



**Environmental Impact Assessment**  
**Epping Road westbound widening between Essex Street and**  
**Blaxland Road at Epping**  
**REF submissions report**  
EIA-P05-G06-T02

August 2016

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## **Roads and Maritime Services**

### **Epping Road westbound widening between Essex Street and Blaxland Road at Epping**

**Submissions report  
August 2016**

| Rev No. | Author | Reviewer   |           | Approved for Issue |           |            |
|---------|--------|------------|-----------|--------------------|-----------|------------|
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## Executive summary

Roads and Maritime Services is proposing to widen Epping Road between Essex Street and Blaxland Road at Epping ('the proposal').

The proposal would involve widening the southern side of Epping Road between Essex Street and Blaxland Road to provide an additional westbound lane; improving the intersection of Epping Road and Essex Street and modifications to existing right turns.

A Review of environmental factors was prepared for the proposal and placed on public display from 26 November 2015 to 11 December 2015 at two locations (Epping Library and Hornsby Shire Council). It was also available on our website [atrms.nsw.gov.au/projects](http://atrms.nsw.gov.au/projects).

We received comments from 35 people and one government organisation being including Hornsby Shire Council. Key points included:

- Restricting the right turn from Langston Place onto Epping Road
- Improving the Essex Street intersection further
- Providing a left turn lane from Epping Road into Blaxland Road
- Parking on Essex Street
- Providing pedestrian facilities and safety
- Construction period and work hours.

The community feedback has been considered and responses to the comments made have been provided as part of this report. No changes to the proposal have been made following display of the REF but additional mitigation measures and safeguards have been added.

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# 1. Introduction and background

## 1.1 Purpose

This submissions report aligns to the Review of environmental factors (Review) prepared for the proposed Epping Road widening between Essex Street and Blaxland Road at Epping and should be read in conjunction with that document.

The review of environmental factors was on display in November and December 2015 for public comment. This Report summarises matters raised and provides Roads and Maritime's responses (Chapter 2), and identifies new or revised environmental management measures (Chapter 3).

## 1.2 The proposal

Roads and Maritime is proposing to widen Epping Road westbound between Blaxland Road and Essex Street and improve the Epping Road and Essex Street intersection (the proposal).

The proposal is part of the NSW Governments' Urban Activation Precincts Program to support future development in Epping town centre. The key features of the proposal include:

- Widening the southern side of Epping Road by about 3.7 metres between Essex Street and Blaxland Road to provide an additional westbound lane. The additional westbound lane would function as a dedicated left turn lane into Blaxland Road
- Upgrading the intersection of Epping Road and Essex Street:
  - Widening on the north-eastern side of the intersection to provide an additional right turn lane into Epping Road westbound. This will provide two marked right turn lanes, and an unmarked left turn/through lane
  - Upgrading the intersection to provide pedestrian crossings at traffic lights on all four approaches
- To widen 80 metres of the northern side of Epping Road east of Essex Street
- Building a raised median about 340 metres long on Epping Road, between Essex Street and Blaxland Road
- Building a raised median about 20 metres long on Essex Street north of Epping Road intersection
- Removing the right turn from Epping Road into Essex Street in both directions
- Removing the right turn from Langston Place onto Epping Road
- Removing the right turn from Forest Grove and Smith Street
- Providing a dedicated left turn lane from Essex Street onto Epping Road westbound
- Building a 1.2 metre wide pedestrian path on Epping Road
- Adjusting property boundaries and utilities
- Identifying temporary construction compounds and stockpile sites.

### 1.3 Review display

Roads and Maritime prepared a review of environmental factors to assess the environmental impacts of the proposal. The review of environmental factors was displayed between 26 November 2015 and 11 December 2015 at two locations (see Table 1.1). The review of environmental factors was placed on the Roads and Maritime's website and made available for download. Two information sessions were held at Epping Scout Hall on:

- Thursday 3 December from 6pm to 8pm
- Saturday 5 December from 11am to 1pm.

The location and duration of the display was in the November 2015 community update newsletter. Community feedback was invited during the display period.

**Table 1.1: Display locations**

| Location              | Address  |
|-----------------------|--|
| Hornsby Shire Council | Administration Centre, 296 Peats Ferry Road, Hornsby |
| Epping Library        | Chambers Court (off Pembroke Street), Epping         |

The Review display represented a continuation of community and stakeholder consultation that was carried out by the NSW Department of Planning and Environment, Hornsby Council and Parramatta City Council under the Housing Urban Activation Program and further consultation from Roads and Maritime.

Further information from Roads and Maritime's consultation for the proposal is provided in section 5 of the review of environmental factors.



## 2. Response to matters

Roads and Maritime received comments from 35 people and one government organisation. These were received until Friday 8 January 2016. Table 2.1 lists the respondents and each respondent's allocated submission number. The table also indicates where the matters from each submission have been addressed in Chapter 2 of this report.

**Table 2.1: Respondents**

| Respondent            | Submission | Section number where issues are addressed   |
|-----------------------|------------|---|
| Hornsby Shire Council | 1          | 2.21  |
| Individual            | 2          | 2.5.1; 2.5.3; 2.5.13; 2.10.3  |
| Individual            | 3          | 2.5.13  |
| Individual            | 4          | 2.3.5; 2.5.1; 2.5.4; 2.5.5  |
| Individual            | 5          | 2.5.1   |
| Individual            | 6          | 2.5.1   |
| Individual            | 7          | 2.5.1; 2.5.13   |
| Individual            | 8          | 2.10.1; 2.10.2  |
| Individual            | 9          | 2.5.4; 2.5.14   |
| Individual            | 10         | 2.3.2; 2.3.3; 2.5.1, 2.5.17   |
| Individual            | 11         | 2.5.1   |
| Individual            | 12         | 2.5.1; 2.5.2; 2.6.1; 2.9.1; 2.10.1  |
| Individual            | 13         | 2.5.1; 2.10.1   |
| Individual            | 14         | 2.5.9   |
| Individual            | 15         | 2.3.2; 2.3.3; 2.5.1; 2.5.9; 2.9.2   |
| Individual            | 16         | 2.3.5; 2.5.1; 2.10.3  |
| Individual            | 17         | 2.3.1; 2.3.2; 2.3.3; 2.5.9  |
| Individual            | 18         | 2.3.1; 2.5.1; 2.5.4; 2.5.9; 2.10.1  |
| Individual            | 19         | 2.3.2; 2.3.3; 2.5.1; 2.10.1   |
| Individual            | 20         | 2.3.1; 2.3.2; 2.3.3; 2.3.6; 2.5.4; 2.5.11; 2.5.20; 2.6.1; 2.8.1; 2.8.2; 2.9.3         |
| Individual            | 21         | 2.3.4; 2.5.1; 2.5.10; 2.5.16; 2.5.18; 2.5.21  |
| Individual            | 22         | 2.3.6; 2.5.19; 2.7.12.10.1; 2.10.3  |
| Individual            | 23         | 2.10.2  |
| Individual            | 24         | 2.5.1; 2.5.5  |
| Individual            | 25         | 2.5.1; 2.5.9; 2.5.16; 2.10.1  |
| Individual            | 26         | 2.3.1; 2.3.2; 2.3.3; 2.5.1; 2.5.4; 2.5.6; 2.5.8; 2.5.9; 2.5.12; 2.5.22; 2.6.1; 2.10.1 |
| Individual            | 27         | 2.5.1; 2.5.14; 2.5.15; 2.5.17   |
| Individual            | 28         | 2.5.1   |
| Individual            | 29         | 2.5.7   |
| Individual            | 30         | 2.3.1; 2.5.1; 2.5.4; 2.5.13; ; 2.10.1   |
| Individual            | 31         | 2.5.9; 2.10.1   |
| Individual            | 32         | 2.5.13  |
| Individual            | 33         | 2.3.2; 2.3.3; 2.5.1; 2.5.2; 2.5.16; 2.5.18; 2.10.1; 2.10.3                            |
| Individual            | 34         | 2.3.5; 2.4.1; 2.5.1; 2.5.2; 2.5.9; 2.5.10; 2.5.17; 2.10.1; 2.10.2                     |
| Individual            | 35         | 2.3.5; 2.4.1; 2.10.1; 2.10.3  |
| Individual            | 36         | 2.10.1  |

## 2.1 Overview of matters raised

We received comments from 35 people and one organisation in response to the review of environmental factors. No form letters (letters with multiple signatories) were received.

Each submission has been examined to understand the matters raised and where similar ones have been made in different submissions, only one response has been provided. The matters raised and Roads and Maritime's responses are in this chapter.

Matters raised by Hornsby Shire Council included:

- Council advised that no heritage objections would be raised to the proposal subject to the mitigation requested in its submission.

Of the 35 submissions received from the community, all objected to or expressed concern regarding one or more elements of the proposal. Four submissions supported part of the proposal.

The main matters raised from the community were about the proposed closure of the right turn from Langston Place onto Epping Road (22 submissions). Other key matters raised included:

- Queries about Epping Road rail bridge (14 submissions).
- Concerns with the left turn lane from Epping Road onto Blaxland Road (eight submissions)
- Justification for the proposal (seven submissions)
- Cost of the proposal (seven submissions)
- Concerns with the Essex Street intersection (six submissions)
- Parking on Essex Street (five submissions).

## 2.2 Agency submissions

### 2.2.1 Hornsby Shire Council (001)

#### *Matter*

The Council heritage planner advises that no heritage objections would be raised to the proposal subject to:

1. Re-instatement of suitable vegetation, including semi-mature trees and fencing comparable with the period of the conservation area. A landscape plan detailing revegetation, landscaping and fencing should be submitted to Council for comment
2. No compound should be located within the grounds of No. 38 Essex Street to avoid direction impact on the setting of the contributory dwelling, conservation area and items in the vicinity
3. The recommendations of the Statement of Heritage Impact Report on page 69 are to be implemented.

The recommendations from the Statement of Heritage Impact Report (Artefact 2015) (Appendix I of the Review) are:

- All property adjustments would be completed in accordance with the Land Acquisition (Just Terms Compensation) Act 1991. These negotiations would include consultation regarding potential reinstatement of the stone edging and landscaping selections
- The landscape plan is to consider the use of semi-mature specimens if feasible within the Essex Street Conservation
- The stone garden edging along properties fronting Epping Road would be carefully deconstructed and the material stockpiled at the compound. This material is to be kept for the life of the construction of the proposal in the event that there is scope to reuse the stone. This would be dependent on the outcome of negotiations with the property owners
- If Compound D was preferred, screening vegetation would be maintained along the southern boundary of 4 Forest Grove to minimise visual impacts to Forest Park
- A heritage induction would be provided to workers before construction begins informing them of the location of heritage items within the proposal area, and guidelines to follow if unanticipated heritage items or deposits are located during works
- It is unlikely intact relics would be encountered during construction of the proposal. If any unanticipated archaeological remains are identified within the proposal area during construction, the Roads and Maritime Standard Procedure Unexpected Heritage Finds (2015) would be followed.

### **Response**

The recommendations about the potential heritage impacts proposed by Hornsby Council Strategic Planning Branch and contained within the Statement of Heritage Impact Report (Artefact 2015) Appendix I of the Review will be adhered to.

## **2.3 Project**

### **2.3.1 Support for the proposal**

#### **Submission number(s)**

(017, 018, 020, 026)

#### **Matter**

The following support was offered for parts of the proposal:

- Two submissions (020, 026) support the additional Essex Street / Epping Road pedestrian crossings proposed
- One submission (017) supports the closure of the right turn from Langston Place onto Epping Road (westbound)
- One submission (018) supports the provision of two dedicated right hand turn lanes from Essex into Epping Road
- One submission (026) supports the removal of right turns from Epping Road onto Essex Street.

### **Response**

Roads and Maritime acknowledges the community's support for the proposal.

## 2.3.2 Justification for the proposal

### *Submission number(s)*

(010, 015, 017, 019, 020, 026, 033)

### *Matter*

In summary, the respondent(s) were concerned that the project was not justified as it did not remove through traffic from the centre of Epping, was not in the interest of local residents and therefore did not meet project objectives.

### *Response*

Table 2.4 in section 2.4 of the review of environmental factors analyses the proposal against the seven project objectives. Six of the objectives are met in full, with improvements to pedestrian facilities improved partially with new facilities at the Essex Street intersection.

Section 5.1 of the Traffic Impact Assessment (GHD 2015) provided in Appendix C of the review of environmental factors assesses the impacts on local roads and access. This includes the traffic impacts of diverted traffic from the proposal resulting from the proposed right turn restrictions and the introduction of the central median along Epping Road between Blaxland Road and Essex Street. The assessment includes traffic associated with planned future development within the Epping Urban Activation Precinct. The traffic impact assessment has been developed in accordance with the recommended short-term to medium-term (2026) infrastructure improvements detailed in the Epping Town Centre Transport Study Outcomes Report (Halcrow 2011). The increase in traffic generated from this future development has been accounted for in the concept design for this proposal. The review of environmental factors has therefore considered the existing and future local community.

The benefits of this proposal both, before and after the construction of the future Epping Road rail overpass lane, are demonstrated in Appendix C of the review of environmental factors. Roads and Maritime acknowledges that the future Epping Road rail overpass lane extension will be required before the full traffic efficiency benefits of the additional lane on Epping Road westbound are realised.

## 2.3.3 Cost of the proposal

### *Submission number(s)*

(010, 015, 017, 019, 020, 026, 033)

### *Matter*

In summary, the respondent(s) raised the following concerns that the project was not justified due to:

- The cost of the project is not justified
- The cost of the Epping Road new third westbound lane is not justified and this money should be spent on other public services.

## **Response**

Section 2.1 of the review of environmental factors details the strategic need and justification for the project. The Department of Planning and Environment, and Hornsby and Parramatta councils are planning for continued growth and development in and around the Epping town centre. The continued growth and development of the Epping town centre, as proposed by the Epping Town Centre Study (JBA Planning, 2010 and 2011) and the planning for the Epping town centre priority precinct increases in residential density and employment growth in the Epping town centre.

The study also identified a number of key issues associated with the existing road network in the vicinity of the centre, and identified the main improvements required. The proposal is needed to improve traffic flows. The proposal fulfils the NSW Government commitment to address short-term and medium term regional traffic growth within the Epping town precinct. It will also cater for the 80 per cent of Epping town through traffic as Sydney continues to grow and car use remains high. In the 2012/13 State budget, the NSW Government announced funding for the road and intersection improvements identified by the Epping Town Centre Study to support the predicted growth in this area.

### **2.3.4 Assessment methodology**

#### **Submission number(s)**

(021)

#### **Matter**

In summary, the respondent(s) raised the following matters about the methodology of the review of environmental factors assessment process. These are:

- The adverse impact on environmental issues of which a number of risk factors have been stated, but have not been fully investigated. The short-term and long-term impact of the proposal is neither 'beneficial' nor 'temporary'. There is no justification for the assessment that 'on balance' the risks are acceptable: there are too many unknowns.

#### **Response**

The review of environmental factors involved detailed quantitative specialist assessments of the key potential environmental issues (traffic, transport and access; noise and vibration; heritage etc) which involved a full assessment of all the potential impacts of the proposal, supported by field surveys, sampling, modelling and consultation with relevant agencies. Each assessment was undertaken consistent with the relevant guidelines for such assessment. The relevant guidelines for each assessment are listed within section 6 of the review of environmental factors and in the technical reports included in the review of environmental factors appendices.

The description of the proposed works and associated environmental impacts has been carried out in context of clause 228 of the Environmental Planning and Assessment Regulation 2000, the Threatened Species Conservation Act 1995 (TSC Act), the Fisheries Management Act 1994 (FM Act), and the Australian Government's Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). In doing so, the review of environmental factors helps to fulfil the requirements of section 111 of the EP&A Act. Section 111 requires Roads and Maritime to examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity. The review of environmental factors establishes the mitigation and management measures which would be implemented to minimise impacts which may occur as a result of the scheme and take account of the potential risks.

### 2.3.5 Transport assessment methodology

#### *Submission number(s)*

(004, 016, 034, 035)

#### *Matter*

In summary, the respondent(s) raised the following issues relating to the methodology of the review of environmental factors assessment process. These comprise:

- Concern that the traffic assessment is not adequate as it does not include the design year 2036
- Concerns that traffic data relating to the increase in development in Epping, is not accurate.

#### *Response*

A number of studies have previously been carried out that have resulted in the identification for the need of transport improvements on Epping Road. These are summarised in section 2.1.2 and Appendix C of the review of environmental factors. These include a Transport Study Outcomes Report (Halcrow 2011) which was carried out to assess traffic associated with planned future development within the Epping urban activation precinct, in addition to background traffic growth for the area provided from the Strategic Traffic Model (Roads and Maritime).

Traffic modelling has taken into consideration increased density in the area as part of the approved urban activation precinct rezoning. The methodology and scope of the traffic and transport impact assessment is provided in Appendix C of the review of environmental factors. The scope of the impact assessment was to assess the design year 2026, which is 10 years post opening of the proposal. The assessment also accounts for background traffic growth on the arterial road network. Traffic modelling carried out as part of the review of environmental factors indicates travel times for key movements will improve as a result of this proposal.

### 2.3.6 Alternatives

#### *Submission number(s)*

(020, 022)

#### *Matter*

In summary, the respondent(s) suggested alternatives being:

- Terry's Creek to Carlingford Road tunnel option
- More equitable tolling regime on the M2
- Can closure of right turn movements only be for peak period traffic?
- Reversible lanes to accommodate peak period traffic flows.

#### *Response*

The proposal has been developed to address the needs identified in section 2.1.1 of the review of environmental factors, and the objectives described in section 2.3. The strategic context to the proposal is considered in section 2.1.2 of the review of environmental factors. Alternatives to the proposal that were considered are described in section 2.4. The alternatives proposed in the submissions are outside the scope of the current proposal.

## 2.4 Consultation

### 2.4.1 Public information sessions

#### *Submission number(s)*

(034, 035)

#### *Matter*

In summary, the respondent(s) raised concerns that the public information session and the representatives only provided details of the Epping Road widening proposal and did not give details of other projects planned for the wider area. One suggestion requested a comprehensive master plan of Epping traffic movements to be provided.

#### *Response*

The public information sessions held on 3 and 5 December 2015 were concerned only with the Epping Road westbound widening proposal. Consultation on other future projects in the Epping area did not form part of the scope of consultation.

Comprehensive transport planning has previously been undertaken and documented. Reports include:

- Transport for NSW (December 2012) NSW Long Term Transport Master Plan
- Traffic associated with planned future development within the Epping Urban Activation Precinct was reported in the Epping Town Centre Transport Study Outcomes Report (Halcrow 2011).

Roads and Maritime acknowledges the community's request for further consultation on projects in the Epping area, and will forward this request to UrbanGrowth NSW and Transport for NSW.

### 2.4.2 Previous consultation

#### *Submission number(s)*

(024)

#### *Matter*

In summary, the respondent's comment was:

- Concern about previous consultation activities and how the matters raised have been addressed.

#### *Response*

Section 5 of the Review summarises the stakeholder and community consultation program carried out for the proposal. Stakeholders who provided feedback during a previous consultation event were responded to individually and provided with details of how to access the Consultation Report (GHD 2015) which contained responses to comments. This consultation report was also included in Appendix N of the Review.

For more information about the project, please contact Roads and Maritime project team or our delivery partner GHD: Phone 1800 810 680, email [community.input@ghd.com](mailto:community.input@ghd.com) or visit [rms.nsw.gov.au/projects](http://rms.nsw.gov.au/projects)

## 2.5 Traffic and access

### 2.5.1 Right turn from Langston Place onto Epping Road

#### *Submission number(s)*

(002, 004, 005, 006, 007, 010, 011, 012, 013, 015, 016, 018, 019, 021, 024, 025, 026, 027, 028, 030, 033, 034)

#### *Matter*

In summary, the respondent(s) raised concerns about the proposed closure of the right turn from Langston Place onto Epping Road including:

- Closure will restrict access/egress from north Epping to one point (Essex Street) and inhibit local access
- Closure only helps with through traffic not local traffic
- Closure results in a long detour through already congested areas and puts all traffic from North Epping going westbound through Essex Street.

#### *Response*

#### **Need for the proposed closure of the right turn from Langston Place into Epping Road (westbound)**

It is proposed to remove the right turn from Langston Place onto Epping Road for all periods of the day. This proposal has been developed based on the recommended short-term to medium-term (2026) infrastructure improvements detailed in the Epping Town Centre Transport Study Outcomes Report (Halcrow 2011). The proposal aims to ease congestion, improve safety and allow for future growth on Epping Road as part of the Epping Town Centre Precinct. The proposal aims to support significant traffic growth as a result of increased residential and commercial development.

Removing the right turn from Langston Place onto Epping Road will reduce the number of competing traffic movements at the Epping Road/ Blaxland Road/ Langston Place intersection. This will allow additional traffic light phasing at the intersection for other traffic movements, which would improve efficiency of the intersection and reduce congestion on Epping Road.

Vehicles turning right from Langston Place onto Epping Road would be required to travel eastbound along Pembroke Street, turn right into Essex Street and turn right onto Epping Road westbound at the traffic lights. The proposal includes improvements to the Epping Road and Essex Street intersection. Traffic flow would be improved by providing two dedicated right turn lanes in Essex Street onto Epping Road, the additional Epping Road westbound traffic lane from Essex Street to Blaxland Road and the reduced number of competing traffic movements at the Epping Road and Essex Street.

The removal of all right turn movements within the proposal have been carefully considered both in terms of access and safety.



Roads and Maritime appreciates that some residents and road users would have to travel longer distances to and from their properties. However, the proposed removal of the right turn from Langston Place will benefit the community as a whole, by improving safety and easing traffic congestion on Epping Road.

### **Alternative route for traffic**

Residents north of Epping Road and in North Epping will be able to access Epping via a dual right turn from Essex Street onto Epping Road (westbound) and dedicated left turn from Essex Street onto Epping Road (eastbound). Vehicles will still be able to turn left out of Langston Place onto Epping Road.

The proposed detour from North Epping to Epping Road at the railway bridge would be via Norfolk Road, Essex Street and Epping Road instead of travelling via Norfolk Road, Oxford Street and Langston Place. This detour would result in an additional travel distance of about 290 metres compared to the travel route via Norfolk Road, Oxford Street and Langston Place. Access from properties along the southern most section of Oxford Street between Pembroke Street and Chester Street would have a longer diversion, via Pembroke Street, Essex Street and Epping Road.

Traffic modelling of the study area road network indicates that the forecast travel time between North Epping and Blaxland Road would be similar for the proposed improvement, when compared to not implementing the proposed changes. Refer to Section 5.6 of the Traffic and Transport Impact Assessment (Appendix C of the review of environmental factors).

## **2.5.2 Emergency access**

### ***Submission number(s)***

(012, 033, 034)

### ***Matter***

In summary, the respondent(s) raised the following concerns with the proposal:

- Concern that vehicles may not be able to access/egress north Epping in an emergency
- Emergency access vehicles will not be able to access the North Epping area quickly.

### ***Response***

Consultation with relevant agencies including emergency services was carried out during development of the proposal. No issues were raised during this consultation. In the event of an emergency, the traffic lights can be managed by Roads and Maritime and the NSW Police.

### 2.5.3 Right turn from Essex Street (south) into Epping Road (westbound)

#### *Submission number(s)*

(002)

#### *Matter*

In summary, the respondent(s) raised the following issues:

- Traffic lights on Essex Street turning right onto Epping Road westbound should be altered to facilitate flow out of North Epping.

#### *Response*

Traffic modelling of the Essex Street/Epping Road intersection (refer to Appendix C of the review of environmental factors) shows that while queuing would be expected to develop along Essex Street towards the roundabout with Pembroke Street during peak periods, this queuing is expected to clear every cycle.

The traffic light timings at the intersections are able to be changed to respond to traffic demand. In addition, the intersections along Epping Road are coordinated to allow the most efficient traffic light operations.

### 2.5.4 Essex Street intersection

#### *Submission number(s)*

(004, 009, 018, 020, 026, 030)

#### *Matter*

In summary, the respondent(s) were concerned there would not be enough capacity on Essex Street to relieve congestion and that the proposal would force additional traffic through the intersection with Epping Road, which they said was already congested. In addition, the extra pedestrian crossing time would increase congestion at this intersection.

#### *Response*

As noted in section 6.1 of the review of environmental factors the proposal has been developed in accordance with the recommended short-term to medium-term (2026) infrastructure improvements detailed in the Epping Town Centre Transport Study Outcomes Report (July 2011). Section 5.6 of the Traffic and Transport Impact Assessment (Appendix C of the review of environmental factors) describes the traffic modelling carried out.

The proposed left turn bay would provide additional capacity for traffic flow at the intersection. While queuing is expected to develop along Essex Street towards the roundabout with Pembroke Street during peak periods, this queuing is expected to clear every cycle. However, there would be some impact to local access, including additional travel distance from Epping Station to Beecroft Road. There would be improvements to the Essex Street intersection with Epping Road including two right turn bays for traffic turning onto Epping Road westbound.

As part of the proposal the left turn on red after stopping, would be reconsidered during detailed design as this may conflict with the proposed pedestrian crossing.

Additional measures are provided in Table 3 1 detailing the monitoring of queuing along Essex Street by Roads and Maritime (measures 8 and 14) following completion of the proposed improvement. This monitoring may result in consideration to extending parking restrictions and extending line marking for two lanes along Essex Street to assist with vehicle storage capacity at the intersection. This combined with traffic light phasing will allow a greater volume of vehicles to turn right from Essex Street onto Epping Road westbound. The traffic light phasing at the Essex Street and Epping Road intersection will also be coordinated with the Langston Place/Epping Road/Blaxland Road intersection to optimise the performance of these intersections and reduce delays.

Traffic modelling carried out as part of the review of environmental factors indicates that travel times for key movements will improve as a result of this proposal, including along Epping Road and Beacroft Road between Essex Street and Carlingford Road. Minimal changes are expected in travel times from North Epping to Beacroft Road. This is described in section 5.6 of the Traffic and Transport Impact Assessment (Appendix C of the review of environmental factors).

## **2.5.5 Pembroke Street roundabout**

### ***Submission number(s)***

(004, 024)

### ***Matter***

In summary, the respondent(s) raised concern the proposal would cause queuing at the Pembroke Street and Essex Street roundabout and that traffic queuing near the school would worsen.

### ***Response***

The removal of all right turn movements within the proposal site have been carefully considered both in terms of access and safety. The outcomes of the traffic assessment and pedestrian study are provided in Appendix C of the review of environmental factors. This considers the impact of the changes on Epping Road and the wider local road network.

The proposal will divert traffic currently turning right from Langston Place to turn right into Epping Road from Essex Street instead. The proposal includes an improvement to the Essex Street intersection with Epping Road to provide double right turn lanes from Essex Street. Removing the right turn from Langston Place onto Epping Road will also reduce the number of competing traffic movements at the Epping Road/ Blaxland Road/ Langston Place intersection. This will allow additional traffic light phasing at the intersection for other traffic movements, which would improve efficiency of the intersection and reduce congestion on Epping Road.

The traffic modelling of the Essex Street and Epping Road intersection shows that while queuing is expected to develop along Essex Street toward the roundabout with Pembroke Street during peak periods, this queuing is expected to clear every cycle.

A pedestrian access study was carried out as part of the Review to address expected increases in traffic along Essex Street and Pembroke Street. This included providing pedestrian crossings on all approaches to the Essex Street and Epping Road intersection as part of the proposal. This will allow pedestrians to cross on all four sides of the intersection safely. Refer to Section 5.4 of the Traffic and Transport Impact Assessment (Appendix C of the review of environmental factors).

## 2.5.65 Right turns from Forest Grove and Smith Street

### *Submission number(s)*

(026)

### *Matter*

In summary, the respondent queried the ability of restrictions to right turns out of Forest Grove or Smith Street to improve traffic flow.

### *Response*

The number of vehicles turning right out of the Forest Grove and Smith Street is low. Removing the right turns into Forest Grove and Smith Street will improve traffic flow along Epping Road and reduce the likelihood of crashes by preventing vehicles cutting across the main flow of traffic.

## 2.5.7 Pembroke Street and Essex Street intersections

### *Submission number(s)*

(029)

### *Matter*

In summary, the respondent requested that traffic light synchronisation takes account of off peak periods to reduce unnecessary delays.

### *Response*

The traffic light timings at the intersection are change to respond to traffic demand. In addition, the intersections along Epping Road are coordinated to allow the most efficient traffic light operation.

## 2.5.8 Blaxland Road intersection

### *Submission number(s)*

(026)

### *Matter*

In summary, the respondent raised concerns that the proposal does not alleviate traffic congestion at the intersection of Epping Road and Blaxland Road.

### *Response*

Removing the right turn from Langston Place onto Epping Road will reduce the number of competing traffic movements at the Epping Road/Blaxland Road/Langston Place intersection. This will allow additional traffic light phasing at the intersection for other traffic movements, which would improve efficiency of the intersection and reduce congestion on Epping Road.

## **2.5.9 Left turn from Epping Road onto Blaxland Road**

### ***Submission number(s)***

(014, 015, 017, 018, 025, 026, 031, 034)

### ***Matter***

In summary, the respondent(s) raised concern that the new left turn from the widened Epping Road onto Blaxland Road would have little impact on traffic flow, because that left turn is not widely used. Concerns are that only two of the westbound lanes will be for through traffic traveling westbound over the bridge.

### ***Response***

This proposal has been designed to integrate with the future changes to the rail bridge. Until the project to widen the bridge is complete, the third westbound lane on Epping Road will be left only onto Blaxland Road. On completion of the bridge widening this lane will be changed to a combined through/left turn.

## **2.5.10 Norfolk Road/Pembroke Street and Essex St/Pembroke Street intersections**

### ***Submission number(s)***

(021, 034)

### ***Matter***

In summary, the respondent(s) raised the concern the proposal would impact the Norfolk Road and Pembroke Street and Essex Street and Pembroke Street intersections. Concern is these impacts have not been considered; and traffic flows will now be forced from an existing route on flat grades and controlled by roundabouts or traffic lights to a route with steep hills and uncontrolled intersections.

### ***Response***

Traffic modelling carried out as part of the review of environmental factors included the intersections along Pembroke Street and Norfolk Road. Refer to Section 5.6 of review of environmental factors.

The removal of all right turn movements within the proposal has been carefully considered both in terms of access and safety. The outcomes of the traffic assessment and a pedestrian study are provided in Appendix C of the review of environmental factors, which look at the impacts of the changes on Epping Road and the wider local road network.

## 2.5.11 Ormonde Avenue and Essex Street intersection

### *Submission number(s)*

(020)

### *Matter*

In summary, the respondent(s) requested additional traffic controls at the Essex Street and Ormonde Avenue intersection.

### *Response*

Proposals to provide signage such as 'do not queue across intersection' and other road markings would be considered as part of the detailed design stage of the project including extending the markings across the proposed left turn lane.

Roads and Maritime acknowledges the community request to include additional traffic controls at the Essex Street and Ormonde Avenue intersection. An additional management measure has been developed in response to this request (measure 8 in Table 3 1 of this report).

## 2.5.12 Provision of central medians

### *Submission number(s)*

(026)

### *Matter*

In summary, the respondent queried the benefit of the raised medians on Epping Road and Essex Street.

### *Response*

The proposed median on Epping Road will provide safer and more efficient through movements by restricting right turning movements from side street across traffic in this area. The proposed median on Essex Street will assist in providing safe and controlled turning movements at the intersection.

## 2.5.13 Parking on Essex Street

### *Submission number(s)*

(002, 003, 007, 030, 032)

### *Matter*

In summary, the respondent(s) raised concern that street parking is the main reason for traffic congestion. Respondents suggested establishing a 'clear way' or restricting parking along Essex Street.

## **Response**

The traffic modelling of the Essex Street and Epping Road intersection shows that while queuing is expected to develop along Essex Street towards the roundabout with Pembroke Street during peak periods, this queuing is expected to clear every cycle.

The removal of on-street parking on Epping Road does not form part of the scope of the current proposal. The removal of car parking along Essex Street could be considered as part of future works if this is required based on the results of monitoring.

### **2.5.14 Parking**

#### **Submission number(s)**

(009, 027)

#### **Matter**

In summary, the respondent(s) requested no restrictions on parking and provision of more parking. Confirmation of parking arrangements on Essex Street following completion of the proposal was requested.

#### **Response**

Section 6.1.3 of the review of environmental factors describes the impacts to parking during construction of the proposal.

Parking would not be permitted along the south side of Epping Road during non-clearway periods. This would reduce the availability of on-street parking by about 13 vehicle parking spaces. On-street parking would be available on Forest Grove.

Parking would not be permitted along the south side of Epping Road during non-clearway periods, during the construction phase. This would reduce the availability of on-street parking to the local community by about 13 vehicle parking spaces. There would be temporary loss of several on-street parking spaces around the Essex Street intersection during the construction phase to accommodate the work area and equipment. On-street parking would remain available on Forest Grove, Smith Street and other local roads during the construction period. No additional public parking is expected to be made available in the local area during the construction period to substitute for temporary loss of parking.

No changes to parking arrangements on Essex Street, Epping Road or any side roads are proposed once the construction of the proposal is completed. Roads and Maritime will however, monitor traffic performance post construction to identify any improvements that could be made, including parking restrictions, if required.

As noted in section 3.3.6 of the review of environmental factors, the construction workforce may use some on street parking spaces although limited parking is expected to be available at the proposal compound sites. Workers would be encouraged to use public transport to access the proposal site. Mitigation measures have been established to manage this matter (refer Table 3 1 of this report measure number 12). During operation of the proposal there would be no changes to existing street parking arrangements.

Detailed work methodologies would be determined during detailed design and construction planning, including parking arrangements for construction vehicles.

### **2.5.15 New development traffic movements**

#### ***Submission number(s)***

(027)

#### ***Matter***

In summary, the respondent requested confirmation of vehicle access arrangements for new developments on Essex Street.

#### ***Response***

The future developments within the area are subject to separate approvals, which would address impacts to parking and property access.

Car parking provision for the proposed residential and commercial developments would be provided in accordance with Council and Roads and Maritime parking standards.

### **2.5.16 Travel times**

#### ***Submission number(s)***

(021, 025, 033)

#### ***Matter***

In summary, the respondent(s) raised concerns that travel times will increase and the assessment only considers a small study area. Central east and North Epping residents would be impacted with travel times to local shopping facilities taking half an hour each way.

#### ***Response***

This proposal has been developed in accordance with the recommended short-term to medium-term (2026) infrastructure improvements detailed in the Epping Town Centre Transport Study Outcomes Report (Halcrow 2011). Traffic modelling has considered increased density in the area as part of the approved urban activation precinct. The assessment has also accounted for background traffic growth on the State road network.

Traffic modelling carried out as part of the Review indicates that travel times for key movements are generally expected improve as a result of this proposal as described in section 5.6 of the Traffic and Transport Impact Assessment (Appendix C of the review of environmental factors).



## 2.5.17 Increased traffic affecting pedestrian safety

### *Submission number(s)*

(010; 027, 034)

### *Matter*

In summary, the respondent(s) raised concerns about pedestrian safety included within the proposal:

- Concerns with safety issues for young pedestrians and the elderly as congestion increases in the area
- Traffic flows would now be forced on a route that coincides with school drop offs, increasing the risk of accidents in this area.

### *Response*

A pedestrian access study was carried out as part of the review of environmental factors to address matters relating to the expected increase in traffic along Essex Street and Pembroke Street. The study is referred to in section 5.4 and Appendix G of the traffic and transport impact assessment (Appendix C of the review of environmental factors).

A recommendation of the pedestrian access study was to provide pedestrian crossings at the traffic lights at the Essex Street and Epping Road intersection as part of the proposal. This will allow pedestrians to cross on all four sides of the intersection safely. This safety feature has been included within the proposal. No other pedestrian crossings are provided as part of this proposal.

Traffic light phasing including phasing for pedestrian crossings will be monitored by RMS post construction to determine if additional green time is required for pedestrians at the crossings within the proposal area.

## 2.5.18 Road safety

### *Submission number(s)*

(021)

### *Matter*

In summary, the respondent(s) raised concerns about road safety given the small number of crashes in the area. Submission does not support the proposals.

### *Response*

A review of environmental factors) identified that there are crash clusters within the study area, at the following locations:

- Epping Road/Langston Place/Blaxland Road intersection
- Epping Road/Smith Street and Epping Road/Forest Grove intersections
- Epping Road/Essex Street intersection.

The proposal would reduce the risk of crashes and improve safety along Epping Road and Essex Street through:

- The removal of the right turns into and out of Forest Grove by providing a new central median along Epping Road
- The removal of the right turns into and out of Smith Street by providing a new central median along Epping Road
- Banning the right turns into Essex Street from Epping Road in both directions Provision of new pedestrian crossings at the Epping Road/Essex Street intersection to allow pedestrians to safely cross each approach to the intersection.

All intersection upgrades will be designed to Austroads Standards, which considers road safety. A Road Safety Audit of the proposal will also be conducted as part of future works, prior to the designs being finalised for construction. This will include a review of the proposed pedestrian crossings at the Epping Road/Essex Street intersections.

### **2.5.19 Active transport**

#### ***Submission number(s)***

(022)

#### ***Matter***

In summary, the respondent requested dedicated bus and cycle lanes.

#### ***Response***

Providing cycle and bus lanes is outside the scope of this proposal. Providing these facilities will be addressed by relevant agencies (including UrbanGrowth NSW, Hornsby Shire Council and Roads and Maritime) as part of future planning for the precinct and the broader area.

### **2.5.20 Pedestrian facilities and safety**

#### ***Submission number(s)***

(020)

#### ***Matter***

In summary, the respondent raised concerns about pedestrian facilities included within the proposal:

- Pedestrian footpath parameters do not meet standards, negatively affecting elderly residents.

#### ***Response***

All intersection upgrades will be designed to Austroads Standards, including the pedestrian crossings. The design accords with Austroads Standard *Guide to Road Design – Part 6A: Pedestrian and Cyclist Paths* which provides guidance on the design and location of paths and crossings for safe and efficient walking.

## 2.5.21 Pedestrian safety at Pembroke Street intersection

### *Submission number(s)*

(021)

### *Matter*

In summary, the respondent raised concerns about pedestrian facilities included within the proposal:

- Pedestrian safety at the Pembroke Street/Essex Street intersection has not been addressed.

### *Response*

Traffic modelling of the proposal has indicated that the proposed network changes would result in an increase of 88 vehicles on Norfolk Road and increase of 74 vehicles on Pembroke Street during the weekday morning peak hour in 2026. This is an increase of just over one vehicle per minute on Norfolk Road and Pembroke Street on average during the weekday morning peak hour, which is considered a marginal increase in traffic along these roads.

School children will still be able to safely access Epping Public School using the existing pedestrian crossings located at Norfolk Road and Pembroke Street.

## 2.5.22 Traffic hazard

### *Submission number(s)*

(026)

### *Matter*

In summary, the respondent raised concerns about road safety:

- A pedestrian crossing on the eastern side of the Epping Road / Essex Street intersection will create a traffic hazard.

### *Response*

All intersection upgrades will be designed to Austroads Standards, which considers road safety. A Road Safety Audit of the proposal will also be conducted as part of future works, prior to the designs being finalised for construction. This will include a review of the proposed pedestrian crossings at the Epping Road/Essex Street intersections.

## 2.6 Construction

### 2.6.1 Construction period and work hours

#### *Submission number(s)*

(012, 020, 026)

#### *Matter*

In summary, the respondent(s) requested details of the proposal start date and expressed concern that the construction period will extend for 18 months.

#### *Response*

Section 3.3.3 of the review of environmental factors provides details of the construction program. The proposal is expected to start in late 2016 and would take about 18 months to complete, weather permitting.

Detailed work methodologies will be determined during detailed design and construction planning. The 18 month program is required to allow for the staging of work to reduce impact to the peak traffic flow periods. The 18 month period also includes public utility relocation which will take about three to four months at the start of work. About 50 per cent of the work will need to be completed outside of standard work hours (at night), which limits the tasks and hours that can be carried out in each work shift. This results in an extended construction period.

Notifications will be provided to local residents and businesses relating to upcoming work, including night time construction activities.

## 2.7 Climate change

### 2.7.1 Greenhouse gas emissions

#### *Submission number(s)*

(022)

#### *Matter*

In summary, the respondent raised concerns that the project would contribute to greenhouse gas emissions.

#### *Response*

Section 6.14 of the review of environmental factors considers the potential contribution of the proposal to greenhouse gas emissions. To address the challenge of climate change, Roads and Maritime has developed a Climate Change Plan as part of its Sustainability Strategy (RMS 2014). During operation, the proposal may alleviate vehicle emissions through increased efficiency of the road network, reducing congestion and travel times. A minimal amount of emissions would be generated during maintenance activities (which would be frequency and intensity dependant) and through the use of electricity for street lighting and new traffic signals. Mitigation measures described in section 6.14.2 of the review of environmental factors (measure 60 to 62 of Table 3 1

in this report) would be implemented to minimise potential impacts on climate changes and greenhouse gas generation during the construction program.

## **2.8 Landscape character and visual impact**

### **2.8.1 Urban design**

#### ***Submission number(s)***

(020)

#### ***Matter***

In summary, the respondent raised concern that property frontages altered through the proposal would not be re-established in a timely manner as the property developers would have no incentive to revegetate. Therefore to ensure visual impacts are reduced planting should be undertaken in a setback area. A public domain improvement plan should be included.

#### ***Response***

Property adjustment plans would be developed in consultation with the affected property owners. All land acquisitions would be conducted in accordance with the Roads and Maritime Land Acquisition Guide (RMS 2014) and compensation would be based on the requirements of the Land Acquisition (Just Terms) Compensation Act 1991. On completion of the construction work, all frontages would have been re-established to at least a like-for-like standard. Mitigation measures were provided in section 6.8.4 of the Review (refer to measure 43 to 45 of Table 3 1 in this report) that specify:

- Where visually important vegetation is removed, revegetation would occur where it is safe and practicable to do so
- Ensure the design of the proposal is consistent with the Roads and Maritime Services Urban Design Policy Beyond the Pavement (RMS 2010)
- New plantings along the shared path or footpath would be selected and positioned such that they do not present safety hazards and reduce casual surveillance from the road and adjoining properties.

Roads and Maritime Urban Design Policy Beyond the Pavement (RMS 2010) specifies a post-completion urban design review is carried out as part of the proposal. This will involve comparing the urban design commitments described in the review of environmental factors to the final built outcome. These commitments would be tracked through the stages of the implementation phase and reported in a post-completion urban design report would be signed off by the project implementation manager to ensure that the review is correct and balanced. This process ensures that the quality of a streetscape would be maintained after completion of the project.

### **2.8.2 Urban design images**

#### ***Submission number(s)***

(020)

#### ***Matter***

In summary, the respondent raised concern that a number of images provided in the review of environmental factors misrepresent the colour and form of the vegetation on Epping Road.

## ***Response***

The images shown in the landscape character and visual impact section (section 6.8) of the Review comprise photographs and two future visualisations based on photographs of the study area. These are an accurate representation of the vegetation which currently exists within the streetscape during the season the photographs were taken, and in the natural light available on the day of the site visit.

It should be noted that the images provided in the review of environmental factors are there to provide information to the reader. The environmental assessment and the urban design of the proposal would be based on the experience of specialist landscape architects/designers who have visited the site and on the existing streetscape, including type of landscaping, natural patterns and physical continuity of the study area and not the photographs provided for information.

## **2.9 Cumulative impacts**

### **2.9.1 Construction and traffic impacts**

#### ***Submission number(s)***

(012)

#### ***Matter***

In summary, the respondent raised concerns about the impact from cumulative traffic and construction activities from the multiple residential construction works.

#### ***Response***

The scope of the traffic assessment includes traffic associated with planned future development within the Epping Urban Activation Precinct has been developed in accordance with the recommended short-term to medium-term (2026) infrastructure improvements detailed in the Epping Town Centre Transport Study Outcomes Report (Halcrow 2011). Therefore the increase in traffic generated from this future development has been accounted for in the concept design for this proposal.

Detailed work methodologies would be determined during detailed design and construction planning, including parking arrangements for construction vehicles.

### **2.9.2 Traffic impacts**

#### ***Submission number(s)***

(015)

#### ***Matter***

In summary, the respondent raised concern about new developments increasing traffic flow in Essex Street.

## **Response**

Section 6.15 of the review of environmental factors considers cumulative effects of the proposed scheme. In addition the traffic impact assessment (section 6.1 and Appendix C of the review of environmental factors) has incorporated traffic increases associated with planned future development within the Epping urban activation precinct (now called the Priority Precincts Program) within the traffic assessment. Therefore the increase in traffic generated from this future development has been accounted for in the concept design for this proposal.

Section 5.1 of the Traffic Impact Assessment provided in Appendix C of the review of environmental factors discusses the impact on local roads and access. This includes the traffic impact in terms of diverted traffic from the introduction of the central median along Epping Road between Blaxland Road and Essex Street. The review of environmental factors has therefore considered the existing and future local community.

### **2.9.3 Urban amenity**

#### **Submission number(s)**

(020)

#### **Matter**

In summary, the respondent raised concern about the cumulative impact of the proposal and other local developments negatively impacting urban amenity for existing residents.

#### **Response**

Roads and Maritime is required under Clause 228(2) of the EP&A Act to take into account potential cumulative impacts as a result of a proposal. Section 6.15 of the review of environmental factors considers the cumulative effects of the proposal in relation to other major and local development projects. Potential cumulative impacts may occur as a result of construction activities occurring simultaneously with other projects and from the operation of the completed proposal.

The traffic impact assessment (section 6.1 and Appendix C of the review of environmental factors) has incorporated traffic increases associated with planned future development within the Epping urban activation precinct (now called the Priority Precincts program) (future horizon year 2026) within the traffic assessment. Therefore the increase in traffic generated from this future development has been accounted for in the concept design for this proposal.

Mitigation measures to minimise cumulative impacts from the proposal and other developments have been provided in section 15.2 of the review of environmental factors (refer to measure 63 to 65 of Table 3 1 in this report) and include:

- The construction environmental management plan would be revised to consider potential cumulative impacts from surrounding development activities as they become known
- A detailed traffic management plan would be prepared in accordance with Traffic Control at Work Sites (RTA 2010) and Specification G10 - Control of Traffic. The plan would be approved by Roads and Maritime before implementation to provide a comprehensive and objective approach to minimise any potential impacts on road network operations and safe access during construction
- The traffic management plan would be prepared in consultation with Transport for NSW, the Transport Management Centre and Hornsby Shire Council.



Other development within the study area will be subject to local development controls and assessed under separate approval processes.

## **2.10 Out of project scope**

### **2.10.1 Epping Road bridge widening**

#### ***Submission number(s)***

(008, 012, 013, 018, 019, 022, 025, 026, 030, 031, 033, 034, 035; 036)

#### ***Matter***

In summary, the respondent(s) raised concern about improvements to the rail bridge that the two lanes on the bridge will still be the pinch point for congestion.

#### ***Response***

Improvements to the Epping Road rail bridge do not form part of this proposal. However, it does form part of the Epping town centre urban activation precinct plan (now called the Priority Precincts Program). Widening to the southern side of the bridge to provide an additional westbound lane is a separate project currently being developed by Roads and Maritime. This proposal has been designed to integrate with the future changes to the rail bridge.

### **2.10.2 Carlingford Road/Beecroft Road intersection**

#### ***Submission number(s)***

(008, 023, 034)

#### ***Matter description***

In summary, the respondent(s) raised concerns about improvements to Carlingford Road and Beecroft Road intersection.

#### ***Response***

Changes to the Carlingford Road and Beecroft Road intersection do not form part of this proposal. Road and Maritime is currently progressing a separate project to improve this intersection. Further details can be found on the Roads and Maritime projects website [rms.nsw.gov.au](http://rms.nsw.gov.au)

## 2.10.3 Other projects

### *Submission number(s)*

(002, 016, 022, 026, 033, 035)

### *Matter*

In summary, the respondent(s) raised matter, which are outside the scope of this proposal:

- Lack of access to the M2 and concerns with the arrangements with toll companies
- Retail provisions and associated parking in the area
- The plans for Epping Town Centre
- Insufficient parking at the train station
- Improved facilities at Epping station
- Commuter parking options in the area
- Provision of traffic light countdowns
- Changes to traffic lights at the Epping Road/ Pembroke Road intersection
- Impact on local residents of the Epping urban activation precinct
- Changes to Crandon Road intersection
- Only one pedestrian crossing northbound/southbound at Langston Place intersection. Suggestion for an overhead crossing or underpass.

### *Response*

These matters are outside the scope of this project and are therefore not considered within this proposal.

Further information relating to changes to local facilities and plans about the Epping urban activation precinct (now called the Priority Precincts Program) can be found on UrbanGrowth's website at: [urbangrowth.nsw.gov.au](http://urbangrowth.nsw.gov.au)

Information about parking arrangements for local shops or the train station can be requested from Council.

### 3 Environmental management

The Review for the proposed Epping Road widening between Essex Street and Blaxland Road at Epping identified the framework for environmental management, including management and mitigation measures that would be adopted to avoid or reduce environmental impacts (section 6 of the review of environmental factors).

After consideration of the matters raised in the public submissions and changes to the proposal, the management and mitigation measures have been revised, and some additions have been made to reduce the potential environmental impacts of the proposal..

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

#### 3.1 Environmental management plans

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

A Project Environmental Management Plan (PEMP) and a Contractors Environmental Management Plan (CEMP) will be prepared to describe safeguards and management measures identified. These plans will provide a framework for establishing how these measures will be implemented and who would be responsible for their implementation.

The plans would be prepared before construction of the proposal and must be reviewed and certified by Roads and Maritime's Environment Officer, Sydney Region, before the start of any on-site work. The construction environmental management plan would be a working document, subject to ongoing change and updated as necessary to respond to specific requirements. The construction environmental management plan and project environmental management plan would be developed in accordance with the specifications set out in the *RTA QA Specification G36 – Environmental Protection (Management System)*, *RTA QA Specification G38 – Soil and Water Management (Soil and Water Plan)* and *RTA QA Specification G40 – Clearing and Grubbing*.

#### 3.2 Summary of safeguards and management measures

Environmental safeguards outlined in this document would be incorporated into the detailed design phase of the proposal and during construction and operation of the proposal, should it proceed. These safeguards would minimise any potential adverse impacts arising from the proposed works on the surrounding environment. The safeguards and management measures are summarised in Table 3 1.

Changes and additions made to those previously outlined in the review of environmental factors. are recorded in **blue and bold**.

**Table 3.1: Summary of site specific environmental safeguards.**

| No. | Impact             | Environmental safeguards   | Responsibility                                   | Timing   |
|-----|--------------------|--|--|--|
| 1.  | General            | <p>All environmental safeguards must be incorporated within the following:</p> <ul style="list-style-type: none"> <li>• Project environmental management plan</li> <li>• Detailed design</li> <li>• Contract specifications for the proposal</li> <li>• Contractor's environmental management plan (CEMP)</li> </ul>   | Project manager                                  | Pre-construction                                 |
| 2.  | General            | <p>A risk assessment has been/ must be carried out on the proposal in accordance with project pack and risk assessment procedures to determine an audit and inspection program for the works. The recommendations of the risk assessment are to be implemented.</p> <p>A review of the risk assessment must be undertaken after the initial audit or inspection to evaluate if the level of risk chosen for the project is appropriate.</p> <p>Any work resulting from the proposal and as covered by the RReview may be subject to environmental audit(s) and/or inspection(s) at any time during their duration.</p> | Project manager and regional environmental staff | <p>Pre-construction</p> <p>After first audit</p> |
| 3.  | General            | <p>The environmental contract specification must be forwarded to the Roads and Maritime Environment Manager for review at least 10 working days prior to the tender stage.</p> <p>A contractual hold point must be maintained until the CEMP is reviewed by the Roads and Maritime Environment Manager.</p>  | Project manager                                  | Pre-construction                                 |
| 4.  | General            | The Project Manager must notify the Roads and Maritime Environment Officer at least five working days prior to work commencing.  | Project manager                                  | Pre-construction                                 |
| 5.  | General            | All businesses and residences likely to be affected by the proposed works must be notified at least five working days prior to the commencement of the proposed activities.  | Project manager                                  | Pre-construction                                 |
| 6.  | General            | Environmental awareness training must be provided, by the contractor, to all field personnel and subcontractors.   | Contractor                                       | Pre-construction and construction                |
| 7.  | Traffic and access | Residents and businesses would be notified of any specific impacts to property   | Roads and Maritime                               | Detailed design                                  |

| No. | Impact             | Environmental safeguards  | Responsibility                                 | Timing                            |
|-----|--------------------|---|--|-----------------------------------|
|     |                    | access and arrangements required during construction during detailed design.  |  |                                   |
| 8.  | Traffic and access | <b>Proposals to provide signage such as ‘do not queue across intersection’ and other road markings would be considered as part of the detailed design stage including extending the markings across the proposed left turn lane.</b>  | Construction contractor                        | Detailed design                   |
| 9.  | Traffic and access | <p>A detailed traffic management plan would be prepared in accordance with <i>Traffic Control at Work Sites</i> (RTA, 2010) and Specification G10 - <i>Control of Traffic</i>. The plan would be approved by Roads and Maritime before implementation to provide a comprehensive and objective approach to minimise any potential impacts on road network operations during construction.</p> <p>The traffic management plan would include measures such as:</p> <ul style="list-style-type: none"> <li>• Safe access points to work areas from the adjacent road network</li> <li>• Safety barriers where necessary</li> <li>• Temporary speed restrictions when necessary</li> <li>• Maintaining adequate sight distance</li> <li>• Displaying prominent warning signage</li> <li>• Minimise the use of local roads by construction vehicles</li> </ul> <p>The plan would be reviewed when complaints are received.</p> | Construction contractor                        | Pre-construction                  |
| 10. | Traffic and access | <p>Consultation would be undertaken with local bus operators before and during construction.</p> <p>The community would be kept informed about construction through advertisements in the local media and by prominently placed advisory notices or variable message signs.</p>   | Roads and Maritime                             | Pre-construction and construction |
| 11. | Traffic and access | Traffic control would be provided to manage and regulate traffic movements during construction. For example, construction and delivery vehicles entering or leaving the site compound and/or stockpile sites would use arterial roads. These movements would be restricted to non-peak traffic periods.   | Construction contractor                        | Construction                      |
| 12. | Traffic and access | <p>Property access would be maintained at all times, where practicable.</p> <p>Where changes to access arrangements are necessary, Roads and Maritime would advise owners and tenants and consult with them in advance regarding</p>  | Construction contractor and Roads and Maritime | Construction                      |

| No. | Impact              | Environmental safeguards  | Responsibility          | Timing                            |
|-----|---------------------|---|-------------------------|-----------------------------------|
|     |                     | <p>alternate access arrangements.</p> <p>Construction workers would be advised to use public transport since there are limited parking spaces at the potential compound sites.</p> <p>Workers are to be advised on suitable alternative parking locations including the eastern side of Forest Park, along Forest Grove, or on the southern side of Forest Grove.</p>   |                         |                                   |
| 13. | Traffic and access  | Right turn ban signs would be clearly displayed at Langston Place, Smith Street and Forest Grove.   | Roads and Maritime      | Operation                         |
| 14. | Traffic and access  | <b>Roads and Maritime will monitor the queuing along Essex Street following completion of the proposed upgrade. This monitoring may result in consideration to extending parking restrictions and extending line marking for two lanes along Essex Street to assist with vehicle storage capacity at the intersection. The removal of car parking along Essex Street could be considered as part of future works if this is required based on the results of monitoring.</b>  | Roads and Maritime      | Operation                         |
| 15. | Noise and vibration | Detailed design would consider at-property treatments for sensitive receivers predicted to exceed the <i>Noise Mitigation Guideline</i> (RMS 2014).   | Construction contractor | Pre-construction                  |
| 16. | Noise and vibration | <p>A construction noise and vibration management plan would be prepared as part of the construction environmental management plan. This plan would include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• A map indicating the locations of sensitive receivers including residential properties</li> <li>• Management measures to minimise the potential noise impacts from the quantitative noise assessment and for potential works outside of standard working hours (including implementation of Interim Construction Noise Guidelines (DECC 2009))</li> <li>• A risk assessment to determine potential risk for activities likely to affect receivers (for activities undertaken during and outside of standard working hours)</li> <li>• Mitigation measures to avoid noise and vibration impacts during construction activities including those associated with truck movements</li> <li>• A process for assessing the performance of the implemented mitigation measures</li> <li>• A process for documenting and resolving issues and complaints</li> </ul> | Construction contractor | Pre-construction and construction |

| No. | Impact              | Environmental safeguards   | Responsibility          | Timing                            |
|-----|---------------------|--|-------------------------|-----------------------------------|
|     |                     | <ul style="list-style-type: none"> <li>• A process for updating the plan when activities affecting construction noise and vibration change</li> <li>• Identify in toolbox talks where noise and vibration management is required</li> </ul>  |                         |                                   |
| 17. | Noise and vibration | <p>An out of hours procedure would be prepared and include as a minimum:</p> <ul style="list-style-type: none"> <li>• Background levels for noise criteria in accordance with the Interim Construction Noise Guideline (DECC 2009)</li> <li>• Locations of the works</li> <li>• Locations of sensitive receivers</li> <li>• Predicted noise levels</li> <li>• Communications plan</li> </ul> <p>Management measures where works are unable to comply with <i>Interim Construction Noise Guideline</i> (DECC 2009) and the <i>Environmental Noise Management Manual Practice fact sheet No. 2- Noise management and Night Works</i>. (RTA 2001a).</p> | Construction contractor | Pre-construction and construction |
| 18. | Noise and vibration | <p>Where the noise levels are predicted to exceed construction noise management levels after implementation of the general work practices, additional mitigation measures should be considered where feasible and reasonable. Measures may include:</p> <ul style="list-style-type: none"> <li>• Consultation / specific Notifications</li> <li>• Monitoring</li> <li>• Alternative accommodation</li> </ul>   | Construction contractor | Pre-construction and construction |
| 19. | Noise and vibration | <p>Construction compounds would be laid out to maximise the distance of noise sources and loading areas from residences with solid structures (sheds etc) placed between residences and noise sources, where possible.</p>   | Construction contractor | Pre-construction and construction |
| 20. | Noise and vibration | <p>All equipment would be selected to minimise noise emissions. Equipment would be fitted with appropriate silencers and would be appropriately maintained to ensure optimum running conditions with periodic monitoring.</p> <p>Noise-emitting plant would be directed away from sensitive receivers where possible.</p> <p>Traffic flow, parking and loading and unloading areas would be planned to minimise reversing movements within the proposal site.</p>  | Construction contractor | Construction                      |

| No. | Impact              | Environmental safeguards   | Responsibility                                 | Timing                            |
|-----|---------------------|--|--|-----------------------------------|
|     |                     | Non-tonal reversing beepers (or an equivalent mechanism) would be fitted and used on all construction vehicles and mobile plant regularly used on site.  |  |                                   |
| 21. | Noise and vibration | <p>Site inductions would be provided to train staff on ways to minimise construction noise impacts on-site.</p> <p>Responsible working practices include:</p> <ul style="list-style-type: none"> <li>• Avoid the use of outdoor radios during the night-time period</li> <li>• Avoid shouting and slamming of doors</li> <li>• Where practical, operate machines at low speed or power and switched off when not being used rather than left idling for prolonged periods</li> <li>• Minimise reversing</li> <li>• Avoid dropping materials from height and avoid metal to metal contact on material.</li> </ul>   | Construction contractor                        | Construction                      |
| 22. | Noise and vibration | <p>Where non-vibration inducing construction methods are impractical, the following principles from the <i>Assessing Vibration: A Technical Guideline</i> (DEC 2006) would be utilised to assist with minimisation of adverse reactions from the community:</p> <ul style="list-style-type: none"> <li>• Confining vibration generating operations to the least vibration sensitive part of the shift which could be when the background disturbance is highest</li> <li>• Determining an upper level for vibration impact also considering what is achievable using feasible and reasonable mitigation</li> </ul> | Construction contractor                        | Construction                      |
| 23. | Noise and vibration | <p>Compliance vibration monitoring would be undertaken when vibration generating activities occur within the structural damage buffer distances as described in DIN 4150-3 classifications.</p> <p>Building condition surveys should be undertaken when vibration generating activities occur within the structural damage buffer distances as described in DIN 4150-3 classifications.</p>  | Construction contractor                        | Construction                      |
| 24. | Noise and vibration | The local community would be contacted and informed of the proposed work, location, duration of work, and hours involved. The contact would be made a minimum five days before work starts. The <i>Environmental noise management manual</i> (RTA 2001) <i>Practice note 7</i> would be followed for road works outside normal working hours.  | Construction contractor and Roads and Maritime | Pre-construction and construction |



| No. | Impact                        | Environmental safeguards   | Responsibility          | Timing           |
|-----|-------------------------------|--|-------------------------|------------------|
| 25. | Noise and vibration           | <p>A complaints management procedure would be put in place, with a mechanism for responding to complaints.</p> <p>Attended compliance noise or vibration monitoring would be undertaken to confirm the predicted noise or vibration levels upon receipt of a complaint in accordance with the <i>Interim Construction Noise Guideline</i> (DECC 2009).</p> <ul style="list-style-type: none"> <li>• Avoid the use of equipment which generates impulsive noise</li> <li>• Avoid dropping materials from a height</li> <li>• Avoid metal-to-metal contact on equipment</li> <li>• Schedule truck movements to avoid residential streets</li> <li>• Avoid mobile plant clustering near residences and other sensitive land uses.</li> </ul>  | Construction contractor | Construction     |
| 26. | Soils, topography and geology | <p>A soil and water management plan (SWMP) will be prepared as part of the construction environmental management plan in accordance with the requirements of Roads and Maritime Services contract specification G38 prior to the commencement of construction. The SWMP will also address the following:</p> <ul style="list-style-type: none"> <li>• Roads and Maritime Services Code of Practice for Water Management, the Roads and Maritime Services' <i>Erosion and Sedimentation Procedure</i></li> <li>• The NSW <i>Soils and Construction – Managing Urban Stormwater Volume 1 “the Blue Book”</i> (Landcom 2004) and Volume 2 (DECC 2008)</li> <li>• Roads and Maritime Services Technical Guideline: <i>Temporary Stormwater Drainage for Road Construction, 2011</i></li> <li>• Roads and Maritime Services <i>Technical Guideline: Environmental Management of Construction Site Dewatering, 2011</i></li> </ul> | Construction contractor | Pre-construction |
| 27. | Soils, topography and geology | <p>The SWMP would detail the following as a minimum:</p> <ul style="list-style-type: none"> <li>• Identification of catchment and sub-catchment areas, high risk areas and sensitive areas</li> <li>• Sizing of each of the above areas and catchment</li> <li>• The likely volume of run-off from each road sub-catchment</li> <li>• Direction of flow of on-site and off-site water</li> <li>• Separation of on-site and off-site water</li> <li>• The direction of run-off and drainage points during each stage of construction</li> <li>• Dewatering plan which includes process for monitoring, flocculating and dewatering water from site (ie sediment basin and sumps)</li> <li>• A mapped plan identifying the above</li> <li>• Include progressive site specific Erosion and Sedimentation Control Plans</li> </ul>   | Construction contractor | Pre-construction |

| No. | Impact                        | Environmental safeguards  | Responsibility          | Timing                            |
|-----|-------------------------------|---|-------------------------|-----------------------------------|
|     |                               | <p>(ESCPs). The ESCP is to be updated at least fortnightly</p> <ul style="list-style-type: none"> <li>• A process to routinely monitor the BOM weather forecast</li> <li>• Preparation of a wet weather (rain event) plan which includes a process for monitoring potential wet weather and identification of controls to be implemented in the event of wet weather. These controls are to be shown on the ESCPs</li> <li>• Provision of an inspection and maintenance schedule for ongoing maintenance of temporary and permanent erosion and sedimentation controls</li> </ul>                                   |                         |                                   |
| 28. | Soils, topography and geology | A Contamination Management Plan (CMP) would be prepared in accordance with the <i>Contaminated Land Act 1997</i> and relevant EPA Guidelines. This would be reviewed by Roads and Maritime Senior Environment Officer and Roads and Maritime Land Management Specialist prior to the commencement of works.   | Construction contractor | Pre-construction                  |
| 29. | Soils, topography and geology | <p>Completion of a hazardous materials surveys and a soil contamination assessment for lead paint, asbestos following building demolition and from underground fuel storage infrastructure relating to the Auto Centre.</p> <p>Procedure would be prepared and implemented to manage any lead paint or asbestos identified following building demolition.</p>   | Construction contractor | Pre-construction and construction |
| 30. | Soils, topography and geology | Upon closure of the works compound, site assessment would be undertaken to assess the risk posed by contamination (if any) introduced during use of the works compounds and remediation undertaken as required.   | Construction contractor | Construction                      |
| 31. | Soils, topography and geology | <p>Erosion and sediment control measures would be implemented and maintained (in accordance with the Landcom/Department of Housing Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book)) to:</p> <ul style="list-style-type: none"> <li>• Prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets.</li> <li>• Reduce water velocity and capture sediment on site.</li> <li>• Minimise the amount of material transported from site to surrounding pavement surfaces.</li> <li>• Divert clean water around the site.</li> </ul> | Construction contractor | Construction                      |
| 32. | Soils, topography and geology | Erosion and sediment controls would be implemented before any construction starts and inspected regularly, particularly prior to and after a rainfall event of 10 mm or greater (including clearing of sediment from behind barriers) and records kept and provided on request. Maintenance work would be undertaken as needed.   | Construction contractor | Construction                      |

| No. | Impact  | Environmental safeguards   | Responsibility                                 | Timing                            |
|-----|---|--|--|-----------------------------------|
|     |   | <p>Site stabilisation of disturbed areas would be undertaken progressively as stages are completed.</p> <p>All stockpiles would be designed, established, operated and decommissioned in accordance with Roads and Maritime Services' <i>Stockpile Management Procedures</i> (RTA 2011).</p> <p>Controls would be implemented at exit points to minimise the tracking of soil and particulates onto pavement surfaces.</p> <p>Any material transported onto pavement surfaces would be swept and removed at the end of each working shift.</p> <p>Excess spoil not required or able to be used for backfilling would be stockpiled in a suitable location before being reused or removed from the site, and disposed of at an appropriately licensed facility.</p> <p>A fully equipped emergency spill kit would be kept on-site at all times.</p> <p>If an incident (eg spill) occurs, the Roads and Maritime's Environmental Incident Classification and Management Procedure is to be followed and the Roads and Maritime Contract Manager notified as soon as practicable.</p> <p>All staff would be inducted about incident and emergency procedures and made aware of the location of emergency spill kits.</p> <p>Machinery would be checked daily to ensure there is no oil, fuel or other liquid leaking from the machinery.</p> <p>Any fuel, oils or other liquids stored on site would be stored in an appropriately sized impervious bunded at least 120% larger than the greatest container and in an area least 50 metres away from water bodies.</p> <p>Final waste classification is required once the volumes of waste requiring offsite disposal during construction are confirmed. Waste soils should be classified in accordance with the NSW EPA <i>Waste Classification Guidelines (2014)</i>.</p> |  |                                   |
| 33. | Hydrology, water quality, flooding and drainage | Erosion, sedimentation and contamination measures would be implemented.  | Roads and Maritime and construction contractor | Pre-construction and construction |
| 34. | Hydrology, water quality, flooding and drainage | <p>All fuels, chemicals, and liquids would be stored at least 50 metres away from the existing stormwater drainage system and would be stored in an impervious bunded area within the compound site.</p> <p>The refuelling of plant and maintenance of machinery would be undertaken in</p>  | Construction contractor                        | Construction                      |

| No. | Impact                       | Environmental safeguards   | Responsibility                 | Timing                            |
|-----|------------------------------|--|--------------------------------|-----------------------------------|
|     |                              | <p>impervious bunded areas in the designated compound area.</p> <p>Vehicle wash downs and/or concrete truck washouts would be undertaken within a designated bunded area of an impervious surface or undertaken off-site.</p> <p>Low lying areas of construction formations and excavations that collect stormwater would be dewatered in accordance with the Roads and Maritime <i>Technical Guideline for Dewatering</i>.</p>  |                                |                                   |
| 35. | Biodiversity                 | <p>Biodiversity management measures would be included within the construction environmental management plan. Measures would include (but not necessarily be limited to) the following:</p> <ul style="list-style-type: none"> <li>• Fauna handling and vegetation removal would be in accordance with the Roads and Maritime Services' <i>Biodiversity Guidelines 2011</i> (RTA 2011a)</li> <li>• Trees to be retained would be protected during construction, where appropriate</li> <li>• Content of toolbox talks and records of attendance</li> <li>• Compliance with Roads and Maritime Services' <i>Biodiversity Guidelines 2011</i> (RTA 2011a).</li> </ul> | Construction contractor        | Pre-construction                  |
| 36. | Biodiversity                 | Declared noxious weeds are to be managed according to requirements under the <i>Noxious Weeds Act 1993</i> and <i>Guide 6 (Weed Management) of the RTA Biodiversity Guidelines 2011</i> .  | Construction contractor        | Pre-construction and construction |
| 37. | Biodiversity                 | <p>If unexpected threatened fauna or flora species are discovered, stop works immediately and follow the <i>RTA Unexpected Threatened Species Find Procedure in the RTA Biodiversity Guidelines 2011 – Guide 1 (Pre-clearing process)</i>.</p> <p>Erosion and sedimentation mitigation measures would be implemented to minimise any erosion and sedimentation impacts.</p>  | Construction contractor        | Construction                      |
| 38. | Aboriginal cultural heritage | In the event of an unexpected find of an Aboriginal heritage item (or suspected item), work would cease in the affected area and Roads and Maritime's Environment Officer, Sydney Region and the Roads and Maritime Aboriginal Cultural Heritage Officer, would be contacted for advice on how to proceed. The Roads and Maritime Services Standard Procedure' <i>Unexpected Heritage Finds 2015</i> would be followed in the event a potential artefact is uncovered.   | Construction contractor        | Construction                      |
| 39. | <b>Non-Aboriginal</b>        | <b>Re-instatement of suitable vegetation, including semi-mature trees and fencing comparable with the period of the conservation area. A landscape</b>   | <b>Construction Contractor</b> | <b>Detailed design and</b>        |

| No. | Impact                  | Environmental safeguards   | Responsibility          | Timing           |
|-----|-------------------------|--|-------------------------|------------------|
|     | heritage                | plan detailing revegetation, landscaping and fencing would be submitted to Council for comment.  |                         | construction     |
| 40. | Non-Aboriginal heritage | No compound would be located within the grounds of No. 38 Essex Street to avoid direct impact on the setting of the contributory dwelling, conservation area and items in the vicinity   | Construction Contractor | Construction     |
| 41. | Non-Aboriginal heritage | All property adjustments would be completed in accordance with the Land Acquisition (Just Terms Compensation) Act 1991. These negotiations would include consultation regarding potential reinstatement of the stone edging and landscaping selections<br>The stone garden edging along properties fronting Epping Road would be carefully deconstructed and the material stockpiled at the compound. This material would be kept for the life of the construction of the proposal in the event that there is scope to reuse the stone. This would be dependent on the outcome of negotiations with the property owners. | Construction Contractor | Detailed design  |
| 42. | Non-Aboriginal heritage | The landscape plan is to consider the use of semi-mature specimens if feasible within the Essex Street Conservation.   | Construction Contractor | Detailed design  |
| 43. | Non-Aboriginal heritage | If the final design of the proposal changes considerably from that currently proposed, additional assessment may be required.  | Roads and Maritime      | Detailed design  |
| 44. | Non-Aboriginal heritage | If compound D was preferred, maintain vegetation along the southern property boundary of 4 Forest Grove.   | Roads and Maritime      | Pre-construction |
| 45. | Non-Aboriginal heritage | An exception (section 139) excavation permit would be required for impacts to the area of moderate archaeological potential at the corner of Blaxland Road and Epping Road.  | Roads and Maritime      | Pre-construction |
| 46. | Non-Aboriginal heritage | A construction noise and vibration management plan would be prepared as part of the construction environmental management plan to determine what construction methods would be used in the vicinity of heritage listed items. This would include measures to minimise the likelihood of vibration impacts.<br>Vibration management would be implemented to minimise structural vibration impacts to heritage items.  | Construction Contractor | Pre-construction |
| 47. | Non-Aboriginal heritage | Any trees or shrubs removed at 38 Essex Street would be reinstated.<br>Any trees, fences, edging and gardens impacted at 4, 6, 8, 10, 12, 14, 16, 18, 20, 22 and 24 Epping Road would be reinstated if practicable at the completion of construction.<br>If any unanticipated archaeological deposits are identified within the study area during construction the Roads and Maritime Services Standard Procedure 'Unexpected Heritage Finds 2015' would be followed in the event a potential artefact is uncovered.   | Construction Contractor | Construction     |
| 48. | Landscape character and | Ensure the design of the proposal is consistent with the Roads and Maritime  | Roads and Maritime      | Detailed design  |

| No. | Impact                                 | Environmental safeguards   | Responsibility          | Timing           |
|-----|--|--|-------------------------|------------------|
|     | visual impacts                         | <p><i>Services Urban Design Policy.</i></p> <p>Permanent signage would be located in a manner that does not impede views.</p> <p>Lighting would be designed to minimise light spill into residential properties and sensitive receptors.</p>   |                         |                  |
| 49. | Landscape character and visual impacts | <p>Construction equipment, stockpiles, and other visible elements would be located away from key views to and from the identified visual receptors where feasible.</p> <p>Where this is not feasible, screening measures and practices to keep sites tidy would be implemented.</p> <p>Temporary lighting would be sited and designed to avoid light spill into residential properties and identified sensitive receptors.</p>   | Construction contractor | Construction     |
| 50. | Landscape character and visual impacts | <p>Where visually important vegetation is removed, revegetation would occur where it is safe and practicable to do so.</p> <p>New plantings would incorporate locally occurring species which reflect the landscape character zone (generally transitioning from a greater variety and informal compositions through the residential areas, to more formal and less diverse plantings through the approach to the commercial centre and around commercial uses).</p> <p>New plantings along the shared path or footpath would be selected and positioned such that they do not present safety hazards and reduce casual surveillance from the road and adjoining properties.</p> | Construction contractor | Operation        |
| 51. | Air quality                            | <p>An air quality management plan would be prepared as part of the construction environmental management plan. The plan would include but not be limited to:</p> <ul style="list-style-type: none"> <li>• A map identifying locations of sensitive receivers</li> <li>• Identification of potential risks/impacts due to the work/activities as dust generation activities</li> <li>• Management measures to minimise risk including a progressive stabilisation plan</li> <li>• A process for monitoring dust on-site and weather conditions</li> <li>• A process for altering management measures as required.</li> </ul>  | Construction contractor | Pre-construction |
| 52. | Air quality                            | Dust suppression measures would be implemented as per the air quality  | Construction contractor | Construction     |

| No. | Impact                | Environmental safeguards  | Responsibility          | Timing           |
|-----|-----------------------|---|-------------------------|------------------|
|     |                       | <p>management plan.</p> <p>Stockpiled materials would be covered, stabilised or stored in areas not subject to high wind.</p> <p>All trucks would be covered when transporting material to and from the site.</p> <p>Work activities would be reprogrammed if the mitigation measures are not adequately restricting dust generation.</p> <p>Works (including the spraying of paint and other materials) will not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely.</p> <p>Construction plant and equipment would be maintained in a good working condition in order to limit impacts on air quality.</p> <p>Plant and machinery would be turned off when not in use.</p> <p>Local residents would be advised of hours of operation and duration of work and supplied with a contact name and number for queries regarding air quality.</p> |                         |                  |
| 53. | Land use and property | No additional specific safeguards or management measures are required   |                         |                  |
| 54. | Socio-economic        | <p>Roads and Maritime would liaise and consult on an ongoing basis with landowners and tenants whose property would be acquired or leased regarding the status and timing of acquisition.</p> <p>All property valuations, lease fees and acquisition payments would be carried out in accordance with the Roads and Maritime Services' <i>Land Acquisition Information Guide</i> (2011) and the <i>Land Acquisition (Just Terms Compensation) Act 1991</i>. Property acquisition plans would be prepared for each of the properties to be acquired as part of the detailed design.</p> <p>Particular attention should be given to ensuring appropriate consultation is undertaken with any vulnerable (elderly or low income) households.</p> <p>A pedestrian safety assessment is recommended for the Pembroke Street corridor due to the increase in traffic that would occur as a result of the proposal.</p>      | Roads and Maritime      | Detailed design  |
| 55. | Socio-economic        | A complaint handling procedure and register would be included in the construction environment management plan.  | Construction contractor | Pre-construction |

| No. | Impact                            | Environmental safeguards   | Responsibility          | Timing                            |
|-----|-----------------------------------|--|-------------------------|-----------------------------------|
| 56. | Socio-economic                    | <p>Develop a project communications strategy to include:</p> <ul style="list-style-type: none"> <li>• Communication with the community with timely and relevant information to enable them to understand the likely nature, extent and duration of vibration, dust and noise impacts and access changes</li> <li>• Targeted communication with Essex Street Kindy and Christian Chinese Community Service Centre located on Essex Street in regard to timing of the most noise intensive works and in management of adjacent parking and access issues</li> <li>• Particular attention should be given to ensuring any vulnerable (elderly or low income) households are appropriately targeted</li> <li>• Communications should include roadside signage, letterbox dropped newsletters, newspaper advertisements, Roads and Maritime web based information, a complaints line, and advice to specific service providers such as community transport and seniors organisations.</li> </ul> <p>Consultation with local residents, businesses and organisations would be undertaken with regard to timing and duration of works, likely impacts on car parking and alternate routes of travel. For residents and businesses directly impacted by changes to access (in and out of their properties), Roads and Maritime would consult with owners and tenants regarding alternate access arrangements.</p> <p>Provide timely information to road users with information about changes to access including the bus stop along Epping Road. Where changes to access arrangements are necessary, Roads and Maritime would advise owners and tenants and consult with them in advance regarding alternate access arrangements to maintain safe pedestrian passage within the proposal site.</p> | Construction Contractor | Pre-construction and construction |
| 57. | Socio-economic                    | <p>Provide timely information to road users with information about changes to access or travel delays.</p> <p>Where changes to access arrangements are necessary, Roads and Maritime would advise owners and tenants and consult with them in advance regarding alternate access arrangements.</p>   | Construction Contractor | Construction                      |
| 58. | Resource use and waste management | <p>Procurement would endeavour to use materials and products with a recycled content where that material or product is cost and performance effective.</p>   | Construction contractor | Pre-construction and construction |



| No. | Impact                            | Environmental safeguards  | Responsibility                                 | Timing           |
|-----|-----------------------------------|---|--|------------------|
| 59. | Resource use and waste management | <p>A resource and waste management plan would be prepared and included in the construction environmental management plan. The plan would include the following (as a minimum):</p> <ul style="list-style-type: none"> <li>• The type, classification and volume of all materials to be generated and used on-site including identification of recyclable and non-recyclable waste in accordance with <i>Waste Classification Guidelines</i></li> <li>• Quantity and classification of excavated material generated as a result of the proposal (refer Roads and Maritime Service's <i>Waste Management Fact sheets 1-6, 2012</i>)</li> <li>• Interface strategies for cut and fill on-site to ensure re-use where possible</li> <li>• Strategies to 'avoid', 'reduce', 'reuse' and 'recycle' materials</li> <li>• Classification and disposal strategies for each type of material</li> <li>• Destinations for each resource/waste type either for on-site reuse or recycling, offsite reuse or recycling, or disposal at a licensed waste facility</li> <li>• Details of how material would be stored and treated on-site</li> <li>• Identification of available recycling facilities on and off-site</li> <li>• Identification of suitable methods and routes to transport waste</li> <li>• Procedures and disposal arrangements for unsuitable excavated material or contaminated material including asbestos waste</li> <li>• The types of waste collected, amounts, date/time and details of disposal are to be recorded in a waste register.</li> <li>• Site clean-up for each construction stage.</li> </ul> | Construction contractor                        | Pre-construction |
| 60. | Resource use and waste management | Any additional fill material required would be sourced from appropriately licensed facilities and/or other Roads and Maritime projects, wherever possible.  | Construction contractor and Roads and Maritime | Construction     |
| 61. | Resource use and waste management | <p>Excavated material would be reused on-site for fill where feasible to reduce demand on resources.</p> <p>The following resource management hierarchy principles would be followed:</p> <ul style="list-style-type: none"> <li>• Avoid unnecessary resource consumption as a priority</li> <li>• Avoidance would be followed by resource recovery (including reuse of materials, reprocessing, and recycling and energy recovery)</li> <li>• Disposal would be undertaken as a last resort (in accordance with the <i>Waste Avoidance and Resource Recovery Act 2001</i>).</li> </ul>   | Construction contractor                        | Construction     |

| No. | Impact                            | Environmental safeguards   | Responsibility                                 | Timing                            |
|-----|-----------------------------------|--|--|-----------------------------------|
|     |                                   | <p>Cleared weed-free vegetation would be chipped and reused on-site as part of the proposed landscaping and to stabilise disturbed soils where possible.</p> <p>Excess excavated material would be disposed of at an appropriate facility or reused appropriately for fill on the proposal site.</p> <p>Excess soil requiring waste disposal would first be assessed against the <i>Waste Classification Guidelines- Part 1: Classifying Waste</i> (EPA 2014). Soil samples would be taken from stockpiled material and analysed. Transportation would be undertaken by a licensed contractor capable of transporting the waste and waste would be disposed of to an appropriately licensed waste facility with supporting waste classification documentation.</p> <p>Garbage receptacles would be provided and recycling of materials encouraged. Rubbish would be transported to an appropriate waste disposal facility.</p> <p>All wastes would be managed in accordance with the POEO Act.</p> <p>Portable toilets would be provided for construction workers and would be managed by the service provider to ensure the appropriate disposal of sewage.</p> <p>Noxious weeds removed during work would be managed in accordance with the Department of Primary Industries' requirements that relate to its classification status.</p> <p>Site inductions would occur and be recorded by a Site Supervisor to ensure staff are aware of waste disposal protocols.</p> <p>A dedicated concrete washout facility would be provided during construction so that run-off from the washing of concrete machinery and equipment can be collected and disposed of at an appropriate waste facility.</p> |  |                                   |
| 62. | Resource use and waste management | <p>A Contamination Management Plan (CMP) will be prepared in accordance with the <i>Contaminated Land Act 1997</i> and relevant EPA Guidelines. This plan will be form part of the CEMP and will include at a minimum:</p> <ul style="list-style-type: none"> <li>• Contaminated Land Legislation and guidelines including any relevant licences and approvals to be obtained.</li> <li>• Identification of locations of known or potential contamination and preparation of a map showing these locations</li> <li>• Identification of rehabilitation requirements, classification, transport and disposal requirements of any contaminated land within the construction</li> </ul>   | Construction contractor and Roads and Maritime | Pre-construction and construction |

| No. | Impact                              | Environmental safeguards   | Responsibility          | Timing                            |
|-----|-------------------------------------|--|-------------------------|-----------------------------------|
|     |                                     | <p>footprint</p> <ul style="list-style-type: none"> <li>Contamination management measures including waste classification and reuse procedures and unexpected finds procedures</li> <li>Monitoring and sampling procedure for landfill seepage (leachate)</li> <li>A procedure for dewatering and disposal of potentially contaminated liquid waste</li> <li>In the event that indications of contamination are encountered (known and unexpected, including odorous or visual indicators), work in the area will immediately cease until a contamination assessment can be prepared to advise on the need for remediation or other action, as deemed appropriate.</li> <li>A process for reviewing and updating the plan</li> </ul> <p>The CMP would be reviewed by Roads and Maritime Senior Environment Officer and Roads and Maritime Land Management Specialist prior to the commencement of works.</p>  |                         |                                   |
| 63. | Hazards and risks                   | Emergency response plans would be incorporated into the construction environmental management plan   | Construction contractor | Pre-construction                  |
| 64. | Hazards and risks                   | <p>Prior to commencement of any demolition activities a pre-demolition hazardous materials survey will be carried out of the building to be demolished to establish the presence of any contaminated materials or hazardous substances which may be impacted by the works and require safe removal and disposal in accordance with relevant Safe Work Australia Codes of Practice and National Standards.</p> <p>Any contaminated materials or hazardous substances encountered would be classified first and then stored, transported and disposed of in accordance with OEH requirements at an OEH licensed waste facility.</p> <p>The handling of asbestos and asbestos work would be carried out in accordance with the following documents published by the Safe Work Australia:</p> <ul style="list-style-type: none"> <li>'Guide to the Control of Asbestos Hazards in Buildings and Structures'.</li> <li>'Code of Practice for the Safe Removal of Asbestos'.</li> </ul> <p>The handling and removal of any synthetic mineral fibres would be carried out in accordance with the National Standard for Synthetic Mineral Fibres (Safe Work Australia 1990).</p> | Construction contractor | Pre-construction and construction |
| 65. | Climate change and greenhouse gases | The use of alternative fuels and power sources for construction plant and equipment would be investigated and implemented, where appropriate.  | Construction contractor | Pre-construction                  |

| No. | Impact                              | Environmental safeguards   | Responsibility                                 | Timing           |
|-----|-------------------------------------|--|--|------------------|
| 66. | Climate change and greenhouse gases | The energy efficiency and related carbon emissions would be considered in the selection of vehicle and plant equipment.  | Construction contractor                        | Pre-construction |
| 67. | Climate change and greenhouse gases | Materials would be delivered as full loads and local suppliers would be used where possible.<br>Construction equipment, plant and vehicles would be appropriately sized for the task.<br>Equipment would be serviced frequently to ensure they are operating efficiently.<br>Vehicles and machinery would not be left idling when not in use.<br>Clearing of vegetation would be minimised where possible.   | Construction contractor                        | Construction     |
| 68. | Cumulative impacts                  | The construction environmental management plan would be revised to consider potential cumulative impacts from surrounding development activities as they become known.   | Construction contractor                        | Pre-construction |
| 69. | Cumulative impacts                  | The traffic management plan would be prepared in consultation with TfNSW, the Transport Management Centre and Hornsby Shire Council.   | Roads and Maritime and construction contractor | Pre-construction |
| 70. | Cumulative impacts                  | An 'out of hours work procedure' would be prepared as part of the construction noise and vibration management plan for the proposal in accordance with the requirements of the <i>Interim Construction Noise Guideline</i> (DECC 2009) and the Roads and Maritime Services' <i>Environmental Noise Management Manual Practice</i> (RTA 2001a) and would consider the cumulative impact from other construction activities occurring in the vicinity of the proposal. | Construction contractor                        | Construction     |

### 3.3 Licensing and approvals

A summary of the licencing and approvals required for the proposal is provided in Table 3 2.

**Table 3.2: Summary of licensing and approval required.**

| Requirement  | Timing                           |
|--|----------------------------------|
| Exception permit under section 139 of the Heritage Acts for works within the area mapped as having moderate archaeological potential | Prior to construction commencing |

## 4 References

- Artefact 2015, *Statement of Heritage Impact Report*
- Department of Planning 2013, *Epping Town Centre Priority Precinct Report*
- GHD 2015, *Consultation Report*, prepared on behalf of Roads and Maritime
- GHD 2015a, *Epping Road widening between Essex Street and Blaxland Road at Epping review of environmental factors*, prepared on behalf of Roads and Maritime
- GHD 2015b, *Epping Road widening Traffic and Transport Impact Assessment*, prepared on behalf of Roads and Maritime
- JBA Planning 2010 and 2011, *Epping Town Centre Study*
- Halcrow 2011, *Epping Town Centre Transport Study Outcomes Report*.
- Roads and Maritime Services 2010, *Urban Design Policy Beyond the Pavement*, RMS
- Roads and Maritime Services 2010, *Traffic Control at Work Sites*
- Roads and Maritime Services *Specification G10 - Control of Traffic*
- Roads and Maritime Services 2014, *Sustainability Strategy*, RMS
- Roads and Maritime Services 2014, *Roads and Maritime Land Acquisition Guide*, RMS



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August 2016  
RMS 16.387  
ISBN: 978-1-925507-75-1