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Charles Hotel Site, North Perth

Prepared For:  
Allerding & Associates

Transport Impact Assessment  
Report



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## TABLE OF CONTENTS

	PAGE
1. INTRODUCTION.....	1
1.1 BACKGROUND.....	1
1.2 SCOPE OF THIS REPORT .....	1
2. EXISTING SITE CONDITIONS.....	2
2.1 LOCATION.....	2
2.2 CURRENT LAND USES.....	3
2.3 ACCESS ARRANGEMENTS .....	6
2.4 ADJACENT ROAD NETWORK.....	8
2.5 EXISTING TRAFFIC VOLUMES .....	8
2.6 CRASH HISTORY .....	10
2.7 PLANNED CHANGES TO THE ROAD NETWORK .....	12
3. PROPOSAL .....	13
3.1 PROPOSED DEVELOPMENT .....	13
3.2 PARKING PROVISION.....	13
3.3 PROPOSED ACCESS POINTS .....	13
4. TRAFFIC IMPACT .....	15
4.1 TRIP GENERATION AND DISTRIBUTION .....	15
4.2 INTERSECTION ANALYSIS .....	16
4.3 SERVICE VEHICLES .....	18
5. SUSTAINABLE TRANSPORT .....	19
5.1 PEDESTRIANS AND CYCLISTS.....	19
5.2 PUBLIC TRANSPORT.....	21
6. SUMMARY AND CONCLUSION .....	23
6.1 SUMMARY.....	23
6.2 CONCLUSION .....	24

## **1. INTRODUCTION**

### **1.1 BACKGROUND**

Allering & Associates has commissioned Donald Veal Consultants to prepare this Transport Impact Assessment report to support a Local Development Plan for a proposed mix-use redevelopment of the Charles Hotel site in North Perth.

The site is to be redeveloped to include 6 development parcels, each potentially including a tower building of between 4 and 8 storeys in height. The likely land uses will be primarily residential, with some commercial or retail elements.

### **1.2 SCOPE OF THIS REPORT**

The structure and scope of this Transport Assessment are in accordance with Volume 2 (Structure Plans) of the Western Australian Planning Commission's Transport Impact Assessment Guidelines (2016).

The intent of the report is to provide the approving authority with sufficient transport information to confirm that the proponent has adequately considered the transport aspects of the development and that it would not have an adverse transport impact on the surrounding area.



## 2. EXISTING SITE CONDITIONS

### 2.1 LOCATION

The development site is located to the west of Charles Street, and to the north and south of Ellesmere Street, in North Perth. The general locality is shown in **Figure 2.1**, with the site location shown in more detail in **Figure 2.2**.



Figure 2.1: General Locality Plan

Source: Metro Maps



Figure 2.2: Site Location

Source: Metro Maps



## 2.2 CURRENT LAND USES

The southern section of the subject site is currently occupied by the Charles Hotel, as well as a bottle shop. The northern section includes a number of residential dwellings. Certain areas are currently unoccupied or available for informal parking. See **Photos 1 to 5**.



**Photo 1: The southern part of the site is currently occupied by The Charles Hotel.**



**Photo 2: A bottle shop is also located in the southern section.**





**Photo 3: The south eastern area is given over to grass.**



**Photo 4: The north western part of the site is partly under residential use at the present time.**





**Photo 5: The north eastern section is unoccupied, but used for informal parking.**

Other land uses in the immediate vicinity are primarily residential, although some former dwellings along Charles Street, to the north and east of the site, are now occupied by small businesses, including health related uses, a photography studio and a coffee shop. To the south, again on Charles Street, there are larger business premises, including a plumbing centre, a car wash and an AutoMasters car service centre.

See **Photos 6 to 8**.



**Photo 6: Nearby land uses are primarily residential.**





**Photo 7:** There are also various small businesses in the vicinity.



**Photo 8:** Businesses along Charles Street include a car wash and an auto service centre.

## 2.3 ACCESS ARRANGEMENTS

The site has several existing access points, with crossovers on Ellesmere Street, Eton Street, Carrington Street and Charles Street. See **Photos 9 to 11**.





**Photos 9 & 9a: Two of the four existing crossovers onto Carrington Street.**



**Photo 10: The Bottlemart has two crossovers onto Charles Street.**



**Photo 11: The Charles Hotel itself has two crossovers onto Ellesmere Street.**



## 2.4 ADJACENT ROAD NETWORK

The road network adjacent the site consists primarily of Charles Street, Ellesmere Street, Eton Street and Carrington Street. (Note: MRWA's Road Information Mapping system incorrectly labels Charles Street as Wanneroo Road).

Charles Street runs north-south past the site, forming an eastern boundary, but does not provide access. Eton Street forms the western boundary to the site, with Carrington Street to the south. Ellesmere Street runs east west, bisecting the two parts of the site.

The classifications of the roads immediately adjacent the site as identified in MRWA's *Metropolitan Road Hierarchy*, are shown in **Figure 2.3**.



**Figure 2.3: MRWA Functional Road Hierarchy**

Whilst Eton Street and Carrington are classified as Access Roads, Ellesmere Street is a Local Distributor. All three are under the care and control of the City of Vincent. Charles Street, however, is a Primary Distributor Road and therefore under the jurisdiction of MRWA.

Charles Street has a posted speed limit of 70km/h past the site, whilst other roads adjacent to the site are subject to the urban default speed limit of 50km/h.

## 2.5 EXISTING TRAFFIC VOLUMES

MRWA's Traffic Map shows traffic count data from 2018/19 for Charles Street just north of the site. This indicates an AAWDT of just over 22,000 vehicles per day at that time. See **Figure 2.4**.

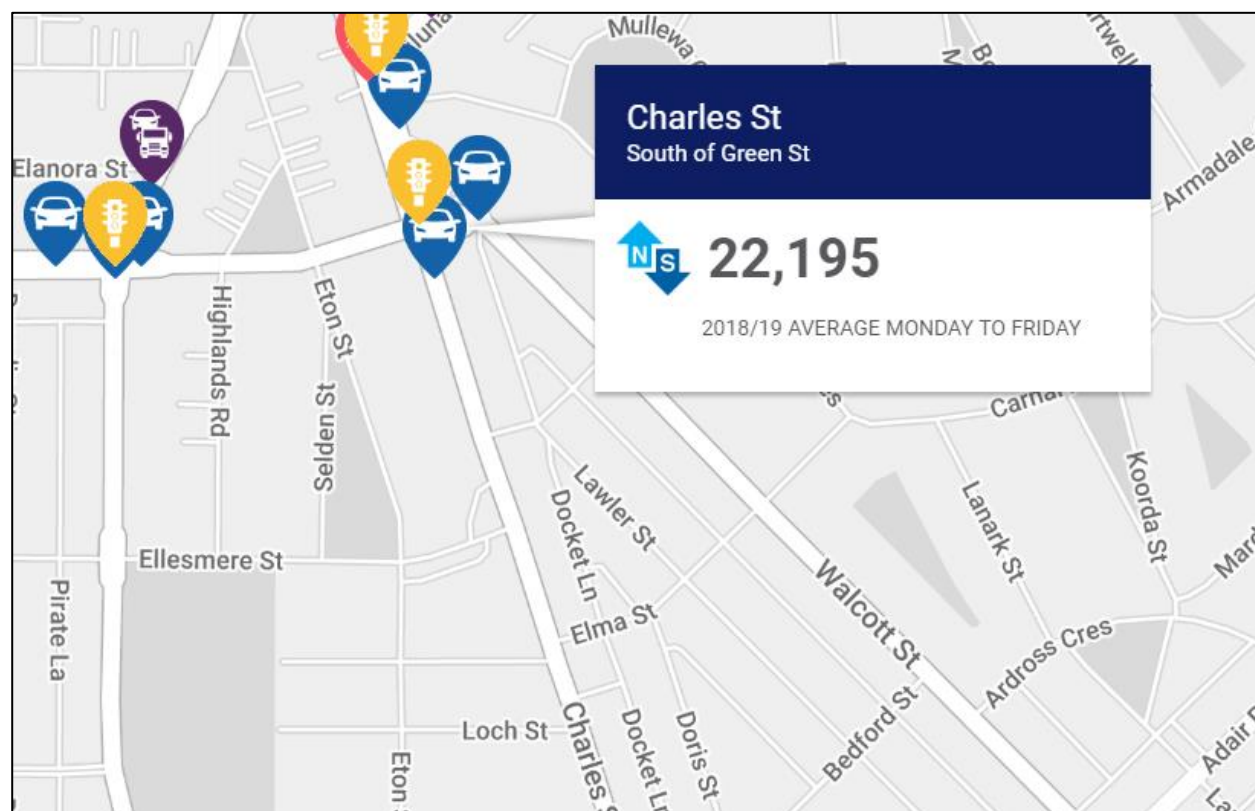


Figure 2.4: Daily traffic flows on Charles Street.

Source: MRWA TrafficMap

Additional count data for Ellesmere Street, Eton Street and Carrington Street was provided by the City as shown in **Table 2.1**.

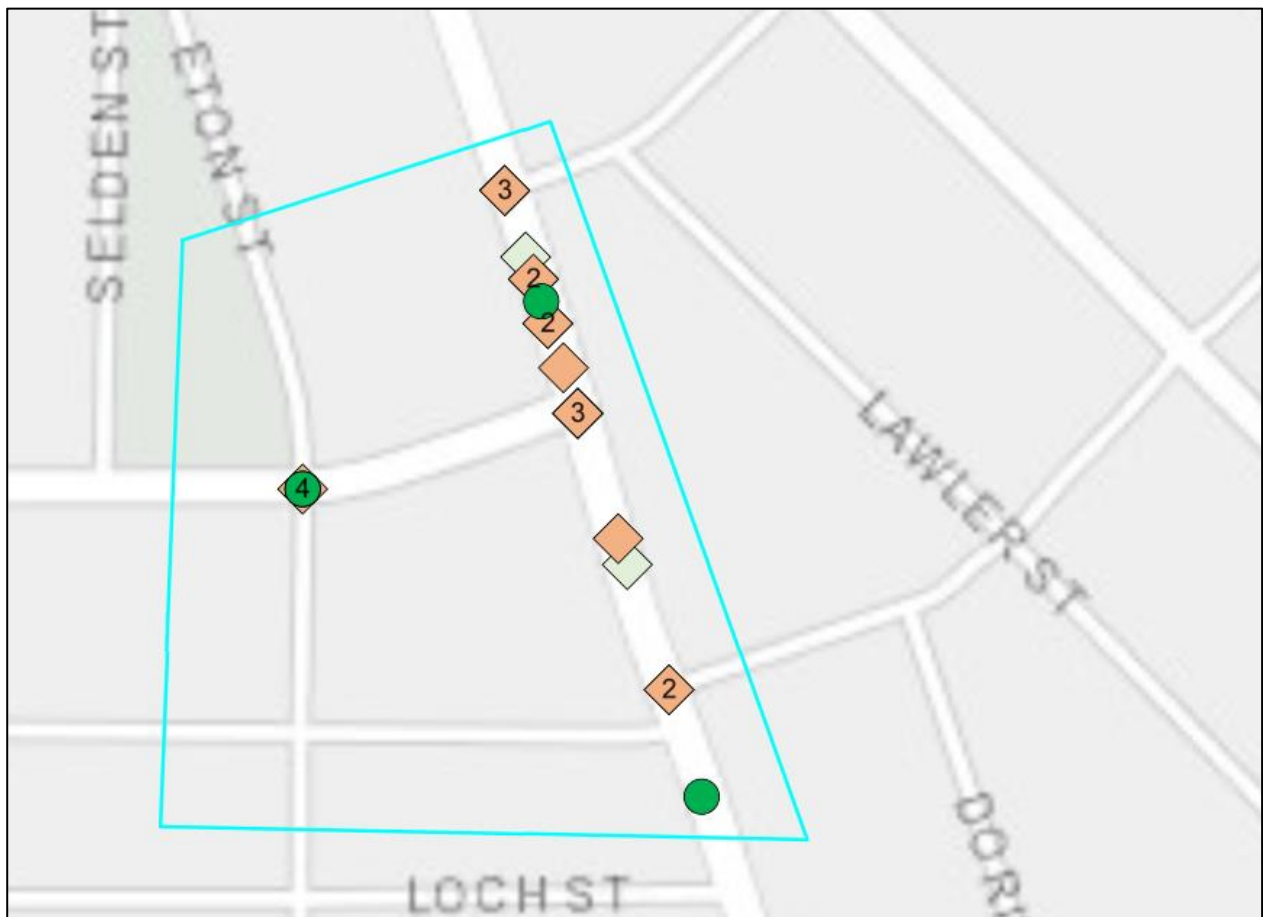
Table 2.1: Traffic Count Data (2023) provided by City of Vincent

ROAD	DATE		Location	AWT 5 day	Avg Speed	85% Speed	% Heavy	Peak Vehicle / hr	
	Start	Finish						AM	PM
Carrington Street	22-Jun	28-Jun	Carrington St, Eton St - Charles St	235.5	36.5	44.46	4.3%	30	43
Ellesmere Street	22-Jun	28-Jun	Ellesmere St, Eton St - Charles St	1456.8	37.8	44.28	2.2%	177	145
Eton Street	22-Jun	28-Jun	Eton St, Ellesmere St - Green St	783.5	46.8	54.54	3.1%	105	110
Eton Street	22-Jun	28-Jun	Eton St, Ellesmere St - Carrington St	747.3	42.5	51.84	5.7%	91	118



The MRWA Crash Map system was interrogated for crash data on the roads in the vicinity of the site, for the latest five-year period from January 2018 to December 2022.

These crashes resulted in five needing medical attention, while the other seventeen occasioned property damage only (10 major, 7 minor). See **Figures 2.5 & 2.6**.



A closer look at the crashes shows that all four incidents at the intersection of Eton Street with Carrington Street have been right angle crashes, but that these have occurred on three different legs. Thus, there does not appear to be a specific geometrical issue as a root cause.

It is suggested that a few simple measures, such as additional delineation, including a centreline, and potentially the marking of some formal on-street parking bays, may reduce the speeds of through vehicles on Eton Street.



**Photo 12:** There have been 4 right angle crashes at the Eton - Carrington intersection.

Similarly, there have been a number of crashes of certain types on Charles Street, but again with no real pattern. Whilst there have been 5 rear end crashes, these have been of different types, and in different locations. However, there have also been 7 sideswipe crashes, mostly involving drivers cutting in after overtaking. These have happened in various locations, and in both directions. These would appear to be more down to driver behaviour than any geometric or road design issue.

Two of the three crashes at the Charles Street / Ellesmere Street intersection have involved a vehicle travelling south to north impacting a vehicle turning right into the side street.



**Photo 13:** Intersection of Charles Street with Ellesmere Street.



Visibility is generally good for this manoeuvre, unless northbound vehicles in the right lane have masked others in the left lane. This is a common issue with right turns of this type.

Generally, the historical crash data does not indicate any specific issues, nor anything that might be exacerbated by the likely levels of additional traffic on these roads. However, crash data is constantly changing, and a detailed examination of the current patterns would need to be carried out at the time of any future DAs.

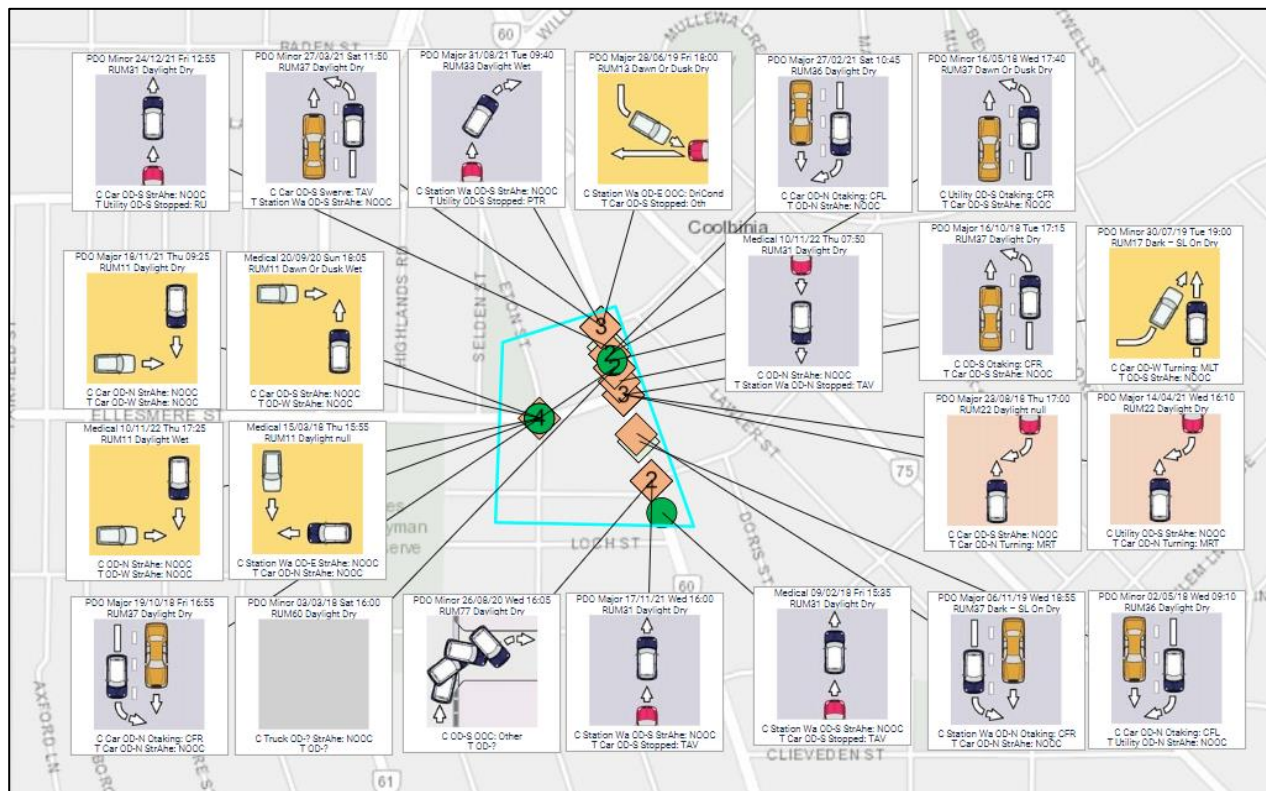


Figure 2.6: Crash history for the area around the site.

Source: CrashMap

## 2.7 PLANNED CHANGES TO THE ROAD NETWORK

DVC is unaware of any planned changes to the road network in the immediate vicinity of the site.

However, it is noted that the site is impacted by Planning Control Area (PCA) 167 for Charles Street. Where a PCA is in place, approval for development is required from the Western Australian Planning Commission (WAPC), as well as under any relevant planning scheme, unless the PCA imposes requirements to the contrary.

### **3. PROPOSAL**

#### **3.1 PROPOSED DEVELOPMENT**

The proposed development consists of six development parcels, each potentially including a tower block, ranging in height from 4 to 8 storeys. An early appraisal of the potential residential yield indicates that the towers will house approximately 216 residential units of 1-, 2-, 3- or 4-bedroom design, as well as small commercial units, mainly located in the ground floor areas.

Parking within the site will be located in basements beneath some of the towers, and will be accessed via ramps directly from the adjacent streets.

#### **3.2 PARKING PROVISION**

Whilst no details of the number of parking bays being provided are currently available, it is understood that the on-site parking will be provided within basement levels of the various towers.

Based on the current concept plans, the estimated residential yield is around 216 dwelling units, spread across the 6 development parcels. It is therefore expected that the residential element will require a total provision in the order of 200 bays for residents and around 30 visitor bays. This may vary as the layout is developed, with different ratios of 1-, 2- and 3-bedroom units, and how the total is spread across specific development parcels.

No assessment of the parking required for the commercial elements has been carried out at this time, as different land uses may generate vastly different levels of parking demand.

It is, however, envisaged that all parking requirements would be catered for within the site, although some visitor parking may be addressed through existing or future on-street parking availability.

A more detailed assessment of the parking demand and provision would need to be performed at the DA stage for each of the individual development parcels, at which time more specific details of the proposed land uses would be available.

#### **3.3 PROPOSED ACCESS POINTS**

Access points will be provided to the basement parking levels from both Eton Street, within the northern section of the site and from a proposed short access road within the southern section.

These access points can be seen in **Figure 3.1**.



Figure 3.1: Concept layout plan



## 4. TRAFFIC IMPACT

### 4.1 TRIP GENERATION AND DISTRIBUTION

Trip generation for the site has been estimated based on published trip rates from the RTA Guide to Traffic Generating Developments (2002).

At this stage, the layout of the development is still being finalised. The Land Use quantities shown in **Table 4.1** are therefore the current best-estimates based on the latest concept plans. No details as to the commercial units are yet available, and an overall estimated floor area and a generic trip rate have therefore been used.

It is noted that, due to a lack of actual data, no allowance has been made for the significant number of trips currently being generated by the existing land uses, including hotel, tavern, bottle shop or residential dwellings. This, combined with the fact that it is very unlikely that the 6 parcels will all be developed concurrently, makes the following analysis very much a worst-case scenario.

**Table 4.1: Indicative peak period trip generation**

Land Use	Quantity	PM Peak Hour Trip Rate	Total Peak Hour Trips
Medium Density Residential Units	66 x 1 bedroom	0.5 / unit	33
	68 x 2 bedroom	0.5 / unit	34
	80 x 3 bedroom	0.6 / unit	48
	2 x 4 bedroom	0.6 / unit	2
Commercial Units	3,382m <sup>2</sup>	3/100m <sup>2</sup>	100
			<b>217 trips</b>

Approximately 88 residential units will be contained within Parcels 1 & 2, to the north of Ellesmere Street, along with around 722m<sup>2</sup> of commercial development. Thus, it is expected that around 70 of the 217 PM peak hour trips will be generated from Parcels 1 & 2, to the north of Ellesmere Road, whilst the remaining 147 will be generated by the southern area, incorporating Parcels 3 to 6.

The in:out split for the residential trips is assumed to be 65:35 for the PM peak hour. The split for the commercial element is harder to predict, but has been taken as 40:60. Thus, the northern section of the development, consisting of development parcels 1 & 2, is likely to generate around 40 incoming trips and 30 outgoing trips in the PM peak hour. At the same time, the southern section, containing the four remaining parcels, will generate around 83 incoming trips and 74 outgoing trips.

These trips, which will enter and leave the basement parking areas via the relevant crossover, will be distributed onto the network using various routes, based on the surrounding land uses and the likely desire lines. For example, drivers needing to turn right into or from Charles Street may opt to do so at signalised intersections, rather than directly to or from Ellesmere Street or Carrington Street.

It is noted that there are many options for drivers to take, and the overall impact is likely to be spread over a number of roads and intersections. Choices will also evolve over time, as when one route becomes more difficult, drivers will change their route to minimise delays. An indication of the possible distribution of the PM peak hour trips around the site is shown in **Figure 4.1**.



**Figure 4.1: PM Peak hour trip generation and distribution**

## 4.2 INTERSECTION ANALYSIS

In accordance with the WAPC TIA Guidelines, the impact on local intersections should be assessed for both the proposed year of opening of the development, and for a future scenario, 10 years later.

In this case, the main intersections to be assessed would be those located on Charles Street, with Ellesmere Street and Carrington Street. However, as this report has been produced at the LDP application stage, insufficient details are available to determine the impact on the local intersections of each individual

development package. In addition, the years of assessment are difficult to identify, as there is no current timeframe for the development, and no indication as to the period over which each of the 6 development parcels might be sold or developed.

This will give only a very rough estimate of the impact, and makes no allowance for the staged development of the site, as each parcel may be developed under different timeframes. Detailed impacts on the performance of the local roads and intersections will be carried out at the individual DA stage for each parcel. This will also confirm whether any intersection upgrades would be triggered by the impact of specific parcels.

As a general assessment of the likely impact of the development overall, we can see from **Figure 4.1** that the number of turning movements is not likely to cause significant issues, although these numbers will need to be revisited at the DA stage, when details of the individual developments become available. It should be noted that the turning figures currently indicated are an indication of the likely movements associated with full development of all 6 parcels.

Given the potential for various routes to be employed, and the general spreading of the impact over these roads and intersections, the most significant impact appears likely to be at the new access on Eton Street, between Ellesmere Street and Carrington Street. However, with a current peak hour 2-way flow of only around 118 vehicles on this section of Eton Street, the indicated turning movements should be readily accommodated.

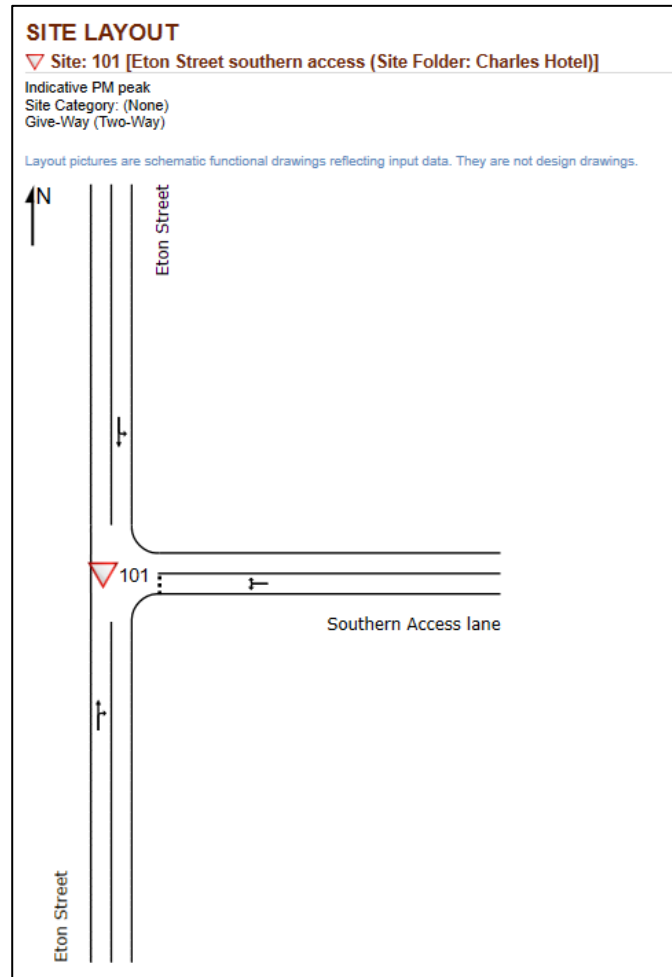
An indicative SIDRA analysis shows this to be the case. In order to provide some indication of future traffic flows, the peak hour flow on Eton Street has been growthed up by 2% per annum over 10 years.

Using a simple Give Way arrangement, and no turning lanes, the intersection performs well in this potential PM peak scenario, returning a Level of Service A for all movements, and no significant delays or queuing. The Movement Summary and intersection layout diagram are shown in **Figures 4.2 & 4.3**.

MOVEMENT SUMMARY															
▽ Site: 101 [Eton Street southern access (Site Folder: Charles Hotel)]															
Output produced by SIDRA INTERSECTION Version: 9.1.3.210															
Indicative PM peak Site Category: (None) Give-Way (Two-Way)															
Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Eton Street															
2	T1	All MCs	79	2.0	79	2.0	0.061	0.0	LOS A	0.2	1.3	0.15	0.21	0.15	57.9
3	R2	All MCs	32	0.0	32	0.0	0.061	6.3	LOS A	0.2	1.3	0.15	0.21	0.15	52.4
Approach			111	1.4	111	1.4	0.061	1.8	NA	0.2	1.3	0.15	0.21	0.15	56.8
East: Southern Access lane															
4	L2	All MCs	39	0.0	39	0.0	0.063	4.1	LOS A	0.2	1.6	0.21	0.54	0.21	49.6
6	R2	All MCs	40	0.0	40	0.0	0.063	4.6	LOS A	0.2	1.6	0.21	0.54	0.21	49.1
Approach			79	0.0	79	0.0	0.063	4.4	LOS A	0.2	1.6	0.21	0.54	0.21	49.3
North: Eton Street															
7	L2	All MCs	57	0.0	57	0.0	0.072	5.6	LOS A	0.0	0.0	0.00	0.25	0.00	29.6
8	T1	All MCs	79	2.0	79	2.0	0.072	0.0	LOS A	0.0	0.0	0.00	0.25	0.00	57.7
Approach			136	1.2	136	1.2	0.072	2.3	NA	0.0	0.0	0.00	0.25	0.00	45.4
All Vehicles			325	1.0	325	1.0	0.072	2.6	NA	0.2	1.6	0.10	0.30	0.10	49.9

Figure 4.2: PM peak hour movement summary





**Figure 4.3: Indicative intersection layout**

### 4.3 SERVICE VEHICLES

It is not expected that many service vehicle trips will be generated by the development, with only occasional delivery trucks and the weekly refuse collection vehicle visiting the site.

Details of any loading docks or bin storage areas will need to be addressed at the individual DA stage for each development parcel.

## 5. SUSTAINABLE TRANSPORT

### 5.1 PEDESTRIANS AND CYCLISTS

A footpath is provided along both sides of Charles Street, Carrington Street and Ellesmere Street, and on the western side of Eton Street, adjacent the site. However, the majority of footpaths and pedestrian crossings in this area do not meet current standards. Some sections of footpath are quite narrow, with broken concrete and encroaching vegetation. The pedestrian crossing ramps are generally poor and badly aligned, with no TGSIs. See **Photos 14 to 17**.

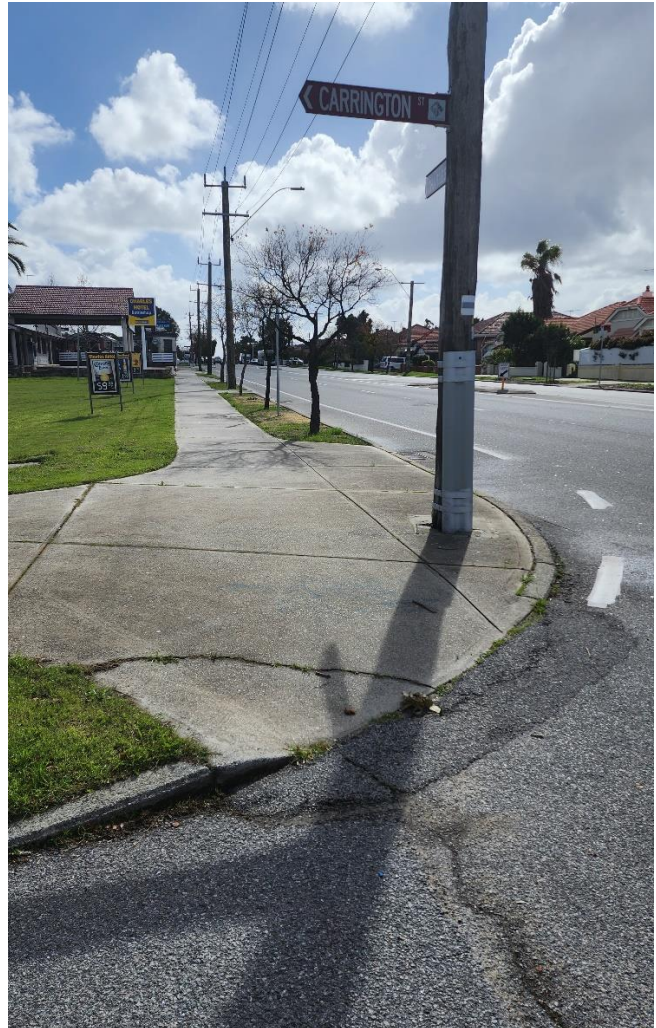


**Photo 14: Typical pedestrian crossing over Charles Street.**



**Photo 15: Crossing at end of Ellesmere St does not align correctly and has poor pedestrian ramps.**





**Photo 16:** Many of the footpaths are damaged.



**Photo 17:** Crossing facilities are poor along Eton Street.



On-road cycle lanes have been provided along Charles Street, south of Ellesmere Street.

See **Photo 18**.



**Photo 18: On-road Cycle lane along Charles Street, looking north.**

## **5.2 PUBLIC TRANSPORT**

Several TransPerth bus routes run along Charles Street, including Service numbers 370, 384, 386, 387, 388, 389 and 970. A number of these services run between Warwick Station and the Perth Busport.

There are a number of bus stops within walking distance of the site.

See **Figure 5.1** and **Photo 19**.

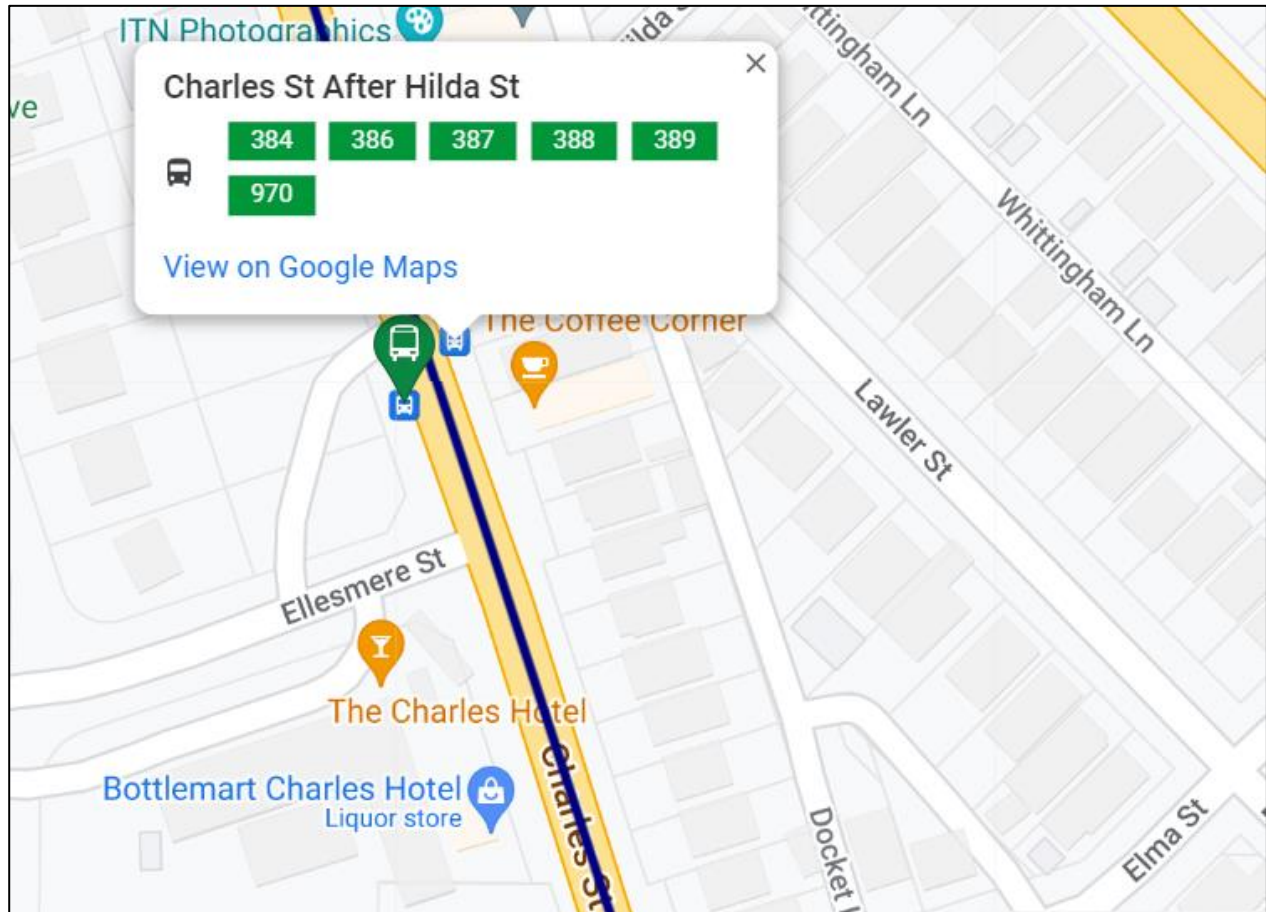


Figure 5.1: Nearest Public Transport facilities.

Source: TransPerth



Photo 19: Bus Stop and shelter just north of Ellesmere Street.



## **6. SUMMARY AND CONCLUSION**

### **6.1 SUMMARY**

Allerding & Associates has commissioned Donald Veal Consultants to prepare this Transport Impact Assessment report to support a Local Development Plan for the redevelopment of the Charles Hotel site in North Perth.

The road network adjacent the site consists primarily of Charles Street, Ellesmere Street, Eton Street and Carrington Street.

The southern section of the subject site is currently occupied by the Charles Hotel, as well as a bottle shop. The northern section includes a number of residential dwellings. Certain areas are currently unoccupied or available for informal parking. The site has several existing access points, with crossovers on Ellesmere Street, Eton Street, Carrington Street and Charles Street.

The proposed development consists of six development parcels, each potentially including a tower block, ranging in height from 4 to 8 storeys. An early appraisal of the potential residential yield indicates that the towers will house approximately 216 residential units of 1-, 2-, 3- or 4-bedroom design, as well as small commercial units, mainly located in the ground floor areas.

Access points will be provided to the basement parking levels from both Eton Street, within the northern section of the site and from a proposed short access road within the southern section. No access will be permitted from Charles Street.

Based on the initial concept layouts, and published trip generation rates, the fully developed site is expected to generate in the region of 217 PM peak hour trips. However, this is only an estimate, and may vary significantly depending upon the land uses incorporated into the final layouts for each development parcel.

A parcel-specific TIA would be required to support each individual Development Application, at that later stage. Sufficient details should then be available to assess the impact of each parcel, at the relevant timeframe.

The indicative overall trips expected for the full development do not appear likely to have a significant impact. Given the potential for various routes to be employed, and the general spreading of the traffic impact over the local roads and intersections, the most significant impact appears likely to be at the new access on Eton Street, between Ellesmere Street and Carrington Street. However, with a current peak hour 2-way flow of only around 118 vehicles on this section of Eton Street, the indicated turning movements should be readily accommodated.

An indicative SIDRA analysis of the southern access, based on the limited information currently available, shows this to be the case. In order to provide some indication of future traffic flows, the peak hour flow on Eton Street was growthed up by 2% per annum over 10 years. Using a simple Give Way arrangement, and no turning lanes, the intersection performed well in this potential PM peak scenario, returning a Level of Service A for all movements, and no significant delays or queuing.

To some extent it is envisaged that turning movements to and from Charles Street will be self-regulating, as right turning drivers will naturally gravitate to the easier locations, such as the signalised intersection with Walcott Street.

Parking within the site will be located in basements beneath some of the towers, and will be accessed via ramps. Based on the current concept plans, the estimated residential yield is around 216 dwelling units, spread across the 6 development parcels. It is therefore expected that the residential element will require a total provision in the order of 200 parking bays for residents and around 30 visitor bays. This may vary as the layout is developed, with different ratios of 1-, 2- and 3-bedroom units, and how the total is spread across specific development parcels.

No assessment of the parking required for the commercial elements has been carried out at this time, as different land uses may generate vastly different levels of parking demand.

It is, however, envisaged that all parking requirements would be catered for within the site, although some visitor parking may be addressed through existing or future on-street parking availability.

The pedestrian facilities in the vicinity of the development do not generally meet current standards, and some improvements may be considered necessary as part of any subsequent DA submissions.

Whilst there have been a number of crashes on the roads around the site over the last 5 year reporting period, there are no clear indications of patterns arising from geometric issues, and no obvious safety issues that need to be addressed. Clearly, any subsequent crashes should be reviewed at the time of DA submission.

## **6.2 CONCLUSION**

Based on the concept layouts for the redevelopment of the Charles Hotel site, and taking note of the limited details currently available, we fully support the LDP in terms of its traffic and road safety impact and recommend its approval.