Executive summary

Roads and Maritime Services is planning to make intersection improvements at Botany Road and Bunnerong Road, Matraville to help improve safety and better manage traffic flow.

The intersection of Botany Road and Bunnerong Road is currently a T-intersection. Bunnerong Road is the priority movement for north-south traffic through the intersection. The intersection is currently controlled with ‘Stop’ signs on Botany Road for traffic using the single right turn lane provided for eastbound movement.

In response to recent crashes the safety and operation of the intersection was assessed for potential improvements. Two options were developed and evaluated. The preferred option is the installation of traffic lights which would have less impact to the environment, require no land acquisition and is the most cost effective option.

The proposal is also part of the NSW Government’s $246 million Pinch Point Program.

Roads and Maritime will carry out consultation with the community to seek feedback on this project.
1. Introduction

Roads and Maritime Services is planning to make changes at the intersection of Botany Road and Bunnerong Road, Matraville to help improve safety and better manage traffic flow.

There have been significant crashes including a fatality and the community and stakeholders have contacted Roads and Maritime concerned about safety at this intersection.

To ensure the best outcome for the community and road users, Roads and Maritime is doing an options assessment to identify the most appropriate improvement to the intersection to achieve our objectives for improving safety and traffic flow.

1.1. Background

The intersection of Botany Road and Bunnerong Road is a T-intersection which provides right turn bays and free-flow left turn slip lanes. Bunnerong Road is the priority movement for north-south traffic through the intersection. Botany Road forms the stem of the ‘T’ intersection to the west of Bunnerong Road.

The intersection is currently controlled with ‘Stop’ signs on Botany Road for traffic using the single right turn lane provided for eastbound movement.

On approach to the intersection Botany Road has three eastbound lanes. Lane one is a continuous left turn slip lane, lane two merges with lane three to provide the single the right turn lane. There are three westbound lanes departing the intersection.

The northern approach of Bunnerong Road has two through lanes and a right turn bay at the intersection. Prior to the intersection there are three through lanes for southbound traffic that merge into two lanes.

The southern approach has a single through lane and continuous left turn lane on to Botany Road.

In response to recent crashes the safety and operation of the intersection was assessed for potential improvements.

Crash data over the five year period from 1 July 2009 to 3 June 2013 shows there have been 20 reported crashes within 50 meters of the intersection, 13 were injury crashes. The majority of the crashes involved vehicles travelling northbound along Bunnerong Road and colliding with vehicles turning right from Botany Road. Heavy vehicles were involved in six of the 20 crashes.

On 6 January 2014 there was a fatal crash that involved a vehicle turning right from Botany Road and colliding with a northbound vehicle on Bunnerong Road.

Additionally, members of the community and stakeholders have contacted Roads and Maritime and expressed concern about safety at the intersection.

Earlier evaluations show that a significant number of heavy vehicles wanting to access Port Botany were doing U-turns at the intersection to park along the southern side of Botany Road near Bumborah Point Road.

NSW Ports has since established an off-street waiting area for trucks off Bumborah Point Road. In conjunction with this, ‘No stopping’ restrictions have been installed on the southern side of Botany Road between Bunnerong Road and Bumborah Point Road. This has significantly reduced the number of trucks using the intersection for U-turns.
2. Options analysis and evaluation

Roads and Maritime has looked at the crash history and the type of crashes at this intersection. As a result of this investigation we are considering two options to improve safety.

In this report, we have not looked at a ‘do nothing option’ as safety concerns and crash history mean that this isn’t viable.

The two options we are assessing to improve the safety and operation of the intersection are a roundabout and traffic lights.

2.1. Option 1 – Install a two lane roundabout

The key features of this option are:

- Installing a two lane roundabout to allow heavy vehicles, including B-doubles, to turn through the intersection
- Increasing lanes so there is two lanes on the western approach to Botany Road and the northern approach to Bunnerong Road
- Retaining the existing left turn slip lane from Bunnerong Road into Botany Road
- Removal of the left turn slip lane from Botany Road into Bunnerong Road
- Not providing pedestrian and cyclist facilities.

2.2. Option 2 – Install traffic lights

The key features of this option are:

- Having two lanes on all approaches to the intersection
- Retaining the right turn bay on the Bunnerong Road northern approach
- Installing traffic lights with three phases
- Providing crossings and ramps for pedestrians and cyclists on two legs of the intersection (no crossing to be included on the Bunnerong Road southern approach).

2.3. Traffic volumes

Traffic volume data was collected at the intersection to capture the morning and afternoon peak periods. The morning peak was identified as between 8am and 9am and the afternoon peak between 4.15pm and 5.15pm.

The diagrams indicate the vehicle volumes for each peak period.
Figure 1 – AM peak traffic count
Figure 2 – PM peak traffic count
## 2.4. Options comparison

<table>
<thead>
<tr>
<th></th>
<th><strong>Option 1 – Roundabout</strong></th>
<th><strong>Option 2 – Traffic lights</strong></th>
<th><strong>Summary</strong></th>
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<tbody>
<tr>
<td><strong>Environment</strong></td>
<td>A roundabout construction will require substantial soil fill and removal of vegetation.</td>
<td>Traffic light construction will have minimal effect as construction would be contained within the existing road reserve.</td>
<td>Traffic lights will have significantly less environmental impact.</td>
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<td><strong>Cost</strong></td>
<td>Strategic estimate of roundabout construction costs will be about $4 million including land acquisition.</td>
<td>Strategic estimate of traffic lights construction costs will be about $750,000. There is no land acquisition required for traffic lights at intersection.</td>
<td>Traffic lights provide a significant cost saving.</td>
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<td><strong>Maintenance</strong></td>
<td>Annual maintenance costs are about $10,000.</td>
<td>Annual maintenance costs are about $20,000.</td>
<td>A roundabout provides lower maintenance costs.</td>
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<td><strong>Functionality</strong></td>
<td>Installing a roundabout will reduce vehicle queues for eastbound traffic on Botany Road that wish to turn right. Northbound traffic on Bunnerong Road will experience delays to allow for southbound right turn traffic from Bunnerong Road.</td>
<td>Traffic lights will reduce vehicle delays along Bunnerong Road as the majority of green time will be allocated to Bunnerong Road.</td>
<td>Traffic lights will provide better operation of the intersection.</td>
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<td><strong>Safety</strong></td>
<td><strong>Option 1 – Roundabout</strong></td>
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<td></td>
<td>The right turn from Botany Road onto Bunnerong Road is expected to improve as the ‘Stop’ control would be removed.</td>
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<td></td>
<td>Vehicle speeds will be reduced northbound and southbound along Bunnerong Road.</td>
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<td><strong>Option 2 – Traffic lights</strong></td>
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<tr>
<td></td>
<td>Vehicle speeds will be reduced for both northbound and southbound traffic on Bunnerong Road.</td>
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<td></td>
<td>Pedestrian facilities will be provided at the traffic lights. These will link with footpaths on both sides of Bunnerong Road and also across the left turn lanes.</td>
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<tr>
<td><strong>Summary</strong></td>
<td>Traffic lights will control right turn movements and provide pedestrian crossings improving safety.</td>
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<thead>
<tr>
<th><strong>Pedestrians/Cyclists</strong></th>
<th><strong>Option 1 – Roundabout</strong></th>
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<tbody>
<tr>
<td>No pedestrian or cyclists facilities are provided within the roundabout.</td>
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<td><strong>Option 2 – Traffic lights</strong></td>
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<tr>
<td>Pedestrian crossings and ramps will be provided at the intersection, except the southern side of Bunnerong Road.</td>
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<td>The signalised crossings will provide an opportunity for cyclist to dismount and cross Botany Road and Bunnerong Road safely.</td>
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<td>A pedestrian crossing is not proposed for the southern approach due to the dual right turn movement from Botany Road. A footpath is to be provided on the western side of the intersection, towards Moorina Avenue.</td>
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<tr>
<td><strong>Summary</strong></td>
<td>Traffic lights provide improved and safer pedestrian and cyclists access.</td>
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<td><strong>Option 1 – Roundabout</strong></td>
<td><strong>Option 2 – Traffic lights</strong></td>
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<td><strong>Heavy Vehicles</strong></td>
<td>Heavy vehicles eastbound on Botany Road can use the roundabout to perform a U-turn and return west along Botany Road toward the port.</td>
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<td><strong>General Traffic</strong></td>
<td>Provides vehicles with safe turning movements from Botany Road and Bunnerong Road. It will remove the opportunity for left turn lane from Botany Road to Bunnerong Road to operate as separate lane on approach and departure.</td>
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<td><strong>Accessibility</strong></td>
<td>Roundabout does not provide pedestrian facilities.</td>
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<td>Property Impact</td>
<td>Option 1 – Roundabout</td>
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<td>Land acquisition of about 800m² is required on the eastern side of Bunnerong Road to cater for the horizontal alignment of the roundabout.</td>
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3. Decision

Roads and Maritime have developed and evaluated two options. The preferred option is the installation of traffic lights which would address the safety issues, have less impact to the environment, require no property acquisition and is the most cost effective option. A diagrammatic sketch of traffic lights is provided below.
4. Next steps

Roads and Maritime will carry out consultation with the community to seek feedback on this project. Once this is complete a Consultation Outcomes Report will be prepared that will include Roads and Maritimes’ responses to community and stakeholder comments.

This report will be made available to the public

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Roads and Maritime Services  Roads and Maritime Services

5. Appendices

Appendix A – Dual lane roundabout proposal
Appendix B - Traffic light proposal
Appendix C - Site photos
5.1. Appendix A – Dual lane roundabout proposal

NOTES
1. All regulatory signposting and pavement marking shown on these drawings are NOT APPROVED for installation without written authorisation from an officer authorised under Section 5.9 of the Delegations Manual.
2. Location of directional signs to be determined in consultation with Guidance and Designation Manager, Traffic Engineering Services.
3. All dimensions are in metres, unless otherwise shown.
4. Kerb-side lane widths include the widths of the channel.
5. Construct timber post and rail fence 8.1m long and tie to existing.
6. Road side furniture and signs affected by the works are to be relocated behind the new kerb.
7. Existing signs are to remain, unless otherwise shown.
8. For supplementary drawings associated with the guardfence, refer Sheet 50.
5.2. Appendix B – Traffic light proposal
5.3. Appendix C – Site photos

Existing heavy vehicle restriction on Bunnerong Road
Botany Road approaching Bunnerong Road, existing STOP control
Botany Road – looking north along Bunnerong Road
Botany Road – looking south along Bunnerong Road