Appendix D

Transport Impact Statement



Transport Impact Statement

Project:	Proposed Residential Development			
	17-19 Almondbury Road and 3 Bragor Place, Ardross			
Client:	Scentre Group			
Date:	18 th March 2024			
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1. Introduction

1.1. Proponent

Shawmac Pty Ltd has been engaged by Scentre Group to prepare a Transport Impact Statement (TIS) for proposed residential development in Ardross.

This TIS has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Impact Assessment Guidelines Volume 4 – Individual Developments*. The assessment considers the following key matters:

- Details of the proposed development.
- Vehicle access and parking.
- Provision for service vehicles.
- Hours of operation.
- Daily traffic volumes and vehicle types.
- Traffic management on frontage streets.
- Public transport access.
- Pedestrian access.
- Cycle access and end of trip facilities.
- Site specific and safety issues.

1.2. Site Location

The site includes 17-19 Almondbury Road and 3 Bragor Place in Ardross. The local authority is the City of Melville.

The general site location is shown in **Figure 1**. An aerial view of the existing site is shown in **Figure 2**.





Figure 1: Site Location



Figure 2: Aerial View (January 2024)



2. Proposed Development

2.1. Land Use

There is currently a single dwelling on each of the three lots. 17-19 Almondbury Road is zoned Mixed Use under the City's Local Planning Scheme No. 6 (LPS6) and is also within the boundaries of the Melville City Centre Structure Plan. 3 Bragor Place is zoned residential (R40) and is outside of the Melville City Centre Structure Plan boundary.

It is proposed to demolish the existing dwellings and construct a new multi-storey residential development comprising 3 townhouses on the northern portion of the site and 57 apartments on the southern portion of the site. car parking is proposed on the lower ground and basement level.

The proposed lower ground floor plan and basement plan are shown in Figure 3 and Figure 4.



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Figure 3: Lower Ground Floor Plan

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Figure 4: Basement Plan

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3. Traffic Management on Frontage Streets

3.1. Road Network Layout and Hierarchy

The layout and hierarchy of the existing local road network according to the Main Roads WA *Road Information Mapping System* is shown in **Figure 5**.



Figure 5: Existing Road Network Hierarchy



3.2. Speed Limit

The existing speed limits are shown in Figure 6.



Figure 6: Existing Speed Limits

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4. Vehicle Access and Parking

4.1. Vehicle Access

There is one existing crossover on Almondbury Road and three existing crossovers on Bragor Place. It is proposed to rationalise access via a single new crossover on Bragor Places as shown in **Figure 7**.



Figure 7: Proposed Access



4.2. Vehicle Sight Distance

Sight distance requirements from vehicle exit points are defined in Figure 3.2 of Australian Standard AS2890.1-2004 *Parking facilities Part 1: Off street car parking* (AS2890.1) which are based on the Austroads Stopping Sight Distance shown in **Figure 8**.



Figure 8 : AS2890.1 Sight Distance Requirements

Based on the 50km/h speed limit along Bragor Place, the minimum required Stopping Sight Distance is 45m. As shown in **Figure 9**, the minimum required sight distance is achieved towards the north. Towards the south, the sight distance is available to the end of the cul-de-sac and vehicles approaching from this direction will be travelling well below the speed limit.





Figure 9: Sight Distance Check



4.3. Pedestrian Sight Distance

To allow for visibility between vehicles and pedestrians on the driveway, the Residential Design Codes (RDC) requires visual truncations to be kept clear of obstruction as shown in **Figure 10**.



Figure 10: RDC Pedestrian Sight Distance Requirements

As shown in Figure 11, the required truncation is achieved.



Figure 11: RDC Pedestrian Sight Distance Check



4.4. Access Width

The City's *Guidelines for Crossovers* specifies that the minimum width of a residential crossover is 3.0m and the maximum width of a residential crossover is to be 6.0m for lots with a frontage in excess of 12.5m.

The proposed crossover is 4.5m wide which complies with the City's requirements.

4.5. Car Parking

The car parking requirements for grouped dwellings are to comply with the Residential Design Codes Volume 1 (RDC1) and the car parking requirements for multiple dwellings are to comply with the Residential Design Codes Volume 2 (RDC2). The Location A requirements are applicable to the multiple dwellings as they are located within the boundaries of an activity centre. The Location B requirements would apply to the grouped dwellings as they are located outside the activity centre boundary. For visitor parking, the RDC2 requirements have been applied as there are only three grouped dwellings and the RDC1 and RDC2 requirements are the same for the first 12 dwellings.

The calculation of the car parking requirements is outlined in Table 1.

Land Use	Unit	Requirement	Quantum	Required Bays
Townhouses (RDC1	1 bedroom dwellings	1 bay per dwelling	0	0
– Location B)	2+ bedroom dwellings	2 bays per dwelling	3	6
Apartment (RDC2 –	1 bedroom dwellings	0.75 bays per dwelling	12	9
Location A)	2+ bedroom dwellings	1 bay per dwelling	45	45
	du ce llie e e	1 bay per 4 dwellings up to 12 dwellings	12	3
VISITOR	aweilings	1 bay per 8 dwellings for the 13th dwelling and above	48	6

Table 1: Car Parking Requirements

As above, the development requires a minimum of 60 resident bays (6 townhouse bays and 54 apartment bays) and 9 visitor bays. The development proposes 94 resident bays (6 townhouse bays and 88 apartment bays) and 8 visitor bays which is short of the minimum requirements by 1 visitor bay. Design guidance DG 3.9.3 of RDC2 notes that visitor parking may be reduced where there is adequate on-street parking or public parking in the near vicinity of the development. For this site, the shortfall of 1 visitor bay would be adequately compensated by the ample parking at the shopping centre on the opposite side of Almondbury Road.



4.6. Motorcycle / Scooter Bays

The RDC2 requires 1 motorcycle / scooter space for every 10 car bays in developments with more than 20 dwellings. Based on the 69 car bays required, the development would require 7 motorcycle bays.

The development proposes 7 motorcycle / scooter bays which satisfies the calculated requirements.

4.7. Parking Layout

The layout and dimensions of the car park have been assessed for compliance with AS2890.1 as detailed in **Table 2**. As the majority of bays are for resident use, the User Class 1 or 1A requirements have been applied which is the standard for long-term parking.

Dimension	Requirement	Provided				
90 degree parking – Class 1 – Residential, domestic parking						
Car Bay Width	2.4m	2.4m				
Car Bay Length (Standard Bay)	5.4m	5.4m				
Parking Aisle Width	5.8m	5.8m				
Blind Aisle Extension	1.0m	0.95m				

Table 2: AS2890.1 Car Parking Compliance

As shown, all relevant dimensions are compliant except for the blind aisle created by the garage door at the end of the visitor bays which is 50mm short of the 1.0m requirement.

A vehicle swept path analysis has been undertaken to check the manoeuvrability for the end visitor bays as well as the other critical bays at the end of the blind aisles. The analysis has been undertaken in AutoTURN vehicle tracking software using the Australian Standard B85 vehicle template which is the standard for checking parking spaces. The Australian B99 vehicle has also been used to check manoeuvring through the circulating areas.

The results of the analysis are attached as **Appendix A** and these demonstrate that there is sufficient room for the circulating areas and most bays except for some end bays as noted below:

- The proposed motorcycle bay on the lower ground level will need to be relocated to allow adequate manoeuvring room for Bay 10.
- Manoeuvring to Bays 76, 77 and 88 on the basement level is impacted by the adjacent columns which should be shifted at least 300mm from the edge of the bays.

It is recommended to implement safety mirrors to maximise visibility at each end of the internal ramp.



4.8. Provision for Service Vehicles

Waste from the townhouses will be collected from the verge via the council waste collection services. Bins will be presented to the kerb to the north of the proposed access point.

Waste from the apartments will be collected internally via private collection. Waste vehicles will reverse into the site from Bragor Place and the bins will be emptied from the internal driveway.

A vehicle swept path analysis has also been undertaken to check the manoeuvrability for on-site waste collection. The analysis has been undertaken using a typical 10m waste vehicle truck template.

The result of the analysis is attached as **Appendix A** and this demonstrates that there is sufficient room for the waste vehicle to enter and exit the site subject to further widening of the crossover splays to accommodate the turning movements. Alternatively, a smaller waste truck would need to be used for waste collection.



5. Traffic Generation

5.1. Proposed Development

The volume of traffic generated by the proposed building has been estimated using trip generation rates from the Institute of Transportation Engineers (ITE) *Trip Generation* as detailed in **Table 3**.

The peak hour trip rates are based on the peak hour of the adjacent road network typically occurring between 7 to 9am and between 4 to 6pm.

Lond Hee	Units	Quantity	Generation Rate		Number of Trips	
Land Use			AM Peak	PM Peak	AM Peak	PM Peak
Single-family Attached Housing	Dwellings	3	0.48	0.57	1	2
Multi-family Housing – Mid-Rise	Dwellings	57	0.37	0.39	21	22
				Total	22	24

Table 3: Proposed Development Vehicle Trip Generation

As shown, the proposed development is predicted to generate approximately 22 trips during the morning peak hour and 24 during the afternoon peak hour.

According to the WAPC TIA guidelines, an increase of between 10 to 100 peak hour vehicles is considered to have a low to moderate impact and is generally deemed acceptable without requiring detailed capacity analysis.

The estimated 22 to 24 vehicles per hour is at the lower end of this range and so the development traffic is considered to have a low impact and can be accommodated within the existing capacity of the road network.



6. Pedestrian and Cyclist Access

6.1. Accessibility

There are existing paths along the east side of Bragor Place and both sides of Almondbury Road. Most other roads in the surrounding area have at least one footpath. The extent of the surrounding path network is shown in **Figure 12**. The paths are shown in orange.



Figure 12: Existing Path Network

The external path network is well established and considered to be adequate for pedestrians and cyclists to safely travel between the site and surrounding areas.



6.2. Bicycle Parking

The bicycle parking requirements for residential developments according to the RDC2 are outlined in **Table 4**. RDC1 does not specify bicycle parking requirements. Bicycle parking can also be provided within store rooms as wall-mounted racks to retain storage functionality below.

Table 4: RDC2 Bicycle Bay Requirements

Land Use	Unit	Requirement	Quantum	Required Bays
Residential	Resident	0.5 space per dwelling	60	30
	Visitor	1 space per 10 dwelling	60	6
Total Required				36

As above, the development requires a minimum of 30 bicycle bays for residents and 6 bicycle bays for visitors. A bicycle enclosure is proposed on the lower ground level for residents as well as two bicycle racks (4 spaces) along the shared access way for visitors. It is recommended that an additional bicycle rack or 2 spaces is added to meet the minimum requirement for visitor bicycle parking.



7. Public Transport Access

The following public transport services currently operate within reasonable walking distance of the site:

- Transperth Bus Route 114 which operates between Perth and Lake Coogee.
- Transperth Bus Route 115 which operates between Perth and Hamilton Hill.
- Transperth Bus Route 160 which operates between East Perth and Fremantle Station.
- Transperth Bus Route 510 which operates between Murdoch Station and Booragoon Bus Station.

The closest stops for the above routes are on Riseley Street south of Almondbury Road, approximately 350m walking distance from the site.

The existing available services are adequate to meet the likely demand.



8. Site Specific Issues and Safety Issues

8.1. Crash History

The crash history of the adjacent road network was obtained from the MRWA Reporting Centre. The search included Bragor Place, Leverburgh Street and Links Road south of Leverburgh Street. A summary of the recorded incidents over the five-year period ending December 2023 is shown in **Figure 13**.



Figure 13: Crash History January 2019 to December 2023

The historic number of crashes is low and there does not appear to be any particular safety issue that needs to be addressed. The proposed development will generate a low volume of traffic and there is no indication that the development would increase the risk of crashes to unacceptable levels.



9. Conclusion

This Transport Impact Statement for the proposed residential development at 17-19 Almondbury Road and 3 Bragor Place in Ardross concludes the following:

- The proposed development is predicted to generate approximately 22 trips during the morning peak hour and 24 during the afternoon peak hour. This volume of traffic is low and the existing road network will have sufficient capacity to accommodate the traffic generated by the development.
- The minimum required sight distance is achieved at the proposed vehicle access in both directions.
- The crossover width complies with the City's specifications.
- The development requires a minimum of 60 resident bays and 9 visitor bays. The development proposes 85 resident bays and 8 visitor bays which is short of the minimum requirements by 1 visitor bay. Design guidance DG 3.9.3 of RDC2 notes that visitor parking may be reduced where there is adequate on-street parking or public parking in the near vicinity of the development. For this site, the shortfall of 1 visitor bay would be adequately compensated by the ample parking at the shopping centre on the opposite side of Almondbury Road.
- The car parking layout is compliant with AS2890.1 except for the blind aisle created by the garage door at the end of the visitor bays which is 50mm short of the 1.0m requirement.
- A vehicle swept path analysis demonstrate that there is sufficient manoeuvring room throughout the car park circulating areas and most bays except for some end bays as noted below:
 - The proposed motorcycle bay on the lower ground level will need to be relocated to allow adequate manoeuvring room for Bay 10.
 - Manoeuvring to Bays 76, 77 and 88 on the basement level is impacted by the adjacent columns which should be shifted at least 300mm from the edge of the bays.
- It is recommended to implement safety mirrors to maximise visibility at each end of the internal ramp.
- Waste from the townhouses will be collected from the verge via the council waste collection services.
 Bins will be presented to the kerb to the north of the proposed access point.
- Waste from the apartments will be collected internally via private collection. Waste vehicles will reverse into the site from Bragor Place and the bins will be emptied from the internal driveway.
- A vehicle swept path analysis demonstrates that there is sufficient room for the waste vehicle to enter and exit the site subject to further widening of the crossover splays to accommodate the turning movements. Alternatively, a smaller waste truck would need to be used for waste collection.
- The existing external path network is considered to be adequate.
- The existing public transport services are considered to be adequate.
- The crash history does not indicate any issues with the road network. The traffic generated by the site will be low and is unlikely to increase the risk of crashes to unacceptable levels.



Appendix A – Swept Paths

24 | P a g e









B85

		mm
Width		1870
Track		1770
Lock to L	_ock Time	6.0
Steering (Angle	34.1





B85

		mm
Width		1870
Track		1770
Lock to L	_ock Time	6.0
Steering (Angle	34.1





B99

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Width		3	1940
Track		1	1840
Lock to	Lock	Time	6.0
Steering	Angle	}	33.9





B99

		٣	۱M
Width		3	1940
Track		1	1840
Lock to	Lock	Time	6.0
Steering	Angle	}	33.9