



TRIAxIAL
CONSULTING

COMPLEX PROBLEMS
RESOLVED SIMPLY

Suite 12, Level 14, 327 Pitt St
Sydney NSW 2000

triaxial.com.au
1300 874 294

PROVISION OF CONSULTING ENGINEERING SERVICES

PROPOSED DEVELOPMENT KANDOS MUSEUM

TRAFFIC ASSESSMENT REPORT

05 DECEMBER 2023

REFERENCE: TX17440.00-01.RPT.JD-REV0

SYDNEY | ADELAIDE | BAROSSA | DARWIN | MUDGEE

COPYRIGHT © This report and its contents are the sole property of Triaxial Consulting, and are intended for the client for use on this specific project. Reproduction, distribution and general publication of this document shall only be undertaken with prior written consent from Triaxial Consulting.

TX17740.00-01.rpt.JD-Rev1

1 of 14

Document Control:

Client	Kandos Museum		
Prepared By:	Triaxial Consulting Ltd		
Report Author	Jim Disher		
File Reference:	TX17740.00-01.rpt		
Report Date:	05 December 2023		
Current Revision:	0		
Revision History:	Report Author	Reviewed By	Report Date
0	J.D.	J.M.	05/12/23

INDEX

1	Introduction	4
2	Proposal.....	4
3	Existing Traffic Conditions	5
4	Expected Traffic Generation	8
5	Parking.....	10
6	Summary	11
	Appendix A - Site photos	12
	13

1 INTRODUCTION

Triaxial have been engaged by Kandos Museum to prepare a traffic assessment report. The purpose of this report is to assess the traffic implications of the development proposal. This report is to be included in the development application lodged with Mid-Western Regional Council.

2 PROPOSAL

2.1 DEVELOPMENT SITE

The site located at 22-24 Buchanan Street, Kandos and is the site of the current Kandos Museum. The proposal includes an extension to the existing museum building, introduction of new exhibition and interactive spaces and a new café. Reference is made to the Kandos Museum Masterplan (November 2023) that outlines the future direction of the Museum.

The site is zoned RU5 under Mid Western Regional Council Local Environment Plan (MWRC LEP 2012). The site currently operates as a museum with approximately 3000 visitors per year.



Figure 1: Existing Site

Buchanan Street is currently constructed as a two way road with an on-road kerbside parallel parking lane on either side. Kerb and gutter (upright barrier kerb) is constructed either side.

Site investigations conducted by Triaxial confirmed the pavement width is 9m wide.

The speed limit along Buchanan Street is 50km/hr.

Refer Photos 1 – 4 Appendix A

2.2 HOURS OF OPERATION

The site currently operates between 10:00am and 4pm Wednesday to Sunday.

Staffing during the operating times varies in accordance with the peak trade with a maximum of 3 volunteer staff members on site during peak times. Staff arrival is out of peak operating times.

3 EXISTING TRAFFIC CONDITIONS

3.1 ROAD HIERARCHY – SURROUNDING ROAD NETWORK

The site is surrounded by the following roads:

- **Buchanan Street** is a local access road.
- **Angus Avenue** is the main street of Kandos and contains various commercial properties. At the closest cross street, Jaques Street, Angus Avenue operates as a divided dual lane street with a landscaped centre island.

All roads around the site are administered by Mid Western Regional Council.

The site is located at the intersection of Buchanan and Jaques Streets and approximately 120m from the intersection of Jaques Street and Angus Avenue.

Site access is proposed from Buchanan Street, including all pedestrian access.

3.2 PEDESTRIAN AND CYCLIST FACILITIES

Currently there are no cyclist facilities (bike lanes on or off road), or designated bike routes listed along Buchanan Street. Angus Avenue and Jaques Street are listed as primary and secondary access routes in the MWRC Pedestrian Access and Mobility Plan (2016).

FIGURE 6-2: KANDOS PRIMARY AND SECONDARY ROUTES

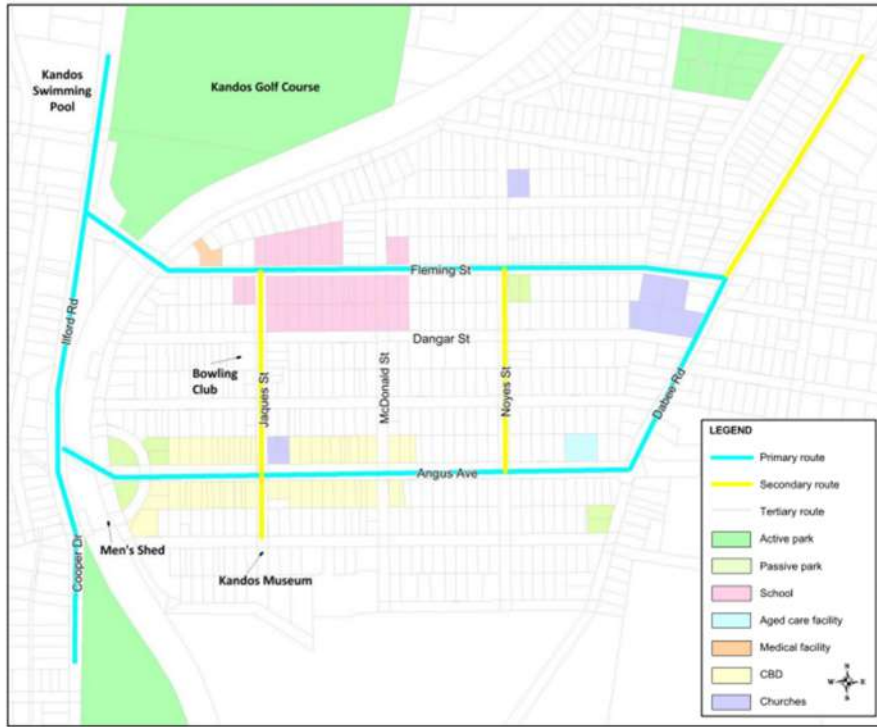


Figure 2: Kandos Pedestrian Access and Mobility Plan (2016) showing priority access paths

No future footpaths are proposed for the Buchanan Street under the PAMP project map. A condition rating of 2 was allocated to the existing concrete footpath along Jaques Street in between Buchanan Street and Angus Avenue.

ID	LOCATION		PARAMETERS							ISSUES*																	
New ID	Locality	Asset Search Description	Path Type	Path Location	Material	Cardinal Direction	Width m	Length m	Condition Rating	Vertical Clearance	Horizontal Clearance	Insufficient Width	Crossfall	Gradient	Gutter Height	Gaps	Debris	Small Trips	Large Trips	Cracked / Broken / Sunk	Surface Issues / Holes	Grates / Pit Problems	Requires Paint / Servo Xing	Poorly Placed Features	Poor / missing Ramps	Poor / missing refuge or xing	
FP00161	Kandos	Fleming Street south - McDonald St to Jaques St	Footpath	Road reserve	Concrete	South	1.20	100.0	2																		
FP00188	Kandos	Henbury Avenue north - MR 215 to Davies	Footpath	Road reserve	Concrete	North	1.20	41.0	2																x	x	
FP00232	Kandos	Jaques Street east - Fleming St to Dangar St	Footpath	Road reserve	Concrete	East	1.20	105.0	3									x		x						x	
FP00235	Kandos	Jaques Street east - Dangar St to Rodgers St	Footpath	Road reserve	Concrete	East	1.20	105.0	3									x		x							
FP00234	Kandos	Jaques Street east - Rodgers St to Angus Ave	Footpath	Road reserve	Concrete	East	1.20	105.0	2																		
FP00237	Kandos	Jaques Street east - Angus Ave to Buchanan St	Footpath	Road reserve	Concrete	East	1.20	50.0	2						x											x	
FP00233	Kandos	Jaques Street west - Buchanan St to 89m north of Buchanan St	Footpath	Road reserve	Concrete	West	1.00	83.0	3		x			xx				x		x							
FP00609	Kandos	Jaques Street west - 89m north of Buchanan St to Angus Ave	Footpath	Road reserve	Concrete	West	1.80	20.0	2																		
FP00236	Kandos	Jaques Street west - Angus Ave to Rodgers St	Footpath	Road reserve	Concrete	West	1.20	105.0	3									x		x	x						
FP00498	Kandos	Kandos to Charbon Pathway east - Clifford St to Anzac Ave	Shared path	Road reserve	Seal	East	2.00	520.0	4	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni
FP00499	Kandos	Kandos to Charbon Pathway east - Anzac Ave to Old Charbon Rd	Shared path	Road reserve	Seal	East	2.00	606.0	4	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni
FP00500	Kandos	Kandos to Charbon Pathway east - Old Charbon Rd to End	Shared path	Road reserve	Seal	East	2.00	406.0	4	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni
FP00491	Kandos	Rylstone to Kandos Pathway west - Acacia Dr to Box Culvert	Shared path	Road reserve	Gravel	West	2.00	630.0	4	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni
FP00492	Kandos	Rylstone to Kandos Pathway west - Box Culvert to Pound Rd	Shared path	Road reserve	Gravel	West	2.00	686.0	4	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni
FP00493	Kandos	Rylstone to Kandos Pathway west - Pound Rd to Tip Rd	Shared path	Road reserve	Seal	West	2.00	185.0	4	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni
FP00494	Kandos	Rylstone to Kandos Pathway west - Tip Rd to Box Culvert	Shared path	Road reserve	Seal	West	2.00	1080.0	4	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni
FP00495	Kandos	Rylstone to Kandos Pathway west - Box Culvert to Larges Ln	Shared path	Road reserve	Seal	West	2.00	520.0	4	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni

OPERATIONS WORKS | PEDESTRIAN ACCESS AND MOBILITY PLAN

Figure 3: Mudgee Pedestrian Access and Mobility Plan (2016) audit of Kandos Footpaths

A proposed footpath upgrade is shown in the PAMP for the street frontage of the Kandos Museum, as shown in the image below. As yet this upgrade has not been completed.

FIGURE D1-2: KANDOS PAMP PROJECT MAP



Figure 4: Kandos Footpaths as shown in the PAMP with proposed footpath and kerb ramp in front of the Museum frontage on Buchanan Street.

3.3 EXISTING TRAFFIC VOLUMES

No recent traffic data was available for Buchanan Street near the site from either TfNSW or Mid Western Regional Council. It is expected that the traffic volume along Buchanan and Jaques Streets will be minor and in line with a carriageway level of service A, the highest available.

3.4 EXISTING CRASH DATA

A review of the available crash data from the 5-year period 2018 – 2023 shows that there were 2 vehicle crashes during this period. The location of these crashes is shown in Figure 4 below.

Road Users by LGA: Mid-Western Regional

Degree of casualty ● Killed ● Seriously Injured ● Moderately Injured ● Minor/Other Injured

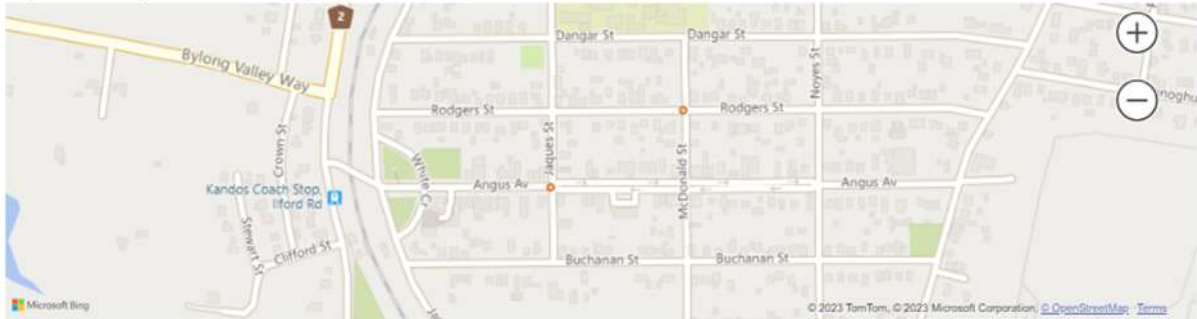


Figure 4: Crash data near the site showing 2 crashes from 2018-2023.

The vehicle crashes recorded were listed as:

- 1 crash at intersection of Angus Avenue and Jaques St – Serious Injury (2018).
- 1 crash at Rogers Street and McDonald St – Serious Injury (2021).

4 EXPECTED TRAFFIC GENERATION

4.1 CONSTRUCTION PHASE

It is proposed that the vehicles listed below will access the site during the following stages of the project:

Vehicles accessing the site during construction will consist of:

- Semi-trailer trucks for material and equipment delivery as per typical construction practices.
- Medium Rigid vehicles for equipment and material delivery.
- Light vehicles for specific trades.

In line with typical construction practices, these vehicles will be arriving to the site out of AM and PM peak hours.

Heavy vehicles accessing the site during these times will be subject to the construction traffic management plan to be submitted with the Construction Certificate application.

4.2 TYPICAL USE DURING OPERATIONAL PHASE

The following list depicts the weekly schedule of vehicles required for the facility to operate.

- Delivery vehicles:
- MR (Medium Rigid – 12.5m long) delivery vehicle to access site maximum of twice per week for the café and other deliveries. Deliveries are expected to be at pre-arranged times outside of normal operating hours.
- Staff vehicles:

- o Staff vehicles would consist of light vehicles at a maximum of 3 vehicles per day – one per volunteer staff member. Parking would be off street in the parking area provided.

There are no publicly available guidelines either from Mid Western Regional Council or a roads authority such as Transport for NSW or Austroads that specify traffic generation rates for a community museum development. Due to this, a merits-based assessment is proposed to assess the predicted traffic generation due to the development.

All figures below are a reasonable assumption of predicted traffic generation based on current and future annual visitors to the museum. Assumptions used in the table below include the following:

- o Hours of operation are 10am – 4pm (6 hours total) daily. Note that this is outside of typical surrounding road network peak.
- o Days of operation are Wednesday to Sunday inclusive.
- o Peak hour factor is a representation of a predicted number of peak visits against the average daily visit calculated from yearly attendance.
- o Staff parking is assumed to be 3 vehicles for the 3 staff working at the Museum. No allowance is made for ride sharing.
- o No allowance has been made for visitors to use public transport, other than pre-booked community and educational groups who will arrive via private bus service.
- o Staff arrival and departures have not been considered as part of the peak hour traffic as they will arrive and leave outside of peak operating times.

	Current	Future
Predicted yearly visitors	3 000	30 000
Average daily visits (Wed – Sunday)	12	115
No. visitors per vehicle (average)	2.0	2.0
No. of vehicle trips (daily)	6	58
Predicted Peak Hour Factor	1.5	1.5
Predicted Peak Hour Traffic Generation	2	15

Table 1: Predicted traffic generation rates

5 PARKING

5.1 PARKING SPACES REQUIRED

There are no publicly available guidelines either from Mid Western Regional Council or a roads authority such as Transport for NSW or Austroads that specify parking requirements for a community museum development. A merits-based approach has been used, adopting the criteria listed in section 4 of this report for traffic generation.

	Current	Future
Predicted Peak Hour Traffic Generation	2	15
Staff parking required	3	3
Total Parking Spaces Required	5	18
Parking spaces on premises (off street parking)	11	11
Parking on street required (predicted parking - available off street)	0	7

Table 2: Table showing merits based assessment of parking requirements for the development

The street frontage to the development is approximately 60m, minus the driveway to the parking area of approximately 4m total width, leaves 56m. AS2890.5 recommends a parking dimension of 6.7m to 8.0m to allow on street parking.

If the 8.0m length is conservatively adopted as the parking length along the street frontage, a total of 7 parking spaces are available along the Museum street frontage.

5.2 OTHER PARKING REQUIREMENTS

As well as the parking requirements listed in Table 2 above, various other parking scenarios were considered.

- Large Groups.
 - Large visiting groups such as educational or community organisations will arrive by bus. The bus unloading and loading will be at the site frontage. Operational control will be provided by the Kandos Museum to ensure safe unloading and loading of passengers.
 - Busses will not park on the street frontage. After passengers have departed, the busses will be directed towards the Kandos Railway Station parking lot, approximately 320m away as shown in the image below.



Figure 5: Bus travel total 318m to appropriate parking area located at Kandos Railway Station.

- Large Groups - Functions.
 - Large groups as a result of functions at the Museum will be directed towards an appropriate overflow carparking area at the Kandos Railway Station.
 - Site staffing will direct carparking along Buchanan Street, Davies Road and the Railway Station carpark.
 - Appropriate sites will be rented from authorities including Mid Western Regional Council.

6 SUMMARY

In summary, the proposed construction of additions to the existing museum and the proposed increase in visitors will result in an increase in traffic to the surrounding road network. Due to the low volume of traffic currently experienced on the surrounding road network and the negligible impact on nearby intersections, there are no proposed upgrades to the road network required.

Parking will be provided on site at a number of spaces well above the minimum required and includes an allowance for staff and visitors to the new museum addition. Large group events will be easily managed by the use of nearby existing parking facilities and potential rental from Mid Western Regional Council.

APPENDIX A - SITE PHOTOS



Photo 1
Buchanan Street at Southern end of Kandos Museum site



Photo 2
Access to existing car parking area from
Buchanan Street



Photo 3

View from Museum frontage looking East towards Jaques Street



Photo 4

Part of existing museum parking area

SYDNEY | ADELAIDE | BAROSSA | DARWIN | MUDGEE