

Kirrawee Pedestrian Bridge:

Summary of the
ARUP Feasibility Report



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In February 2015, the NSW Premier endorsed Infrastructure for New South Wales' (INSW) recommendation and announced that \$300m would be directed to the Gateway to the South Pinch Points Program to address critical pinch points along the Princes Highway (A1/A36), King Georges Road (A3) and Heathcote Road/Alfords Point Road/Fairford Road/Stacey Street (A6) corridors in Southern Sydney. The Program's overall aims are to deliver improvements within Southern Sydney to:

- Reduce congestion, improve travel speeds and reliability
- Support population growth and labour accessibility to key employment centres
- Reduce the number of traffic incidents
- Improve bus journey times and service reliability
- Improve freight efficiency.

During early 2016, Roads and Maritime Services commissioned an independent consultant (ARUP) to undertake a feasibility study for the provision of a pedestrian overbridge on the Princes Highway between Oak Road and The Kingsway, Kirrawee (the project).

The Princes Highway at Kirrawee is a State Road that plays a significant role in conveying local and through traffic flows, including trucks servicing industries in the precinct. Pedestrian crossing opportunities on the Princes Highway between Oak Road and The Kingsway are limited, with the road acting as a significant barrier to north-south pedestrian movements. Some key pedestrian attractors on either side of the road include Kirrawee Public School, McDonalds, Kirrawee Railway Station, Bunnings, the Prince Hotel, Kirrawee Veterinary Hospital, and a number of car retailers. Pedestrian crossing opportunities on the Princes Highway are constrained as only one crossing is provided at the Oak Road intersection. There are no crossing opportunities at The Kingsway and the nearest pedestrian crossing is located at Waratah Street.

The overarching objectives of the project are to support Transport for NSW's goal (Sydney's Walking Future, released by Transport for NSW in December 2013) to get more people in Sydney walking by:

- Improving connectivity and safe access for pedestrians across Sydney's State Road Network
- Improving walking convenience by providing direct pedestrian links/connections
- Prioritising investment to those sites that have the greatest potential to get more people walking for short trips.

Specific objectives of the feasibility study were to:

- Investigate and assess the feasibility and constraints to provide an accessible and DDA compliant pedestrian overbridge on the Princes Highway between Oak Road and The Kingsway
- Identify the activities required to overcome the constraints and make the provision of the bridge feasible
- Ensure any feasible proposal could be provided with minimal impacts on the surrounding environment.

The technical direction TDT2012/05 Pedestrian Bridge Eligibility and Prioritisation Assessment was used as a basis for the feasibility study, which provides guidelines to ensure the following aspects are considered:

1. Existing pedestrian infrastructure
2. Pedestrian arrivals
3. Pedestrian safety
4. Vehicle numbers
5. Land use
6. Alternative options
7. Bridge Feasibility.

To ensure the pedestrian overbridge would be fit for future purpose, the feasibility study considered existing and future proposed transport linkages and nodes operated or proposed by State and Local Government. This included the existing Sutherland-Cronulla rail corridor on the south side of the project, the existing bus routes which run predominantly on the north side of the project along Waratah Street, the future proposed Sutherland to Cronulla Active Transport Link (SCATL) which runs on the south side parallel with the rail corridor, and the upgrade of the Princes Highway in Kirrawee under the Gateway to the South Pinch Points Program (currently under construction).

In addition, existing and proposed council development applications and their locations were also considered. These included 530–535 Princes Highway (since constructed as The Prince Hotel), 566–594 Princes Highway (since constructed as the 'South Village'), 28–36 Flora Street and 151 Bath Road/550 Princes Highway.

Existing land uses and points of interest for residential, commercial and retail were considered which included:

- Sutherland North Public School
- Kirrawee Bowling Club
- Bunnings Warehouse
- Gymea Technology High School
- McDonalds
- Donald Robinson Village
- Kirrawee Public School
- Kirrawee Train Station.

A diagram summarising these uses is shown below in Fig.1:



Fig.1 Land uses and points of interest (within 500m radius)

Key desire lines were identified through the consideration of land use patterns and site visits to identify the major pedestrian attractors and generators in the area. There are a number of desire lines across the Princes Highway to consider which are shown as arrows between the various attractors and generators in Fig.2 below. The key desire lines across the Princes Highway are typically located towards the western end of the study area near the Oak Road intersection, with a secondary desire line near the Bath Road intersection.

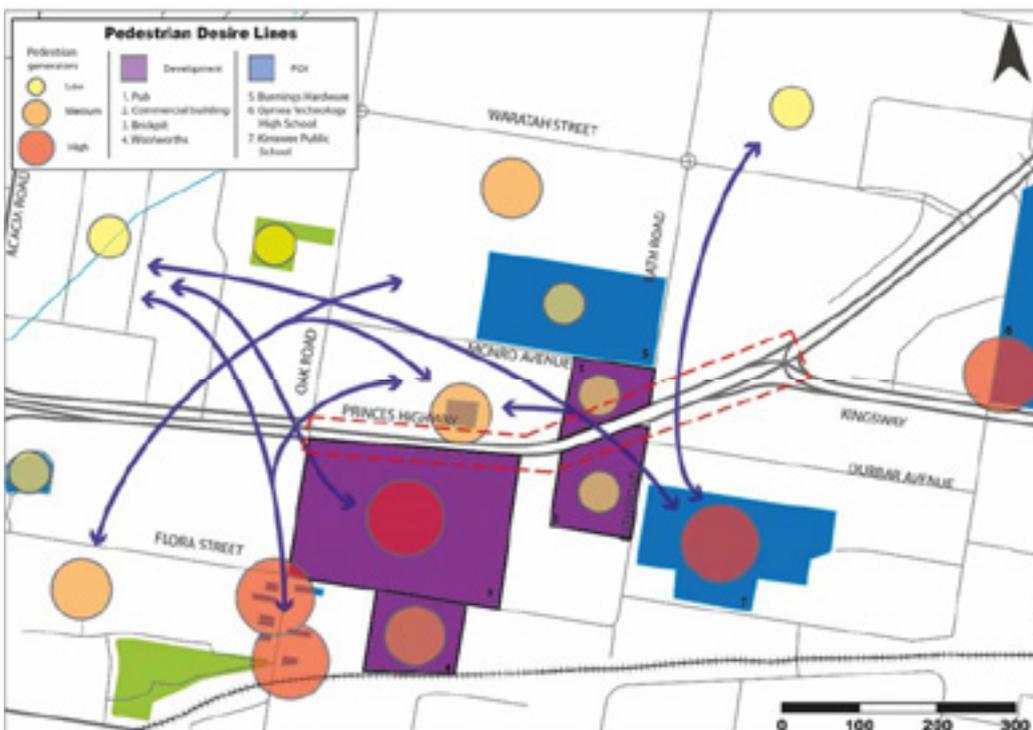


Fig.2 Pedestrian desire lines

It is important to note that as part of the Roads and Maritime road widening project covering Acacia Road, Oak Road, Kingsway and President Avenue, we are substantially upgrading the existing Oak Road intersection. As part of this work, we are introducing a fourth pedestrian crossing at Oak Road so that pedestrians can cross in all directions, rather than the three crossings currently in operation, and providing additional pedestrian refuges in the median of the Princes Highway to facilitate safer crossing for pedestrians.

As part of the feasibility study, site visits to observe pedestrian and traffic movements were undertaken to corroborate with traffic, pedestrian flow and historical crash data taken from SCATS and other available data at adjacent intersections.

Using all the available information, seven potential locations for the project were considered to have appropriate physical space either side of the Princes Highway as shown below.



A multi-criteria assessment of each potential location option was undertaken, using the feasibility criteria of TDT2012/05, and a recommended bridge option was determined. This determination considered that 'Option 5', to land the northern side of the bridge adjacent to 530–535 Princes Highway and the southern side of the bridge adjacent to 540 Princes Highway, at the Princes Highway and Bath Road intersection, was the optimal solution.

In early 2017, Roads and Maritime commissioned a further strategic design report through an independent consultant (AECOM) to develop a concept design to determine the best location for the project from technical perspectives such as:

- Usability (distance between existing pedestrian and cycling facilities, bridge span, bridge length including ramps, typology, attractiveness, comfort/ease of use, connection with existing road, pedestrian and cycling network)
- Bridge design (DDA compliance, highway clearance, multi-function path, wayfindings/connections)
- Engineering (design construction geotechnical conditions, buildability/constraints)
- Environment and heritage
- Urban design (visual impact, access to amenities, personal security)
- Impact on utilities
- Land acquisition
- Costings.

This report also reviewed the findings of the 2016 feasibility study and corroborated the findings of that report. This strategic design report determined that from all considered technical perspectives, the location at Princes Highway and Bath Road intersection was optimal.

In mid-2017, Roads and Maritime commissioned an independent consultant (Ventia Boral Amey Joint Venture) to undertake a peer review of the feasibility study and concept design report. The peer review focussed on an evaluation of previous studies and designs to identify any gaps and to improve any options previously considered for the project location.

This report narrowed the project location options down to three feasible locations. 'Location B' being mid-block between the Bath Road and Oak Road intersections with Princes Highway, 'Location D' the previously identified optimal solution at the Princes Highway and Bath Road intersection, and 'Location F' being from the north-east corner of Bath Road and Princes Highway across to 540 Princes Highway.

Following a Feasibility and Evaluation Workshop with Roads and Maritime at which a multi criteria location analysis was undertaken for environment, function, cost, maintenance and security, the original location at the Princes Highway and Bath Road intersection was further confirmed as the preferred optimal location.

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