Goonoo Goonoo Road (New England Highway) duplication - Tamworth

Submissions report

Transport for NSW | June 2022

Executive summary

The proposal

Transport for NSW proposes to duplicate Goonoo Goonoo Road (New England Highway) in Tamworth providing two lanes in each direction (the proposal). The proposal is needed to address existing congestion, provide for future traffic growth, and improve road safety. Key features of the proposal would include:

- Changes to the Calala Lane intersection, including:
  - Replacing the existing roundabout with traffic lights
  - Providing one dedicated right turn lane and one shared right / left turn lane from Calala Lane
  - Providing for protected pedestrian movements with pedestrian signal phasing on all intersection legs at Calala Lane
  - Providing separate left and right turn lanes for traffic turning into Calala Lane
- Road widening and pavement reconstruction to provide two lanes each way with a central median between just north of Calala Lane and Jack Smyth Drive
- Changes to the Craigends Lane intersection including:
  - Construction of a roundabout to replace the existing T-intersection
  - Provision for a fourth leg on the roundabout that allows for access to future development on the eastern side of Goonoo Goonoo Road
- Changes to The Ringers Road, including:
  - Left turn out only on The Ringers Road (except for emergency vehicles)
  - Providing a right turn lane for traffic turning into The Ringers Road, with the left turn lane for northbound traffic turning into The Ringers Road retained
- Changes to the Greg Norman Drive intersection, including:
  - Installing ‘seagull’ intersection to provide a two stage movement across Goonoo Goonoo Road
  - Retaining separate right and left turn lanes out of Greg Norman Drive
- Completion of the shared path along the western side of Goonoo Goonoo Road between Wilburtree Street and Greg Norman Drive
- Formalisation of existing and provision of new parking spaces for heavy vehicles
- Provision of a footpath on the eastern side of Goonoo Goonoo Road between Calala Lane and Barnes Gully
- Street lighting between Calala Lane and Jack Smyth Drive
- Drainage improvements including providing kerb and channel between Calala Lane and Jack Smyth Drive, and a culvert extension at Barnes Gully
- New line marking and signage.

Construction is expected to commence in 2023 and would take around 12 months to complete, however this is dependent on funding.

Display of the Review of Environmental Factors

Transport prepared a Review of Environmental Factors (REF) to assess the potential environmental impacts of the proposal. The REF was on display for 26 days between Monday 15 November 2021 and Friday 10 December 2021. During this time, Transport invited the public to provide feedback on the project.

The REF display was accompanied by information on the proposal provided via the interactive online portal.

Summary of issues and responses

A total of 131 submissions were received in response to the display of the REF. This included submissions from Tamworth Regional Council, Tamworth Local Aboriginal Land Council and the community.

A total of 32 submissions indicated a clear objection to the proposal as a whole, while 44 submissions expressed support for the proposal or aspects of it. Other submissions raised issues or made comments regarding the proposal.

The main issues raised and responses to those issues are summarised below.

Proposal need, design and alternatives

Some submitters queried the effectiveness of the proposal in addressing congestion and emphasised they did not agree with installing traffic lights at the Goonoo Goonoo Road and Calala Lane intersection.

Submitters also identified alternatives to the proposal including a roundabout at Ringers Road instead of Craigends Lane. Several submitters were also opposed to banning the right turn out of Ringers Road due to the nearby businesses including a McDonalds.

Traffic lights at the Calala Lane intersection are needed to address forecast traffic growth. Traffic modelling indicates that by 2030, the anticipated traffic volumes will exceed the capacity of the existing roundabout in the AM peak period. The existing roundabout also does not provide safe crossing opportunities for pedestrians.

Installing a roundabout at Craigends Lane caters for future development on Goonoo Goonoo Road. A roundabout at this location provides the best balance between impacts on existing developed land and achieving intersection efficiency and future access requirements.

The proposed left-in left-out only from The Ringers Road to Goonoo Goonoo Road (southbound) may represent a minor inconvenience for some people. This is adequately offset by the improved safety. Based on current and forecast traffic volumes at The Ringers Road intersection, provision of a roundabout or traffic lights is not warranted.

Traffic, transport and parking

Submitters expressed concern about the proposal creating congestion along Calala Lane and drivers ‘rat running’ through Kurrawan Street and/or Karloo Street to avoid the traffic lights.

Some submitters queried the amount of truck parking proposed commenting that more is needed, while others asked how pedestrians would safely cross Goonoo Goonoo Road.

Given the satisfactory level of service at the proposed traffic lights, ‘rat running’ by substantial numbers of additional vehicles via Kurrawan Street and Karloo Street is not expected. Some motorists already choose to use Kurrawan Street and Karloo Street for access to and from Calala Lane.

The location and number of heavy vehicle parking bays has been developed in consultation with Tamworth Regional Council.

In addition to the proposed traffic lights at Calala Lane, pedestrian refuges are proposed south of the Craigends Lane roundabout, south of The Ringers Road and north and south of Greg Norman Drive.

Property access

Some submitters raised concerns about property access following the installation of the proposed median.

Properties between Craigends Lane and Calala Lane would become left in and left out only, similar to properties immediately north and south along Goonoo Goonoo Road. While this change would mean some additional travel for certain journeys, it is necessary to ensure the route can continue to operate in a safe and efficient manner with increasing traffic volumes.

Landscape character and visual amenity

Issues relating to landscaping and tree planting were raised.

Tree planting in the median will be considered during detailed design. An Urban Design Plan will be prepared to support the final detailed project design.

Aboriginal heritage

The Tamworth Local Aboriginal Land Council asked that the recommendations of the Aboriginal Cultural Heritage Assessment Report be adopted.

An application for an Aboriginal Heritage Impact Permit will be made under the *National Parks and Wildlife Act 1974* and an Aboriginal Heritage Management Plan will be prepared in accordance with relevant guidelines and in consultation with all relevant Aboriginal groups.

Changes to the proposal

The REF identified a variable median width but typically five metres wide north of Greg Norman Drive.

Transport now proposes to reduce the median width to about three metres. The change would allow better access to properties (with more room to construct driveway crossings, minimising the steepness of the driveways), would likely reduce impact on services and would reduce the quantity of materials (concrete and fill material) required to construct the proposal.

Additional assessment

Additional assessment was carried out in relation to the proposed reduction in median width.

The reduced median width would result in a minor change to the position of the travelling lanes on Goonoo Goonoo Road in the affected section (moving the kerbside lane slightly further away from the property boundary). This is not expected to noticeably change the road traffic noise levels predicted for the receivers on Goonoo Goonoo Road.

When compared to the REF proposal the proposed change would see the introduction of a visibly narrower median in the northern section of the proposal extent, although visual impact ratings would not change. With the reduced width median, opportunities for median planting would still be available along with more opportunities for landscape plantings and improved visual outcomes on the road verges.

The proposed change would create more space at the road verge which would in turn allow the formation of better standard property accesses between Calala Lane and Barnes Gully.

The proposed change may also reduce the number of utility adjustments required, which could in turn reduce the disturbance of adjacent properties associated with these works.

Next steps

Transport as the determining authority will consider the information in the REF and this submissions report and make a decision whether or not to proceed with the proposal.

Transport will inform the community and stakeholders of this decision and where a decision is made to proceed will continue to consult with the community and stakeholders prior to and during the construction phase.

Contents

1 Introduction and background

1.1 The proposal

Transport for NSW proposes to duplicate Goonoo Goonoo Road (New England Highway) in Tamworth, between Jack Smyth Drive and Calala Lane in Tamworth, providing two lanes in each direction (the proposal). The proposal aims to provide a safer network for travel, improve efficiency, access and connectivity and support economic growth.

Key features of the proposal would include:

- Changes to the Calala Lane intersection, including:
  - Replacing the existing roundabout with traffic lights
  - Providing one dedicated right turn lane and one shared right / left turn lane from Calala Lane
  - Providing for protected pedestrian movements with pedestrian signal phasing on all intersection legs at Calala Lane
  - Providing separate left and right turn lanes for traffic turning into Calala Lane
- Road widening and pavement reconstruction to provide two lanes each way with a central median between just north of Calala Lane and Jack Smyth Drive
- Changes to the Craigends Lane intersection including:
  - Construction of a roundabout to replace the existing T-intersection
  - Provision for a fourth leg on the roundabout that allows for access to future development on the eastern side of Goonoo Goonoo Road
- Changes to The Ringers Road, including:
  - Left turn out only on The Ringers Road (except for emergency vehicles)
  - Providing a right turn lane for traffic turning into The Ringers Road, with the left turn lane for northbound traffic turning into The Ringers Road retained
- Changes to the Greg Norman Drive intersection, including:
  - Installing ‘seagull’ intersection to provide a two stage movement across Goonoo Goonoo Road
  - Retaining separate right and left turn lanes out of Greg Norman Drive
- Completion of the shared path along the western side of Goonoo Goonoo Road between Wilburtree Street and Greg Norman Drive
- Formalisation of existing and provision of new parking spaces for heavy vehicles
- Provision of a footpath on the eastern side of Goonoo Goonoo Road between Calala Lane and Barnes Gully
- Street lighting between Calala Lane and Jack Smyth Drive
- Drainage improvements including providing kerb and channel between Calala Lane and Jack Smyth Drive, and a culvert extension at Barnes Gully
- New line marking and signage.

A more detailed description of the proposal is found in the proposed Goonoo Goonoo Road (New England Highway), Tamworth REF prepared by Transport for NSW in November 2021.

1.2 REF display

Transport prepared a REF to assess the potential environmental impacts of the proposed works. The REF was on display for 26 days between Monday 15 November 2021 and Friday 10 December 2021.

The REF was available to be viewed at the Tamworth Regional Council office and Tamworth City Library. The REF was also published on the Transport for NSW project website *https://roads-waterways.transport.nsw.gov.au/projects/goonoo-goonoo-road-duplication-neh-tamworth/index.html* and was made available for download.

Community involvement activities were also carried out during the public display period to give the community a chance to learn more about the project, ask questions and 'have their say'.

Community involvement activities included:

- Community update through letterbox drops
- Project webpage
- Media Release
- Social media postings
- Online survey.

1.3 Purpose of the report

This submissions report relates to the Goonoo Goonoo Duplication REF and should be read in conjunction with that document.

The REF was placed on public display and 131 submissions were received by Transport. This submissions report summarises the issues raised and provides responses to each issue (Chapter 2). It describes and assesses the environmental impact of changes to the proposal (Chapter 3) and confirms environmental management measures (Chapter 4).

2 Response to issues

Transport received 131 submissions. Submissions were accepted up until Friday 10 December 2021. Table 2-1 lists the respondents and each respondent's allocated submission number. The table also indicates where the issues from each submission have been addressed in this report.

Table 2-1: Respondents

Respondent	Submission No.	Section where issues are addressed
Individual	1	2.4.2, 2.10.2
Individual	2	2.10.1
Individual	3	2.10.2
Tamworth Local Aboriginal Land Council	4	2.7
Tamworth Regional Council	5	2.3.4, 2.4.1, 2.4.2, 2.4.3, 2.4.4, 2.4.5, 2.4.6, 2.6, 2.8, 2.9
Individual	6	2.5
Individual	7	2.4.5
Individual	8	2.4.4
Individual	9	2.9, 2.10.1
Individual	10	2.3.1
Individual	11	2.3.2, 2.3.3, 2.3.5
Individual	12	2.3.7
Individual	13	2.3.3, 2.10.2
Individual	14	2.10.2
Tamworth Treated Timbers	15	2.3.2
Individual	16	2.10.1
Individual	17	2.2
Individual	18	2.10.1
Individual	19	2.3.1
Individual	20	2.3.4, 2.10.1, 2.10.2
Individual	21	2.10.1
Individual	22	2.2
Individual	23	2.3.2
Individual	24	2.3.7
Individual	25	2.3.8, 2.10.1
Individual	26	2.10.1, 2.10.2
Individual	27	2.3.1
Individual	28	2.10.2
Individual	29	2.8
Individual	30	2.10.2

Respondent	Submission No.	Section where issues are addressed
Individual	31	2.3.3
Individual	32	2.10.2
Individual	33	2.3.4
Individual	34	2.3.4
Individual	35	Facebook comment only
Individual	36	Facebook comment only
Individual	37	2.10.2
Individual	38	2.3.4
Individual	39	2.3.2
Individual	40	2.3.1
Individual	41	Facebook comment only
Individual	42	2.2
Individual	43	2.4.4
Individual	44	2.3.4
Individual	45	2.10.2
Individual	46	2.10.2
Individual	47	2.2
Individual	48	2.3.3, 2.3.5
Individual	49	2.3.3, 2.3.5
Individual	50	2.3.3
Individual	51	2.3.3
Individual	52	2.3.3, 2.3.4, 2.3.5
Individual	53	2.2
Individual	54	2.3.3
Individual	55	2.3.6, 2.4.2
Individual	56	2.3.3, 2.3.5
Individual	57	2.10.2
Individual	58	2.10.2
Individual	59	2.10.2
Individual	60	2.10.2
Individual	61	2.4.1
Individual	62	2.10.1
Individual	63	2.3.6
Individual	64	2.3.3
Individual	65	2.3.6
Individual	66	2.3.3, 2.10.2
Individual	67	2.3.3, 2.3.4, 2.3.5
Individual	68	2.3.3, 2.3.5

Respondent	Submission No.	Section where issues are addressed
Individual	69	2.3.3, 2.3.4, 2.3.5
Individual	70	2.3.3
Individual	71	2.3.2, 2.3.3, 2.3.5, 2.3.6
Individual	72	2.3.2, 2.3.3, 2.3.5, 2.3.6, 2.4.1
Individual	73	2.4.4
Individual	74	2.3.3, 2.3.4, 2.10.2
Individual	75	2.3.3, 2.3.5
Individual	76	2.3.6, 2.10.1
Individual	77	2.10.1
Individual	78	2.10.1, 2.10.2
Individual	79	2.3.5, 2.3.6, 2.4.1
Individual	80	2.4.3
Individual	81	2.3.5, 2.3.6
Individual	82	2.3.5
Individual	83	2.4.5
Individual	84	2.10.1
Individual	85	2.6
Individual	86	2.10.2
Individual	87	2.3.3, 2.3.4
Individual	88	2.3.3, 2.3.4, 2.3.5, 2.3.6, 2.10.2
Individual	89	2.3.4
Individual	90	2.3.3, 2.3.6, 2.10.2
Individual	91	2.4.1, 2.10.1
Individual	92	2.3.5, 2.3.6
Individual	93	2.3.2, 2.4.5, 2.10.1
Individual	94	2.3.3, 2.4.1, 2.4.3
Individual	95	2.10.1
Individual	96	2.4.5
Individual	97	2.10.1
Individual	98	2.4.5, 2.10.1
Individual	99	2.10.1
Individual	100	2.3.3
Individual	101	2.3.3, 2.3.5, 2.10.2
Individual	102	2.3.5, 2.10.2, 2.10.2
Individual	103	2.10.1
Individual	104	Facebook comment only
Individual	105	2.3.3
Individual	106	2.3.3, 2.10.2

Respondent	Submission No.	Section where issues are addressed
Individual	107	2.4.4
Individual	108	2.4.5
Individual	109	2.10.1
Individual	110	2.3.3
Individual	111	2.3.3, 2.3.4, 2.3.5, 2.3.6
Individual	112	2.3.3, 2.3.4, 2.3.5
Individual	113	2.4.2
Individual	114	2.3.6, 2.10.1, 2.10.2
Individual	115	2.3.3, 2.3.4, 2.3.5, 2.3.6
Individual	116	2.4.2, 2.6
Individual	117	2.3.3, 2.4.5
Individual	118	2.3.6, 2.4.5
Individual	119	2.3.3, 2.10.2
Individual	120	2.10.2
Individual	121	2.3.6
Individual	122	2.3.3
Individual	123	2.3.3, 2.3.5, 2.4.5
Individual	124	2.3.4
Individual	125	2.3.3, 2.3.4, 2.3.5, 2.3.6
Individual	126	2.10.1
Individual	127	2.3.6
Individual	128	2.10.1
Individual	129	2.10.1
Individual	130	2.3.3, 2.3.4, 2.3.5, 2.3.6
Individual	131	2.3.3, 2.3.5, 2.3.6, 2.4.2

2.1 Overview of issues raised

A total of 131 submissions were received in response to the display of the REF. This included submissions from Tamworth Regional Council, Tamworth Local Aboriginal Land Council and the community. Six submissions were made via email, five submissions were made via phone call, 30 submissions were made via Facebook comments and the remaining 90 were submissions through the online survey.

Each submission has been examined individually to understand the issues being raised. The issues raised in each submission have been extracted and collated, and corresponding responses to the issues have been provided. Where similar issues have been raised in different submissions, only one response has been provided. The issues raised and Transport response to these issues forms the basis of this chapter.

A total of 32 submissions indicated a clear objection to the proposal as a whole, while 44 submissions expressed support for the proposal or aspects of it. The other 55 submissions raised issues or made comments regarding the proposal but did not indicate support or an objection. Some submissions objected to particular aspects of the proposal. A small number of Facebook comments were unclear and therefore have not been summarised or responded to.

The main issues raised by Tamworth Regional Council were:

- Drainage design details
- Pedestrian movements across Goonoo Goonoo Road
- On-street parking (including for heavy vehicles)
- Traffic diversions due to the new traffic lights
- Property access
- Property acquisition
- Traffic efficiency at the Calala Lane intersection
- Tree planting and landscaping.

The main issues raised by the public were:

- Effectiveness of the proposal in addressing congestion
- Alternatives to the proposal including provision of a roundabout at Ringers Road instead of Craigends Lane
- Concerns over lack of lighting on Greg Norman Drive
- Upgrading Scott Road to traffic signals rather than Calala Lane
- Loss of native vegetation and habitat for native fauna
- Access to properties and businesses
- Poor visibility at roundabouts due to vegetation in the centre.

2.2 Consultation

Submission numbers

17, 22, 42, 47, 53

Issue description

- Query as to whether public comments on the proposal will be considered
- Comment that people who have commented on the proposal also completed the survey
- Concern about the consultation process and the level of information made available
- Issues with accessibility of survey.

Response

All public comments received during the display period will be considered prior to a decision to proceed with the proposal.

Detailed information was made available about the proposal during the public display period. This included a 'Have your say' document which showed the refined concept design and the REF which included a detailed description of the proposal.

Comments about the accessibility of the survey will be reviewed to assist the improvement of future surveys for other Transport projects.

2.3 Proposal description

2.3.1 Construction timeframe and staging

Submission numbers

10, 19, 27, 40

Issue description

- Queries about when the proposal would be constructed
- Query about delivery responsibility
- Comment that Calala Lane should be fixed first.

Response

The design and delivery of the proposal is being managed by Transport. Subject to approval, construction is anticipated to start in 2023 and take about 12 months to complete, weather permitting, however this is dependent on funding.

The proposal includes improvements to the Goonoo Goonoo Road / Calala Lane intersection to address forecast traffic demand. Any staging of works would be considered during detailed design. Improvements to other parts of Calala Lane is the responsibility of Tamworth Regional Council.

2.3.2 Design - General

Submission numbers

11, 15, 23, 39, 71, 72, 93

Issue description

- A centre turning section or lane for businesses should also be considered
- Road needs to be built to a suitable standard and access to adjacent businesses properly restored
- A footpath should be provided on both sides of Goonoo Goonoo Road
- Roundabouts need to be provided at all intersections to allow traffic to turn in both directions
- A traffic island should separate traffic
- Support for two lanes in each direction.

Response

A central median, in preference to a central turning area, is necessary to ensure the route can continue to operate in a safe and efficient manner with increasing traffic volumes. Access to businesses on the western side of Goonoo Goonoo Road is still available for southbound traffic via the roundabout at Craigends Lane as well as the right turn lanes at Greg Norman Drive and The Ringers Road.

Vehicles leaving the businesses on the western side of Goonoo Goonoo Road between Craigends Lane and Wilbertree Street wishing to head south can turn safely at the Wilburtree Street roundabout.

The proposal includes the provision of two lanes on Goonoo Goonoo Road in each direction between Calala Lane and Jack Smyth Drive. The upgraded road would be constructed to current design standards and includes the reinstatement of driveway accesses where required.

The traffic lights at Calala Lane, the roundabout at Craigends Lane and the intersection at Greg Norman Drive would allow for all turning movements (except U-turns which would be limited to the roundabouts in the vicinity). The proposed left-in left-out only from The Ringers Road to Goonoo Goonoo Road may represent a minor inconvenience for some people wishing to head south. This is adequately offset by the improved safety.

2.3.3 Design – Calala Lane intersection

Submission numbers

11, 13, 31, 48, 49, 50, 51, 52, 54, 56, 64, 66, 67, 68, 69, 70, 71, 72, 74, 75, 87, 88, 90, 94, 100, 101, 105, 106, 110, 111, 112, 115, 117, 119, 122, 123, 125, 130, 131

Issue description

- Traffic lights are not needed because the existing roundabout operates effectively and will be further improved with the duplication to the south. The existing roundabout should be retained and the trees removed to improve visibility
- Traffic lights will cause unnecessary delays and queuing
- Consider retaining the roundabout but install traffic lights that operate during peak periods
- Suggest a slip lane at the Goonoo Goonoo Road / Calala Lane intersection to allow northbound traffic to proceed through the intersection irrespective of the lights.
- Suggest a left-turn slip lane turning for southbound traffic turning to Calala Lane
- Right-turns to Goonoo Goonoo Road should be allowed from both lanes on Calala Lane to minimise congestion.
- Retain the roundabout so that U-turns can be made for access south
- Comment that roundabouts are safer than traffic lights
- Support for traffic lights.

Response

Traffic lights at the Calala Lane intersection are needed to address forecast traffic growth. Traffic modelling indicates that by 2030, the anticipated traffic volumes will exceed the capacity of the existing roundabout in the AM peak period. The existing roundabout also does not provide safe crossing opportunities for pedestrians.

Signalised roundabouts have proven successful in managing peak hour congestion at some locations, and this treatment may extend the life of the existing roundabout in the short term. However, with forecast growth, traffic lights would ultimately be needed at this intersection both to manage increased traffic volumes and to provide safe crossing opportunities for pedestrians.

The proposal accommodates right turns from both lanes on Calala Lane to Goonoo Goonoo Road, which is an improvement over the existing situation.

Provision of a slip lane for northbound traffic is not proposed as it would increase the footprint of the intersection and may require property acquisition. Traffic modelling indicates that the proposed traffic lights would operate satisfactorily through to 2040 and therefore a slip lane is not considered necessary.

The proposal accommodates a dedicated left turn lane from Goonoo Goonoo Road into Calala Lane for southbound traffic. Provision of a slip lane in this location is not proposed as there is insufficient room within the Calala Lane road corridor to accommodate two eastbound lanes. Traffic modelling indicates that the proposed traffic lights would operate satisfactorily through to 2040 and therefore a slip lane is not considered necessary.

2.3.4 Design – Craigends Lane intersection

Submission numbers

5, 20, 33, 34, 38, 44, 52, 67, 69, 74, 87, 88, 89, 111, 112, 115, 124, 125, 130

Issue description

- Comment that the roundabout is not needed
- Query about whether the roundabout at Goonoo Goonoo Road and Craigends Lane will be constructed in concrete and recommendation that no trees be planted in the roundabout to improve visibility
- Query about whether the new roundabout can accommodate 30 metre road trains or B doubles
- Roundabouts like that at Manilla Road / Marius Street should be avoided
- Support for Craigends Lane intersection design and accommodation of future development.

Response

Installing a roundabout at Craigends Lane caters for future development on Goonoo Goonoo Road. A roundabout provides the best balance between impacts on existing developed land and achieving intersection efficiency and future access requirements.

A concrete roundabout is proposed at Craigends Lane, with appropriate landscaping within the roundabout island.

The roundabout proposed at Craigends Lane would be constructed to current design standards and can accommodate a PBS 2 30 metre vehicle.

The roundabout is illustrated in Figure 3-3 of the REF.

2.3.5 Design – The Ringers Road intersection

Submission numbers

11, 48, 49, 52, 56, 67, 68, 69, 71, 72, 75, 79, 81, 82, 88, 92, 101, 102, 111, 112, 115, 123, 125, 130, 131

Issue description

- Proposed right turn restriction from The Ringers Road is not supported and a roundabout or traffic lights should be provided
- The Ringers Road should have the 'seagull' treatment

- A concrete median would be required to implement no right turn from The Ringers Road
- Support for banning right turn from Ringers Road
- Improved lighting is required.

Response

The proposed left-in left-out only from The Ringers Road to Goonoo Goonoo Road may represent a minor inconvenience for some people wishing to head south. This is adequately offset by the improved safety. The alternatives to this movement would be a U-turn at the proposed Craigends Lane roundabout, or a right turn from Greg Norman Drive onto Goonoo Goonoo Road. Based on current and forecast traffic volumes at The Ringers Road intersection, provision of a roundabout or traffic lights is not warranted.

The design of the proposed intersection, including the position of the southbound right-turn lane will make it very difficult for motorists to attempt right-turns from The Ringers Road once the restriction is in place.

The proposal includes the installation of new street lights. The specific location of street lights would be determined during detailed design.

A 'seagull' intersection, similar to the one proposed for Greg Norman Drive, was considered but discounted. This was because restricting right turns from The Ringers Road and utilising the proposed roundabout at Craigends Lane was considered to provide better safety outcomes without negatively impacting traffic efficiency.

2.3.6 Design – Greg Norman Drive

Submission numbers

55, 63, 65, 71, 72, 76, 79, 81, 88, 90, 92, 111, 114, 115, 118, 121, 125, 127, 130, 131

Issue description

- Comment that Greg Norman Drive should have traffic lights
- Intersection should remain unchanged
- The current merge left-turn lane from Greg Norman onto Goonoo Goonoo Road is too short, with some drivers unable to merge while others drive in the No Stopping area to access adjacent businesses.
- A roundabout at the Greg Norman Drive intersection should be provided to accommodate future development
- Suggestion that 'seagull' intersections are too complex for drivers
- Comment that better visibility is needed at the Greg Norman Drive intersection and that vegetation should be removed
- Improved lighting is required.

Response

The proposed configuration of the Goonoo Goonoo Road / Greg Norman Drive intersection is similar to the existing configuration but would improve safety by allowing for a two stage movement across Goonoo Goonoo Road for traffic turning right from Greg Norman Drive. Traffic modelling indicates that the proposed configuration of the Goonoo Goonoo Road / Greg Norman Drive intersection would operate with an acceptable level of service up to the year 2040.

The design would ensure that travel paths through the 'seagull' configuration are clearly delineated for all approaching drivers and that adequate sight lines are provided. The specific location of street lights near this intersection would be determined during detailed design.

The proposal removes the merge lane for left-turning traffic from Greg Norman Drive to Goonoo Goonoo Road, replacing it with a high entry angle left-turn treatment that requires turning vehicles to give way to northbound traffic on Goonoo Goonoo Road. The high entry angle treatment allows left-turning drivers to position their vehicles at an angle that results in a safe and convenient observation angle.

2.3.7 Maintenance

Submission numbers

12, 24

Issue description

- Concerns about the current standard of maintenance and suggestion that the current road should just be maintained properly.

Response

The need for the proposal is detailed in Chapter 2 (Need and options considered). The proposal includes a new road surface that would provide improved ride quality for motorists.

2.3.8 Costs

Submission numbers

25

Issue description

- Query about the costs of the proposal.

Response

The NSW Government has committed $3 million for planning work for the proposal. Construction is dependent on funding availability.

The Federal Government has announced an 80 per cent contribution to the delivery of the project.

2.4 Traffic and transport

2.4.1 Traffic efficiency

Submission numbers

5, 61, 72, 79, 91, 94

Issue description

- Query as to why the level of service at the Calala Lane intersection improves from D in 2030 to C in 2040.

- Traffic counts have not been provided for local roads and query about any projected increase in traffic on local roads.
- Concerns about access to and from Mullumbimby Close, Karloo Street and Kurrawan Street during peak periods
- Comment that Calala Lane is very congested and concern that traffic lights at Calala Lane will cause queuing back to the new Craigends Lane roundabout
- Comment that turning onto Goonoo Goonoo Road from Craigends Lane is difficult and that the existing right turn restriction is good
- Comment that there are currently delays caused by people turning into The Ringers Road
- Comment that it is difficult to turn onto Goonoo Goonoo Road from Greg Norman Drive.

Response

The introduction of new developments in 2040 alongside the redistribution of population and employment causes some shifts in traffic patterns which result in slightly lower delays for traffic on Goonoo Goonoo Road and Calala Lane intersection. This explains the level of service improvement from D in 2030 to C in 2040.

Future side road traffic volumes have been extracted from the Tamworth Strategic Model and then increased based on proposed land use projections provided by Tamworth Regional Council.

The proposal would reduce the extent of queuing on Calala Lane. Traffic modelling shows that without traffic signals the 95th percentile queue (i.e. the queue length that has only a 5-percent probability of being exceeded) on Calala Lane during the AM peak will deteriorate to 641 metres in 2030 and to 790 metres in 2040. The proposal would substantially reduce AM peak queues on Calala Lane (147 metres in 2030 and 288 metres in 2040) and this would assist access to and from Mullumbimby Close.

The proposal would assist access to Goonoo Goonoo Road from Craigends Lane by providing a roundabout (which would allow for right turn movements).

By providing a dedicated right-turn lane at The Ringers Road, the proposal is expected to reduce delays caused by turning traffic.

The provision of two lanes in each direction on Goonoo Goonoo Road would assist left turns from Greg Norman Drive, while right turns would be assisted by the proposed 'seagull' configuration which allows for a two stage turning movement.

2.4.2 Parking

Submission numbers

1, 5, 55, 113, 116, 131

Issue description

- Provision of heavy vehicle parking should be increased and there is no provision for heavy vehicle parking in front of Motel 359 however this is frequently used by truck drivers for overnight accommodation
- Comment that in some instances there could be entry / exit to a parked heavy vehicle from the adjacent travel lane (i.e. people could step out of a vehicle into a travel lane)
- Delineate spaces for heavy vehicles to ensure they are not taken by light vehicles/caravan combinations. Similarly provide separate parking for caravan combination spaces

- Query whether on street parking will be permitted within the proposed 2.5 metre wide shoulders
- Heavy vehicles should be able to park for access to McDonalds and the BP service centre.

Response

The location and number of heavy vehicle parking bays has been developed in consultation with Tamworth Regional Council. Provision for heavy vehicle parking was considered but not pursued due to potential interference with driveways and obstruction of site distances. Heavy vehicle parking could also affect amenity for adjacent residential properties.

The typical 4.5 metre wide bay width is considered adequate to allow safe entry and exit from parked vehicles. It is not proposed that the parking bays be specifically marked for use by heavy vehicles. It is expected that most light vehicles would park in dedicated off street parking provided by adjacent commercial and retail premises. Caravans would be able to use the proposed heavy vehicle parking spaces, however, this may be mitigated with appropriate signage.

No additional restrictions to on street parking are proposed and parking would be generally permitted within the proposed sealed shoulders.

The proposal includes a truck parking bay (southbound) opposite the McDonalds and the BP service centre, and to the south of The Ringers Road (northbound).

2.4.3 Pedestrians and cyclists

Submission numbers

5, 80, 94

Issue description

- Query about any pedestrian refuge crossings proposed along the length of the proposal, noting that there are no pedestrian crossings other than at Calala Lane
- Suggestion that a bicycle track be considered.

Response

Pedestrians would be able to cross Goonoo Goonoo Road at the Calala Lane traffic lights. Pedestrian refuges are also proposed at the following four locations:

- About 80 metres south of the Craigends Lane roundabout
- About 40 metres south of The Ringers Road
- About 160 metres north of Greg Norman Drive
- About 140 metres south of Greg Norman Drive.

The proposal includes completion of the shared path along the western side of Goonoo Goonoo Road between Wilburtree Street and Greg Norman Drive.

2.4.4 Traffic diversions

Submission numbers

5, 8, 43, 73, 107

Issue description

- Concern that ‘rat running’ through Kurrawan Street and/or Karloo Street will occur to avoid the traffic lights and suggestion that allowing a left-turn at anytime from Goonoo Goonoo Road to Calala Lane may address the issue.

Response

Given the satisfactory level of service at the proposed traffic lights, ‘rat running’ by substantial numbers of additional vehicles via Kurrawan Street and Karloo Street is not expected. Some motorists already choose to use Kurrawan Street and Karloo Street for access to and from Calala Lane. Allowing left turns at any time is not suitable at this location due to potential conflicts with right-turning traffic from Goonoo Goonoo Road.

2.4.5 Property access

Submission numbers

5, 7, 83, 93, 96, 98, 108, 117, 118, 123

Issue description

- Query about how to travel south from Hotel 359 and how to access properties along Goonoo Goonoo Road
- Query about safe access to and from various properties on Goonoo Goonoo Road, which are directly adjacent to the proposed Calala Lane traffic lights
- McDonalds and the BP service centre need to be accessible
- Query whether U-turn will be permitted at Calala Lane lights to allow parents to drop children at the day-care centre and then continue into town for work
- Comment that a gap in the median is required to allow access to the to the Transgrid site from Greg Norman Drive.

Response

Properties between Craigends Lane and Calala Lane would become left-in and left-out only, similar to properties immediately north and south along Goonoo Goonoo Road. While this change would mean some additional travel for certain journeys, it is necessary to ensure the route can continue to operate in a safe and efficient manner with increasing traffic volumes.

Access to Hotel 359 will be available directly from the northbound travel lanes, while southbound traffic will need to make a U-turn at the proposed Craigends Lane roundabout. Similarly, access to property on Goonoo Goonoo Road will be available directly from the southbound travel lanes, while northbound traffic would need to make a U-turn, such as at the Wilburtree Street roundabout.

Options for two properties on Goonoo Goonoo Road access are currently being investigated. If relocation is not possible, Transport will work with traffic signal specialist to provide a safe access into and out of this property.

For southbound traffic on Goonoo Goonoo Road, McDonalds and the BP service centre can be accessed via a right turn into The Ringers Road. Northbound traffic would be able to access these properties directly.

U-turns would not be permitted at the Calala Lane traffic lights but would be available via the new roundabout at Craigends Lane and the existing roundabout at Wilbertree Street.

Access to the Transgrid site (southern access) is available via a right turn from Greg Norman Drive. Consistent with current arrangements, the northern access would be accessible from the southbound lanes on Goonoo Goonoo Road.

2.4.6 Future development

Submission numbers

5

Issue description

- Lot 102 DP 1262475 currently has an expression of interest issued to develop the site with mixed tourism and hospitality and associated impacts should be considered.

Response

Transport acknowledges this expression of interest and notes that access to this site will be via Greg Norman Drive, The Ringers Road and/or Jack Smyth Drive. Noise and vibration.

Submission numbers

6

Issue description

- Comment that trucks are using exhaust breaks through built up areas and that signage discouraging this should be installed.

Response

During detail design Transport will investigate installing appropriate signage to address any engine braking issues.

2.5 Landscape character and visual amenity

Submission numbers

5, 85, 116

Issue description

- Street trees should be chosen in accordance with the Tamworth Regional Council's Urban Street Tree Management Plan
- Grass medians with spaced trees rather than fully vegetated medians are preferred for ease of maintenance
- Comment that no trees or landscaping is shown on the drawings provided.

Response

Tree planting in the median will be considered during detailed design. An Urban Design Plan will be prepared to support the final detailed project design.

Transport will consult Tamworth Regional Council during the development of the landscape design for the proposal and the selection of street trees.

2.6 Aboriginal heritage

Submission numbers

4

Issue description

- Recommendations 1 and 2 of the Aboriginal Cultural Heritage Assessment Report should be adopted
- A Tamworth Local Aboriginal Land Council Sites Officer should be involved in any actions associated with Recommendations 1 and 2 of the Aboriginal Cultural Heritage Assessment Report
- Any road or entrance statement signs should recognise the traditional custodians of the land in a form agreed between Transport and the Tamworth Local Aboriginal Land Council.

Response

An application for an Aboriginal Heritage Impact Permit will be made under section 90A of the *National Parks and Wildlife Act 1974* for the land and associated objects within the boundaries of the study area. The Standard Management Procedure - Unexpected Heritage Items (Transport for NSW, 2015) will be followed in the event that skeletal remains are found during construction.

An Aboriginal Heritage Management Plan (AHMP) will be prepared in accordance with the Procedure for Aboriginal cultural heritage consultation and investigation (Transport for NSW, 2012) and Standard Management Procedure - Unexpected Heritage Items (Transport for NSW, 2015) and implemented as part of the Construction Environmental Management Plan. The AHMP will provide specific guidance on measures and controls to be implemented for managing impacts on Aboriginal heritage. The AHMP will be prepared in consultation with all relevant Aboriginal groups.

Any road or entrance statement signs will be developed during detail design in consultation with the Tamworth Local Aboriginal Land Council and Tamworth Regional Council.

2.7 Hydrology, flooding and groundwater

Submission numbers

5, 29

Issue description

- Query whether kerb and channel (existing or new) is being provided between Greg Norman Drive and Jack Smyth Drive
- Comment that there is poor drainage near the Tamworth Truck Drivers Memorial.

Response

The proposal includes kerb and channel to Jack Smyth Drive. Drainage issues near the Tamworth Truck Drivers Memorial would be considered as part of the detailed drainage design.

2.8 Socio-economic

Submission numbers

5, 9

Issue description

- Query about whether additional acquisition is required along the frontage of Goonoo Goonoo Road between the roundabout and Barnes Gully for stormwater provision
- Concern that the Craigends Lane roundabout will promote future development of adjacent lands.

Response

The proposed acquisition sketches included in Section 3.6 of the REF were based on the concept design. The final acquisition plans will be prepared following more detailed investigation and the design of new and relocated utilities.

Land at and adjacent to the proposed Craigends Lane roundabout is zoned B5 Business Development by the Tamworth Regional Local Environmental Plan 2010. A range of business oriented development types are permitted with development consent in the B5 zone. While the eastern leg of the roundabout would support access to the B5 zoned land, any development proposal would be the subject of a development application process and assessment by Tamworth Regional Council.

2.9 Other issues

2.9.1 Support for the proposal

Submission numbers

2, 9, 16, 18, 20, 21, 25, 26, 53, 62, 76, 77, 78, 84, 91, 93, 95, 97, 98, 99, 103, 109, 114, 126, 128, 129

Issue description

- Support expressed for the proposal as a whole.

Response

Support noted.

2.9.2 Out of scope issues

Submission numbers

1, 3, 13, 14, 20, 26, 28, 30, 32, 37, 45, 46, 57, 58, 59, 60, 66, 74, 78, 86, 88, 90, 101, 102, 106, 114, 119, 120

Issue description

- Provision of traffic lights at the Goonoo Goonoo Road / Scott Road / Vera Street should be prioritised

- Potential for 'rat running' associated with other network improvements was raised in previous submission on the concept design and should be closed out
- Noting that Calala Lane has experienced closures due to accidents and flooding, an all-weather Southern Bypass as outlined by Tamworth Regional Council in its 2020 Blueprint 100 and 2020 Local Strategic Planning Statement should be prioritised over the proposal
- Two lanes in each direction suggested for Calala Lane
- Concern that other roads in the Tamworth area have not been maintained well
- Comment that improvements are needed to Burgmanns Lane or there needs to be a restriction on trucks using it
- Other improvements should be considered including provision of four lanes to Spains Lane and a bridge connecting the Tamworth Racecourse to Manilla Road to provide access during flooding
- Comment that an alternative access from Calala Lane to the town centre is needed
- Comment that the eastern side of the road is a floodplain and cannot be developed.

Response

The Scott Road / Vera Street intersection is still identified as a priority location for Tamworth Regional Council and Transport. Transport and Tamworth Regional Council will continue to investigate opportunities to upgrade the intersection at this location.

The potential for 'rat running' associated with other network improvements is beyond the scope of the current proposal. Potential ‘rat running’ associated with the Calala Lane intersection improvements is discussed in Section 2.3.3.

Improvements to the regional road network (including a potential southern bypass) are subject to further development work by Tamworth Regional Council in consultation with Transport. Development and maintenance of local roads are the responsibility of Tamworth Regional Council.

Assessment of flooding impacts associated with any future development to the east of Goonoo Goonoo Road is the responsibility of Tamworth Regional Council.

3 Changes to the proposal

3.1 Change to median width

The REF (in Section 3.2) identified a variable median width typically 5.0 metres wide north of Greg Norman Drive. A median width of 4.7 metres was shown in the typical cross section included in Figure 3-6 of the REF.

Transport now proposes to reduce the median width to about three metres. The change would allow better access to properties (with more room to construct driveway crossings, minimising the steepness of the driveways), would likely reduce impact on services and would reduce the quantity of materials (concrete and fill material) required to construct the proposal.

4 Environmental assessment

The only change to the proposal is the reduction in median width described in Chapter 3 (Changes to the proposal). The reduced median width is a minor change and is unlikely to affect most environmental aspects, however there could be some changes to noise and vibration impacts, landscape and visual impacts, property access and resource use. These aspects are discussed further below.

4.1 Noise and vibration

4.1.1 Methodology

The noise and vibration assessment methodology for the proposal as presented in the REF is set out in Section 6.2.1 of the REF. Given the minor nature of the proposed change no further construction or operational noise modelling has been conducted. A qualitative assessment of the proposed change is provided in this section.

4.1.2 Existing environment

The existing environment relevant to noise and vibration is described in Section 6.2.2 of the REF. Residential receivers on both sides of Goonoo Goonoo Road between Calala Lane and Barnes Gully are most relevant to the proposed change.

4.1.3 Potential impacts

The reduction in median width is not expected to significantly alter the overall construction footprint of the proposal, the construction activities required or the construction duration. In this context no changes to the construction noise assessment presented in the REF are anticipated.

The reduced median width would result in a minor change to the position of the travelling lanes on Goonoo Goonoo Road in the affected section (moving the kerbside lane slightly further away from the property boundary). This is not expected to noticeably change road traffic noise levels predicted for the receivers on Goonoo Goonoo Road.

It is noted that the predicted change in road traffic noise levels at the nearest receivers due to the proposal were already all less 2dB which is generally accepted as the threshold at which a change in noise level can be perceived. The proposed change would not alter this outcome.

4.1.4 Revised safeguards and mitigation measures

The proposed change is not likely to increase construction or operational noise impacts at the nearest noise sensitive receivers and therefore no change to the safeguards and management levels in Section 6.3.4 of the REF are proposed.

4.2 Landscape character and visual assessment

4.2.1 Methodology

The landscape character and visual assessment methodology for the proposal as presented in the REF is set out in Section 6.3.1 of the REF.

Due to its minor nature, the proposed change is not expected to alter the landscape character impacts presented in Table 6-7 of the REF.

There would be some change to views from viewpoints 1 and 2 and qualitative discussion has been provided below on these expected changes.

4.2.2 Existing environment

The existing environment relevant to visual impacts is described in Section 6.3.2 of the REF.

The viewpoints assessed in the REF that are most relevant to the proposed change are:

- Viewpoint 1: View along shared path, western verge looking north. Shared path along major arterial road set in a predominantly residential area with pockets of commercial properties
- Viewpoint 2: View from residences fronting a major arterial road looking towards the opposite verge. Some landscape within front yards provides limited visual screening.

4.2.3 Potential impacts

When compared to the REF proposal the proposed change would see the introduction of a visibly narrower median in the northern section of the proposal extent.

With the reduced width median opportunities for median planting would still be available and there would be no change to the visual impact ratings of Low-Moderate and Moderate-High for viewpoints 1 and 2 respectively. The reduced median width may result in more opportunities for landscape plantings on the road verges.

4.2.4 Revised safeguards and mitigation measures

No changes to the safeguards and management measures presented in Section 6.3.4 of the REF are proposed. The Urban Design Plan required by measure LCV1 would take into account the reduced median width now proposed.

4.3 Socio-economic

4.3.1 Methodology

The socio-economic assessment methodology for the proposal as presented in the REF is set out in Section 6.9.1 of the REF.

Qualitative assessment of the proposed change from a socio-economic perspective is provided below.

4.3.2 Existing environment

The existing socio-economic context is described in Section 6.9.2 of the REF.

4.3.3 Potential impacts

The proposed change would create more space at the road verge which would in turn allow the formation of better standard property accesses, particularly between Calala Lane and Barnes Gully.

The proposed change may also reduce the number of utility adjustments required, which could in turn reduce the disturbance of adjacent properties associated with these works.

The proposed change would not affect businesses or social infrastructure.

4.4 Waste and resource use

Waste and resource use is considered in Section 6.10 of the REF. The proposed change would not alter anticipated waste streams or waste quantities. It may however reduce resources (primarily concrete and fill), required for the proposal.

5 Environmental management

The REF for the project identifies the framework for environmental management, including safeguards and management measures that would be adopted to avoid or reduce environmental impacts (section 7.2 of the review of environmental factors).

After consideration of the issues raised in the public submissions no changes to proposed safeguards and management measures were considered necessary.

Should the proposal proceed, environmental management will be guided by the framework and measures outlined below.

5.1 Environmental management plans

A number of safeguards and management measures have been identified in the REF in order to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the project. These safeguards and management measures would be incorporated into the detailed design and applied during the construction and operation of the project.

A Construction Environmental Management Plan (CEMP) and associated Environmental Work Method Statements (EWMS) will be prepared to describe the safeguards and management measures identified. The CEMP and EWMS will provide a framework for establishing how these measures will be implemented and who would be responsible for their implementation.

The CEMP and EWMS will be prepared prior to construction of the project and must be reviewed and endorsed by the Transport for NSW Environment Officer, prior to the commencement of any on-site works. The CEMP will be a working document, subject to ongoing change and updated as necessary to respond to specific requirements. The CEMP would be developed in accordance with specifications including QA Specification G36 – Environmental Protection (Management System) and QA Specification G10 – Traffic Management.

5.2 Summary of safeguards and management measures

The REF for the project identifies a range of environmental outcomes and management measures that would be required to avoid or reduce the environmental impacts.

After consideration of the issues raised in the public submissions, the environmental management measures for the project (refer to Chapter 7 of the REF) have been retained with no changes. Should the proposal proceed, the environmental management measures in Table 3-1 will guide the subsequent phases of the proposal.

Table 3-1: Summary of safeguards and management measures

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
GEN1	General - minimise environmental impacts during construction	A CEMP will be prepared and submitted for review and endorsement of the Transport for NSW Environment Manager prior to commencement of the activity. As a minimum, the CEMP will address the following: • any requirements associated with statutory approvals • details of how the project will implement the identified safeguards outlined in the REF • issue-specific environmental management plans • roles and responsibilities • communication requirements • induction and training requirements • procedures for monitoring and evaluating environmental performance, and for corrective action • reporting requirements and record-keeping • procedures for emergency and incident management • procedures for audit and review. The endorsed CEMP will be implemented during the undertaking of the activity.	Contractor / Transport project manager	Pre-construction / detailed design	
GEN2	General - notification	All businesses, residential properties and other key stakeholders (eg schools, local councils) affected by the activity will be notified at least five days prior to commencement of the activity.	Contractor / Transport project manager	Pre-construction	
GEN3	General – environmental awareness	All personnel working on site will receive training to ensure awareness of environment protection requirements to be implemented during the project. This will include up-front site induction and regular "toolbox" style briefings. Site-specific training will be provided to personnel engaged in activities or areas of higher risk. These include: • areas of Aboriginal heritage sensitivity • threatened species habitat • adjoining residential areas requiring particular noise management measures	Contractor / Transport project manager	Pre-construction / detailed design	

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
TT1	Traffic and transport	A Traffic Management Plan (TMP) will be prepared and implemented as part of the CEMP. The TMP will be prepared in accordance with the Traffic Control at Work Sites Manual (Transport for NSW, 2020) and QA Specification G10 Control of Traffic (Transport for NSW, 2020). The TMP will include: • Confirmation of haulage routes • Measures to maintain access to local roads and properties • Site-specific traffic control measures (including signage) to manage and regulate traffic movement • Measures to ensure emergency services vehicles can negotiate the project area during construction • Measures to maintain pedestrian and cyclist access • Requirements and methods to consult and inform the local community of impacts on the local road network • Access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads • A response plan for any construction traffic incident • Consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic monitoring, review and amendment mechanisms.	Contractor	Pre-construction	Section 4.8 of QA G36 Environment Protection
NV1	Construction noise and vibration	A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will generally follow the approach in the Interim Construction Noise Guideline (ICNG) (DECC, 2009) and the Construction Noise and Vibration Guideline (Roads and Maritime Services, 2016) and identify: • Key potential noise and vibration generating activities associated with the activity • Feasible and reasonable mitigation measures to be implemented • A monitoring program to assess performance against relevant noise and vibration criteria	Contractor	Pre-construction	Section 4.6 of QA G36 Environment Protection

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		• A review process scheduling and assessing out-of-hours activities including consideration of alternatives to out-of-hours work, plant selection, work locations and screening to minimise impacts • A working schedule which records respite periods for extended out-of-hours works • Arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures • Contingency measures to be implemented in the event of non-compliance with noise and vibration criteria.			
NV2	Construction vibration	Where vibration intensive plant such as vibratory rollers are used, vibration must be managed to minimise disturbance to building occupants and to avoid damage to buildings and other structures (including heritage fabric). This includes adhering to the recommended minimum working distances for vibration intensive plant identified in Section 7.1 of the Construction Noise and Vibration Guideline (Roads and Maritime Services, 2016). If recommended minimum working distances cannot be met by selecting smaller plant, vibration monitoring will occur to quantify and help manage vibration. If necessary, trial vibration measurements will be conducted to further assess any possible impacts and buffer distances that may be required.	Contractor	Construction	Additional measure
NV3	Construction noise and vibration	All sensitive receivers likely to be affected will be notified at least five working days prior to the start of any works associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of: • The proposal • The construction period and construction hours • Contact information for project management staff • Complaint and incident reporting • How to obtain further information.	Contractor	Pre-construction	Standard measure
LCV1	Landscape character and visual impact	An Urban Design Plan (including detailed urban design drawings and landscape plans) will be prepared to support the final detailed project design.	Transport	Detailed design	Standard measure

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		The Urban Design Plan will present an integrated urban design for the project, providing further practical detail on the application of design principles and objectives identified in this REF. The Plan will confirm design treatments for: • Location and identification of existing vegetation and proposed landscaped areas, including species to be used • Details of the staging of landscape works taking account of related environmental controls such as erosion and sedimentation controls and drainage • Procedures for monitoring and maintaining landscaped or rehabilitated areas • The Urban Design Plan will be prepared in accordance with relevant guidelines, including: o Beyond the Pavement urban design policy, process and principles (Transport for NSW, 2020) o Landscape Design Guideline (Roads and Maritime Services, 2018).			
LCV2	Visual impacts	Where reasonable and feasible trees will be retained in design.	Transport	Detailed design	Additional measure
LCV3	Visual impacts	Work sites including all ancillary facilities will be managed to minimise visual impacts including consideration of screening, placement of facilities and storage areas and maintaining sites in a clean state with minimal visual clutter.	Contractor	Construction	Additional measure
LCV4	Impacts on street trees	Tree protection zones would be implemented to minimise the impact to street trees (identified for retention). Tree protection structure would be implemented to protect trees if construction is required to occur within the Tree Protection Zones. Any excavation within Tree Protection Zones (of trees identified for retention) or pruning trees (or tree roots) is to occur under the supervision of an AQF5 qualified arborist and in accordance with a pre-agreed methodology.	Contractor	Construction	Additional measure

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		Vehicles, plant or equipment would not be parked or stored within the tree protection zone, if parking or storage is required additional mitigation measures would be implemented to minimise the impact to the vegetation.			
LCV5	Impact from lighting	Construction site and compound lighting will be oriented to minimise the risk of light spill impacts on any nearby residences.	Contractor	Construction	Additional measure
LCV6	Impacts from lighting	The design of new street lighting will consider potential light spill impacts on adjacent properties.	Transport	Detailed design	Additional measure
AH1	Aboriginal cultural heritage	An application for an Aboriginal Heritage Impact Permit (AHIP) will be made under section 90A of the National Parks and Wildlife Act 1974 for the land and associated objects within the boundaries of the study area.	Transport	Detailed design	Additional measure
AH2	Aboriginal heritage	An Aboriginal Heritage Management Plan (AHMP) will be prepared in accordance with the Procedure for Aboriginal cultural heritage consultation and investigation (Roads and Maritime Services, 2011) and Standard Management Procedure - Unexpected Heritage Items (Transport for NSW, 2015) and implemented as part of the CEMP. It will provide specific guidance on measures and controls to be implemented for managing impacts on Aboriginal heritage. The AHMP will be prepared in consultation with all relevant Aboriginal groups.	Contractor	Detailed design / pre-construction	Section 4.9 of QA G36 Environment Protection
AH3	Aboriginal heritage	*The Standard Management Procedure - Unexpected Heritage Items* (Transport for NSW, 2015) will be followed in the event that an unknown or potential Aboriginal object/s, including skeletal remains, is found during construction. This applies where Transport does not have approval to disturb the object/s or where a specific safeguard for managing the disturbance (apart from the Procedure) is not in place. Work will only re-commence once the requirements of that Procedure have been satisfied.	Contractor	Detailed design / pre-construction	Section 4.9 of QA G36 Environment Protection
BIO1	Biodiversity impacts	A Flora and Fauna Management Plan will be prepared in accordance with the *Biodiversity Guidelines: Protecting and Managing Biodiversity on RTA Projects* (RTA, 2011) and will be implemented as part of the CEMP. The Flora and Fauna Management Plan will include, but not be limited to: • Plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features and revegetation areas	Contractor	Pre-construction	Section 4.8 of QA G36 Environment Protection

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		• Pre-clearing survey requirements • Procedures for unexpected threatened species finds and fauna handling • Procedures in the event of injury to native fauna • Protocols to manage weeds and pathogens • Measures for the protection of aquatic habitats.			
BIO2	Biodiversity impacts	Pre-clearing survey will be conducted and will: • Confirm clearing boundaries, exclusion zones, protected habitat features and revegetation areas prior to starting work • Identify, in toolbox talks, where biodiversity controls are located on the site.	Contractor	Pre-construction	Additional measure
BIO3	Spread of weeds	Weed management will occur in accordance with the *Biodiversity Guidelines, Guide 6* (Roads and Maritime, 2016) and include: • The Identification of weeds on site (confirmed during pre-clearing survey) • Weed management priorities and objectives exclusion zones, protected habitat features and revegetation areas prior to starting work within or directly next to the site • The location of weed infested areas • Weed control methods • Measures to prevent the spread of weeds, including machinery hygiene procedures and disposal requirements • A monitoring program to measure the success of weed management • Communication with local Council noxious weed representative.	Contractor	Pre-construction	Additional measure
BIO4	Spread of diseases affecting plants	Management measures will be implemented to control and/or prevent the introduction and/or spread of disease-causing agents such as bacteria and fungi in accordance with the *Biodiversity Guidelines, Guide 7* (Roads and Maritime, 2016)	Contractor	Construction	Additional measure

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
BIO5	Unexpected threatened species finds	If unexpected flora or fauna are discovered on site stop work immediately and implement the Roads and Maritime *Unexpected Threatened Species Find Procedure* in the *Biodiversity Guidelines, Guide 1* (Roads and Maritime, 2016).	Contractor	Construction	Additional measure
HF1	Flooding and hydrology	Staging for the construction of the proposal will consider adequate stormwater flow paths (including diversions and temporary connections as required) to be implemented and maintained during construction to minimise the potential on-site or upstream flooding.	Contractor	Construction	Additional measure
HF2	Flooding and hydrology	A flood management procedure will be prepared to detail procedures to be implemented where extreme weather is predicted and where there is a risk of flooding affecting the work site and compound, including removal and storage or plant and equipment and securing of site.	Contractor	Construction	Additional measure
HF3	Flooding and hydrology	Further investigation into any flooding impacts on private property will occur with the purpose of avoiding or minimising impacts.	Transport	Detailed design	Additional measure
SW1	Soil and water	A Soil and Water Management Plan (SWMP) will be prepared and implemented as part of the CEMP. The SWMP will identify all reasonably foreseeable risks relating to soil erosion and water pollution and describe how these risks will be addressed during construction.	Contractor	Detailed design Pre-construction	Section 2.1 of QA G38 Soil and Water Management
SW2	Soil and water	A site specific Erosion and Sediment Control Plan/s will be prepared and implemented as part of the Soil and Water Management Plan	Contractor	Detailed design Pre-construction	
SW3	Contamination	A Detailed Site Investigation (“DSI”) will be undertaken prior to construction works commencing, targeting the AECs where exposure pathways are potentially complete. The DSI should include, but not be limited to: • An assessment of the extent and nature of uncontrolled filling material throughout the road corridor of the Site (as well as the verge and intersections)	Transport	Detailed design	Additional measure

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		• An assessment of soil and groundwater contamination across the areas of the Site adjacent to the service stations • An assessment of surface water contamination within the Barnes Gully drainage structure.			
SW4	Contamination	If contaminated areas are encountered during construction, appropriate control measures will be implemented to manage the immediate risks of contamination. All other work that may impact on the contaminated area will cease until the nature and extent of the contamination has been confirmed and any necessary site-specific controls or further actions identified in consultation with the Transport's Environment Manager and/or EPA.	Contractor	Detailed design Pre-construction	Section 4.2 of QA G36 Environment Protection
SW5	Accidental spills	A site specific emergency spill plan will be developed, and include spill management measures in accordance with Transport's *Code of Practice for Water Management* (Roads and Traffic Authority, 1999) and relevant EPA guidelines. The plan will address measures to be implemented in the event of a spill, including initial response and containment, notification of emergency services and relevant authorities (including Transport and EPA officers).	Contractor	Detailed design Pre-construction	Section 4.3 of QA G36 Environment Protection
SW6	Salinity	Soil salinity testing will be carried out at the area to be disturbed around Barnes Gully prior to construction to further assess salinity risks and implement appropriate controls.	Contractor	Detailed design Pre-construction	Additional measure
AQ1	Air quality	An Air Quality Management Plan (AQMP) will be prepared and implemented as part of the CEMP. The AQMP will include, but not be limited to: • Potential sources of air pollution (including site compound operation) • Air quality management objectives consistent with any relevant published EPA guidelines • Mitigation and suppression measures to be implemented • Methods to manage work during strong winds or other adverse weather conditions.	Contractor	Construction	Section 4.4 of QA G36 Environment Protection

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
SE1	Socio-economic	A Communication Plan (CP) will be prepared and implemented as part of the CEMP to help provide timely and accurate information to the community during construction. The CP will include (as a minimum): • Mechanisms to provide details and timing of proposed activities to affected residents, including changed traffic and access conditions • Contact name and number for complaints. The CP will be prepared in accordance with the *Community Involvement and Communications Resource Manual* (RTA, 2008).	Contractor	Detailed design / pre-construction	Standard measure
WM1	Waste	A Waste Management Plan (WMP) will be prepared and implemented as part of the CEMP. The WMP will include but not be limited to: • Measures to avoid and minimise waste associated with the project • Classification of wastes and management options (re-use, recycle, stockpile, disposal) • Statutory approvals required for managing both on and off-site waste, or application of any relevant resource recovery exemptions • Procedures for storage, transport and disposal • Monitoring, record keeping and reporting. The WMP will be prepared taking into account the *Environmental Procedure - Management of Wastes on Transport for NSW Land* (Transport for NSW, 2014) and relevant Transport Waste fact sheets.	Contractor	Detailed design / pre-construction	Section 4.2 of QA G36 Environment Protection
UM1	Utilities	Prior to the commencement of works the location of existing utilities and relocation details will be confirmed following consultation with the affected utility owners If the scope or location of proposed utility relocation works falls outside of the assessed proposal scope and footprint, further assessment will be undertaken.	Contractor	Detailed design / pre-construction	
HR1	Hazards and risk management	A Hazard and Risk Management Plan (HRMP) will be prepared and implemented as part of the CEMP. The HRMP will include, but not be limited to: • Details of hazards and risks associated with the activity	Contractor	Detailed design / pre-construction	

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		• Measures to be implemented during construction to minimise these risks • Record keeping arrangements, including information on the materials present on the site, material safety data sheets, and personnel trained and authorised to use such materials • A monitoring program to assess performance in managing the identified risks • Contingency measures to be implemented in the event of unexpected hazards or risks arising, including emergency situations. The HRMP will be prepared in accordance with relevant guidelines and standards, including relevant Safe Work Australia Codes of Practice, and Environment Protection Authority publications.			
NAH1	Non-Aboriginal heritage	The Standard Management Procedure – *Unexpected Heritage Items* (Roads and Maritime Services, 2015) will be followed in the event any unexpected heritage items, archaeological remains or potential relics of non-Aboriginal origin are encountered. Work will only re-commence once the requirements of that Procedure have been satisfied.	Contractor	Construction	Section 4.10 of QA G36 Environment Protection
CI1	Cumulative impacts	Current and upcoming projects with the potential to interact with the proposal will be monitored. Where potential cumulative impacts are identified, the scheduling of works will be coordinated with interacting projects to minimise potential impacts. This will include: • Scheduling works to allow suitable respite periods for construction noise • Scheduling of works to minimise consecutive construction noise impacts, where feasible • Coordinating lane closures and pedestrian/cyclist diversions to minimise the overall number of occasions where disruption occurs.	Transport Project Manager	Construction	Additional measure

5.3 Licencing and approvals

Table 5-2 provides a summary of the licensing and approval requirements relevant to the project.

Table 5-2: Summary of licensing and approvals required

Instrument	Requirement	Timing
Roads Act 1993 (section 138)	Road occupancy licence	Prior to start of activity
National Parks and Wildlife Act 1974	Aboriginal Heritage Impact Permit under Section 90 of the *National Parks and Wildlife Act 1974* for the land and associated Aboriginal objects within the boundaries of the study area.	Prior to start of activity

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