087CAD005-250903-Design_Review



KEY:

Wheel path	Forward	Reverse
Body envelope		
300mm clearance		

B99 Vehicle (Realistic Radius 2023)

Overall Length	5400mm
Overall Width	2100mm
Overall Body Height	2200mm
Min Body Ground Clearance	120mm
Track Width	2000mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6350mm

B85 Vehicle (Realistic Radius 2023)

Overall Length	5000mm
Overall Width	1900mm
Overall Body Height	1800mm
Min Body Ground Clearance	120mm
Track Width	1800mm
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5800mm

ADJUSTMENT TO EASTBOUND TRAVEL LANES TO ACCOMMODATE A MEDIAN STRIP TO BE CONFIRMED BY CIVIL DESIGNER.

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	03/09/25

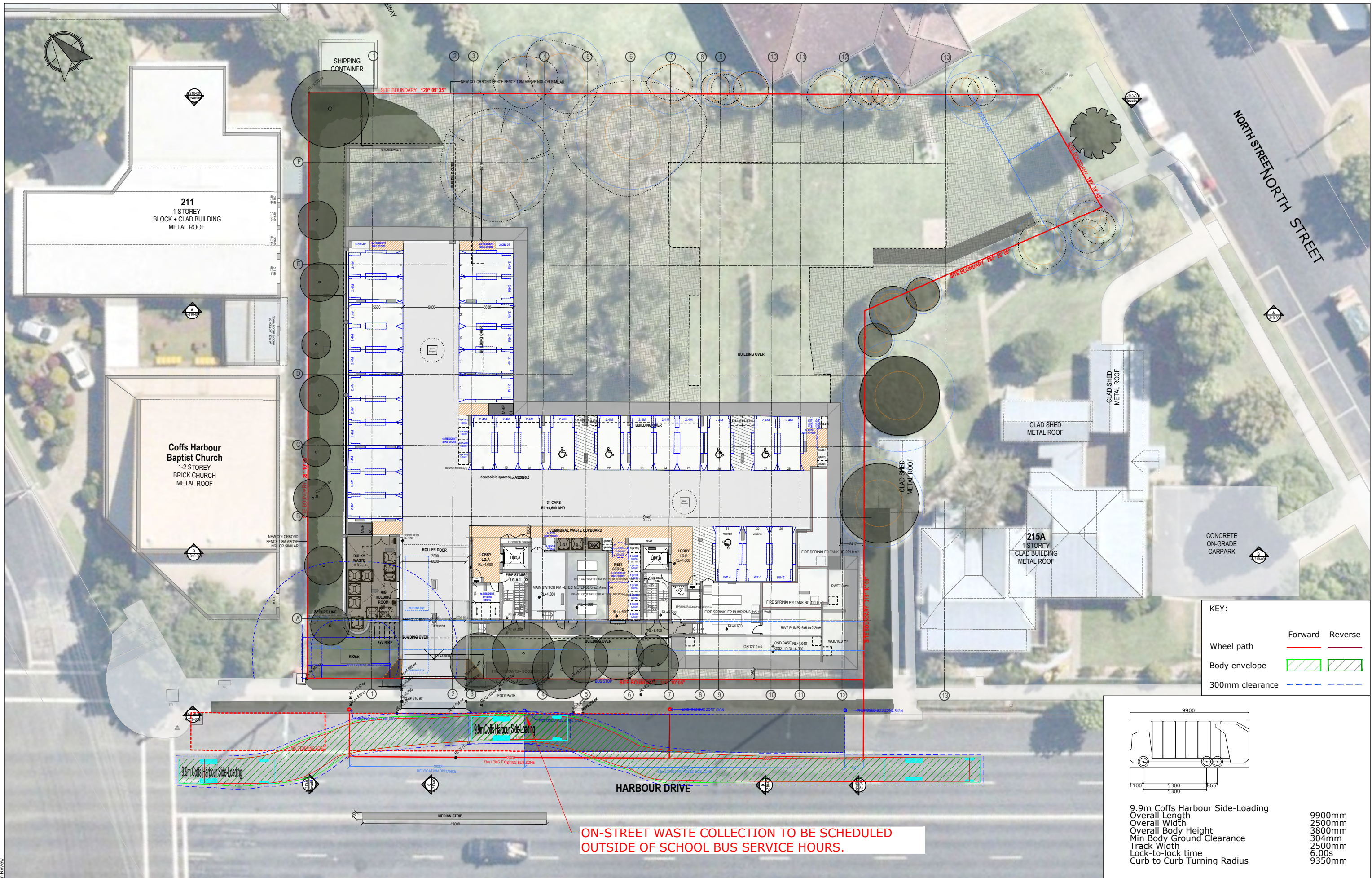


PROJECT
211A - 215 HARBOUR DRIVE, COFFS HARBOUR

TITLE
**SWEPT PATH ANALYSIS - GROUND LEVEL
 5.4M B99 VEHICLE & 5M B85 VEHICLE (AS2890.1:2023)**

DWG No.	25087CAD005	
	FIGURE 2	
DATE STAMP	03 SEPTEMBER 2025	
PROJECT No.	25087	SCALE 1:350 @A3
REV.	A	

Filename: 25087CAD005-250903-Design_Review



ON-STREET WASTE COLLECTION TO BE SCHEDULED OUTSIDE OF SCHOOL BUS SERVICE HOURS.

9.9m Coffs Harbour Side-Loading Overall Length Overall Width Overall Body Height Min Body Ground Clearance Track Width Lock-to-lock time Curb to Curb Turning Radius	9900mm 2500mm 3800mm 304mm 2500mm 6.00s 9350mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	03/09/25

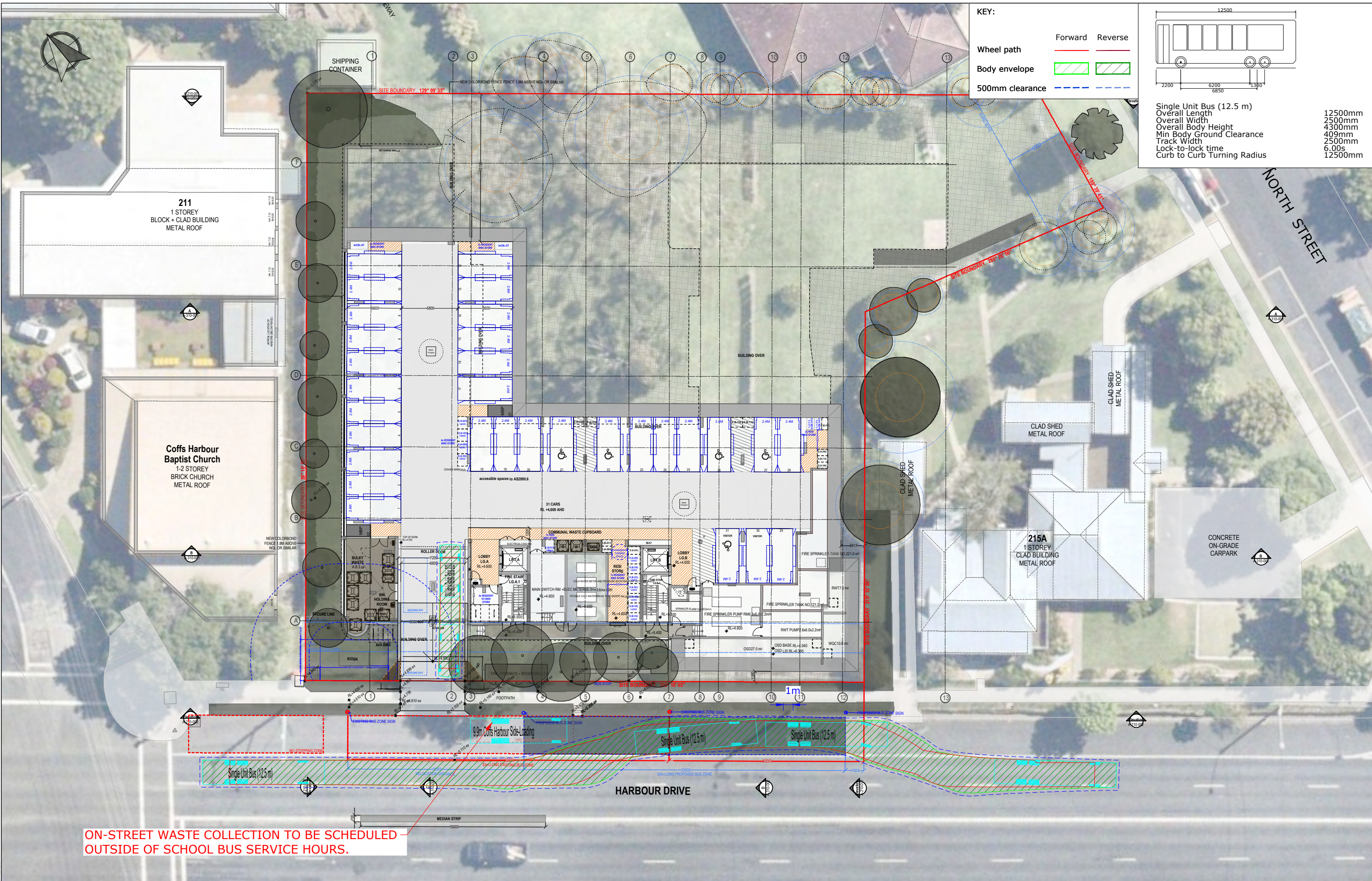


PROJECT
211A - 215 HARBOUR DRIVE, COFFS HARBOUR

TITLE
**SWEPT PATH ANALYSIS - GROUND LEVEL
 9.9M WASTE VEHICLE**

DWG No. 25087CAD005	
FIGURE 3	
DATE STAMP 03 SEPTEMBER 2025	
PROJECT No. 25087	SCALE 1:350 @A3
REV. A	

Filename: 25087CAD005-250903-Design_Review



KEY:

Wheel path	Forward	Reverse
Body envelope		
500mm clearance		

Single Unit Bus (12.5 m)	12500mm
Overall Length	2500mm
Overall Width	4300mm
Overall Body Height	409mm
Min Body Ground Clearance	2500mm
Track Width	6.00s
Lock-to-lock time	12500mm
Curb to Curb Turning Radius	

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	03/09/25



PROJECT
211A - 215 HARBOUR DRIVE, COFFS HARBOUR

TITLE
**SWEPT PATH ANALYSIS - GROUND LEVEL
 12.5M SINGLE RIGID BUS**

DWG No.	25087CAD005	
	FIGURE 4	
DATE STAMP	03 SEPTEMBER 2025	
PROJECT No.	SCALE	REV.
25087	1:350 @A3	A

Filename: 25087CAD005-250903-Design_Review



KEY:
 — Vertical Clearance
 — Driveway / Ramp Profile

B99 Vehicle (Vertical 2023)
 Overall Length 5400mm
 Overall Width 2100mm
 Overall Body Height 2200mm
 Min Body Ground Clearance 120mm
 Track Width 2000mm
 Lock-to-lock time 4.00s
 Curb to Curb Turning Radius 6350mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	03/09/25

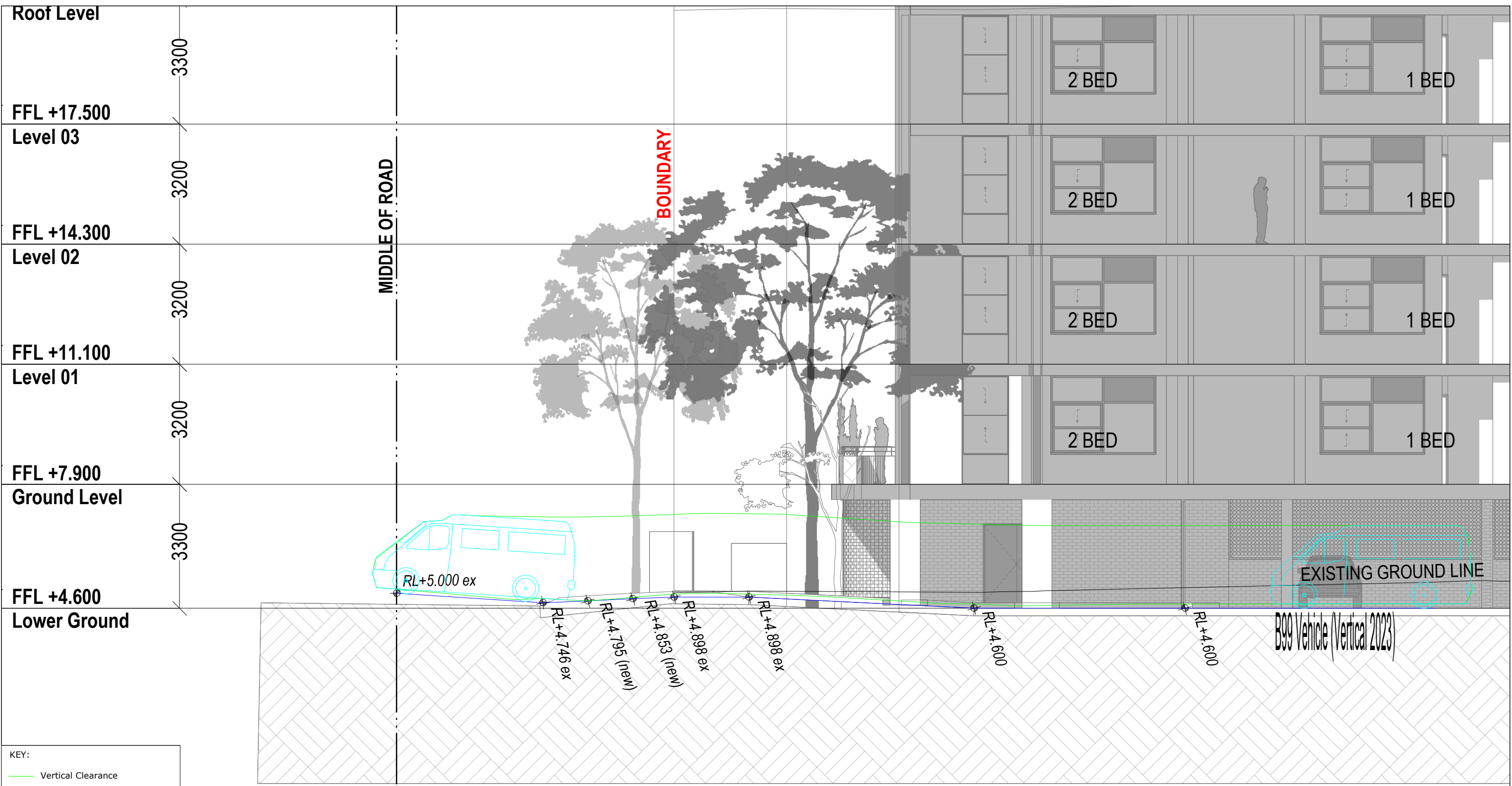


PROJECT
 211A - 215 HARBOUR DRIVE, COFFS HARBOUR

TITLE
 VERTICAL CLEARANCE ASSESSMENT - WEST SIDE OF RAMP
 5.2M B99 VEHICLE - VEHICLE ENTERING

DWG No.	25087CAD005		
	FIGURE 5		
DATE STAMP	03 SEPTEMBER 2025		
PROJECT No.	SCALE	REV.	
25087	1:100 @A3	A	

Filename: 25087CAD005-250903-Design_Review



KEY:
 — Vertical Clearance
 — Driveway / Ramp Profile

B99 Vehicle (Vertical 2023)
 Overall Length 5400mm
 Overall Width 2100mm
 Overall Body Height 2200mm
 Min Body Ground Clearance 120mm
 Track Width 2000mm
 Lock-to-lock time 4.00s
 Curb to Curb Turning Radius 6350mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	03/09/25

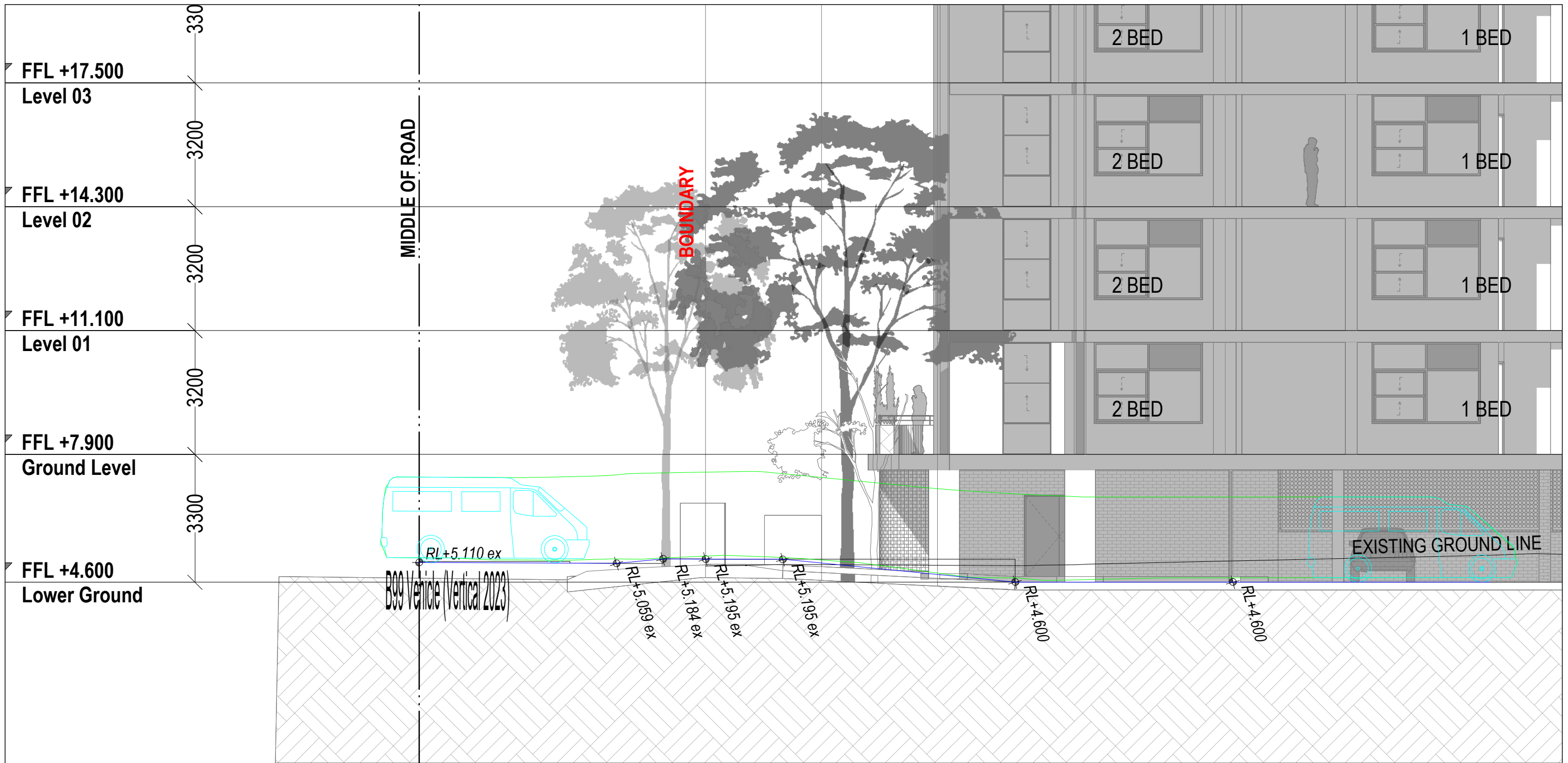


PROJECT
 211A - 215 HARBOUR DRIVE, COFFS HARBOUR

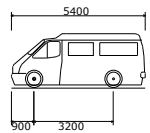
TITLE
 VERTICAL CLEARANCE ASSESSMENT - WEST SIDE OF RAMP
 5.2M B99 VEHICLE - VEHICLE EXITING

DWG No.	25087CAD005		
	FIGURE 6		
DATE STAMP	03 SEPTEMBER 2025		
PROJECT No.	SCALE	REV.	
25087	1:100 @A3	A	

Filename: 25087CAD005-250903-Design_Review



KEY:
— Vertical Clearance
— Driveway / Ramp Profile



B99 Vehicle (Vertical 2023)
 Overall Length 5400mm
 Overall Width 2100mm
 Overall Body Height 2200mm
 Min Body Ground Clearance 120mm
 Track Width 2000mm
 Lock-to-lock time 4.00s
 Curb to Curb Turning Radius 6350mm

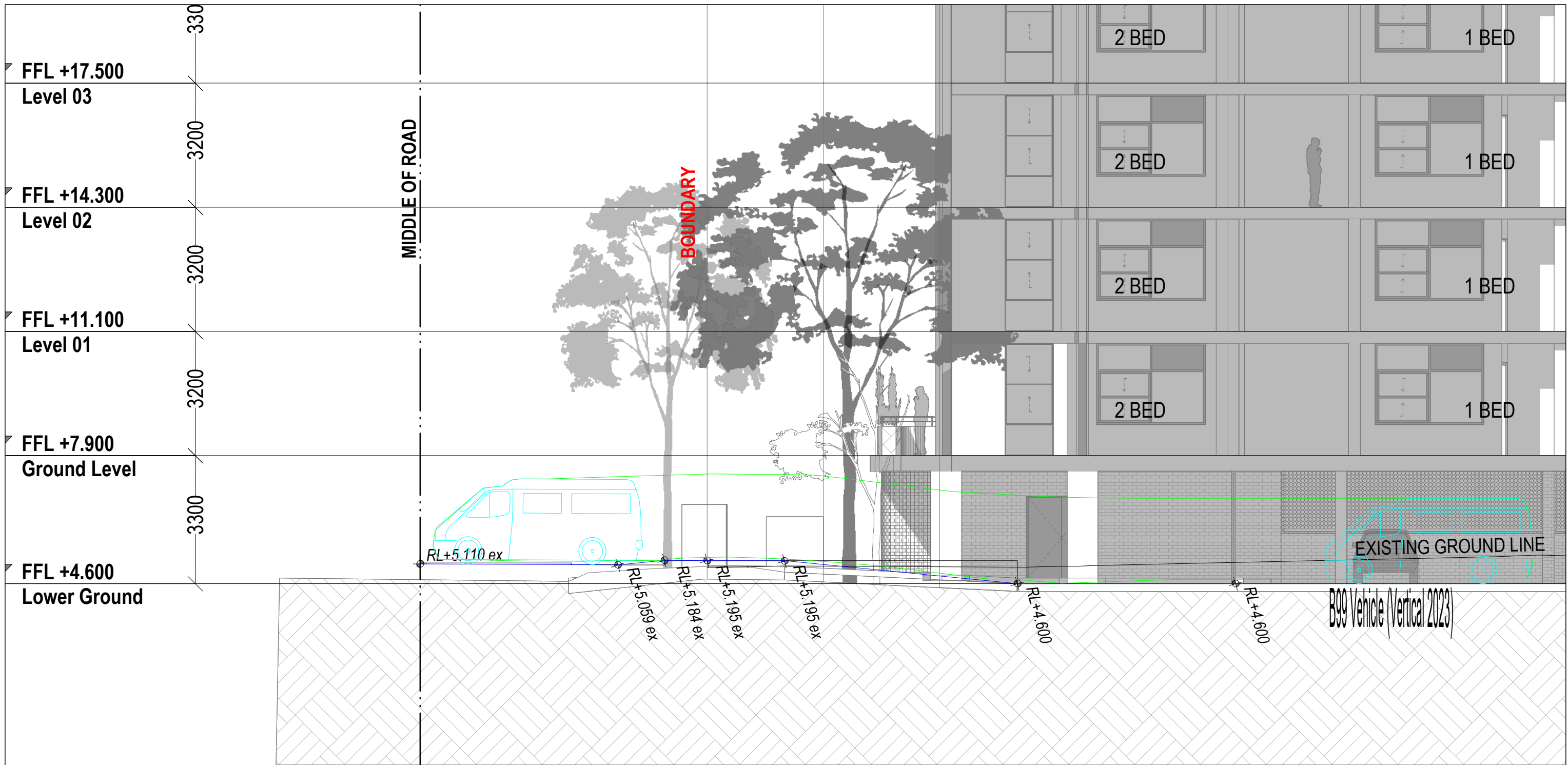
REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	03/09/25



PROJECT	211A - 215 HARBOUR DRIVE, COFFS HARBOUR		
TITLE	VERTICAL CLEARANCE ASSESSMENT - EAST SIDE OF RAMP 5.2M B99 VEHICLE - VEHICLE ENTERING		

DWG No.	25087CAD005 FIGURE 7		
DATE STAMP	03 SEPTEMBER 2025		
PROJECT No.	SCALE	REV.	
25087	1:100 @A3	A	

Filename: 25087CAD005-250903-Design_Review



KEY:
 — Vertical Clearance
 — Driveway / Ramp Profile

B99 Vehicle (Vertical 2023)
 Overall Length 5400mm
 Overall Width 2100mm
 Overall Body Height 2200mm
 Min Body Ground Clearance 120mm
 Track Width 2000mm
 Lock-to-lock time 4.00s
 Curb to Curb Turning Radius 6350mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	HT	DL	DL	03/09/25



PROJECT
 211A - 215 HARBOUR DRIVE, COFFS HARBOUR

TITLE
 VERTICAL CLEARANCE ASSESSMENT - EAST SIDE OF RAMP
 5.2M B99 VEHICLE - VEHICLE EXITING

DWG No. 25087CAD005 FIGURE 8		
DATE STAMP 03 SEPTEMBER 2025		
PROJECT No. 25087	SCALE 1:100 @A3	REV. A

Filename: 25087CAD005-250903-Design_Review

Appendix C

SIDRA Modelling Result

MOVEMENT SUMMARY

 Site: [647 AM] Harbour Dr/ Pacific Hwy/ W High St (EX AM)

Network: [1A] AM (EX)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130.0 seconds (Site User-Given Phase Times)

This Site is not connected to the Network.

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed		
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh	Dist]			km/h		
			veh/h	%	veh/h	%		m						
South: Pacific Hwy														
30	L2	All MCs	19 0.0	19 0.0	0.017	22.4	LOS B	0.3	1.9	0.40	0.64	0.40	23.4	
31	T1	All MCs	984 11.2	984 11.2	*0.438	16.8	LOS B	9.7	74.2	0.55	0.50	0.55	38.5	
Approach			1003 11.0	1003 11.0	0.438	16.9	LOS B	9.7	74.2	0.55	0.50	0.55	34.8	
East: Harbour Dr														
21	L2	All MCs	33 0.0	33 0.0	0.078	63.4	LOS E	1.0	7.0	0.82	0.69	0.82	17.6	
22	T1	All MCs	178 1.2	178 1.2	0.412	62.2	LOS E	5.8	41.3	0.89	0.74	0.89	17.2	
Approach			211 1.0	211 1.0	0.412	62.4	LOS E	5.8	41.3	0.88	0.73	0.88	14.1	
North: Pacific Hwy														
24	L2	All MCs	38 11.1	38 11.1	0.035	20.2	LOS B	0.5	4.2	0.40	0.65	0.40	34.5	
25	T1	All MCs	1058 11.3	1058 11.3	0.460	12.8	LOS A	9.4	72.5	0.48	0.44	0.48	42.9	
26	R2	All MCs	76 1.4	76 1.4	*0.271	24.6	LOS B	1.6	11.2	0.61	1.18	0.61	18.9	
Approach			1172 10.7	1172 10.7	0.460	13.8	LOS A	9.4	72.5	0.49	0.49	0.49	36.1	
West: West High St														
27	L2	All MCs	61 3.4	61 3.4	0.126	72.8	LOS F	1.8	12.8	0.79	0.71	0.79	18.7	
28	T1	All MCs	297 0.7	297 0.7	*0.737	82.1	LOS F	11.0	77.3	0.98	0.87	1.02	16.0	
29	R2	All MCs	40 2.6	40 2.6	0.190	55.5	LOS D	1.4	9.9	0.90	0.73	0.90	10.1	
Approach			398 1.3	398 1.3	0.737	78.0	LOS F	11.0	77.3	0.94	0.83	0.97	11.7	
All Vehicles			2783 8.7	2783 8.7	0.737	27.8	LOS B	11.0	77.3	0.61	0.56	0.61	25.7	

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
						m					
South: Pacific Hwy											

P8 Full	36	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
East: Harbour Dr										
P5 Full	6	58.2	LOS E	0.0	0.0	0.95	0.95	224.9	200.0	0.89
North: Pacific Hwy										
P6 Full	35	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
West: West High St										
P7 Full	5	58.2	LOS E	0.0	0.0	0.95	0.95	224.9	200.0	0.89
All Pedestrians	82	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89

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

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

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

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Project: C:\Users\ClintonCheung\OneDrive - TTPP\25087 Belmore, Punchbowl, Coffs Harbour and Caringbah (Homes NSW)\07 Modelling Files \Model\Coffs Harbour\25087-V01-Coffs Harbour-250709-SIDRA10.sipx

MOVEMENT SUMMARY

 Site: [IC02 AM] Harbour Dr/ Earl St (EX AM)

Network: [1A] AM (EX)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist]			km/h	
			veh/h		veh/h					veh	m				
South: Earl St															
30	L2	All MCs	169	0.6	169	0.6	0.543	5.1	LOS A	1.5	10.7	0.64	0.69	0.71	31.8
31	T1	All MCs	60	0.0	60	0.0	0.543	4.9	LOS A	1.5	10.7	0.64	0.69	0.71	28.0
32	R2	All MCs	265	2.8	265	2.8	0.543	8.8	LOS A	1.5	10.7	0.64	0.69	0.71	25.7
32u	U	All MCs	3	0.0	3	0.0	0.543	10.2	LOS A	1.5	10.7	0.64	0.69	0.71	29.5
Approach			498	1.7	498	1.7	0.543	7.1	LOS A	1.5	10.7	0.64	0.69	0.71	28.9
East: Harbour Dr															
21	L2	All MCs	243	5.6	243	5.6	0.665	3.5	LOS A	1.7	12.4	0.42	0.48	0.45	35.0
22	T1	All MCs	393	1.9	393	1.9	0.665	2.5	LOS A	1.7	12.4	0.42	0.48	0.45	36.2
23	R2	All MCs	39	0.0	39	0.0	0.665	7.1	LOS A	1.7	12.4	0.42	0.48	0.45	23.8
23u	U	All MCs	22	4.8	22	4.8	0.665	8.6	LOS A	1.7	12.4	0.42	0.48	0.45	33.6
Approach			697	3.2	697	3.2	0.665	3.3	LOS A	1.7	12.4	0.42	0.48	0.45	35.0
North: Earl St															
24	L2	All MCs	16	6.7	16	6.7	0.034	9.5	LOS A	0.1	0.5	0.70	0.72	0.70	14.8
25	T1	All MCs	26	0.0	26	0.0	0.072	5.8	LOS A	0.2	1.2	0.72	0.68	0.72	27.7
26	R2	All MCs	25	8.3	25	8.3	0.072	9.9	LOS A	0.2	1.2	0.72	0.68	0.72	29.5
Approach			67	4.7	67	4.7	0.072	8.2	LOS A	0.2	1.2	0.72	0.69	0.72	26.8
West: Harbour Dr															
27	L2	All MCs	68	0.0	68	0.0	0.105	6.1	LOS A	0.2	1.4	0.53	0.61	0.53	30.3
28	T1	All MCs	384	3.6	384	3.6	0.518	4.6	LOS A	1.5	11.2	0.67	0.61	0.69	30.1
29	R2	All MCs	155	4.8	155	4.8	0.518	8.0	LOS A	1.5	11.2	0.67	0.61	0.69	31.9
29u	U	All MCs	6	0.0	6	0.0	0.518	9.3	LOS A	1.5	11.2	0.67	0.61	0.69	33.2
Approach			614	3.4	614	3.4	0.518	5.7	LOS A	1.5	11.2	0.66	0.61	0.67	30.8
All Vehicles			1876	2.9	1876	2.9	0.665	5.3	LOS A	1.7	12.4	0.57	0.59	0.60	32.2

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

Roundabout 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: [3763 AM] Harbour Dr/ Curacao St (EX AM)

Network: [1A] AM (EX)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 65.0 seconds (Site User-Given Phase Times)

Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue Prop.		Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]			km/h	
			veh/h		veh/h					veh	m				
South: Curacao St															
30	L2	All MCs	18	5.9	18	5.9	0.038	23.6	LOS B	0.3	1.9	0.76	0.67	0.76	22.6
31	T1	All MCs	23	0.0	23	0.0	0.109	19.7	LOS B	0.7	5.1	0.81	0.66	0.81	35.4
32	R2	All MCs	21	15.0	21	15.0	0.109	26.9	LOS B	0.7	5.1	0.81	0.66	0.81	23.0
Approach			62	6.8	62	6.8	0.109	23.3	LOS B	0.7	5.1	0.79	0.66	0.79	29.4
East: Harbour Dr															
21	L2	All MCs	11	40.0	11	40.0	0.151	12.5	LOS A	1.5	11.0	0.54	0.46	0.54	33.4
22	T1	All MCs	609	3.5	609	3.5	0.466	9.9	LOS A	5.8	42.0	0.64	0.56	0.64	22.3
23	R2	All MCs	11	0.0	11	0.0	*0.466	14.5	LOS A	5.8	42.0	0.67	0.59	0.67	38.0
Approach			631	4.0	631	4.0	0.466	10.0	LOS A	5.8	42.0	0.64	0.56	0.64	23.4
North: Curacao St															
24	L2	All MCs	46	0.0	46	0.0	0.108	26.6	LOS B	0.7	5.1	0.83	0.71	0.83	29.1
25	T1	All MCs	15	7.1	15	7.1	*0.252	20.1	LOS B	1.6	11.4	0.84	0.74	0.84	34.2
26	R2	All MCs	85	0.0	85	0.0	0.252	26.6	LOS B	1.6	11.4	0.84	0.74	0.84	29.6
Approach			146	0.7	146	0.7	0.252	25.9	LOS B	1.6	11.4	0.84	0.73	0.84	30.1
West: Harbour Dr															
27	L2	All MCs	69	0.0	69	0.0	0.329	13.5	LOS A	3.7	26.3	0.61	0.56	0.61	38.2
28	T1	All MCs	591	3.9	591	3.9	0.329	9.3	LOS A	3.7	26.7	0.61	0.54	0.61	26.9
29	R2	All MCs	2	0.0	2	0.0	0.329	13.1	LOS A	3.7	26.7	0.61	0.52	0.61	34.7
Approach			662	3.5	662	3.5	0.329	9.8	LOS A	3.7	26.7	0.61	0.54	0.61	29.3
All Vehicles			1501	3.6	1501	3.6	0.466	12.0	LOS A	5.8	42.0	0.65	0.57	0.65	27.7

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
					ped	m					

South: Curacoa St										
P8 Full	20	24.1	LOS C	0.0	0.0	0.86	0.86	190.8	200.0	1.05
East: Harbour Dr										
P5 Full	108	24.2	LOS C	0.2	0.2	0.87	0.87	190.9	200.0	1.05
North: Curacoa St										
P6 Full	39	24.2	LOS C	0.1	0.1	0.86	0.86	190.8	200.0	1.05
West: Harbour Dr										
P7 Full	15	24.1	LOS C	0.0	0.0	0.86	0.86	190.8	200.0	1.05
All Pedestrians	182	24.2	LOS C	0.2	0.2	0.86	0.86	190.9	200.0	1.05

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

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

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

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MOVEMENT SUMMARY

Site: [IC03 AM] Harbour Dr/ North Street (EX AM)

Network: [1A] AM (EX)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop of Cycle	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist]			km/h	
East: Harbour Dr															
22	T1	All MCs	615	4.1	615	4.1	0.196	0.5	LOS A	0.3	2.2	0.12	0.11	0.12	38.7
23a	R1	All MCs	52	2.0	52	2.0	0.196	5.7	LOS A	0.3	2.2	0.29	0.28	0.29	36.9
Approach			666	3.9	666	3.9	0.196	0.9	NA	0.3	2.2	0.13	0.13	0.13	38.5
NorthWest: North Street															
7a	L1	All MCs	28	0.0	28	0.0	0.027	3.7	LOS A	0.0	0.3	0.33	0.46	0.33	26.6
9b	R3	All MCs	17	0.0	17	0.0	0.092	23.5	LOS B	0.1	0.8	0.85	0.93	0.85	10.3
Approach			45	0.0	45	0.0	0.092	11.1	LOS A	0.1	0.8	0.52	0.64	0.52	16.5
West: Harbour Dr															
27b	L3	All MCs	62	1.7	62	1.7	0.177	4.1	LOS A	0.0	0.0	0.00	0.10	0.00	37.5
28	T1	All MCs	594	4.1	594	4.1	0.177	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	38.8
Approach			656	3.9	656	3.9	0.177	0.4	NA	0.0	0.0	0.00	0.05	0.00	38.7
All Vehicles			1367	3.8	1367	3.8	0.196	1.0	NA	0.3	2.2	0.08	0.11	0.08	37.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [IC06 AM] North St/ Millward Ln (EX AM)

Network: [1A] AM (EX)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop of Cycle	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist]			km/h	
SouthEast: North St															
31	T1	All MCs	91	2.3	91	2.3	0.048	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	49.7
3b	R3	All MCs	4	0.0	4	0.0	0.048	5.2	LOS A	0.0	0.1	0.01	0.03	0.01	43.0
Approach			95	2.2	95	2.2	0.048	0.2	NA	0.0	0.1	0.01	0.03	0.01	49.5
East: Millward Ln															
21b	L3	All MCs	2	0.0	2	0.0	0.008	5.5	LOS A	0.0	0.1	0.15	0.49	0.15	34.5
23a	R1	All MCs	7	0.0	7	0.0	0.008	4.3	LOS A	0.0	0.1	0.15	0.49	0.15	43.8
Approach			9	0.0	9	0.0	0.008	4.5	LOS A	0.0	0.1	0.15	0.49	0.15	43.1
NorthWest: North St															
7a	L1	All MCs	1	0.0	1	0.0	0.016	4.4	LOS A	0.0	0.0	0.00	0.24	0.00	46.6
25	T1	All MCs	32	0.0	32	0.0	0.016	1.2	LOS A	0.0	0.0	0.00	0.24	0.00	48.3
Approach			33	0.0	33	0.0	0.016	1.3	NA	0.0	0.0	0.00	0.24	0.00	48.3
All Vehicles			137	1.5	137	1.5	0.048	0.8	NA	0.0	0.1	0.02	0.11	0.02	48.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [IC04 AM] Harbour Dr/ Hogbin Dr (EX AM)

Network: [1A] AM (EX)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist] m			km/h	
South: Hogbin Dr															
30	L2	All MCs	135	3.1	135	3.1	0.531	8.1	LOS A	1.4	9.9	0.75	0.79	0.91	36.5
31	T1	All MCs	573	2.9	573	2.9	0.810	9.8	LOS A	3.9	27.8	0.85	0.96	1.23	41.3
32	R2	All MCs	361	3.2	361	3.2	0.810	16.7	LOS B	3.9	27.8	0.92	1.08	1.44	39.3
32u	U	All MCs	14	0.0	14	0.0	0.810	18.5	LOS B	3.9	27.8	0.92	1.08	1.44	36.4
Approach			1082	3.0	1082	3.0	0.810	12.0	LOS A	3.9	27.8	0.86	0.98	1.26	40.2
East: Harbour Dr															
21	L2	All MCs	253	3.3	253	3.3	0.464	5.8	LOS A	1.0	7.0	0.70	0.73	0.79	44.4
22	T1	All MCs	382	4.1	382	4.1	0.464	5.4	LOS A	1.0	7.0	0.70	0.74	0.80	41.9
23	R2	All MCs	68	4.6	68	4.6	0.464	11.2	LOS A	0.9	6.7	0.70	0.74	0.80	44.4
23u	U	All MCs	5	0.0	5	0.0	0.464	12.9	LOS A	0.9	6.7	0.70	0.74	0.80	44.5
Approach			708	3.9	708	3.9	0.464	6.1	LOS A	1.0	7.0	0.70	0.73	0.80	43.3
North: Hogbin Dr															
24	L2	All MCs	19	0.0	19	0.0	0.541	6.3	LOS A	1.3	9.6	0.70	0.72	0.84	45.1
25	T1	All MCs	671	3.1	671	3.1	0.541	5.8	LOS A	1.3	9.6	0.70	0.75	0.84	43.7
26	R2	All MCs	240	0.0	240	0.0	0.541	11.4	LOS A	1.3	9.2	0.70	0.83	0.85	40.3
26u	U	All MCs	1	0.0	1	0.0	0.541	13.6	LOS A	1.3	9.2	0.70	0.83	0.85	43.7
Approach			931	2.3	931	2.3	0.541	7.3	LOS A	1.3	9.6	0.70	0.77	0.84	43.1
West: Harbour Dr															
27	L2	All MCs	188	2.2	188	2.2	0.479	6.7	LOS A	1.2	8.5	0.78	0.78	0.89	43.6
28	T1	All MCs	329	5.4	329	5.4	0.479	6.3	LOS A	1.2	8.5	0.78	0.81	0.89	43.2
29	R2	All MCs	121	2.6	121	2.6	0.479	11.9	LOS A	1.1	8.1	0.77	0.85	0.89	39.5
29u	U	All MCs	21	0.0	21	0.0	0.479	13.8	LOS A	1.1	8.1	0.77	0.85	0.89	34.8
Approach			660	3.8	660	3.8	0.479	7.7	LOS A	1.2	8.5	0.78	0.81	0.89	42.6
All Vehicles			3381	3.1	3381	3.1	0.810	8.6	LOS A	3.9	27.8	0.77	0.84	0.98	42.1

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

Roundabout 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: [647 PM] Harbour Dr/ Pacific Hwy/ W High St (EX PM)

Network: [1P] PM (EX)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130.0 seconds (Site User-Given Phase Times)

This Site is not connected to the Network.

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue Prop.		Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]	[Total HV]	[Total HV]	v/c	sec		[Veh. veh]	[Dist]			km/h	
			veh/h	%	veh/h	%				veh	m				
South: Pacific Hwy															
30	L2	All MCs	61	1.7	61	1.7	0.052	17.2	LOS B	0.8	5.9	0.38	0.66	0.38	24.2
31	T1	All MCs	751	12.5	751	12.5	*0.322	11.2	LOS A	6.2	48.0	0.46	0.40	0.46	42.4
Approach			812	11.7	812	11.7	0.322	11.7	LOS A	6.2	48.0	0.45	0.42	0.45	39.3
East: Harbour Dr															
21	L2	All MCs	47	2.2	47	2.2	0.151	89.3	LOS F	1.6	11.2	0.89	0.72	0.89	16.2
22	T1	All MCs	299	1.4	299	1.4	*0.922	110.5	LOS F	13.7	97.1	1.00	1.14	1.32	12.5
Approach			346	1.5	346	1.5	0.922	107.6	LOS F	13.7	97.1	0.98	1.08	1.26	9.6
North: Pacific Hwy															
24	L2	All MCs	55	3.8	55	3.8	0.046	15.6	LOS B	0.7	5.3	0.38	0.65	0.38	35.3
25	T1	All MCs	869	17.2	869	17.2	0.346	7.1	LOS A	5.9	47.6	0.38	0.34	0.38	47.2
26	R2	All MCs	111	1.9	111	1.9	*0.281	16.7	LOS B	1.9	13.3	0.52	1.15	0.52	20.9
Approach			1035	14.9	1035	14.9	0.346	8.6	LOS A	5.9	47.6	0.40	0.44	0.40	40.3
West: West High St															
27	L2	All MCs	96	7.7	96	7.7	0.237	73.6	LOS F	3.0	22.6	0.85	0.75	0.85	17.2
28	T1	All MCs	197	1.6	197	1.6	0.711	82.6	LOS F	7.5	53.2	0.99	0.86	1.05	15.0
29	R2	All MCs	25	0.0	25	0.0	0.348	75.2	LOS F	1.0	7.2	1.00	0.70	1.00	8.0
Approach			318	3.3	318	3.3	0.711	79.3	LOS F	7.5	53.2	0.95	0.82	0.98	11.7
All Vehicles			2511	10.5	2511	10.5	0.922	32.2	LOS C	13.7	97.1	0.57	0.57	0.61	23.3

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Queued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped]	[Dist]			sec	m	m/sec
South: Pacific Hwy											

P8 Full	34	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
East: Harbour Dr										
P5 Full	24	58.2	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
North: Pacific Hwy										
P6 Full	48	58.3	LOS E	0.2	0.2	0.95	0.95	225.0	200.0	0.89
West: West High St										
P7 Full	31	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
All Pedestrians	137	58.3	LOS E	0.2	0.2	0.95	0.95	224.9	200.0	0.89

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

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

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

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MOVEMENT SUMMARY

Site: [IC02 PM] Harbour Dr/ Earl St (EX PM)

Network: [1P] PM (EX)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist]			km/h	
South: Earl St															
30	L2	All MCs	196	0.5	196	0.5	0.646	7.2	LOS A	2.2	15.8	0.76	0.82	0.95	30.2
31	T1	All MCs	68	0.0	68	0.0	0.646	7.0	LOS A	2.2	15.8	0.76	0.82	0.95	25.9
32	R2	All MCs	280	0.8	280	0.8	0.646	10.8	LOS A	2.2	15.8	0.76	0.82	0.95	23.3
32u	U	All MCs	12	0.0	12	0.0	0.646	12.2	LOS A	2.2	15.8	0.76	0.82	0.95	27.7
Approach			556	0.6	556	0.6	0.646	9.1	LOS A	2.2	15.8	0.76	0.82	0.95	27.0
East: Harbour Dr															
21	L2	All MCs	192	3.8	192	3.8	0.664	4.8	LOS A	1.8	12.9	0.55	0.63	0.63	33.8
22	T1	All MCs	379	3.3	379	3.3	0.664	3.9	LOS A	1.8	12.9	0.55	0.63	0.63	35.1
23	R2	All MCs	52	0.0	52	0.0	0.664	8.4	LOS A	1.8	12.9	0.55	0.63	0.63	21.7
23u	U	All MCs	25	0.0	25	0.0	0.664	9.8	LOS A	1.8	12.9	0.55	0.63	0.63	32.0
Approach			647	3.1	647	3.1	0.664	4.7	LOS A	1.8	12.9	0.55	0.63	0.63	33.5
North: Earl St															
24	L2	All MCs	54	0.0	54	0.0	0.113	9.7	LOS A	0.2	1.6	0.73	0.76	0.73	14.7
25	T1	All MCs	74	0.0	74	0.0	0.240	6.5	LOS A	0.6	4.3	0.79	0.72	0.79	26.8
26	R2	All MCs	100	0.0	100	0.0	0.240	10.3	LOS A	0.6	4.3	0.79	0.72	0.79	28.8
Approach			227	0.0	227	0.0	0.240	8.9	LOS A	0.6	4.3	0.77	0.73	0.77	26.3
West: Harbour Dr															
27	L2	All MCs	78	0.0	78	0.0	0.125	6.5	LOS A	0.2	1.7	0.57	0.63	0.57	30.0
28	T1	All MCs	372	0.8	372	0.8	0.531	5.0	LOS A	1.7	12.0	0.72	0.65	0.76	29.6
29	R2	All MCs	158	0.7	158	0.7	0.531	8.4	LOS A	1.7	12.0	0.72	0.65	0.76	31.5
29u	U	All MCs	15	7.1	15	7.1	0.531	10.0	LOS A	1.7	12.0	0.72	0.65	0.76	32.8
Approach			622	0.8	622	0.8	0.531	6.2	LOS A	1.7	12.0	0.70	0.65	0.73	30.4
All Vehicles			2053	1.4	2053	1.4	0.664	6.8	LOS A	2.2	15.8	0.68	0.70	0.76	30.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

Roundabout 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: [3763 PM] Harbour Dr/ Curacoa St (EX PM)

Network: [1P] PM (EX)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 74.0 seconds (Site User-Given Phase Times)

Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue Prop.		Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist] m			km/h	
South: Curacoa St															
30	L2	All MCs	16	0.0	16	0.0	0.068	36.2	LOS C	0.3	2.2	0.91	0.68	0.91	17.4
31	T1	All MCs	2	0.0	2	0.0	0.088	31.8	LOS C	0.4	2.7	0.92	0.69	0.92	30.2
32	R2	All MCs	17	0.0	17	0.0	0.088	36.9	LOS C	0.4	2.7	0.92	0.69	0.92	17.4
Approach			35	0.0	35	0.0	0.088	36.3	LOS C	0.4	2.7	0.91	0.68	0.91	18.7
East: Harbour Dr															
21	L2	All MCs	13	0.0	13	0.0	0.110	8.6	LOS A	1.1	7.6	0.35	0.32	0.35	41.0
22	T1	All MCs	583	3.4	583	3.4	0.339	4.6	LOS A	3.9	28.4	0.41	0.37	0.41	34.0
23	R2	All MCs	3	0.0	3	0.0	*0.339	11.9	LOS A	3.9	28.4	0.43	0.38	0.43	43.8
Approach			599	3.3	599	3.3	0.339	4.8	LOS A	3.9	28.4	0.41	0.36	0.41	34.5
North: Curacoa St															
24	L2	All MCs	14	0.0	14	0.0	0.056	36.0	LOS C	0.3	1.9	0.91	0.68	0.91	25.4
25	T1	All MCs	3	0.0	3	0.0	*0.190	32.5	LOS C	0.9	6.0	0.93	0.72	0.93	29.9
26	R2	All MCs	38	0.0	38	0.0	0.190	37.6	LOS C	0.9	6.0	0.93	0.72	0.93	25.0
Approach			55	0.0	55	0.0	0.190	36.9	LOS C	0.9	6.0	0.93	0.71	0.93	25.5
West: Harbour Dr															
27	L2	All MCs	19	0.0	19	0.0	0.278	9.5	LOS A	3.1	21.8	0.40	0.37	0.40	44.4
28	T1	All MCs	718	0.9	718	0.9	0.278	4.5	LOS A	3.1	21.8	0.41	0.36	0.41	38.6
29	R2	All MCs	5	0.0	5	0.0	0.278	12.3	LOS A	3.1	21.6	0.41	0.36	0.41	42.1
Approach			742	0.9	742	0.9	0.278	4.7	LOS A	3.1	21.8	0.41	0.36	0.41	39.1
All Vehicles			1431	1.8	1431	1.8	0.339	6.7	LOS A	3.9	28.4	0.44	0.39	0.44	34.7

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped]	[Dist] m			sec	m	m/sec

South: Curacoa St										
P8 Full	11	28.6	LOS C	0.0	0.0	0.88	0.88	195.2	200.0	1.02
East: Harbour Dr										
P5 Full	2	28.5	LOS C	0.0	0.0	0.88	0.88	195.2	200.0	1.02
North: Curacoa St										
P6 Full	31	28.6	LOS C	0.1	0.1	0.88	0.88	195.3	200.0	1.02
West: Harbour Dr										
P7 Full	1	28.5	LOS C	0.0	0.0	0.88	0.88	195.2	200.0	1.02
All Pedestrians	44	28.6	LOS C	0.1	0.1	0.88	0.88	195.2	200.0	1.02

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

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

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

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MOVEMENT SUMMARY

Site: [IC03 PM] Harbour Dr/ North Street (EX PM)

Network: [1P] PM (EX)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist]	m		km/h	
East: Harbour Dr															
22	T1	All MCs	582	3.3	582	3.3	0.168	0.3	LOS A	0.1	1.0	0.07	0.07	0.07	48.6
23a	R1	All MCs	21	0.0	21	0.0	0.168	7.5	LOS A	0.1	1.0	0.14	0.15	0.14	47.1
Approach			603	3.1	603	3.1	0.168	0.6	NA	0.1	1.0	0.07	0.07	0.07	48.6
NorthWest: North Street															
7a	L1	All MCs	22	0.0	22	0.0	0.023	5.1	LOS A	0.0	0.2	0.38	0.55	0.38	27.3
9b	R3	All MCs	17	0.0	17	0.0	0.102	26.6	LOS B	0.1	0.9	0.86	0.94	0.86	9.9
Approach			39	0.0	39	0.0	0.102	14.4	LOS A	0.1	0.9	0.59	0.72	0.59	15.3
West: Harbour Dr															
27b	L3	All MCs	27	0.0	27	0.0	0.193	5.4	LOS A	0.0	0.0	0.00	0.05	0.00	47.9
28	T1	All MCs	711	0.7	711	0.7	0.193	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	48.9
Approach			738	0.7	738	0.7	0.193	0.2	NA	0.0	0.0	0.00	0.02	0.00	48.9
All Vehicles			1380	1.8	1380	1.8	0.193	0.8	NA	0.1	1.0	0.05	0.06	0.05	47.3

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [IC06 PM] North St/ Millward Ln (EX PM)

Network: [1P] PM (EX)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop of Cycle	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh]	[Dist]			km/h	
			veh/h	%	veh/h	%		veh	m				
SouthEast: North St													
31	T1	All MCs	33	0.0	33	0.0	0.017	0.0	LOS A	0.0	0.0	0.01	49.8
3b	R3	All MCs	1	0.0	1	0.0	0.017	5.2	LOS A	0.0	0.0	0.01	43.2
Approach			34	0.0	34	0.0	0.017	0.2	NA	0.0	0.0	0.01	49.7
East: Millward Ln													
21b	L3	All MCs	1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.0	0.08	34.4
23a	R1	All MCs	1	0.0	1	0.0	0.002	4.0	LOS A	0.0	0.0	0.08	43.7
Approach			2	0.0	2	0.0	0.002	4.7	LOS A	0.0	0.0	0.08	41.6
NorthWest: North St													
7a	L1	All MCs	1	0.0	1	0.0	0.010	4.4	LOS A	0.0	0.0	0.00	47.6
25	T1	All MCs	20	0.0	20	0.0	0.010	0.0	LOS A	0.0	0.0	0.00	49.7
Approach			21	0.0	21	0.0	0.010	0.2	NA	0.0	0.0	0.00	49.6
All Vehicles			57	0.0	57	0.0	0.017	0.4	NA	0.0	0.0	0.01	49.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [IC04 PM] Harbour Dr/ Hogbin Dr (EX PM)

Network: [1P] PM (EX)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist]			km/h	
South: Hogbin Dr															
30	L2	All MCs	119	2.7	119	2.7	0.532	7.2	LOS A	1.4	9.9	0.71	0.73	0.84	37.3
31	T1	All MCs	723	1.7	723	1.7	0.812	8.9	LOS A	4.0	28.4	0.82	0.90	1.14	41.9
32	R2	All MCs	317	0.7	317	0.7	0.812	15.4	LOS B	4.0	28.4	0.89	1.02	1.34	40.0
32u	U	All MCs	32	6.7	32	6.7	0.812	17.7	LOS B	4.0	28.4	0.89	1.02	1.34	37.1
Approach			1191	1.7	1191	1.7	0.812	10.7	LOS A	4.0	28.4	0.83	0.92	1.17	41.0
East: Harbour Dr															
21	L2	All MCs	231	0.9	231	0.9	0.355	4.6	LOS A	0.6	4.4	0.59	0.58	0.60	44.9
22	T1	All MCs	322	3.6	322	3.6	0.355	4.2	LOS A	0.6	4.4	0.59	0.58	0.61	42.8
23	R2	All MCs	60	1.8	60	1.8	0.355	10.0	LOS A	0.6	4.3	0.60	0.59	0.61	45.1
23u	U	All MCs	13	0.0	13	0.0	0.355	11.7	LOS A	0.6	4.3	0.60	0.59	0.61	45.1
Approach			625	2.4	625	2.4	0.355	5.0	LOS A	0.6	4.4	0.59	0.58	0.61	44.1
North: Hogbin Dr															
24	L2	All MCs	22	0.0	22	0.0	0.428	5.6	LOS A	1.0	6.7	0.68	0.61	0.73	45.6
25	T1	All MCs	521	1.2	521	1.2	0.428	5.1	LOS A	1.0	6.7	0.68	0.65	0.73	44.4
26	R2	All MCs	181	1.7	181	1.7	0.428	10.8	LOS A	0.9	6.5	0.68	0.75	0.74	40.9
26u	U	All MCs	1	0.0	1	0.0	0.428	13.1	LOS A	0.9	6.5	0.68	0.75	0.74	44.1
Approach			725	1.3	725	1.3	0.428	6.6	LOS A	1.0	6.7	0.68	0.68	0.73	43.7
West: Harbour Dr															
27	L2	All MCs	327	0.6	327	0.6	0.626	8.8	LOS A	1.8	13.0	0.86	0.93	1.11	42.5
28	T1	All MCs	354	0.9	354	0.9	0.626	8.5	LOS A	1.8	13.0	0.86	0.95	1.11	42.0
29	R2	All MCs	112	1.9	112	1.9	0.626	14.2	LOS A	1.7	12.1	0.85	0.96	1.11	38.3
29u	U	All MCs	21	0.0	21	0.0	0.626	16.2	LOS B	1.7	12.1	0.85	0.96	1.11	33.1
Approach			814	0.9	814	0.9	0.626	9.6	LOS A	1.8	13.0	0.86	0.94	1.11	41.6
All Vehicles			3355	1.5	3355	1.5	0.812	8.5	LOS A	4.0	28.4	0.76	0.81	0.96	42.3

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

Roundabout 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: [IC04 P] Harbour Dr/ Hogbin Dr (FB (PM))

Network: [1P (2)] FB (PM) (Future Base)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Cycle	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h	
South: Hogbin Dr															
30	L2	All MCs	91	3.5	91	3.5	0.387	5.4	LOS A	0.8	5.7	0.61	0.58	0.61	39.6
31	T1	All MCs	549	2.3	549	2.3	0.590	5.5	LOS A	1.8	12.7	0.66	0.68	0.73	44.0
32	R2	All MCs	241	0.9	241	0.9	0.590	11.0	LOS A	1.8	12.7	0.69	0.74	0.81	42.5
32u	U	All MCs	32	6.7	32	6.7	0.590	13.2	LOS A	1.8	12.7	0.69	0.74	0.81	40.1
Approach			913	2.2	913	2.2	0.590	7.2	LOS A	1.8	12.7	0.66	0.69	0.74	43.2
East: Harbour Dr															
21	L2	All MCs	231	0.9	231	0.9	0.297	4.2	LOS A	0.5	3.3	0.49	0.52	0.49	45.3
22	T1	All MCs	283	4.1	283	4.1	0.297	3.6	LOS A	0.5	3.3	0.49	0.52	0.49	43.4
23	R2	All MCs	60	1.8	60	1.8	0.297	9.3	LOS A	0.4	3.2	0.50	0.52	0.50	45.4
23u	U	All MCs	13	0.0	13	0.0	0.297	11.1	LOS A	0.4	3.2	0.50	0.52	0.50	45.4
Approach			586	2.5	586	2.5	0.297	4.6	LOS A	0.5	3.3	0.49	0.52	0.49	44.6
North: Hogbin Dr															
24	L2	All MCs	17	0.0	17	0.0	0.296	4.7	LOS A	0.5	3.8	0.56	0.48	0.56	46.1
25	T1	All MCs	396	1.6	396	1.6	0.296	4.1	LOS A	0.5	3.8	0.56	0.53	0.56	44.9
26	R2	All MCs	138	2.3	138	2.3	0.296	9.7	LOS A	0.5	3.7	0.56	0.64	0.56	41.9
26u	U	All MCs	1	0.0	1	0.0	0.296	11.8	LOS A	0.5	3.7	0.56	0.64	0.56	44.7
Approach			552	1.7	552	1.7	0.296	5.5	LOS A	0.5	3.8	0.56	0.55	0.56	44.4
West: Harbour Dr															
27	L2	All MCs	327	0.6	327	0.6	0.461	5.7	LOS A	1.0	7.3	0.69	0.72	0.76	44.4
28	T1	All MCs	312	1.0	312	1.0	0.461	5.3	LOS A	1.0	7.3	0.69	0.73	0.77	43.8
29	R2	All MCs	112	1.9	112	1.9	0.461	10.8	LOS A	1.0	7.0	0.69	0.74	0.77	40.5
29u	U	All MCs	21	0.0	21	0.0	0.461	12.8	LOS A	1.0	7.0	0.69	0.74	0.77	36.3
Approach			772	1.0	772	1.0	0.461	6.5	LOS A	1.0	7.3	0.69	0.73	0.77	43.5
All Vehicles			2822	1.8	2822	1.8	0.590	6.1	LOS A	1.8	12.7	0.61	0.64	0.66	43.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

Roundabout 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: [647 AM (2)] Harbour Dr/ Pacific Hwy/ W High St (FB (AM))

Network: [1A (2)] FB (AM) (Future Base)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130.0 seconds (Site User-Given Phase Times)

This Site is not connected to the Network.

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue Prop.		Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]			v/c	sec	[Veh. Dist]				km/h		
			veh/h	%	veh/h	%			veh	m					
South: Pacific Hwy															
30	L2	All MCs	13	0.0	13	0.0	0.011	18.5	LOS B	0.2	1.3	0.39	0.63	0.39	23.5
31	T1	All MCs	629	17.6	629	17.6	*0.289	13.3	LOS A	5.5	44.0	0.49	0.43	0.49	40.2
Approach			642	17.2	642	17.2	0.289	13.4	LOS A	5.5	44.0	0.49	0.43	0.49	38.0
East: Harbour Dr															
21	L2	All MCs	28	0.0	28	0.0	0.068	59.5	LOS E	0.9	6.0	0.82	0.69	0.82	17.6
22	T1	All MCs	157	1.3	157	1.3	0.358	57.8	LOS E	5.1	35.9	0.88	0.72	0.88	17.3
Approach			185	1.1	185	1.1	0.358	58.0	LOS E	5.1	35.9	0.87	0.71	0.87	14.8
North: Pacific Hwy															
24	L2	All MCs	24	17.4	24	17.4	0.023	16.5	LOS B	0.3	2.8	0.40	0.64	0.40	34.5
25	T1	All MCs	677	17.7	677	17.7	0.283	8.5	LOS A	4.9	39.6	0.41	0.36	0.41	44.9
26	R2	All MCs	48	2.2	48	2.2	*0.112	17.1	LOS B	0.8	5.6	0.49	1.12	0.49	20.7
Approach			749	16.7	749	16.7	0.283	9.3	LOS A	4.9	39.6	0.41	0.42	0.41	40.8
West: West High St															
27	L2	All MCs	54	3.9	54	3.9	0.111	69.5	LOS E	1.6	11.2	0.78	0.70	0.78	18.7
28	T1	All MCs	261	0.8	261	0.8	*0.642	76.3	LOS F	9.2	64.8	0.95	0.81	0.95	16.5
29	R2	All MCs	35	3.0	35	3.0	0.152	53.5	LOS D	1.2	8.4	0.89	0.71	0.89	10.4
Approach			349	1.5	349	1.5	0.642	73.0	LOS F	9.2	64.8	0.92	0.78	0.92	12.3
All Vehicles			1926	12.6	1926	12.6	0.642	26.9	LOS B	9.2	64.8	0.57	0.52	0.57	25.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Queued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped	Dist]			sec	m	m/sec
					ped	m					

South: Pacific Hwy											
P8	Full	36	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
East: Harbour Dr											
P5	Full	6	58.2	LOS E	0.0	0.0	0.95	0.95	224.9	200.0	0.89
North: Pacific Hwy											
P6	Full	35	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
West: West High St											
P7	Full	5	58.2	LOS E	0.0	0.0	0.95	0.95	224.9	200.0	0.89
All Pedestrians		82	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89

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

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

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

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MOVEMENT SUMMARY

 Site: [IC02 A] Harbour Dr/ Earl St (FB (AM))

Network: [1A (2)] FB (AM) (Future Base)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]	[Total HV]	[Total HV]	v/c	sec		[Veh. veh]	[Dist]			km/h	
			veh/h	%	veh/h	%				veh	m				
South: Earl St															
30	L2	All MCs	169	0.6	169	0.6	0.525	4.5	LOS A	1.3	9.5	0.59	0.65	0.63	32.4
31	T1	All MCs	60	0.0	60	0.0	0.525	4.3	LOS A	1.3	9.5	0.59	0.65	0.63	28.7
32	R2	All MCs	265	2.8	265	2.8	0.525	8.2	LOS A	1.3	9.5	0.59	0.65	0.63	26.4
32u	U	All MCs	3	0.0	3	0.0	0.525	9.6	LOS A	1.3	9.5	0.59	0.65	0.63	30.1
Approach			498	1.7	498	1.7	0.525	6.5	LOS A	1.3	9.5	0.59	0.65	0.63	29.6
East: Harbour Dr															
21	L2	All MCs	243	5.6	243	5.6	0.620	3.2	LOS A	1.4	10.2	0.40	0.45	0.41	35.3
22	T1	All MCs	345	2.1	345	2.1	0.620	2.3	LOS A	1.4	10.2	0.40	0.45	0.41	36.4
23	R2	All MCs	39	0.0	39	0.0	0.620	6.9	LOS A	1.4	10.2	0.40	0.45	0.41	23.9
23u	U	All MCs	22	4.8	22	4.8	0.620	8.4	LOS A	1.4	10.2	0.40	0.45	0.41	34.0
Approach			649	3.4	649	3.4	0.620	3.1	LOS A	1.4	10.2	0.40	0.45	0.41	35.1
North: Earl St															
24	L2	All MCs	16	6.7	16	6.7	0.033	9.0	LOS A	0.1	0.5	0.67	0.71	0.67	15.4
25	T1	All MCs	26	0.0	26	0.0	0.068	5.4	LOS A	0.2	1.1	0.69	0.67	0.69	28.2
26	R2	All MCs	25	8.3	25	8.3	0.068	9.5	LOS A	0.2	1.1	0.69	0.67	0.69	29.9
Approach			67	4.7	67	4.7	0.068	7.8	LOS A	0.2	1.1	0.68	0.68	0.68	27.3
West: Harbour Dr															
27	L2	All MCs	68	0.0	68	0.0	0.104	6.1	LOS A	0.2	1.3	0.53	0.61	0.53	30.3
28	T1	All MCs	338	4.0	338	4.0	0.473	4.4	LOS A	1.3	9.5	0.64	0.59	0.64	30.4
29	R2	All MCs	155	4.8	155	4.8	0.473	7.8	LOS A	1.3	9.5	0.64	0.59	0.64	32.1
29u	U	All MCs	6	0.0	6	0.0	0.473	9.1	LOS A	1.3	9.5	0.64	0.59	0.64	33.4
Approach			567	3.7	567	3.7	0.473	5.6	LOS A	1.3	9.5	0.63	0.59	0.63	31.0
All Vehicles			1782	3.1	1782	3.1	0.620	5.0	LOS A	1.4	10.2	0.54	0.56	0.55	32.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

Roundabout 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: [3763 A] Harbour Dr/ Curacoa St (FB (AM))

Network: [1A (2)] FB (AM) (Future Base)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 65.0 seconds (Site User-Given Phase Times)

Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue Prop.		Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]			km/h	
South: Curacoa St															
30	L2	All MCs	18	5.9	18	5.9	0.038	23.6	LOS B	0.3	1.9	0.76	0.67	0.76	22.6
31	T1	All MCs	23	0.0	23	0.0	0.109	19.7	LOS B	0.7	5.1	0.81	0.66	0.81	35.4
32	R2	All MCs	21	15.0	21	15.0	0.109	26.9	LOS B	0.7	5.1	0.81	0.66	0.81	23.0
Approach			62	6.8	62	6.8	0.109	23.3	LOS B	0.7	5.1	0.79	0.66	0.79	29.4
East: Harbour Dr															
21	L2	All MCs	11	40.0	11	40.0	0.134	12.4	LOS A	1.3	9.7	0.53	0.45	0.53	33.4
22	T1	All MCs	537	3.9	537	3.9	0.414	9.6	LOS A	5.0	36.0	0.62	0.54	0.62	22.6
23	R2	All MCs	11	0.0	11	0.0	*0.414	14.1	LOS A	5.0	36.0	0.64	0.56	0.64	38.2
Approach			558	4.5	558	4.5	0.414	9.7	LOS A	5.0	36.0	0.62	0.54	0.62	23.8
North: Curacoa St															
24	L2	All MCs	46	0.0	46	0.0	0.108	26.6	LOS B	0.7	5.1	0.83	0.71	0.83	29.1
25	T1	All MCs	15	7.1	15	7.1	*0.252	20.1	LOS B	1.6	11.4	0.84	0.74	0.84	34.2
26	R2	All MCs	85	0.0	85	0.0	0.252	26.6	LOS B	1.6	11.4	0.84	0.74	0.84	29.6
Approach			146	0.7	146	0.7	0.252	25.9	LOS B	1.6	11.4	0.84	0.73	0.84	30.1
West: Harbour Dr															
27	L2	All MCs	69	0.0	69	0.0	0.295	13.3	LOS A	3.2	23.0	0.60	0.55	0.60	38.2
28	T1	All MCs	520	4.5	520	4.5	0.295	9.1	LOS A	3.2	23.5	0.59	0.53	0.59	27.1
29	R2	All MCs	2	0.0	2	0.0	0.295	12.9	LOS A	3.2	23.5	0.59	0.51	0.59	34.8
Approach			592	3.9	592	3.9	0.295	9.6	LOS A	3.2	23.5	0.59	0.53	0.59	29.7
All Vehicles			1358	4.0	1358	4.0	0.414	12.0	LOS A	5.0	36.0	0.64	0.56	0.64	28.1

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec

South: Curacoa St										
P8 Full	20	24.1	LOS C	0.0	0.0	0.86	0.86	190.8	200.0	1.05
East: Harbour Dr										
P5 Full	108	24.2	LOS C	0.2	0.2	0.87	0.87	190.9	200.0	1.05
North: Curacoa St										
P6 Full	39	24.2	LOS C	0.1	0.1	0.86	0.86	190.8	200.0	1.05
West: Harbour Dr										
P7 Full	15	24.1	LOS C	0.0	0.0	0.86	0.86	190.8	200.0	1.05
All Pedestrians	182	24.2	LOS C	0.2	0.2	0.86	0.86	190.9	200.0	1.05

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

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

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

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MOVEMENT SUMMARY

Site: [IC03 A] Harbour Dr/ North Street (FB (AM))

Network: [1A (2)] FB (AM) (Future Base)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop of Cycle	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist] m			km/h	
East: Harbour Dr															
22	T1	All MCs	541	4.7	541	4.7	0.174	0.5	LOS A	0.3	2.0	0.12	0.11	0.12	38.7
23a	R1	All MCs	52	2.0	52	2.0	0.174	5.2	LOS A	0.3	2.0	0.29	0.28	0.29	37.1
Approach			593	4.4	593	4.4	0.174	0.9	NA	0.3	2.0	0.13	0.13	0.13	38.6
NorthWest: North Street															
7a	L1	All MCs	28	0.0	28	0.0	0.026	3.6	LOS A	0.0	0.3	0.30	0.45	0.30	26.8
9b	R3	All MCs	17	0.0	17	0.0	0.073	19.0	LOS B	0.1	0.7	0.80	0.91	0.80	12.1
Approach			45	0.0	45	0.0	0.073	9.3	LOS A	0.1	0.7	0.49	0.62	0.49	18.2
West: Harbour Dr															
27b	L3	All MCs	62	1.7	62	1.7	0.158	4.1	LOS A	0.0	0.0	0.00	0.12	0.00	37.2
28	T1	All MCs	522	4.6	522	4.6	0.158	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	38.7
Approach			584	4.3	584	4.3	0.158	0.5	NA	0.0	0.0	0.00	0.06	0.00	38.5
All Vehicles			1222	4.2	1222	4.2	0.174	1.0	NA	0.3	2.0	0.08	0.11	0.08	37.9

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [IC06 A] North St/ Millward Ln (FB (AM))
 Network: [1A (2)] FB (AM) (Future Base)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop of Cycle	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist] m			km/h	
SouthEast: North St															
31	T1	All MCs	91	2.3	91	2.3	0.048	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	49.7
3b	R3	All MCs	4	0.0	4	0.0	0.048	5.2	LOS A	0.0	0.1	0.01	0.03	0.01	43.0
Approach			95	2.2	95	2.2	0.048	0.2	NA	0.0	0.1	0.01	0.03	0.01	49.5
East: Millward Ln															
21b	L3	All MCs	2	0.0	2	0.0	0.008	5.5	LOS A	0.0	0.1	0.15	0.49	0.15	34.5
23a	R1	All MCs	7	0.0	7	0.0	0.008	4.3	LOS A	0.0	0.1	0.15	0.49	0.15	43.8
Approach			9	0.0	9	0.0	0.008	4.5	LOS A	0.0	0.1	0.15	0.49	0.15	43.1
NorthWest: North St															
7a	L1	All MCs	1	0.0	1	0.0	0.016	4.4	LOS A	0.0	0.0	0.00	0.24	0.00	46.6
25	T1	All MCs	32	0.0	32	0.0	0.016	1.2	LOS A	0.0	0.0	0.00	0.24	0.00	48.3
Approach			33	0.0	33	0.0	0.016	1.3	NA	0.0	0.0	0.00	0.24	0.00	48.3
All Vehicles			137	1.5	137	1.5	0.048	0.8	NA	0.0	0.1	0.02	0.11	0.02	48.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [IC04 A] Harbour Dr/ Hogbin Dr (FB (AM))

Network: [1A (2)] FB (AM) (Future Base)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist] m			km/h	
South: Hogbin Dr															
30	L2	All MCs	102	4.1	102	4.1	0.378	6.0	LOS A	0.8	5.6	0.64	0.64	0.66	39.0
31	T1	All MCs	435	3.9	435	3.9	0.576	5.9	LOS A	1.7	12.3	0.69	0.73	0.78	43.6
32	R2	All MCs	275	4.2	275	4.2	0.576	11.6	LOS A	1.7	12.3	0.73	0.79	0.87	42.1
32u	U	All MCs	14	0.0	14	0.0	0.576	13.5	LOS A	1.7	12.3	0.73	0.79	0.87	39.7
Approach			825	4.0	825	4.0	0.576	8.0	LOS A	1.7	12.3	0.70	0.74	0.79	42.7
East: Harbour Dr															
21	L2	All MCs	253	3.3	253	3.3	0.368	4.7	LOS A	0.6	4.6	0.57	0.59	0.59	45.0
22	T1	All MCs	336	4.7	336	4.7	0.368	4.2	LOS A	0.6	4.6	0.58	0.59	0.60	43.0
23	R2	All MCs	68	4.6	68	4.6	0.368	9.9	LOS A	0.6	4.5	0.58	0.59	0.61	45.1
23u	U	All MCs	5	0.0	5	0.0	0.368	11.7	LOS A	0.6	4.5	0.58	0.59	0.61	45.2
Approach			662	4.1	662	4.1	0.368	5.1	LOS A	0.6	4.6	0.58	0.59	0.60	44.2
North: Hogbin Dr															
24	L2	All MCs	15	0.0	15	0.0	0.373	4.6	LOS A	0.7	4.9	0.56	0.48	0.57	46.0
25	T1	All MCs	509	4.1	509	4.1	0.373	4.1	LOS A	0.7	4.9	0.56	0.53	0.57	44.9
26	R2	All MCs	182	0.0	182	0.0	0.373	9.7	LOS A	0.7	4.7	0.57	0.65	0.58	41.8
26u	U	All MCs	1	0.0	1	0.0	0.373	11.8	LOS A	0.7	4.7	0.57	0.65	0.58	44.6
Approach			707	3.0	707	3.0	0.373	5.6	LOS A	0.7	4.9	0.57	0.56	0.57	44.3
West: Harbour Dr															
27	L2	All MCs	188	2.2	188	2.2	0.360	4.9	LOS A	0.7	5.0	0.62	0.58	0.62	44.8
28	T1	All MCs	289	6.2	289	6.2	0.360	4.4	LOS A	0.7	5.0	0.62	0.62	0.63	44.4
29	R2	All MCs	121	2.6	121	2.6	0.360	9.9	LOS A	0.7	4.8	0.62	0.66	0.63	40.9
29u	U	All MCs	21	0.0	21	0.0	0.360	11.8	LOS A	0.7	4.8	0.62	0.66	0.63	36.9
Approach			620	4.1	620	4.1	0.360	5.9	LOS A	0.7	5.0	0.62	0.62	0.63	43.8
All Vehicles			2815	3.8	2815	3.8	0.576	6.2	LOS A	1.7	12.3	0.62	0.63	0.66	43.7

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

Roundabout 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: [647 PM (2)] Harbour Dr/ Pacific Hwy/ W High St (FB (PM))

Network: [1P (2)] FB (PM) (Future Base)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130.0 seconds (Site User-Given Phase Times)

This Site is not connected to the Network.

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh]	[Dist]			km/h	
			veh/h	%	veh/h	%		veh	m				
South: Pacific Hwy													
30	L2	All MCs	39 2.7	39 2.7	0.033	14.0	LOS A	0.5	3.8	0.37	0.65	0.37	24.3
31	T1	All MCs	480 19.5	480 19.5	*0.209	8.9	LOS A	3.6	29.1	0.42	0.36	0.42	43.6
Approach			519 18.3	519 18.3	0.209	9.3	LOS A	3.6	29.1	0.41	0.38	0.41	42.2
East: Harbour Dr													
21	L2	All MCs	42 2.5	42 2.5	0.134	80.7	LOS F	1.4	10.0	0.88	0.72	0.88	16.2
22	T1	All MCs	217 1.9	217 1.9	*0.671	81.8	LOS F	8.0	56.9	0.98	0.83	0.99	15.4
Approach			259 2.0	259 2.0	0.671	81.6	LOS F	8.0	56.9	0.97	0.81	0.98	11.8
North: Pacific Hwy													
24	L2	All MCs	35 6.1	35 6.1	0.030	13.9	LOS A	0.5	3.4	0.37	0.65	0.37	35.4
25	T1	All MCs	557 26.8	557 26.8	0.230	5.7	LOS A	3.4	28.9	0.34	0.30	0.34	48.3
26	R2	All MCs	71 3.0	71 3.0	*0.129	13.5	LOS A	0.9	6.8	0.42	1.09	0.42	22.3
Approach			662 23.2	662 23.2	0.230	7.0	LOS A	3.4	28.9	0.35	0.40	0.35	42.3
West: West High St													
27	L2	All MCs	84 8.8	84 8.8	0.210	69.5	LOS E	2.6	19.9	0.85	0.74	0.85	17.2
28	T1	All MCs	174 1.8	174 1.8	0.611	76.1	LOS F	6.3	45.0	0.97	0.80	0.97	15.5
29	R2	All MCs	22 0.0	22 0.0	0.197	67.4	LOS E	0.8	5.9	0.97	0.71	0.97	8.7
Approach			280 3.8	280 3.8	0.611	73.4	LOS F	6.3	45.0	0.93	0.77	0.93	12.3
All Vehicles			1720 15.4	1720 15.4	0.671	29.7	LOS C	8.0	56.9	0.56	0.52	0.56	24.1

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped]	[Dist]			sec	m	m/sec

South: Pacific Hwy											
P8	Full	34	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
East: Harbour Dr											
P5	Full	24	58.2	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
North: Pacific Hwy											
P6	Full	48	58.3	LOS E	0.2	0.2	0.95	0.95	225.0	200.0	0.89
West: West High St											
P7	Full	31	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
All Pedestrians		137	58.3	LOS E	0.2	0.2	0.95	0.95	224.9	200.0	0.89

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

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

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

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MOVEMENT SUMMARY

 Site: [IC02 P] Harbour Dr/ Earl St (FB (PM))

Network: [1P (2)] FB (PM) (Future Base)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist]			km/h	
South: Earl St															
30	L2	All MCs	196	0.5	196	0.5	0.619	6.2	LOS A	2.0	13.8	0.71	0.77	0.84	31.0
31	T1	All MCs	68	0.0	68	0.0	0.619	6.0	LOS A	2.0	13.8	0.71	0.77	0.84	26.9
32	R2	All MCs	280	0.8	280	0.8	0.619	9.9	LOS A	2.0	13.8	0.71	0.77	0.84	24.4
32u	U	All MCs	12	0.0	12	0.0	0.619	11.3	LOS A	2.0	13.8	0.71	0.77	0.84	28.6
Approach			556	0.6	556	0.6	0.619	8.1	LOS A	2.0	13.8	0.71	0.77	0.84	28.0
East: Harbour Dr															
21	L2	All MCs	192	3.8	192	3.8	0.617	4.4	LOS A	1.5	10.8	0.51	0.60	0.57	34.2
22	T1	All MCs	334	3.8	334	3.8	0.617	3.5	LOS A	1.5	10.8	0.51	0.60	0.57	35.4
23	R2	All MCs	52	0.0	52	0.0	0.617	8.0	LOS A	1.5	10.8	0.51	0.60	0.57	21.8
23u	U	All MCs	25	0.0	25	0.0	0.617	9.4	LOS A	1.5	10.8	0.51	0.60	0.57	32.5
Approach			602	3.3	602	3.3	0.617	4.4	LOS A	1.5	10.8	0.51	0.60	0.57	33.6
North: Earl St															
24	L2	All MCs	54	0.0	54	0.0	0.106	9.2	LOS A	0.2	1.5	0.70	0.74	0.70	15.2
25	T1	All MCs	74	0.0	74	0.0	0.226	6.0	LOS A	0.6	3.9	0.75	0.70	0.75	27.3
26	R2	All MCs	100	0.0	100	0.0	0.226	9.8	LOS A	0.6	3.9	0.75	0.70	0.75	29.2
Approach			227	0.0	227	0.0	0.226	8.4	LOS A	0.6	3.9	0.74	0.71	0.74	26.8
West: Harbour Dr															
27	L2	All MCs	78	0.0	78	0.0	0.124	6.5	LOS A	0.2	1.7	0.57	0.63	0.57	30.0
28	T1	All MCs	327	1.0	327	1.0	0.484	4.6	LOS A	1.4	9.8	0.69	0.62	0.69	30.0
29	R2	All MCs	158	0.7	158	0.7	0.484	8.0	LOS A	1.4	9.8	0.69	0.62	0.69	31.9
29u	U	All MCs	15	7.1	15	7.1	0.484	9.6	LOS A	1.4	9.8	0.69	0.62	0.69	33.1
Approach			578	0.9	578	0.9	0.484	5.9	LOS A	1.4	9.8	0.67	0.62	0.67	30.8
All Vehicles			1963	1.4	1963	1.4	0.619	6.4	LOS A	2.0	13.8	0.64	0.67	0.70	30.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

Roundabout 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: [3763 P] Harbour Dr/ Curacoa St (FB (PM))

Network: [1P (2)] FB (PM) (Future Base)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 74.0 seconds (Site User-Given Phase Times)

Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue Prop.		Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]			km/h	
			veh/h		veh/h					veh	m				
South: Curacoa St															
30	L2	All MCs	16	0.0	16	0.0	0.068	36.2	LOS C	0.3	2.2	0.91	0.68	0.91	17.4
31	T1	All MCs	2	0.0	2	0.0	0.088	31.8	LOS C	0.4	2.7	0.92	0.69	0.92	30.2
32	R2	All MCs	17	0.0	17	0.0	0.088	36.9	LOS C	0.4	2.7	0.92	0.69	0.92	17.4
Approach			35	0.0	35	0.0	0.088	36.3	LOS C	0.4	2.7	0.91	0.68	0.91	18.7
East: Harbour Dr															
21	L2	All MCs	13	0.0	13	0.0	0.097	8.6	LOS A	0.9	6.7	0.34	0.32	0.34	41.0
22	T1	All MCs	514	3.9	514	3.9	0.301	4.5	LOS A	3.4	24.4	0.40	0.35	0.40	34.3
23	R2	All MCs	3	0.0	3	0.0	*0.301	11.3	LOS A	3.4	24.4	0.41	0.36	0.41	43.9
Approach			529	3.8	529	3.8	0.301	4.6	LOS A	3.4	24.4	0.40	0.35	0.40	34.9
North: Curacoa St															
24	L2	All MCs	14	0.0	14	0.0	0.056	36.0	LOS C	0.3	1.9	0.91	0.68	0.91	25.4
25	T1	All MCs	3	0.0	3	0.0	*0.190	32.5	LOS C	0.9	6.0	0.93	0.72	0.93	29.9
26	R2	All MCs	38	0.0	38	0.0	0.190	37.6	LOS C	0.9	6.0	0.93	0.72	0.93	25.0
Approach			55	0.0	55	0.0	0.190	36.9	LOS C	0.9	6.0	0.93	0.71	0.93	25.5
West: Harbour Dr															
27	L2	All MCs	19	0.0	19	0.0	0.246	9.4	LOS A	2.7	18.7	0.39	0.36	0.39	44.4
28	T1	All MCs	632	1.0	632	1.0	0.246	4.4	LOS A	2.7	18.7	0.39	0.35	0.39	38.8
29	R2	All MCs	5	0.0	5	0.0	0.246	11.6	LOS A	2.6	18.6	0.40	0.35	0.40	42.3
Approach			656	1.0	656	1.0	0.246	4.6	LOS A	2.7	18.7	0.39	0.35	0.39	39.3
All Vehicles			1275	2.1	1275	2.1	0.301	6.9	LOS A	3.4	24.4	0.43	0.38	0.43	34.6

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
					ped	m					

South: Curacoa St										
P8 Full	11	28.6	LOS C	0.0	0.0	0.88	0.88	195.2	200.0	1.02
East: Harbour Dr										
P5 Full	2	28.5	LOS C	0.0	0.0	0.88	0.88	195.2	200.0	1.02
North: Curacoa St										
P6 Full	31	28.6	LOS C	0.1	0.1	0.88	0.88	195.3	200.0	1.02
West: Harbour Dr										
P7 Full	1	28.5	LOS C	0.0	0.0	0.88	0.88	195.2	200.0	1.02
All Pedestrians	44	28.6	LOS C	0.1	0.1	0.88	0.88	195.2	200.0	1.02

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

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

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

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MOVEMENT SUMMARY

Site: [IC03 P] Harbour Dr/ North Street (FB (PM))

Network: [1P (2)] FB (PM) (Future Base)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop of Cycle	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist] m			km/h	
East: Harbour Dr															
22	T1	All MCs	513	3.7	513	3.7	0.149	0.3	LOS A	0.1	0.9	0.07	0.07	0.07	48.7
23a	R1	All MCs	21	0.0	21	0.0	0.149	6.8	LOS A	0.1	0.9	0.15	0.15	0.15	47.3
Approach			534	3.6	534	3.6	0.149	0.5	NA	0.1	0.9	0.07	0.07	0.07	48.6
NorthWest: North Street															
7a	L1	All MCs	22	0.0	22	0.0	0.022	4.9	LOS A	0.0	0.2	0.35	0.53	0.35	27.5
9b	R3	All MCs	17	0.0	17	0.0	0.078	21.2	LOS B	0.1	0.7	0.82	0.93	0.82	11.8
Approach			39	0.0	39	0.0	0.078	12.0	LOS A	0.1	0.7	0.55	0.70	0.55	17.3
West: Harbour Dr															
27b	L3	All MCs	27	0.0	27	0.0	0.171	5.4	LOS A	0.0	0.0	0.00	0.05	0.00	47.6
28	T1	All MCs	625	0.8	625	0.8	0.171	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.8
Approach			653	0.8	653	0.8	0.171	0.2	NA	0.0	0.0	0.00	0.03	0.00	48.8
All Vehicles			1225	2.0	1225	2.0	0.171	0.7	NA	0.1	0.9	0.05	0.07	0.05	47.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [IC06 P] North St/ Millward Ln (FB (PM))
 Network: [1P (2)] FB (PM) (Future Base)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

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

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh]	[Dist]			km/h	
			veh/h	%	veh/h	%		veh	m				
SouthEast: North St													
31	T1	All MCs	33	0.0	33	0.0	0.017	0.0	LOS A	0.0	0.0	0.01	49.8
3b	R3	All MCs	1	0.0	1	0.0	0.017	5.2	LOS A	0.0	0.0	0.01	43.2
Approach			34	0.0	34	0.0	0.017	0.2	NA	0.0	0.0	0.01	49.7
East: Millward Ln													
21b	L3	All MCs	1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.0	0.08	34.4
23a	R1	All MCs	1	0.0	1	0.0	0.002	4.0	LOS A	0.0	0.0	0.08	43.7
Approach			2	0.0	2	0.0	0.002	4.7	LOS A	0.0	0.0	0.08	41.6
NorthWest: North St													
7a	L1	All MCs	1	0.0	1	0.0	0.010	4.4	LOS A	0.0	0.0	0.00	47.6
25	T1	All MCs	20	0.0	20	0.0	0.010	0.0	LOS A	0.0	0.0	0.00	49.7
Approach			21	0.0	21	0.0	0.010	0.2	NA	0.0	0.0	0.00	49.6
All Vehicles			57	0.0	57	0.0	0.017	0.4	NA	0.0	0.0	0.01	49.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [647 AM (3)] Harbour Dr/ Pacific Hwy/ W High St (FB + DEV (AM))

Network: [1A (3)] FB + DEV (AM) (Future Base + Dev)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130.0 seconds (Site User-Given Phase Times)

This Site is not connected to the Network.

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue Prop.		Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]			v/c	sec	[Veh. Dist]					km/h	
			veh/h	%	veh/h	%									
South: Pacific Hwy															
30	L2	All MCs	13	0.0	13	0.0	0.011	18.5	LOS B	0.2	1.3	0.39	0.63	0.39	23.5
31	T1	All MCs	629	17.6	629	17.6	*0.289	13.3	LOS A	5.5	44.0	0.49	0.43	0.49	40.2
Approach			642	17.2	642	17.2	0.289	13.4	LOS A	5.5	44.0	0.49	0.43	0.49	38.0
East: Harbour Dr															
21	L2	All MCs	28	0.0	28	0.0	0.068	62.2	LOS E	0.9	6.0	0.82	0.69	0.82	17.6
22	T1	All MCs	172	1.2	172	1.2	0.393	60.9	LOS E	5.6	39.6	0.89	0.73	0.89	17.2
Approach			200	1.1	200	1.1	0.393	61.1	LOS E	5.6	39.6	0.88	0.72	0.88	14.3
North: Pacific Hwy															
24	L2	All MCs	24	17.4	24	17.4	0.023	16.5	LOS B	0.3	2.8	0.40	0.64	0.40	34.5
25	T1	All MCs	677	17.7	677	17.7	0.283	8.5	LOS A	4.9	39.6	0.41	0.36	0.41	44.9
26	R2	All MCs	48	2.2	48	2.2	*0.112	17.1	LOS B	0.8	5.6	0.49	1.12	0.49	20.7
Approach			749	16.7	749	16.7	0.283	9.3	LOS A	4.9	39.6	0.41	0.42	0.41	40.8
West: West High St															
27	L2	All MCs	54	3.9	54	3.9	0.111	69.9	LOS E	1.6	11.2	0.78	0.70	0.78	18.7
28	T1	All MCs	265	0.8	265	0.8	*0.652	76.8	LOS F	9.4	66.0	0.96	0.81	0.96	16.5
29	R2	All MCs	35	3.0	35	3.0	0.160	54.6	LOS D	1.2	8.5	0.90	0.72	0.90	10.3
Approach			354	1.5	354	1.5	0.652	73.6	LOS F	9.4	66.0	0.92	0.78	0.92	12.2
All Vehicles			1945	12.5	1945	12.5	0.652	27.7	LOS B	9.4	66.0	0.58	0.52	0.58	25.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Queued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped	Dist]			sec	m	m/sec
					ped	m					

South: Pacific Hwy											
P8	Full	36	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
East: Harbour Dr											
P5	Full	6	58.2	LOS E	0.0	0.0	0.95	0.95	224.9	200.0	0.89
North: Pacific Hwy											
P6	Full	35	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
West: West High St											
P7	Full	5	58.2	LOS E	0.0	0.0	0.95	0.95	224.9	200.0	0.89
All Pedestrians		82	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89

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

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


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

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MOVEMENT SUMMARY

 Site: [IC02 A (2)] Harbour Dr/ Earl St (FB + DEV (AM))
 Network: [1A (3)] FB + DEV (AM) (Future Base + Dev)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
 Site Category: (None)
 Roundabout
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]	[Total HV]	[Total HV]	v/c	sec		[Veh. veh]	[Dist] m			km/h	
South: Earl St															
30	L2	All MCs	169	0.6	169	0.6	0.530	4.7	LOS A	1.4	9.8	0.61	0.66	0.65	32.2
31	T1	All MCs	60	0.0	60	0.0	0.530	4.5	LOS A	1.4	9.8	0.61	0.66	0.65	28.5
32	R2	All MCs	265	2.8	265	2.8	0.530	8.4	LOS A	1.4	9.8	0.61	0.66	0.65	26.2
32u	U	All MCs	3	0.0	3	0.0	0.530	9.7	LOS A	1.4	9.8	0.61	0.66	0.65	29.9
Approach			498	1.7	498	1.7	0.530	6.7	LOS A	1.4	9.8	0.61	0.66	0.65	29.4
East: Harbour Dr															
21	L2	All MCs	243	5.6	243	5.6	0.635	3.3	LOS A	1.5	10.9	0.40	0.46	0.42	35.2
22	T1	All MCs	360	2.0	360	2.0	0.635	2.4	LOS A	1.5	10.9	0.40	0.46	0.42	36.3
23	R2	All MCs	39	0.0	39	0.0	0.635	7.0	LOS A	1.5	10.9	0.40	0.46	0.42	23.9
23u	U	All MCs	23	4.5	23	4.5	0.635	8.5	LOS A	1.5	10.9	0.40	0.46	0.42	33.9
Approach			665	3.3	665	3.3	0.635	3.2	LOS A	1.5	10.9	0.40	0.46	0.42	35.1
North: Earl St															
24	L2	All MCs	16	6.7	16	6.7	0.033	9.1	LOS A	0.1	0.5	0.68	0.71	0.68	15.3
25	T1	All MCs	26	0.0	26	0.0	0.068	5.4	LOS A	0.2	1.1	0.69	0.67	0.69	28.1
26	R2	All MCs	25	8.3	25	8.3	0.068	9.5	LOS A	0.2	1.1	0.69	0.67	0.69	29.9
Approach			67	4.7	67	4.7	0.068	7.8	LOS A	0.2	1.1	0.69	0.68	0.69	27.3
West: Harbour Dr															
27	L2	All MCs	68	0.0	68	0.0	0.105	6.1	LOS A	0.2	1.3	0.53	0.61	0.53	30.3
28	T1	All MCs	342	4.0	342	4.0	0.478	4.4	LOS A	1.3	9.6	0.65	0.59	0.65	30.4
29	R2	All MCs	155	4.8	155	4.8	0.478	7.8	LOS A	1.3	9.6	0.65	0.59	0.65	32.1
29u	U	All MCs	6	0.0	6	0.0	0.478	9.1	LOS A	1.3	9.6	0.65	0.59	0.65	33.4
Approach			572	3.7	572	3.7	0.478	5.6	LOS A	1.3	9.6	0.63	0.59	0.63	31.0
All Vehicles			1802	3.0	1802	3.0	0.635	5.1	LOS A	1.5	10.9	0.54	0.57	0.56	32.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

Roundabout 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: [3763 A (2)] Harbour Dr/ Curacao St (FB + DEV (AM))**
Network: [1A (3)] FB + DEV (AM) (Future Base + Dev)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 65.0 seconds (Site User-Given Phase Times)

Network Scenario: 1 | Local Volumes **Site Scenario: 1 | Local Volumes**

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue Prop.		Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]	Qued		km/h	
			veh/h		veh/h					veh	m				
South: Curacao St															
30	L2	All MCs	18	5.9	18	5.9	0.038	23.6	LOS B	0.3	1.9	0.76	0.67	0.76	22.6
31	T1	All MCs	23	0.0	23	0.0	0.112	19.7	LOS B	0.7	5.2	0.81	0.66	0.81	35.3
32	R2	All MCs	22	14.3	22	14.3	0.112	26.9	LOS B	0.7	5.2	0.81	0.66	0.81	22.9
Approach			63	6.7	63	6.7	0.112	23.4	LOS B	0.7	5.2	0.79	0.66	0.79	29.2
East: Harbour Dr															
21	L2	All MCs	12	36.4	12	36.4	0.136	12.4	LOS A	1.3	9.9	0.53	0.45	0.53	33.5
22	T1	All MCs	545	3.9	545	3.9	0.422	9.6	LOS A	5.1	36.8	0.62	0.54	0.62	22.6
23	R2	All MCs	12	0.0	12	0.0	*0.422	14.1	LOS A	5.1	36.8	0.65	0.57	0.65	38.2
Approach			568	4.4	568	4.4	0.422	9.8	LOS A	5.1	36.8	0.62	0.54	0.62	23.8
North: Curacao St															
24	L2	All MCs	47	0.0	47	0.0	0.110	26.6	LOS B	0.7	5.2	0.83	0.71	0.83	29.1
25	T1	All MCs	15	7.1	15	7.1	*0.271	20.2	LOS B	1.7	12.3	0.85	0.74	0.85	34.1
26	R2	All MCs	93	0.0	93	0.0	0.271	26.8	LOS B	1.7	12.3	0.85	0.74	0.85	29.5
Approach			155	0.7	155	0.7	0.271	26.1	LOS B	1.7	12.3	0.84	0.73	0.84	30.0
West: Harbour Dr															
27	L2	All MCs	69	0.0	69	0.0	0.297	13.3	LOS A	3.2	23.2	0.60	0.55	0.60	38.2
28	T1	All MCs	524	4.4	524	4.4	0.297	9.1	LOS A	3.3	23.7	0.59	0.53	0.59	27.1
29	R2	All MCs	2	0.0	2	0.0	0.297	12.9	LOS A	3.3	23.7	0.59	0.51	0.59	34.8
Approach			596	3.9	596	3.9	0.297	9.6	LOS A	3.3	23.7	0.60	0.53	0.60	29.7
All Vehicles			1382	3.9	1382	3.9	0.422	12.2	LOS A	5.1	36.8	0.64	0.56	0.64	28.1

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
					ped	m					

South: Curacoa St										
P8 Full	20	24.1	LOS C	0.0	0.0	0.86	0.86	190.8	200.0	1.05
East: Harbour Dr										
P5 Full	108	24.2	LOS C	0.2	0.2	0.87	0.87	190.9	200.0	1.05
North: Curacoa St										
P6 Full	39	24.2	LOS C	0.1	0.1	0.86	0.86	190.8	200.0	1.05
West: Harbour Dr										
P7 Full	15	24.1	LOS C	0.0	0.0	0.86	0.86	190.8	200.0	1.05
All Pedestrians	182	24.2	LOS C	0.2	0.2	0.86	0.86	190.9	200.0	1.05

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

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

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

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MOVEMENT SUMMARY

 **Site: [IC03 A (2)] Harbour Dr/ North Street (FB + DEV (AM))**
Network: [1A (3)] FB + DEV (AM) (Future Base + Dev)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist]			km/h	
East: Harbour Dr															
22	T1	All MCs	549	4.6	549	4.6	0.177	0.5	LOS A	0.3	2.0	0.12	0.11	0.12	38.7
23a	R1	All MCs	52	2.0	52	2.0	0.177	5.3	LOS A	0.3	2.0	0.30	0.29	0.30	36.9
Approach			601	4.4	601	4.4	0.177	0.9	NA	0.3	2.0	0.13	0.13	0.13	38.5
NorthWest: North Street															
7a	L1	All MCs	28	0.0	28	0.0	0.026	3.6	LOS A	0.0	0.3	0.31	0.45	0.31	26.8
9b	R3	All MCs	17	0.0	17	0.0	0.077	19.9	LOS B	0.1	0.7	0.81	0.91	0.81	11.7
Approach			45	0.0	45	0.0	0.077	9.6	LOS A	0.1	0.7	0.49	0.62	0.49	17.9
West: Harbour Dr															
27b	L3	All MCs	69	1.5	69	1.5	0.165	4.1	LOS A	0.0	0.0	0.00	0.13	0.00	37.0
28	T1	All MCs	540	4.5	540	4.5	0.165	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	38.6
Approach			609	4.1	609	4.1	0.165	0.5	NA	0.0	0.0	0.00	0.06	0.00	38.4
All Vehicles			1256	4.1	1256	4.1	0.177	1.0	NA	0.3	2.0	0.08	0.11	0.08	37.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [IC06 A (2)] North St/ Millward Ln (FB + DEV (AM))
 Network: [1A (3)] FB + DEV (AM) (Future Base + Dev)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop of Cycle	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist]			km/h	
SouthEast: North St															
31	T1	All MCs	98	2.2	98	2.2	0.052	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	49.7
3b	R3	All MCs	4	0.0	4	0.0	0.052	5.2	LOS A	0.0	0.1	0.01	0.03	0.01	43.0
Approach			102	2.1	102	2.1	0.052	0.2	NA	0.0	0.1	0.01	0.03	0.01	49.6
East: Millward Ln															
21b	L3	All MCs	2	0.0	2	0.0	0.008	5.5	LOS A	0.0	0.1	0.15	0.49	0.15	34.5
23a	R1	All MCs	7	0.0	7	0.0	0.008	4.3	LOS A	0.0	0.1	0.15	0.49	0.15	43.8
Approach			9	0.0	9	0.0	0.008	4.5	LOS A	0.0	0.1	0.15	0.49	0.15	43.1
NorthWest: North St															
7a	L1	All MCs	1	0.0	1	0.0	0.016	4.4	LOS A	0.0	0.0	0.00	0.24	0.00	46.6
25	T1	All MCs	32	0.0	32	0.0	0.016	1.2	LOS A	0.0	0.0	0.00	0.24	0.00	48.3
Approach			33	0.0	33	0.0	0.016	1.3	NA	0.0	0.0	0.00	0.24	0.00	48.3
All Vehicles			144	1.5	144	1.5	0.052	0.7	NA	0.0	0.1	0.02	0.11	0.02	48.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [IC04 A (2)] Harbour Dr/ Hogbin Dr (FB + DEV (AM))
 Network: [1A (3)] FB + DEV (AM) (Future Base + Dev)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]			km/h	
			veh/h		veh/h					veh	m				
South: Hogbin Dr															
30	L2	All MCs	103	4.1	103	4.1	0.380	6.0	LOS A	0.8	5.7	0.65	0.65	0.67	38.9
31	T1	All MCs	435	3.9	435	3.9	0.581	6.0	LOS A	1.7	12.5	0.70	0.73	0.79	43.6
32	R2	All MCs	275	4.2	275	4.2	0.581	11.7	LOS A	1.7	12.5	0.73	0.80	0.88	42.0
32u	U	All MCs	14	0.0	14	0.0	0.581	13.6	LOS A	1.7	12.5	0.73	0.80	0.88	39.7
Approach			826	3.9	826	3.9	0.581	8.1	LOS A	1.7	12.5	0.70	0.74	0.81	42.7
East: Harbour Dr															
21	L2	All MCs	253	3.3	253	3.3	0.372	4.8	LOS A	0.6	4.7	0.58	0.60	0.60	44.9
22	T1	All MCs	337	4.7	337	4.7	0.372	4.3	LOS A	0.6	4.7	0.58	0.60	0.61	42.9
23	R2	All MCs	68	4.6	68	4.6	0.372	10.0	LOS A	0.6	4.6	0.59	0.60	0.62	45.1
23u	U	All MCs	5	0.0	5	0.0	0.372	11.7	LOS A	0.6	4.6	0.59	0.60	0.62	45.2
Approach			663	4.1	663	4.1	0.372	5.1	LOS A	0.6	4.7	0.58	0.60	0.61	44.1
North: Hogbin Dr															
24	L2	All MCs	15	0.0	15	0.0	0.378	4.7	LOS A	0.7	5.0	0.57	0.49	0.58	46.0
25	T1	All MCs	509	4.1	509	4.1	0.378	4.2	LOS A	0.7	5.0	0.57	0.54	0.58	44.9
26	R2	All MCs	183	0.0	183	0.0	0.378	9.7	LOS A	0.7	4.8	0.58	0.66	0.59	41.7
26u	U	All MCs	1	0.0	1	0.0	0.378	11.9	LOS A	0.7	4.8	0.58	0.66	0.59	44.6
Approach			708	3.0	708	3.0	0.378	5.7	LOS A	0.7	5.0	0.57	0.57	0.59	44.3
West: Harbour Dr															
27	L2	All MCs	191	2.2	191	2.2	0.370	4.9	LOS A	0.7	5.2	0.62	0.59	0.63	44.7
28	T1	All MCs	294	6.1	294	6.1	0.370	4.4	LOS A	0.7	5.2	0.63	0.63	0.64	44.3
29	R2	All MCs	124	2.5	124	2.5	0.370	9.9	LOS A	0.7	5.0	0.63	0.68	0.65	40.8
29u	U	All MCs	28	0.0	28	0.0	0.370	11.9	LOS A	0.7	5.0	0.63	0.68	0.65	36.8
Approach			637	4.0	637	4.0	0.370	6.0	LOS A	0.7	5.2	0.63	0.63	0.64	43.7
All Vehicles			2835	3.8	2835	3.8	0.581	6.3	LOS A	1.7	12.5	0.63	0.64	0.67	43.6

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

Roundabout 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: [647 PM (3)] Harbour Dr/ Pacific Hwy/ W High St (FB + DEV (PM))

Network: [1P (3)] FB + DEV (PM) (Future Base + Dev)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 130.0 seconds (Site User-Given Phase Times)

This Site is not connected to the Network.

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh]	[Dist]			km/h	
			veh/h	%	veh/h	%		veh	m				
South: Pacific Hwy													
30	L2	All MCs	39 2.7	39 2.7	0.033	14.0	LOS A	0.5	3.8	0.37	0.65	0.37	24.3
31	T1	All MCs	480 19.5	480 19.5	*0.209	8.9	LOS A	3.6	29.1	0.42	0.36	0.42	43.6
Approach			519 18.3	519 18.3	0.209	9.3	LOS A	3.6	29.1	0.41	0.38	0.41	42.2
East: Harbour Dr													
21	L2	All MCs	42 2.5	42 2.5	0.134	81.1	LOS F	1.4	10.0	0.88	0.72	0.88	16.2
22	T1	All MCs	220 1.9	220 1.9	*0.680	82.5	LOS F	8.2	58.0	0.99	0.83	1.00	15.3
Approach			262 2.0	262 2.0	0.680	82.2	LOS F	8.2	58.0	0.97	0.82	0.98	11.7
North: Pacific Hwy													
24	L2	All MCs	36 5.9	36 5.9	0.031	13.9	LOS A	0.5	3.5	0.37	0.65	0.37	35.4
25	T1	All MCs	557 26.8	557 26.8	0.230	5.7	LOS A	3.4	28.9	0.34	0.30	0.34	48.3
26	R2	All MCs	71 3.0	71 3.0	*0.129	13.5	LOS A	0.9	6.8	0.42	1.09	0.42	22.3
Approach			663 23.2	663 23.2	0.230	7.0	LOS A	3.4	28.9	0.35	0.40	0.35	42.3
West: West High St													
27	L2	All MCs	84 8.8	84 8.8	0.210	71.4	LOS F	2.6	19.9	0.85	0.74	0.85	17.2
28	T1	All MCs	185 1.7	185 1.7	0.652	78.7	LOS F	6.8	48.6	0.98	0.81	0.99	15.4
29	R2	All MCs	22 0.0	22 0.0	0.201	67.7	LOS E	0.9	6.0	0.98	0.71	0.98	8.7
Approach			292 3.6	292 3.6	0.652	75.8	LOS F	6.8	48.6	0.94	0.78	0.95	12.0
All Vehicles			1736 15.2	1736 15.2	0.680	30.6	LOS C	8.2	58.0	0.56	0.52	0.56	23.7

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Queued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped]	[Dist]			sec	m	m/sec

South: Pacific Hwy											
P8	Full	34	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
East: Harbour Dr											
P5	Full	24	58.2	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
North: Pacific Hwy											
P6	Full	48	58.3	LOS E	0.2	0.2	0.95	0.95	225.0	200.0	0.89
West: West High St											
P7	Full	31	58.3	LOS E	0.1	0.1	0.95	0.95	224.9	200.0	0.89
All Pedestrians		137	58.3	LOS E	0.2	0.2	0.95	0.95	224.9	200.0	0.89

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

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

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

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MOVEMENT SUMMARY

Site: [IC02 P (2)] Harbour Dr/ Earl St (FB + DEV (PM))
Network: [1P (3)] FB + DEV (PM) (Future Base + Dev)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
 Site Category: (None)
 Roundabout
Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist] m			km/h	
South: Earl St															
30	L2	All MCs	196	0.5	196	0.5	0.623	6.3	LOS A	2.0	14.0	0.71	0.78	0.85	30.9
31	T1	All MCs	68	0.0	68	0.0	0.623	6.1	LOS A	2.0	14.0	0.71	0.78	0.85	26.8
32	R2	All MCs	281	0.7	281	0.7	0.623	10.0	LOS A	2.0	14.0	0.71	0.78	0.85	24.3
32u	U	All MCs	12	0.0	12	0.0	0.623	11.3	LOS A	2.0	14.0	0.71	0.78	0.85	28.5
Approach			557	0.6	557	0.6	0.623	8.2	LOS A	2.0	14.0	0.71	0.78	0.85	27.9
East: Harbour Dr															
21	L2	All MCs	192	3.8	192	3.8	0.621	4.4	LOS A	1.5	11.0	0.52	0.60	0.58	34.1
22	T1	All MCs	337	3.8	337	3.7	0.621	3.5	LOS A	1.5	11.0	0.52	0.60	0.58	35.4
23	R2	All MCs	52	0.0	52	0.0	0.621	8.1	LOS A	1.5	11.0	0.52	0.60	0.58	21.8
23u	U	All MCs	26	0.0	26	0.0	0.621	9.5	LOS A	1.5	11.0	0.52	0.60	0.58	32.4
Approach			606	3.3	606	3.3	0.621	4.4	LOS A	1.5	11.0	0.52	0.60	0.58	33.6
North: Earl St															
24	L2	All MCs	54	0.0	54	0.0	0.108	9.3	LOS A	0.2	1.5	0.71	0.75	0.71	15.0
25	T1	All MCs	74	0.0	74	0.0	0.230	6.2	LOS A	0.6	4.1	0.76	0.71	0.76	27.1
26	R2	All MCs	100	0.0	100	0.0	0.230	10.0	LOS A	0.6	4.1	0.76	0.71	0.76	29.1
Approach			227	0.0	227	0.0	0.230	8.6	LOS A	0.6	4.1	0.75	0.72	0.75	26.6
West: Harbour Dr															
27	L2	All MCs	78	0.0	78	0.0	0.125	6.5	LOS A	0.2	1.7	0.57	0.63	0.57	29.9
28	T1	All MCs	340	0.9	340	0.9	0.497	4.7	LOS A	1.5	10.4	0.70	0.63	0.71	29.9
29	R2	All MCs	158	0.7	158	0.7	0.497	8.1	LOS A	1.5	10.4	0.70	0.63	0.71	31.8
29u	U	All MCs	15	7.1	15	7.1	0.497	9.7	LOS A	1.5	10.4	0.70	0.63	0.71	33.0
Approach			591	0.9	591	0.9	0.497	6.0	LOS A	1.5	10.4	0.68	0.63	0.69	30.7
All Vehicles			1981	1.4	1981	1.4	0.623	6.4	LOS A	2.0	14.0	0.65	0.67	0.71	30.7

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

Roundabout 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: [3763 P (2)] Harbour Dr/ Curacoa St (FB + DEV (PM))**
Network: [1P (3)] FB + DEV (PM) (Future Base + Dev)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 74.0 seconds (Site User-Given Phase Times)

Network Scenario: 1 | Local Volumes Site Scenario: 1 | Local Volumes

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows	Arrival Flows	Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	[Total HV]	v/c	sec		[Veh. veh]	[Dist]			km/h	
South: Curacoa St													
30	L2	All MCs	16 0.0	16 0.0	0.068	36.2	LOS C	0.3	2.2	0.91	0.68	0.91	17.4
31	T1	All MCs	2 0.0	2 0.0	0.098	31.9	LOS C	0.4	3.0	0.92	0.69	0.92	30.2
32	R2	All MCs	19 0.0	19 0.0	0.098	37.0	LOS C	0.4	3.0	0.92	0.69	0.92	17.4
Approach			37 0.0	37 0.0	0.098	36.3	LOS C	0.4	3.0	0.91	0.69	0.91	18.6
East: Harbour Dr													
21	L2	All MCs	15 0.0	15 0.0	0.099	8.6	LOS A	0.9	6.8	0.35	0.32	0.35	40.9
22	T1	All MCs	517 3.9	517 3.9	0.307	4.5	LOS A	3.4	24.8	0.40	0.36	0.40	34.2
23	R2	All MCs	5 0.0	5 0.0	*0.307	11.4	LOS A	3.4	24.8	0.42	0.37	0.42	43.9
Approach			537 3.7	537 3.7	0.307	4.7	LOS A	3.4	24.8	0.40	0.36	0.40	34.9
North: Curacoa St													
24	L2	All MCs	16 0.0	16 0.0	0.065	36.1	LOS C	0.3	2.2	0.91	0.68	0.91	25.3
25	T1	All MCs	3 0.0	3 0.0	*0.195	32.5	LOS C	0.9	6.2	0.93	0.72	0.93	29.9
26	R2	All MCs	39 0.0	39 0.0	0.195	37.7	LOS C	0.9	6.2	0.93	0.72	0.93	25.0
Approach			58 0.0	58 0.0	0.195	37.0	LOS C	0.9	6.2	0.93	0.71	0.93	25.4
West: Harbour Dr													
27	L2	All MCs	19 0.0	19 0.0	0.252	9.4	LOS A	2.7	19.3	0.39	0.36	0.39	44.4
28	T1	All MCs	647 1.0	647 1.0	0.252	4.4	LOS A	2.7	19.3	0.40	0.35	0.40	38.8
29	R2	All MCs	5 0.0	5 0.0	0.252	11.7	LOS A	2.7	19.1	0.40	0.35	0.40	42.2
Approach			672 0.9	672 0.9	0.252	4.6	LOS A	2.7	19.3	0.40	0.35	0.40	39.3
All Vehicles			1303 2.0	1303 2.0	0.307	7.0	LOS A	3.4	24.8	0.44	0.38	0.44	34.5

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

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

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

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

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped]	[Dist]			sec	m	m/sec

South: Curacoa St										
P8 Full	11	28.6	LOS C	0.0	0.0	0.88	0.88	195.2	200.0	1.02
East: Harbour Dr										
P5 Full	2	28.5	LOS C	0.0	0.0	0.88	0.88	195.2	200.0	1.02
North: Curacoa St										
P6 Full	31	28.6	LOS C	0.1	0.1	0.88	0.88	195.3	200.0	1.02
West: Harbour Dr										
P7 Full	1	28.5	LOS C	0.0	0.0	0.88	0.88	195.2	200.0	1.02
All Pedestrians	44	28.6	LOS C	0.1	0.1	0.88	0.88	195.2	200.0	1.02

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

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


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

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MOVEMENT SUMMARY

 **Site: [IC03 P (2)] Harbour Dr/ North Street (FB + DEV (PM))**
Network: [1P (3)] FB + DEV (PM) (Future Base + Dev)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Give-Way (Two-Way)

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist] m			km/h	
East: Harbour Dr															
22	T1	All MCs	519	3.7	519	3.7	0.151	0.3	LOS A	0.1	0.9	0.07	0.07	0.07	48.7
23a	R1	All MCs	21	0.0	21	0.0	0.151	6.8	LOS A	0.1	0.9	0.15	0.15	0.15	47.3
Approach			540	3.5	540	3.5	0.151	0.5	NA	0.1	0.9	0.07	0.07	0.07	48.6
NorthWest: North Street															
7a	L1	All MCs	22	0.0	22	0.0	0.022	4.9	LOS A	0.0	0.2	0.35	0.53	0.35	27.5
9b	R3	All MCs	17	0.0	17	0.0	0.080	21.5	LOS B	0.1	0.7	0.82	0.93	0.82	11.7
Approach			39	0.0	39	0.0	0.080	12.1	LOS A	0.1	0.7	0.55	0.70	0.55	17.1
West: Harbour Dr															
27b	L3	All MCs	28	0.0	28	0.0	0.172	5.4	LOS A	0.0	0.0	0.00	0.06	0.00	47.6
28	T1	All MCs	628	0.8	628	0.8	0.172	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.8
Approach			657	0.8	657	0.8	0.172	0.2	NA	0.0	0.0	0.00	0.03	0.00	48.7
All Vehicles			1236	2.0	1236	2.0	0.172	0.7	NA	0.1	0.9	0.05	0.07	0.05	47.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [IC06 P (2)] North St/ Millward Ln (FB + DEV (PM))
 Network: [1P (3)] FB + DEV (PM) (Future Base + Dev)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop of Cycle	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist] m			km/h	
SouthEast: North St															
31	T1	All MCs	34	0.0	34	0.0	0.017	0.0	LOS A	0.0	0.0	0.01	0.02	0.01	49.8
3b	R3	All MCs	1	0.0	1	0.0	0.017	5.2	LOS A	0.0	0.0	0.01	0.02	0.01	43.2
Approach			35	0.0	35	0.0	0.017	0.2	NA	0.0	0.0	0.01	0.02	0.01	49.7
East: Millward Ln															
21b	L3	All MCs	1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.0	0.08	0.51	0.08	34.4
23a	R1	All MCs	1	0.0	1	0.0	0.002	4.0	LOS A	0.0	0.0	0.08	0.51	0.08	43.7
Approach			2	0.0	2	0.0	0.002	4.7	LOS A	0.0	0.0	0.08	0.51	0.08	41.6
NorthWest: North St															
7a	L1	All MCs	1	0.0	1	0.0	0.010	4.4	LOS A	0.0	0.0	0.00	0.03	0.00	47.6
25	T1	All MCs	20	0.0	20	0.0	0.010	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.7
Approach			21	0.0	21	0.0	0.010	0.2	NA	0.0	0.0	0.00	0.03	0.00	49.6
All Vehicles			58	0.0	58	0.0	0.017	0.3	NA	0.0	0.0	0.01	0.04	0.01	49.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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: [IC04 P (2)] Harbour Dr/ Hogbin Dr (FB + DEV (PM))
 Network: [1P (3)] FB + DEV (PM) (Future Base + Dev)
 Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site

Site Category: (None)

Roundabout

Network Scenario: 1 | Local Volumes

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh]	[Dist]			km/h	
South: Hogbin Dr															
30	L2	All MCs	92	3.4	92	3.4	0.388	5.4	LOS A	0.8	5.7	0.61	0.58	0.61	39.6
31	T1	All MCs	549	2.3	549	2.3	0.592	5.5	LOS A	1.8	12.8	0.66	0.68	0.73	43.9
32	R2	All MCs	241	0.9	241	0.9	0.592	11.1	LOS A	1.8	12.8	0.70	0.74	0.82	42.5
32u	U	All MCs	32	6.7	32	6.7	0.592	13.3	LOS A	1.8	12.8	0.70	0.74	0.82	40.1
Approach			914	2.2	914	2.2	0.592	7.2	LOS A	1.8	12.8	0.67	0.69	0.75	43.2
East: Harbour Dr															
21	L2	All MCs	231	0.9	231	0.9	0.299	4.2	LOS A	0.5	3.3	0.49	0.52	0.49	45.3
22	T1	All MCs	286	4.0	286	4.0	0.299	3.6	LOS A	0.5	3.3	0.50	0.52	0.50	43.3
23	R2	All MCs	60	1.8	60	1.8	0.299	9.3	LOS A	0.5	3.2	0.50	0.52	0.50	45.4
23u	U	All MCs	13	0.0	13	0.0	0.299	11.1	LOS A	0.5	3.2	0.50	0.52	0.50	45.4
Approach			589	2.5	589	2.5	0.299	4.6	LOS A	0.5	3.3	0.50	0.52	0.50	44.6
North: Hogbin Dr															
24	L2	All MCs	17	0.0	17	0.0	0.297	4.7	LOS A	0.5	3.8	0.56	0.48	0.56	46.0
25	T1	All MCs	396	1.6	396	1.6	0.297	4.1	LOS A	0.5	3.8	0.56	0.53	0.56	44.9
26	R2	All MCs	139	2.3	139	2.3	0.297	9.7	LOS A	0.5	3.7	0.56	0.64	0.56	41.9
26u	U	All MCs	1	0.0	1	0.0	0.297	11.9	LOS A	0.5	3.7	0.56	0.64	0.56	44.7
Approach			553	1.7	553	1.7	0.297	5.5	LOS A	0.5	3.8	0.56	0.55	0.56	44.4
West: Harbour Dr															
27	L2	All MCs	327	0.6	327	0.6	0.463	5.8	LOS A	1.0	7.3	0.69	0.72	0.77	44.3
28	T1	All MCs	312	1.0	312	1.0	0.463	5.3	LOS A	1.0	7.3	0.69	0.73	0.77	43.7
29	R2	All MCs	113	1.9	113	1.9	0.463	10.9	LOS A	1.0	7.1	0.69	0.74	0.78	40.5
29u	U	All MCs	22	0.0	22	0.0	0.463	12.8	LOS A	1.0	7.1	0.69	0.74	0.78	36.3
Approach			774	1.0	774	1.0	0.463	6.5	LOS A	1.0	7.3	0.69	0.73	0.77	43.5
All Vehicles			2829	1.8	2829	1.8	0.592	6.2	LOS A	1.8	12.8	0.62	0.64	0.66	43.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

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

Roundabout 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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