Figure A 19 Confusing signs and crossover

Figure A 20 Confusing 'Bus Zone'

Figure A 21 Pedestrian crossing on Gap Road south of Hospital Access Road

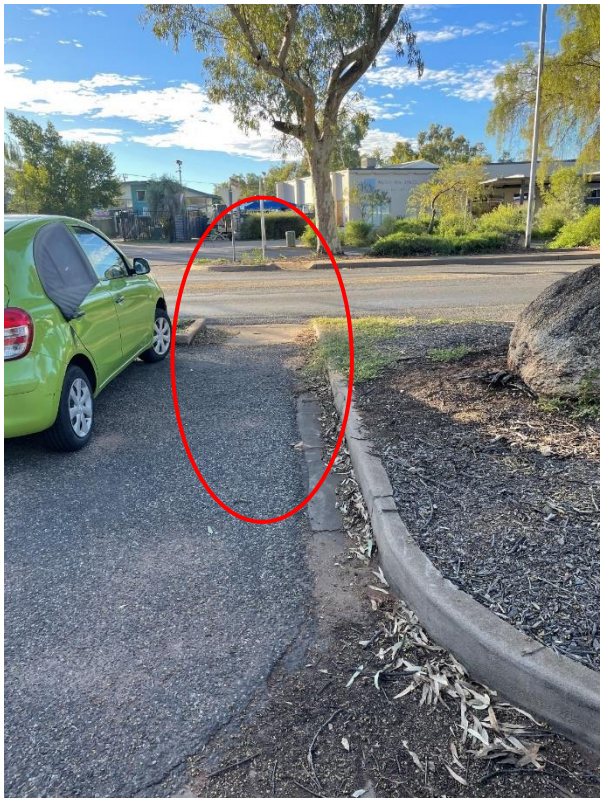


Figure A 22 Pedestrian crossing on Gap Road north of Traeger Avenue

Figure A 23 Pedestrian crossing on Gap Road north of Traeger Avenue

Figure A 24 Shared path in poor condition

Figure A 25 Line marking in poor condition

Figure A 26 Line marking in poor condition

Figure A 27 Line marking in poor condition

Figure A 28 Line marking in poor condition

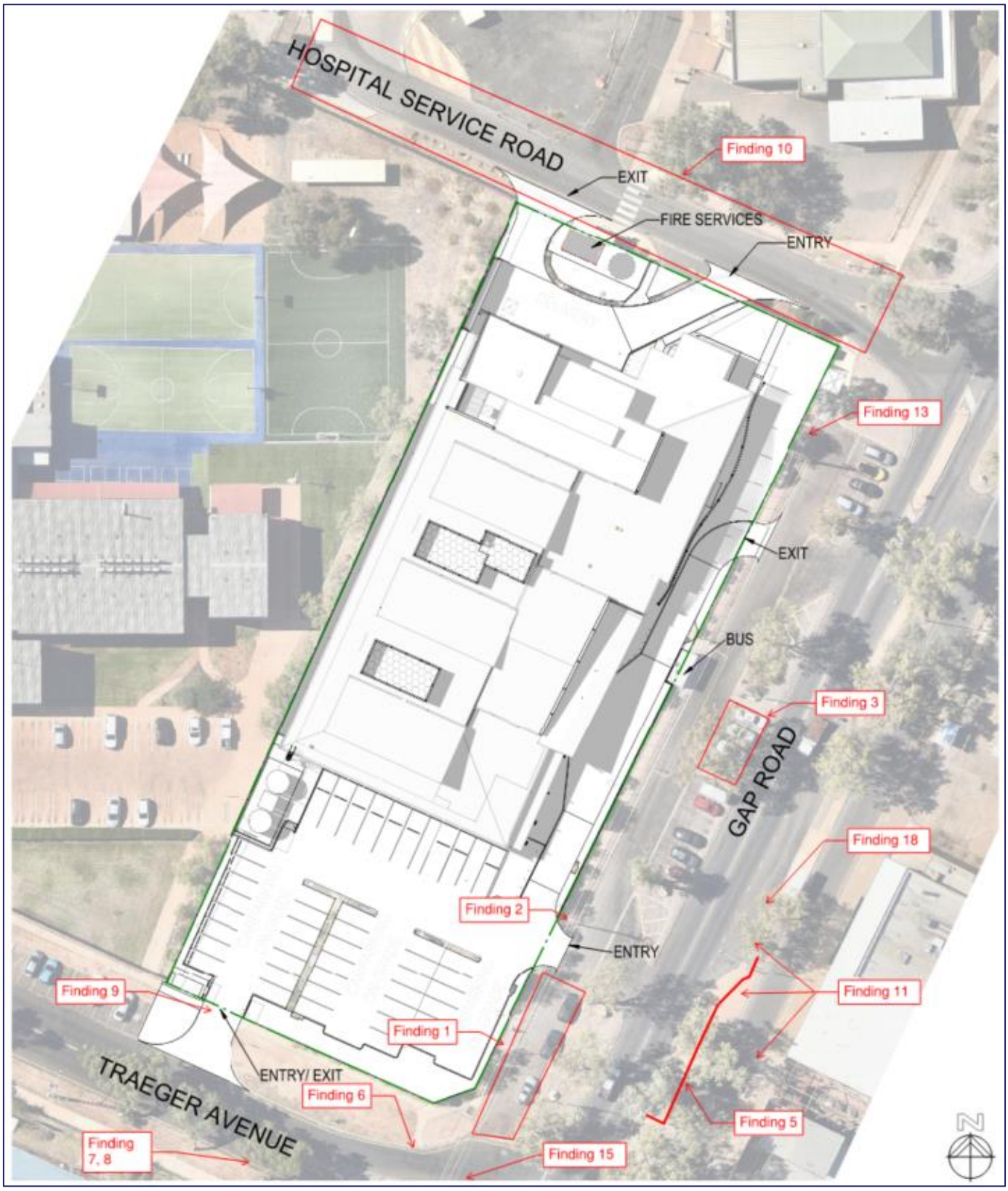
Figure A 29 Traffic island rounded shape

Figure A 30 Traffic island rounded shape

Figure A 31 Bus stop

7 Appendix B: Findings

Figure B 1 Findings location



Attachment C

Updated TIA

MASTERPLAN
TOWN + COUNTRY PLANNERS SINCE 1977

Alice Springs Hospital – Ambulatory Care Unit, Renal Dialysis Unit

Transport Impact Assessment – TIA

DZ2114-304700573

25 June 2024

Prepared for:

Hodgkison Pty Ltd

Prepared by:

Lina Restrepo

Revision	Description	Author		Quality Check		Independent Review	
A	DRAFT issue	LR		RP		AW	
B	Updated drawings	LR		RP			
C	Project modifications	LR		AW			
D	Address AS DCA Meeting No 279 comments	LR		AW		RP	
E	MasterPlan comments	LR		AW		CK	
F	MasterPlan comments	LR		AW		CK	
G	Traffic counts, Crash data update and Modelling Addition	LR / WF		RP		RP	

Prepared by _____
Lina Restrepo

Reviewed and approved by _____
Ryan Prescott

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1.0 INTRODUCTION

Stantec has been commissioned by Hodgkison Pty Ltd ('the Client') to prepare a Transport Impact Assessment (TIA) for the proposed Renal Dialysis Unit located within the Alice Springs Hospital Campus on Lot 8168 Traeger Avenue, The Gap, Alice Springs.

The Renal Dialysis Unit is proposed to be located within the Lot 8168 with the current development area comprising only an existing on-grade visitor/staff parking area. Lot 8168 also includes a section of the Hospital access road which is not part of the development area.

The Australian Government (AG) and Northern Territory Government (NTG) have agreed to develop a new Ambulatory Care building at Alice Springs Hospital (ASH). The project is funded under the Community Health and Hospitals Program (CHHP).

This report has been prepared in accordance with Austroads Guide to Traffic management Part 12: Integrated Transport Assessment for Developments.

1.1 PROJECT SCOPE

The objective of this TIA report is to assess the impact the proposed Renal Dialysis Unit will have on the surrounding road network with a focus on traffic operations (including emergency vehicle access), pick-up/drop-off areas (including minibuses internally and the adjacent public bus stop), car parking requirements, and intersections adjacent to the development area. The report considers all road users with particular emphasis on pedestrians, cyclists, and the mobility impaired.

As part of this project, a Road Safety Inspection (RSI) was conducted for the surrounding roads of the proposed development to identify the potential safety issues the current road network presents for all road users as well as the potential hazards associated with the development of the Dialysis Centre, including its designed access and egress points.

Additionally, an Aimsun base model (microsimulation model) was developed to assess the impact of the proposed development on the road network and surrounding intersections.

2.0 EXISTING SITUATION

2.1 DEVELOPMENT AREA LOCATION AND CONTEXT

The development area is located within the Lot 8168 in the southern portion of the Alice Springs Hospital precinct. The Lot currently comprises of the existing on-grade visitor/staff parking lot and a section of the Hospital access road and is located on the corner of Gap Road and Traeger Avenue.

The Alice Springs Hospital precinct also encompasses the Alice Springs Hospital at Lot 4579 and off-site parking provided for the hospital through a lease arrangement on Lot 8167 (within the grounds of Our Lady of the Sacred Heart College) and on the old Alice Springs Gaol site on Lot 1018.

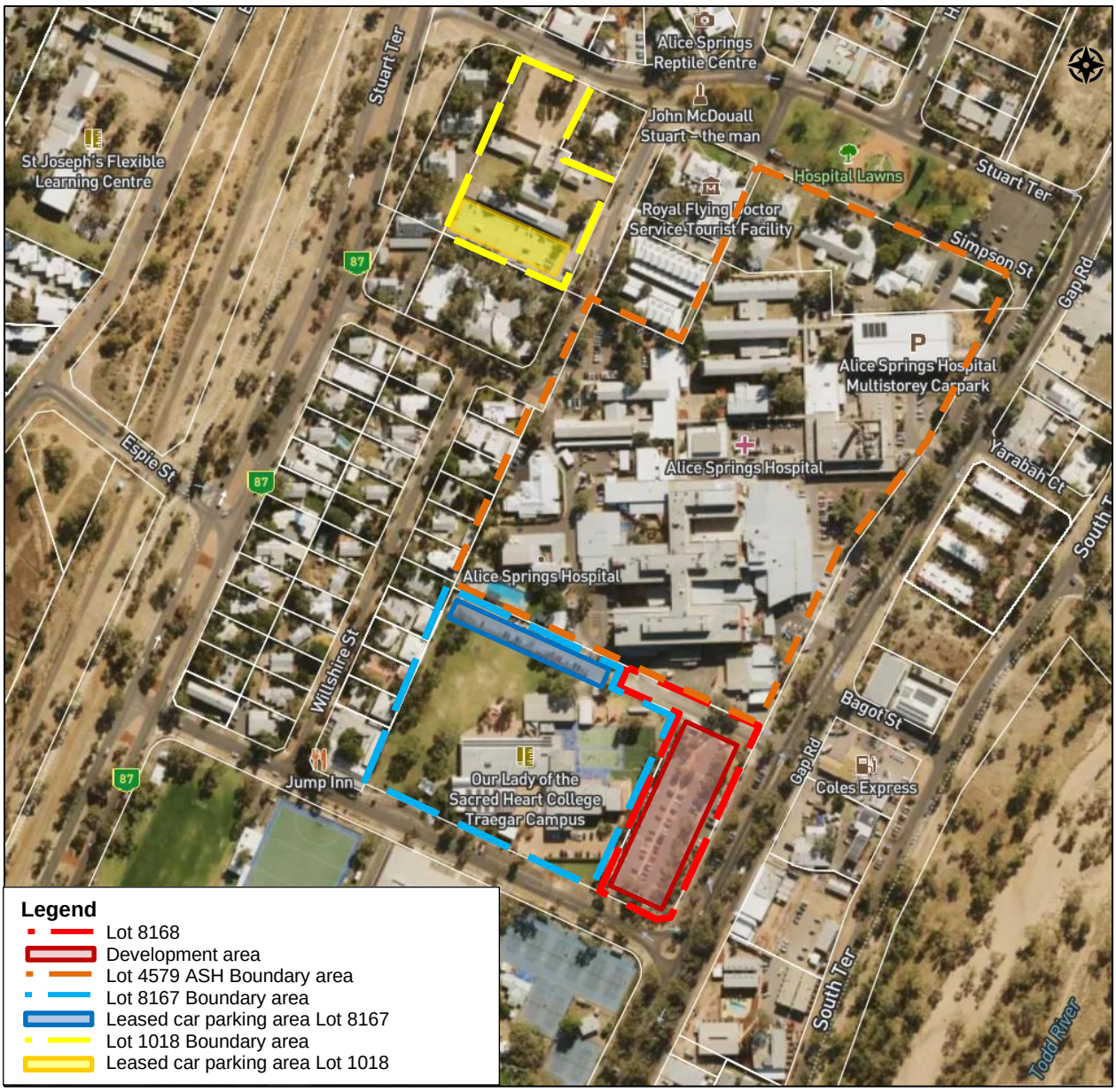
The current vehicular access to the abovementioned sites is as follow:

- To/from the Site (Lot 8168) is provided through the Hospital access road and Traeger Avenue.
- The ASH (Lot 4579) has various access points located on the Hospital access road, Gap Road, and Simpson Street.
- The access to and from the off-site parking are on Lot 8167 is provided through the Hospital access Road; and
- The access to and from the off-site parking are on Lot 1018 is located on Simpson Street.

The development area and remaining sections of the ASH Campus are shown in **Figure 2-1**.

The extents of Lot 8168 include the existing on-grade car parking and the Hospital Access Road. The development area, subject of this TIA, includes the area of the existing on-grade car park only, hence the Boundary area of Lot 8168 and the development area are different.

Figure 2-1 Location of Study Area and Adjacent ASH Campus Areas



Source: MetroMap (2023)

The development area is bounded by Gap Road to the east, Traeger Avenue to the south, Lot 8167 to the west and Lot 4579 to the north.

The ASH access road on the northern boundary currently provides access to the development area and the other Staff and visitor parking areas of Lot 4579 (hospital site) and Lot 8167. This section of road is not included within the development area that will be developed for the Renal Dialysis Unit.

2.2 BACKGROUND

The Ambulatory Care Building (Renal Dialysis Unit) has been identified as part of the ASH Masterplan developed by HIP Architects in 2018.

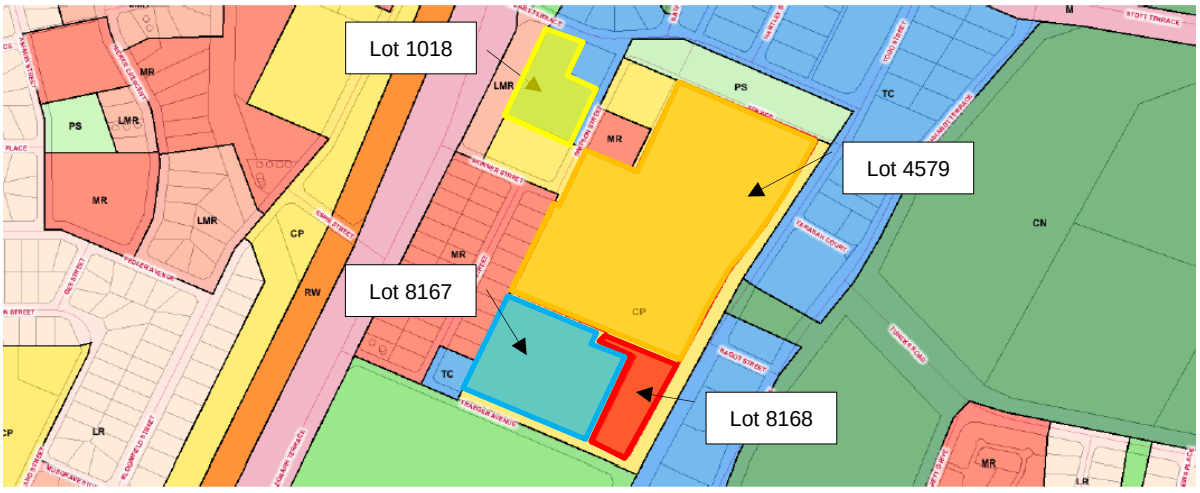
As per the design principles of the *ASH Ambulatory Care Building Stage 1 Renal Services - Project Brief*, the service delivery model used is a 'one stop shop' allowing clients attending for renal dialysis to access a range of wrap around support services such as educators, occupational therapists, and social workers at a single location, rather than attending multiple appointments at multiple locations.

The project brief requesting the TIA included for an assessment of a previous report into car parking supply across the ASH Campus. This previous report was completed by Northern Planning Consultants in 2020. The area of the assessment includes the existing ASH and proposed renal dialysis unit development as shown in **Figure 2-2.**

The car parking report considered the parking bays at the follow sites:

- Lot 4579 including the multi-level car park.
- Lot 8168.
- Off-site car parking provided for the hospital through a lease arrangement on Lot 8167 immediately southwest of 4579 (within the grounds of Our lady of the Sacred Heart College).
- Off-site car parking provided for the hospital through a lease arrangement on the old Alice Springs Gaol site (Lot 1018).

Figure 2-2 Alice Springs Hospital Car Parking Assessment Study Area



Source: Car Parking – ASH NPC Report

Table 2-1 summarises the parking bays within the ASH Campus and shows that there is currently a total of 895 parking bays within the whole Campus area. Excluding the parking currently located on Lot 8168, a total of 814 parking bays are available.

Table 2-1 Summary of current Parking bays within the ASH Campus

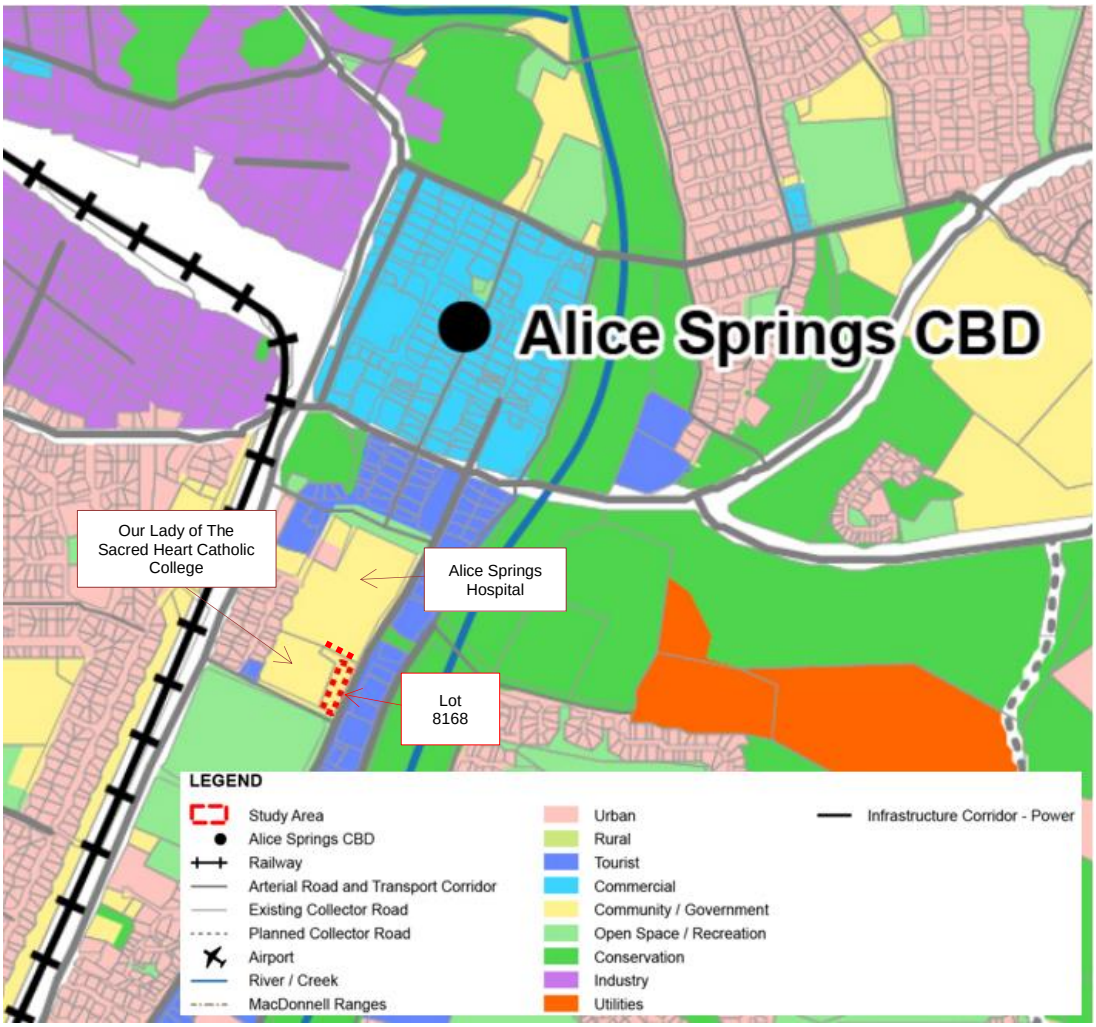
Lot	Total Parking bays
Lot 4579 – on grade	358
Multi-level Car park Lot 4579	277 regular parking spaces 5 Electric Vehicle parking bays 4 DDA parking bays (14 motorcycle bays) **TOTAL 286 car parking bays**
Lot 1018	76
Lot 8167	94
Lot 8168	82
Total existing bays, including Lot 8168 (Development area)	**895**
Total bays excluding Lot 8168 (Development area)	**814**

The parking provision for the constructed Multi-level car park on Lot 4579 was obtained from the As Constructed Drawings dated 04/05/2022 which are included in **Appendix B.**
The total parking bays from Lots 4579-on grade, 1018, 8167, and 8168 were obtained from the Northern Planning Consultants Parking Report from 26 October 2020.

2.3 SURROUNDING LAND USES

As included within the Alice Springs Regional Land Use Plan 2016, Lot 8168 is zoned ‘Community / Government’ area as shown in **Figure 2-3**. It is immediately surrounded by Traeger Park which is zoned as ‘Open Space / Recreation’ to the south, ‘Tourist’ area to the east and ‘Community / Government’ area to the north and west.

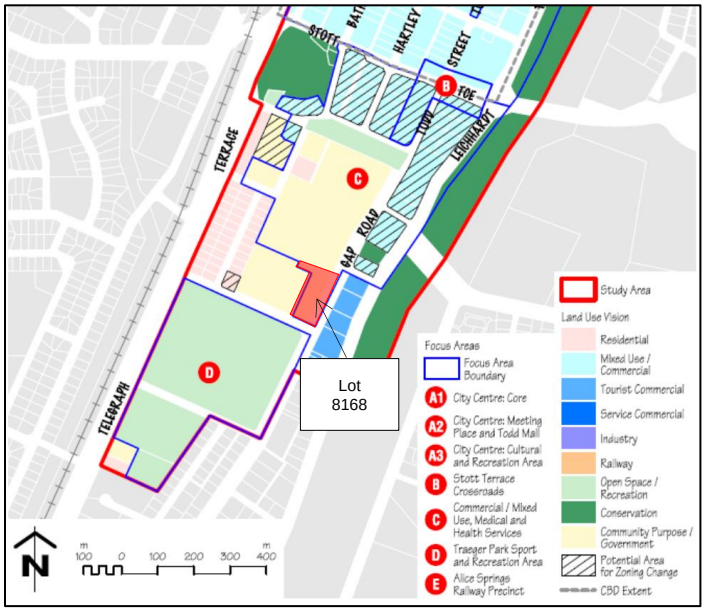
Figure 2-3 Study Area Zoning



Source: Alice Springs Regional Land Use Plan 2016

As per the Central Alice Springs Area Plan prepared by the Northern Territory Planning Commission, the sites Land Use Vision is included within the 'Community Purpose/Government' area and the focus area is 'Commercial/Mixed Use, Medical and Health Services' as shown in **Figure 2-4**.

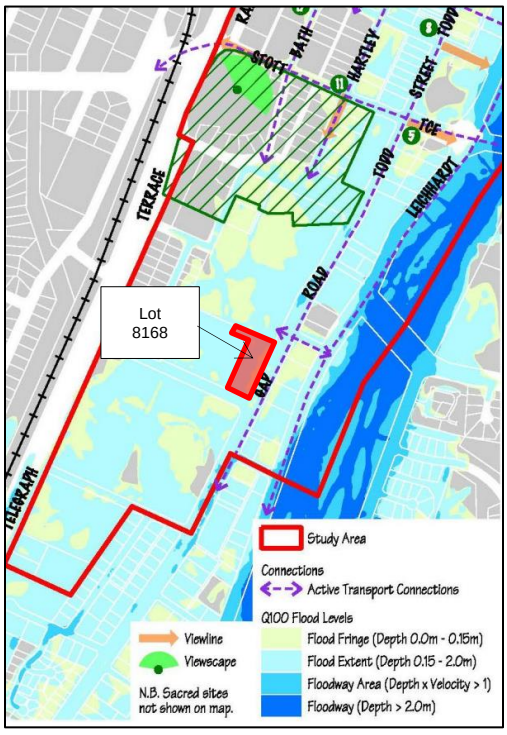
Figure 2-4 Land Use Vision



Source: Central Alice Springs Area Plan 2020

The Area Plan also includes in the Active Transport connectors which covers Gap Road, Bagot Street, and South Terrace as shown below.

Figure 2-5 Environment and Connections



Source: Central Alice Springs Area Plan 2020

Figure 2-6 also include the Q100 flood levels in the area. This shows that the Lot 8168 has a mixture of flood fringe (depth 0.0m-0.15m) and Flood extent (depth 0.15-0.2m). To mitigate the impact of damage to property and cost to the general community, the building has been designed to ensure the finished floor level is above the flood level provided in the area plan.

2.4 EXISTING ROAD NETWORK

The Road Classification for the roads surrounding the study area was adopted from the Performance and Design Standards for Northern Territory Government Roads by the Northern Territory Government which are depicted in **Figure 2-6.**

Figure 2-6 Road Classification and Function

Road class	Function
Freeway	Traffic movement function exclusively
National Highway	Traffic movement function primarily. Principal avenue for communication between two capital cities or major regions of Australia.
Primary Arterial (urban and rural)	Traffic movement function primarily. Primary network of strategic links between important centres in a city, town or rural area.
Sub-arterial/ Rural Secondary or Distributor Road	Combined traffic movement and access function. Connect arterial roads to areas of development and distribute traffic to local street systems.
Collector Road	Access[1] function. Collects and distributes traffic in an area and serves abutting properties. Provides access between local roads/ streets and sub-arterial/ distributor roads.
Local Road	Access[1] function. Used primarily for access to abutting properties.
Pastoral 1	Access[1] function. Provides dry weather access to a single Pastoral property.
Pastoral 2	Access[1] function. Provides dry weather access for up to three Pastoral properties.
Pastoral 3	Access[1] function. Provides partial wet weather access to more than three Pastoral properties.

Note 1: "Access" in this Table refers to an individual property access from a road.

Source: Performance and Design Standards for Northern Territory Government Roads

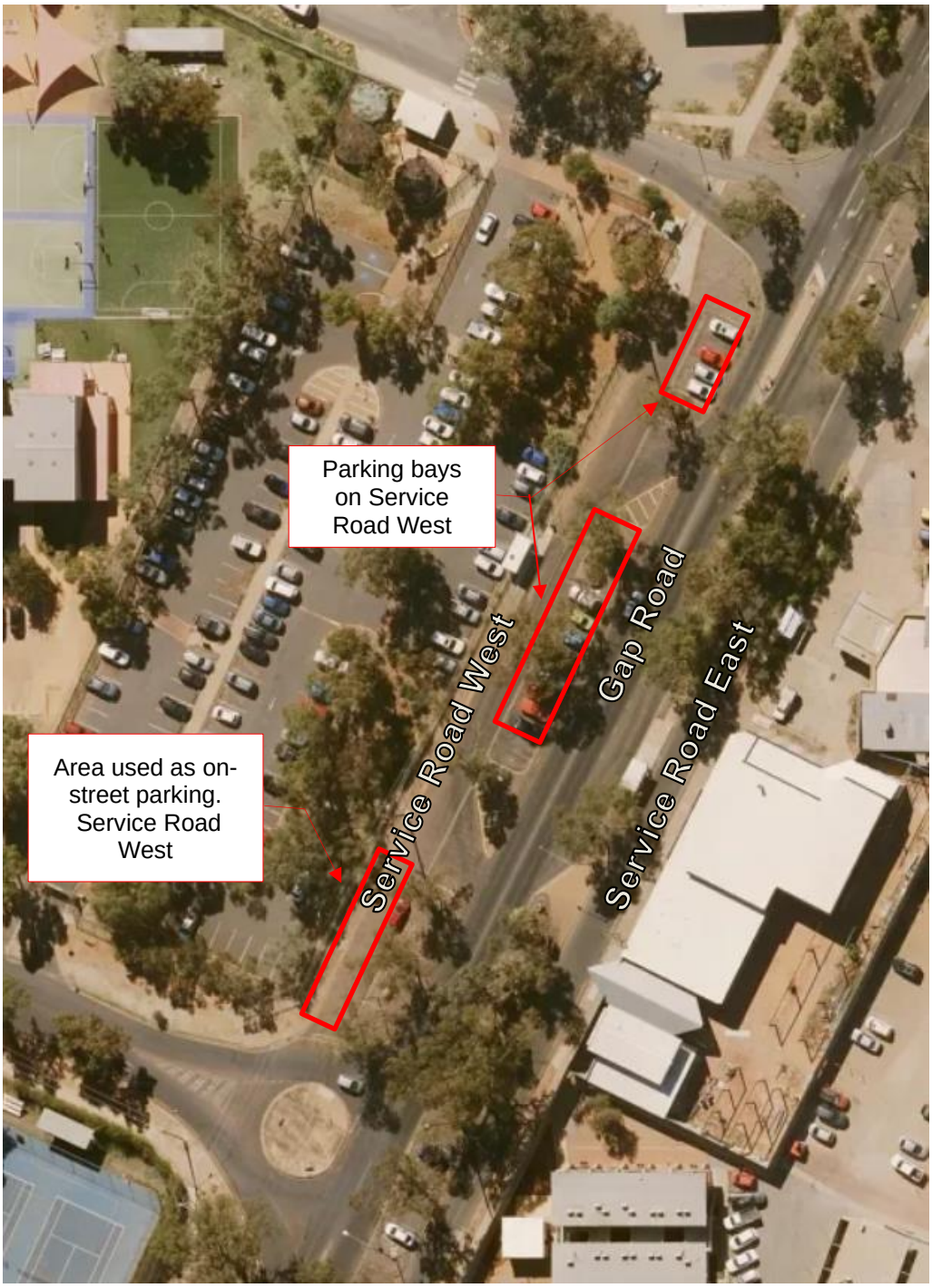
The surrounding road network of the development area includes Traeger Avenue to the south, Gap Road to the east and the Hospital Access Road to the north. **Table 2-2** shows the hierarchy and road information.

Table 2-2 Road Network Classification

Road Name	Road Hierarchy	Jurisdiction	No. of Lanes	No. of Shared paths	Road Width (m)	Posted Speed (km/h)
Traeger Avenue	Collector Road	Alice Springs Town Council	2	2	9.0	School Zone 40
Gap Road	Distributor Road	Alice Springs Town Council	2	2	7.5	School Zone 40
Hospital Access Road	Internal Driveway	NT Government	2	1	7.0	5

Gap Road is bordered by service roads on both sides as shown in **Figure 2-7**. The service road to the west, between the proposed development and Gap Road is one way (North bound) and includes a bus stop and several parking bays. The southern end of the service road is used as on-street parking. In contrast, the service road East of Gap Road facilitates two-way traffic flow from Bagot Street towards the south.

Figure 2-7 Parking areas on Service Road



Source: MetroMap (2024)

2.5 EXISTING KEY INTERSECTIONS

The following list describes the intersections in close proximity to the proposed development:

Gap Road/Traeger Avenue is located to the southeast of the development area. The intersection is a T-intersection with priority given to Gap Road and stop-control sign on Traeger Avenue. All movements are allowed at this intersection.

Gap Road is a 2-lane 2-way road with continuous line marking restricting overtaking manoeuvres. There is a marked pedestrian crossing point to the south of the intersection. Traeger Avenue is a 2-lane 2-way road without median. The intersection is within the school zone with a speed limit of 40km/h.

The approximate width of Traeger Avenue at its widest point is 44m and includes a circular median of 14m diameter that allows vehicles to turn at a wider angle for the in and out manoeuvre. The intersection layout is illustrated in **Figure 2-8**.

Figure 2-8 Existing Gap Road / Traeger Avenue Intersection Layout

Source: MetroMap (2024)

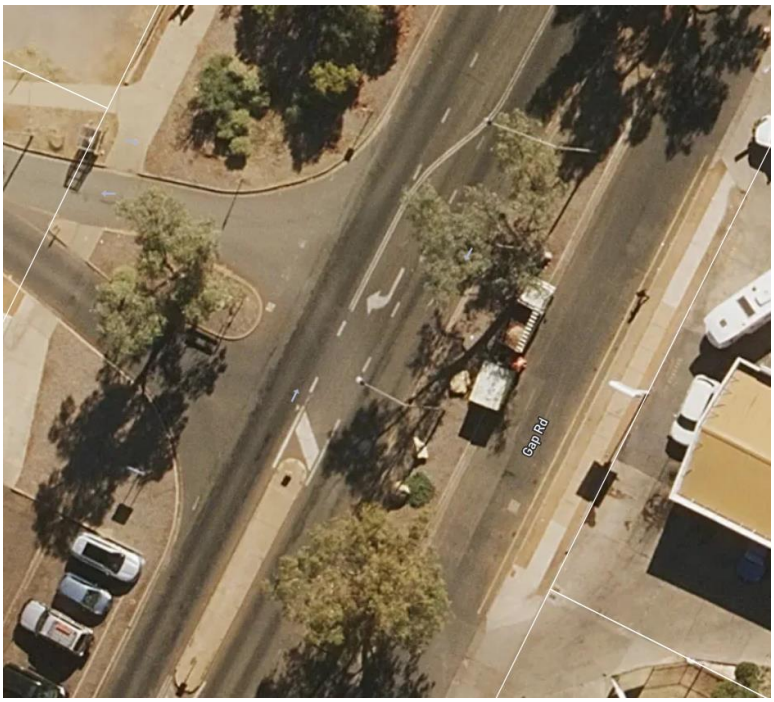
Gap Road / ASH Access Road is located to the northeast of the development area. The intersection is a T-intersection with priority given to Gap Road and Give way-control sign on the Hospital Access Road. All movements are allowed at the intersection.

Gap Road is as described above.

The Hospital Access Road is a 2-lane 2-way road with a 4.5m wide median at the approach of the intersection.

The intersection is within the school zone area with a speed limit of 40km/h. The intersection layout is illustrated in **Figure 2-9.**

Figure 2-9 Existing Gap Road / Traeger Avenue Intersection Layout



Source: MetroMap (2024)

2.5.1 Street Lighting

Within the minutes from the Council Ordinary Meeting held 26/09/2023, the level of street lighting generally along Gap Road was raised with regards to progress from PWC and DIPL. To verify any safety concerns the lighting was generally reviewed as part of the RSI. It was observed that there are currently 8 light poles within the development area (along Gap Road and Traeger Avenue) which provide adequate conditions to transit along the area at night. A photo from the site inspection is shown in **Figure 2-10**. It is noted that the comment from the Council meeting was not specific with reference to where on Gap Road there were concerns with lighting but given the lighting observed during the site inspection it is believed that it is locations outside of the study area.

Figure 2-10 Light poles within study area

2.6 EXISTING CRASH DATA

The crash data for the study area and its surroundings was provided by Road Safety NT for the last 10 years (from 2013 to 2023) for all transport modes. A total of 54 incidents were recorded in this period with 96 people involved. the road sections which the crash data was assessed for are:

- Gap Road between Benstead Street and Yarabah Court and the roads intersecting Gap Road along this segment.
- The whole segment of the Alice Springs Hospital Road.
- Traeger Avenue between Gap Road and Telegraph Terrace and a section of Willshire Street.

The areas for which data has been reviewed as part of this assessment is provided in **Figure 2-11** below. It is noted that there is a significant reduction in the reported incidents compared to previous versions of this report. This is due to the area of data being reported in this revision only being within the general area surrounding the study area. The wider area of the previous studies extents was reduced as the crashes and incidents occurring in these locations do not have any bearing or implications on the potential safety issues within the study area.

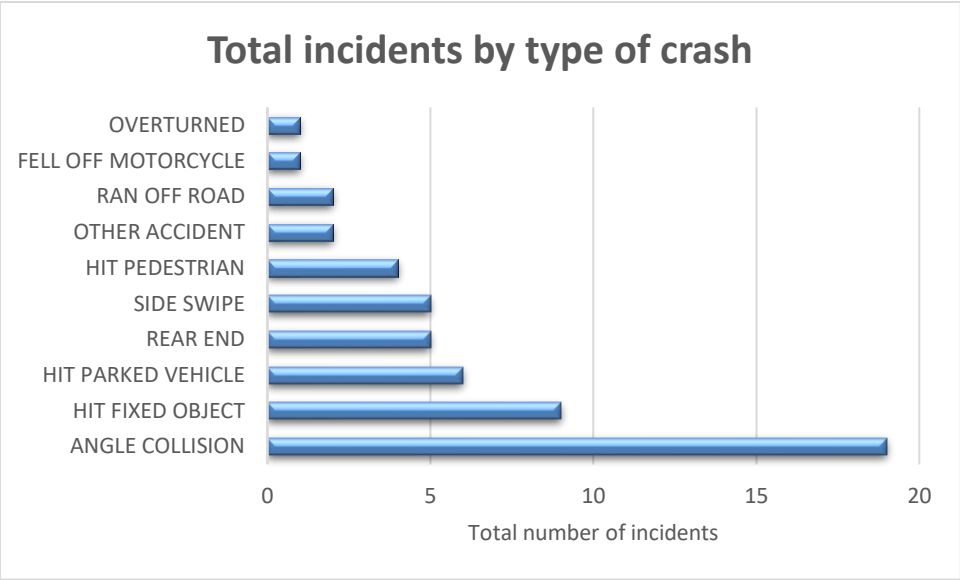
Figure 2-11 Crash data area

Source: Metromap (May 2024)

'Angle collision' reported the highest number of collisions with 19 incidents, followed by 'hit fix object' with 9 crashes.

4 incidents involving pedestrians have been reported during the last 10 years with all crashes involving pedestrians taking place within the carriageway. Two people were treated and admitted to medical facilities, one was treated but not admitted and the remaining people involved in these crashes resulted in no reported injury.

Figure 2-12 Total incidents by type of crash

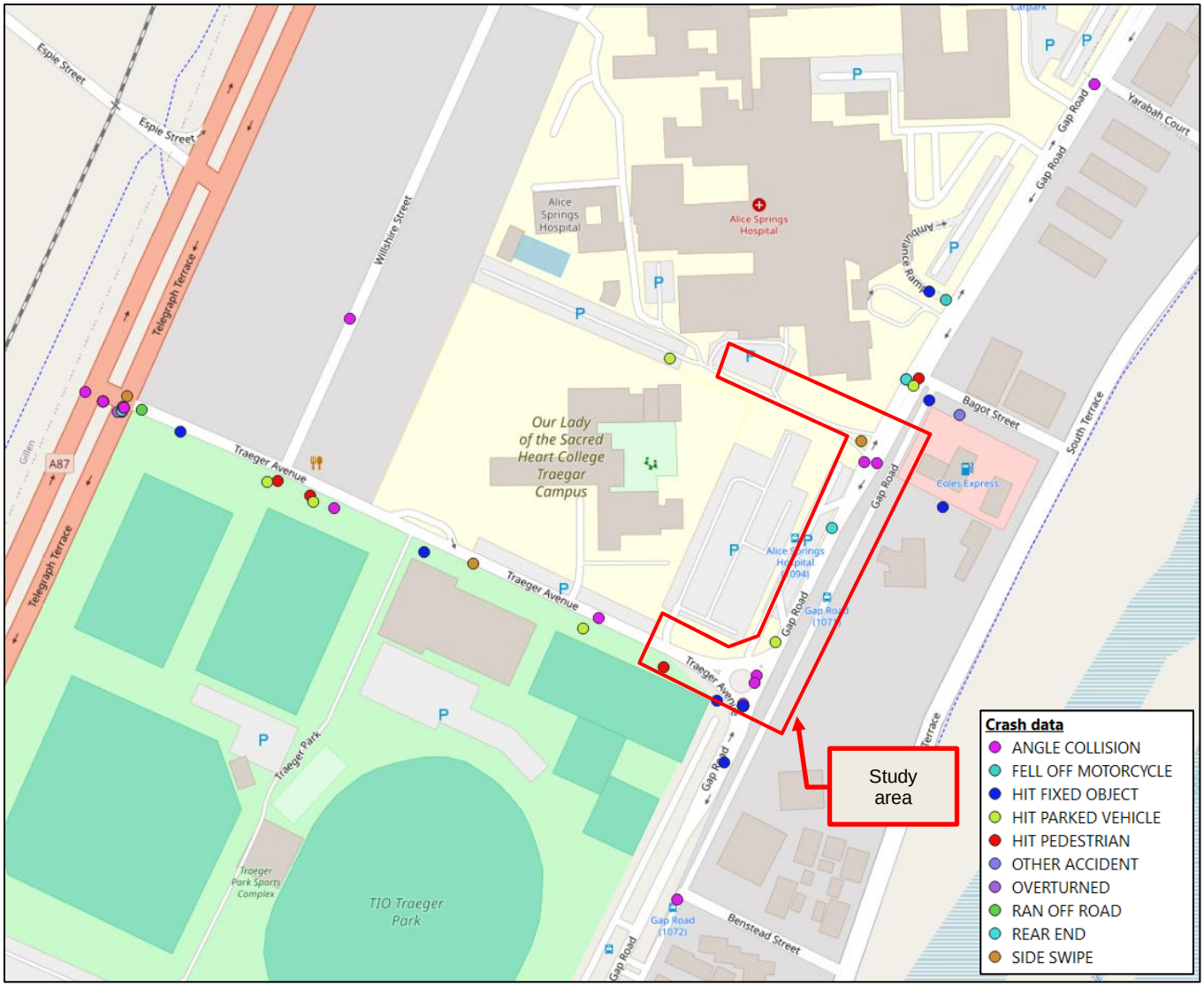


The summary of the crashes include:

- 51 people did not report sustaining injuries from the crashes, 14 were treated and admitted to medical facilities, 4 were treated but not admitted to medical facilities, 1 resulted in an injury but was not treated and the remainder are unkown. No fatalities have been reported in the analysed area within the last 10 years.
- 56% of the crashes occurred with light traffic density followed by 28% medium traffic density and only 2% under heavy traffic density conditions.
- 67% of reported crashes occurred in the carriageway.
- 94% of crashes took place on dry surface.
- 72% of crashes occurred during daytime, 4% at dawn/dusk and 24% while dark with streetlights on. It is noted that the only reported hit pedestrian incident occurred at dusk/dawn with the streetlights not being reported as being on.

While the data summary above considers all crashes reported within the overall area requested, it is nominated that the total crashes that were reported within what would be considered the immediate study area of the proposed works is significantly less. This summary is presented in **Figure 2-13** below.

Figure 2-13 Crash data location and type



Concerning the study area addressed in this report, there have been 11 crashes in the last 10 years, averaging 1.1 incident per year. These crashes consist of 5 ‘angle collision’, 2 ‘hit fixed object’, and one incident each for ‘hit parked vehicle’, ‘rear-end’, ‘swide swipe’ and ‘hit pedestrian’. The intersections of Gap Road and Traeger Avenue, as well as Gap Road and the Hospital access Road, experienced the highest concentration of crashes, with 5 and 3 incidents respectively.

4 out of the 11 crashes took place while dark with streetlights on, 1 person was admitted to medical facilities while the remaining 6 people involved were not injured or not known.

Three people were treated admitted to medical facilities, while the remining people involved in the crashes reported no injuries. No fatalities were reported within this area.

Due to the low traffic volumes to be generated from the development area and the low-speed environment of the adjacent roads (40km/h), it is expected that the proposed development is unlikely to have a negative impact on the safety in the area.

2.7 EXISTING ACCESS ARRANGEMENT

Access to the development area is currently provided via the ASH Access Road, while a one-way egress is provided to Traeger Avenue as shown in **Figure 2-14**.

The ASH Access Road also provides access to the leased carparking area located on Lot 8167 and Staff and visitor parking area on the ASH site (Lot 4579).

There is a service road between the development area and Gap Road, which includes a one-way entry and a one-way exit off Gap Road. The service road includes a bus stop, 12 on-street parking bays for public use, and the southern end is used as on-street parking.

Figure 2-14 Existing Access and Egress Locations

Source: MetroMap (2023)

2.8 TRAFFIC DATA

2.8.1 Existing Traffic Volumes

Traffic surveys on the surrounding road network were conducted for both light and heavy vehicles across 2 full days: Wednesday 17th and Thursday 18th April 2024.

The traffic movements surveyed included:

- Gap Road / Traeger Avenue intersection
- Gap Road / Hospital Access Road intersection
- The access/egress movements to the service road
- The access/egress movements to the existing carpark, being in/out movements at the Hospital Access Road and out only movements at Traeger Avenue

The total volumes across all the sites for Wednesday (17th) and Thursday (18th) are illustrated in **Figure 2-15** and **Figure 2-16** respectively. The figures provide the daily traffic profiles and the traffic peak hours. The AM and PM peaks are consistent for each of the surveyed days, with the following peak hours recorded:

- AM Peak: 7:45am – 8:45am
- PM Peak: 2:30pm – 3:30pm

Figure 2-15 Total Volume (all sites) – Wednesday 17th April 2024

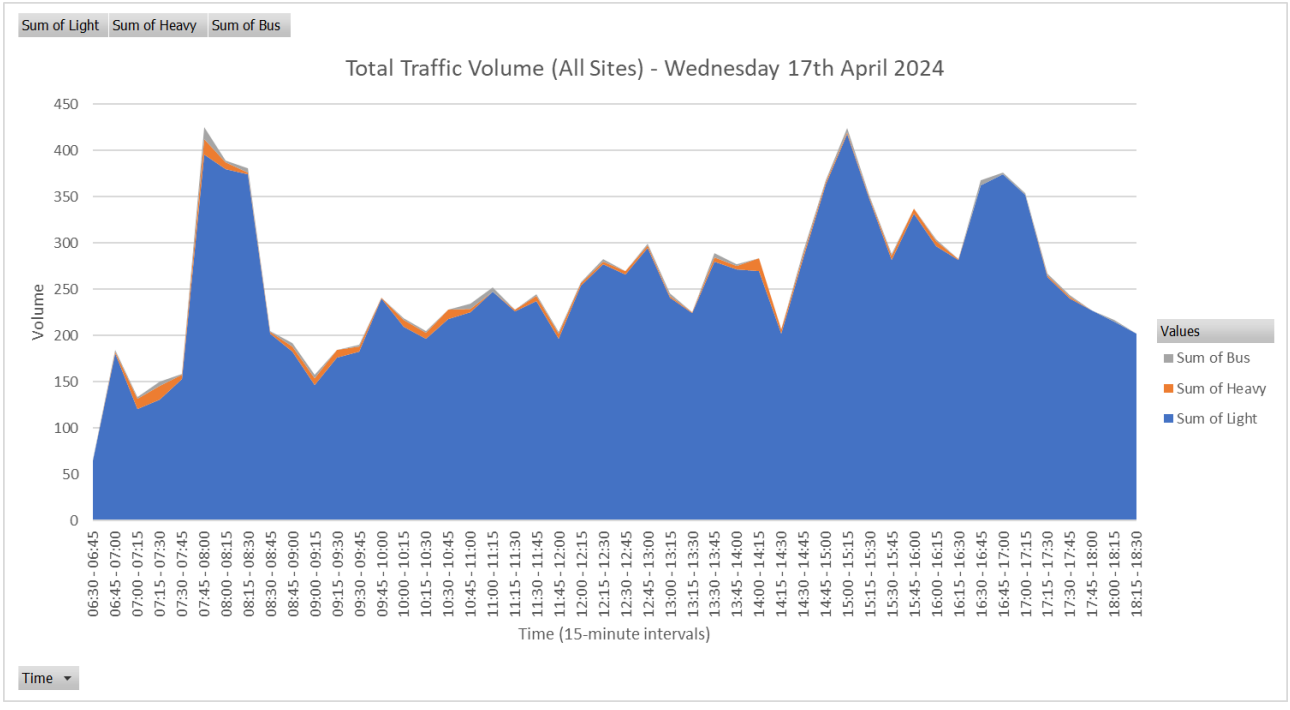


Figure 2-16 Total Volume (all sites) – Thursday 18th April 2024

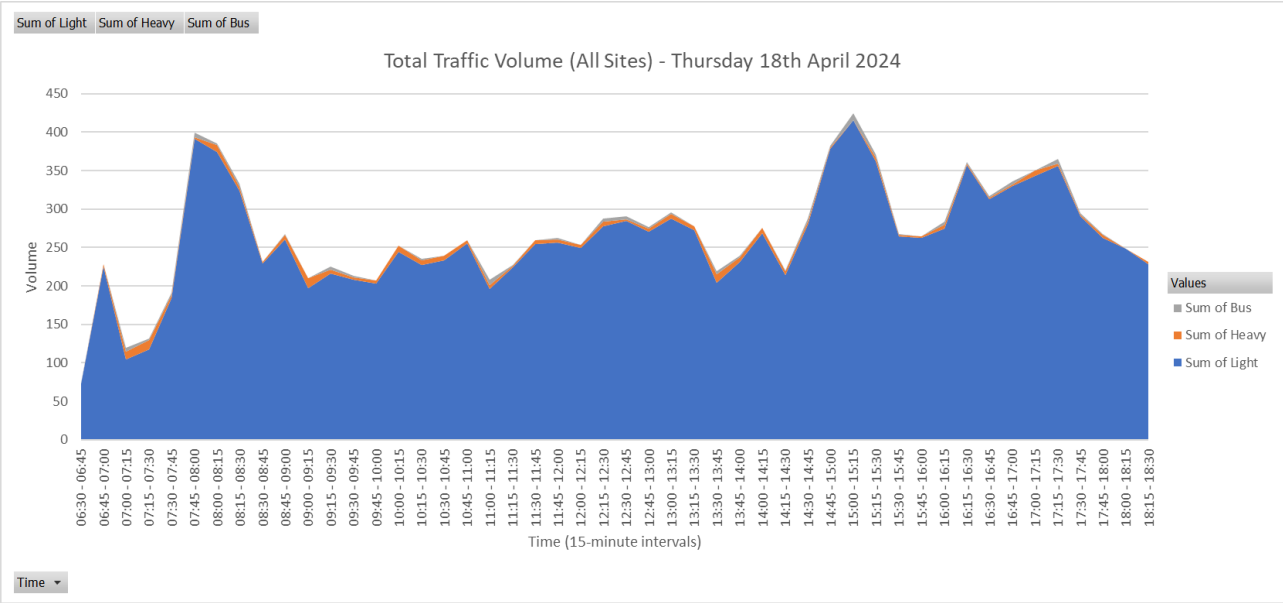
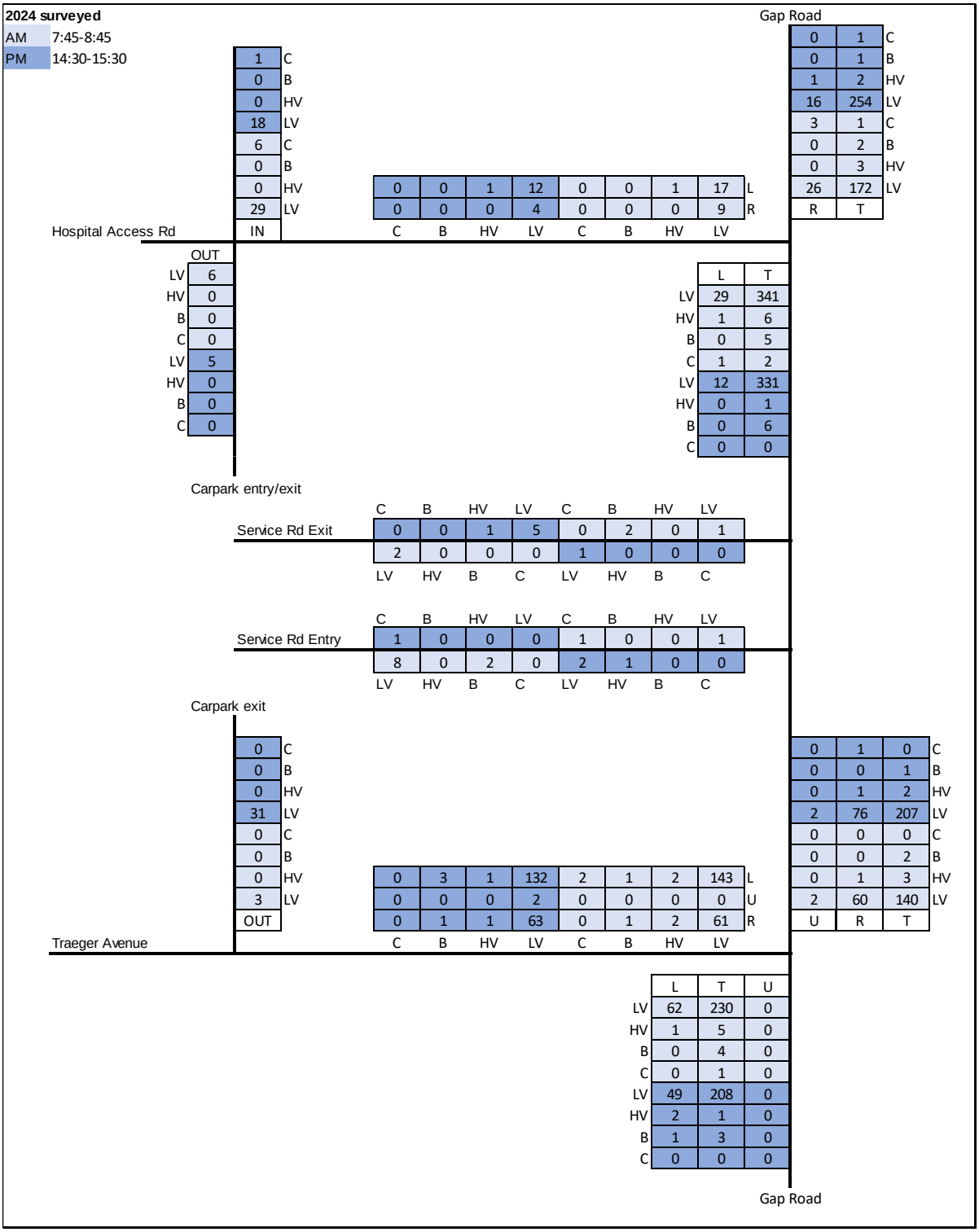


Figure 2-17 depicts the AM and PM average traffic volumes. The data was collected per vehicle type including:

- Light vehicles: LV
- Heavy vehicles: HV
- Buses: B
- Cyclists: C

Figure 2-17 AM and PM average traffic volumes.



As previously mentioned in **section 2.5**, Gap Road / Traeger Avenue is a T intersection with a circular median. Although the median is located on Traeger Avenue and does not perform as a roundabout, the surveyed data recorded some vehicles performing U-turns at this intersection as shown in **Figure 2-18** and **Figure 2-19**. On average, 24 vehicles per day performed U-turn manoeuvres at this intersection, with the north-north manoeuvre being the movement with the highest number of vehicles.

Figure 2-18 Summary of daily traffic Gap Road / Traeger Avenue – Wednesday 17th April

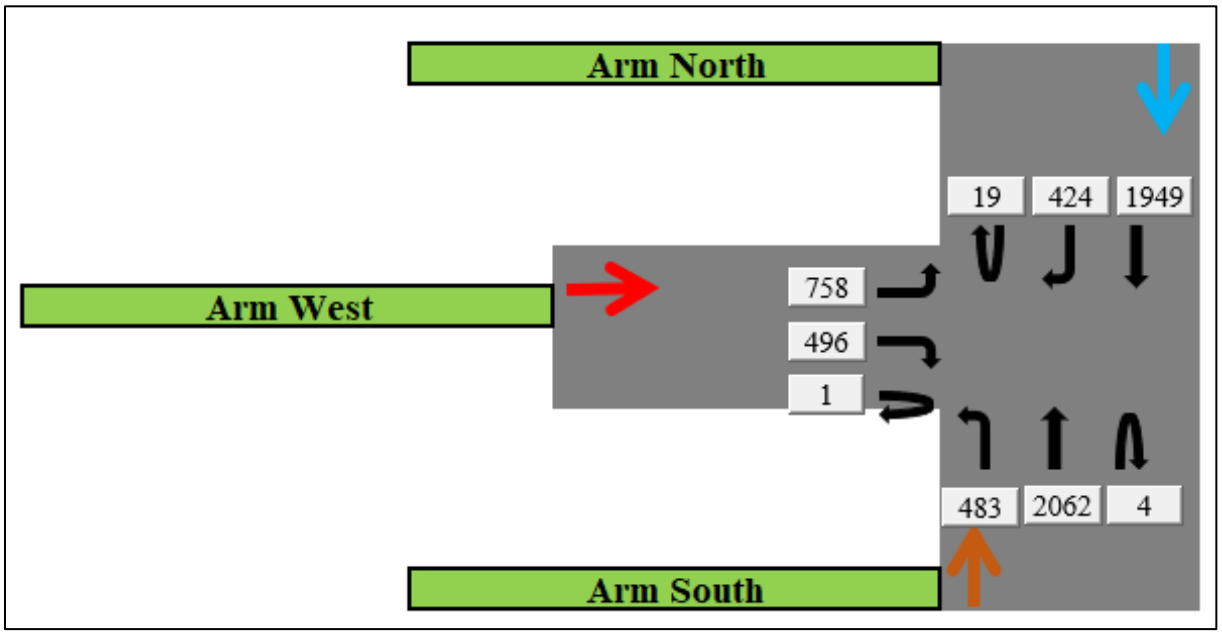
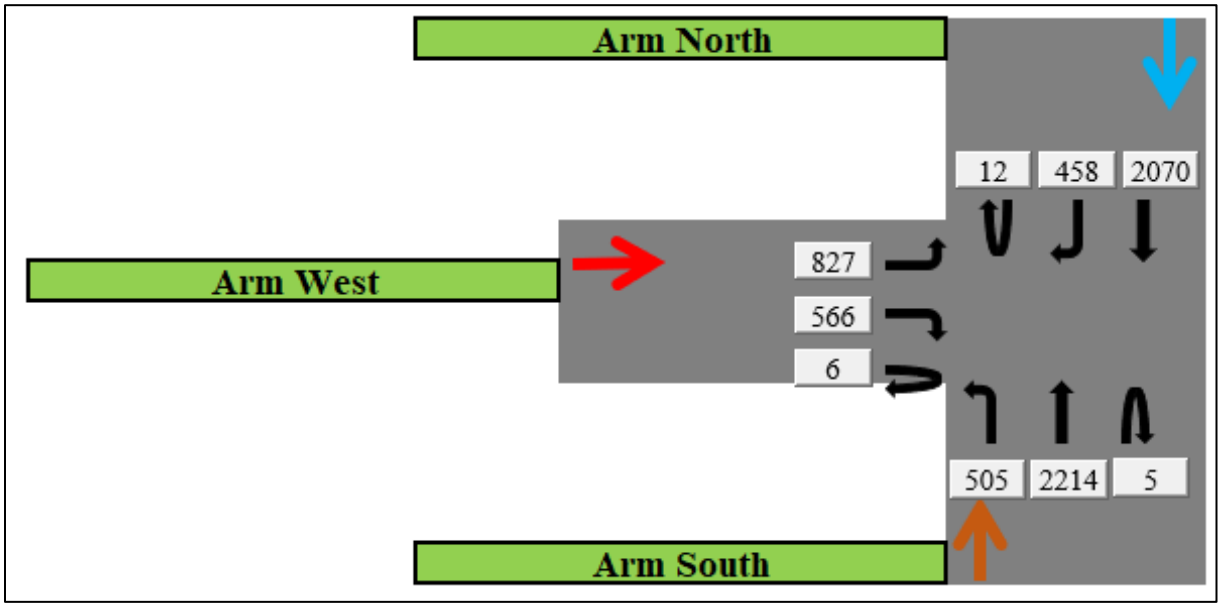


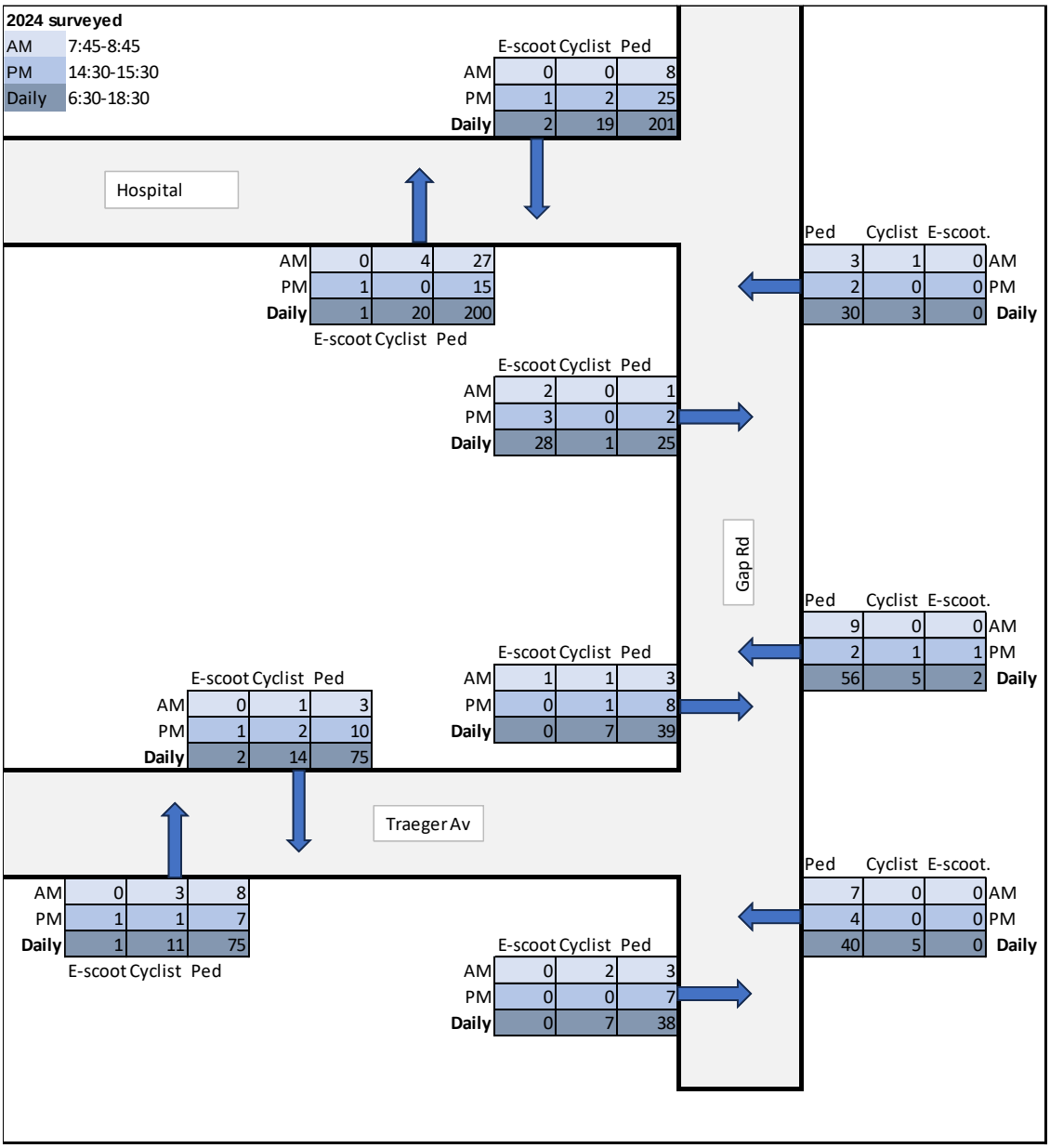
Figure 2-19 Summary of daily traffic Gap Road / Traeger Avenue – Thursday 18th April



2.8.2 Existing Active Transport Volumes

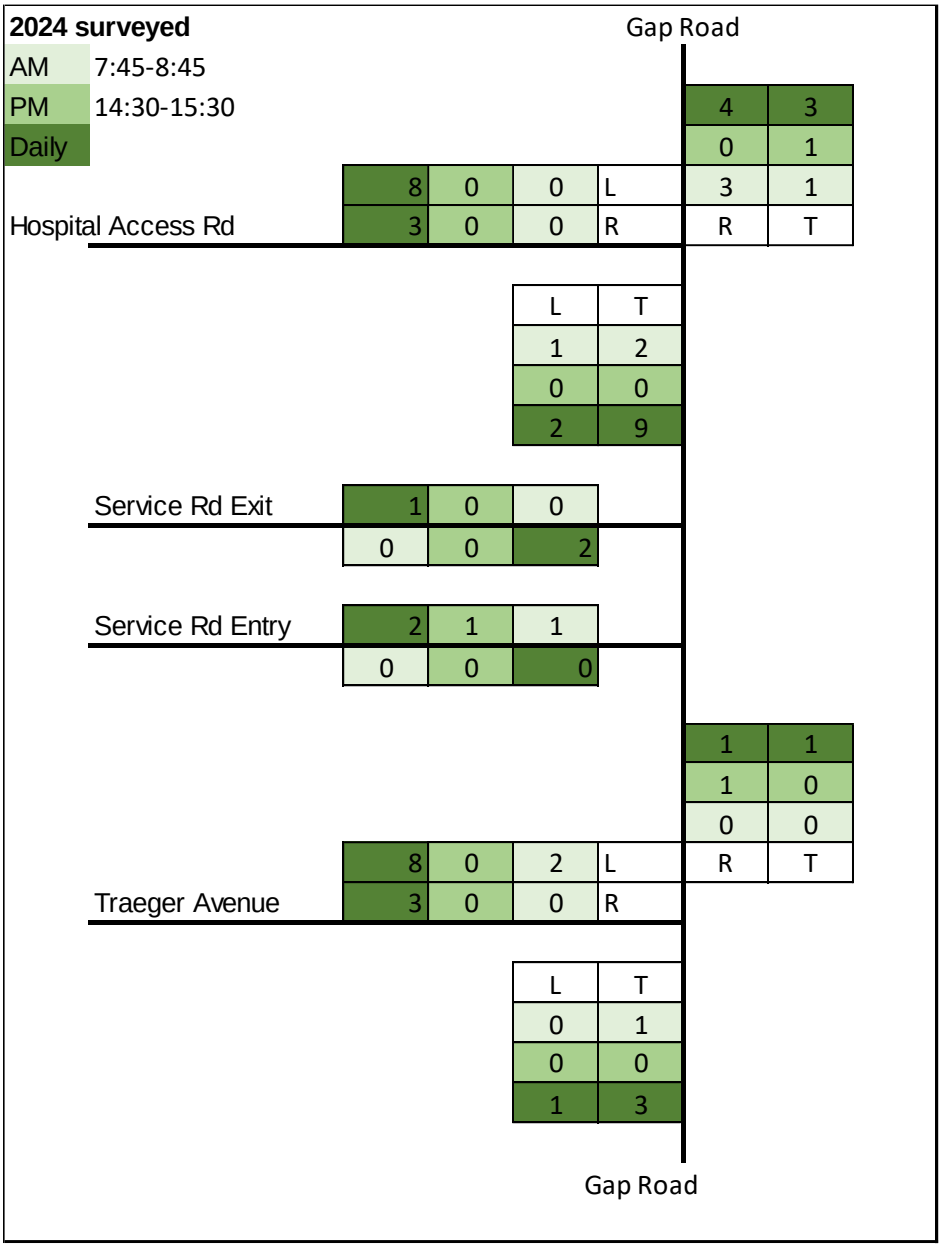
Cyclist, pedestrian, and E-scooter movements were recorded as part of the traffic survey (refer to **Figure 2-20**). The highest movements recorded were for pedestrians crossing the Hospital Access Road north and southbound with 200 pedestrians crossing per day in each direction, followed by Pedestrians crossing Traeger Avenue north and southbound movements with 75 pedestrians crossing per day in each direction.

Figure 2-20 Average active transport movements AM, PM and daily.



On-road cyclist movements were recorded as part of the traffic volume survey and presented above in **Figure 2-16**. Very low number of cyclists travelled on road within the morning and evening peak periods.

Figure 2-21 Average on-road cyclists movements – Peak and daily volumes



3.0 PUBLIC TRANSPORT FACILITIES

3.1 EXISTING PUBLIC TRANSPORT FACILITIES

There are currently eight (8) bus routes in Alice Springs; three (3) of which serve the study area as shown in **Table 3-1**. **Figure 3-1** illustrates the four (4) bus stops in the vicinity of the study area, with sheltered bus stops shown in blue and non-sheltered in red.

Table 3-1 Existing Bus Routes Serving the Study area

Route No.	Bus Stop	Route Description	Weekday Frequency	Saturday Frequency
300	1094 1071 1093 1095	**The Gap and Ross** Interchange - Palm Court - NRT Hall of Fame - Yirara College -Gap Road **300 travels S- N**	• 2 Services in the am: 7:00 and 8:00am • 3 Services in the pm: 4:00, 4:45 and 5:30pm	• No service
301	1094 1071 1093 1095	**The Gap and Ross** Interchange - Palm Court - NRT Hall of Fame - Yirara College -Gap Road **301 travels N-S**	• 3 Services in the Am: 8:45, 10:15 and 11:45am 2 Services in the pm: 1:00 and 2:30p	• 3 Services in the Am: 8:00, 9:30 and 11:00am 1 Service in the pm: 2:00pm
500	1094	**Alice Springs Hospital** Interchange – Hospital - Convention Centre - Bloomfield St	• 3 Services in the Am: 7:40, 9:30 and 11:00am 3 Services in the pm: 1:42, 3:20 and 5:10pm	• 3 Services in the Am: 8:45, 10:15 and 11:42am 1 Service in the pm: 2:42pm

Bus stop 1094 and 1071 are located adjacent / opposite the development area, bus stop 1093 is located approximately 200m south, while stop 1095 is located approximately 500m north of the development area.

Figure 3-1 Adjacent Existing Bus Stops

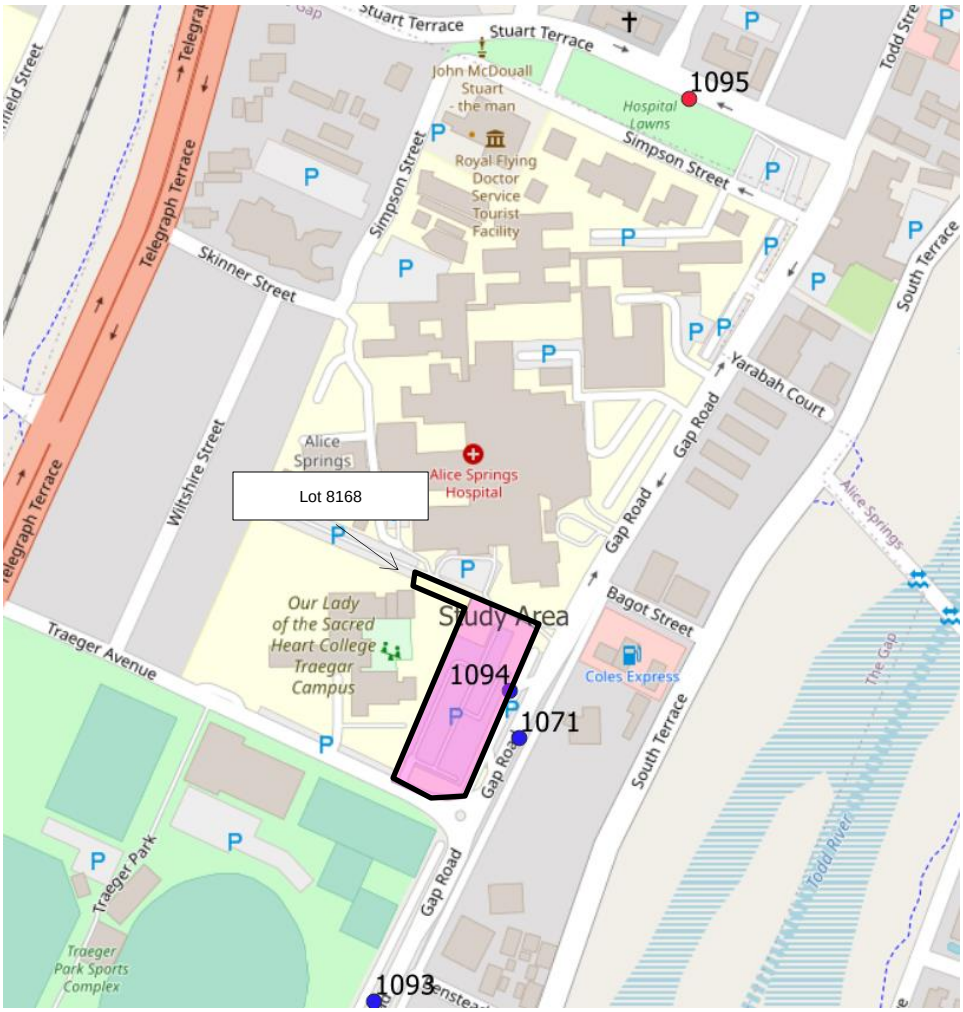
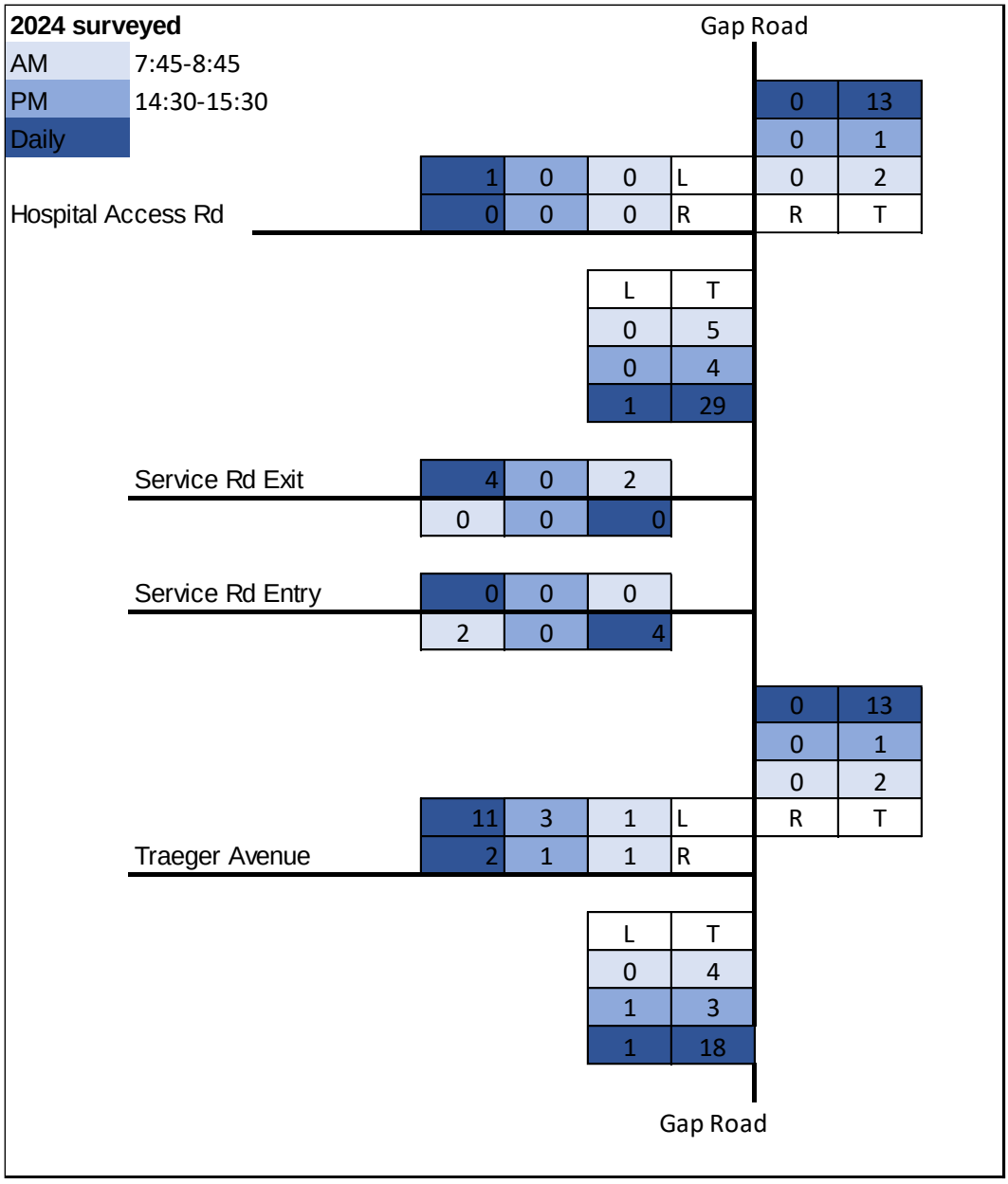


Figure 3-2 presents the average bus movements within the area for the peak period and the daily volumes. On average, 4 buses accessed the service road during the day, 2 of which occurred during the morning peak. No buses accessed the service road during the PM peak.

Figure 3-2 Average Bus movements peak and daily volumes



4.0 PEDESTRIAN / CYCLE NETWORK FACILITIES

4.1 EXISTING PEDESTRIAN/CYCLING NETWORK AND FACILITIES

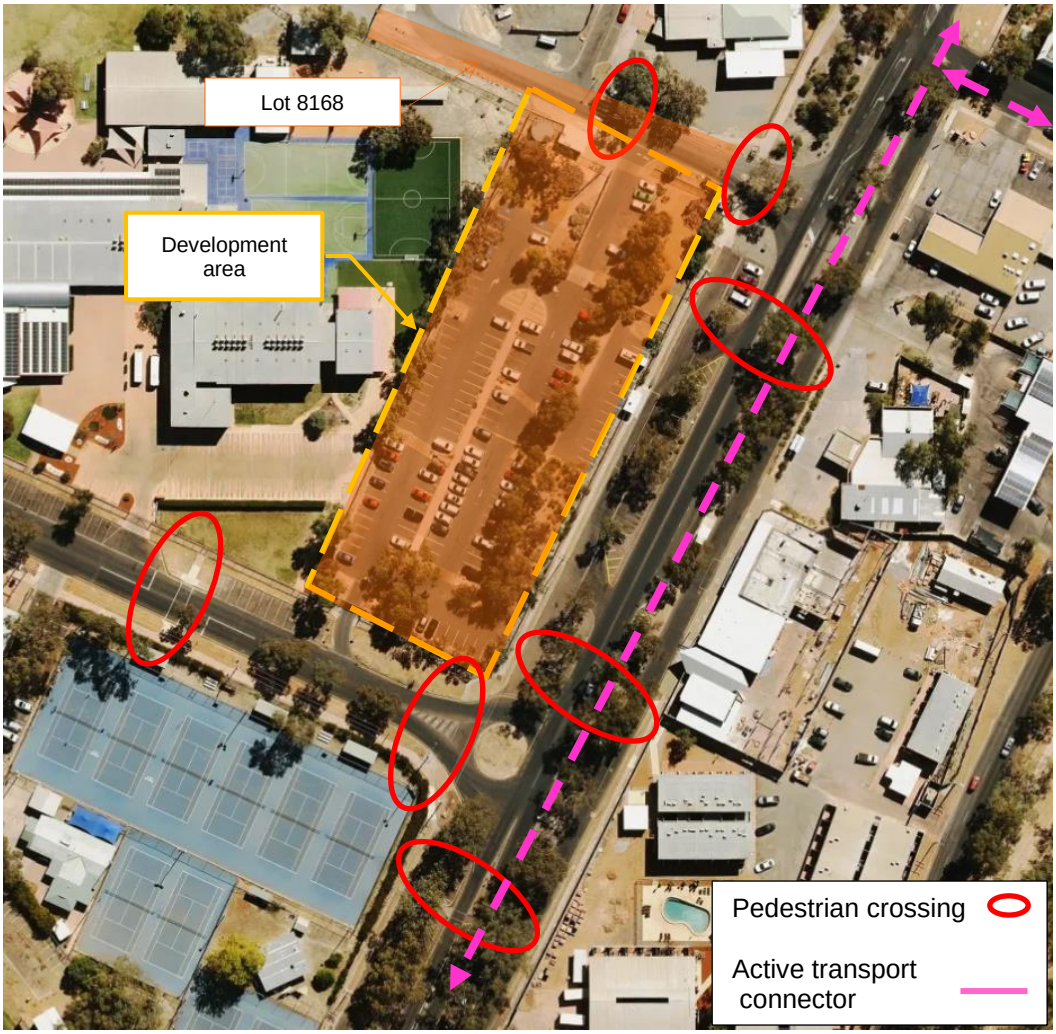
Shared paths are provided on both sides of Gap Road and Traeger Avenue and on one side (northern) along the Hospital Access Road. There are no dedicated on-road facilities for cyclists within the study area.

There are currently seven (7) pedestrian crossings in the vicinity of the development area as follow and are shown in **Figure 4-1** and listed below:

- -Pedestrian crossing on Gap Road south of Traeger Avenue
- -Pedestrian crossing on Gap Road north of Traeger Avenue
- -Pedestrian crossing on Gap Road south of Hospital Access Road
- -Pedestrian crossing on The Hospital access road close to Gap Road
- -Pedestrian crossing on The Hospital access road midblock
- -Pedestrian crossing on Traeger Avenue close to Gap Road
- -Pedestrian crossing on Traeger Avenue midblock

As previously described, the Central Alice Springs Area Plan describes Gap Road, Bagot Street, and South Terrace as Active Transport connectors.

Figure 4-1 Pedestrian & Cycling Network



Source: MetroMap (2023)

The Road Safety Inspection conducted in May 2024 and presented as **Appendix E**, identified a lack of shared path connection between bus stop 1071 located on Gap Road southbound, existing paths and crossing points in poor condition, among other safety issues and provided recommendations for improvement. It is noted that almost all the findings recorded in the RSI were issues related to the existing road network and condition and were not created or exacerbated by the proposed development. While not nominated as part of this projects scope due to it being external to the Lot being developed, improvements in the active network will benefit all users of the shared path, including patients, visitors, and staff of the proposed development.

5.0 PROPOSED DEVELOPMENT

The proposed development consists of the demolition of the existing carpark area to build the Renal Dialysis Unit as part of the Alice Springs Hospital Campus.

The Renal Dialysis Unit is proposed to include:

- Capacity for 48 treatment chairs with associated support.
- 5 Consult rooms.
- 49 waiting chairs.
- Administration spaces.
- 44 parking bays, including 2 DDA compliant bays, and 6 minibus bays (Toyota HiAce Van 8-seater) which are used as patient transport.
- It has been identified that the maximum number of patients admitted within the development at any one time is expected to be 53**. Table 5-1** includes the total floor areas for each of the site functions within the proposed Renal Dialysis Unit.

Table 5-1 Total Area per Department

Department	Total area (m^2)
Administration	197
Consultation Clinic	79
Office	188
Treatment	657
Support	332
Secured Bike Storage	38

The Renal Dialysis Unit is proposed to operate Monday to Saturday, providing dialysis treatment between 6:30am and 9:30pm. The minibuses are expected to transport patients from 6:30am to 9:30pm, with quiet periods between 3:00pm-6:30pm and 7:00pm onwards.

The Renal Dialysis Unit is expected to accommodate up to 60 staff when the development is fully operational. The staff schedule is summarised in **Table 5-2**.

Table 5-2 Renal Dialysis Unit Staff Schedule

Staff	Arriving time AM period	Arriving time PM period
Cleaner	6:00am	-
Bus Drivers	6:30am	12:30pm
Nurses	6:30am, 7:00am and 8:00am	12:30pm
Admin Staff	8:00am	-

The Proposed Floor Plan for the Dialysis Unit is shown below in **Figure 5-1**. Larger versions of the plans are included in **Appendix A**.

Figure 5-1 Floor Plan

Source: Hodgkison Arrangement Plan Version B 19/06/2023

ASH Campus and Surrounding Area

The Renal Dialysis Unit is located within the ASH Campus and located next to Our Lady of the Sacred Heart (OLSH) College Traeger Campus. The function of each area within the ACH precinct, including the Renal Dialysis Unit, have different operational peak times, as shown in **Table 5-3**.

Table 5-3 Renal Dialysis Unit Staff Schedule

Area	Operation time	Visit/Arriving time AM period	Visit/Arriving time PM period
ASH Main Ward Block	24/7	10:00am-12:00pm	2:00pm-8:00pm
ASH day surgery		6:30am	
OLSH College	8:15am-2:50pm	8:00am	2:30pm
Dialysis Unit	6:30am-9:30pm	From 6:30am	From 12:30pm

The typical shift changing times for the ASH campus are 7:00am, 1:00pm, and 9:30pm.

5.1 PROPOSED ACCESS ARRANGEMENTS

5.1.1 Vehicle Access

Vehicular access to/from the development area is proposed to be via Traeger Avenue and the service road parallel to Gap Road, while access to the servicing / delivery area is proposed via the ASH Access Road. The proposed access arrangement is illustrated in **Figure 5-2** and will operate as follows:

Figure 5-2 Development Access

Source: Hodgkison Location/Context Plan Version E 07/07/2023

Access/egress to/from the drop-off area. The entry and exit movements to/from the drop-off area will be via the service road parallel to Gap Road. The entry point is proposed at the southern part of the development and the exit at the northern end, after the bus stop. The entry point will be used for emergency vehicles, private vehicles dropping patients off at the service bay and private vehicles accessing the car parking area. The exit point will be used by the vehicles exiting the drop-off area.

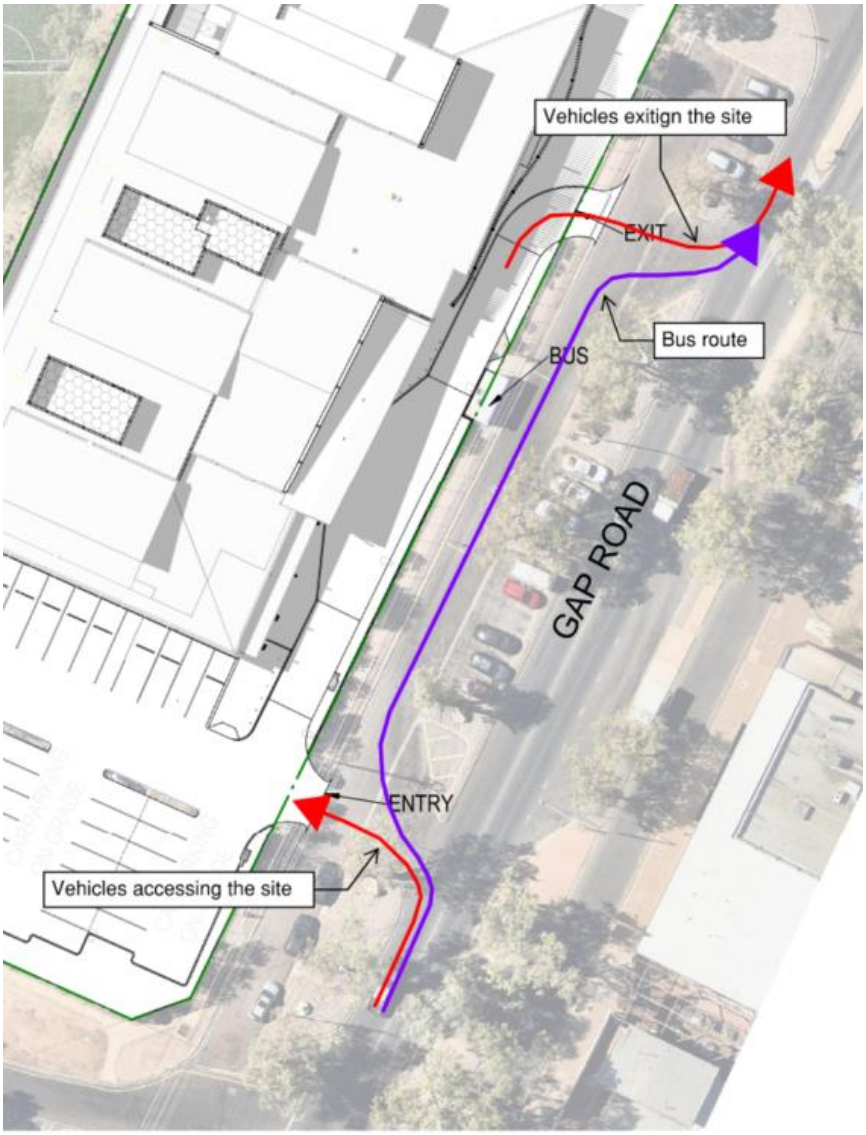
Both access and exit points are proposed to serve north and southbound movements. Currently, this section of Gap Road is marked with faded double lines that prohibit right-in and right-out manoeuvres. However, given the adequate sight distance, low volume of vehicles performing these manoeuvres, minimum delays for turning and through movements, and a speed limit environment of 40km/h, it is recommended to provide broken line markings at the access and exit points to allow the right-in and right-out movements to and from the site. (Refer to Appendix F).

The location of this access points will not impact on the operation of the bus stop 1094 due to the frequency of the bus routes at this location. the documented use of this bus stop is 1 bus every 20-40 min (depending on peak times) on weekdays operating between 7:00am and 5:30pm and 1 bus every 45 min on weekends between 8:00am and 2:45pm. While this is the provided timetable for the busses, it is noted that the traffic survey revealed that only 2 buses stopped at this location in the AM peak, none in the PM peak and 4 throughout the day.

Figure 5-3 illustrates the manoeuvres the vehicles accessing and exiting the development will perform, as well as the manoeuvres that the buses accessing and exiting the service road and bus stop will undertake.

Vehicles exiting the Renal Dialysis Unit must give way to vehicles travelling along the service road, including buses.

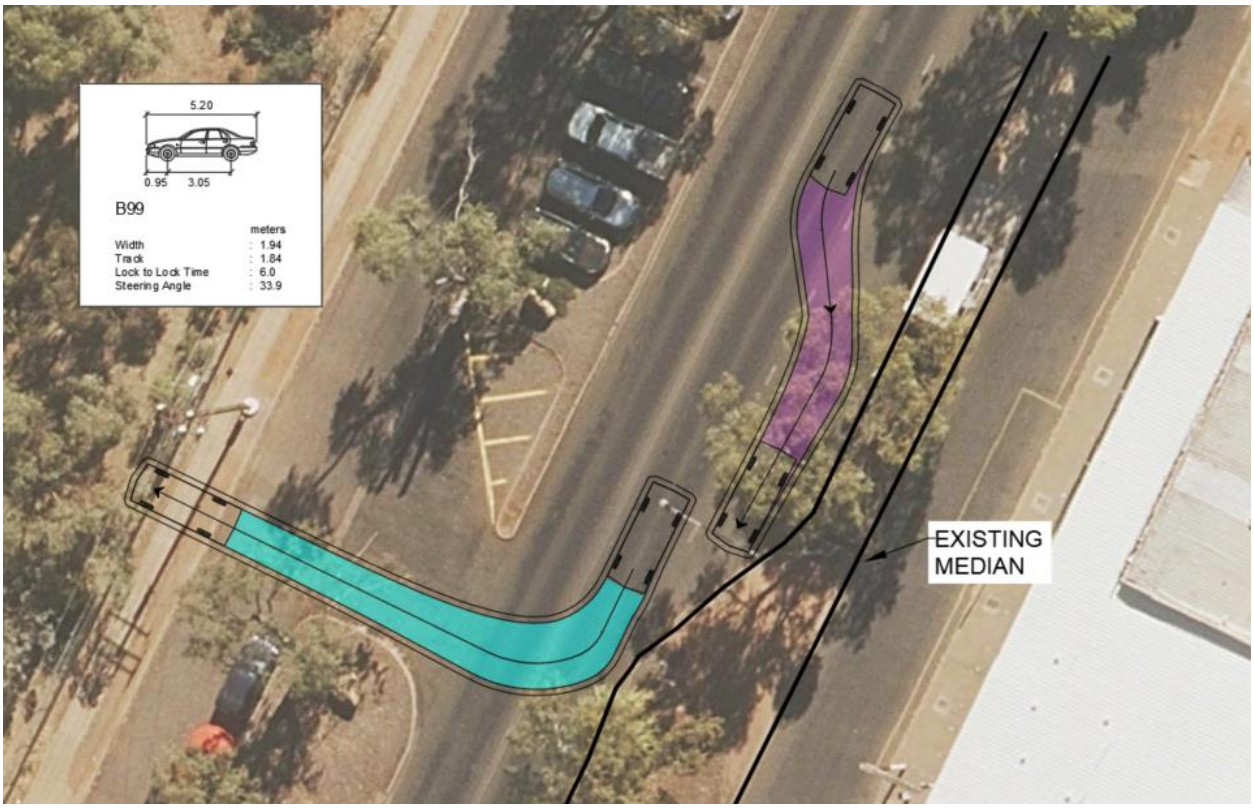
Figure 5-3 Bus and vehicle manoeuvre to access and exit the development area and service road



Concerns were raised by ASTC regarding the location of bus stop 1071 and right-turn traffic off Gap Road into the development, where vehicle stacking could result in motorists using the cut-in as an opportunity to overtake stationary vehicles on the left as shown in **Figure 5-4**.

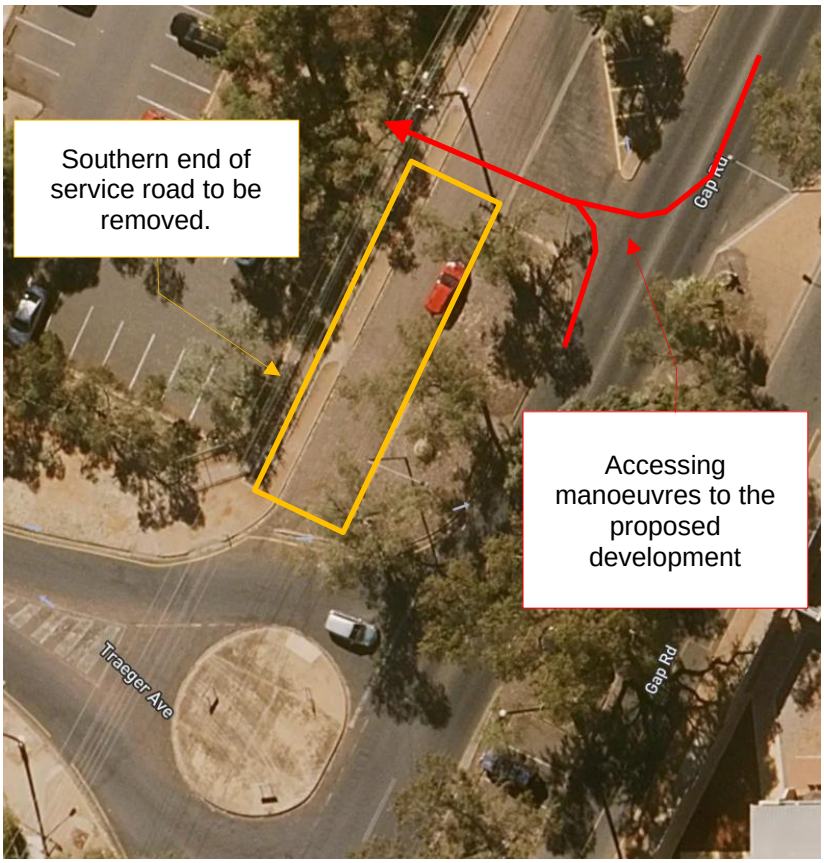
A swept path analysis was conducted to illustrate the location of a car waiting to turn right-in from Gap Road to access the site, while a different vehicle attempts to overtake the stationary car using the bus bay. As shown in the image, the vehicle trying to overtake from the bus bay won't have sufficient room to perform the manoeuvre, as the stationary vehicle will be positioned at the end of the bus bay while waiting to turn right-in. As such, this concern is not considered to be likely to eventuate.

Figure 5-4 Swept path analysis of through vehicle attempting to overtake turning vehicle



Due to the layout of the proposed access point, it is recommended to close the southern end of the service road to the public due to the potential conflict between vehicles driving out from this section and vehicles accessing the Dialysis Centre from Gap Road. This is detailed within RSI finding 1 with the full RSI report provided within **Appendix E**.

Figure 5-5 Southern end of service road



Additionally, it is recommended to include signage and line marking to the access and egress points on the service road to inform users of the IN only and OUT only access points, as well as the northbound movements only.

Access/egress on Traeger Avenue. The existing crossover which currently only permits exit from the development is proposed to be widened to allow access and egress to/from the proposed development. This access will be used by private vehicles accessing the car parking bays, as well as minibuses dropping patients off in the designated parking bays and for parking purposes (i.e., overnight parking and parking when not picking up or dropping off patients).

Access/egress for service vehicles and delivery vehicles is proposed via the ASH Access Road. This access will only be used by service and delivery vehicles.

The ASH Access Road currently provides access of private vehicles to the existing parking lot, as well as the staff and visitor parking areas of ASH. By removing the private vehicle access to the ASH Access Road, this will result in a reduction in traffic volumes on the ASH Access Road and at the intersection with

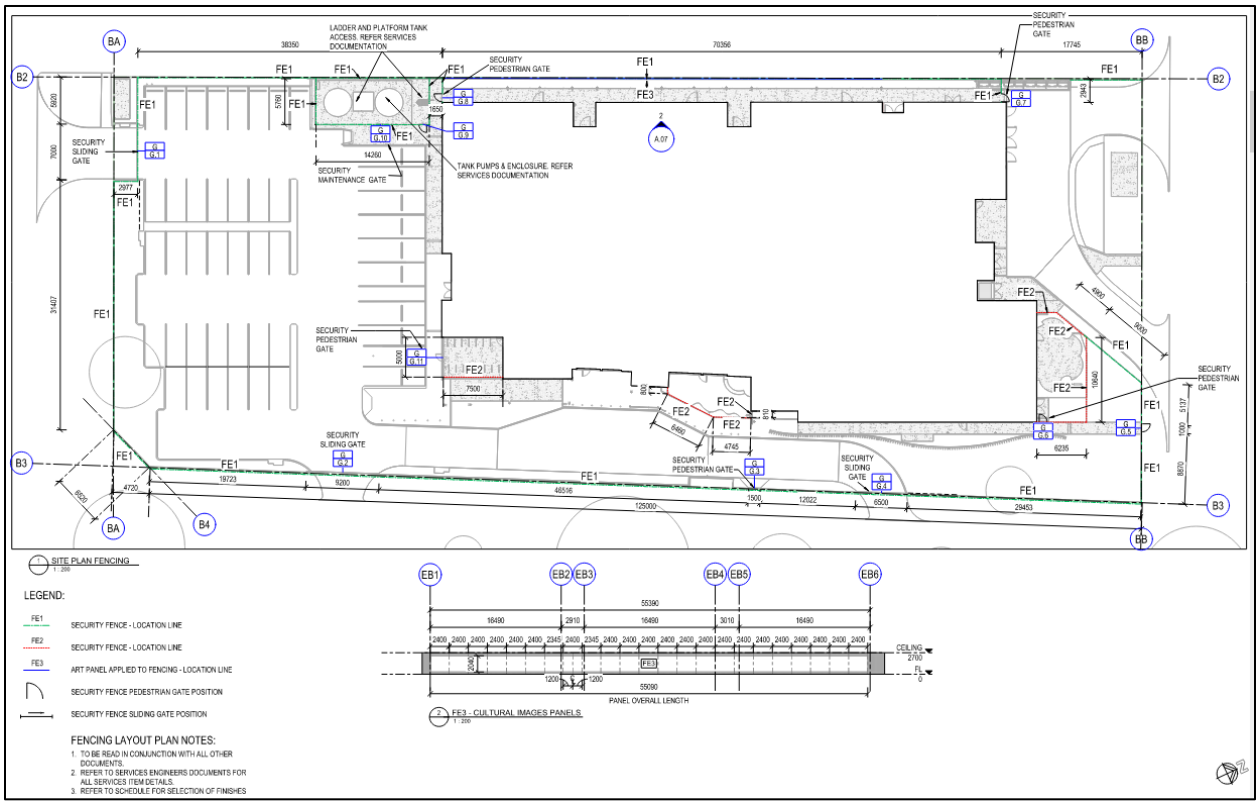
Gap Road. The existing traffic volumes of the car park on Lot 8168 will be transferred to the surrounding car parking areas including the multi-story carpark. As mentioned in **Section 5.5.1**, the area has sufficient capacity to support existing parking demand.

No parking or loading areas are proposed to occur on street frontages.

All public vehicle accesses will be controlled with sliding security gates, which will include card readers fixed to pedestals. The gates will remain open during the operation times of the unit (between 6:00am and 9:30pm) and closed at all other times. Key access cards will be provided to minibus drivers and staff for access to the car park outside of the operating times.

Figure 5-6 shows the proposed fencing layout of the development.

Figure 5-6 Fencing Layout



Source: Hodgkison Site Plan/Fencing layout 95% Issue Updated Version E 07/07/2023

In the event queues are formed at the accesses of the development area, the Traeger Avenue access point can accommodate up to two vehicles without obstructing the through movements on Traeger Avenue due to the setback provided being more than 10m from the road carriageway. The access through the service road is located more than 16m from Gap Road and has capacity to accommodate up to three vehicles. Given the staggered arrival times, and the facility being open to the public when in

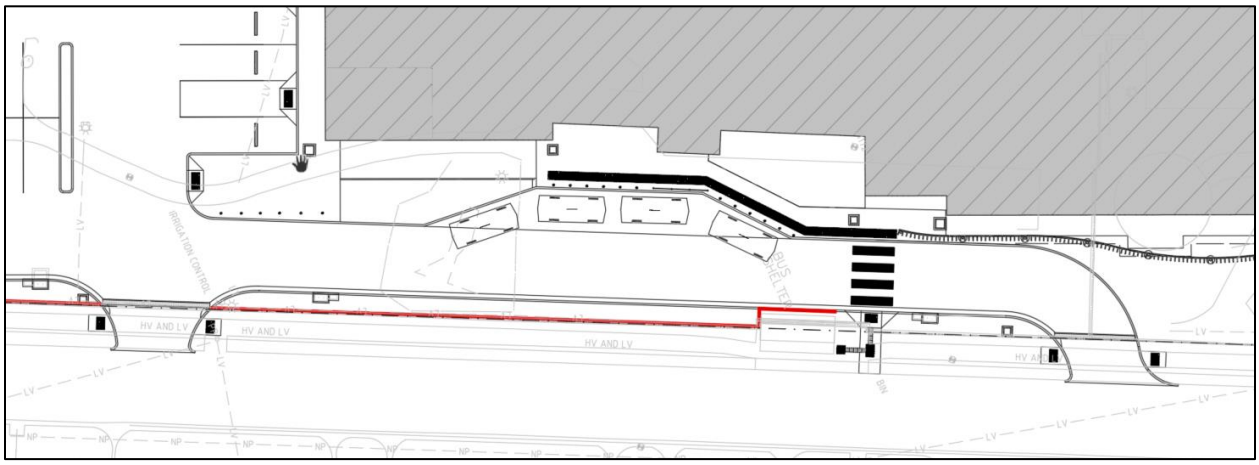
operation, it is not anticipated any queues will be caused which will impact either Treager Avenue or Gap Road.

In the event queues are presented on the drop-off area, these will occur within the internal boundary of the development without impacting entering vehicles nor the wider transport network. **Figure 5-7** illustrates the dropping-off bay capacity that will mitigate the risk of vehicles queuing outside the development area when dropping-off patients. While not anticipated to occur, in additional to the cars that can be held within the drop off bay itself, an additional 5 cars can be accommodated within the internal drop-off lane before extending to the service road.

Signs would be installed to remind drivers that the drop-off bays are for drop-off only and parking is not permitted.

Larger versions of the site plans are included in **Appendix A**.

Figure 5-7 Drop-off Bay Capacity



Source: Hodgkison Site Plan/Driveway Layout 95% Issue Updated Version E 07/07/2023

Vehicles accessing the development via Gap Road will have two options: to drive through the drop-off lane or to drive directly into the parking area. Vehicles accessing the proposed development via Traeger Avenue are expected to access the site and park in one of the designated parking bays (mini buses or regular parking bays). The proposed development provides sufficient parking capacity to accommodate the expected demand and the gates will remain open during the operation times of the Renal Dialysis Unit, hence no queues are expected to occur at any time for vehicles accessing the proposed development. It is estimated that the operation of the Renal Dialysis Unit will avoid adverse impacts on the local road network.

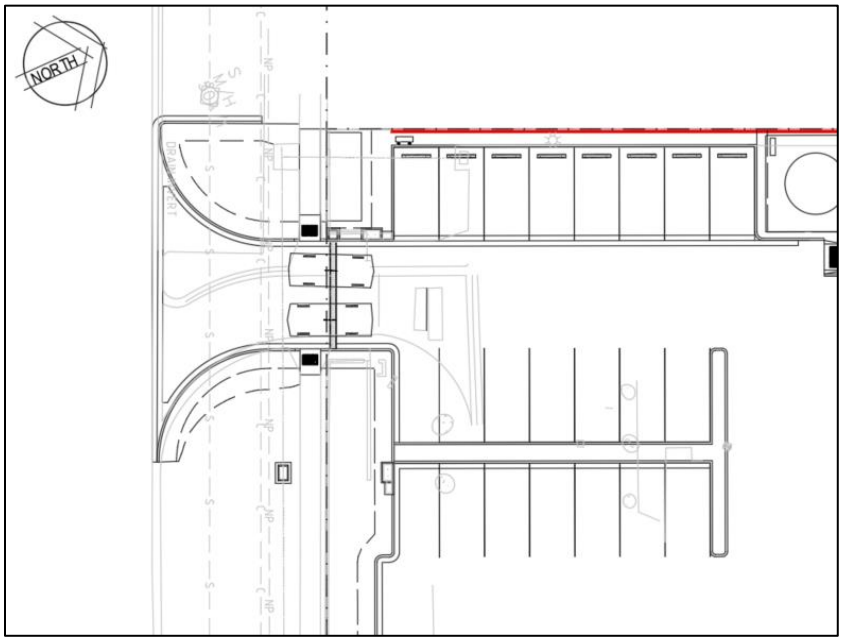
Section 15 of the Central Alice Springs Area Plan focuses on the provision for the medical and health service needs for Alice Springs. Objective 15.2 refers to the provision for the future expansion of the ASH and includes clause iii: '*Locate and consolidate vehicle access, parking and loading areas away from street frontages*'.

The development area proposes to include additional access points on the service road parallel to Gap Road which will achieve this goal.

The existing operation of the development area includes entry and egress points at the ASH Access Road (via Gap Road) and Traeger Road. The development proposes to retain the existing access via the ASH Access Road but will only be used for delivery and service vehicles. All delivery and service vehicles will enter and exit the development area in forward gear.

As illustrated in **Figure 5-8**, the driveway access on Traeger Avenue is sufficiently wide to allow two vehicles to drive in and out of the development area without any conflict.

Figure 5-8 Proposed Access via Traeger Avenue



Source: Hodgkison Site Plan/Carpark layout 95% Issue Updated Version E 07/07/2023

The Central Alice Springs Area Plan section 15.2(v) also notes that '*open, ground level car parking areas to be designed to reduce heat island effects through tree planting and shade structures'*. The Landscaping design completed as part of this project, includes mitigation measures to reduce the heat island effect.

Although not directly related to access points, it is noted that some vehicles are performing U-turning manoeuvres at the Gap Road / Traeger Avenue intersection. (refer to **Section 2.8.1**). On average, 24 vehicles per day were recorded using the traffic island for U-turns. It is recommended to remove the round shaped island and construct a traffic Island with adequate pedestrian crossing as per the RSI finding 15.

Within the minutes from the Council Ordinary Meeting held 26/09/2023, comments were regarding a potential lack of sight distance. Again, this was assessed during the RSI in conjunction with a review of the Austroads Guide to Road Design required sight distance from the access points on Gap Road. As per Austroads, a 73m safe intersection sight distance (SISD) is required for speed environments of 40km/h and 2.0sec reaction time. This sight distance on sight was found to comfortably exceed the requirement with the SISD from the access points on Gap Road shown in **Figure 5-9**.

Figure 5-9 SISD from access points on Gap Road

5.1.2 Pedestrian/ Cyclist Access

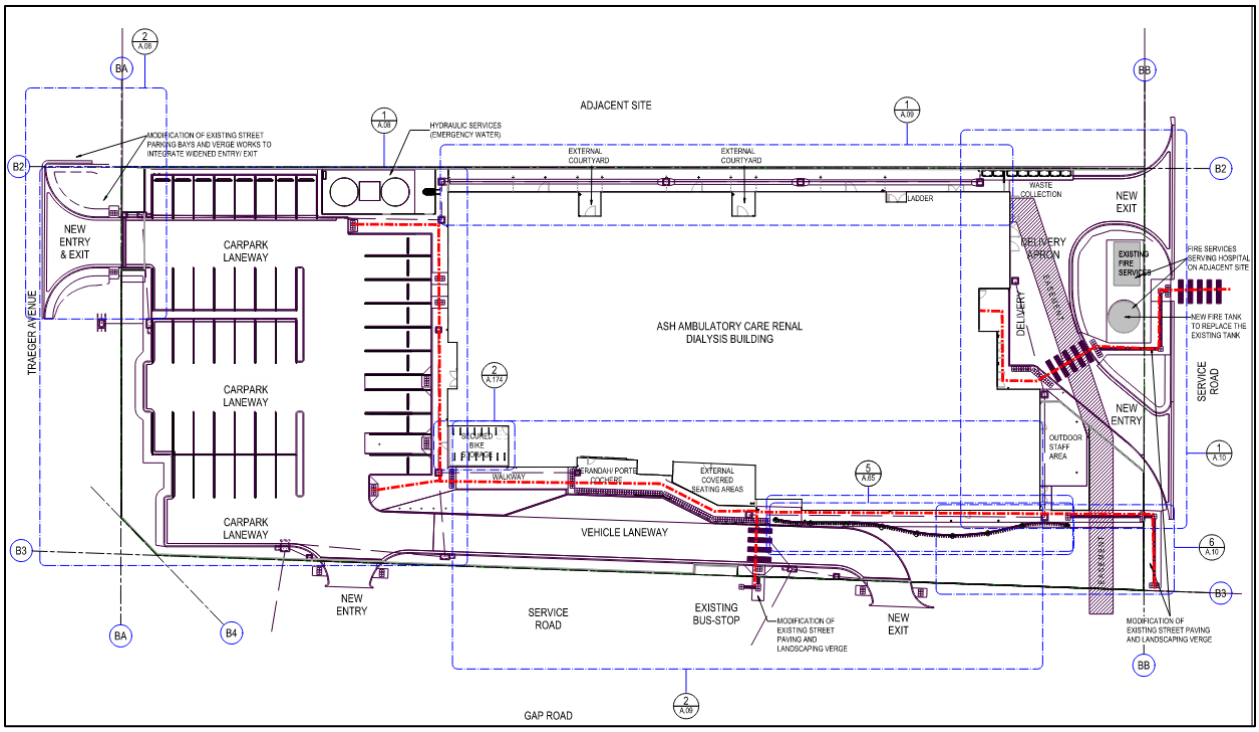
There are three pedestrian accesses proposed to the Renal Dialysis Unit. Two accesses will be provided on the Service Road. The first is adjacent the bus stop and will provide access to the public and staff and it is directly connected to the Active Transport network along Gap Road. The second is adjacent the ASH Access Road / Gap Road intersection. The third pedestrian access is at the existing location crossing the ASH Access Road near the existing fire tanks as shown in **Figure 5-10**.

Internal paths are proposed to be provided to connect the main building accesses with the proposed development access points, the secured bike parking storage, and the parking area. These have been

designed to comply with the requirements of the Disability Discrimination Act in terms of grades and path markings.

The proposed connections aligned with the requirements of the Central Alice Springs Area plan for Acceptable Land Use and Development Response Objective 15.2(iv) which requires to improve the circulation through the provision of street and pedestrian connections through the site to increase permeability to surrounding areas. The proposed access points, connections and internal circulation allow pedestrian and cyclist to access the development through the existing path network within the surrounding area.

Figure 5-10 Pedestrian & Cyclists Access and Circulation

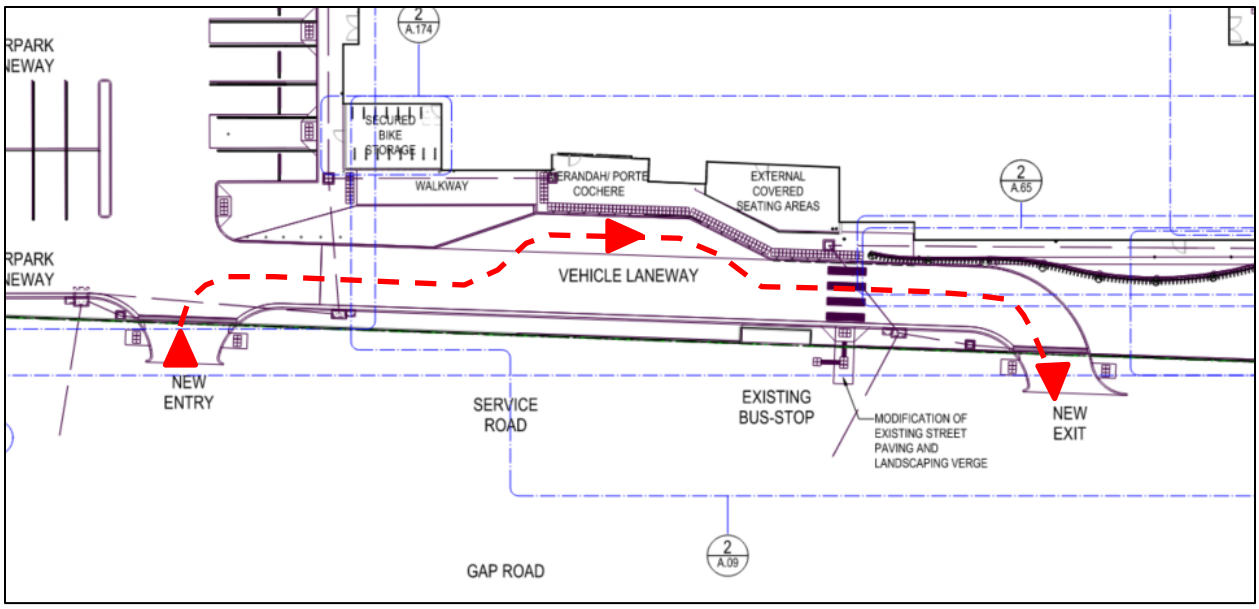


Source: proposed Site Plan. 95% Issue Updated Version F 07/07/2023

5.2 DROP-OFF AREA

The drop-off area and circulation direction are proposed as shown in **Figure 5-11**. This will provide a drop-off area for emergencies, private vehicles, taxis, and occasionally, the minibuses (Toyota HiAce Van 8-seater), as these are proposed to utilise the provided parking bays to drop-off patients.

Figure 5-11 Drop-off Area



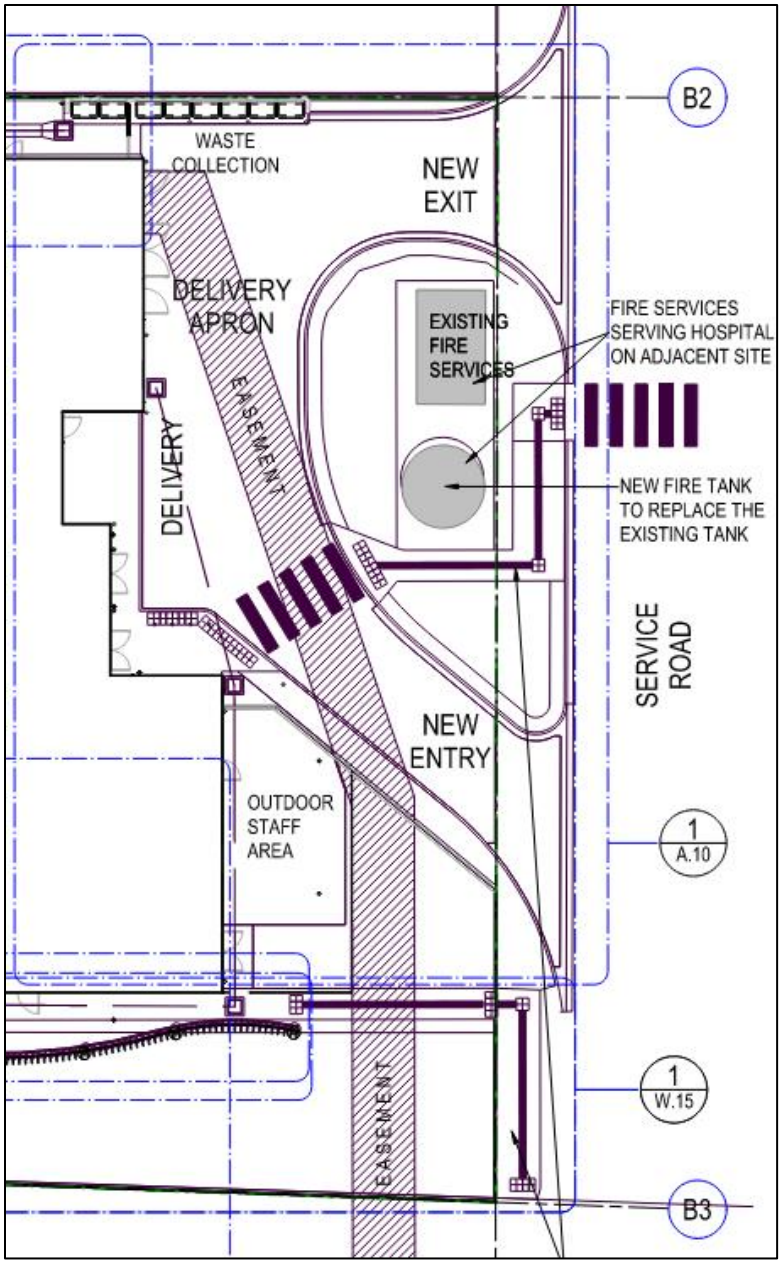
Source: Hodgkison Proposed Site Plan Version F 07/07/2023

5.3 PROVISION FOR SERVICE VEHICLES

Refuse collection and deliveries are expected to occur at the dedicated collection / delivery area located at the northern side of the development, along the ASH Access Road as shown in **Figure 5-12.**

Servicing and delivery vehicles will access the development area through the ASH Access Road, avoiding adverse impacts on the local road network. This road has a speed limit of 5km/h and it is recommended to maintain this restriction but improve some signage as identified within the RSI report.

Figure 5-12 Service and Delivery Area



Source: Hodgkison Proposed Site Plan Version F 07/07/2023

5.4 SWEPT PATH ANALYSIS

Swept path analysis were undertaken for the different vehicle accesses and different vehicle types expected to access the development area including:

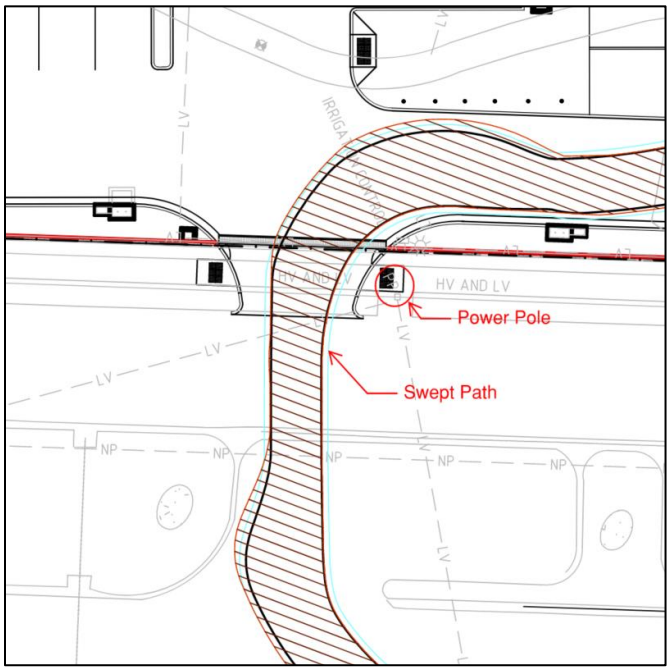
- Ambulance vehicle 6.93m;
- Service vehicle 8.8m;
- Fire truck 8.2m;
- Refuse truck 11.22m; and
- Toyota Hiace Commuter.

Appendix C includes the swept path analysis conducted for the development area.

The analysis shows that the design vehicles can adequately access the area and manoeuvre within the allocated areas without encroachments.

The RSI identified an existing power pole located close to the access point on Gap Road service road. Swept paths conducted show that there is no encroachment to occur between the existing power pole and the proposed access point and vehicles entering the site as shown in **Figure 5-13**.

Figure 5-13 swept path analysis power pole.



5.5 PARKING

5.5.1 Car Parking Requirements and Provision Renal Dialysis Unit

The Northern Territory Planning Scheme 2020 provides the car parking requirements for off-street parking for different land uses. Based on the planning assessment conducted by Masterplan, the development has been assessed as a Medical Clinic with Office Areas. **Table 5-4** summarises the requirements for the study area.

Table 5-4 Minimum Number of Required Parking Bays

Use	Parking requirements	Proposed	Number of bays required	Number of bays provided
Medical clinic	4 for every consulting room	5 Consulting rooms and 1 training/treatment room	24	44
Office	2.5 for every 100m^2 of net floor area	385m^2	10	
Total Hospital			34	44

Source: NT Planning Scheme 2020 Part 5 section 5.2.4(4)

The proposed Renal Dialysis Unit has a capacity for 48 dialysis chairs, 5 consulting rooms, one training/treatment room and includes a total combined office and administration area of 385m2 (197m2 of administration area and 188m2 office area).

The Renal Dialysis Unit provides a total 44 parking bays, with an estimated surplus of 10 bays. Note that 6 out of the 44 parking bays are dedicated for the 6 minibuses (Toyota HiAce 8-seater vans) which have a combined capacity to transport up to 42 patients, reducing the vehicle trips generated by individuals attending the Dialysis Unit.

5.5.1.1 Car Parking Requirements remaining ASH Campus

As per the car parking assessment conducted by Northern Planning Consultants in 2020, the car parking requirements for the existing ASH campus, excluding the proposed Renal Dialysis Unit, is 740 parking spaces as shown in **Figure 5-14**.

Figure 5-14 Required Car Parking without Proposed Development on Lot 8168

Use	Formula per Clause 5.2.4	Number / area (existing)	Car Parking Required
Patient Beds	1 space / 4 beds	381 beds	95.25
Administrative areas	4 / 100m^2	7,828m^2	313.12.32
Medical Clinics	4 per room	61 rooms	244
Other - Motor Repair	6 / 100m^2	190m^2	11.4
Rooming Accommodation	1 for every 5 persons + 1 per staff member	163 rooms	32.6
Other – Education	2 / 100m^2	1,580m^2	31.6
Other – Industry	1 / 100m^2	1,126m^2	11.26
Totals			**739.23**

Source: NPC Parking Study 2020

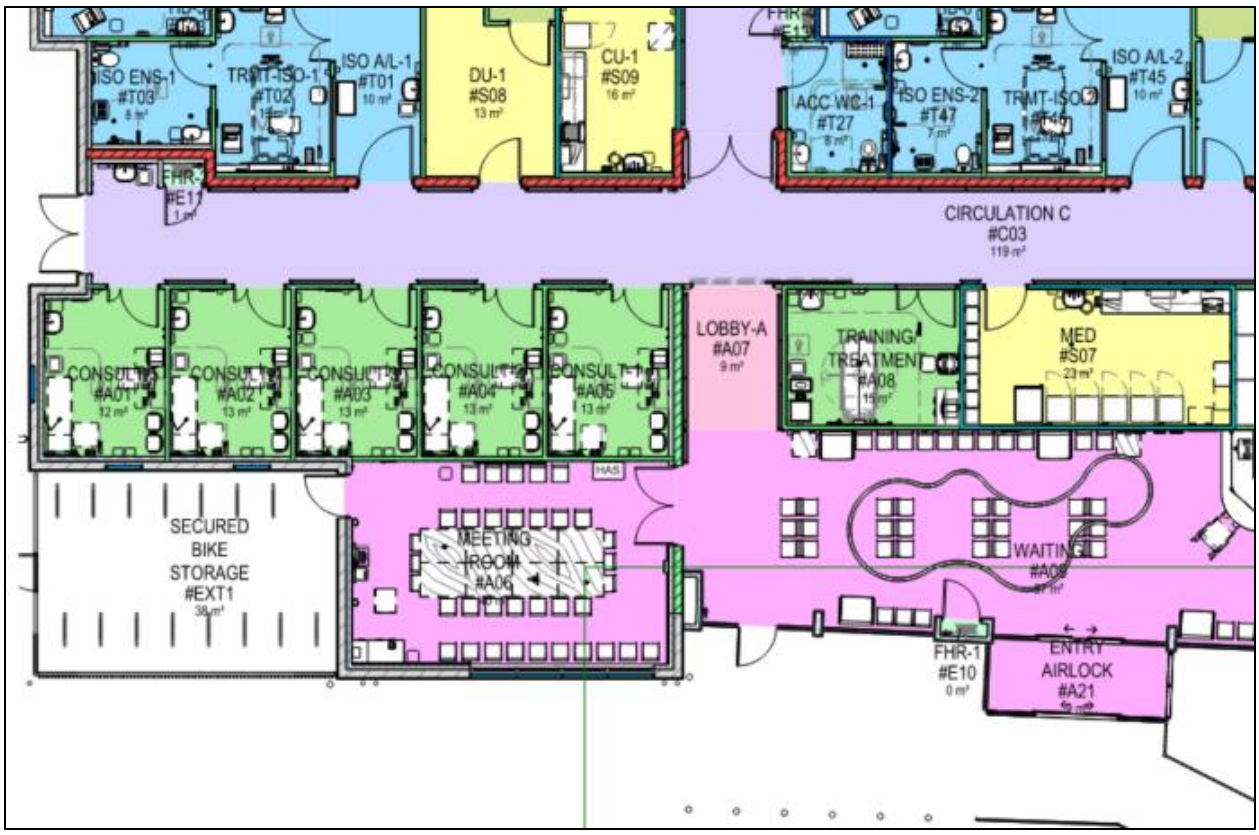
The ASH campus, excluding the area of the proposed Renal Dialysis Unit, currently has a capacity of 814 parking spaces (refer to **Table 2-1)**, sufficient to accommodate the calculated demand of 740 bays as described in the parking assessment by NPC.

In summary, for the whole ASH Campus, the projected parking supply is 858 parking bays; this includes the existing supply of 814 bays and the supply of 44 bays within the proposed Renal Dialysis Unit. As per the parking assessment and the parking requirements calculated in **Table 5-4**, the total requirement for the area is 774 bays; hence the campus will have a surplus of approximately 84 parking bays.

5.5.2 Bicycle Facilities and Parking

The Northern Territory Planning Scheme 2020 does not include requirements for bicycle facilities and parking for Community Purpose areas such as hospitals. Nevertheless, the development provides 38m^2 of secure bike storage located on the south-eastern corner as shown in **Figure 5-15**.

Figure 5-15 Secure Bike Storage Location



Source: Hodgkison Arrangement Plan Version B 19/06/2023

5.5.3 Car parking compliance

The parking bay geometry requirements set forth by AS2890.1 and AS2890.6 for User Class 3 at 90˚ and the corresponding provisions in the proposed development are presented in **Table 5-5** .

The proposed developments off-street carpark is categorised as a Class 3 'full opening, all doors used for hospitals and medical centres'. The aisle width of this category requires for vehicles to perform single manoeuvre for entry and exit which has been designed for.

The car parking area for the proposed development is compliant with the requirements established by Australian Standards.

Table 5-5 Parking Compliance

Parameter	Subcategory	Minimum Requirement (m)	Provided (m)	Remarks
Regular bay Width, m	User Class 3 (90°)	2.6	2.6, 3.0	No Non-conformances identified
Regular bay Length, m	User Class 3 (90°) with wheel stops provided	5.4	5.4, 6.0	No Non-conformances identified
Aisle width, m	User Class 3 (90°) Two-Way	5.8	6.2,7.7	No Non-conformances identified
ACROD bay width, m		2.4	2.6	No Non-conformances identified
ACROD bay length, m		5.4	6.0	No Non-conformances identified
Shared area width, m		2.4	2.6	No Non-conformances identified
Shared area length, m		5.4	6.0	No Non-conformances identified
Blind aisle extension, m		1.0	1.0	No Non-conformances identified

Sources: AS2890.1 (2004), AS2890.6 (2009)

6.0 ANALYSIS OF TRANSPORT NETWORK

6.1 ASSESSMENT YEARS AND TIME PERIOD

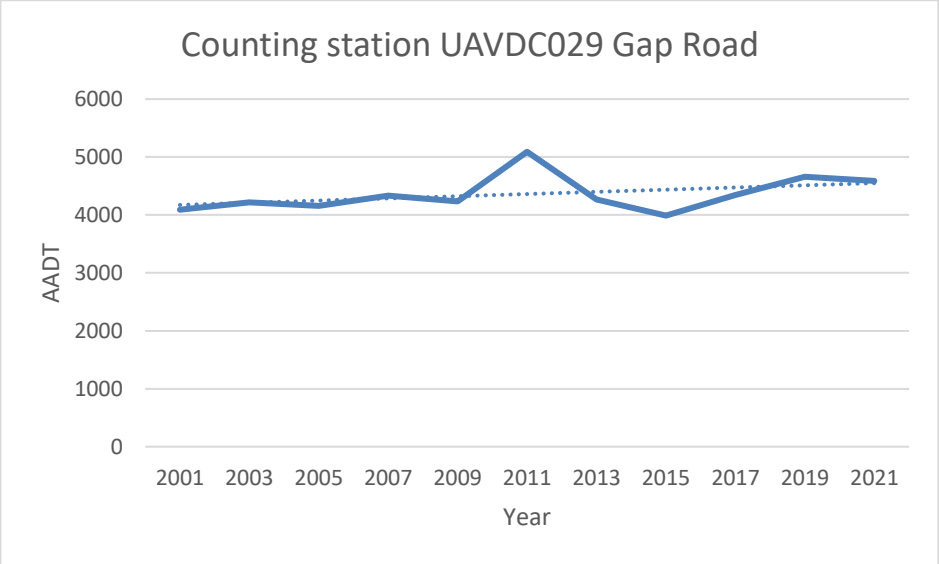
The model scenarios analysed as part of this assessment are:

- Scenario 1 – 2024 - Existing traffic without development;
- Scenario 2 – 2025 – Opening year; and
- Scenario 3 – 2035 – 10-year after development.

6.2 TRAFFIC GROWTH AND ASSUMPTIONS

To determine the traffic growth for the study area, the Average Annual Daily Traffic reported between 2001 and 2021 for the traffic count station UAVDC029 located on Gap Road south of South Terrace was reviewed. This count station reported minor changes in the traffic growth between 2001 and 2009 with a peak in 2011 and a drop until 2015, where it started increasing again until 2021 (refer to **Figure 6-1**). The average annual growth recorded is 0.6% but to keep it within a conservative range, this analysis will set it as 1%.

Figure 6-1 AADT Counting station Gap Road



The following summary is provided with respect to the traffic data:

- Stantec has been advised that the unit will operate from 6:30 to 21:30 Monday to Saturday.

- The development area has a provision of 48 dialysis chairs, 5 consulting rooms and 49 waiting chairs within the reception area. The maximum number of patients that the Renal Dialysis Unit will accommodate at any one time is 53.
- The development is expected to operate with a total of 60 staff members when fully operational. To ensure robust assessment, it was assumed that the 60 staff would arrive in the AM peak and depart in the same PM peak hour, when the staff for the afternoon shift were also assumed to arrive.
- The development makes provision for 6 minibuses for the transport of patients. Each minibus has a capacity of 8 occupants; 7 patients and a driver. It is assumed that each minibus will transport 4-5 patients at a time.
- Minibus drop-offs will start at 6:30am and finish not later than 10:00pm.
    - The drop-offs are anticipated to occur every 15-30 minutes in the morning and every 45-60min in the afternoon when the minibuses are transporting the patients home.
- It is estimated that 10% of the patients will use public transport;
- It is estimated that remaining patients will use private transport.
- Staff arrival time:
    - Morning shift times will commence for various functions at 6:00am, 6:30am, 7:00am and 8:00am.
    - The afternoon shifts will commence at 12:30pm.

6.3 DEVELOPMENT TRIP GENERATION

The trip generation for the development has been calculated on a first-principles basis from the above information. A summary of the resulting trip volumes is provided in **Table 6-1** for the AM and PM peaks.

Traffic generated by the development is expected to be mainly composed of light vehicles. It is noted these numbers are relevant to the operation of the Renal Dialysis Unit only and do not consider any impacts of motorists using the facility to park while accessing other areas of the hospital site. While noting this, given the location of the parking within the development being on the opposite side of the building to the remainder of the ASH campus, there are significantly closer parking options available and so it is not believed the developments parking will be used by those accessing other parts of the hospital.

Table 6-1 Development Trip Generation.

Period	Staff		Minibuses		Private vehicles		Total	
	In	Out	In	Out	In	Out	**In**	**Out**
AM Peak	60	0	24	24	18	18	**102**	**42**
PM Peak	60	60	12	12	18	18	**90**	**90**

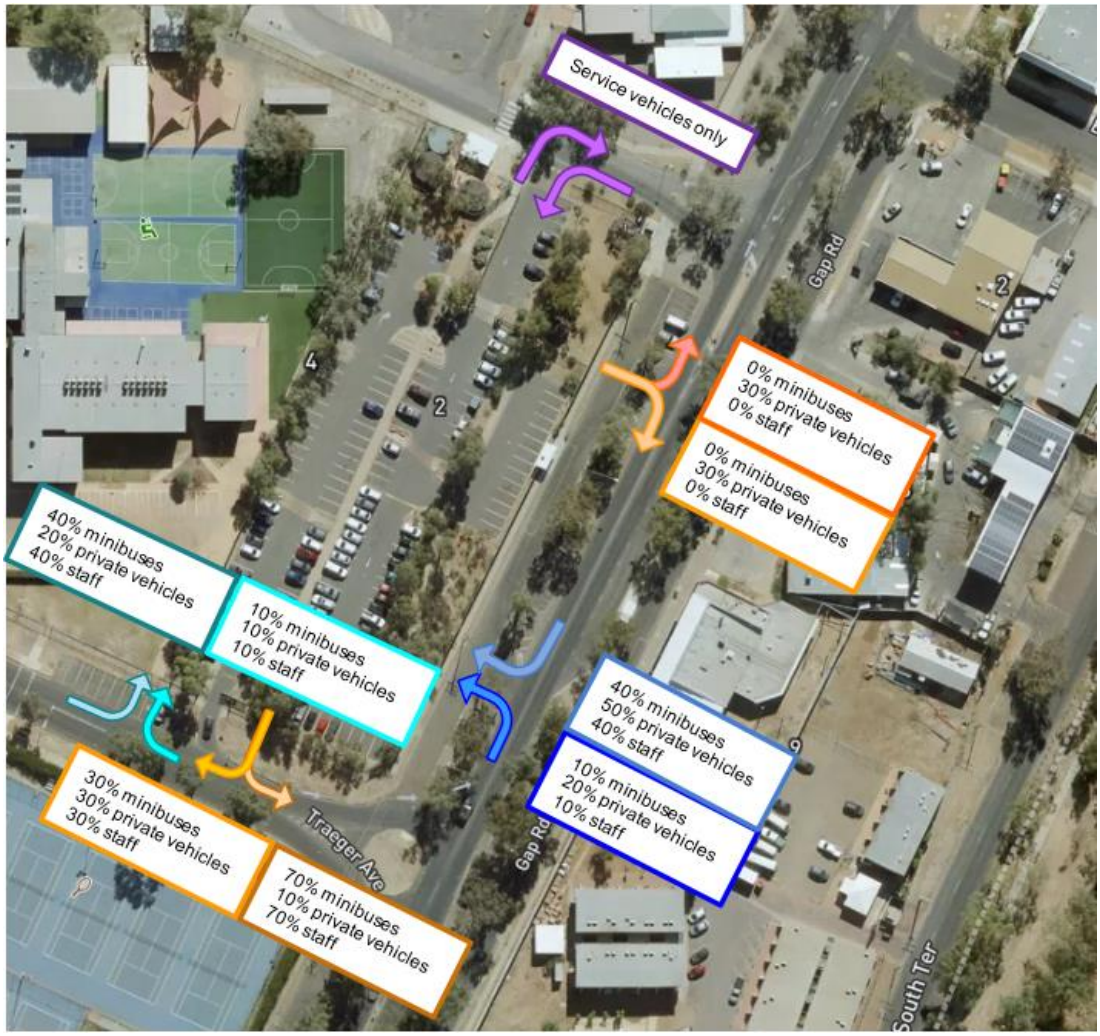
6.4 DEVELOPMENT TRAFFIC DISTRIBUTION

The estimated traffic distribution is detailed in **Figure 6-2.** The traffic distribution has been individually assessed for the traffic expected to access the area, including minibuses, private vehicles, staff, and service vehicles.

50% of the minibuses, 70% of the private vehicles, and 50% of the staff are estimated to access the proposed development via Gap Road (service road), while 30% of the private vehicles are estimated to exit via Gap Road (service road). The remaining traffic is assumed to use the access located on Traeger Avenue.

Service vehicles will access the development area through the Hospital Access Road. No private vehicles will access the Renal Dialysis Unit through this road.

Figure 6-2 Assumed Traffic Distribution



Due to the high level of accessibility and relatively low level of additional traffic generated as a result of proposed development, the net impact from the development is considered minimal and is expected to have a negligible impact on the adjacent transport network.

6.5 INTERSECTION PERFORMANCE

Analysis of the traffic impacts of the proposed development has been conducted at the following intersections and access points for all scenarios:

- Hospital Access Road / Car park access
- Gap Road / Hospital Access Road
- Gap Road / service road exit
- Gap Road / service road access
- Traeger Avenue / Gap Road intersection;
- Traeger Avenue / Car park access;

The identified intersections have been analysed using the SIDRA analysis program for the current scenario 2024 without development and future years 2025-opening year and 2035. This program calculates the performance of intersections based on input parameters, including geometry and traffic volumes. As an output, SIDRA provides values for the Degree of Saturation (DOS), queue lengths, delays, level of service, and 95th Percentile Queue. These parameters are defined as follows:

- Degree of Saturation (DOS): is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The theoretical intersection capacity is exceeded for an un-signalized intersection where DOS > 0.80;
- 95% Queue: is the statistical estimate of the queue length up to or below which 95% of all observed queues would be expected;
- Average Delay: is the average of all travel time delays for vehicles through the intersection. An unsignalised intersection can be considered to be operating at capacity where the average delay exceeds 40 seconds for any movement; and
- Level of Service (LOS): is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. The different levels of service can generally be described as shown in **Table 6-2**.

Table 6-2 Level of Service (LOS) Performance Criteria.

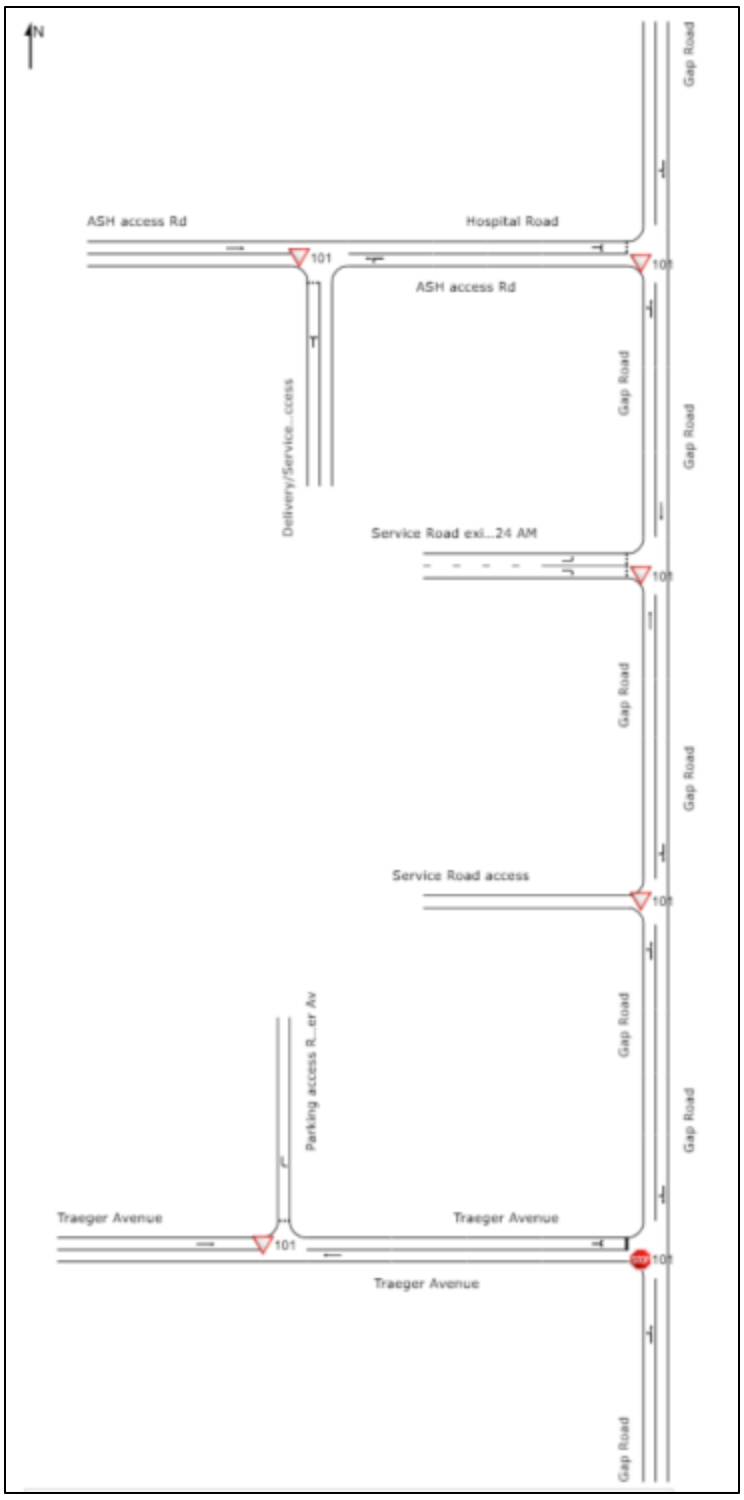
LOS	Description	Unsignalised Intersection
A	Free-flow operations (best condition)	≤10 sec
B	Reasonable free-flow operations	10-15 sec
C	At or near free-flow operations	15-25 sec
D	Decreasing free-flow levels	25-35 sec
E	Operations at capacity	35-50 sec
F	A breakdown in vehicular flow (worst condition)	≥50 sec

A LOS exceeding these values indicates that the road section is exceeding its practical capacity. Above these values, users of the intersection are likely to experience unsatisfactory queueing and delays during the peak hour periods and potentially at other times.

6.6 SIDRA ANALYSIS RESULTS

Figure 6-3 presents the layout of the analysed intersections for the existing year 2024 and future scenarios 2025 and 2035.

Figure 6-3 SIDRA Layout.



6.6.1 2024- Existing

The results for the AM scenario, show that the network is currently operating at Level of Service (LoS) A for all roads except for the right turn from Traeger Avenue into Gap Road which is currently operating under LoS B with a degree of saturation of 0.24 and an average delay of 10 seconds.

For the PM results, all approaches are currently operating at LoS A. The maximum degree of saturation is 0.24 and average delay of 9.2 seconds for the right turn at Traeger Avenue into Gap Road

The SIDRA results for the individual intersections is presented in Appendix D section **D1** for the AM peak and section **D2** for the PM peak

6.6.2 2025- Opening year

The SIDRA results for the opening year show that the network continues operating well within acceptable conditions. All the approaches operate at LoS A for both peak periods, with the exception of the right turn from Traeger Avenue into Gap Road which operates under LoS B for the PM peak with DoS of 0.267 and delays of 10.2 seconds.

The SIDRA results for the individual intersections is presented in Appendix D section **D3** for the AM peak and section **D4** for the PM peak

6.6.3 2035- 10-year scenario

The SIDRA results for the year 2035 10-year scenario continue to show acceptable network conditions for the AM and PM peaks**.** The LoS remain as A for most approaches and B for the right turn from Traeger Avenue into Gap Road which presents a DoS of 0.298 and delays up to 11.0 seconds.

The SIDRA results for the individual intersections is presented in Appendix D section **D5** for the AM peak and section **D6** for the PM peak

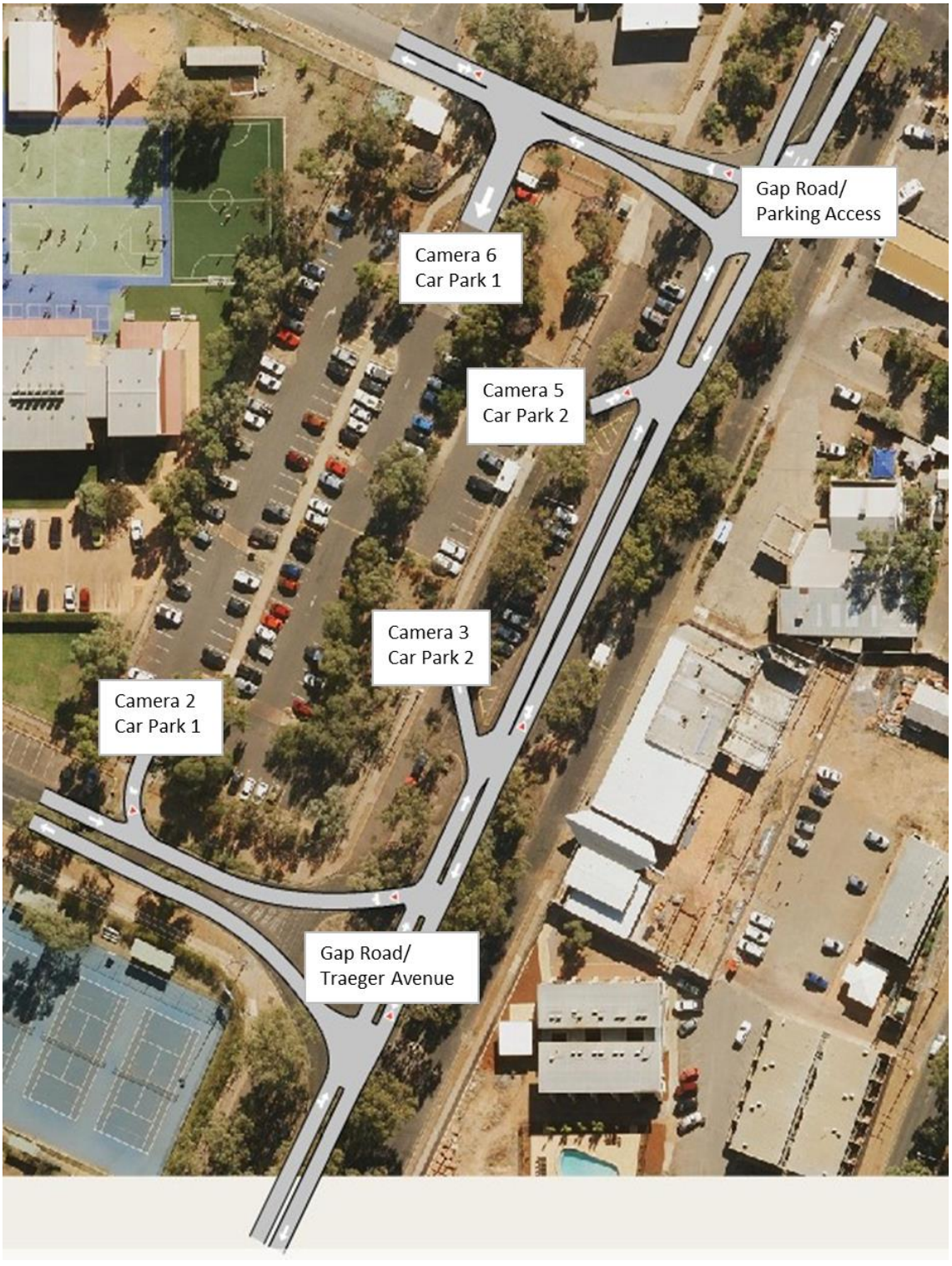
6.7 AIMSUN ANALYSIS

6.7.1 Overview

To assess the proposed development in an Aimsun microsimulation model, a base model was developed in accordance with the Main Roads Western Australia (MRWA) Operational Modelling Guidelines utilising the traffic counts detailed in **Section 2.8** for calibration. The 2025 (opening year) and 2035 (+10 years opening year) scenarios were then built upon this base model utilising the background traffic growth and trip generation outputs detailed in **Section 6.2** and **Section 6.3** respectively.

The model study area with survey locations included for reference is presented in **Figure 6-4**.

Figure 6-4 Study Area and Survey Locations



6.7.2 Base Model Development

6.7.2.1 Software

The model has been developed using Aimsun Next version 22.0.2, Python 3.

6.7.2.2 Time Period

A one-hour peak period has been modelled as part of this study for both the weekday AM and PM peak periods with 15-minute warm-up and cool-down periods on either side of the peak periods created by profiling the peak period demands. **Table 6-3** lists the modelled peak times, noting that for the model calibration the Wednesday 17th AM Peak, and the Thursday 18th PM Peak were selected due to slightly higher demands.

Table 6-3 Modelled time periods

Peak	Warm-up Period	Model Peak Periods	Cool-down Period
AM Peak	7:30am-7:45am	7:45am-8:45am	8:45am-9:00am
PM Peak	2:15pm-2:30pm	2:30pm-3:30pm	3:30pm-3:45pm

6.7.2.3 Vehicle Types

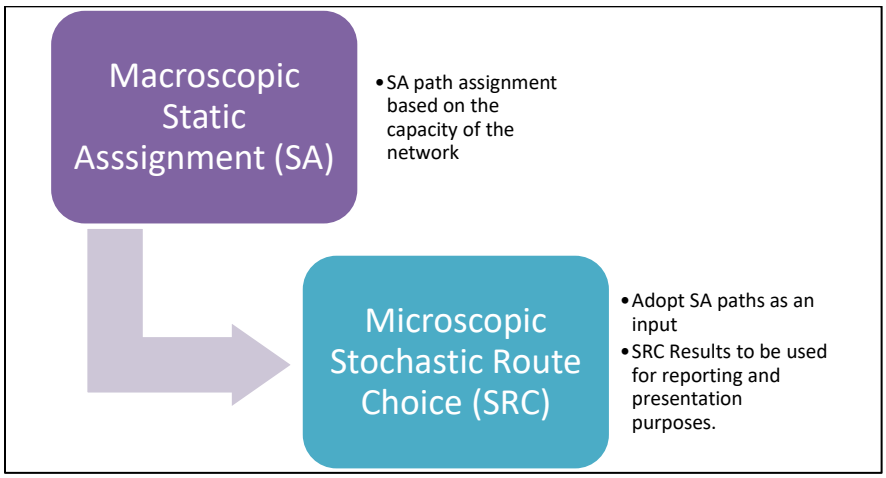
The vehicle types were split for light vehicles, heavy vehicles and buses per the turning movement count surveys conducted. Default settings within Aimsun were applied to for each vehicle type.

For the development traffic, mini-buses have been applied to the model. For this case default ‘bus’ settings within Aimsun have been applied; however, the vehicle length has been reduced from 12m to 8m.

6.7.2.4 Assignment Type

Two assignment types within the Aimsun software package were adopted to inform and develop the base year model. The macroscopic static and microscopic stochastic route choice assignment types are discussed in the following sections to indicate their purpose in the modelling assessment. **Figure 6-5** illustrates the traffic assignment process that was adopted for this study.

Figure 6-5 Traffic Assignment Process



Macroscopic Static Assignment

Prior to running the microscopic Stochastic Route Choice (SRC) experiment, a macroscopic static assignment experiment was run to generate an initial path assignment file (APA file). This provided a suitable starting point to determine the available paths from which the vehicles in the microscopic SRC scenarios will follow.

Microscopic Stochastic Route Choice (SRC)

The microscopic SRC traffic assignment within the Aimsun model considers detailed operational effects within the study area. The reported calibration and validation statistics and outcomes have been based on microscopic simulation.

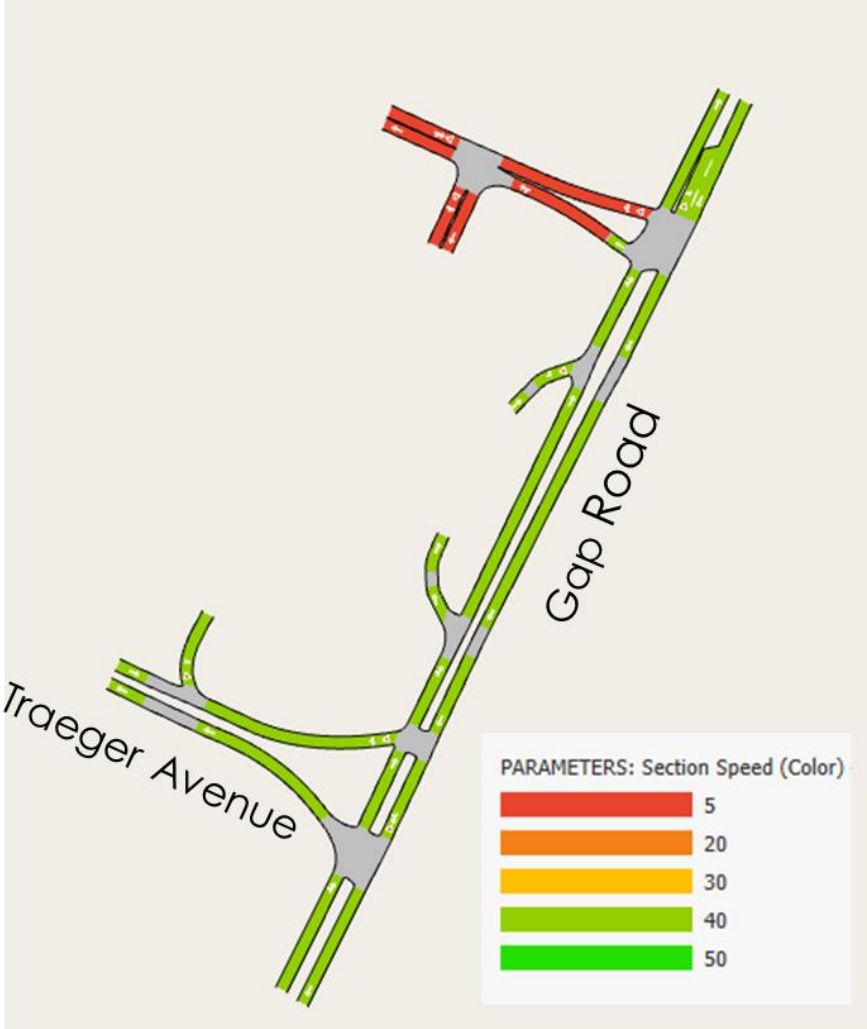
During the model development process, the following process was undertaken to ensure that the demands were suitable for each peak period simulations:

- Each SRC assignment was assessed in terms of relative gap, regression slope, number of vehicles waiting to enter, number of vehicles in the network and the number of vehicles that went through.
- Validity of the SRC paths were assessed to ensure unrealistic paths were not being assigned between any origin-destination (OD) pairs.
- Should the results of the SRC assignment not be satisfactory, a review of some key parameters was undertaken after each run to better calibrate the model. This included local and global parameters such as:
    - Look-ahead distances for turn movements to ensure vehicles remained in the correct lane as observed on-site
    - Gap acceptance parameters and advanced priority settings for priority-controlled intersections to ensure correct behaviour at intersections
    - Reaction times to better match queuing and throughput observed on-site.

6.7.2.5 Speed Profiles

Typical speed limits of 40km/h are used along Gap Road and Traeger Avenue within the study area. The Hospital internal roads are modelled as 5km/h based on the sign posted speed limits. The modelled speed limits are illustrated in **Figure 6-6.**

Figure 6-6 Modelled Speed Limits



6.7.2.6 Public Transport

The bus network has been coded in based on the existing bus timetable. Bus route 300, 301 and 500 are shown to operate within the peak periods passing through the study area, with bus stops located on Gap Road northbound and southbound.

6.7.2.7 Traffic Profile

The profiling of the hourly traffic demand matrices has been applied to each vehicle type in 15-minute intervals based on the traffic volume data.

The resultant traffic demand (total vehicles) profiles across the model network for the AM and PM peak periods are presented in **Figure 6-7** and **Figure 6-8** respectively.

Figure 6-7 AM Peak Traffic Profile

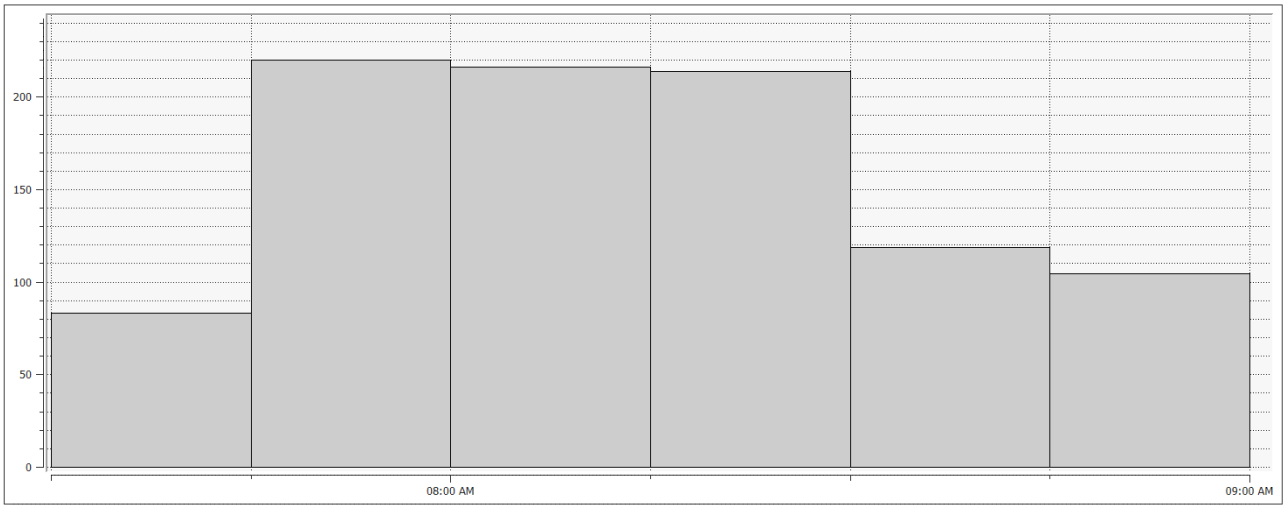
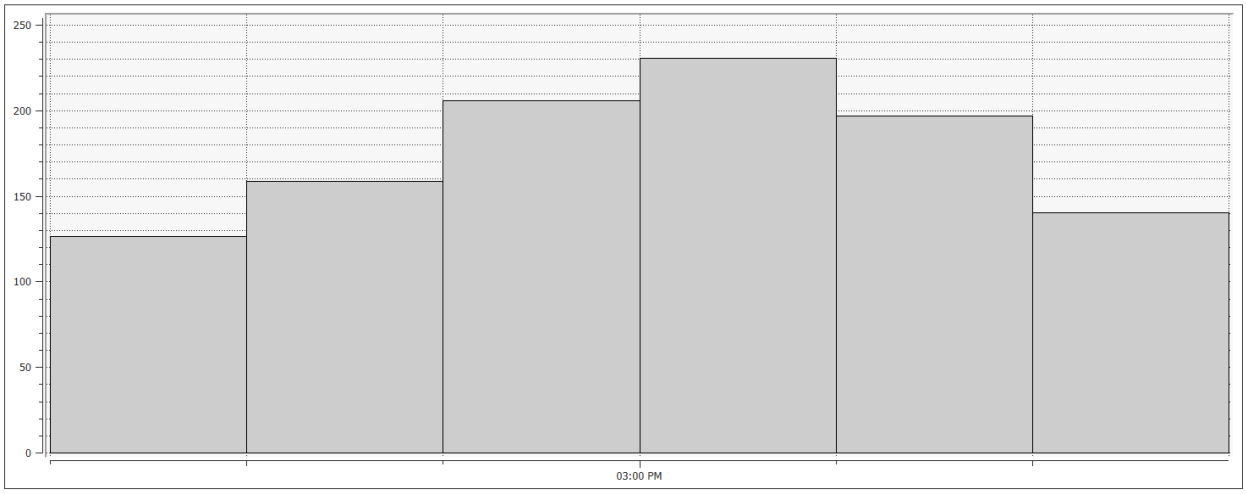


Figure 6-8 PM Peak Traffic Profile



6.7.2.8 Calibration and Validation Targets

The base year Aimsun model was calibrated in accordance with the criteria set out in the MRWA Operational Modelling Guidelines. The guidelines have a detailed and comprehensive set of calibration criteria. **Table 6-4** outlines the key criteria to be met.

Table 6-4 Calibration Criteria

Item	Criteria
Turn Volumes	***Network wide tolerance limits for turn/link volumes:*** • GEH ≤ 5 for at least 85% of link flows • GEH ≤ 5 for at least 85% of turn flows • All Link and turn flows should have GEH ≤ 10 • R^2 value for Observed vs. Modelled plots to be >0.9

GEH- *The GEH Statistic is a formula used in traffic engineering, traffic forecasting, and traffic modelling to compare two sets of traffic volumes.*

$$GEH = \sqrt{\frac{2(M-C)^2}{M+C}}$$

Where M is the hourly traffic volume from the traffic model (or new count) and C is the real-world hourly traffic count (or the old count)

6.7.2.9 Model Stability

Overview

As simulation models are stochastic, they can produce different outcomes depending on their starting conditions. Due to this stochastic behaviour, it is necessary to assess how the model behaves under a variety of starting conditions (referred as seeds) using the same input parameters. The ability of a model to produce consistent results for a number of seed values is referred as the model stability, which has been assessed in this section of the report.

For the microsimulation scenarios, the approach to calibration and validation of the base model is to simulate the models for five seed values. The median seed value from the five seed runs is determined based on the vehicle hours travelled (VHT), or total travel time network statistic from the five seeds and used to present the calibration a results in accordance with the MRWA Modelling Guidelines. The following sections present the stability analysis of the following five seeds:

- Seed Number 1: 560
- Seed Number 2: 28
- Seed Number 3: 7,771
- Seed Number 4: 86,524

- Seed Number 5: 2,849

Microsimulation Stability Test

The results of the stability test for the microsimulation scenarios are illustrated in **Figure 6-9** and **Figure 6-10**. These are scatter plots for the VHT in each of the model seed runs for the AM and PM peaks, respectively. This is followed by descriptive statistical results for each of the peaks in **Table 6-5**.

Figure 6-9 AM Peak 5 Seed Stability Test

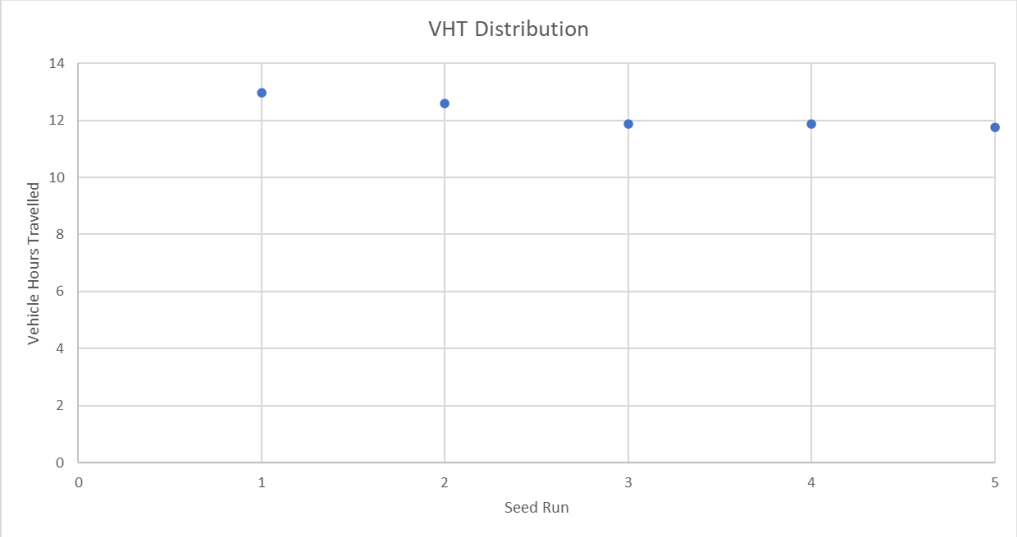


Figure 6-10 PM Peak 5 Seed Stability Test

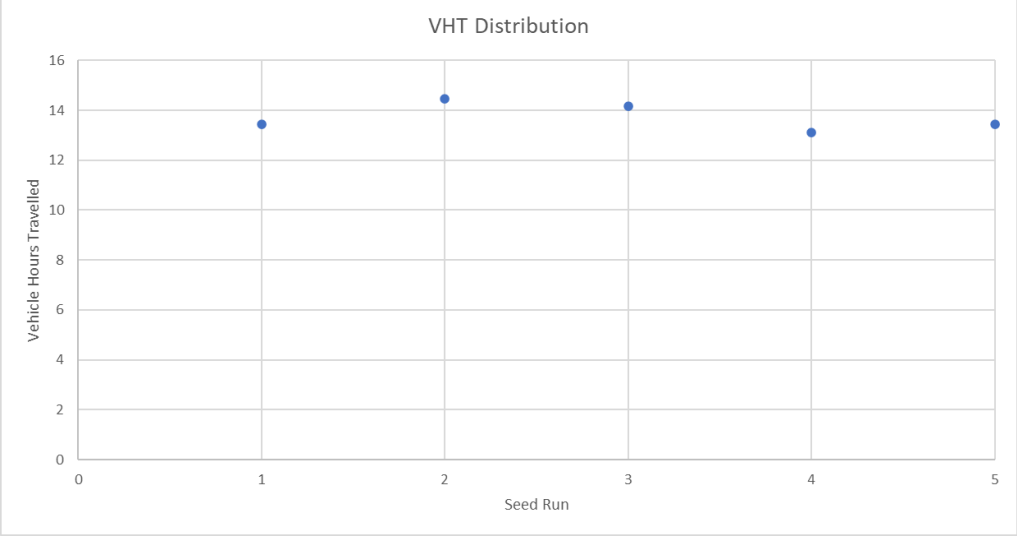


Table 6-5 Stability Statistical Results

Statistic	Results	
	AM Peak	PM Peak
Number of Runs	5	5
Mean	12	14
Standard Deviation	0.54	0.57
Range	1.2	1.4
Minimum	11.8	13.1
Maximum	13.0	14.5
95% Confidence Limit	0.6	0.7
Lower Confidence Limit	12	14
Upper Confidence Limit	13	13
Median	13	13

The results of the model stability analysis for both AM and PM peak periods illustrate minor variations in the VHT results without large shifts in value which is in line with a typical variation in day-to-day traffic volumes.

Median Seed for Calibration and Validation

The above results have demonstrated the stable conditions of the model in each peak period with varying seed runs. The identified median seed number for the microsimulation models is **86,524** for the AM peak and **560** for the PM peak. As such the following calibration and validation results have been based on the nominated median seed run value for the respective peak.

6.7.2.10 Calibration Results

Network wide traffic volume calibration

The network wide traffic volume calibration results presented in this section refers to all turn counts within the model study area. A total of 345 link counts within the network were utilised for each peak hour in the calibration process. The observed data used for calibrating the 26 turns comprise of the recorded data outlined in **Section 2.8.**

Table 6-6 Calibration Results

Criteria	Target	Class	AM Peak	PM Peak
			7:45am-8:45am	**2:30pm-3:30pm**
Individual Turn Counts GEH ≤ 5	>85%	LV	100%	100%
		HV	100%	100%
		Total	**100%**	**100%**
Individual Turn Counts GEH ≤ 10	100%	LV	100%	100%
		HV	100%	100%
		Total	**100%**	**100%**

The network wide calibration results indicate that the model achieves a high level of correlation to the observed traffic volumes with GEH ≤ 5 achieved for a 100% in both peak periods for each vehicle type.

In addition to the above, a modelled versus observed traffic volume comparison has been undertaken in the form of a R^2 and scatter plot analysis for each of the peak hours. It is typically recommended that an R^2 value greater than 0.95 be achieved before a model is considered to be calibrated appropriately for the network**. Figure 6-11** and **Figure 6-12** demonstrate an R^2 value exceeding 0.95 for the AM and PM peaks respectively.

Figure 6-11 AM Peak R^2 Turn Plot (All Vehicles)

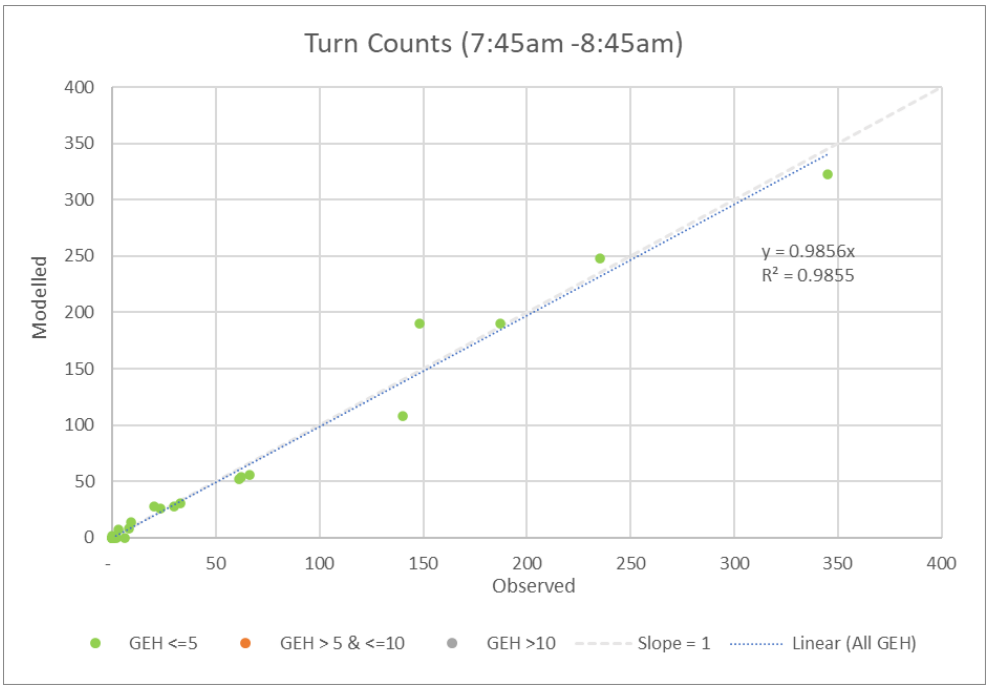
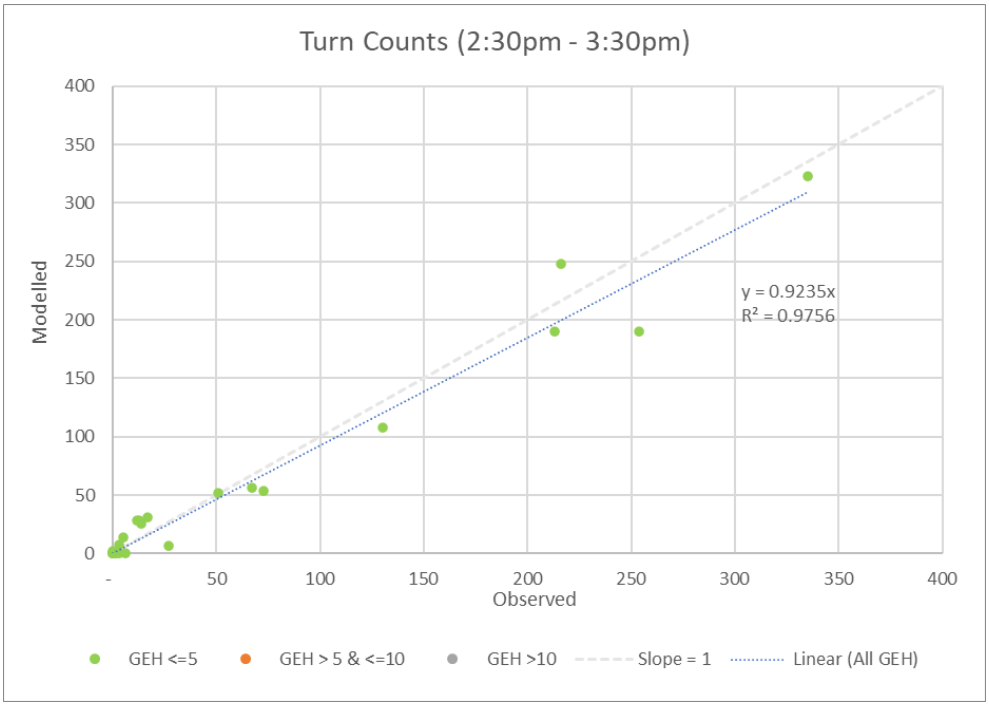


Figure 6-12 PM Peak R^2 Turn Plot (All Vehicles)

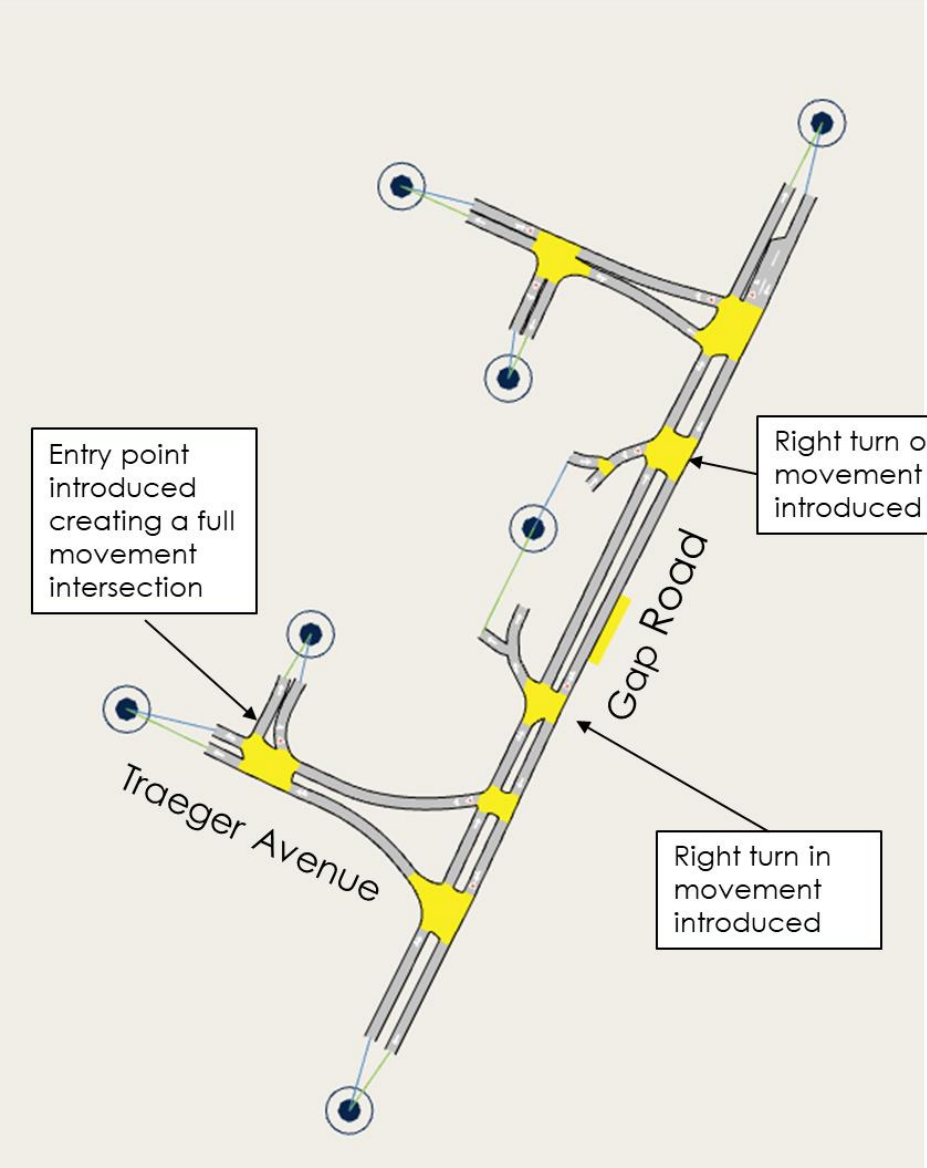


6.7.3 Future Model Development

6.7.3.1 Future Network

The future network with the proposed development is presented in **Figure 6-13.**

Figure 6-13 Future Network



6.7.3.2 Future Year Demand

The future year demands for the 2025 and 2035 scenarios incorporate two sets of demands.

1. **Background traffic:** The background traffic growth has been developed in accordance with Section 6.2 of this report, with a 1% growth per annum applied to all external-to-external trips within the modelled network.

2. **Development traffic:** The development traffic has been developed in accordance with **Section 6.3** and **Section 6.4** of this report. With the development trip generation assigned to the model zones per the trip distribution as classified by vehicle class. It is noted that the existing trips associated with the car park have been removed with the development traffic superseding the previous land use.

6.7.3.3 Results Metrics

Overview

The results presented in the Aimsun analysis include the following:

1. Network Statistics

1. Network Speed Plots

2. Intersection Level of Service Results

All scenarios have been run with the median seed as per the base model setup.

Network Statistics

The following network performance statistics have been included:

- **Vehicle Kilometres Travelled** – VKT (km) – total travelled distance of all vehicles during the simulation period.
- **Vehicle Hours Travelled** – VHT (h) – total travel time of all vehicles during the simulation period.
- **Average Speed** (km/h) – average speed of all vehicles during the simulation period.
- **Delay** (sec/km) – average delay of all vehicles during simulation period per unit distance.
- **Vehicles Outside** (vehicles) – completed vehicles trips.
- **Average Journey Time** (s) – average journey time of completed vehicle trips within study area (VHT/completed trips).
- **Total Traffic Demand** (vehicles) – all vehicle trip demands for peak period.
- **Latent Demand** (vehicles) – represents unreleased demand into the network at the end of the simulation period.

Network Average Speed Plots

Average speed plots for the peak half hour in each peak have been illustrated to visualise the general network operation. These are useful in understanding the propagation of queues and delays that are expected on the road network, as well as identifying areas that may experience high levels of congestion.

It is noted that the plots reflect the average speed (in km/h) of all road sections across the reported peak hour and based on the colour scale outlined in **Table 6.7**.

Table 6.7: Average Speed Classification

Colour	Average Speed (km/h)
	0km/h to 10km/h
	10km/h to 20km/h
	20km/h to 30km/h
	30km/h to 40km/h
	40km/h to 50km/h

Intersection Performance

The intersection Level of Service (LOS) for key signalised intersections have been extracted from the models for the peak hours. The LOS is based on the average delay for the intersection as per **Table 6.8** below.

Table 6.8: Intersection LOS Classification

LOS Level	Average Delay (seconds)	
	From	To
A	0	14
B	15	28
C	29	42
D	43	56
E	57	70
F	70	-

6.7.4 2025 Opening Year Assessment

6.7.4.1 Network Statistics

The key network performance metrics have been summarised in **Table 6.9** below for the AM and PM peak hours, noting comparison to the 2024 Base scenario results.

Table 6.9: Network Performance Results

Metric	AM Peak		PM Peak	
	2024 Base	2025 Opening Year	2024 Base	2025 Opening Year
Total Travelled Distance (km)	156	174	183	191
Total Travel Time (h)	5	5	5	5
Speed – All (km/h)	37.2	37.7	39.3	38.2
Average Delay (s)	10	12	8	12
Completed Trips (veh)	715	840	797	922
Average Journey Time (s)	24	22	23	21
Vehicles Waiting to Enter - All (veh)	0	0	0	0

The network performance results indicate the following:

- AM Peak:
    - The network average speed is shown to be consistent in 2025 (37.7 km/h) compared to the Base scenario (37.2 km/h).
    - An additional 125 trips have been completed through the network with negligible change in performance.
- PM Peak:
    - The network average speed is shown to be consistent in 2025 (39.3 km/h) compared to the Base scenario (38.2 km/h).
    - An additional 125 trips have been completed through the network with negligible change in performance.

6.7.4.2 Network Average Speed Plots

The network average speed plots are presented in **Figure 6-14** and **Figure 6-15** for the AM and PM peaks respectively.

Figure 6-14 AM Network Average Speed Plot

Figure 6-15 PM Network Average Speed Plot

The network average speed plots indicate the following:

- AM Peak:
    - A slight reduction in average speed is recorded on the Traeger Avenue approach to Gap Road (-2km/h) with additional traffic access the intersection.
    - A slight reduction in average speed is recorded on the Gap Road southbound (-4km/h) due to the introduction of the right turn into the development requiring vehicles to slow down.
- PM Peak:
    - A slight reduction in average speed is recorded on the Traeger Avenue approach to Gap Road (-4km/h) with additional traffic access the intersection.
    - A slight reduction in average speed is recorded on the Gap Road southbound (-4km/h) due to the introduction of the right turn into the development requiring vehicles to slow down.

6.7.4.3 Intersection Level of Service

The intersection Level of Service results are presented in **Table 6.10**.

Table 6.10: Intersection Level of Service Results

Level of Service			AM Peak				PM Peak			
Intersection	Approach	Movement	2024 Base		2025 Opening Year		2024 Base		2025 Opening Year	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Gap Road / Traeger Avenue	North	Through	14.3	B	14.4	B	13.8	A	14.8	B
		Right	19.7	B	21.0	B	18.7	B	20.0	B
		Total	**15.8**	**B**	**16.2**	**B**	**15.0**	**B**	**16.1**	**B**
	South	Left	9.1	A	9.2	A	9.3	A	9.1	A
		Through	7.6	A	7.6	A	7.5	A	7.5	A
		Total	**7.9**	**A**	**7.9**	**A**	**7.8**	**A**	**7.9**	**A**
	West	Left	10.2	A	10.7	A	9.2	A	9.5	A
		Right	17.5	B	17.6	B	16.8	B	16.7	B
		Total	**12.7**	**A**	**13.0**	**A**	**11.3**	**A**	**11.5**	**A**
Gap Road / Hospital Access	North	Through	5.8	A	5.8	A	5.7	A	5.8	A
		Right	16.3	B	16.3	B	18.5	B	14.4	B
		Total	**7.0**	**A**	**6.4**	**A**	**6.1**	**A**	**6.0**	**A**
	South	Left	15.1	B	16.2	B	15.8	B	14.8	B
		Through	5.9	A	5.9	A	5.8	A	5.8	A
		Total	**6.6**	**A**	**6.2**	**A**	**6.3**	**A**	**6.1**	**A**
	West	Left	33.9	C	33.2	C	35.0	C	34.2	C
		Right	0	A	0	A	25.8	B	28.4	C
		Total	**33.9**	**C**	**33.2**	**C**	**31.9**	**C**	**32.7**	**C**
Car Park Access (Gap Road) - Ingress	**North**	**Right**	-	-	11.4	A	-	-	12.4	A
	South	**Left**	-	-	3.3	A	-	-	3.4	A
Car Park Access (Gap Road) - Egress	**West**	**Left**	0	A	6.9	A	0	A	2.9	A
		Right	-	-	18.8	B	-	-	11.2	A
Car Park Access (Traeger Avenue)	North	**Left**	4.7	A	14.8	B	11.2	A	11.0	A
		Right	-	-	4.6	A	-	-	6.1	A
	East	**Right**	-	-	6.7	A	-	-	4.7	A
	West	**Left**	-	-	2.7	A	-	-	2.7	A

The intersection results demonstrate that across both the AM and PM peaks all movements experience a level of service between A or C.

6.7.5 2035 +10 Opening Year Assessment

6.7.5.1 Network Statistics

The key network performance metrics have been summarised in **Table 6.9** below for the AM and PM peak hours, noting comparison to the 2024 Base scenario results.

Table 6.11: Network Performance Results

Metric	AM Peak		PM Peak	
	2024 Base	2035 +10 Opening Year	2024 Base	2035 +10 Opening Year
Total Travelled Distance (km)	156	187	183	210
Total Travel Time (h)	5	5	5	6
Speed – All (km/h)	37.2	38.2	39.3	38.4
Average Delay (s)	10	12	8	12
Completed Trips (veh)	715	891	797	997
Average Journey Time (s)	24	21	23	21
Vehicles Waiting to Enter - All (veh)	0	0	0	0

The network performance results indicate the following:

- AM Peak:
    - The network average speed is shown to be consistent in 2025 (38.2 km/h) compared to the Base scenario (37.2 km/h).
    - An additional 176 trips have been completed through the network with negligible change in performance.
- PM Peak:
    - The network average speed is shown to be consistent in 2025 (39.3 km/h) compared to the Base scenario (38.2 km/h).
    - An additional 200 trips have been completed through the network with negligible change in performance.

6.7.5.2 Network Average Speed Plots

The network average speed plots are presented in **Figure 6-14** and **Figure 6-15** for the AM and PM peaks respectively.

Figure 6-16 AM Network Average Speed Plot

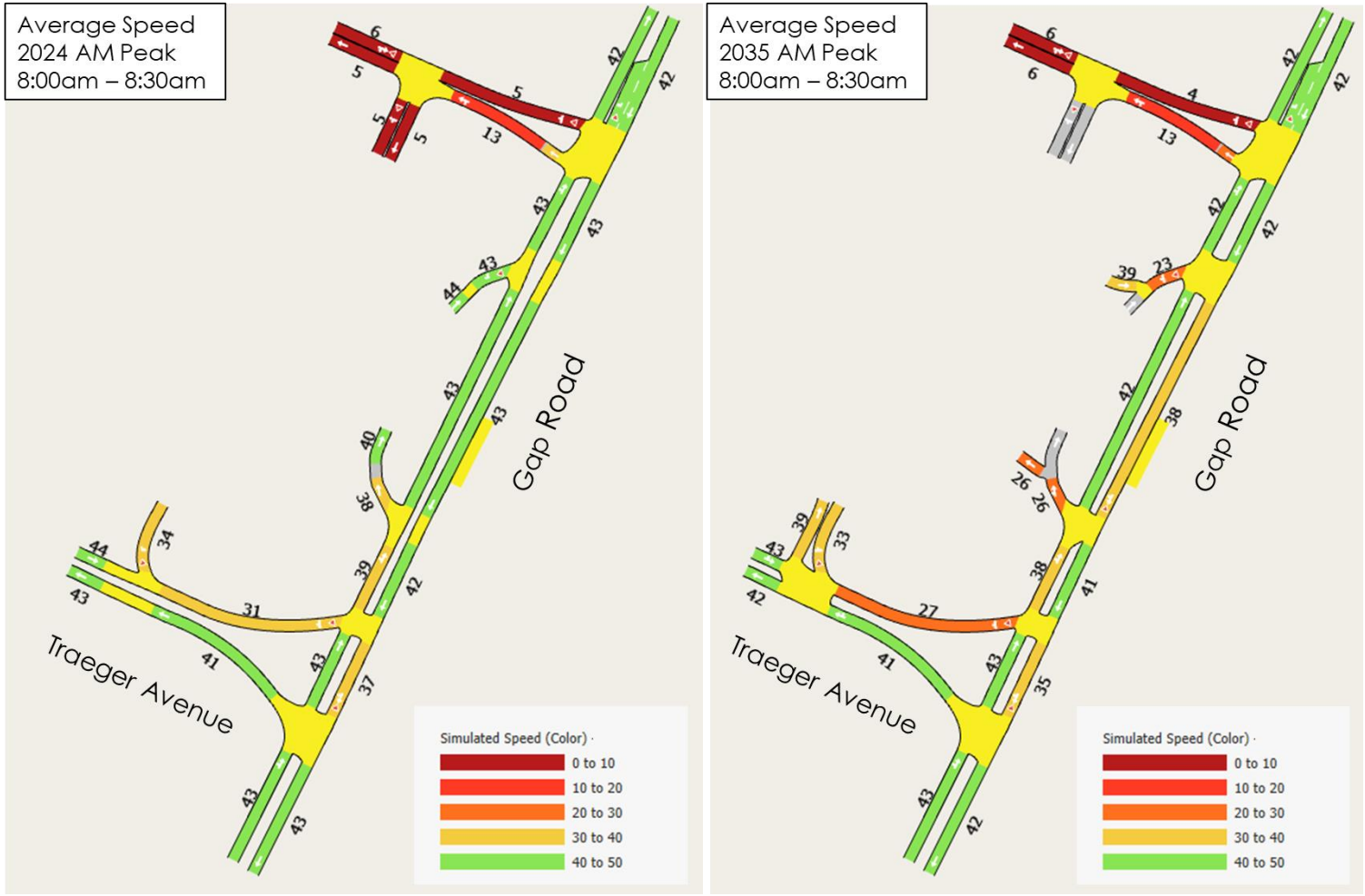


Figure 6-17 PM Network Average Speed Plot

The network average speed plots indicate the following:

- AM Peak:
    - A slight reduction in average speed is recorded on the Traeger Avenue approach to Gap Road (-4km/h) with additional traffic access the intersection.
    - A slight reduction in average speed is recorded on the Gap Road southbound (-5km/h) due to the introduction of the right turn into the development requiring vehicles to slow down.
- PM Peak:
    - A slight reduction in average speed is recorded on the Traeger Avenue approach to Gap Road (-5km/h) with additional traffic access the intersection.
    - A slight reduction in average speed is recorded on the Gap Road southbound (-4km/h) due to the introduction of the right turn into the development requiring vehicles to slow down.

6.7.5.3 Intersection Level of Service

The intersection level of service results are presented in **Table 6.10**.

Table 6.12: Intersection Level of Service Results

Level of Service			AM Peak				PM Peak			
Intersection	Approach	Movement	2024 Base		2035 +10 Opening Year		2024 Base		2035 +10 Opening Year	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Gap Road / Traeger Avenue	North	Through	14.3	B	14.8	B	13.8	A	14.6	B
		Right	19.7	B	20.3	B	18.7	B	20.8	B
		Total	**15.8**	**B**	**16.4**	**B**	**15.0**	**B**	**15.8**	B
	South	Left	9.1	A	9.2	A	9.3	A	9.1	A
		Through	7.6	A	7.6	A	7.5	A	7.5	A
		Total	**7.9**	**A**	**7.9**	**A**	**7.8**	**A**	**7.8**	A
	West	Left	10.2	A	9.8	A	9.2	A	9.9	A
		Right	17.5	B	16.9	B	16.8	B	17.9	B
		Total	**12.7**	**A**	**12.1**	**A**	**11.3**	**A**	**12.0**	A
Gap Road / Hospital Access	North	Through	5.8	A	5.8	A	5.7	A	5.8	A
		Right	16.3	B	5.4	A	18.5	B	6.2	A
		Total	**7.0**	**A**	5.8	A	**6.1**	**A**	5.8	A
	South	Left	15.1	B	11.8	A	15.8	B	14.4	B
		Through	5.9	A	5.9	A	5.8	A	5.8	A
		Total	**6.6**	**A**	**6.0**	**A**	**6.3**	**A**	**5.9**	**A**
	West	Left	33.9	C	38.6	C	35.0	C	35.3	C
		Right	0	A	-1.0	A	25.8	B	29.7	C
		Total	**33.9**	**C**	**38.6**	**C**	**31.9**	**C**	**33.9**	**C**
Car Park Access (Gap Road) - Ingress	**North**	**Right**	-	-	13.7	A	-	-	12.7	A
	South	**Left**	-	-	3.3	A	-	-	3.3	A
Car Park Access (Gap Road) - Egress	**West**	**Left**	0	A	4.9	A	0	A	6.3	A
		Right	-	-	14.8	B	-	-	13.2	A
Car Park Access (Traeger Avenue)	**North**	**Left**	4.7	A	15.2	B	11.2	A	10.8	A
		Right	-	-	8.4	A	-	-	5.7	A
	East	**Right**	-	-	6.8	A	-	-	4.9	A
	West	**Left**	-	-	2.7	A	-	-	2.7	A

The intersection results demonstrate that across both the AM and PM peaks all movements experience a level of service between A or C.

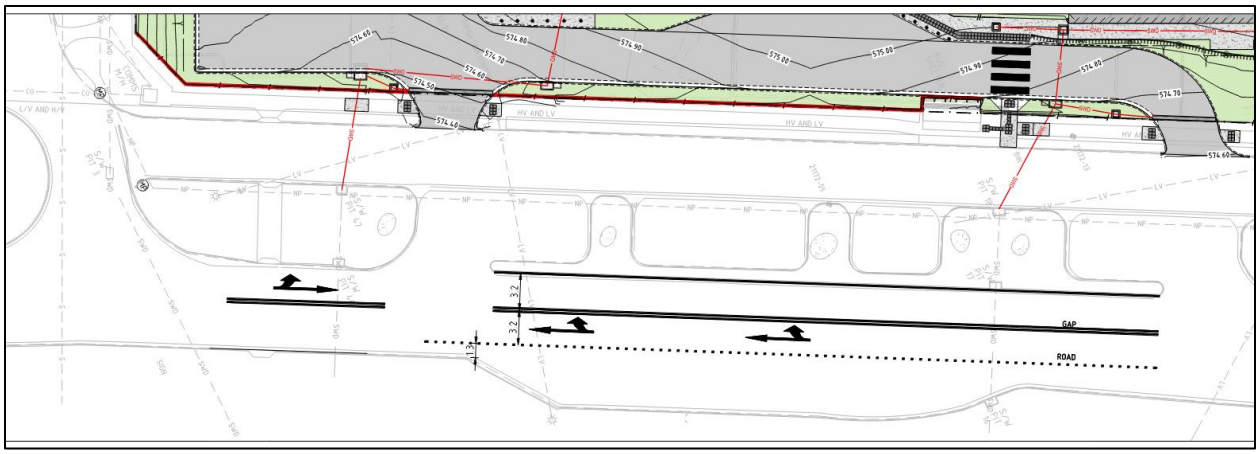
6.7.6 Analysis Summar

The results indicate that the traffic associated with the proposed development will have minimal impact on the road network and all intersections will perform satisfactorily for the ultimate future horizon of 2035.

7.0 ADDITIONAL TURNING LANE

Due to comments raised during one of the external reviews, Statnec was requested to completed a high level assessment of the potentail for the provision of a turning lane to facilitate right turn movements into the service road at the access to the development site. This was completed with the analysis showing that, even with the lane widths being reduced to 3.2m (minimum under Austraods Guide to Road Deisng Part 3 for an urban arterial road) there was insufficient width within the current carriageway. This is depicted in **Figure 7-1** below.

Figure 7-1 Test of turning lane



Due to the location of the bus stop on Gap Road opposite the proposed development and the parking bays within the service road adjacent the development, widening Gap Road to accommodate the additional lane would not be possible. Further, given the findings detailed within previous sections of the TIA, it is not believed that there is adequate warrants for this additional lane.

8.0 CONCLUSIONS AND SUMMARY

This report has been prepared in accordance with Austroads Guide to Traffic management Part 12: Integrated Transport Assessment for Developments.

The following conclusions have been made with regards to the proposed development:

- The proposed project consists of the development of a Renal Dialysis Unit located within the Alice Springs Hospital Campus at Lot 8168 Traeger Avenue. The development area will include:
    - 48 dialysis chairs and associated support;
    - 5 Consulting rooms;
    - 49 waiting chairs;
    - Administration spaces
    - 44 parking bays incl bays including 2 DDA compliant bays, and 6 minibus bays (Toyota HiAce 8-seater vans).
- The crash data report for the last 10 years (from 2013 to 2023) recorded a total of 11 incidents within the study area addressed in this report. This represents an average of 1.1 incidents per year. No fatalities were reported. Due to the low traffic volume that the study area is projected to generate, and the low-speed environment within the surrounding network (40km/h), it is expected that the proposed development won't have a negative impact on the safety of the area.
- The development is currently well served by shared path provisions in the surroundings, with four bus stops within walking distance from the development. While noting this, it is raised that there are significant upgrades and repairs that should be completed to the path network to improve its functionality. It is noted that these improvements are required due to the existing condition of the network and not as a result of the proposed development.
- Vehicular access to/from the development area is proposed to be via Traeger Avenue and the service road parallel to Gap Road with both to be used by general public, staff and the minibuses. An additional access is proposed via the Hospital Access Road however its use will be limited to service vehicles and deliveries.
- Pedestrian access is to be provided on the service road parallel to Gap Road and on the Hospital Access Road.
- The statutory parking requirement for the development is for 34 parking bays. As the proposed development will include a total of 44 parking bays including 6 designated parking bays for minibuses used for patient transport. The development has a surplus of 10 parking bays.
- The Alice Springs Hospital Campus is integrated by the Alice Springs Hospital with a capacity of 644 parking bays, a leased area on Lot 8167 with capacity of 94 parking bays and, a leased area on Lot 1018 with capacity of 76 parking bays. The total parking supply within these areas is **814** parking bays and as per the parking study conducted by NPC, the parking requirement for these areas is 740 bays.

- The total provision of parking bays within the ASH Campus, including the proposed Renal Dialysis Unit is 858 parking bays and the parking requirements are 774 bays, hence the ASH Campus will have a surplus of 84 parking bays.
- The proposed development is estimated to generate approximately 144 vehicle trips during the AM peak hour and 180 vehicles during the PM peak hour.
- The development is considered to have a high degree of accessibility for both public transport and vehicular traffic.
- As the drop-off lane has a capacity to accommodate up to 9 vehicles, no impacts are anticipated on the service road or interference with bus services.
- Swept path analysis confirms that all the design vehicles can adequately manoeuvre in and out of the development without encroaching.
- Due to the high level of accessibility and relatively low level of additional traffic estimated as a result of the proposed development, the net impact of the redevelopment is considered to be minimal.
- It is estimated that the design of the development will avoid adverse impacts on the local road network.
- The development achieves the requirements established within the Central Alice Springs Area Plan section 15.2 iii, iv, and v.
- Improve the signage and line marking at the access and egress point to the service road to inform road users that the southern access is IN only and the northern access is OUT only and that the service road is only for northbound movements.
- It is recommended to provide broken line markings along Gap Road at the access and exit points of the service Road to allow right-in and right-out movements to and from the site.

While not directly related to the proposed development, the following recommendations were raised within the RSI as requiring action by the road owner:

- Due to the layout of the proposed access point, it is recommended to close the southern end of the service road to the public due to the potential conflict between vehicles driving out from this section and vehicles accessing the Dialysis Centre from Gap Road. Refer to RSI finding 1 Appendix E
- It is recommended to remove the round shaped island and construct a traffic Island with adequate pedestrian crossing as per the RSI Finding 15 included in Appendix E.

June 25, 2024

APPENDICES

Alice Springs Hospital Ambulatory Care Unit, Renal Dialysis Unit, Transport Impact Assessment

Appendix A ARCHITECTURAL DESIGN PLANS

Note: Only the design plans related to this report have been included

ALICE SPRINGS HOSPITAL - AMBULATORY CARE RENAL DIALYSIS UNIT

ARCHITECTURAL DRAWINGS

NTG NO.	NO.	DRAWING NAME	REV.
B22-16018	A.01	COVER SHEET	E
B22-16019	A.02	CONSULTANT DRAWING REGISTER	C
B22-16020	A.03	CONSULTANT DRAWING REGISTER	C
B22-16021	A.04	SITE LOCATION PLAN	F
B22-16022	A.05	SITE PLAN - DEMOLITION	F
B22-16023	A.06	SITE PLAN - PROPOSED	F
B22-16024	A.07	SITE PLAN - FENCING LAYOUT	E
B22-16025	A.08	CARPARK LAYOUT	E
B22-16026	A.09	DRIVEWAY LAYOUT	E
B22-16027	A.10	DELIVERY LAYOUT	E
B22-16028	A.11	SITE SETOUT PLAN	E
B22-16029	A.12	FLOOR PLAN	E
B22-16030	A.13	FLOOR PLAN GROUND FLOOR	F
B22-16031	A.14	FLOOR PLAN PLANT ROOM LEVEL	C
B22-16032	A.15	CEILING PLAN	C
B22-16033	A.16	CEILING PLAN 1	C
B22-16034	A.17	CEILING PLAN 2	D
B22-16035	A.18	CEILING PLAN 3	D
B22-16036	A.19	CEILING PLAN 4	D
B22-16037	A.20	CEILING PLAN 5	D
B22-16038	A.21	CEILING PLAN 6	D
B22-16039	A.22	CEILING PLAN 7	D
B22-16040	A.23	CEILING PLAN 8 (ROOF PLANT)	D
B22-16041	A.24	ROOF PLAN - OVERALL	A
B22-16042	A.25	ROOF PLAN 1	D
B22-16043	A.26	ROOF PLAN 2	C
B22-16044	A.27	DIMENSION PLAN 1	C
B22-16045	A.28	DIMENSION PLAN 2	C
B22-16046	A.29	DIMENSION PLAN 3	C
B22-16047	A.30	DIMENSION PLAN 4	D
B22-16048	A.31	DIMENSION PLAN 5	C
B22-16049	A.32	DIMENSION PLAN 6	C
B22-16050	A.33	DIMENSION PLAN 7	E
B22-16051	A.34	DIMENSION PLAN 8 (HIGH LEVEL)	C
B22-16052	A.35	DIMENSION PLAN 9 (HIGH LEVEL)	D
B22-16054	A.36	FLOOR PROFILE PLANS	B
B22-16055	A.37	SLAB SETOUT PLAN 1	B
B22-16056	A.38	SLAB SETOUT PLAN 2	B
B22-16053	A.39	SUSPENDED PLANT SLAB	D
B22-16057	A.40	ARRANGEMENT PLAN	B
B22-16058	A.41	FIRE COMPARTMENTATION PLAN	C
B22-16059	A.42	MAIN ENTRY FACADE	B
B22-16060	A.43	SPARE	A
B22-16061	A.44	WALL TYPE PLAN 1	C
B22-16062	A.45	WALL TYPE PLAN 2	C
B22-16063	A.46	WALL TYPE PLAN 3	C
B22-16064	A.47	WALL TYPE PLAN 4	D
B22-16065	A.48	WALL TYPE PLAN 5	C
B22-16066	A.49	WALL TYPE PLAN 6	C
B22-16067	A.50	WALL TYPE PLAN 7	D
B22-16068	A.51	WALL TYPE PLAN 8 (HIGH LEVEL)	D
B22-16069	A.52	WALL TYPE PLAN 9 (HIGH LEVEL)	C
B22-16070	A.53	FINISHES PLAN 1	C
B22-16071	A.54	FINISHES PLAN 2	C
B22-16072	A.55	FINISHES PLAN 3	C
B22-16073	A.56	FINISHES PLAN 4	C
B22-16074	A.57	FINISHES PLAN 5	C
B22-16075	A.58	FINISHES PLAN 6	C
B22-16076	A.59	FINISHES PLAN 7	C
B22-16077	A.60	SIGNAGE PLAN GROUND LEVEL	C
B22-16078	A.61	SIGNAGE PLAN HIGH LEVEL	C
B22-16079	A.62	EXTERNAL ELEVATIONS	F
B22-16080	A.63	EXTERNAL ELEVATIONS	F
B22-16081	A.64	SUNSCREENS	F
B22-16082	A.65	EASTERN FACADE SCREENING	D
B22-16083	A.66	BUILDING SECTIONS 1	E
B22-16084	A.67	BUILDING SECTIONS 2	E
B22-16085	A.68	BUILDING SECTIONS 3	D

ARCHITECTURAL DRAWINGS

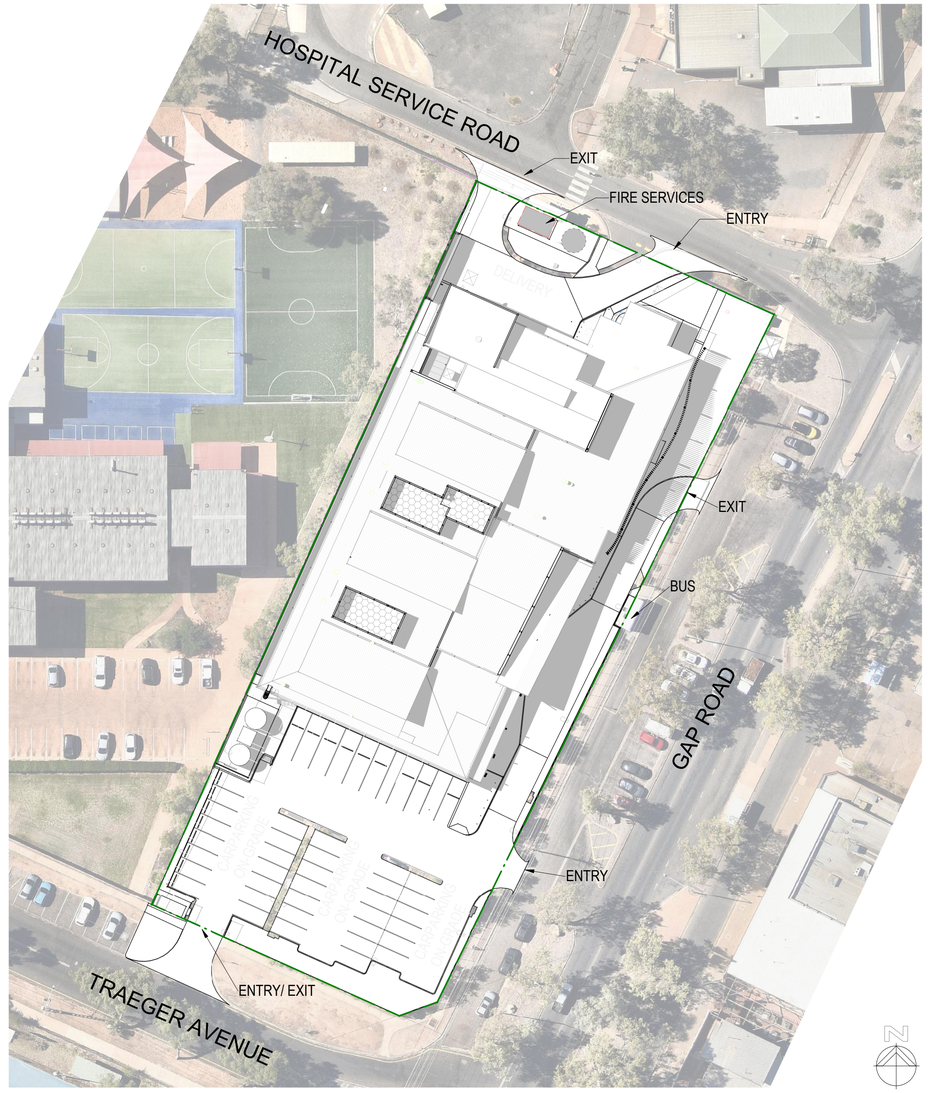
NTG NO.	NO.	DRAWING NAME	REV.
B22-16086	A.69	BUILDING SECTIONS 4	C
B22-16087	A.70	BUILDING SECTIONS 5	C
B22-16088	A.71	EXTERNAL WALL SECTIONS - PART 1	D
B22-16089	A.72	EXTERNAL WALL SECTIONS - PART 2	C
B22-16090	A.73	EXTERNAL WALL SECTIONS - PART 3	D
B22-16091	A.74	INT ELEV - ISO A/L TYPICAL	D
B22-16092	A.75	INT ELEV - TRMT-ISO	D
B22-16093	A.76	INT ELEV - ISO-ENS-1	D
B22-16094	A.77	INT ELEV - TRMT TYPICAL	D
B22-16095	A.78	INT ELEV - TRMT BA	D
B22-16096	A.79	INT ELEV - STAFF STATION	D
B22-16097	A.80	INT ELEV - WC/M & WC/F -TYPICAL	D
B22-16098	A.81	INT ELEV - ACC WC-1	D
B22-16099	A.82	INT ELEV - BEVERAGE	D
B22-16100	A.83	INT ELEV - POD MAN	D
B22-16101	A.84	INT ELEV - UNISEX STAFF WC	D
B22-16102	A.85	INT ELEV - ACC BA	D
B22-16103	A.86	INT ELEV - TRMT-ISO-3 - BARIATRIC	D
B22-16104	A.87	INT ELEV - ISO ENS-3 - BARIATRIC	D
B22-16105	A.88	INT ELEV - POD A-OVERALL PLAN	C
B22-16106	A.89	INT ELEV - POD A-OVERALL ELEVATIONS	C
B22-16107	A.90	INT ELEV - POD A-OVERALL ELEVATIONS	C
B22-16108	A.91	INT ELEV - POD B-OVERALL PLAN	C
B22-16109	A.92	INT ELEV - POD B-OVERALL ELEVATIONS	C
B22-16110	A.93	INT ELEV - POD B-OVERALL ELEVATIONS	C
B22-16111	A.94	INT ELEV - POD C-OVERALL PLAN	C
B22-16112	A.95	INT ELEV - POD C-OVERALL ELEVATIONS	C
B22-16113	A.96	INT ELEV - POD C-OVERALL ELEVATIONS	C
B22-16114	A.97	INT ELEV - EQUIP BAYS	D
B22-16115	A.98	INT ELEV - HB, LINEN, BW &ECG BAYS	C
B22-16116	A.99	INT ELEV - RES, CONS & BHW BAYS	C
B22-16117	A.100	INT ELEV - CONSULT-5	D
B22-16118	A.101	INT ELEV - CONSULT-4 - TYPICAL	C
B22-16119	A.102	INT ELEV - MEETING ROOM	D
B22-16120	A.103	INT ELEV - TRAINING/TREATMENT	D
B22-16121	A.104	INT ELEV - WAITING AND ENTRY AIRLOCK	D
B22-16122	A.105	INT ELEV - WAITING	D
B22-16123	A.106	INT ELEV - RECEPTION	D
B22-16124	A.107	INT ELEV - COPIER/STORE	D
B22-16125	A.108	INT ELEV - WC/M PUBLIC	C
B22-16126	A.109	INT ELEV - WC/F PUBLIC	D
B22-16127	A.110	INT ELEV - ACC WC-2	D
B22-16128	A.111	INT ELEV - CNM	D
B22-16129	A.112	INT ELEV - DON	D
B22-16130	A.113	INT ELEV - STAFF ROOM	E
B22-16131	A.114	INT ELEV - STAFF ROOM	E
B22-16132	A.115	INT ELEV - WORKSTATION	D
B22-16133	A.116	INT ELEV - WORKSTATIONS	D
B22-16134	A.117	INT ELEV - QUIET MEET 1	D
B22-16135	A.118	INT ELEV - CHANGE/M	E
B22-16136	A.119	INT ELEV - CHANGE/F	D
B22-16137	A.120	INT ELEV - ACC ST	D
B22-16138	A.121	INT ELEV - DELETED	D
B22-16139	A.122	INT ELEV - BULK STORE	D
B22-16140	A.123	INT ELEV - STERILE STOCK	D
B22-16141	A.124	INT ELEV - STERILE STORE	D
B22-16142	A.125	INT ELEV - DISPOSAL	D
B22-16143	A.126	INT ELEV - RO WATER TREATMENT	D
B22-16144	A.127	INT ELEV - MAIN/EQUIP	E
B22-16145	A.128	INT ELEV - MEDICATION	D
B22-16146	A.129	INT ELEV - DU	D
B22-16147	A.130	INT ELEV - CU	D
B22-16148	A.131	INT ELEV - CLNR-1	D
B22-16149	A.132	INT ELEV - CIRCULATION A & B	C
B22-16150	A.133	INT ELEV - CIRCULATION C	C
B22-16151	A.134	INT ELEV - CIRCULATION C	C
B22-16152	A.135	INT ELEV - CIRCULATION D & CIRCULATION E	C
B22-16153	A.136	INT ELEV - COMMS ROOM & FUEL ROOM	D

ARCHITECTURAL DRAWINGS

NTG NO.	NO.	DRAWING NAME	REV.
B22-16154	A.137	INT ELEV - MSB & IMV SUBSTATION ROOM	C
B22-16155	A.138	INT ELEV - GENERATOR ROOM, MSSB & SUCTION	C
B22-16156	A.139	INT ELEV - ISO ENS-2	A
B22-16157	A.140	INT ELEV - MECH PLANT ROOM	A
B22-16158	A.141	SPARE	A
B22-16159	A.142	SPARE	A
B22-16160	A.143	SUBSTATION	E
B22-16161	A.144	EXTERNAL SHADING -JANUARY 21 & APRIL 30	E
B22-16162	A.145	SPARE	C
B22-16163	A.146	PLAN DETAILS 1	B
B22-16164	A.147	PLAN DETAILS 2	B
B22-16165	A.148	PLAN DETAILS 3	B
B22-16166	A.149	PLAN DETAILS 4	B
B22-16167	A.150	PLAN DETAILS 5	B
B22-16168	A.151	SPARE	A
B22-16169	A.152	SECTION DETAILS 1 - SOUTHERN WALL SECTION DETAILS	D
B22-16170	A.153	SECTION DETAILS 2 - WESTERN COURTYARDS	C
B22-16171	A.154	SECTION DETAILS 3 - EXTERNAL ENTRY WALKWAY	C
B22-16172	A.155	SECTION DETAILS 4 - MAIN ENTRY	C
B22-16173	A.156	SECTION DETAILS 5 - HIGH ROOF & CLERESTOREY DETAILS	C
B22-16174	A.157	SECTION DETAILS 6 - MAIN ENTRY WAITING	C
B22-16175	A.158	SECTION DETAILS 7 - ENCLOSED SERVICES AREA PART 1	C
B22-16176	A.159	SECTION DETAILS 8 - ENCLOSED SERVICES AREA PART 2	C
B22-16177	A.160	SECTION DETAILS 9 - ENCLOSED SERVICES AREA PART 3	A
B22-16179	A.161	SECTION DETAILS 10 - ENCLOSED SERVICES AREA PART 4	A
B22-16178	A.162	SECTION DETAILS 11 -SUNSHADES	C
B22-16180	A.163	SPARE	A
B22-16181	A.164	SPARE	A
B22-16182	A.165	ROOF MECHANICAL SERVICES PLATFORM - SOUTH	A
B22-16183	A.166	ROOF MECHANICAL SERVICES PLATFORM - NORTH	A
B22-16184	A.167	GROUND MECHANICAL SERVICES ROOM	A
B22-16185	A.168	SPARE	A
B22-16186	A.169	SPARE	A
B22-16187	A.170	SPARE	A
B22-16188	A.171	SPARE	A
B22-16189	A.172	SPARE	A
B22-16190	A.173	TYPICAL GROUND DETAILS	A
B22-16191	A.174	SECURED BIKE ENCLOSURE	A
B22-16192	A.175	FENCING DETAILS	B
B22-16193	A.176	SITE DETAILS 4	A
B22-16194	A.177	SITE DETAILS 5	A
B22-16195	A.178	JOINERY DETAILS 1	C
B22-16196	A.179	JOINERY DETAILS 2	C
B22-16197	A.180	JOINERY DETAILS 3	C
B22-16198	A.181	JOINERY DETAILS 4	C
B22-16199	A.182	JOINERY DETAILS 5	C
B22-16200	A.183	JOINERY DETAILS 6	C
B22-16201	A.184	JOINERY DETAILS 7	C
B22-16202	A.185	DOOR SCHEDULE 1	C
B22-16203	A.186	DOOR SCHEDULE 2	C
B22-16204	A.187	DOOR SCHEDULE ELEV 1	C
B22-16205	A.188	DOOR SCHEDULE ELEV 2	C
B22-16206	A.189	GATE SCHEDULE ELEVATION	A
B22-16207	A.190	WINDOW SCHEDULE	C
B22-16208	A.191	WINDOW SCHEDULE ELEV 1	C
B22-16209	A.192	WINDOW SCHEDULE ELEV 2	C
B22-16210	A.193	SIGNAGE SCHEDULE 1	C
B22-16211	A.194	SIGNAGE SCHEDULE 2	C
B22-16212	A.195	SIGNAGE SCHEDULE 3	C
B22-16213	A.196	SIGNAGE SCHEDULE 4	C

ARCHITECTURAL DRAWINGS

NTG NO.	NO.	DRAWING NAME	REV.
B22-16218	A.197	SIGNAGE SCHEDULE 5	A
B22-16214	A.198	WALL TYPE SCHEDULE 1	C
B22-16215	A.199	WALL TYPE SCHEDULE 2	C
B22-16216	A.200	ROOF ACCESS STEP LADDER	A
B22-16217	A.201	ROOF ACCESS STAIR	A
B22-16219	A.202	SPARE	A
B22-16220	A.203	SPARE	A
B22-16221	A.204	SPARE	A
B22-16222	A.205	SPARE	A
B22-16223	A.206	3D SITE VIEWS	B
B22-16224	A.207	SITE ELEVATIONS	B
B22-16225	A.208	SPARE	A
B22-16226	A.209	SPARE	A



LOCATION / CONTEXT PLAN

No.	AMENDMENT DESCRIPTION	DATE	INIT.	DEPT / COMPANY
E	95% ISSUE UPDATED	7/7/23	JM/ DS	MP
D	95% ISSUE	19/6/23	SH/ JM	DIPL
C	75% RESUBMISSION	13/12/22	SH	DIPL
B	75% SUBMISSION	8/11/22	SH	DIPL
A	50% REVIEW	17/08/22	SH	DIPL

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Design Project Leader: SH — Date: 7/7/23	NTG Project Manager: SW/ LG — Date: 7/7/23

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COVER SHEET

NTG Project No.	NTG Asset No.	Sheet Reference	NTG DRAWING No.	AMENDMENT	
HEA03180	00434	A.01 OF -	B22-16018	E	A1

Version: March 2021

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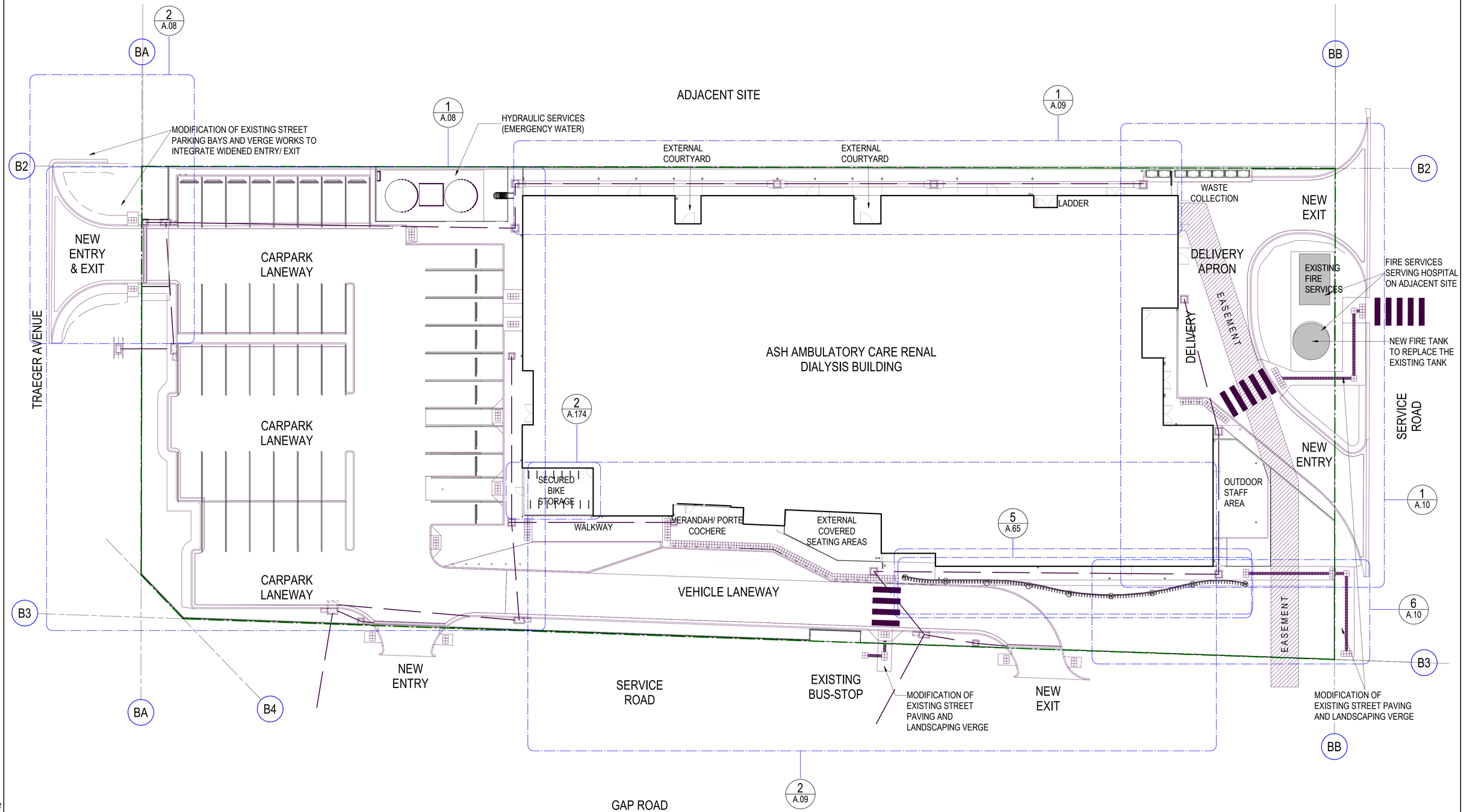

PROPOSED SITE PLAN

1 : 200

2m 0 10m

1:200

No.	AMENDMENT DESCRIPTION	DATE	INIT.	DEPT / COMPANY
F	95% ISSUE UPDATED	7/7/23	JM/ DS	MP
E	95% ISSUE	19/6/23	SH/ JM	DIPL
D	75% VM	5/4/23	SH	DIPL
C	75% RESUBMISSION	13/12/22	SH	DIPL
B	75% SUBMISSION	8/11/22	SH	DIPL
A	50% REVIEW	17/08/22	SH	DIPL

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Drawn: JM, Date: 9/6/23	Checked: SH, Date: 19/6/23
Designed: SH/ JM, Date: 7/7/23	Approved: DS, Date: 7/7/23
Design Project Leader: SH, Date: 7/7/23	NTG Project Manager: SW/ LG, Date: 7/7/23

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SITE PLAN - PROPOSED

NTG Project No.	NTG Asset No.	Sheet Reference	NTG DRAWING No.	AMENDMENT	
HEA03180	00434	A.06 OF -	B22-16023	F	A1

Version: March 2021

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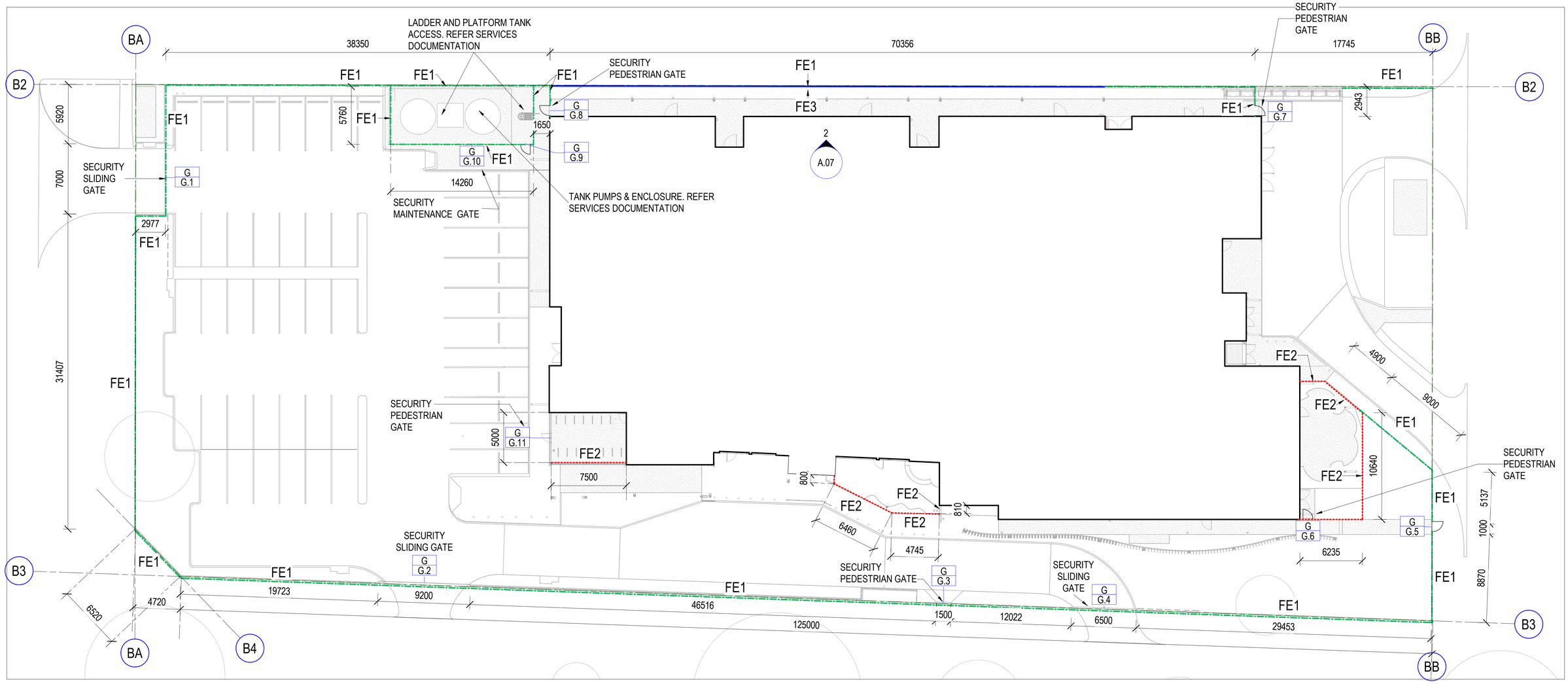
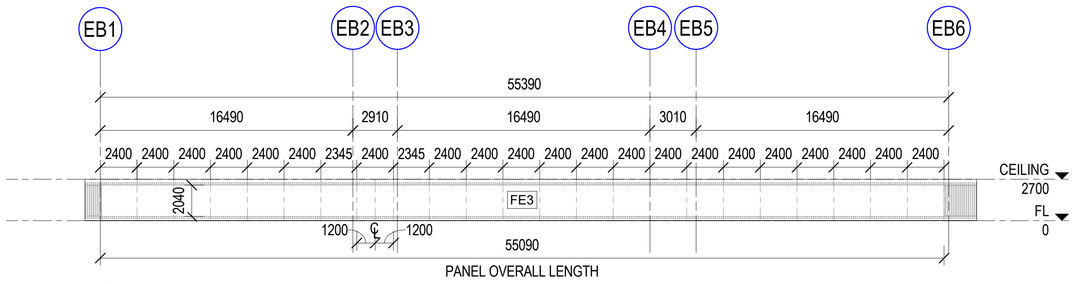


1 SITE PLAN FENCING
1 : 200



2 FE3 - CULTURAL IMAGES PANELS
1 : 200

LEGEND:

- FE1 — SECURITY FENCE - LOCATION LINE
- FE2 — SECURITY FENCE - LOCATION LINE
- FE3 — ART PANEL APPLIED TO FENCING - LOCATION LINE
- SECURITY FENCE PEDESTRIAN GATE POSITION
- SECURITY FENCE SLIDING GATE POSITION

FENCING LAYOUT PLAN NOTES:

1. TO BE READ IN CONJUNCTION WITH ALL OTHER DOCUMENTS.
2. REFER TO SERVICES ENGINEERS DOCUMENTS FOR ALL SERVICES ITEM DETAILS.
3. REFER TO SCHEDULE FOR SELECTION OF FINISHES

No.	AMENDMENT DESCRIPTION	DATE	INIT.	DEPT / COMPANY
E	95% ISSUE UPDATED	7/7/23	JM/ DS	MP
D	95% ISSUE	19/6/23	SH/ JM	DIPL
C	75% VM	5/4/23	SH	DIPL
B	75% RESUBMISSION	13/12/22	SH	DIPL
A	75% SUBMISSION	8/11/22	SH	DIPL

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Design Project Leader: SH — Date: 7/7/23	NTG Project Manager: SW/ LG — Date: 7/7/23

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SITE PLAN - FENCING LAYOUT

NTG Project No.	NTG Asset No.	Sheet Reference	NTG DRAWING No.	AMENDMENT	
HEA03180	00434	A.07 OF -	B22-16024	E	A1

Version: March 2021

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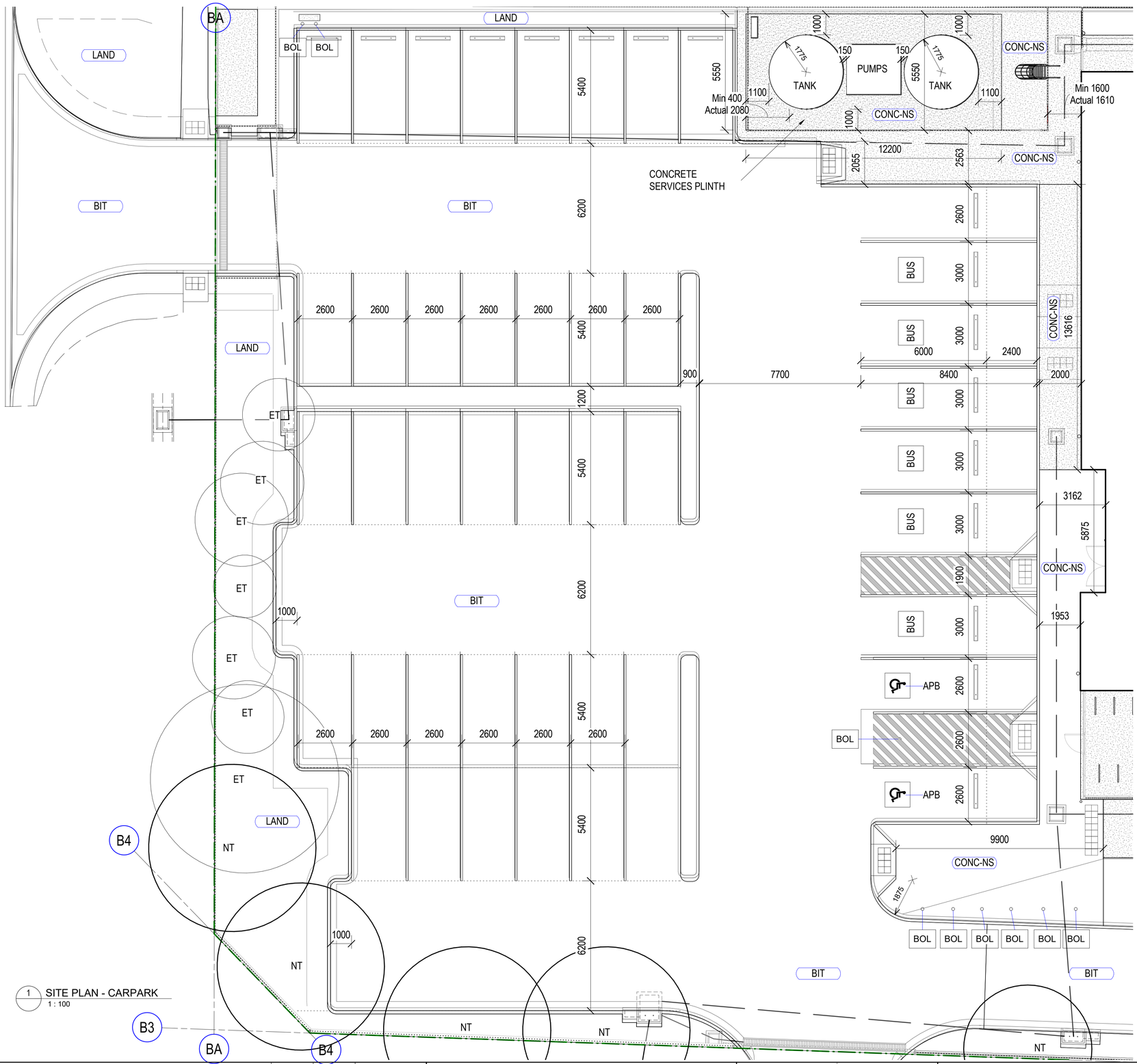
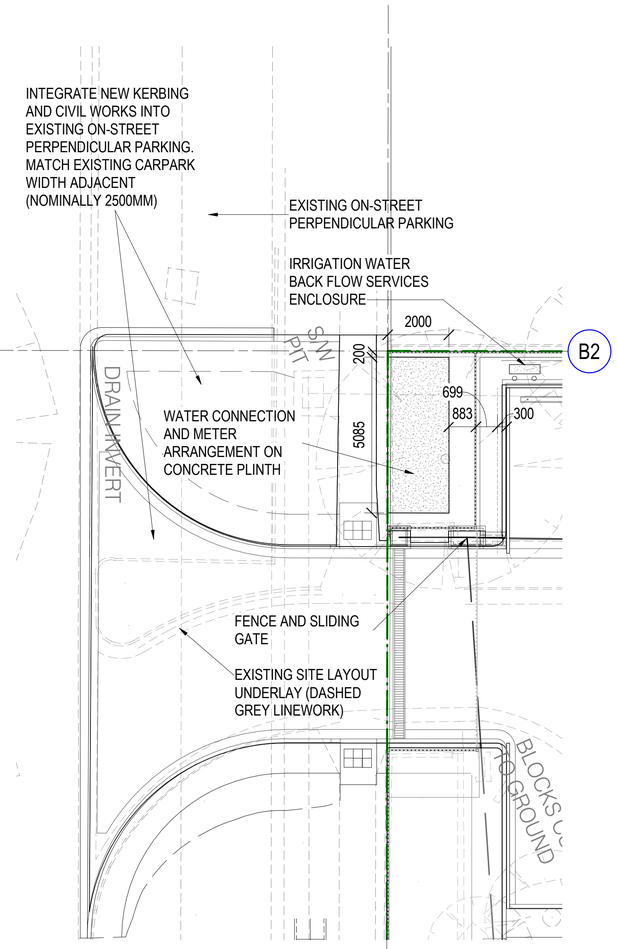


1 SITE PLAN - CARPARK
1 : 100



2 SITE PLAN - VERGE
1 : 100

LEGEND:

?	EXTERNAL PAVING FINISH CODE	
BIT	ASPHALT	MINIMUM P5 SLIP RATING
CONC-NS	CONCRETE NON-SLIP	MINIMUM P5 SLIP RATING
LAND	LANDSCAPE	
ET	EXISTING TREE	
NT	NEW TREE	
BOL	BOLLARD	

SITE LAYOUT PLAN NOTES:

1. TO BE READ IN CONJUNCTION WITH ALL OTHER DOCUMENT.
2. ALSO REFER TO SERVICES ENGINEERS DOCUMENTS FOR ALL SERVICES ITEM DETAILS.
3. ALSO REFER TO CIVIL ENGINEERS DOCUMENTS FOR ALL PAVING TYPES, LINEWORK LEVELS, KERBING, STORMWATER, TACTILE INDICATORS, RAMPING AND RETAINING WALLS.
4. ALSO REFER TO LANDSCAPE ARCHITECTS DOCUMENTS.
5. ACCESSIBLE AREAS IN ACCORDANCE WITH AS.1428.1-4.

No.	AMENDMENT DESCRIPTION	DATE	INIT.	DEPT / COMPANY
E	95% ISSUE UPDATED	7/7/23	JM/ DS	MP
D	95% ISSUE	19/6/23	SH/ JM	DIPL
C	75% VM	5/4/23	SH	DIPL
B	75% RESUBMISSION	13/12/22	SH	DIPL
A	75% SUBMISSION	8/11/22	SH	DIPL

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Design Project Leader: SH, Date: 7/7/23	NTG Project Manager: SW/ LG, Date: 7/7/23

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CARPARK LAYOUT

NTG Project No.	NTG Asset No.	Sheet Reference	NTG DRAWING No.	AMENDMENT	
HEA03180	00434	A.08 OF -	B22-16025	E	A1

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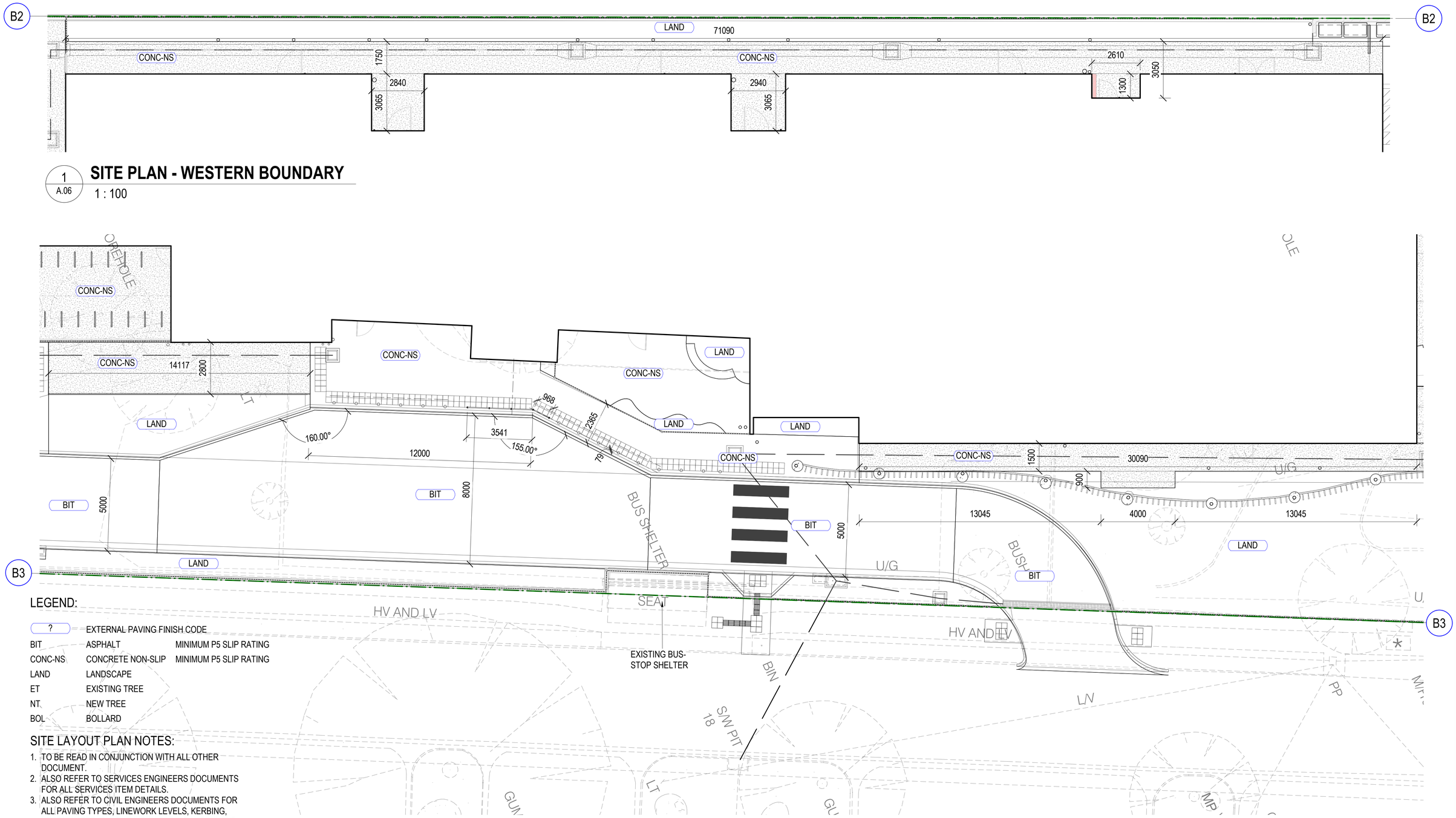

1 / A.06 **SITE PLAN - WESTERN BOUNDARY**
1 : 100

LEGEND:

?	EXTERNAL PAVING FINISH CODE	
BIT	ASPHALT	MINIMUM P5 SLIP RATING
CONC-NS	CONCRETE NON-SLIP	MINIMUM P5 SLIP RATING
LAND	LANDSCAPE	
ET	EXISTING TREE	
NT	NEW TREE	
BOL	BOLLARD	

SITE LAYOUT PLAN NOTES:

1. TO BE READ IN CONJUNCTION WITH ALL OTHER DOCUMENT.
2. ALSO REFER TO SERVICES ENGINEERS DOCUMENTS FOR ALL SERVICES ITEM DETAILS.
3. ALSO REFER TO CIVIL ENGINEERS DOCUMENTS FOR ALL PAVING TYPES, LINEWORK LEVELS, KERBING, STORMWATER, TACTILE INDICATORS, RAMPING AND RETAINING WALLS.
4. ALSO REFER TO LANDSCAPE ARCHITECTS DOCUMENTS.
5. ACCESSIBLE AREAS IN ACCORDANCE WITH AS.1428.1-4.

2 / A.06 **SITE PLAN - ENTRY**
1 : 100

No.	AMENDMENT DESCRIPTION	DATE	INIT.	DEPT / COMPANY
E	95% ISSUE UPDATED	7/7/23	JM/ DS	MP
D	95% ISSUE	19/6/23	SH/ JM	DIPL
C	75% VM	5/4/23	SH	DIPL
B	75% RESUBMISSION	13/12/22	SH	DIPL
A	75% SUBMISSION	8/11/22	SH	DIPL

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Designed: SH/ JM, Date: 7/7/23	Approved: DS, Date: 7/7/23
Design Project Leader: SH, Date: 7/7/23	NTG Project Manager: SW/ LG, Date: 7/7/23

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DRIVEWAY LAYOUT

NTG Project No.	NTG Asset No.	Sheet Reference	NTG DRAWING No.	AMENDMENT	
HEA03180	00434	A.09 OF -	B22-16026	E	A1

Version: March 2021

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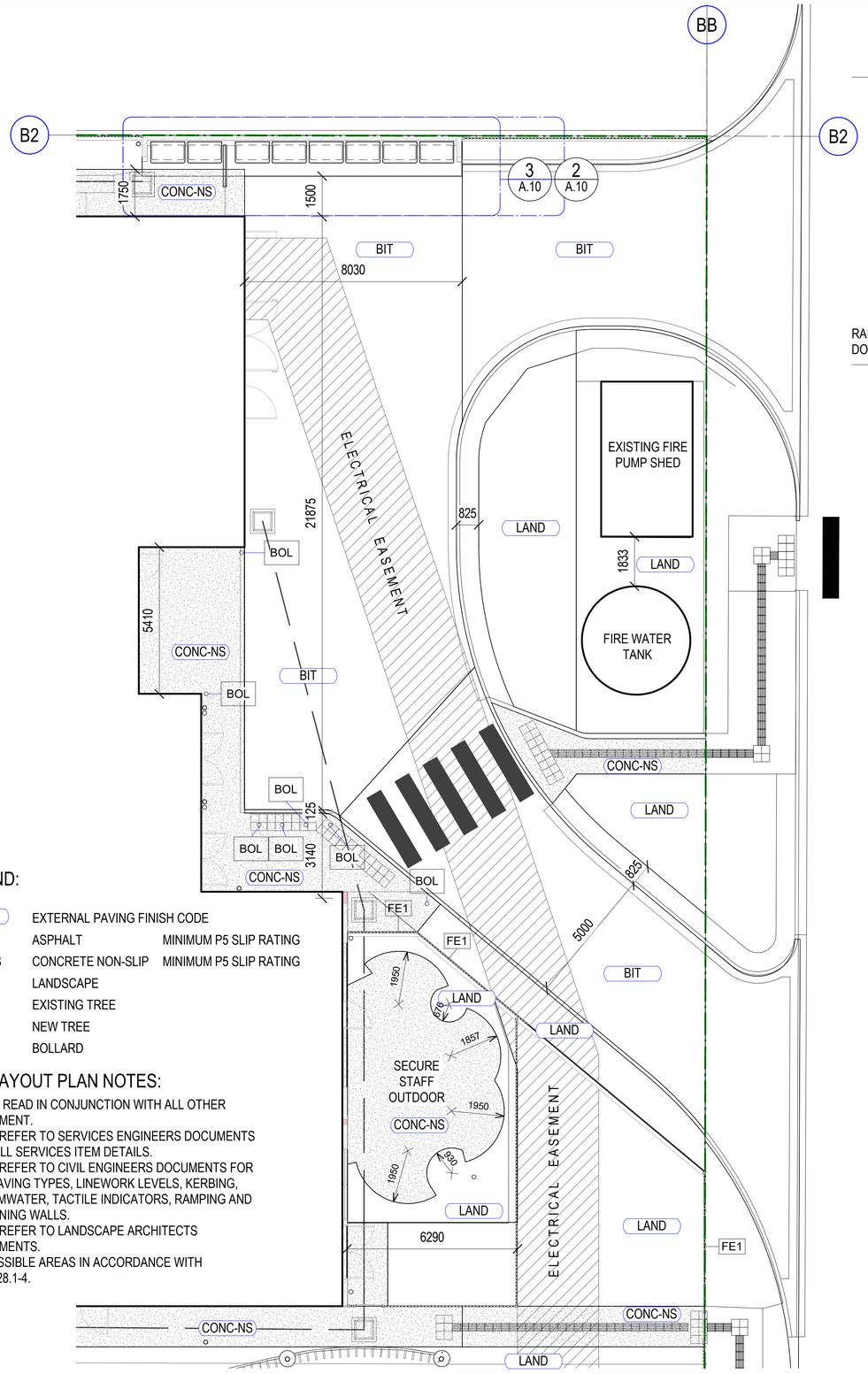
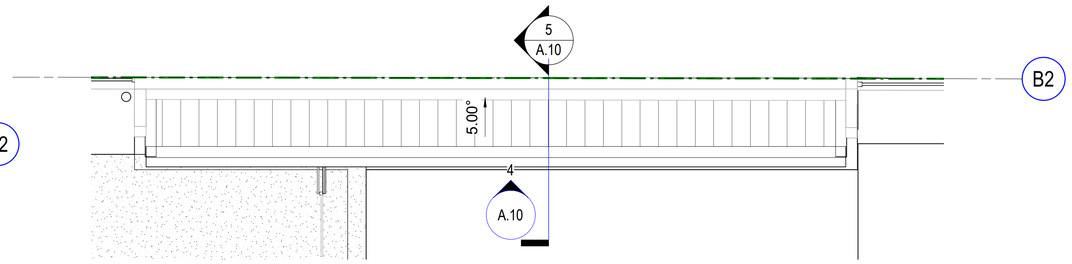


LEGEND:

?	EXTERNAL PAVING FINISH CODE	
BIT	ASPHALT	MINIMUM P5 SLIP RATING
CONC-NS	CONCRETE NON-SLIP	MINIMUM P5 SLIP RATING
LAND	LANDSCAPE	
ET	EXISTING TREE	
NT	NEW TREE	
BOL	BOLLARD	

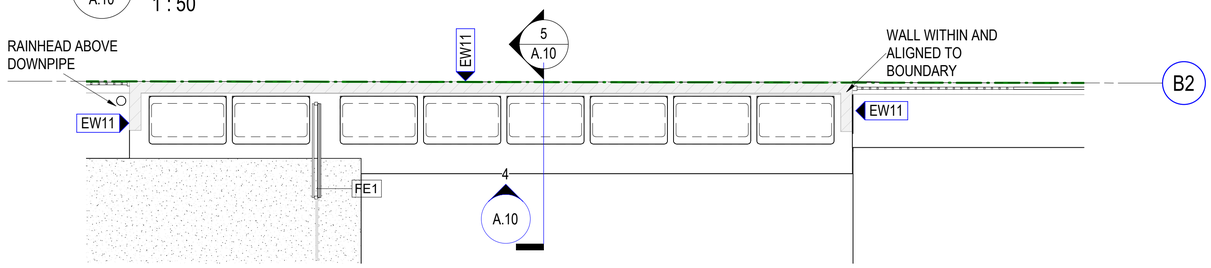
SITE LAYOUT PLAN NOTES:

1. TO BE READ IN CONJUNCTION WITH ALL OTHER DOCUMENT.
2. ALSO REFER TO SERVICES ENGINEERS DOCUMENTS FOR ALL SERVICES ITEM DETAILS.
3. ALSO REFER TO CIVIL ENGINEERS DOCUMENTS FOR ALL PAVING TYPES, LINEWORK LEVELS, KERBING, STORMWATER, TACTILE INDICATORS, RAMPING AND RETAINING WALLS.
4. ALSO REFER TO LANDSCAPE ARCHITECTS DOCUMENTS.
5. ACCESSIBLE AREAS IN ACCORDANCE WITH AS.1428.1-4.



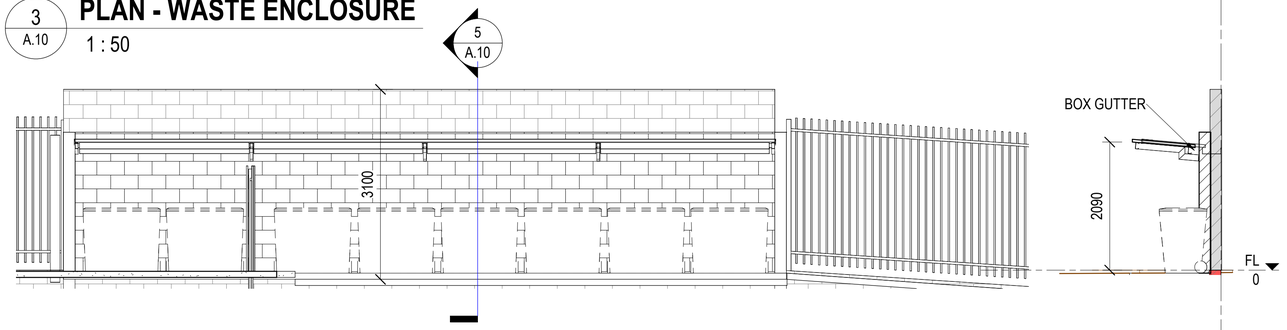
2 A.10 ROOF PLAN - WASTE ENCLOSURE

1 : 50



3 A.10 PLAN - WASTE ENCLOSURE

1 : 50

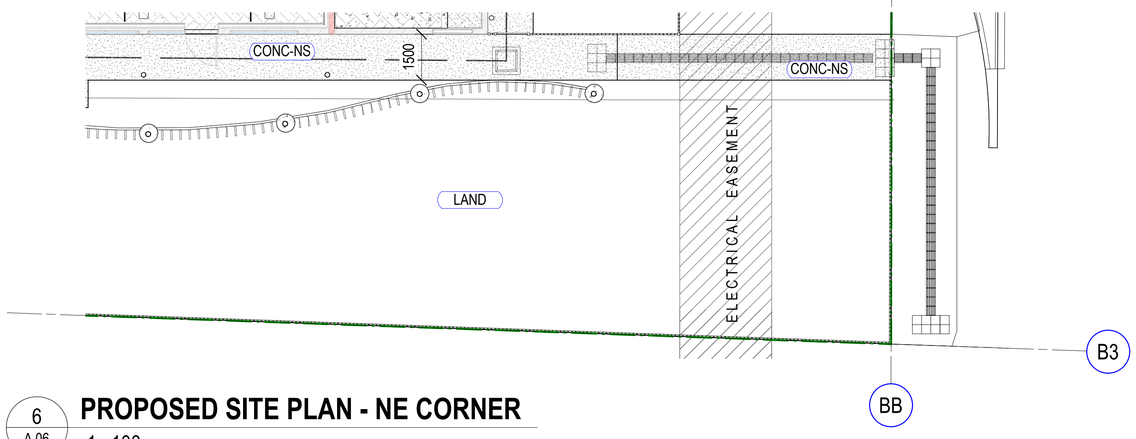


4 A.10 ELEVATION - WASTE ENCLOSURE

1 : 50

5 A.10 SECTION WASTE ENCLOSURE

1 : 50



6 A.06 PROPOSED SITE PLAN - NE CORNER

1 : 100

No.	AMENDMENT DESCRIPTION	DATE	INIT.	DEPT / COMPANY
E	95% ISSUE UPDATED	7/7/23	JM/ DS	MP
D	95% ISSUE	19/6/23	SH/ JM	DIPL
C	75% VM	5/4/23	SH	DIPL
B	75% RESUBMISSION	13/12/22	SH	DIPL
A	75% SUBMISSION	8/11/22	SH	DIPL

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Design Project Leader: SH, Date: 7/7/23	NTG Project Manager: SW/ LG, Date: 7/7/23

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DELIVERY LAYOUT

NTG Project No.	NTG Asset No.	Sheet Reference	NTG DRAWING No.	AMENDMENT	
HEA03180	00434	A.10 OF -	B22-16027	E	A1

Version: March 2021

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