65 South Terrace, Fremantle

TRANSPORT IMPACT STATEMENT

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PROJECT	81113-588-FLYT-TRS-0003 rev3			
Revision	Description	Originator	Review	Date
0	Issued	AJS	MDR	15/01/2021
1	Issued	AJS		29/01/2021
2	Issued	AJS		01/02/2021
3	Issued	AJS		04/02/2021

Contents

1. SUMMARY

Item	Response
Local Government	City of Fremantle
SWALSC Region	Whadjuk
Site Lot(s)	65 South Terrace, Fremantle
Street Frontage	South Terrace and Suffolk Street
Development Type(s)	Hotel
Relevant Planning Scheme	City of Fremantle Local Planning Scheme No. 4
Nearest Station	800m from Fremantle Station
Nearest Bus Routes	511, 513, 520, 530, 531, 532, 5448, 549, 999, 998, Blue CAT.
Walk Score Ratings	Walkability 93 out of 100. Transit Score 70 out of 100.
Access Crossovers	5.5m crossover on South Terrace and 5.5m crossover on Suffolk Street
Parking Provision	On-site: 43 bays (including 1 shared ACROD bay) and 1 loading bay
Parking Management	N/A
ACROD Parking	1 bay on the basement level
Motorcycle Parking	N/A
Bike Parking	14 bays for employee and hotel guests
Vehicle Trips Generated	35 AM peak hour and 34 PM peak hour trips

2. INTRODUCTION

2.1 Development Introduction

This Transport Impact Statement (TIS) has been prepared by Flyt in support of the proposed hotel development at 65 South Terrace, Fremantle. The site is within the City of Fremantle and, as indicated by the South West Aboriginal Land and Sea Council website, sits within the Whadjuk Region.

The site is within Local Planning Area 4 – Fremantle South within the City of Fremantle's Local Planning Scheme No. 4. The site is zoned Mixed Use with a density code of R35 and is currently vacant. The location of the proposed development is shown in Figure 1.

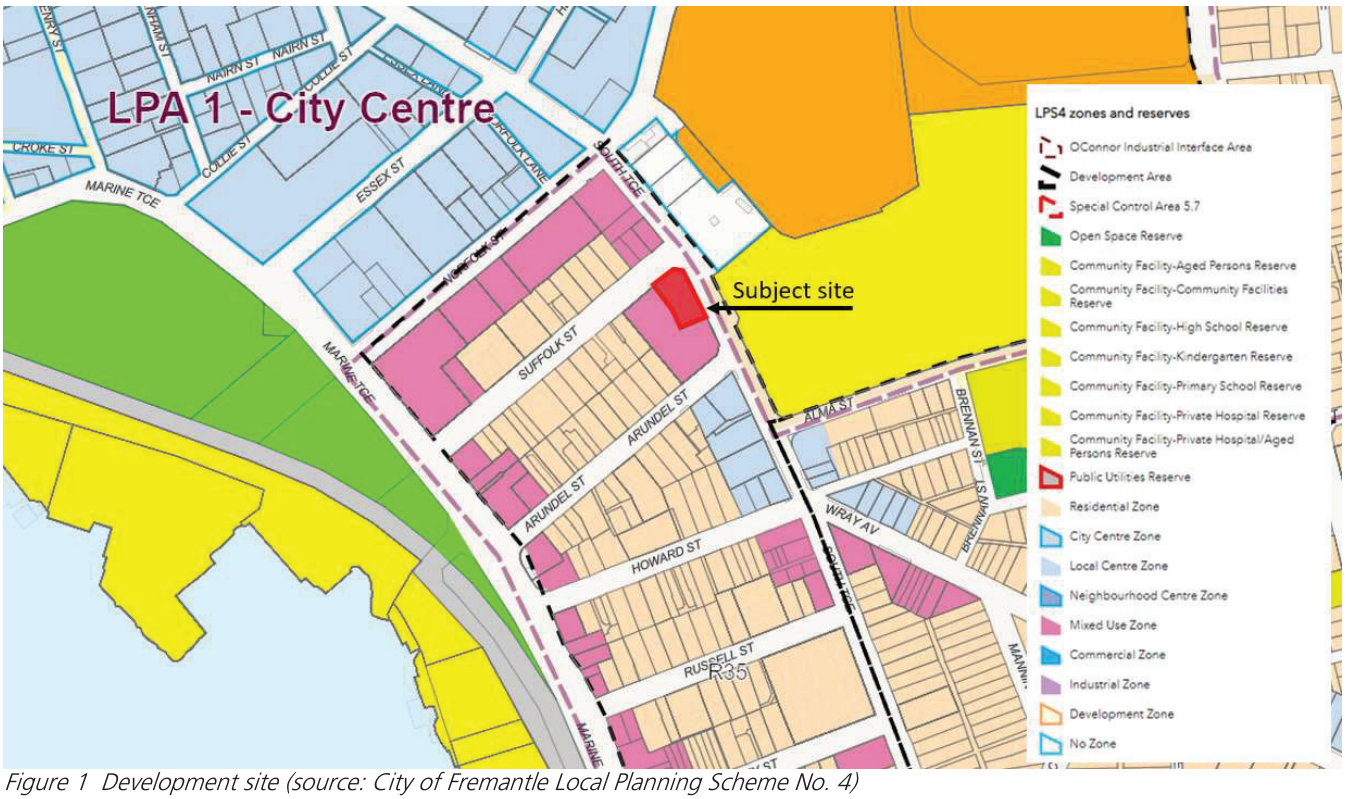

Figure 1 Development site (source: City of Fremantle Local Planning Scheme No. 4)

2.2 Transport Impact Statement

This Transport Impact Statement has been prepared in accordance with the WA Planning Commission's (WAPC) Transport Impact Assessment Guidelines (Volume 4 – Individual Developments). The Guidelines promote a three level assessment process, where the required level of assessment is dependent on the likely level of impact, as follows (and as shown in Figure 2):

- Low impact – less than 10 peak hour trips, no assessment required;
- Moderate impact – between 10 and 100 peak hour trips, Transport Impact Statement required; and
- High impact – more than 100 peak hour trips, full Transport Impact Assessment required.

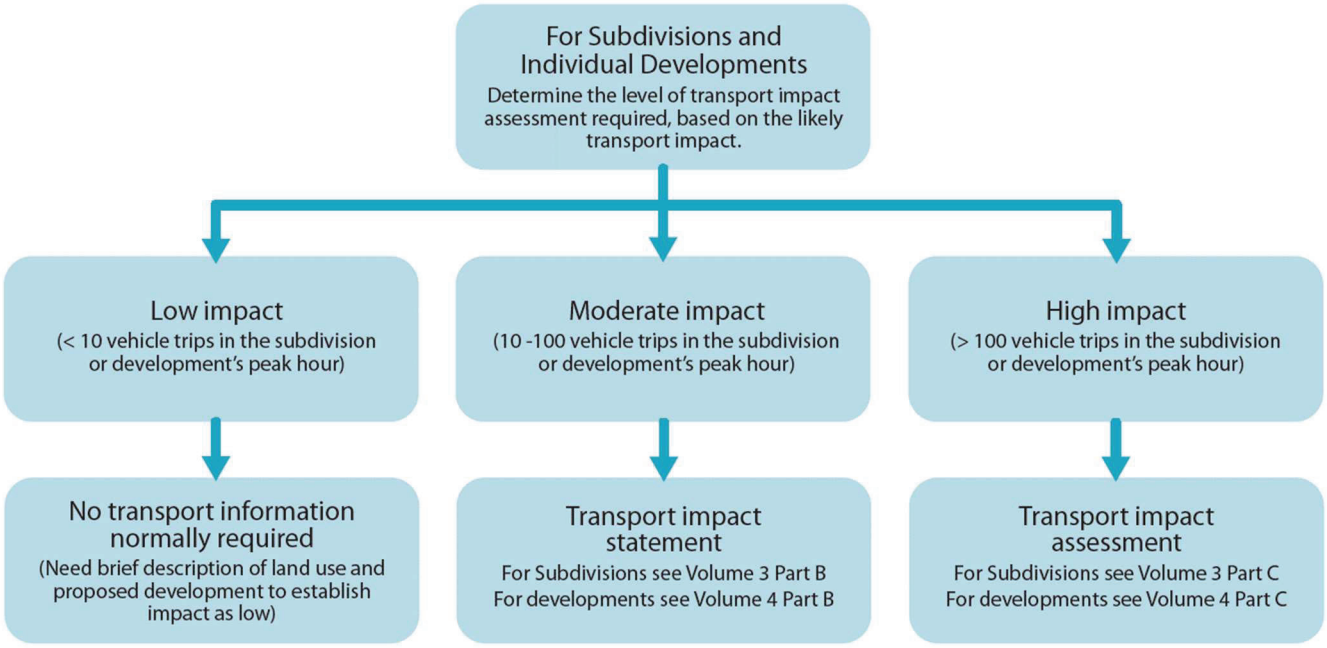

Figure 2 Level of transport impact assessment required (source: WAPC Transport Impact Assessment Guidelines, 2016)

As set out in section 6.1, the traffic attributable to the proposed development has been determined to be less than 100 vehicle trips in the operating peak hour, therefore the required level of assessment is a Transport Impact Statement.

2.3 Report Structure

The report is structured as required by the Transport Impact Assessment Guidelines, with the following sections:

- Proposed development
- Vehicle access and parking
- Provision for service vehicles
- Daily traffic volumes and vehicle types
- Public transport access
- Pedestrian access
- Cycle access
- Site specific issues
- Safety issues.

3. PROPOSED DEVELOPMENT

3.1 Development Site

The site has frontage to both South Terrace and Suffolk Street and is currently vacant as shown in Figure 3.

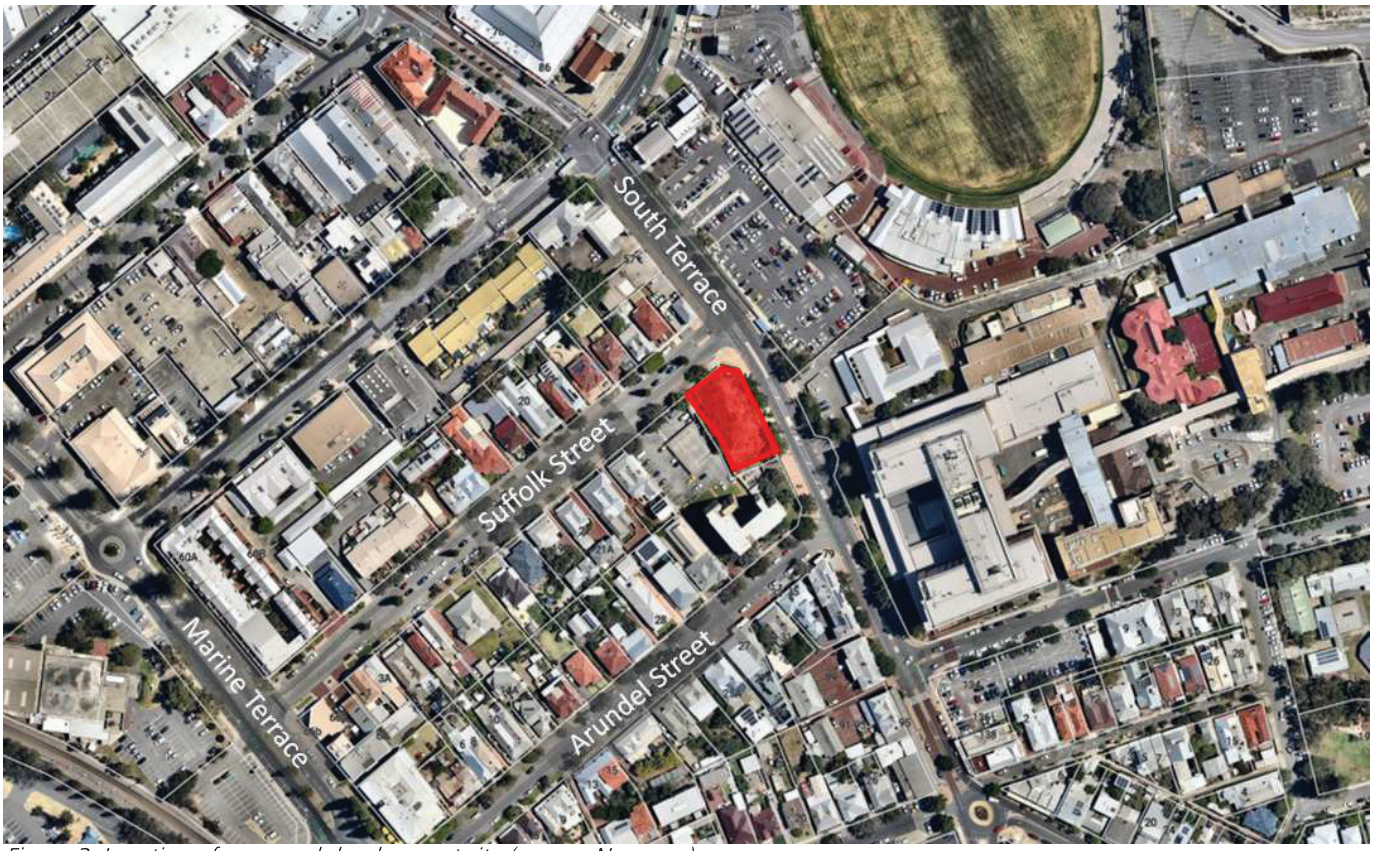

Figure 3 Location of proposed development site (source: Nearmap)

The proposed development is for a hotel with activated ground floor uses including a café/bar and a small commercial tenancy, and the fifth floor is used for an office. The site has excellent access to nearby public transport as well as a bicycle lane along South Terrace and a principle shared path (PSP) within 400m.

The proposed development includes the following:

- 100 hotel rooms
- 43 parking bays over two levels
- 14 bicycle racks
- Gym (exclusive use of hotel guests)
- 210m^2 office space
- 27m^2 commercial unit
- 82m^2 conference rooms
- 82m^2 café/bar.

A development site plan displaying the proposed development at South Terrace and Suffolk Street level shown in Figure 4.

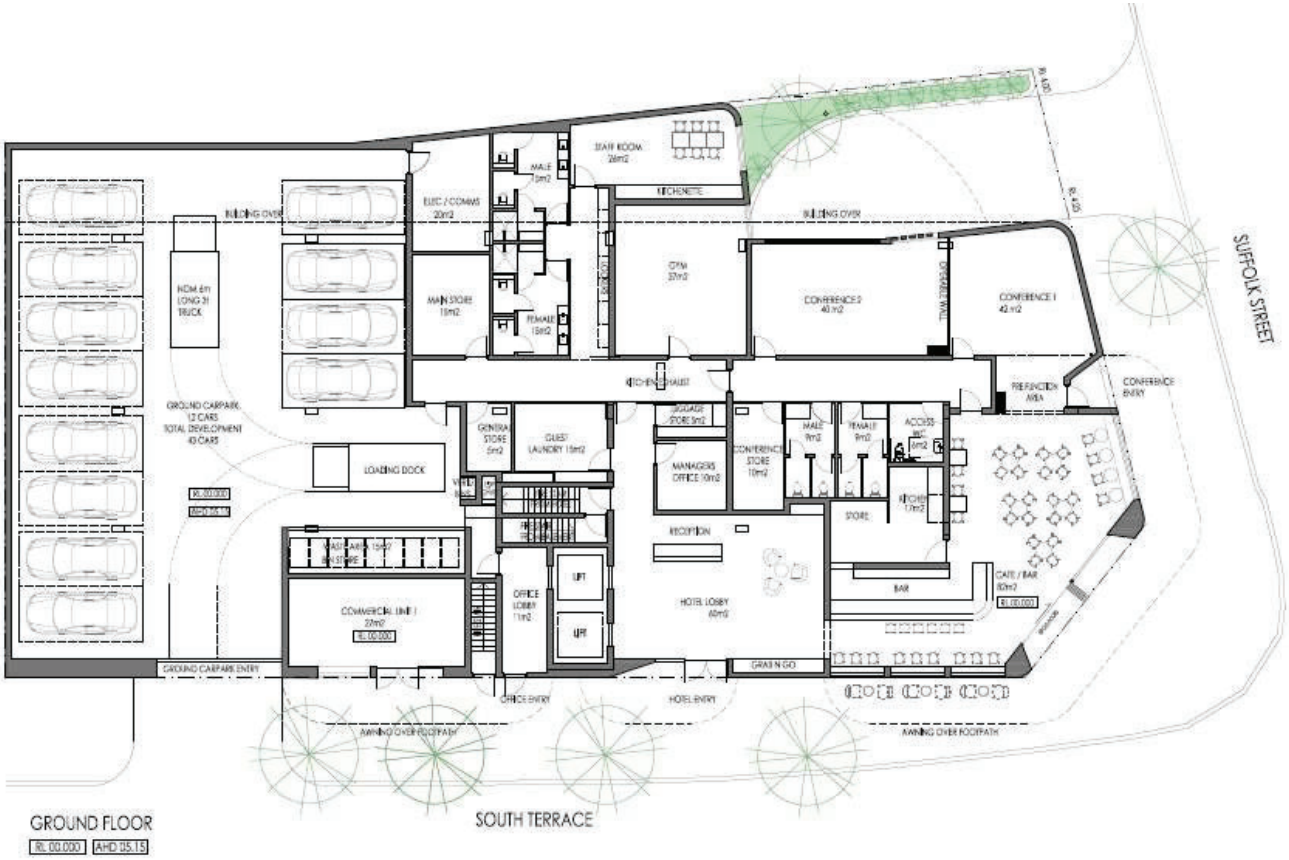

Figure 4 Site plan (source: Harris-Jenkins Architects)

4. VEHICLE ACCESS AND PARKING

4.1 Vehicle Access

Vehicle access to the development site is proposed via a crossover from South Terrace at ground level, approximately 60m to the south-east of the intersection of Suffolk Street and South Terrace. The proposed crossover will provide access to the ground floor parking area where a loading dock is located for commercial and service vehicles and waste collection as well as 12 bays for staff parking via a secure access-controlled roller door.

The proposed crossover is 5.5m wide which allows two way travel for private vehicles and one way travel for commercial and service vehicles and waste collection. While AS2890 recommends a minimum width of 5.5m for two way travel, the low number of parking bays and the projected volumes of 6 vph during peak commuter travel times means that a reduced width of 4.5m (for one way travel) is acceptable while still accommodating the swept path of a 6.4m SRV.

Turning movements are restricted to left in and left out only as a result of the raised median along South Terrace.

The vehicle access proposal from South Terrace is shown in Figure 5 and the on-street location shown in Figure 6.

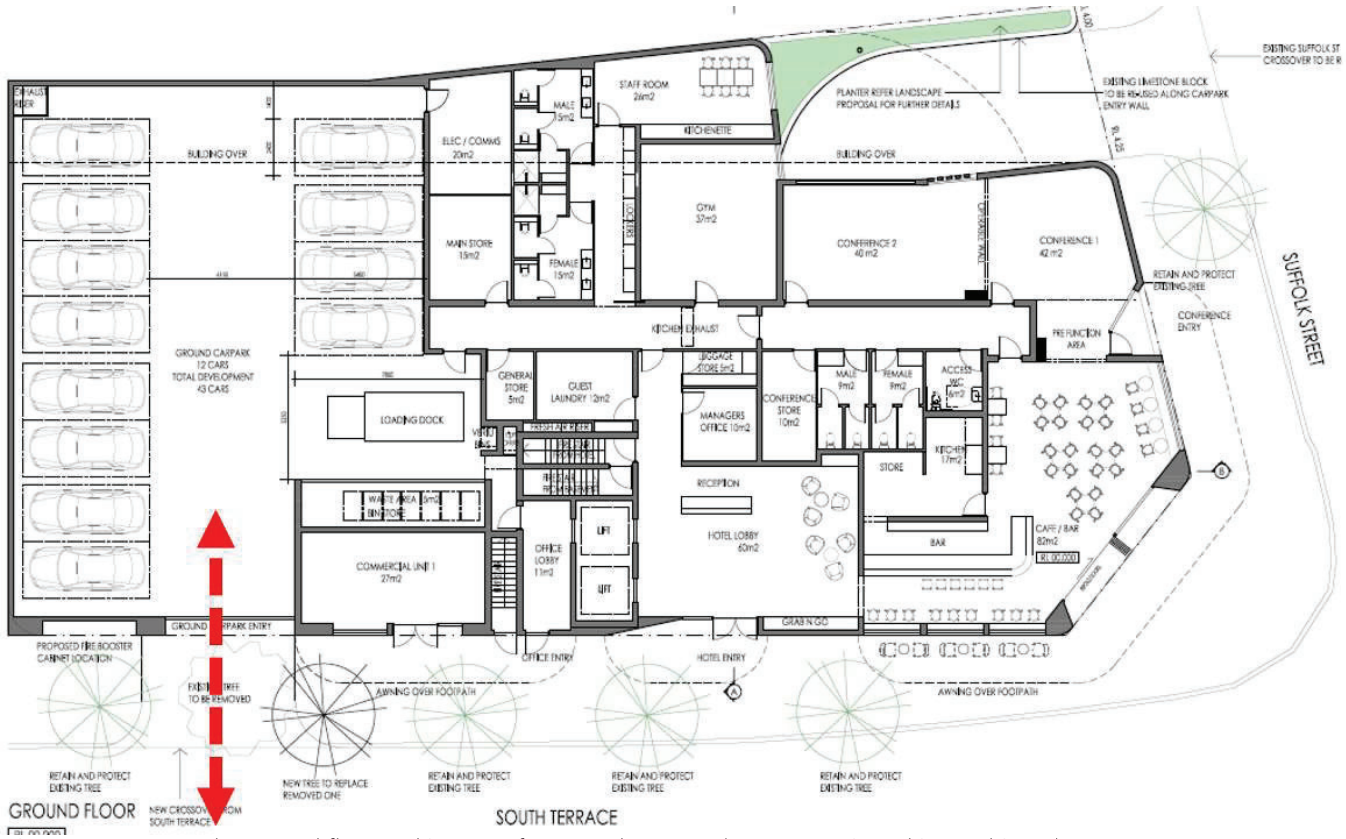

Figure 5 Access to the ground floor parking area from South Terrace (source: Harris-Jenkins Architects)

Figure 6 Proposed location of vehicle access point on South Terrace (source: Flyt)

A second access point is located on Suffolk Street and provides access to the basement level where 31 bays are provided for hotel guests via a secure access-controlled roller door. The access point is 5.5m wide to accommodate two way travel, with the proposal shown in Figure 7 and the on-street location shown in Figure 8. Turning movements are restricted to left in and left out only as a result of the raised median and parking bays along Suffolk Street.

The check-in procedure for hotel guests will need to be managed operationally, whereby access to the secure bays within the basement level should be provided to guests prior to their arrival to ensure they can drive directly to the parking bays without needing to first park within the on-street bays, check in and receive basement parking access and then re-park their vehicles. Options include a log-in code or number plate recognition. A log in code is typically easier for bicycle access.

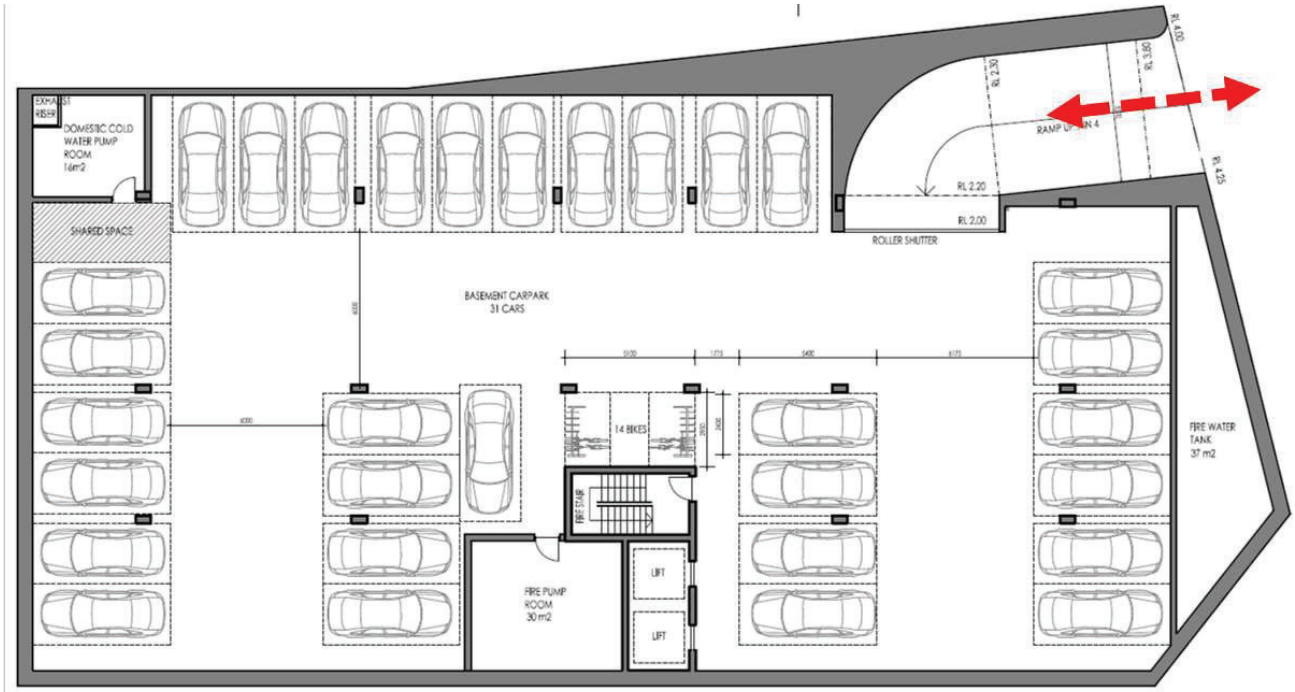

Figure 7 Access to the basement level parking area from Suffolk Street (source: Harris-Jenkins Architects)

Figure 8 Proposed location of vehicle access point of Suffolk Street (source: Flyt)

One existing crossover will be closed on Suffolk Street as shown below in Figure 9.

Figure 9 Location of crossover to be closed along development frontage (source: Nearmap)

4.2 On-site Parking

The development proposes 43 parking bays over two levels. 31 bays are located in the basement level for hotel guests including one ACROD bay and associated adjacent shared space, and 12 bays are located on the ground level for staff parking. One loading dock is provided on the ground floor level for commercial and service vehicles and waste collection. The proposed distribution of parking bays over the two levels is summarised in Table 1, and displayed in Figure 10 (basement) and Figure 11 (ground floor).

Table 1 Distribution of bays throughout parking levels

Parking Level	Hotel Visitor	Staff	Commercial
Ground floor	0	12	1
Basement 1	31	0	0
Total	**31**	**12**	**1**

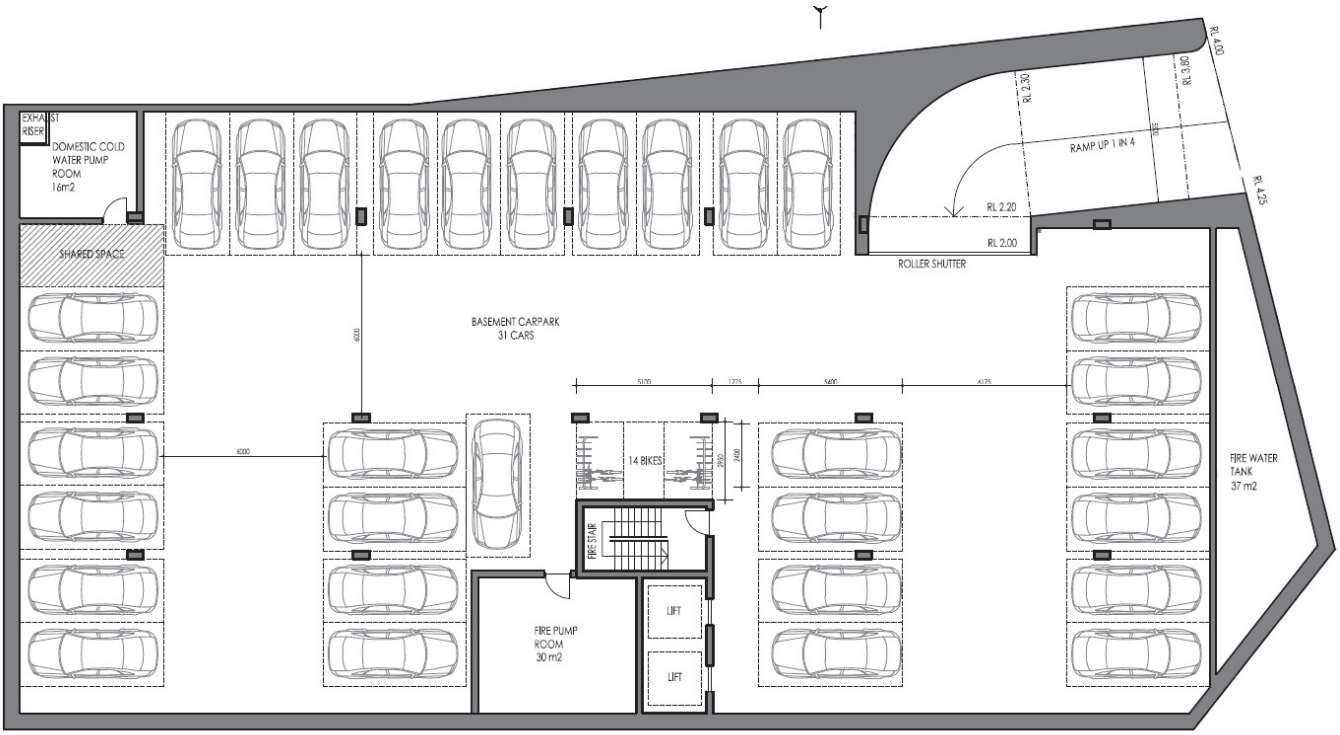

Figure 10 Proposed basement level parking (source: Harris-Jenkins Architects)

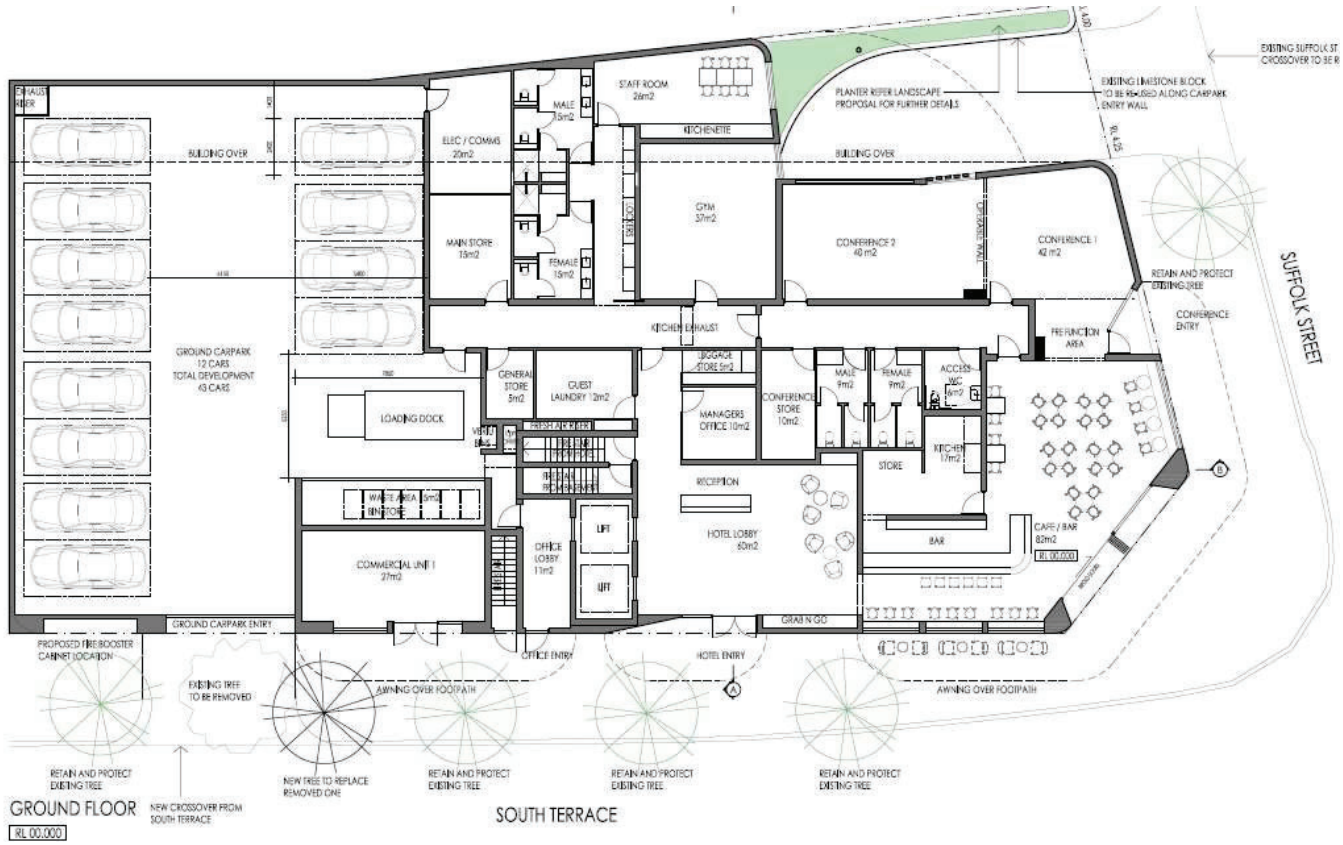

Figure 11 Proposed ground floor level parking (source: Harris-Jenkins Architects)

All parking bays, aisles, ramps, and circulation roadways will be designed to comply with Australian Standards 2890 Parking Standards Part 1: Off-street car parking. Swept paths have been checked throughout the car park.

4.3 Off-site Parking

No offsite parking is proposed within the development.

4.4 Required Car Parking

The parking requirements for a hotel, office, commercial tenancy, café/bar and conference rooms are sourced from the City of Fremantle's Local Planning Scheme No. 4 and are shown below in Table 2. The gym will be for the exclusive use of hotel guests and therefore does not generate demand for parking bays.

Table 2 City of Fremantle LPS No. 4 Minimum Parking Requirements

Use		Local Planning Scheme No. 4		Proposed Bays
		Minimum rate	Bays	
Hotel	100 rooms	I bay per room	100	31 (basement)
Office	210m^2	1:30m^2 GLA (min 3 spaces)	7	12 (ground floor)
Commercial	27m^2	1:20m^2 (min 2 spaces)	2	
Café/bar within a hotel (Restaurant)	82m^2	1:2.5m^2 (1:5m^2)	33 (17)	
Conference	82m^2	1:5 people (assuming 1 person per 4m^2)	4	
Total			146 (129)	43

The proposed provision of onsite parking bays provides 86 bays less than required by the City of Fremantle's LPS No. 4.

In September 2020, the City of Fremantle resolved to amend land use definitions and car parking requirements within Local Planning Scheme No. 4 (Amendment No. 82). Within the amendments, a hotel would be assessed under 'Tourist Development' where the parking rate is reduced to one bay per four units. This would reduce the minimum requirement from 100 to 25 bays, with the overall provision of bays reduced to 55 as shown below in Table 3.

Table 3 LPS No. Scheme Amendment 82 – updated parking requirements for new definitions

Use		Local Planning Scheme No. 4 Proposed Amendment 82		Proposed Bays
		Minimum rate	Bays	
Hotel	100 rooms	1:4 units	25	31 (basement)
Office	210m^2	1:30m^2 GLA (min 3 spaces)	7	12 (ground floor)
Commercial	27m^2	1:20m^2 (min 2 spaces)	2	
Café/bar within a hotel (Restaurant)	82m^2	1:2.5m^2 (1:5m^2)	33 (17)	
Conference	82m^2	1:5 people (assuming 1 person per 4m^2)	4	
Total			72 (55)	43

If the development were to be assessed in accordance with the changes outlined in Amendment No. 82, the proposed development would provide 12 bays less than required. These 12 bays are a result of the high rate of parking required for a café/bar.

Flyt undertook extensive surveys for a previous development application in East Perth where over 10 hotels within the Perth Central Business District were surveyed. Parking ratios for hotels were found to be lower than short stay apartments where it was common for no onsite parking be provided for hotel guests. The range of parking ratios for hotels was between 0 – 0.5 with an average of 0.25 bays per room, which is the rate proposed within Amendment No. 82 for 'Tourist Development'.

Bay allocation and the provision of onsite parking is discussed in more detail in section 11.1 Onsite Parking Provision.

5. PROVISION FOR SERVICE VEHICLES

5.1 Residential Service Vehicles

There is no residential component within the proposed development.

5.2 Commercial Service Vehicles

Commercial and service vehicles and waste collection will use the ground floor parking area. The size of the commercial vehicles will vary depending on their service ranging across small minivans 1.62m wide to 6.4m SRV's.

The proposed layout of the ground floor level, driveway, roller door access and loading dock accommodates the swept path movements of a 6.4m SRV in accordance with Australian Standards 2890 Parking Standards Part 1: Off-street carparking.

The ground floor loading dock and the swept path of a 6.4m SRV into and out of the development is shown in Figure 12. The existing width of the roller door at the entrance is 5.5m however the swept path analysis shows that this can be reduced to 4.5m (including clearances).

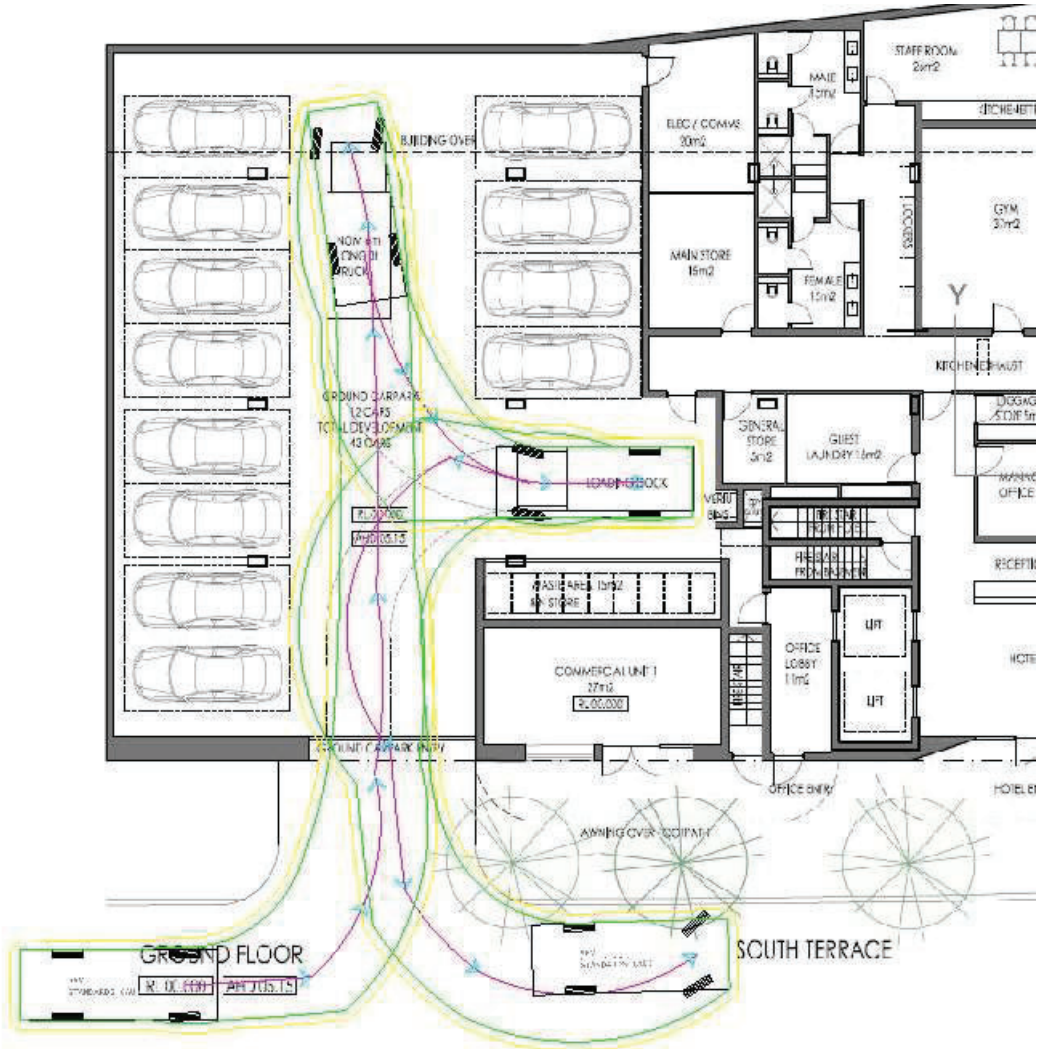

Figure 12 Ground floor loading dock and swept path of 6.4m truck

Flyt undertook extensive surveys for a previous development application in East Perth where over 10 hotels and short stay apartments within the Perth Central Business District were surveyed. A number of outcomes were assessed including service vehicle movements and peak operation times. An excerpt of this is shown in Table 4.

Table 4 Service vehicles - entry and exit counts

		AM Peak 0900-01100		PM Peak 1200-1400		12 Hour 0600-1800	
	Rooms	IN	OUT	IN	OUT	IN	OUT
Short Stay	79	1	1	0	0	5	5
Hotel 1	256	4	5	6	4	19	19
Hotel 2	44	1	1	0	1	6	6
Average	127	2	2	2	2	10	10

There is a large variance in the number of service vehicle movement to/from a hotel on any given day, where 19 service vehicles were recorded for a 256 room hotel and six for a 44 room hotel. The exact number of service vehicles accessing the site will be unknown until the ultimate operation of the site is determined, however the outcomes of the Flyt survey provide a general indication of the potential frequency and timing of these deliveries. For the purpose of this report, the number of deliveries is based on an average of the three locations above.

As far as possible, commercial deliveries and waste collection services will be scheduled outside of the peak morning period for inbound traffic along South Terrace, to minimise any potential disruption. Use of the loading dock may need to be managed to ensure a service vehicle exiting onto South Terrace does not block another service vehicle wishing to enter at the same time, potentially causing queuing back onto South Terrace.

Given that commercial deliveries and waste collection services will be engaged through a private contractor, any potential conflicts in delivery times can be managed. The City of Fremantle may require a delivery management plan and is expected as a condition of development approval.

A delivery management plan indicates the timing of deliveries to mitigate any potential conflicts and reduce demand for the loading dock at one time.

Within a delivery management plan, the following details are usually included:

- Location
- Public parking
- Hours of operation and delivery types
- Notification of agreed servicing procedure to ensure minimal disturbance
- On-site exceptions.

The plan would cover the details required to ensure that deliveries associated with the site are manageable. Some on-site exceptions can be managed in the building itself by the management company.

6. DAILY TRAFFIC VOLUMES

6.1 Trip Generation

Vehicle trips will be generated by the hotel, office, conference rooms, café/bar and commercial land uses.

Table 5 shows the trip rates for a hotel which are sourced from the Roads and Maritime Services (RMS), New South Wales "Guide to Traffic Generating Developments; 2002". For casual accommodation like a motel, trip rates are three daily vehicle trips per unit, with 0.4 vehicle trips per unit in both peaks. These rates assume that there is one parking bay per unit and that 85% of rooms are occupied. Table 5 also shows the rates for commercial and retail food and are sourced from the WAPC's Transport Impact Assessment Guidelines Volume 5 – Technical Guidance which suggest peak hour trip rates for commercial land uses.

Table 7 shows a second set of trip rates which are sourced from extensive research Flyt conducted as part of the development of the South Perth Activity Centre Plan. This rate more accurately reflects the number of trips generated from the proposed development, given the centre location and the proximity of tourist attractions, services, cafes and restaurants and a variety of transport options available along South Terrace.

The number of service vehicles anticipated to access the site is taken from the average shown in Table 4.

Table 5 Peak hour trip rates – RMS + WAPC

Land Use	AM Peak IN	AM Peak OUT	PM Peak IN	PM Peak OUT
Motel	0.045	0.255	0.249	0.051
Commercial (office and conference)	1.6	0.4	0.4	1.6
Retail Food	2	0.5	5	5

Table 6 Total peak hour trips – RMS + WAPC

Land Use	AM Peak IN	AM Peak OUT	TOTAL	PM Peak IN	PM Peak OUT	TOTAL
Motel	9	25	34	23	11	34
Commercial	5	1	6	1	5	6
Retail Food	2	0	2	4	4	8
Service vehicles	2	2	2	2	2	2
Total	17	30	44	30	22	52

Table 7 Peak hour trip rates – South Perth Activity Centre

Land Use	AM Peak IN	AM Peak OUT	PM Peak IN	PM Peak OUT
Serviced apartments (hotel)	0.117	0.183	0.162	0.138
Office (conference, commercial)	1.214	0.166	0.226	1.104
Café/bar	4.514	4.116	5.02	3.21

Table 8 Total peak hour trips – South Perth Activity Centre

Land Use	AM Peak IN	AM Peak OUT	TOTAL	PM Peak IN	PM Peak OUT	TOTAL
Serviced apartment	10	16	26	14	12	26
Office (conference -30%)	4	1 (0)	4	1	4 (3)	4
Café/bar (-30%)	4 (1)	3 (0)	7 (1)	4 (0)	3 (1)	7 (1)
Service vehicles	2	2	2	2	2	2
Total	20	22	39	21	20	40
30% reduction in café/bar, conference	16	18	35	17	17	34

Using the South Perth Activity Centre trip rates, based on a total of 100 rooms, 319m^2 of office/commercial/conference floorspace and 82m^2 of café/bar, and the development is forecast to generate 39 trips in the AM and 40 trips in the PM peak hours, as summarised in Table 8.

The number of projected trips shown in Table 8 likely overestimates the actual number of trips. Given the prime location of the subject site a higher number of hotel guests will walk to and from Fremantle city centre without needing to use on demand transport services or a private vehicle. The conference rooms and café/bar will also be used by a high proportion of people who stay at the hotel, reducing the number of trips from outside the hotel. Therefore, the proposed number of trips generated by the conference and the café/bar have been reduced by 30%. This reduces the total number of trips including service vehicles to 35 in the AM peak and 34 in the PM peak.

Knowing the service vehicle peaks occur outside commuter travel times, removing the service vehicle trips means the peak hours have a total of 33 trips in the AM and 32 trips in the PM peak.

The site is currently vacant and does not generate any trips.

6.2 Trip Distribution

All vehicles leaving the site will need to travel north along South Terrace and / or travel along Suffolk Street as a result of the restricted turning movements from both crossovers. Vehicles leaving the site have the following options:

- East – via High Street (accessed from South Terrace and right into Parry Street, right into High Street; OR from Suffolk Street, turn right onto Marine Terrace, right onto Norfolk Street and straight through to Parry Street)
- South – via South Terrace (left into Suffolk Street, left into Marine Terrace, left into Arundel Street and then right into South Terrace) OR via Marine Terrace (left into Suffolk Street and left into Marine Terrace)
- North – via South Terrace (left into South Terrace OR left into Suffolk Street and right into Marine Terrace, right into Norfolk Street and then left into South Terrace)
- West – via Suffolk Street.

The proposed directional distribution for trips from the site is shown in Figure 13.

Figure 13 Proposed trip directional distribution from the site

All vehicles travelling towards the site will need to access the South Terrace access point from the south, and all vehicles accessing the Suffolk Street access point will need to travel along the northern extent of Suffolk Street as a result of the restricted turning movements at these crossovers. Vehicle have the following options:

- From the East – via Suffolk Street (from High Street to Parry Street, left onto South Terrace and right onto Suffolk Street) OR via South Terrace (from Wray Avenue, right onto South Terrace)
- From the South – via South Terrace
- From the North – via Suffolk Street (along South Terrace and right into Suffolk Street)

The proposed directional distribution for trips towards the site is shown in Figure 14.

Figure 14 Proposed trip directional distribution to the site

6.3 Traffic Impact

The impact of the traffic generated by the proposed development will be dispersed across the area as result of the split access point for staff parking hotel guest parking, where both have movements restricted to left in and left out only. As discussed in section 6.1, 33 trips are anticipated to be generated in the AM peak and 32 in the PM peak, where 26 hotel guests use the Suffolk Street access point the remaining 6-7 use the South Terrace access point.

Due to the negligible impact of the additional trips, the PM peak was not assessed. Saturday peaks for hotel guests are typically more dispersed across the day and have therefore not been assessed.

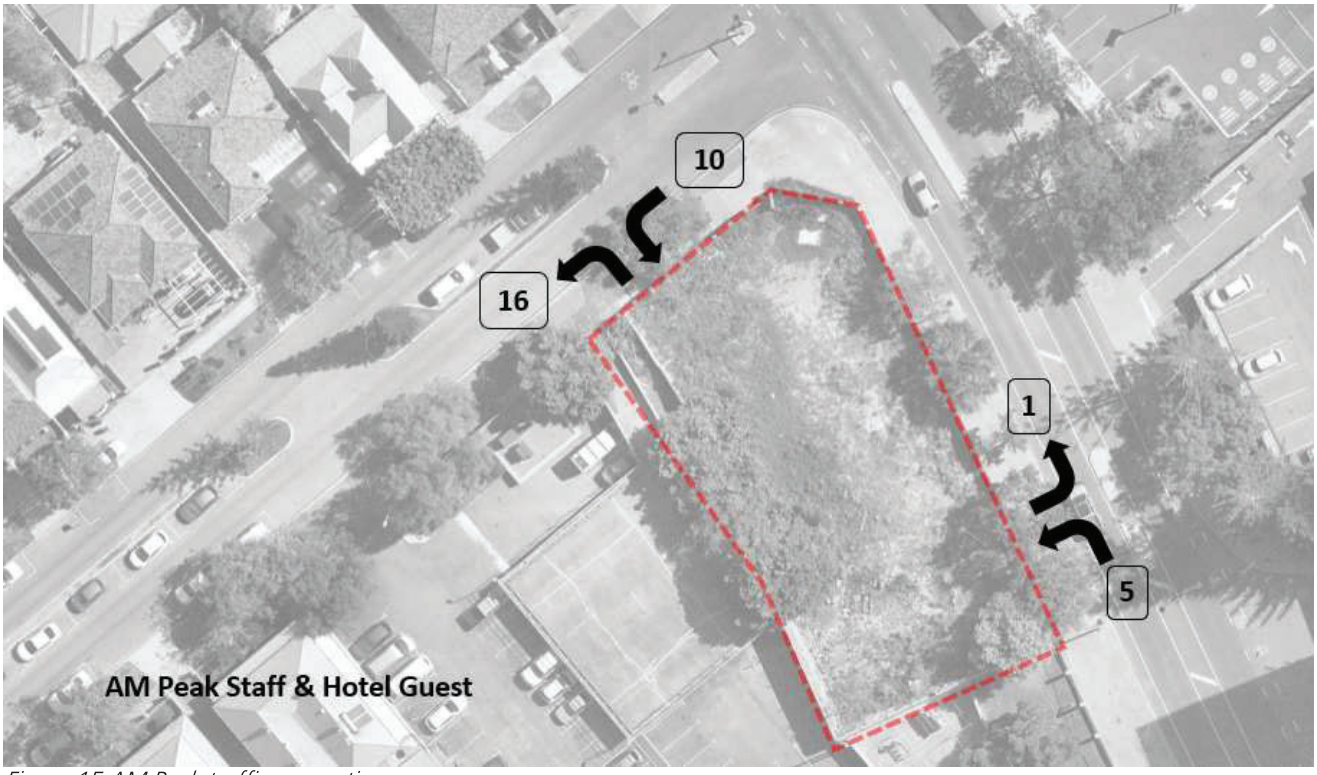

Figure 15 AM Peak traffic generation

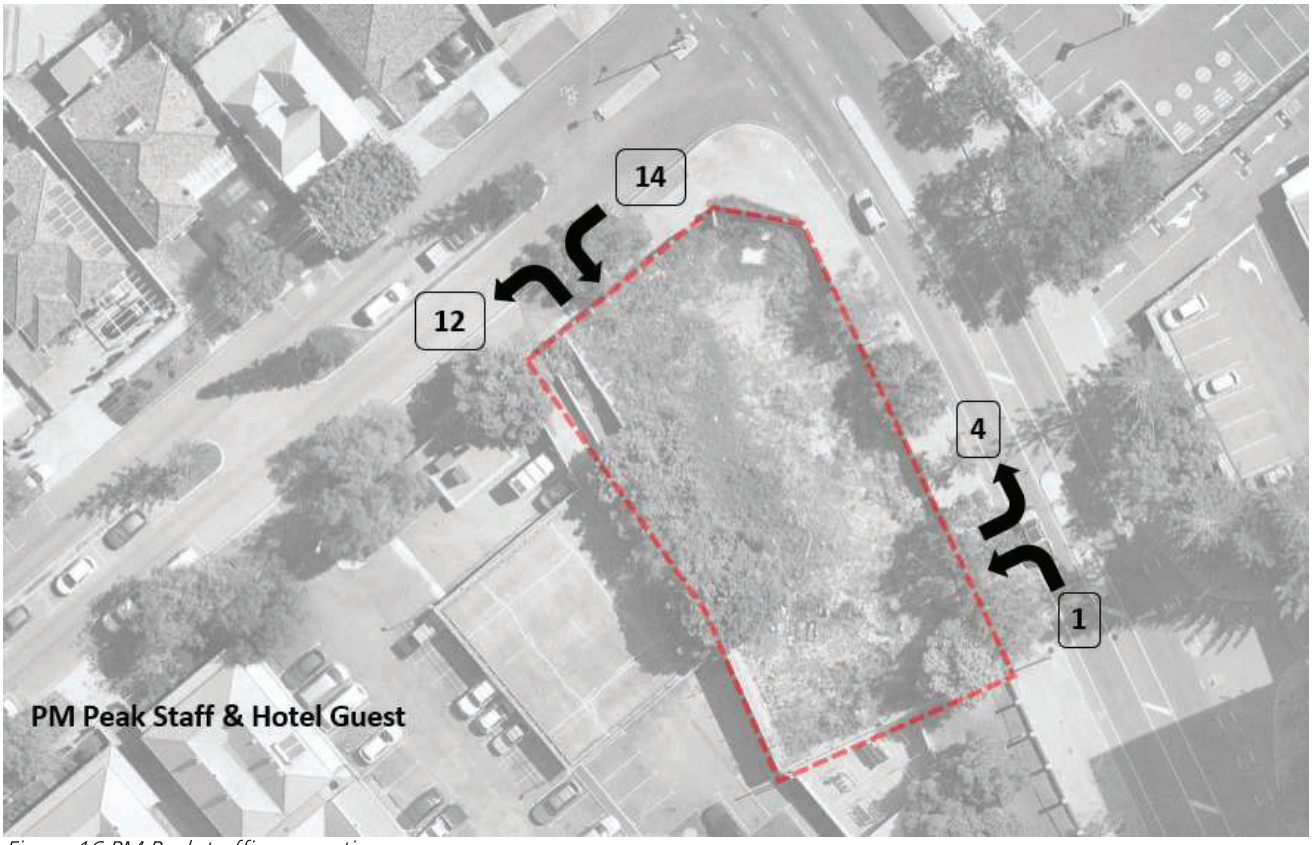

Figure 16 PM Peak traffic generation

6.3.1 South Terrace

A site visit was conducted on Thursday January 13, 2021 between 8.00 – 9.00am to coincide with peak AM travel times as identified by Main Roads WA site LM00468 at the corner of South Terrace and Parry Street, 130m north of the subject site. The site visit recorded traffic volumes along South Terrace and turning movements into and out of Suffolk Street. 304 vehicles were recorded travelling southbound and 434 were recorded travelling northbound, a total of 738 vph. Of these vehicles travelling north 20 (5%) turned left into Suffolk Street, and of those vehicles traveling south 20 (7%) turned right into Suffolk Street.

The staff parking associated with the ground level parking area off South Terrace will see an additional five vehicles enter and one exit during the AM commuter peak, increasing the traffic volumes by 1% to 435 vehicles on the northbound direction of travel. Service vehicles have not been included as their peak travel times typically occur outside peak commuter travel times. The impact of the proposed development will have a negligible impact on volumes along South Terrace.

6.3.2 Suffolk Street

The site visit on Thursday January 13, 2021 recorded 40 vehicles travelling towards Marine Terrace and 20 vehicles traveling towards South Terrace, a total of 60 vehicles along Suffolk Street. If all 27 vehicles (being hotel guests both entering and exiting, and all outbound trips from the South Terrace access point) travelled along Suffolk Street at this time, this would increase volumes by 68%. This high increase is expected, given the existing volume of vehicles along Suffolk Street. This scenario is also unlikely knowing that peak times for hotel guests is typically spread across two hours and that only 5% of vehicles exiting the South Terrace access point will use Suffolk Street when leaving the proposed development.

Typical mid-block capacities for urban divided roads have been sourced from the Guide to Traffic Management Part 3: Transport Studies and Analysis Methods table 6.1. Urban divided roads have a capacity of 1000 vehicles on a one way road. Given the existing one way volume is 40 vehicles, this represents 4% of the existing mid-block capacity. Assuming all 27 peak hour trips use Suffolk Street during the AM peak between 8.00 – 9.00am, this creates a total of 7% of the roads mid-block capacity, an increase of 3%. The traffic generated by the development is therefore expected to have a negligible to small impact on Suffolk Street.

7. TRAFFIC MANAGEMENT ON FRONTAGE STREETS

7.1 Frontage Streets

The site has frontage to South Terrace and Suffolk Street. The site is within 700m of South Street which provides for inter-regional traffic connections to the east.

There are many local connections from the site due to the grid layout of the road network.

The road hierarchy surrounding the development site is shown in Figure 17 and the speed zoning (including the recent 40km/hr speed limit within Fremantle city centre) is shown in Figure 18.

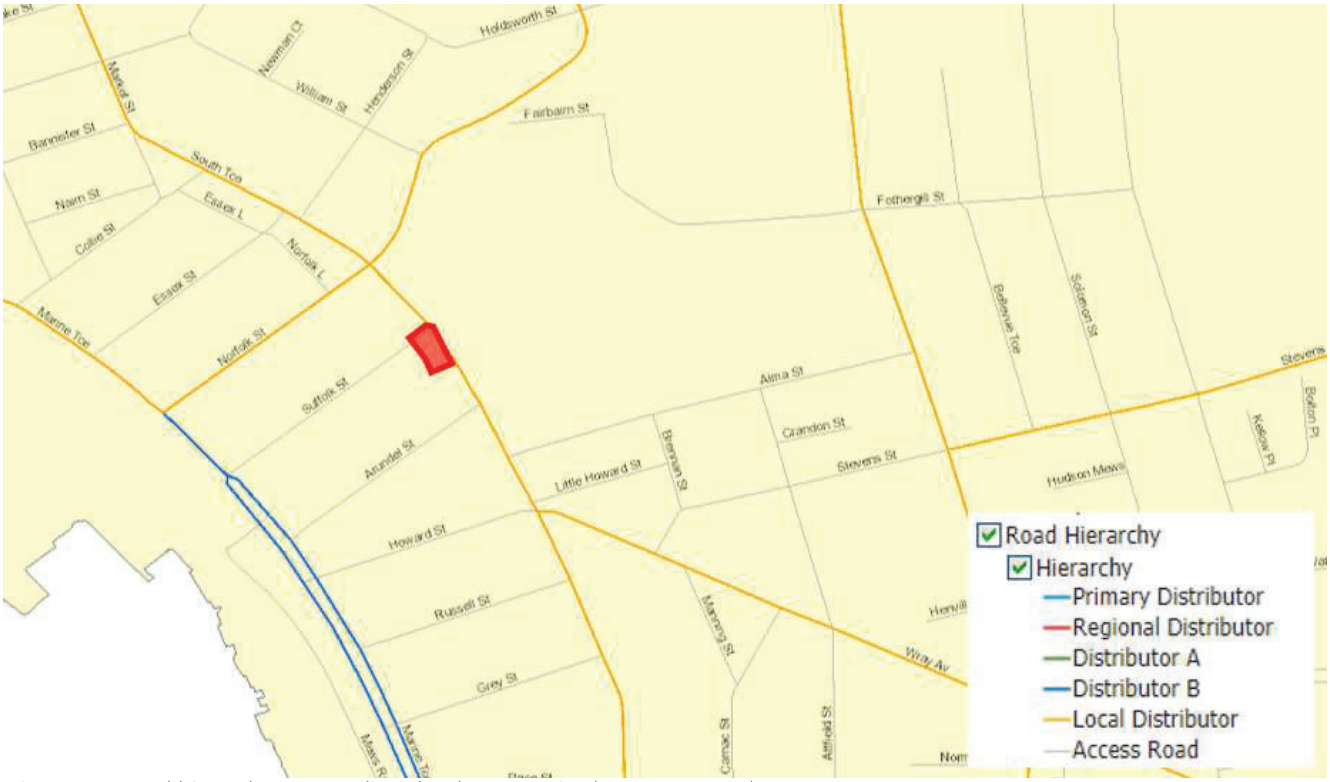

Figure 17 Road hierarchy surrounding development site (source: MRWA)

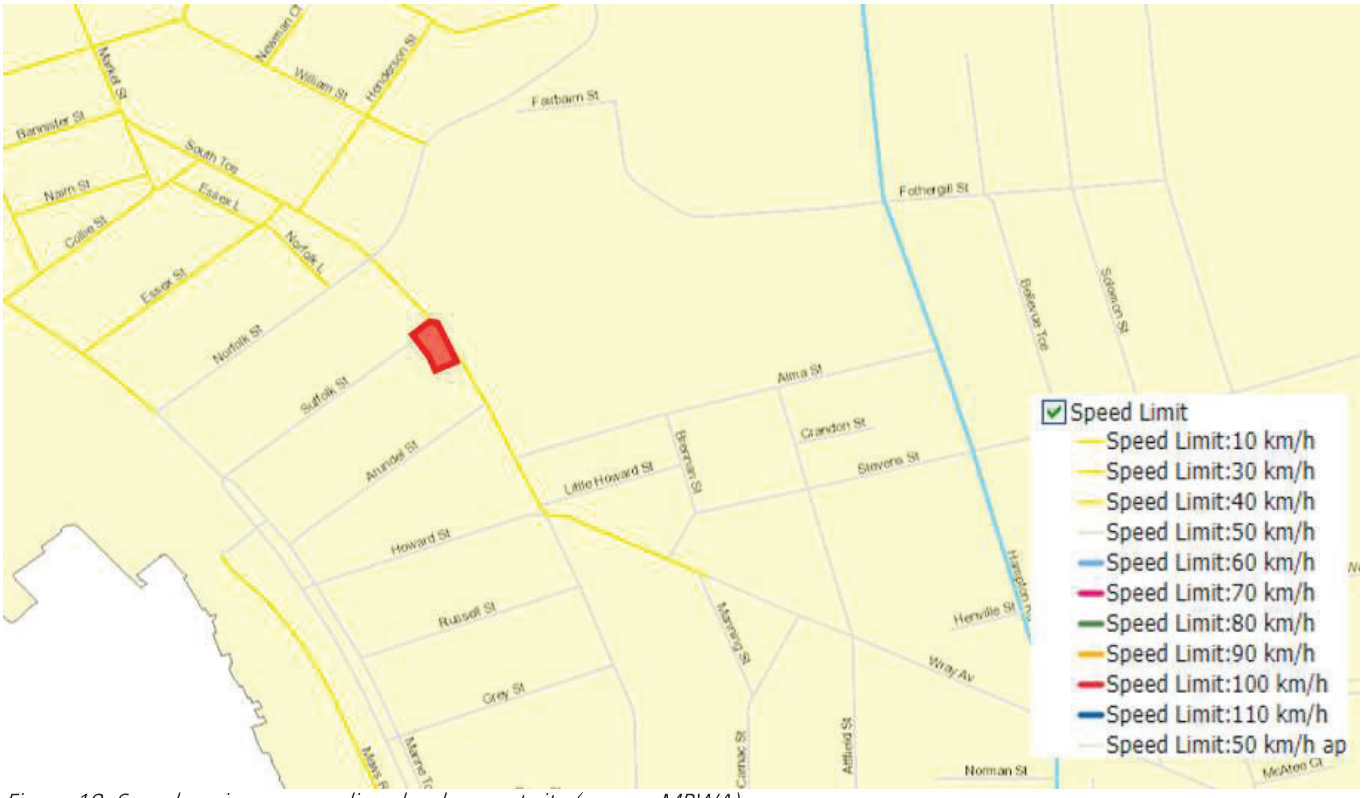

Figure 18 Speed zoning surrounding development site (source: MRWA)

7.1.1 South Terrace

South Terrace is classified as a Local Distributor, running between Fremantle Station to the north and Ocean Road to the south where it terminates. It is constructed to a width of 14m, within a 20m road reserve, with two lanes in each direction. Most sections of South Terrace accommodate a one metre bike lane in each direction depicted by painted white lines, located between moving vehicles and the verge or parked vehicles. Sections of South Terrace have on-road murals, raised intersections and red/green road base to signal bicycle priority. There is no on-street parking adjacent to the subject site, however other sections to the north and south accommodate embayed on-street parking bays.

The posted speed limit outside the subject site is 40km/hr. There is a 4.5m concrete verge along the north side and a 3.5m concrete verge on the south side of South Terrace.

On Wednesday September 29, 2020, detector volume data was collected from site LM00468 at the intersection of South Terrace and Parry Street with the volumes shown in Figure 19. This intersection has a fairly constant flow of traffic across the day and shows the AM peak of 1419 vehicles occurring between 8.00-9.00am and the PM peak of 1462 vehicles occurring at 3.00-4.00pm. A site visit conducted on Thursday January 13, 2021 and recorded a total of 738 vehicles travelling along South Terrace between 8.00-9.00am.

A cross section of South Terrace adjacent to the development site is shown in Figure 20.

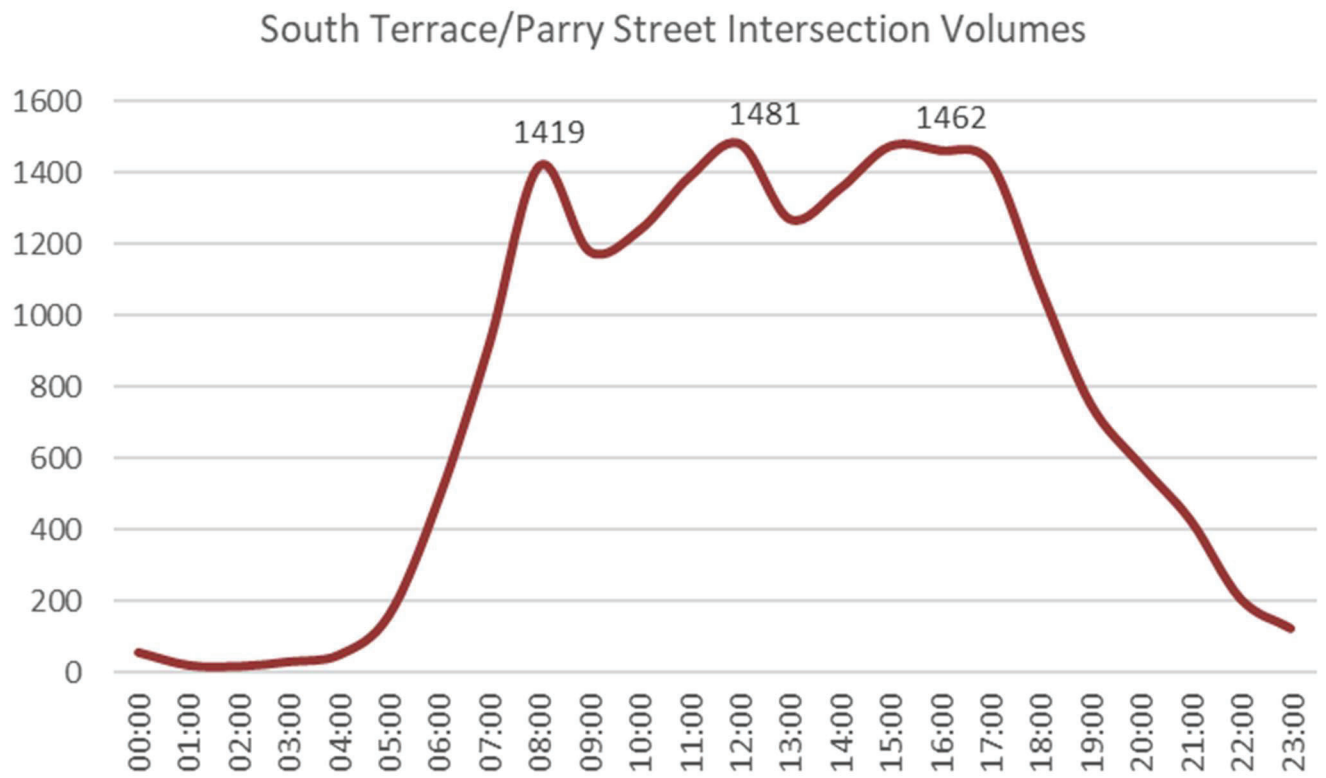

Figure 19 Trafficmap (site LM00468) for South Terrace

Figure 20 South Terrace cross section looking south east with subject site on the right (source: Flyt)

7.1.2 Suffolk Street

Suffolk Street is an Access Road, running between South Terrace to the north-east and Marine Terrace to the south-west. It is constructed to a width of 14m, within a 24m road reserve. A cross section of Suffolk Street is shown in Figure 21.

Figure 21 Suffolk Street cross section looking south west with the development site on the left (source: Flyt)

On-street parking is permitted along most sections of Suffolk Street, except adjacent to the subject site controlled by the yellow lines and No Standing sign. Parking bays have been created within the median and all parking is restricted to two hours between 8.00am and 6.00pm Monday to Saturday. Some on-street bays are reserved for residents only and require a permit. There is a 1m concrete footpath along both sides of Suffolk Street set back from the street along the property edge.

A site visit was conducted on Thursday January 13, 2021 to record traffic volumes along Suffolk Street. The site visit recorded a total of 60 vehicles travelling along Suffolk Street with 40 travelling towards Marine Terrace and 20 travelling towards South Terrace. This is a total of 60 vehicles along Suffolk Street during the AM peak hour of 8.00-9.00am. (The site visit was conducted during the 2021 summer holidays and may result in fewer peak hour vehicles).

7.1.3 Marine Terrace

Marine Terrace is classified as a Distributor A which travels from Cliff Street to the north and Douro Road to the south. It has a posted speed limit of 50km/hr.

Marine Terrace is approximately 21m wide within a 30m road reserve. It has two lanes in each direction and has on-street parking in most sections. There is a 1.5m bike lane on each side depicted by white painted lines and green road base across crossovers and slip lanes which signals bicycle priority.

According to Main Roads WA Trafficmap data for site 1444 north of South Street, in 2020/2021 Marine Terrace carried approximately 10,911 vehicles on an average weekday where 6.8% were recorded as heavy vehicles. Clear peak hours occur at 8.00-9.00am northbound and 4.00-5.00pm southbound.

A cross section of Marine Terrace is shown in Figure 22.

Figure 22 Maine Terrace cross section looking south (source: Flyt)

7.2 Intersections

7.2.1 South Terrace / Suffolk Street

The four-way intersection of South Terrace and Suffolk Street is priority controlled, with the South Terrace approaches having priority.

7.2.2 Suffolk Street / Marine Terrace

The four-way intersection of Suffolk Street and Marine Terrace is priority controlled with the Marine Terrace approaches having priority.

7.3 Forecast Traffic Volumes

The proposed development is forecast to generate 33 trips in the AM and 32 trips in the PM peak hours.

During the AM peak 26 vehicles will use the access point on Suffolk Street, where five will turn right and five will turn left from South Terrace into Suffolk Street and enter the parking area, and 16 will exit and head towards Marine Terrace. Approximately one vehicle exiting the South Terrace parking area will turn left onto Suffolk Street, together with existing volumes of 60vph creates a total of 87 vehicles using Suffolk Street during this time.

During the AM peak six vehicles will use the access point on South Terrace. As a result of the restricted turning movements on Suffolk Street, 10 inbound hotel guests will need to travel along South Terrace to enter the Suffolk Street access point and together with existing volumes of 738vph creates a total of 754 vehicles using South Terrace during this time.

The traffic generated by the development is expected to have a negligible to small impact on the surrounding local network, while the impact on the regional road network will be negligible.

8. PUBLIC TRANSPORT ACCESS

8.1 Existing Services

The development site is located within close and convenient access to frequent and regular public transport services. It is serviced by the Fremantle Blue CAT which travels in a one way circular route connecting Fremantle Station, South Beach and Marine Terrace (Figure 25). Bus route 998 is designated by Transperth as a high frequency service and travels in a clockwise direction and leaves every 5 – 15 minutes. It connects major destinations around Perth including the University of Western Australia, QEII Medical Centre, Stirling Station, Bayswater Station, Curtin University, and Murdoch University. Bus route 999 connects the same destinations but travels in an anti-clockwise direction.

The bus stops along South Terrace carry an additional eight bus routes being the 511, 513, 520, 530, 531, 532, 548 and the 549 as shown in Figure 23.

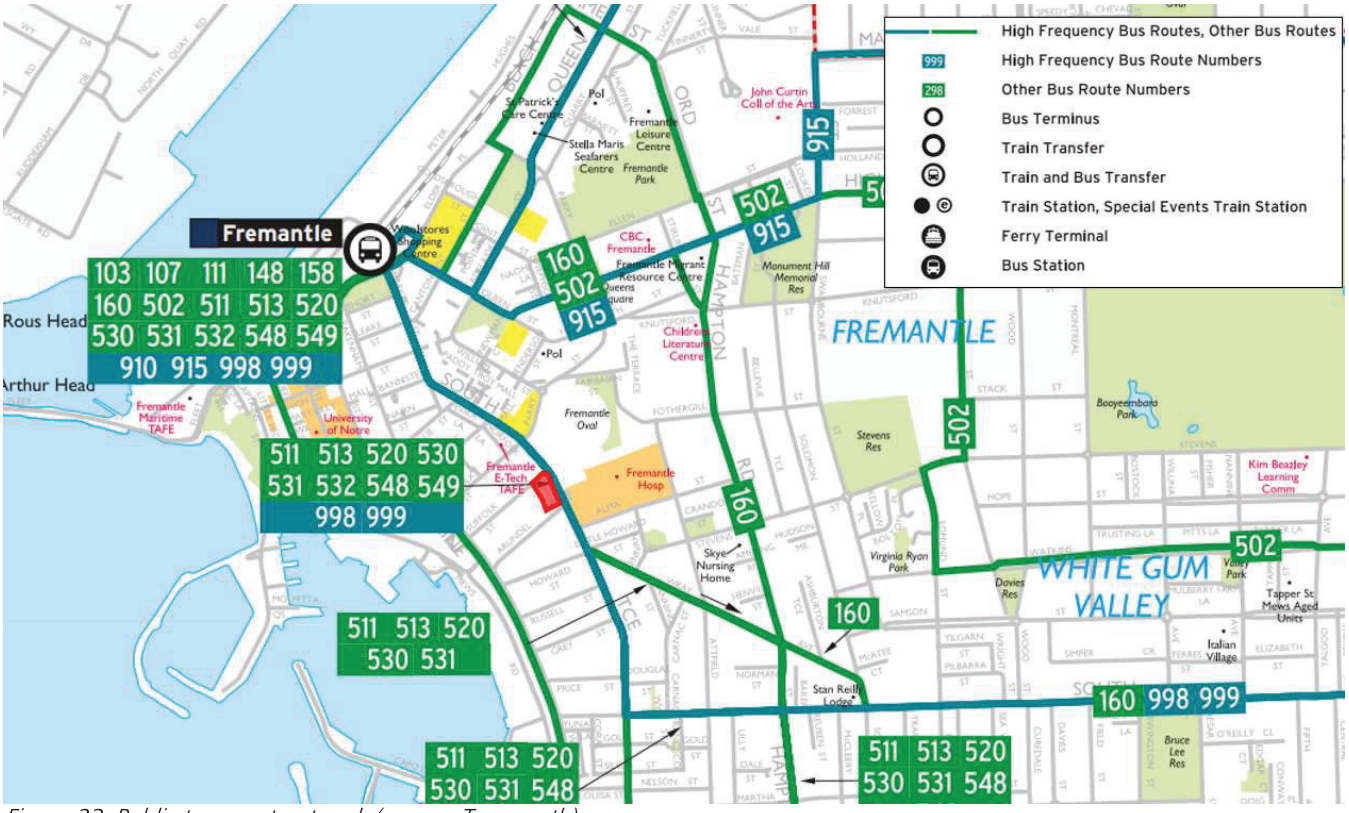

Figure 23 Public transport network (source: Transperth)

The site is within 800m of Fremantle Station with direct train services to Perth city and connects to the Midland Line with planned future linkages to Perth Airport.

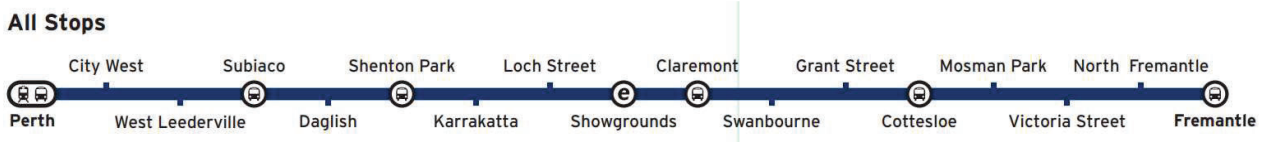

Figure 24 Fremantle Train Line

Bus routes 511 and 513 travel a similar route where the 511 services Winthrop and Willagee and the 513 services Kardinya. The 520, 530, 531 and 532 all travel between Cockburn Station and Fremantle Station servicing various suburbs.

Bus routes 548 and 549 travel between Fremantle Station and Rockingham Station and the Blue CAT provides free local travel around Fremantle as shown in Figure 25.

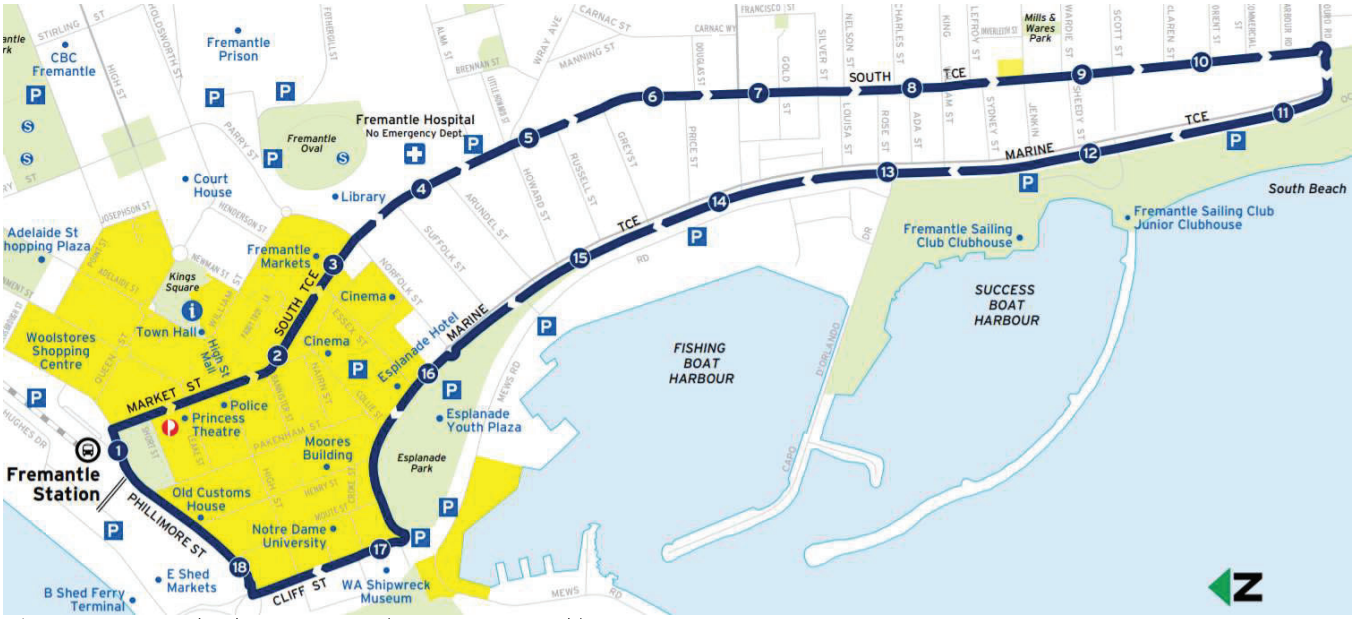

Figure 25 Fremantle Blue CAT route (source: Transperth)

The nearest bus stops are shown in Figure 26. More detail of bus route services and frequencies is provided in Table 9.

Figure 26 Closest bus stops (source: Transperth)

Table 9 Bus frequency and service numbers (source: Transperth)

Route		Weekday Summary		Saturday Summary	Sunday/ Public Holiday Summary
		No. Services	AM/ PM Peak Frequency		
Fremantle Line	Perth Station	89 services 5.17 to 2.54am	15 minutes	68 services, 15 minute frequency	62 services, 15 -30 minute frequency
998	Clockwise	64 services 5:30am-11.30pm	5-15 mins	48 services, 15 minute frequency	29 services, 15-30 minute frequency
999	Anti-clockwise	69 services 6.17am-11.14pm	5-15 mins	46 services, 15 minute frequency	27 services, 15-30 minute frequency
511	Fremantle Station and Murdoch Station	33 services 6.00am-9.31pm	15-20 mins	16 services, 60 minute frequency	14 services, 60 minute frequency
513	Fremantle Station and Murdoch Station	36 services 5.53am-10.00pm	15-20 mins	15 services, 60 minute frequency	14 services, 60 minute frequency
520	Cockburn Station and Fremantle Station	41 services 5.40am-10.05pm	15-20 mins	17 services, 60 minute frequency	14 services, 60 minute frequency
530	Cockburn Station and Fremantle Station	41 services, 5.27am-11.46pm	30 mins	17 services, 60 minute frequency	16 services, 60 minute frequency
531	Cockburn Station and Fremantle Station	22 services, 6.13am-7.10pm	10-20 mins	13 services, 60 minute frequency	12 services, 60 minute frequency
532	Cockburn Station and Fremantle Station	37 services, 6.01am-11.27pm	10 mins	17 services, 60 minute frequency	14 services, 60 minute frequency
548	Fremantle Station and Rockingham Station	21 services, 6.06am-8.30pm	10-15mins	8 services, 60 minute frequency	8 services, 60 minute frequency (between Fremantle Station and Coogee)
549	Fremantle Station and Rockingham Station	44 services, 6.36am-12.41am	10 mins	34 services, 30 minute frequency	31 services, 30 minute frequency
Blue CAT	Fremantle Station (Clockwise from South Terrace to Marine Terrace)	Mon – Thurs 33 services, 7.25am-6.25pm	Friday 36 services 7.25am-7.25pm	Sat, Sun and Public Holidays 25 services, 20 minute frequency	

9. PEDESTRIAN ACCESS/AMENITY

9.1 Existing Pedestrian Network

The site has an excellent level of pedestrian connectivity with footpaths on all sides of all surrounding streets. Suffolk Street has old, narrow paved footpaths on both sides which abut the properties and are setback from the street. There is a good amount of passive surveillance and the established street trees provide shade along some sections of Suffolk Street.

The verge is paved on both sides of South Terrace to accommodate the high volumes of pedestrians travelling between Fremantle city centre, Fremantle Hospital and the cafes and businesses along South Terrace south of the subject site. The slower vehicle speeds of 40km/hr ensure a quieter and more enjoyable pedestrian environment. The City of Fremantle has applied to Main Roads WA for the city centre to become 30km/hr which would further improve amenity and safety for pedestrians.

The Walk Score walkability assessment tool considers the development site to be a "walker's paradise" where daily errands do not require a car, with a walk score of 93 out of 100. The 15-minute walkable catchment is shown in Figure 27, which includes destinations such as Bathers Beach, the Roundhouse, Fremantle Prison, Fremantle Markets, Fremantle Fishing Boat Harbour, Fremantle Station, Fremantle Oval, the Esplanade and skate park, Fremantle Tourist Wheel, University of Notre Dame, B-Shed Rottnest Express Terminal and Fremantle Hospital etc.

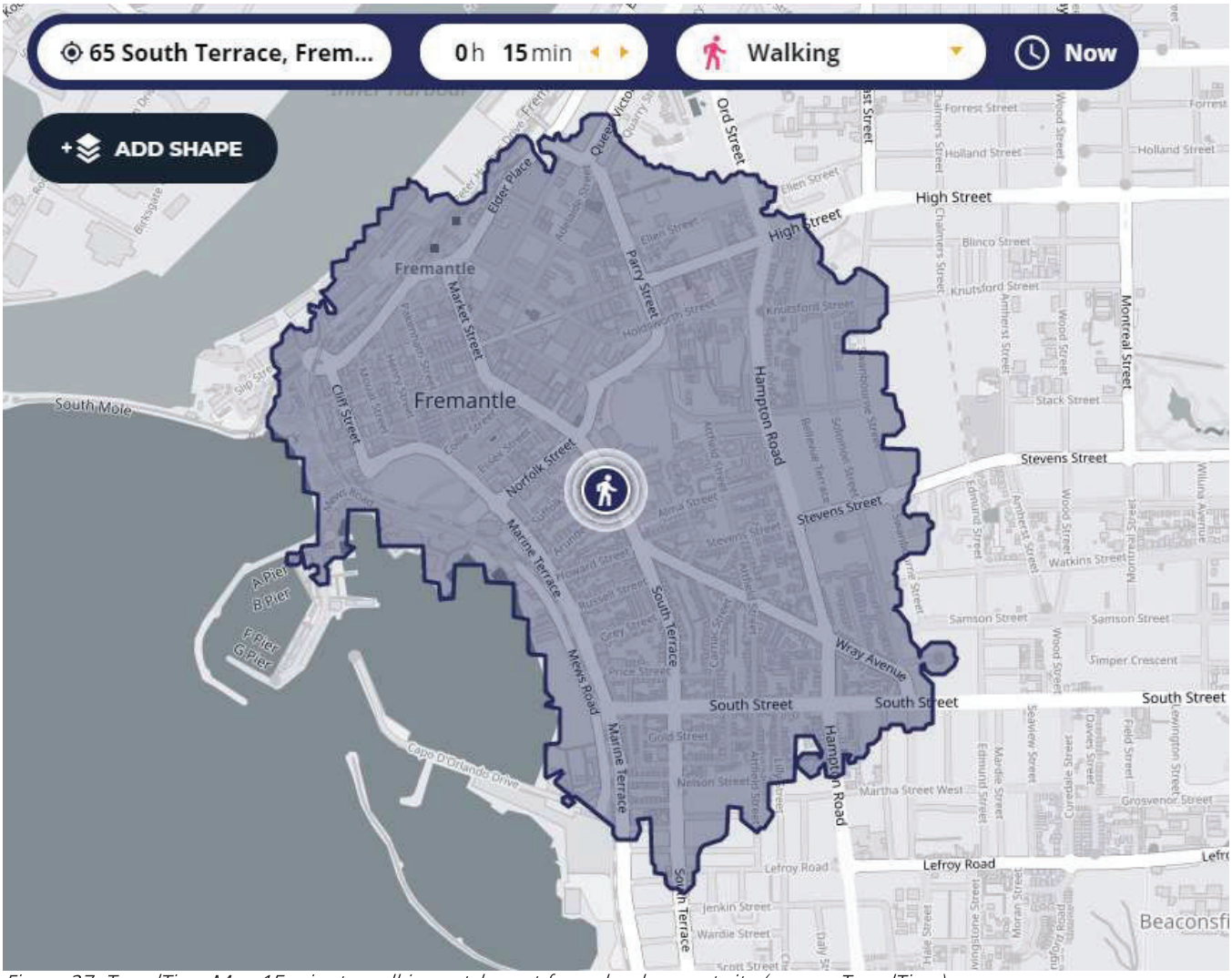

Figure 27 TravelTime Map 15 minute walking catchment from development site (source: TravelTime)

The Department of Planning, Lands and Heritage recently released the Urban Tree Canopy Dashboard which provides an interactive snapshot of the extent of tree canopy coverage across the Perth and Peel regions. The urban tree canopy is an essential part of creating healthy, liveable neighbourhoods, where more dense and mature tree canopies can support active travel along walking and cycling paths.

In 2018, the street blocks in Fremantle had 9% canopy cover from trees over 3m tall, resulting in 91% of the street block area without any canopy cover. The Perth Metropolitan area has an average of 12% canopy cover from trees over 3m tall in street blocks.

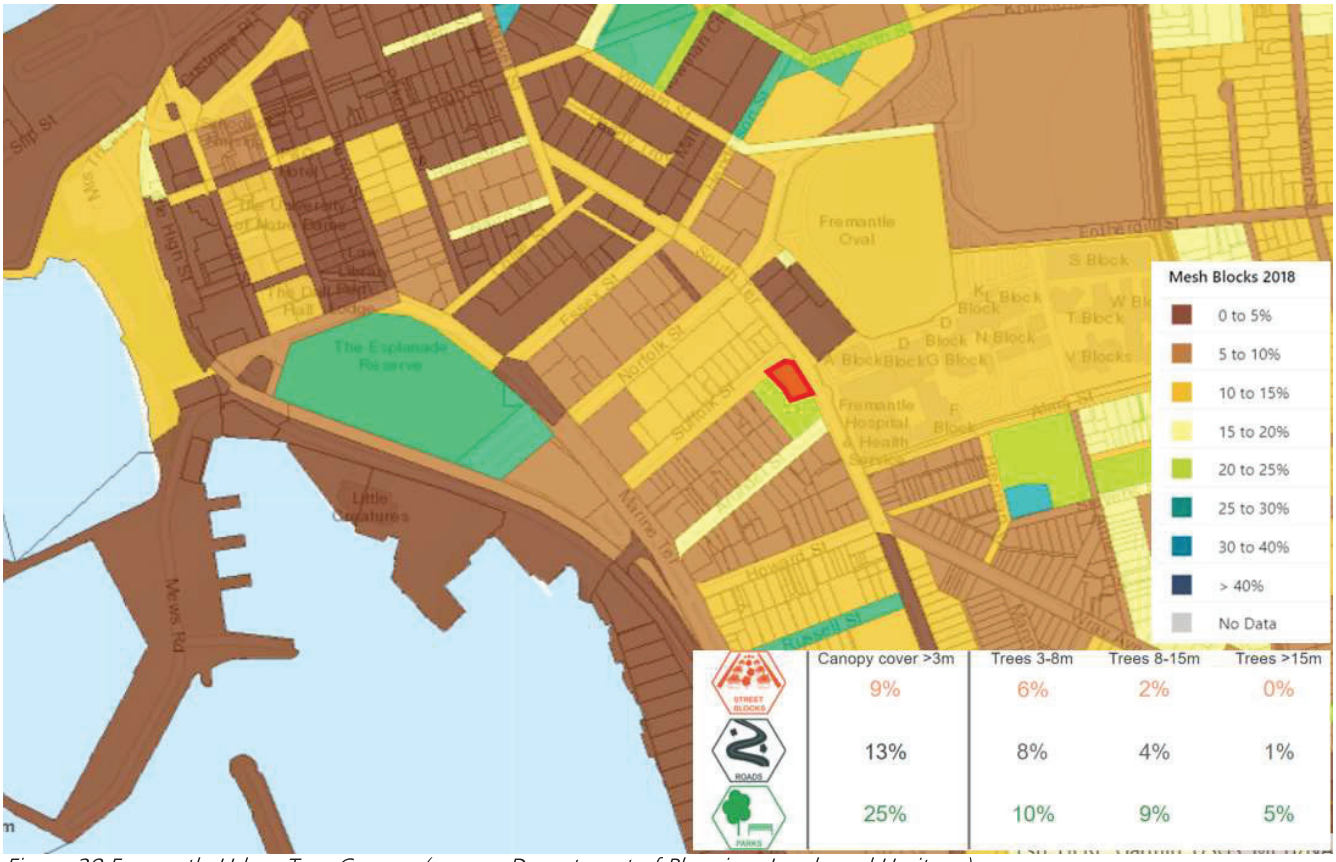

Figure 28 Fremantle Urban Tree Canopy (source: Department of Planning, Lands and Heritage)

The lower than average street block tree canopy within the area exacerbates the urban heat island effect and can discourage people from walking throughout the area. Retaining street trees and planting additional green landscaping would reduce the heat throughout summer and create a more inviting and pleasant pedestrian environment in line with the City of Fremantle's Urban Forest Plan.

9.2 Development Proposals

The main pedestrian access to the hotel will be via South Terrace at ground level through the main access doors. Access to the café/bar is also from South Terrace, with the entrance located on the corner of Suffolk Street and South Terrace. Access to the conference rooms is from Suffolk Street and the commercial unit has direct access from South Terrace. Office staff who work on level 5 also have a separate access point located on South Terrace.

Staff who park in the ground floor paring area, can use the internal door located behind the loading dock which provides access through to office lobby lifts, hotel lobby and conference rooms. Typical peak commuter travel times for staff occur between 8.00am-9.00am and 4.00-5.00pm and does not coincide with peak service vehicle operation times of 9.00-11.00am and 12.00-2.00pm. Any shift work associated with the hotel and café/bar may see some crossover between staff parking and service vehicle operation times however given the low number of staff parking provided within this parking area, the potential for conflict between service vehicles and pedestrians is expected to be minimal.

The building street interface along South Terrace has a number of urban design features to enhance pedestrian amenity including shelter from the overhanging awning, shade from the street trees along South Terrace which also provide a buffer from traffic, vertical windows, a variety of building textures and materials and the alfresco dining area.

Proposed pedestrian access is shown in Figure 29.

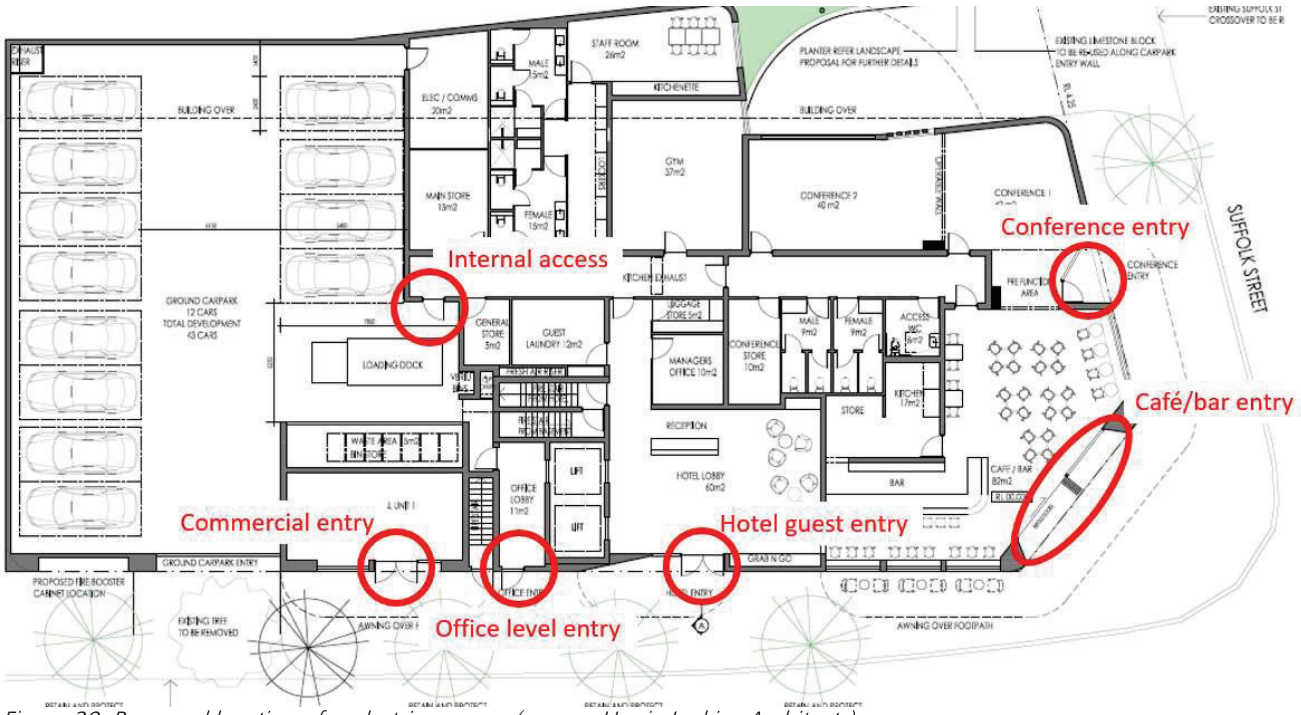

Figure 29 Proposed location of pedestrian access (source: Harris-Jenkins Architects)

10. CYCLE ACCESS/AMENITY

10.1 Existing Cycle Network

The site has a high level of cycle accessibility, with the existing cycle network shown in Figure 30.

The principle shared path (PSP) runs along the train line 400m to the west of the subject site and provides priority cycling connections along Peter Hughes Drive to the north and terminates north of James Street, and to the south the PSP finishes at the southern extent of South Beach. South Terrace has cycling priority within the Fremantle city centre, and on-road cycle lanes south of the Parry Street intersection. The posted speed limit in the area is 40km/hr which improves safety for cyclists.

The subject site is also close to the Perth Bicycle Network South West route 7 which travels along Stevens Street, 200m south of the subject site. Hampton Road also has on-road cycle lanes with green painted road base across intersections.

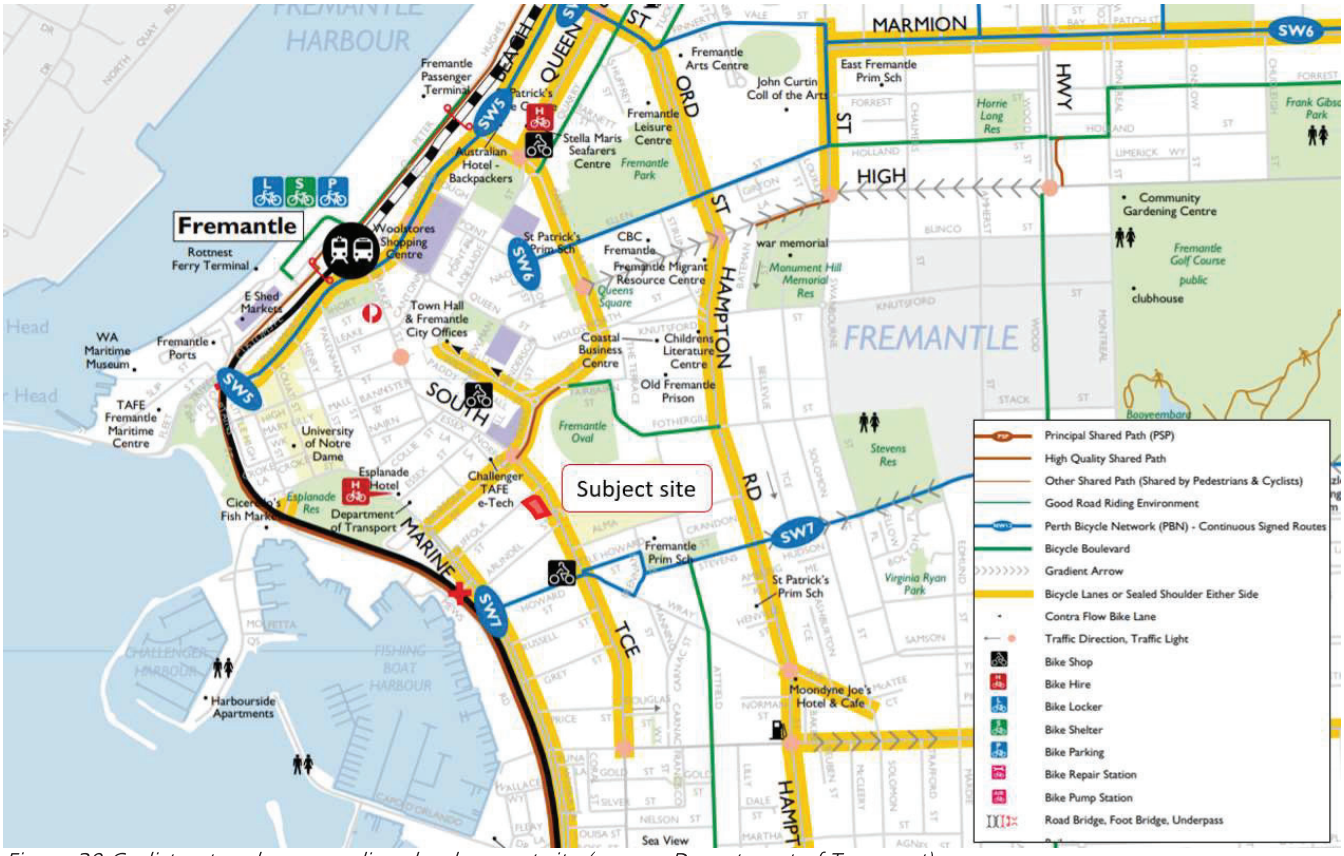

Figure 30 Cyclist network surrounding development site (source: Department of Transport)

A heatmap of cycle activity in the vicinity of the development site is shown in Figure 31. This is produced by cyclists tracking their trips using the commercial product Strava. South Terrace, the PSP, Marine Terrace and Beach Road are heavily used cycle routes while sections of South Street, Hampton Road and the eastern section of Stevens Street Street also carry significant cycle traffic. Cycle travel is predominantly north-south.

Figure 31 Strava heatmap for cycling in vicinity of development site

10.2 Proposed Cycle Network

The design for the PSP extension from Victoria Street to North Fremantle has been completed, however works are yet to begin. The PSP extension from North Fremantle to Fremantle will be delivered in conjunction with the replacement of the Fremantle Traffic Bridge. As part of the WA's Recovery Plan to recover from COVID-19 related impacts, the construction of the Fremantle Traffic Bridge has been brought forward. The construction of this PSP will dramatically improve cycling connections for regional bike travel.

10.3 Development Proposals

Within the basement parking area are 14 bike bays. These bays will be available for use by staff and potentially hotel guests. The City of Fremantle Bike Plan 2019-2024 identifies that currently 2.9% of people within the local government area cycle to work, compared to the greater Perth average of 1%.

Cyclists will enter the development basement parking level from Suffolk Street crossover as shown in Figure 32.

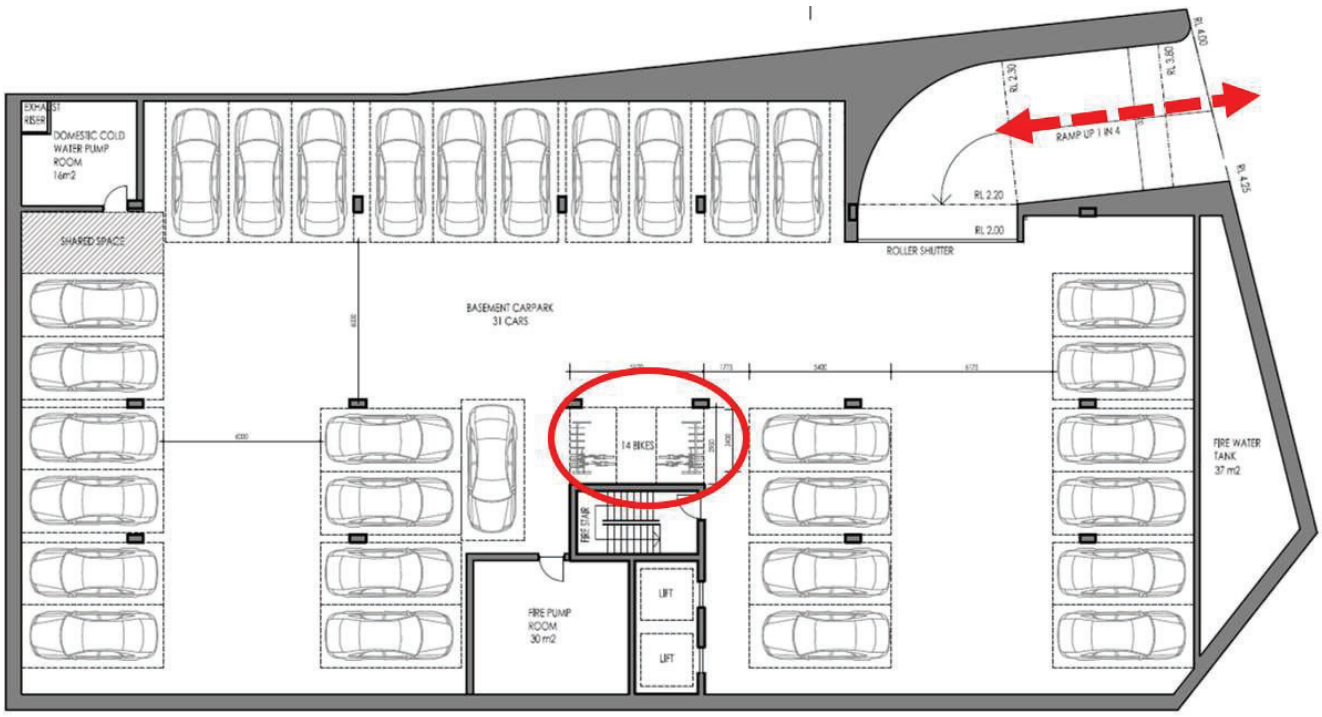

Figure 32 Proposed location of bike parking at basement level (source: Harris-Jenkins Architects)

10.4 Required Bike Parking

The minimum bike parking requirement for the hotel and commercial tenancies are outlined in Table 10. This table displays the parking required under the City of Fremantle Local Planning Scheme No. 4.

Table 10 Required bike parking – City of Fremantle LPS No. 4

Bay Type	LPS No. 4				Proposed Bikes
	Short Stay Rate	Bikes	Long Stay Rate	Bikes	
Hotel	1:25m^2 bar area	As below	1:25m^2 bar area	As below	14
Bar	1:25m^2 bar area	4	1:25m^2 bar area	4	
Office and Commercial	1:750m^2 gla	1	1:200m^2 gla	3	
Conference	1:100 ppl	1	N/A	N/A	
Total	Short Stay	6	Long Stay	7	

The proposed development includes 14 long stay bicycle racks which is seven more than the minimum requirements as outlined in LPS No. 4.

Any additional bicycle racks which are not used by staff could be offered as bicycle hire to hotel guests managed by either the hotel or a private operator.

Three bicycle racks to accommodate six bikes should be included within the verge adjacent to the subject site for short stay visitors to the development as there is currently no public bike parking within close proximity, with the location to be determined subject to discussions with the City of Fremantle.

The City of Fremantle LPS No. 4 outlines that one male and one female (or two unisex) showers are required for every 10 long stay bicycle racks, and that one locker per long stay bicycle rack be provided which is easily accessible from the shower facilities. Based on the bicycle parking requirements shown in Table 10, a minimum of two showers and 10 lockers are provided within the development to facilitate and accommodate staff walking and cycling access modes and are provided within the ground floor as shown in Figure 33.

The provision of end of trip facilities complies with the requirements in LPS No. 4.

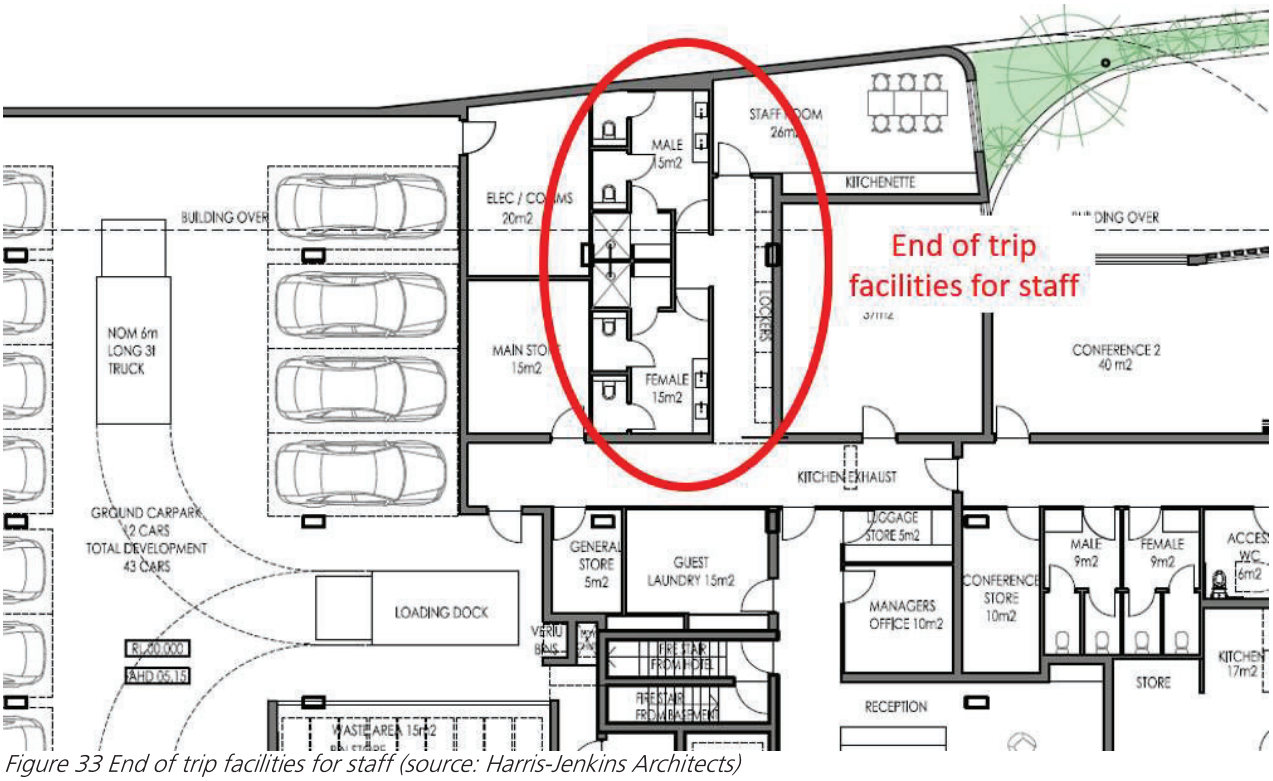

Figure 33 End of trip facilities for staff (source: Harris-Jenkins Architects)

11. SITE SPECIFIC ISSUES

11.1 Onsite Parking Provision

The subject site is ideally located within close proximity of the Fremantle city centre, where there are numerous tourist destinations as well as restaurants and the Fremantle Markets etc which are all within an easy, safe and convenient walking distance. The subject site also has excellent access to various transport options including Fremantle Station (800m), 10 bus routes (100m), the on-street bike lane along South Terrace and the PSP, as well as the provision of nearby public parking locations.

Public parking is available within the Cappuccino Strip Car Park which is 75m from the subject site. This car park offers hourly and all day parking for $11.50 and has an average availability of 49% (76 bays) during the week according to historical Nearmap imagery between 2018 and 2021. The lowest availability of bays for this car park on a weekday occurred on Friday November 28, 2020 where 30 bays were available and 125 were occupied. The highest availability of bays occurred on Wednesday April 25, 2018 where 126 bays were available and 29 bays were occupied. This car park (and others within the area) can provide adequate parking for visitors and staff to the proposed development.

11.1.1 Café/Bar and Conference Rooms Parking Provision

It is highly unusual within Fremantle city centre for an individual café/bar to provide onsite parking for its exclusive use and common practice for people to use public transport or park within the public parking locations and walk to their destination. It is further noted that the café/bar and conference rooms within the development will be frequently used by hotel guests, thereby reducing demand for onsite bays to accommodate visitors.

Given the prime location of the subject site, existing travel behaviours and the various transport options which are within easy walking distance for visitors, it is deemed acceptable to reduce the provision of onsite parking bays for visitors to the café/bar and conference rooms.

11.1.2 Hotel Guests Parking Ratio

The City of Fremantle's LPS No. 4 requires a hotel to provide 1 parking bay per room. While this rate of parking is consistently used across various local government planning scheme's, in practice it is rarely applied. The proposed Amendment No. 82 to the LPS No. 4 recommends a reduced parking rate for 'Tourist Development' of one bay per four units.

Flyt undertook extensive surveys for a previous development application in East Perth where over 10 hotels within the Perth Central Business District were surveyed. Parking ratios for hotels were found to be lower than short stay apartments where it was common for no onsite parking be provided for hotel guests. The range of parking ratios for hotels was between 0 – 0.5 with an average of 0.25 bays per room, which aligns with the rates proposed in Amendment No. 82. The Esplanade Hotel Fremantle by Rydges offers no onsite parking for guests.

If the hotel were to be assessed under the rates proposed in Amendment No. 82, this would free up six bays within the basement level parking area which could be allocated as staff parking if required.

11.1.3 Staff Parking Bay Allocation

12 parking bays are available within the ground floor parking area for staff. These bays need to be allocated to ensure maximum occupancy.

According to ABS data for 2016, for people working within the City of Fremantle, almost 10% used public transport for their journey to work compared to the Western Australian average of 2.2%, and over 5% used active transport, compared to the greater Perth average of 1%. Office staff typically work Monday – Friday between 8.00am – 6.00pm, where commuting coincides with peak service times for public transport, and when it is safest for people to

walk and cycle. This is compared to shift work where start and finish times can occur in the early AM and late PM when there are few public transport options and staff may not feel safe walking or cycling. Providing a reduced rate of parking of five bays for office staff is appropriate and would allow seven bays to be distributed between staff for the hotel, commercial tenancy and café/bar.

The staff parking bays should function as reciprocal use bays, noting that office staff typically only require bays between Monday – Friday 8.00am – 6.00pm, leaving them free during the later PM times and on the weekend. Hotel and café/bar staff who work outside of typical office hours would then be free to use these bays, ensuring maximum efficiency and occupancy.

If the development were to be assessed in accordance with the rates proposed in Amendment No. 82, a total of 18 bays would be available for staff; where between Monday to Friday 8.00am – 6.00pm five could be allocated to office use, one for the commercial tenancy and the remaining 12 distributed between the café/bar and the hotel. If reciprocal parking arrangements were used, then 18 bays would be available for the commercial tenancy, café/bar and hotel staff at all other times.

11.2 Loading Dock and Pedestrian Conflict

The loading dock on the ground floor parking area has been checked for swept paths and where the layout and aisle widths accommodate a 6.4m SRV truck. A key safety concern in parking areas with a loading dock is the potential conflict between pedestrians and reversing service vehicles.

Eliminating conflict between pedestrians and service vehicles can be achieved through minimising the number of times people park and exit their vehicle and walk through to the hotel. Assigning the ground floor area parking bays to staff ensures minimal turnover of bays throughout the day thereby reducing the potential number of times pedestrians would interact with service vehicles.

According to the hotel survey that Flyt conducted previously, the peak times for service vehicles do not coincide with the peak times for a hotel car park, nor do they coincide with typical times for hotel check-in (after 2.00pm) where only a small crossover would occur at guest check out (10.00am). Using the ground floor parking bays for staff, peak service vehicle times also do not coincide with peak commuting times according to Main Roads WA Trafficmap data for the Parry Street and South Terrace intersection.

Table 11 Comparison of weekday peak movement times

	Service Vehicles	Hotel Car Park	Commuting
AM Peak	9.00am – 11.00am	7.00am – 9.00am	8.00am – 9.00am
PM Peak	12.00pm – 2.00pm	4.00pm - 6.00pm	3.00pm - 4.00pm

11.3 Pedestrian Amenity

Maintaining pedestrian amenity along South Terrace is an important consideration for the proposed development, the South Terrace streetscape and for visitors to the area.

It is recommended that pedestrian priority treatments are included over the crossovers along South Terrace and Suffolk Street. This will maximise safety for pedestrians by removing confusion as to who has the right of way, as well as improving pedestrian amenity.

Reducing the width of the South Terrace access point from 5.5m to 4.5m will shorten the crossing width for pedestrians and hotel visitors walking along South Terrace and also mitigate the impact of the vehicle access point on the streetscape, while maintaining access for a 6.4m SRV.

12. SAFETY ISSUES

12.1 Crash History

In the five-year period ending October 2019, there were three reported crashes at the intersection of South Terrace and Suffolk Street. All three crashes resulted in minor property damage only, and one included a motorcycle.

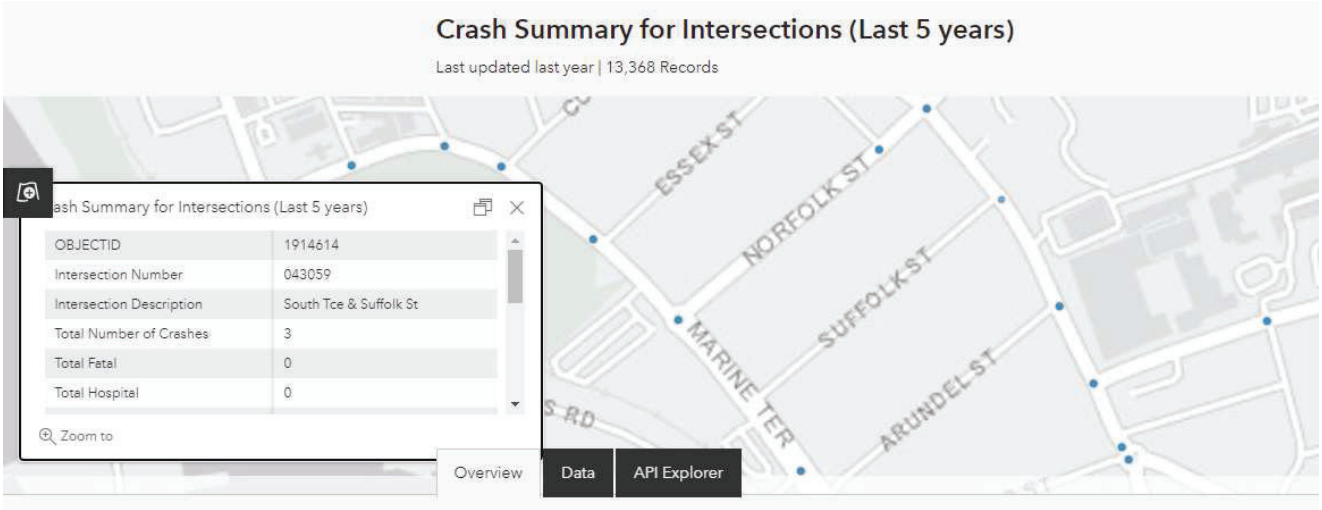

Figure 34 Crash Summary for Intersections (last 5 years) (source: MRWA)

13. SUMMARY AND CONCLUSIONS

13.1 Assessment

This Transport Impact Statement has been prepared in support of the proposed hotel development at 65 South Terrace Fremantle.

The development site is located within close and convenient access to frequent and regular public transport services. It is serviced by high frequency bus routes 998 and 999 and by bus routes 511, 513, 520, 530, 531, 532, 548, 549, as well as the Fremantle CAT Bus. The site is within 800m of Fremantle Station with direct train services to Perth.

The site is very walkable with footpaths on both sides of all surrounding streets, and a permanent reduced speed limit of 40km/hr along South Terrace. The verge along South Terrace is built out meaning there is over 4.5m of space on the north side and 3.5m of space on the south side to accommodate high pedestrian volumes associated with the hospital and other attractions in the area.

The site has a high level of cycle accessibility, South Terrace has 1m bike lanes along its length and is within 400m of the PSP which provides connections to the north and south. Stevens Street to the south forms part of the Perth Bicycle Network South West route 7.

The development includes 100 hotel rooms over four levels, two levels of parking where the basement accommodates 31 bays for hotel guests and the ground floor accommodates 12 bays for staff parking (potentially offered as reciprocal use to accommodate shift work) and one loading dock for all service, delivery, and waste vehicles. There are 14 long stay bicycle racks within the basement level parking area which can be used by staff and could potentially operate as bike hire for hotel guests. A café/bar and conference rooms are located on the ground floor level, as well as a small commercial tenancy of 27m^2. A gym is located on the ground floor for the exclusive use of hotel guests and there is 210m^2 of office space located on the fifth floor.

Within the context of the surrounding land uses, tourist attractions, various convenient and regular transport options and availability and proximity of public parking locations, the number of onsite parking bays provided for staff and guests is deemed adequate.

Vehicle access to the development site is split between two access points, both with restricted turning movements of left in and left out only. One is proposed via a crossover from South Terrace at ground level approximately 60m south east of the intersection of South Terrace and Suffolk Street and will provide access to the ground floor parking area for staff parking and for commercial deliveries and waste collection services. The proposed crossover is 5.5m wide which allows two way travel for private vehicles and one way travel for service vehicles. This can be reduced to 4.5m wide which allows one way travel for all vehicles while still satisfying the requirements of AS2980 and the swept path movements of a 6.4m SRV. Five vehicles are expected to enter and exit this access point during the AM and PM peak hours for staff. Two service vehicles in the AM and PM peak hours are expected to use this entrance.

A second vehicle access point is proposed via a crossover on Suffolk Street. This proposed crossover will provide access to 31 bays in the basement level for hotel guests and is 5.5m wide to accommodate two way travel for vehicles. The crossovers will comply with Main Roads' Driveway Policy. 26 vehicles are expected to enter and exit this access point during the AM and PM peak hours for hotel guests where five will turn right and five will turn left into Suffolk Street from South Terrace and 16 will exit and head towards Marine Terrace.

Based on a total of 100 rooms, 12 staff parking bays and 1 loading dock, with 210m^2 of office space, 27m^2 of commercial space, 82m^2 of conference rooms and 82m^2 of café/bar, the development is forecast to generate 35 trips in the AM and 34 trips in the PM peak hours. A 30% reduction in trip generation has been included to account for the linked trips between the hotel guests and the conference rooms and café/bar.

The traffic generated by the development is expected to have a small to negligible impact on the surrounding local network and a negligible impact on the regional network.