

Quality Information			
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SCT Consulting has been engaged by Penrith City Council to prepare a Transport Impact Assessment (TIA) for a proposed 39-lot industrial development located at 158-164 Old Bathurst Road, Emu Plains, in the Penrith Local Government Area (LGA) (**Figure 1**).

[illegible]

This Technical Memo is prepared to provide consolidated strategic and technical justifications for the necessity of installing traffic signals at the Old Bathurst Road / David Road intersection.

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## Background

SCT Consulting prepared a Transport Impact Assessment (TIA) version 6.0 (dated 12 April 2023) that concluded that the current priority intersection at Old Bathurst Road / David Road requires an upgrade to accommodate the expected traffic growth at this location, generated by the proposed development and regional background traffic growth. A signalised intersection was proposed, given that the intersection would meet the traffic volume criteria.

A signalised intersection will improve pedestrian/cyclist safety, provides better operational performance than any other intersection treatment (i.e. roundabout) and on account it does not require acquisition of any additional land not subject of this DA - it can be delivered by the Applicant under the current proposal.

The signalised intersection is consistent with the earlier strategic direction for the industrial precinct. When developed in the early/mid 1990's the western side of David Road was the first half. The design incorporated an upgrade to David Road and its intersection with Old Bathurst Road. The strategic intention was that when the eastern half (e.g. ROCLA) was developed that it too would be accommodated via a consolidated access point onto Old Bathurst Road via a future signalised intersection.

A signalised intersection at this location also provides additional benefits as follows:

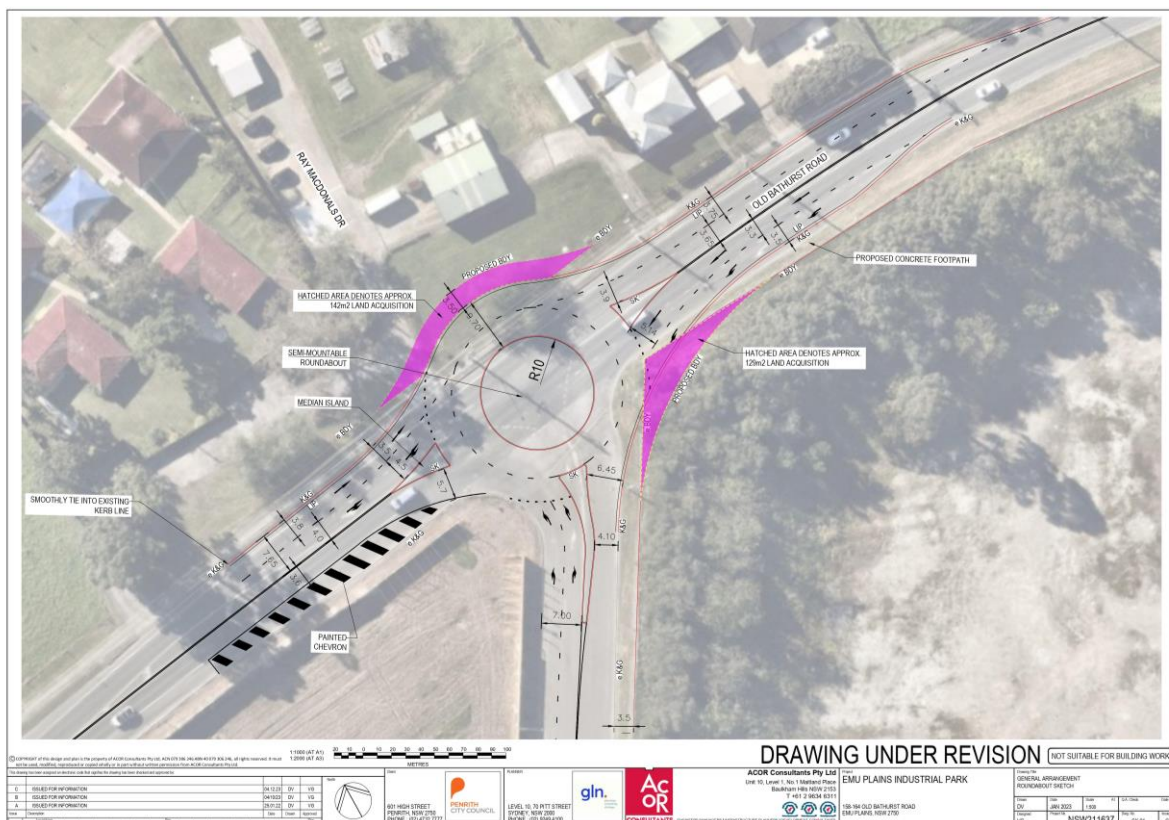
- The area required and subsequent land acquisition needed for the signalised intersection is smaller than that of the two-lane roundabout with the turn bays.
- A signalised intersection would improve pedestrian/cyclist safety due to signalised crossings with clear right of way.
- It consolidates the number of access points onto Old Bathurst Road.
- A traffic controlled signalised intersection would future proof the intersection and provide safer and more efficient access into the future, particularly for large heavy vehicles (up to B-doubles) entering onto Old Bathurst Road.
- Great safety and integration for the access points and existing driveways onto the northern side of Old Bathurst Road.

The subsequent sections address the following considerations that recommends traffic signals at this location: need for land acquisition required by the roundabout, safety of pedestrians and cyclists, and integration of Ray Macdonald Drive.

## The need for land acquisition

In response to previous requests from TfNSW, roundabout options have been explored including a two lane approaching roundabout, as shown in **Figure 2**.

**Figure 2 Revised roundabout design**



Source: ACOR Consultants, 2023

The design indicates that the roundabout would greatly impact the adjacent built and natural environments. Firstly, the acquisition of lands to the north of the intersection would be required for at least 142m<sup>2</sup>. This 142m<sup>2</sup> of land is not subject of the development application. The Applicant cannot be made to acquire the land as part of the Development Application.

Meanwhile, to the southeast of the intersection, the roundabout would result in the removal of some vegetation, including mature trees adjacent to the existing southern verge of Old Bathurst Road. In the assessment of the DA, Council has repeatedly reiterated the importance of the vegetation and topography in this part of the site. The installation of the roundabout would ultimately require the removal of vegetation and a change in topography that would conflict with the advice provided by Council's ecologists. The roundabout would also increase the cost of construction and impact existing vegetation, both of which are deemed infeasible for the intersection upgrade.

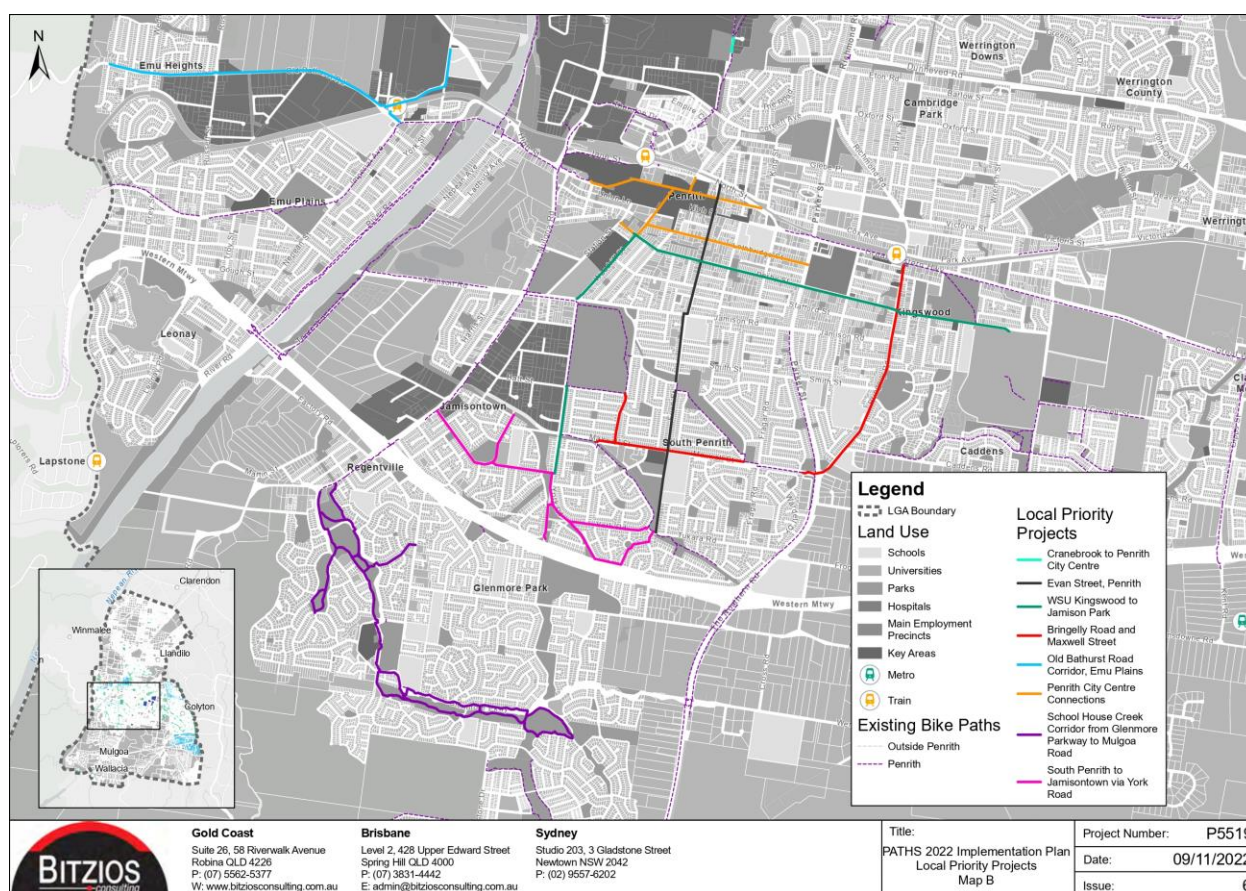
Furthermore, as discussed in the technical memo by SCT Consulting dated 4 October 2023, signalling the intersection would yield an acceptable level of service in the 2035 horizon year with the development traffic while causing less external (built and natural environmental) impact. Specifically, the signalised intersection would be meeting the traffic signals warrants and operate at a Level of Service C and an average delay of 41 seconds during the AM peak hour and a Level of Service D and an average delay of 45 seconds during the PM peak hour.

## Safety for pedestrians and cyclists

The Old Bathurst Road corridor is one of the Local Priority active transport routes identified in the *Penrith Accessible Trails Hierarchy Study (PATHS) Implementation Plan 2022-2032*. The PATHS Implementation Plan 2022-2032 aims to support the long-term goals of providing a planned and cohesive walking and cycling network across the Penrith LGA and aligns with the Principal Bicycle Network 2019. The Old Bathurst Road corridor would connect the area and the site to the existing bike paths along Imperial Avenue and provide opportunities for active transport users to travel to other parts of the Penrith LGA, including Penrith and Jamisontown, as shown in **Figure 3**.

Signalising the intersection would be the best option for the intersection to complement the PATHS Implementation Plan 2022-2032, especially in improving safety for active transport users by eliminating potential conflicts between vehicles and pedestrians and cyclists. A roundabout, on the other hand, would require pedestrians and cyclists to negotiate with vehicles when crossing the roads. This poses a danger to pedestrians and cyclists, particularly in an industrial area where there would be heavy traffic of trucks and heavy vehicles.

**Figure 3 Local Priority routes in the *Penrith Accessible Trails Hierarchy Study (PATHS) Implementation Plan 2022-2032***



Source: Penrith City Council, 2022

With the Russell Street intersection expected to be signalised, the spacing of this proposed traffic signals and the traffic signals at Great Western Highway is 1.8km. This is a very long distance without a safe and formalised pedestrian crossing to facilitate the increasing place function of the area with the proposed industrial precinct. The proposal for traffic signals at the intersection of David Road along the Old Bathurst Road corridor would reduce the spacing of safe pedestrian and cyclist crossings by 50%.

## Ray Macdonald Drive

Currently, Ray Macdonald Drive connects Old Bathurst Road to the Correctional Services dairy farm to the north. It can be accessed via two access points: the one to the east is located adjacent to the Old Bathurst Road / David Road intersection and the other one is slightly to the west of the intersection.

The proposed traffic signals at Old Bathurst Road / David Road intersection can accommodate the access to the Correctional Services dairy farm via a number of access consolidation options (to be further investigated):

- Retain the western access only (as shown in **Figure 4**): close off the eastern access point to remove conflict points at the intersection (to become traffic signals) and mitigate drivers' confusion when approaching the intersection. The western access point will be used by both incoming and outgoing traffic to the driveway, installed with signages to ensure the safety of vehicles approaching the intersection. The western access point is currently 6m wide and approximately 63m away from the Old Bathurst Road / David Road intersection, or

**Figure 4 Preliminary concept design of Ray Macdonald Drive modification**



- Retain the eastern access only and incorporate Ray Macdonald Drive as a fourth leg to the proposed traffic signals. This will provide safe inbound and outbound movements to the Correctional Services dairy farm and should have marginal implications to the operations of the traffic signals given the limited volume of traffic currently accessing the Correctional Services dairy farm, or
- A combination of movements via the western access (remains as a priority intersection) and traffic signals at the eastern access with Ray Macdonald Drive as a fourth leg to the proposed traffic signals. In this case, the right turn movement into the eastern access from Old Bathurst Road at the traffic signals would be banned, while all other movements can be undertaken at the western access except the right turn out movement.

Hence, the implementation of traffic signals will not preclude access to and from Ray Macdonald Drive. The roundabout option would not be able to readily accommodate this access.

## Conclusions

This memo concludes that traffic signals is the best alternative for upgrade of the intersection of Old Bathurst Road and David Road for the following reasons:

- The traffic signals will operate at acceptable level of service and meet the traffic signals warrants.
- The traffic signals would have less impact to existing vegetation and land acquisition, both of which are deemed more feasible for the intersection upgrade.
- Signalising the intersection would complement the PATHS Implementation Plan 2022-2032, especially in improving safety for active transport users by eliminating potential conflicts between vehicles and pedestrians and cyclists.
- The traffic signals would reduce the spacing of safe pedestrian and cyclist crossings along the Old Bathurst Road corridor between Russell Street and Great Western Highway intersection by 50%, improving the place function of the area with the proposed industrial precinct.
- The implementation of traffic signals will not preclude access to and from Ray Macdonald Drive.