# APPENDIX G TRAFFIC ENGINEERING REPORT PREPARED BY QTRAFFIC

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## Residential Development, 46 O'Connell and 94 - 108 Lambert Street, Kangaroo Point

Traffic Report

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## 1.0 Introduction

Q Traffic was commissioned by Pikos Group to undertake a Traffic Impact Assessment of a proposed multi-unit development to be located at 46 O'Connell and 94 - 108 Lambert Street, Kangaroo Point. The proposal is for three (3) residential towers with a combined total of 300 units.

The site is located in the Brisbane City Local Government Area, and the proposal has been assessed considering the relevant Council controls.

This report documents the results and findings of our investigations, addressing the following key traffic design elements and issues:

- The vehicular site access arrangements;
- Car parking provision and design;
- Vehicle servicing arrangements; and
- The traffic impacts anticipated as a result of the development.



## 2.0 Context

### 2.1 Site Location

The subject site comprises land described as Lot 1 on RP79525, Lots 3/4/5 on RP10951, Lots 1/2/3 on RP900166 and Lot 1 on RP10951. The site has a total area of approximately 5,291m<sup>2</sup>, and has frontage to O'Connell St to the north and Lambert Street to the west. Both streets are under the control of Brisbane City Council.

Figure 2.1a and Figure 2.1b below shows the location of the subject site, as well as the local road network in the vicinity of the site.



Figure 2.1a: Site Location



Figure 2.1b: Subject Site



## 2.2 Approval History

In 2019, Council approved the development of two (2) residential towers of 10 stories on the northern part of the subject site (A004914628 – approved 25 January 2019), described as follows:

- **Tower A** on the eastern (i.e. lower) part of the site and with 29 residential units. Two (2) levels of basement parking accessed via the Tower B basement;
- **Tower B** on the western (i.e. upper) part of the site with 45 residential units. Four (4) levels of basement parking.

This approved development included all access to the site via O'Connell Street with the circulation road running along the northern boundary and ramping down to provide access to both towers. The approved development, which comprised two (2) towers, was treated as a single development, and designed accordingly. From a traffic engineering standpoint this included the single point of access via O'Connell Street, a centralised loading area, and shared use of visitor parking spaces.

Subsequent to this, the applicant acquired additional lots adjacent to the site as shown in Figure 2.2a below.



Figure 2.2a: Additional lots included in most recent development approval

This application (A005260505 – approved 3 July 2020) gained approval for the broader site to be subdivided into three (3) lots, with three (3) residential towers comprising 199 units in total, with one (1) tower located on each lot, as described following:

- Tower 1 was located on the eastern (i.e. lower) part of the site and had 61 residential units. Four (4) levels of basement parking were proposed, with 131 car parking spaces.
- Tower 2 was located on the western (i.e. upper) part of the site and had 47 residential units. Five (5) levels of basement parking were proposed, with 84 car parking spaces.
- Tower 3 was located on the southern part of the site and had 91 residential units. Five (5) levels of basement parking were proposed, with 112 car parking spaces.

Vehicular access to the site was proposed as shown in **Figure 2.2b** over page, and described as follows:

- Access to Tower 1 was via Lambert Street using the access handle / easement along the eastern site boundary;
- Access to Tower 2 was via O'Connell Street; and
- Access to Tower 3 was via Lambert Street using the access handle / easement along the eastern site boundary.





Figure 2.2b: Vehicular Access to Towers - Approved Development

The total car parking provision under the approved development scheme (327 parking spaces) exceeded the minimum requirement under the provisions of Council's Transport, Access, Parking and Servicing (TAPS) Planning Scheme Policy by 62 spaces (i.e. 265 parking spaces required minimum).

The approved development scheme is relevant in the context of the development now proposed under this application, as described in the following sections.



## 3.0 Proposal

As shown in the plans included as **Appendix A**, the development now proposed is generally consistent with the approved development scheme, however increases the height from 10 to 15 stories, and increases the apartment yield from 199 units to 300 units.

A total of 433 car parking spaces are now proposed, with the increase in car park yield (compared with the approved development scheme) achieved primarily through the addition of one (1) basement level under Tower 2 (Basement 2F), and the addition of two (2) basement levels under Tower 3 (Basement 3F and 3G).

The vehicular site access and servicing arrangements are consistent with those under the approved development.

The key traffic elements of the development scheme now proposed are discussed further in the following sections.

### 3.1 Vehicle Access

#### 3.1.1 O'Connell Street Access

As shown in the plans included as **Appendix A**, access to Tower 2 is proposed via a single crossover located on O'Connell street adjacent to the north-western property boundary, the geometry of which is consistent with that under the approved development scheme.

The O'Connell Street crossover is located on the outside of a bend and as a consequence, provides drivers with excellent visibility in both directions. As shown in **Figure 3.1.1** below, the site narrows to the front property boundary, where the frontage is approximately 5.6m wide.



Figure 3.1.1: Proposed Crossover on O'Connell Street

Given the site constraints, the effective width of the crossover at the property boundary will be in the order of 5.0m - 5.5m which may result in two-way one-lane operation at the crossover. As noted in Section 4.0 of this report, Tower 2 is only expected to generate in the order of 37 trips in the AM and PM peak hours. It is estimated that 80% of this traffic would be leaving in the morning and 80% returning in the evening. Given the low traffic volumes and tidal flow, the potential for two (2) vehicles having to pass on the crossover is remote, and should it occur, any queuing onto the street would be of very short duration. Given O'Connell Street is a low volume minor street, the impact of the development on the safety or efficiency of the road network would be negligible.



As a consequence, it is considered that the proposed crossover complies with Performance Outcome 9 of the TAPS Code (extract below):

PO9

Development provides access driveways in the road area that are located, designed and controlled to:

(a) <u>minimise adverse impacts on the safety and operation of the transport network,</u> <u>including the movement of pedestrians and cyclists;</u>

(b) ensure the amenity of adjacent premises, from impacts such as noise and light.

Immediately upon entering the site the circulation road widens to comfortably allow for two-way flow of passenger and service vehicles, and the grade for approximately the first 10m upon entering the site is 1:20, for pedestrian safety.

In summary, the access driveway on O'Connell Street under the proposed development scheme is consistent with that under the approved development scheme, and is supportable from a traffic engineering perspective.

#### 3.1.2 Lambert Street Access

Consistent with the approved development scheme, the current proposal includes access for both Tower 1 and Tower 3 on Lambert Street via the access handle / proposed easement along the eastern boundary of the subject site, as shown in **Figure 3.1.2** below.



Figure 3.1.2: Proposed Crossover on Lambert Street

The proposed crossover is approximately 5.5 wide at the southern property boundary of the site, consistent with the approved development scheme. This width is adequate to cater for two-way traffic flow (i.e. an entering vehicle to pass an exiting vehicle), and to accommodate the largest service vehicle requiring to access the site, as discussed in the following sections.

Similar to the O'Connell Street crossover, the Lambert Street access is also located on the outside of a bend and as a consequence, will provide drivers with excellent visibility in both directions.

The circulation roadway connecting from Lambert Street into the site is 6.5m wide, which meets Council's requirement for an aisle traversed by a refuse collection vehicle (RCV).

In summary, the proposed access arrangements are considered to be acceptable, and in accordance with the requirements of Council's Transport, Access, Parking and Servicing (TAPS) Planning Scheme Policy. Importantly, the proposed vehicular access arrangements are generally consistent with those under the approved development scheme.



## 3.2 Car Parking Provision

The parking requirements are stipulated in Section 6 of Council's TAPS Planning Scheme Policy. The site is located within the City Frame area as defined in Council's TAPS Code and as a consequence, the applicable car parking rates are as follows:

User	No.	Council's Parking Rate (min)	Car Parking Requirement (min)
	0 x 1-bed units	0.9 spaces / unit	0.0 spaces
Tower 1	1 x 2-bed units	1.1 spaces / unit	1.1 spaces
Residents	82 x 3-bed units	1.3 spaces / unit	106.6 spaces
	4 x 4-bed units	1.3 spaces / unit	5.2 spaces
Visitors	87 units	0.15 spaces / unit	13.1 spaces
Total	87 units		126.0 spaces

#### Table 3.2a: Parking Summary for Tower 1

Tower 1 is located on the eastern (lower) part of the site and will have 87 residential units requiring a minimum of 126 car parking spaces. The architectural plans show <u>159 car parking spaces</u> over four (4) basement levels, which exceeds Council's minimum requirements for this tower.

#### Table 3.2b: Parking Summary for Tower 2

User	No.	Council's Parking Rate (min)	Car Parking Requirement (min)
	13 x 1-bed units	0.9 spaces / unit	11.7 spaces
Tower 2	13 x 2-bed units	1.1 spaces / unit	14.3 spaces
Residents	39 x 3-bed units	1.3 spaces / unit	50.7 spaces
	3 x 4-bed units	1.3 spaces / unit	3.9 spaces
Visitors	68 units	0.15 spaces / unit	10.2 spaces
Total	68 units		90.8 spaces

Tower 2 is located on the western (upper) part of the site and will have 68 residential units requiring a minimum of 91 car parking spaces. The architectural plans show <u>105 car parking spaces</u> over six (6) basement levels, which exceeds Council's minimum requirements for this tower.

Table 3.2c	Parking Summary	for Tower 3
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User	No.	Council's Parking Rate (min)	Car Parking Requirement (min)
_	62 x 1-bed units	0.9 spaces / unit	55.8 spaces
Tower 3 Residents	83 x 2-bed units	1.1 spaces / unit	91.3 spaces
Restucines	0 x 3-bed units	1.3 spaces / unit	0.0 spaces
	0 x 4-bed units	1.3 spaces / unit	0.0 spaces
Visitors	145 units	0.15 spaces / unit	21.8 spaces
Total	145 units		168.9 spaces

Tower 3 is located on the southern part of the site and will have 145 residential units requiring a minimum of 169 car parking spaces. The architectural plans show <u>169 car parking spaces</u> over seven (7) basement levels, which meets Council's minimum requirements for this tower.

In summary, the proposed on-site car parking provision (433 spaces in total) exceeds the minimum requirement under Council's TAPS Planning Scheme Policy (386 spaces in total), and the car parking provisions within each tower also exceed the minimum requirement. Accordingly, the proposed level of on-site car parking is anticipated to be more than adequate to cater for the demand generated by the development, without any overspill onto the adjacent road network.



## 3.3 Internal Layout

The car park layout as shown in the plans included as **Appendix A** has been designed generally in accordance with Council's Planning Scheme and/or the relevant Australian Standards, as summarised following:

- Standard parking spaces are between 2.4m and 2.6m in width and 5.4m in length, meeting the minimum dimensional requirements for parking areas with low turnover rates as stipulated in AS2890.1;
- Parking aisles are generally 6.2m in width, meeting Council's TAPS PSP and exceeding the minimum dimensional requirements for parking areas with low turnover rates as stipulated in AS2890.1.
- Parking spaces adjacent to vertical obstructions outside the clear area as identified in AS2890.1 (Figure 5.2) are provided with an additional 300mm clearance for manoeuvring and/or door opening and access to/from the vehicle;
- Two-way, two-lane ramps connecting basement/ground levels are a minimum of 5.5m wide (measured between kerbs) with 300mm clearance provided to the walls, as required under AS2890.1;
- The gradients of ramps connecting basement / ground levels are a maximum of 1:5 with transitions at 1:8 1:10 to prevent vehicle underside scraping, in accordance with the requirements of AS2890.1;
- Small car parking spaces have minimum dimensions of 5.0m length and 2.3m width in accordance with Council's TAPS PSP, and will be appropriately signed for small cars; and
- Accessible parking spaces for persons with a disability (PWD) are 2.4m wide and have 2.4m wide adjacent shared areas in accordance with the requirements of Council's TAPS Planning Scheme Policy (Class 5 parking) and AS2890.6.

Importantly, the design of the internal car parking areas is generally consistent with that under the approved development scheme, with the additional car parking areas (one (1) additional basement level under Tower 2 (Basement 2F), and two (2) additional basement levels under Tower 3 (Basement 3F and 3G)) also designed in accordance with the above.

## 3.4 Servicing

Given the proposal is a residential development, the demand for service vehicles would be relatively limited. With the exception of the occasional furniture delivery vehicle or tradesperson / courier (who could use the visitor parking spaces), the only servicing requirement for each of the residential towers would be regular refuse collection.

#### 3.4.1 Tower 2

The design intent is to accommodate medium and large rigid vehicles up to 10.2m in length and a maximum of 4.5m in height, which would include a rear loading refuse collection vehicle (RCV). Refuse collection will occur on the Ground level, at the eastern end of the entrance driveway (consistent with the approved development scheme). The RCV will enter the site from O'Connell Street in a forward gear, reversing into the bin collection area. Following waste collection, the RCV will then exit the site onto O'Connell in a forward gear.

Swept path analyses of a refuse collection vehicle accessing the site and manoeuvring to the loading area under Tower 2 is included as **Appendix B**. The servicing arrangement for Tower 2 is generally unchanged from that under the approved development scheme.

#### 3.4.2 Tower 1 and Tower 3

The design intent is to accommodate medium and large rigid vehicles up to 10.2m in length and a maximum of 4.5m in height, which would include a rear loading refuse collection vehicle (RCV). Refuse collection will occur on the Ground level. The RCV will enter the site from Lambert Street in a forward gear, traversing along the easement driveway, then reversing into the bin collection areas. Following waste collection, the RCV will then exit the site onto Lambert Street in a forward gear.

Swept path analyses of a refuse collection vehicle accessing the site and manoeuvring to the loading area under Tower 1 and Tower 3 is included as **Appendix C**.



The proposed servicing / refuse collection arrangements are considered to be appropriate given the nature and scale of the development, generally in accordance with Council's requirements, and consistent with those under the approved development scheme.



## 4.0 Traffic Impact Assessment

The RTA Guide to Traffic Generating Developments provides traffic generation rates for various land uses. The rate suggested for medium density residential flat buildings with units of up to two bedrooms is 0.4 - 0.5 trips per dwelling in the peak hours, and for larger units, is 0.5 - 0.65 trips per dwelling in the peak hours.

The corresponding forecast trip generation for each tower is shown in the tables below.

Tower	No.	Trips / Unit (Peak Hour)	Total
	1 x 2-bed unit	0.5 trips per dwelling	0.5 trips
Tower 1	82 x 3-bed units	0.6 trips per dwelling	49.2 trips
	4 x 4-bed unit	0.65 trips per dwelling	2.6 trips
Total	87 units		52.3 trips

Tower	No.	Trips / Unit (Peak Hour)	Total
	13 x 1-bed units	0.4 trips per dwelling	5.2 trips
Towar 2	13 x 2-bed units	0.5 trips per dwelling	6.5 trips
10wer 2	39 x 3-bed units	0.6 trips per dwelling	23.4 trips
	3 x 4-bed units	0.65 trips per dwelling	2.0 trips
Total	68 units		37.1 trips

Tower	No.	Trips / Unit (Peak Hour)	Total
Taman 2	62 x 1-bed unit	0.4 trips per dwelling	24.8 trips
Tower 3	83 x 2-bed units	0.5 trips per dwelling	41.5 trips
Total	145 units		66.3 trips

As summarised in the tables above, Tower 1, Tower 2 and Tower 3 are expected to generate approximately 52 trips, 37 trips and 66 trips respectively in the AM and PM peak hours. This equates to a total peak hour trip generation of 156 trips (entry and exit) which would be distributed across the two (2) proposed access driveways. This level of traffic generation (i.e. 2 - 3 vehicle trips per minute in the critical peak hours) is relatively low, particularly once distributed as arrival / departures trips over two (2) access driveways and several potential arrival / departure routes.

Given both O'Connell Street and Lambert Street are low volume minor streets, it is anticipated that the additional traffic generated (which is not a substantially greater volume than that which would have been generated by the development which was previously approved on the site) would be well accommodated on the local road network, without any adverse impacts from a capacity perspective. Any impacts, however minor, would be mitigated by way of infrastructure charges levied against the development.



## 5.0 Recommendation

In light of the information contained within this report, we consider that the proposal is satisfactory from a traffic operations perspective, and recommend that the application be approved from a traffic engineering perspective.

### 5.1 Qualifications

This report has been approved by Richard Quinn | Director | RPEQ 08565

# **APPENDIX A**

**Proposed Architectural Plans** 

Due to file size, please refer to the drawing set submitted by Urbis as part of the Application.

# **APPENDIX B**

Swept Path RCV – T2





Rear Load Refuse - 10.24m Overall Length Overall Width Overall Body Height Min Body Ground Clearance Track Width Lock-to-lock time Curb to Curb Turning Radius





# **APPENDIX C**

Swept Path RCV – T1 and T3





BCC Rear Loader - 10.24m QT Overall Length Overall Width Min Body Ground Clearance Track Width Lock-to-lock time Curb to Curb Turning Radius





# **APPENDIX D**

TAPS Code

#### 9.4.11 Transport, access, parking and servicing code

#### 9.4.11.3 Performance outcomes and acceptable outcomes

#### Table 9.4.11.3—Performance outcomes and acceptable outcomes

Performance outcomes	Acceptable outcomes	Response
<ul> <li>PO1 Development is designed: <ul> <li>(a) to include a technically competent and accurate response to the transport and traffic elements of the development;</li> <li>(b) in accordance with the standards in the Transport, access, parking and servicing planning scheme policy;</li> <li>(c) to ensure the efficient operation and safety of the development and its surrounds.</li> </ul> </li> <li>Note—The acceptable outcome and performance outcome can be demonstrated through a development application that: <ul> <li>is accompanied by sufficient information, including computer modelling input and output data, to allow the proposed development to be properly assessed against the requirements of this code and the standards and guidelines of the Transport, access, parking and servicing planning scheme policy;</li> <li>is certified by a <u>Registered Professional Engineer Queensland</u> that all plans, documents and dimensioned drawings comply with the requirements of this code and the standards and guidelines of the Transport, access, parking and servicing planning scheme policy;</li> <li>ensures that any computer modelling input and output data are accurate, reasonable and carried out in accordance with sound traffic engineering practices.</li> </ul></li></ul>	AO1 Development complies with the standards in the <u>Transport, access, parking and</u> servicing planning scheme policy.	Refer to Traffic Report prepared by Q Traffic dated 2 September 2020. The design of the development is generally in accordance with the requirements of Council's Transport, access, parking and servicing planning scheme policy and/or the relevant Australian Standards.
<b>PO2</b> Development of a major size incorporates on-site provision for integration with the public transport network and the management of vehicles, public transport, pedestrians and cyclists, including providing appropriate pedestrian and cyclist linkages to adjoining uses, public areas and the transport network consistent with the planning by the Queensland Government and Council.	AO2 No acceptable outcome is prescribed.	Access to the existing public transport network would be provided for by way of the existing public road / pathway network.

PO3 Development provides vehicle access that is located and designed so as to have no significant impact on the safety, efficiency, function, convenience of use or capacity of the road network.	AO3.1 Development provides site access that is located and designed in compliance with the standards in the <u>Transport, access,</u> parking and servicing planning scheme policy. AO3.2 Development provides an easement for a vehicular access benefiting all adjoining landowners and the Council if the vehicular access services more than an individual development or premises.	Refer to Section 3.1 of the Traffic Report prepared by Q Traffic dated 2 September 2020. The proposed access arrangements are considered to be acceptable, and in accordance with the requirements of Council's Transport, Access, Parking and Servicing (TAPS) Planning Scheme Policy. Importantly, the proposed vehicular access arrangements are generally consistent with those under the approved development scheme.
PO4 Development provides walking and cycle routes through the site which: (a) link to the external network and pedestrian and cyclist destinations such as schools, shopping centres, open space, public transport stations, shops and local activity centres along the safest, most direct and convenient routes; (b) encourage walking and cycling; (c) ensure pedestrian and cyclist safety; (d) provide a direct and legible network. Note—The <u>Infrastructure design planning</u> <u>scheme policy</u> provides additional guidance on how to comply with this performance outcome.	AO4.1 Development provides walking and cycle routes which are constructed on the carriageway or through the site to: (a) create a walking or cycle route along the full frontage of the site; (b) connect to public transport and existing cycle and walking routes at the frontage or boundary of the site. AO4.2 Development provides walking and cycle routes that are constructed in compliance with the standards in the <u>Transport</u> , access, parking and servicing planning scheme policy and the <u>Infrastructure</u> design planning scheme policy. AO4.3 Development provides walking and cycle routes which do not include a potential entrapment area, blind corner or sudden change in level that restrict sightlines.	Walking and cycle routes through the site are not appropriate given the nature of the development.
<ul> <li>PO5</li> <li>Development provides secure and convenient bicycle parking which: <ul> <li>(a) for visitors is obvious and located close to the building's main entrance;</li> <li>(b) for employees is conveniently located to provide secure and convenient access between the bicycle storage area, end-of-trip facilities and the main area of the building;</li> <li>(c) is easily and safely accessible from outside the site;</li> <li>(d) does not impact adversely on visual amenity;</li> <li>(e) does not impede the movement of pedestrians or other vehicles;</li> <li>(f) is designed to comply with a recognised standard for the construction of bicycle facilities.</li> </ul> </li> <li>Note—For a performance outcome relating to the number of bicycle parking spaces provided, the application must demonstrate how the needs of the intended users of the site differ from the standard rates in the Transport, access, parking and servicing planning scheme policy.</li> </ul>	<ul> <li>AO5.1 Development provides on-site bicycle parking spaces in compliance with the standards in the <u>Transport, access, parking and servicing planning scheme policy.</u></li> <li>AO5.2 Development provides bicycle parking spaces for employees which are co- located with end-of-trip facilities (shower cubicles and lockers) in compliance with the <u>Transport, access, parking and servicing planning scheme policy</u> and AS 2890.3-1993 Bicycle parking facilities.</li> <li>AO5.3 Development ensures that the location of visitor bicycle parking is discernible either by direct view or using signs from the street.</li> <li>AO5.4 Development provides visitor bicycle parking which does not impede pedestrian movement.</li> <li>AO5.5 Development provides bicycle parking which is constructed in compliance with the standards in the <u>Transport, access, parking and servicing planning scheme policy.</u></li> </ul>	As shown in the plans which accompany the development application, a total of 300 resident and 75 visitor bicycle parking spaces are proposed, which meets the requirements in Council's Transport, access, parking and servicing planning scheme policy.

PO6 Development provides shower cubicles and lockers in sufficient numbers to meet the needs and volume of predicted pedestrian and cyclist users. Note—For a performance outcome the application must demonstrate how the needs of the intended users of the site differ from the standard rates in the <u>Transport, access, parking and servicing</u> <u>planning scheme policy</u> .	AO6 Development provides shower cubicles and lockers for pedestrians and cyclists in compliance with the standards in the <u>Transport, access, parking and servicing</u> <u>planning scheme policy.</u>	Shower cubicles and lockers not required for residential development.
<b>PO7</b> Development provides pedestrian and cyclist access to the site which is designed to provide safe movement and avoid unnecessary conflict between pedestrians, cyclists and motor vehicles.	A07 Development provides pedestrian and cycle access that is designed and constructed in compliance with the site access design guidelines, pedestrian facilities standards and cyclist facilities standards in the <u>Transport, access</u> , parking and servicing planning scheme policy.	Access to the existing public transport network would be provided for by way of the existing public road / pathway network. A pedestrian pathway is proposed from Lambert Street adjacent to (but separate from) the vehicular site access. A pedestrian entry is also proposed from O'Connell Street to the building.
<b>PO8</b> Development provides pedestrian and cyclist access to and from the site which is located to take advantage of safe crossing points of the adjacent road system, key destinations and public transport facilities.	AO8 No acceptable outcome is prescribed.	Access to existing crossing points of the adjacent road system, key destinations and public transport facilities would be provided for by way of the existing public road / pathway network.
destinations and public transport facilities. <b>PO9</b> Development provides access driveways in the road area that are located, designed and controlled to: (a) minimise adverse impacts on the safety and operation of the transport network, including the movement of pedestrians and cyclists; (b) ensure the amenity of adjacent premises, from impacts such as noise and light,	<ul> <li>AO9.1</li> <li>No acceptable outcome for access is prescribed, for a major development (as described in the Transport, access, parking and servicing planning scheme policy).</li> <li>AO9.2</li> <li>Development which is not a major development (as described in the Transport, access, parking and servicing planning scheme policy) provides a single site access driveway in the road area to the lowest order road to which the site has frontage.</li> <li>AO9.3</li> <li>Development ensures that sight distances to and from all proposed access driveways in the road area and intersections are in compliance with the standards in the Transport, access, parking and servicing planning scheme policy.</li> <li>AO9.4</li> <li>Development provides access driveways in the road area which: <ul> <li>(a) are located, designed and controlled in compliance with the standards in the Transport, access, parking and servicing planning scheme policy;</li> <li>(b) are not provided through a bus stop, taxi rank or pedestrian crossing or refuge.</li> </ul> </li> </ul>	pathway network. Refer to Section 3.1 of the Traffic Report prepared by Q Traffic dated 2 September 2020. The proposed access arrangements are considered to be acceptable, and in accordance with the requirements of Council's Transport, Access, Parking and Servicing (TAPS) Planning Scheme Policy. Importantly, the proposed vehicular access arrangements are generally consistent with those under the approved development scheme.

	Development makes provision for shared access arrangements particularly where it is necessary to limit access points to a major road.	
PO10 Redevelopment provides for: (a) the closure of all access driveways in the road area that no longer comply with the standards in the <u>Transport, access,</u> parking and servicing planning scheme policy; (b) the reinstatement of adjacent footpaths.	AO10 No acceptable outcome is prescribed.	This requirement could be addressed by way of a standard condition of the approval.
(b) the reinstatement of adjacent footpaths. <b>PO11</b> Development provides that an internal approach to an access driveway in the road area is designed and located to provide for the safety of pedestrians and cyclists using paths adjacent to the frontage of the site, and motorists.	AO11.1 Development provides sight distances to and from all proposed access driveways in the road area and intersections which are in compliance with the standards in the <u>Transport, access, parking and</u> servicing planning scheme policy. AO11.2 Development ensures that convex mirrors are only used in a site: (a) as a secondary support at access driveways; (b) in addition to acceptable sight splays that comply with the sight distances standards in the <u>Transport, access</u> , parking and servicing planning scheme policy.	Refer to Section 3.1 of the Traffic Report prepared by Q Traffic dated 2 September 2020. The O'Connell Street crossover is located on the outside of a bend and as a consequence, provides drivers with excellent visibility in both directions. The site narrows to the front property boundary, where the frontage is approximately 5.6m wide. Given the site constraints, the effective width of the crossover at the property boundary will be in the order of 5.0m - 5.5m which may result in two-way one-lane operation at the crossover. Tower 2 is only expected to generate in the order of 37 trips in the AM and PM peak hours. It is estimated that 80% of this traffic would be leaving in the morning and 80% returning in the evening. Given the low traffic volumes and tidal flow, the potential for two (2) vehicles having to pass on the crossover is remote, and should it occur, any queuing onto the street would be of very short duration. Given O'Connell Street is a low volume minor street, the impact of the development on the safety or efficiency of the road petwork would be negligible.
		Immediately upon entering the site the circulation road widens to comfortably allow for two-way flow of passenger and service vehicles, and the grade for approximately the first 10m upon entering the site is 1:20, for pedestrian safety. Consistent with the approved development scheme, the current proposal includes access for both Tower 1 and Tower 3 on Lambert Street via the access handle / proposed easement along the eastern boundary of the subject site. The proposed crossover is approximately 5.5 wide at the southern property boundary of the site, consistent with the approved development scheme. This width is adequate to cater for two-way traffic

		flow (i.e. an entering vehicle to pass) an exiting vehicle), and to accommodate the largest service vehicle requiring to access the site. Similar to the O'Connell Street crossover, the Lambert Street access is located on the outside of a bend and as a consequence, will provide drivers with excellent visibility in both directions.
<b>PO12</b> Development in the City core and City frame as identified in <u>Figure a</u> provides car parking spaces at rates to discourage private car use and encourage walking, cycling and the use of public transport.	AO12 Development in the City core and City frame as identified in Figure a provides maximum car-parking rates in compliance with the standards in the <u>Transport, access, parking and servicing</u> planning scheme policy. Note—For accepted development subject to compliance with identified requirements including an existing premises, no reduction to existing car parking is required to comply with a maximum car-parking rate in the <u>Transport, access, parking and servicing</u> planning scheme policy.	The site is located within the City Frame area as defined in Council's TAPS Code. The recommended parking rates for a multiple dwelling development in Council's TAPS Code are minimum rates, and the proposal complies with these requirements.
<b>PO13</b> Development outside of the City core and City frame as identified in <u>Figure a</u> provides on-site car parking spaces to accommodate the design peak parking demand without any overflow of car parking to an adjacent premises or adjacent street.	AO13 Development outside of the City core and City frame as identified in <u>Figure a</u> : (a) provides on-site car parking spaces in compliance with the standards in the <u>Transport, access, parking and servicing</u> <u>planning scheme policy</u> ; or (b) for accepted development subject to compliance with identified requirements, does not result in on-street car parking if no parking standard is identified in the <u>Transport, access, parking and servicing</u> <u>planning scheme policy</u> . Note—For accepted development subject to compliance with identified requirements including an existing premises, no reduction to existing car parking is required to comply with a maximum car-parking rate in the Transport, access, parking and servicing planning scheme policy.	NA. The site is located within the City Frame area as defined in Council's TAPS Code.
PO14 Development ensures that the number of car parking spaces and design of the car parking area: (a) meet the combined design peak parking demand for residential, visitor and	AO14.1 Development provides a number of car parking spaces on site equalling the sum of the maximum design peak parking demand for the individual uses at any point in time.	See above
business parking; (b) allow for the temporal sharing of car- parking spaces for uses with different peak parking demands. Note—In order to demonstrate that adequate car parking is provided, a traffic impact assessment prepared in compliance with the <u>Transport</u> , access, parking and <u>servicing planning scheme policy</u> is to	<b>AO14.2</b> Development involving mixed use provides a non-residential car parking area with shared parking for all the businesses in the development.	NA

identify the appropriate number of car parking spaces to be provided.		
PO15 Development provides a car park layout which allows for on-site vehicle parking that: (a) is clearly defined, safe and easily accessible; (b) is designed to contain potential adverse impacts within the site; (c) does not detract from the aesthetics or amenity of an area; (d) discourages on-street parking if parking has an adverse traffic management safety or amenity impact; (e) is consistent with safe and convenient pedestrian and cyclist movement.	AO15 Development provides parking bays, queue areas and manoeuvring areas which are designed for the design service vehicle to the standards in the <u>Transport</u> , access, parking and servicing planning scheme policy.	The design of the internal car parking areas is generally consistent with that under the approved development scheme, with the additional car parking areas (one (1) additional basement level under Tower 2 (Basement 2F), and two (2) additional basement levels under Tower 3 (Basement 3F and 3G)) which are also designed generally in accordance with Council's Planning Scheme and/or the relevant Australian Standards.
PO16 Development creates a safe environment by incorporating the key elements of crime prevention through environmental design.	AO16 Development incorporates the key elements of crime prevention through environmental design in its layout, building and structure design and landscaping by: (a) facilitating casual surveillance opportunities and including good sightlines to publicly accessible areas such as car parks, pathways, public toilets and communal areas; (b) defining different uses and ownerships through design and restricting access from non-residential uses into private residential dwellings; (c) promoting safety and minimising opportunities for graffiti and vandalism through exterior building design and orientation of buildings and use of active frontages; (d) ensuring publicly accessible areas such as car parks, pathways, public toilets and communal areas are well lit; (e) including way-finding cues; (f) minimising predictable routes and entrapment locations near public spaces such as car parks, public toilets, ATMs and communal areas. Note—For guidance in achieving the key elements of crime prevention through environmental design, refer to the <u>Crime</u> prevention through environmental design planning scheme policy.	Not a traffic issue – to be addressed by others.
<b>PO17</b> Development minimises the potential for graffiti and vandalism through access control, canvas reduction and easy maintenance selection.	AO17 Development incorporates graffiti and vandalism prevention techniques in its layout, building and structure design and landscaping, by: (a) denying access to potential canvases through access control techniques; (b) reducing potential canvases through canvas reduction techniques; (c) ensuring graffiti can be readily and quickly removed through easy maintenance selection techniques.	Not a traffic issue – to be addressed by others.

	Note—For guidance on graffiti and vandalism prevention techniques, refer to the <u>Graffiti prevention planning scheme</u> policy	
<b>PO18</b> Development is serviced by an adequate number and size of service vehicles.	AO18 Development ensures that the number and size of design service vehicles selected for the site is in compliance with the standards in the <u>Transport, access,</u> <u>parking and servicing planning scheme</u> policy.	Refer to Section 3.4 of the Traffic Report prepared by Q Traffic dated 2 September 2020. For Tower 2, the design intent is to accommodate medium and large rigid vehicles up to 10.2m in length and a maximum of 4.5m in height, which would include a rear loading refuse collection vehicle (RCV). Refuse collection will occur on the Ground level, at the eastern end of the entrance driveway (consistent with the approved development scheme). The RCV will enter the site from O'Connell Street in a forward gear, reversing into the bin collection area. Following waste collection, the RCV will then exit the site onto O'Connell in a forward gear. For Tower 1 and Tower 3, the design intent is to accommodate medium and large rigid vehicles up to 10.2m in length and a maximum of 4.5m in height, which would include a rear loading refuse collection will occur on the Ground level. The RCV will enter the site from Lambert Street in a forward gear, traversing along the easement driveway, then reversing into the
PO19 Development layout provides for services which: (a) are wholly within the site, other than service vehicle manoeuvring areas which may overhang the verge on a <u>minor road</u> where use of the footpath is not adversely affected; (b) are clearly defined, safe and easily accessible; (c) are designed to contain potential adverse impacts of servicing within the site; (d) do not detract from the aesthetics or amenity of the surrounding area.	AO19.1 Development ensures that a service bay provided on site: (a) is provided and designed to comply with the design vehicle table and service area design standards in the <u>Transport</u> , access, parking and servicing planning <u>scheme policy</u> ; (b) is located away from street frontages and screened from <u>adjoining premises</u> . AO19.2 Development provides on-site servicing facilities and associated on-site vehicle manoeuvring areas which are designed in compliance with the service area design standards in the <u>Transport</u> , access, parking and servicing planning scheme policy. AO19.3 Development provides service areas for refuse collection in compliance with the standards in the <u>Refuse planning scheme</u> policy, <u>Transport</u> , access, parking and servicing planning scheme policy and the Infrastructure design planning scheme policy.	
<b>PO20</b> Development provides service vehicle access routes to and from the site which minimise the impact on:	AO20 Development ensures that service vehicles use the shortest and most direct route to the major road network in	waste collection areas. Following waste collection, the RCV will then exit the site onto Lambert Street in a forward gear.
<ul> <li>(a) <u>amenity</u> and safety in residential areas;</li> <li>(b) streets not constructed to a standard that accommodate increased heavy vehicle movements.</li> </ul>	compliance with the heavy vehicle standards in the <u>Transport, access,</u> <u>parking and servicing planning scheme</u> <u>policy</u> .	The servicing arrangements are generally unchanged from those under the approved development scheme.
If for development which is required to be class 10 vehicle), multi-combination vehic vehicle identified by the Queensland Gow operate on the road (freight-dependent d	be serviced by a b-double (Austroad cle, over-dimensioned vehicle or any on vernment as requiring a permit to evelopment)	
<ul> <li>PO21</li> <li>Development which is freight-dependent development ensures that the traffic generated by the development does not impact on: <ul> <li>(a) the operation of the transport network;</li> <li>(b) the safety and amenity of a residential area;</li> <li>(c) a road not constructed to accommodate a non-standard vehicle such as a road only constructed to accommodate a vehicle that has a legal right of access to all roads including Austroads vehicles classes 1–9.</li> </ul> </li> </ul>	AO21.1 Development which is freight-dependent development is located on a site which: (a) has frontage to or direct access to the freight network in the <u>Road hierarchy</u> <u>overlay</u> via roads in a zone in the Industry zones category; or (b) can be serviced by a route that can act as a primary freight access route and connect to an existing primary freight route without impacting on the safe operation of the road network in compliance with the heavy vehicle	NA

standards in the <u>Transport, access,</u> parking and servicing planning scheme policy.	
AO21.2	NA
Development which is freight-dependent development provides any necessary upgrade to a road used as an access route in compliance with the <u>Infrastructure</u> <u>design planning scheme policy</u> .	



Figure a-City core and City frame