



**REVITALISING
NEWCASTLE**

Newcastle Light Rail Associated Road Upgrades

Review of Environmental Factors - submissions report

May 2017





GHD

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Abbreviations

Abbreviation	Definition
CBD	central business district
CEMP	construction environmental management plan
Council	Council of the City of Newcastle
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
GHD	GHD Pty Ltd
Infrastructure SEPP	<i>State Environmental Planning Policy (Infrastructure) 2007</i>
LoS	level of service
OEH	NSW Office of Environment and Heritage
REF	review of environmental factors
Roads and Maritime	NSW Roads and Maritime Services
TPZ	Tree Protection Zone

Definitions

Term	Definition
emission	A substance discharged into the air.
heritage listed	An item, building or place included on statutory heritage lists maintained by local, State or the Australian Government.
level of service	Defined by Austroads as a measure for ranking operating road and intersection conditions, based on factors such as speed, travel time, freedom to manoeuvre, interruptions, comfort and convenience.
light rail alignment	The location of the light rail tracks along which the light rail vehicles would operate.
light rail project	Construction of 2.7 kilometres of light rail; between the new transport interchange at Wickham and Pacific Park.
light rail REF	Review of environmental factors completed in April 2016 for the light rail project and approved in August 2016.
the proposal	The construction and operation of the proposed road upgrades associated with the light rail project.
the Revitalising Newcastle team	The Revitalising Newcastle team consists of the following agencies: <ul style="list-style-type: none"> • Urban Growth NSW • Transport for NSW
relic	A relic is defined by the NSW <i>Heritage Act 1977</i> as 'any artefact, object or material evidence, which relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and which is of State or local heritage significance.'
study area	The area including and adjacent to the proposal, with the potential to be impacted by proposal activities.
submissions report	A document that summarises the issues raised in submissions received in response to public display of the REF, and to provide responses to the issues raised.
supplementary REF	Supplementary review of environmental factors prepared for the proposed road upgrades associated with the light rail project.
the former heavy rail corridor	The heavy rail corridor between the new Newcastle Interchange (at Wickham) and the old Newcastle train station – no longer used for heavy rail services.

Executive summary

Newcastle is evolving. There is an opportunity to create a more activated city centre and a waterfront that attracts people, new enterprise and tourism. The people of Newcastle have said they want to build on the strengths of this city, to deliver better transport, create more job opportunities, provide more high quality public spaces, and bring people back to the city centre.

The NSW Government has committed to helping create a city where more people want to live, work and play. This is a once in a lifetime opportunity to strengthen Newcastle's position on the regional, national and international stage.

Through the Newcastle Urban Transformation and Transport Program, known as Revitalising Newcastle, the NSW Government is investing over \$500 million to breathe new life into Newcastle. Revitalising Newcastle aims to bring people back to the city centre by strengthening connections between the city and the waterfront, creating job opportunities, providing more public places and spaces, and delivering better transport solutions.

Light rail is a key pillar of this program that will provide a frequent, reliable and comfortable travel option through the city centre. It will also connect key activity precincts and reinvigorate Hunter and Scott streets. Light rail will improve accessibility and connectivity in Newcastle's city centre and open up great urban renewal opportunities. In August 2016, the light rail project was formally determined, confirming Newcastle light rail will go ahead.

Efficient traffic networks are a key element of well integrated transport networks; supporting bus movements, taxis, commercial vehicle movements as well as private vehicles. As Newcastle grows and new transport initiatives are introduced, changes to existing road networks are needed. Road capacity improvements will complement the introduction of light rail, help prevent congestion as light rail is introduced into Newcastle's city centre and support traffic movements well into the future.

As part of the *Newcastle Light Rail Review of Environmental Factors* (light rail REF), released for public comment in early 2016, Transport for NSW identified the need for minor road upgrades to support the introduction of light rail. In the *Newcastle Light Rail Submissions Report* (light rail submissions report), released in August 2016, Transport for NSW committed to working with key stakeholders to develop a suite of additional road upgrades. Transport for NSW also committed to undergo an additional assessment process for these road upgrades to ensure enhanced transparency for the community, and as a result the *Newcastle Light Rail – associated road upgrades Supplementary Review of Environmental Factors* (the supplementary REF) was prepared to assess the impacts of the additional road upgrades and went on public display in November 2016.

The supplementary REF detailed the roads and intersections in the city that will need to be reconfigured and upgraded to support light rail and to ensure traffic continues to flow efficiently.

This report outlines:

- issues raised in the submissions received while the supplementary REF was on display
- our responses to these issues and the proposed modifications to the proposal
- mitigation measures to be implemented during the construction and operation of the proposal to minimise any potential impacts
- further consultation being undertaken to ensure the community and stakeholders can continue to have their say throughout the life of the project.

The proposal

Transport for NSW and NSW Roads and Maritime Services (Roads and Maritime) have developed a number of traffic improvements along and around the light rail alignment. These improvements complement the introduction of light rail, and support transport movements within Newcastle's city centre.

The proposal focuses on a number of key locations, critical roads and intersections in the city centre. The proposal seeks to address congestion at the following locations:

- Hannell Street/Stewart Avenue
 - Intersection of Throsby Street/Hannell Street
 - Intersection of Bishopsgate Street/Hannell Street
 - Intersection of Honeysuckle Drive/Hannell Street
 - Vehicle queuing in Stewart Avenue at various locations, including at the Stewart Avenue/King Street/Parry Street intersection
- Hunter Street
 - Intersection of Steel Street/Hunter Street
- King Street
 - Stewart Avenue and Darby Street intersections to provide additional capacity.

This proposal will:

- refine the configuration of key intersections to increase capacity and optimise traffic movements
- alter parking arrangements in the city centre to allow traffic to use the kerbside lanes and ensure traffic continues to flow smoothly while light rail is being constructed and during its future operation
- support traffic movements by relocating and removing bus stops to allow better traffic flow.

This proposal generally involves upgrading a number of intersections and other road works to improve the traffic flow and reduce congestion and includes:

- selected areas of road widening, generally within the existing road corridor
- reducing the extent of centre road medians to install new turning lanes
- realigning existing traffic lanes to allow additional lanes in some areas
- adjusting kerb lines where the road is widened
- road resurfacing following widening and realignment works as required
- changes to footpaths, parking and cycle lanes where additional traffic lanes are created
- changes to line marking and signage where additional lanes and realignments are proposed.

About 1500 square metres of land directly adjacent to the road corridor will also need to be acquired as part of the proposal, including a small area of land next to the road in the corner of Civic Park. This land is needed to upgrade the intersection of King and Darby streets to help ease congestion and ensure traffic continues to flow smoothly into the future.

The impact on Civic Park will be minor; it will retain its overall shape and character, no trees will need to be removed as a result of this proposal, access will be maintained at all times and the impacted area is not used during the monthly Olive Tree Markets. Also, the impacted area of the park is not included under the local heritage listing.

Negotiations have begun with affected landowners around the land acquisition process. It is not anticipated that this acquisition will impact on the current or future use of any of the surrounding land.

The locations of the proposed works are shown in Figure E.1.

Construction

If approved, road and intersection improvements are expected to start in mid 2017. The work is anticipated to take around seven months to complete. It will not delay or add extra time to the overall light rail construction timeframe. To minimise the impact of these works on the community, Transport for NSW will work with the Managing Contractor for light rail to identify how these complementary road upgrades can be delivered at the same time as some of the light rail construction components.

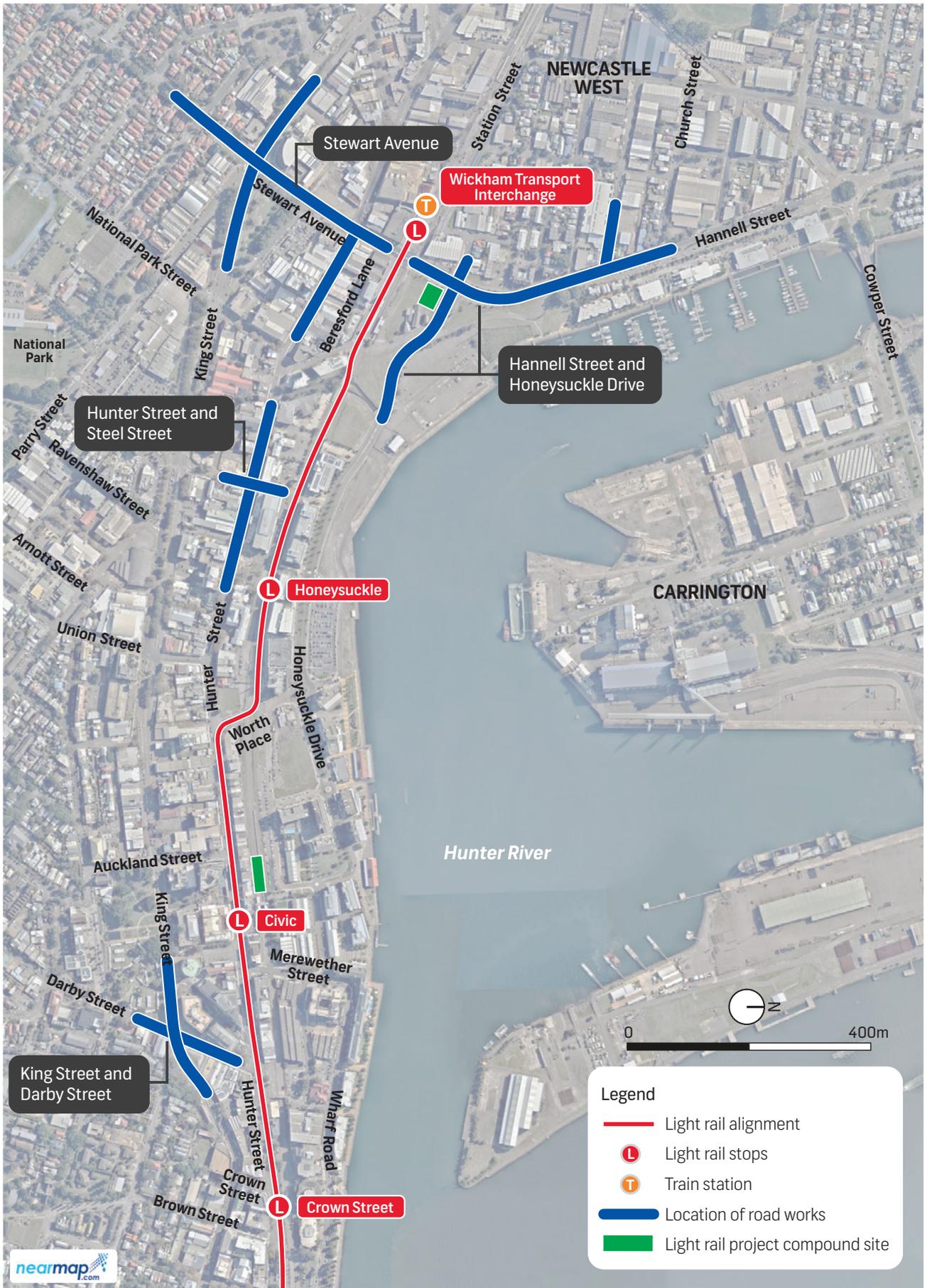


Figure E.1 Location of Proposal

Consultation

What you've told us

The supplementary REF for this proposal was placed on public display from 21 November to 19 December 2016. During the public display, three community information sessions were held to provide residents and interested community members the opportunity to talk directly to the project team. Six people in total attended the three sessions.

Role of the REF in the planning process

Preparation of a REF is a key step in the planning process. A REF assesses the environmental impacts of a proposal to determine whether they are likely to be significant under the *Environmental Planning and Assessment Act 1979* (EP&A Act), and what mitigation or environmental management measures are required during construction and operation.

If a REF is placed on public display and submissions are received, they are considered and responded to in a formal submissions report (this document). The supplementary REF and submissions report together, provide critical information regarding the environmental impacts of the proposal in accordance with section 111 of the EP&A Act and clause 228 of *the Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), so that a recommendation on whether to proceed with the proposal can be made. If it is determined that the proposal is unlikely to significantly affect the environment, then Transport for NSW can make a decision about whether to proceed with the proposal.

What you've told us

A total of 16 submissions were received from community members, key stakeholders, local businesses and industry associations and Council.

Several submissions expressed their support for the proposed road upgrades and the broader urban renewal and connectivity objectives of Revitalising Newcastle.

Key issues raised in submissions include requests for additional works, concerns around timing and safety, level of consultation, adequacy of documentation, potential transport, traffic and access impacts, community and business impacts, concerns about noise, visual impacts and tree removal.

We are listening

In response to the feedback provided in submissions, Transport for NSW is making a number of changes to the proposal. Since the supplementary REF went on display, and in response to submissions raised, we have done more work on the proposal design, which has resulted in a number of modifications to the proposal.

Changes in response to feedback

A number of modifications to enhance the overall design of the proposal and reduce its environmental and social impact have been developed. These changes are described in section 5, and new mitigation measures required in response to these modifications are identified in section 6. The changes include:

- investigating peak hour parking restrictions to determine whether this will reduce congestion sufficiently and possibly avoid the need to remove parking on Darby and King streets
- delaying proposed line marking changes at the Darby and King streets intersection until prior to the commencement of light rail operations, to allow businesses some time to transition to the transport network changes in the CBD
- shortening the length of the proposed slip lane at the Throsby and Hannell streets intersection to reduce the number of car parks to be removed
- a change to the proposed upgrade at the Stewart Avenue and King Street intersection to avoid impacts on proposed renewal activities in Little King Street and Birdwood Park.

Environmental impacts

No significant environmental issues are considered to be associated with the proposal as assessed in the relevant environmental impact assessment documents. The proposal helps enable implementation of the light rail project and offers a way to improve road network efficiency and functionality. The long-term benefits of the proposal outweigh the short term impacts, and will allow light rail to better integrate with the road network.

A suite of management and mitigation measures will be implemented to reduce the potential adverse impacts of the proposal and enhance the benefits. These measures will be incorporated into the construction environmental management plan (CEMP) and sub-plans for the proposal and, where necessary, the future operator's environmental management system.

A number of environmental considerations were examined and assessed through the supplementary REF. Engagement has been undertaken with stakeholders to ensure the key potential impacts have been identified and where possible avoided or appropriate mitigation measures developed. Strategies to avoid, mitigate and manage potential impacts have been developed.

Next steps

Transport for NSW will review the supplementary REF and this submissions report and determine whether the requirements under section 111 of the EP&A Act and clause 228 of the EP&A Regulation have been met; to consider whether the activity is likely to significantly affect the environment. Transport for NSW will then make a determination as to whether to proceed with the proposal.

Should Transport for NSW determine to proceed with the proposal, feedback from the community and key stakeholders received throughout the development of the proposal to date will help inform the next phase of the proposal and assist to minimise potential impacts during construction and operation.

1. Introduction

This section provides the background and an introduction to the project, an overview of the key features of the proposal, and the scope and purpose of this report.

1.1 Background

The NSW Government is working in partnership with local communities, the Council of the City of Newcastle (Council), businesses and individuals to help create a vision for revitalisation that builds on the strengths of the city and its people. Through the Newcastle Urban Transformation and Transport Program, known as Revitalising Newcastle, the NSW Government is investing over \$500 million to bring people back to the city centre by strengthening connections between the city and the waterfront, creating employment opportunities, providing more public space and amenity, and delivering better transport.

Revitalising Newcastle will bring together a number of planning, urban renewal and transport initiatives that collectively will create a revitalised city centre in Newcastle that positions the city as a great place to live, work and play.

The Newcastle light rail project (light rail project) is one of the key transport components of the Revitalising Newcastle program. Light rail will provide a frequent, reliable and comfortable travel option through the city centre, connect key activity precincts, reinvigorate Hunter and Scott streets, and will open up great urban renewal opportunities.

Efficient traffic networks are a key element of well integrated transport networks; supporting bus movements, taxis, commercial vehicle movements as well as private vehicles. As Newcastle grows and new transport initiatives are introduced, changes to existing road networks are needed. Road capacity improvements will complement the introduction of light rail, help prevent congestion as light rail is introduced into Newcastle's city centre and support traffic movements well into the future.

Transport for NSW determined to proceed with the light rail project in August 2016 after examining, amongst other things, the *Newcastle Light Rail Review of Environmental Factors* (light rail REF) (GHD, 2016) and the *Newcastle Light Rail Submissions Report* (light rail submissions report) (Transport for NSW, 2016). Early works have commenced, reflecting the NSW Government's commitment to follow through on its promise to help Newcastle reach its full potential. Further information on the light rail project can be found in the light rail REF and the light rail submissions report, which are available on the Revitalising Newcastle website.

Feedback provided by the community on the light rail REF said that traffic and access to the city centre are very important. To facilitate the operation of the light rail project, some changes to the road network along and near the light rail alignment are required. Further investigations and consultation with key stakeholders has helped to develop the additional detail required on the proposed road upgrades.

GHD Pty Ltd (GHD) has been engaged by Transport for NSW to prepare a supplementary REF to provide additional information on the road upgrades associated with the light rail project. The supplementary REF and this document, therefore, should be read together with that document.

The construction and operation of the road upgrades detailed in the supplementary REF and this document are referred to as 'the proposal'. The proposal will help avoid congestion, improve traffic flows and safety, complement the introduction of the light rail project, and help integrate light rail into the existing road network. The proposal covers three key pinch point locations in the city centre that are essential in enabling light rail. It also includes changes to parking and bus stops to optimise traffic flows during the construction and operation of the light rail project. The proposal will also include relevant management measures to reduce the potential for impact to the community and the environment during construction and operation.

The proposal is subject to assessment and determination under Part 5 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). Feedback from the community and stakeholders, as outlined in this submissions report, will be an important component of the assessment and the works involved in the proposal have been assessed in light of the light rail project as a whole.

1.2 Overview of the proposal

The overall objective of the proposal is to support road network functionality over the coming years, primarily for the construction and operation of the light rail project.

The proposal focuses on a number of key locations, congested and critical roads and intersections across the city centre. Works are proposed at three key locations:

- Stewart Avenue/Hannell Street (between Hebburn Street to the south, and Throsby Street to the north). This includes works at the following intersections with Stewart Avenue:
 - Honeysuckle Drive/Hannell Street
 - Hannell Street/Throsby Street
 - Hunter Street
 - King Street/Parry Street
- Hunter Street/Steel Street intersection
- King Street/Darby Street intersection.

The study area for the proposal is defined as the wider area surrounding the proposal site, which is the area that has the potential to be directly or indirectly affected by the proposal (for example, by noise and vibration, visual or traffic impacts).

The locations of proposed works are shown in Figure 1.1.

This proposal generally involves upgrading a number of intersections and other road works to improve traffic flow and reduce congestion and includes:

- selected areas of road widening, generally within the existing road corridor but on adjacent land in some areas
- reducing the extent of centre road medians to install new turning lanes
- realigning existing traffic lanes to allow additional lanes in some areas
- adjusting kerb lines where the road is widened
- road resurfacing following widening and realignment works as required
- changes to footpaths, parking and cycle lanes where additional lanes are created
- changes to line marking and signage where additional lanes and realignments are proposed.

A detailed description of the proposal and the works that will be undertaken at each location is provided in section 3 of the supplementary REF. Concept plans for the proposal are included in Appendix B of the supplementary REF.

1.3 Overview of the supplementary REF

1.3.1 Need for the proposal

The proposal is required to support an integrated transport system, to cater for the growing demand for access into Newcastle's city centre and to support the introduction of light rail.

The new light rail system will play a major role in Newcastle's transformation by developing infrastructure that will cater for demand for years to come. The proposal facilitates the light rail project, which is described in the light rail REF. The strategic context and need for the light rail project are described in section 5.1 of the light rail REF.

The light rail REF identified a number of changes to roads and intersections that would be implemented to support the introduction of the light rail project. These upgrades would improve road user safety and manage changes to traffic flow as a result of the introduction of light rail, particularly on Hunter and King streets. Section 6.3.4 of the light rail REF identified that, in consultation with Council and Roads and Maritime, a package of additional road improvements to complement the introduction of light rail would be investigated. Feedback from the community also indicated support for additional measures to support traffic and access to the city centre.

Key roads that formed part of ongoing detailed investigations include Steel Street, Darby Street, Stewart Avenue/Hannell Street, Honeysuckle Drive, and King Street. Consultation with the community, businesses and key stakeholders on the proposed road improvements has been continuing since the approval of the light rail project.

The detailed investigations, feedback from the community and consultation with key stakeholders has been used to more fully define the scope of work for the proposal. The supplementary REF provides additional environmental impact assessment and information for the community.

Traffic capacity improvements are needed at several critical roads and intersections. Additional road improvements seek to address congestion at the following locations (refer Figure 1.1):

- Hannell Street/Stewart Avenue
 - Intersection of Throsby Street/Hannell Street
 - Intersection of Bishopsgate Street/Hannell Street
 - Intersection of Honeysuckle Drive/Hannell Street
 - Vehicle queuing in Stewart Avenue at various locations, including at the Stewart Avenue/King Street/Parry Street intersection
- Hunter Street
 - Intersection of Steel Street/Hunter Street
- King Street
 - Stewart Avenue and Darby Street intersections to provide additional capacity.

These additional road improvements seek to remove existing pinch points in the road network and ensure that traffic moves safely and efficiently through the Newcastle city centre.

1.3.2 Key impacts identified in the supplementary REF

Environmental investigations were undertaken during preparation of the supplementary REF to assess the potential impacts of the proposal in conjunction with the assessments underpinning the August 2016 determination. No significant environmental issues are considered to be associated with the proposal.

A number of environmental issues have been examined and assessed throughout the design development and preparation of the supplementary REF. Consultation and engagement has been undertaken with stakeholders during the assessment to ensure the key potential impacts have been identified at an early stage, and where possible, avoided or appropriate mitigation measures developed.

Strategies to avoid, mitigate and manage potential impacts have been developed to identify not only the environmental requirements, but also to ensure commitments around communicating with the local community and businesses are in place.

The proposal helps enable implementation of the light rail project and offers a way to improve road network efficiency and functionality. The long-term benefits of the proposal outweigh the short term impacts, and will allow light rail to better integrate with the road network.

The main potential impacts that would require further consideration and management during the detailed design process, construction and operation are summarised below.

- **Transport, traffic and access**– The proposal would require the removal of some on-street parking spaces and loading zones along the proposal site. Options to address city centre parking requirements have been developed as part of the light rail project. Construction traffic will be managed via approved traffic management plans.
- **Tree removal**– About 26 street trees would need to be removed for implementation of the proposal. The tree removal would be replaced and/or offset in accordance with Transport for NSW's *Vegetation Offset Guide* (2016) and in consultation with Council. A further 14 trees near the works would be managed to reduce the potential for terminal impacts during construction.
- **Noise and vibration**– Feasible and reasonable mitigation measures would be implemented during the construction phase as outlined in the construction noise and vibration management plan. Out of hours work will be undertaken in accordance with the requirements of the *Construction Noise Strategy* (Transport for NSW, 2012).
- **Cumulative**– The proposal will be constructed within a landscape of substantial change in Newcastle as the revitalisation of the city centre progresses. The proposal would contribute to a net benefit in conjunction with the objectives of the various urban renewal projects currently planned or underway as part of the Revitalising Newcastle program. Cumulative loss of car parking has been quantified by Transport for NSW in the parking strategy developed as part of the light rail project.

The key benefits of the proposal will be to assist in meeting expected future increases in demand, ease potential congestion and ensure that traffic is able to move freely and efficiently around and through the city centre. The proposal will benefit Newcastle's community by supporting growing demand and the integration of new travel behaviours following the implementation of the light rail project. These benefits support the overall vision for Newcastle that the NSW Government has committed to helping deliver through a number of improvements. This proposal is one of those improvement initiatives.

A suite of management and mitigation measures will be implemented to reduce the potential adverse impacts of the proposal and enhance the benefits. These measures will be incorporated into the construction environmental management plan (CEMP) and sub-plans for the proposal and, where necessary, the future operator's environmental management system. A detailed summary of mitigation measures that will be adopted throughout the project to ensure impacts to the community and local businesses are minimised are listed in section 6.

1.3.3 Statutory and planning framework

Environmental impact assessment

The proposal may be undertaken without development consent under Part 5 of the EP&A Act in accordance with clause 79 of *State Environmental Planning Policy (Infrastructure) 2007* (the Infrastructure SEPP).

Prior to determining whether to proceed with the activity as set out in the proposal, Transport for NSW is required under Part 5 of the EP&A Act to 'examine and take into account to the fullest extent possible all matters affecting, or likely to affect, the environment by reason of that activity'.

The road upgrades associated with the light rail project were initially described in the light rail REF. Subsequent to the determination of the light rail project, additional investigations and design work has been undertaken for some of these works. The purpose of the supplementary REF is to assess the impacts of the proposal in light of the light rail project as a whole, to assist Transport for NSW meet its obligations under the EP&A Act.

The supplementary REF documents the required assessment of environmental impacts and describes measures proposed to mitigate any adverse impacts.

Role of the REF in the planning process

Preparation of a REF is a key step in the planning process. A REF assesses the environmental impacts of a proposal to determine whether they are likely to be significant under the EP&A Act, and, in addition, what mitigation or environmental management measures are required during construction and operation.

Once the REF is placed on public display, submissions are received, considered and responded to in a formal submissions report (this document). The supplementary REF and submissions report together, provide critical information regarding the environmental impacts of the proposal in accordance with section 111 of the EP&A Act and clause 228 of *the Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), so that a recommendation on whether to proceed with the proposal can be made. If it is determined that the proposal is not likely to significantly affect the environment, then Transport for NSW can make a decision about whether to proceed with the proposal.

Statutory compliance

Section 2 of the supplementary REF outlines the statutory planning and approvals process for the proposal. The proposal would comply with all relevant legislative requirements identified in section 2 of the supplementary REF.

1.3.4 Conclusions of the supplementary REF

The proposal is required to support the integrated transport system, specifically the introduction of light rail and to cater for the growing demand for access into Newcastle's city centre. Changes to roads and intersections will be required to enable both the construction and operation of the light rail project.

Light rail is an important transport initiative that will transform the city centre and is one of the catalysts to support the urban renewal of Newcastle's city centre. The supplementary REF concluded that the potential environmental impacts of the proposal are not likely to be significant. Consequently, an environmental impact statement is not required. Furthermore, a referral to the Commonwealth will not be required under the *Environment Protection and Biodiversity Conservation Act 1999*.

1.4 Purpose and structure of this report

The submissions report has been prepared to:

- summarise and respond to issues raised in submissions on the supplementary REF
- report on additional investigations and design developments undertaken following the public display of the supplementary REF
- identify any changes to the proposal and the potential impact of those changes
- summarise the mitigation measures for the proposal.

The submissions report has a number of key sections. These include:

- description of community and stakeholder consultation activities undertaken during the supplementary REF preparation and public display period (section 2)
- an overview of the submissions received (section 3)
- responses to issues raised in submissions (section 4)
- details of proposed design changes to the proposal (section 5)
- updated mitigation and management measures (section 6)
- conclusions to the report (section 7).

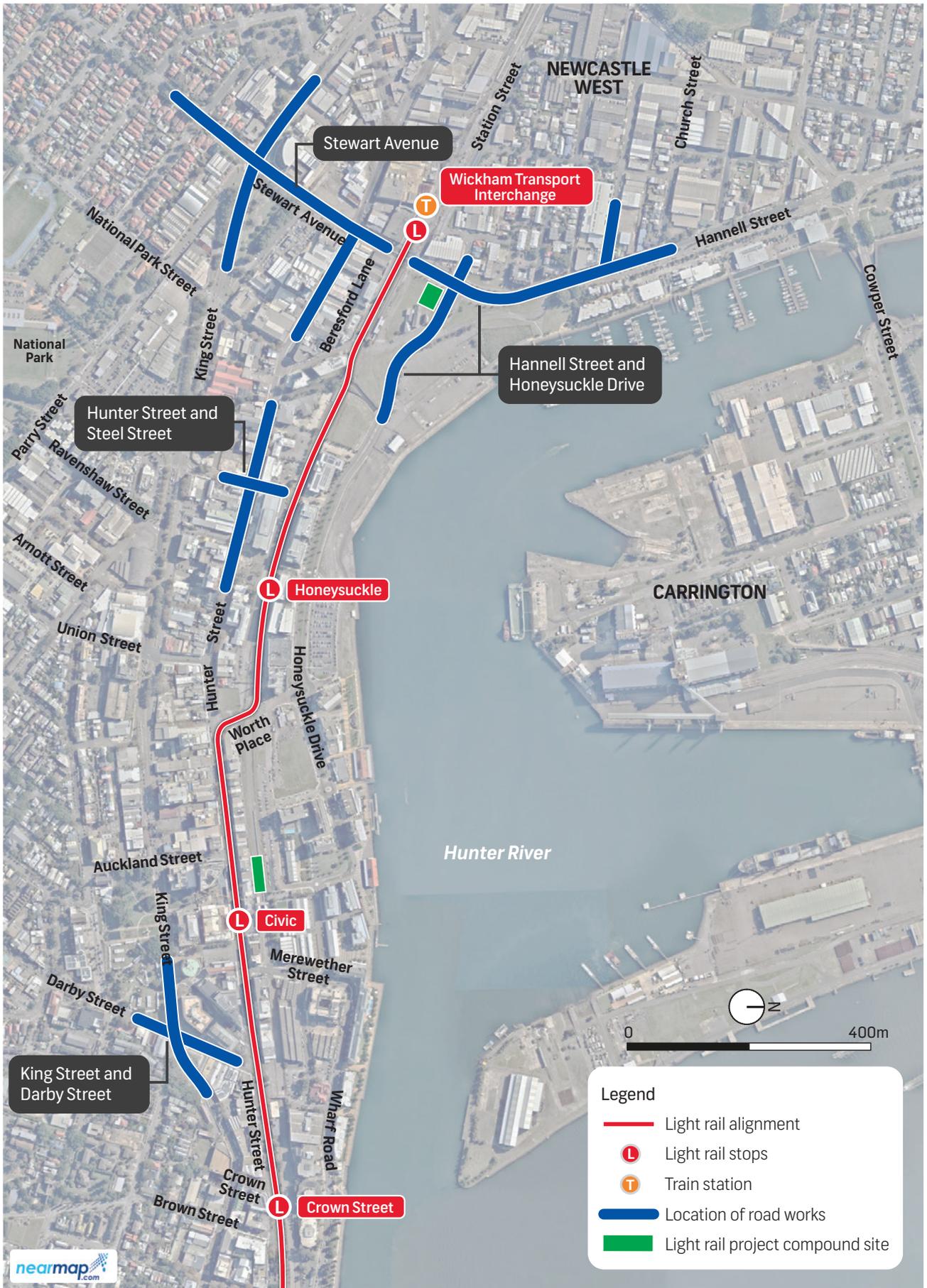


Figure 1.1 Location of Proposal

2. Consultation

This section provides a summary of the consultation undertaken for the supplementary REF and during public display. Ongoing consultation proposed is also discussed.

2.1 Stakeholder and community consultation for the supplementary REF

The supplementary REF was placed on public display for a period of four weeks from 21 November to 19 December. During the display period the community, interest groups and organisations, stakeholders and government agencies were invited to make written submissions and have their say.

The supplementary REF, in its entirety, was available for viewing at the following locations:

- City of Newcastle City Administration Centre, 282 King Street, Newcastle
- Newcastle City Library, Ground Floor, Laman Street Newcastle
- Transport for NSW Newcastle office, ground floor, 239 King Street, Newcastle.

The supplementary REF was also available at:

<http://ourtransport.revitalisingnewcastle.com.au/delivering-newcastle-light-rail/documents>

Table 2.1 lists the engagement activities undertaken during the public display period.

Table 2.1 Consultation during public display

Activity	Detail
Community contact and feedback	<p>Contact mechanisms were established to enable the community and stakeholders to provide feedback and ask us questions about the proposal via:</p> <ul style="list-style-type: none"> • project information line: 1800 684 490 • email: projects@transport.nsw.gov.au • website: www.transport.nsw.gov.au/projects <p>All contacts were recorded in a consultation database.</p>
Website	<p>Information about the public display of the supplementary REF was included on the Revitalising Newcastle and Transport for NSW websites.</p>
Brochure and magnet/business card to business owners	<p>A brochure and a fridge magnet or business card with contact details was hand delivered to directly impacted residents and businesses along the proposal at Stewart Avenue, Hannell Street, Hunter Street, Steel Street, King Street and Darby Street. During distribution, the project team members took the opportunity to provided details about the proposal to business owners, landowners and managers.</p>
Letter box drop	<p>An information brochure providing an overview of the proposal and the details of the public display process was letter box dropped to over 2500 households and properties in the suburbs of Newcastle, Newcastle East, Newcastle West, Wickham and those located within a 200 metre radius of the proposed works.</p>
Advertisement	<p>Two advertisements were placed in the Newcastle Herald to provide information about the display locations and information sessions.</p> <ul style="list-style-type: none"> • Wednesday 23 November 2016 • Saturday 3 December 2016.

Activity	Detail
Community information sessions	<p>Community information sessions were held at the following locations, dates and times:</p> <ul style="list-style-type: none"> • Wednesday 30 November 2016, 3pm to 6pm, Newcastle Museum • Saturday 3 December 2016, 10am to 2pm. Town Hall • Wednesday 7 December 2016, 4pm to 7pm. Town Hall. <p>The community information sessions provided residents and interested community members the opportunity to talk directly to the project team. Community members who attended the sessions were encouraged to make a formal submission on the proposal via submission forms provided at the sessions and on the website. Feedback received at the sessions have been considered in this report.</p> <p>Attendee numbers ranged from none to four at each session with six community members in total attending the supplementary REF information sessions.</p>

2.2 Consultation with Council for the supplementary REF

Clauses 13 to 16 of the Infrastructure SEPP outline the requirements for consultation with councils and other public authorities for infrastructure development carried out by or on behalf of a public authority. Consultation with Council, as required under the Infrastructure SEPP, was undertaken for the proposal and is ongoing.

Council's submission to the public display of the supplementary REF expressed support for:

- the Stewart Avenue and Hannell Street proposed upgrades
- the extension of the right hand turn bays in King Street at the Stewart Avenue intersection.

The Council submission also raised the following issues:

- the proposal's alignment with Council's vision for the CBD, especially the reduced pedestrian amenity and lack of cycleway options
- whether consideration has been given to Council's strategic and precinct planning, in particular *Connecting Newcastle 2016*, the *Draft Newcastle Urban Renewal Strategy 2014* and *Hunter Street Revitalisation Strategic Framework 2010*
- the need for the proposal given that some intersections will be operating at a similar level of congestion after light rail is implemented (Level D is considered acceptable by Roads and Maritime)
- the view that prioritisation of vehicles over light rail will not encourage people onto public transport and diminish the investment made into light rail
- acquisition of Council land (in Civic Park - Darby Street)
- a desire for the offsets for the proposed tree removal to be resolved as part of this REF
- concerns regarding the additional parking spaces to be removed, in addition to parking impacts associated with light rail implementation
- further consideration of the changes to the bus network and bus stops.

All of the above issues are dealt with in section 4 and Transport for NSW has met with Council to discuss their submission and work towards resolution of these issues. The Revitalising Newcastle team is continuing to engage with Council, as a key stakeholder, during the planning and implementation of the program.

2.3 Future consultation

The Revitalising Newcastle team is committed to community and stakeholder engagement beyond the planning phase and throughout detailed design, construction and commissioning of the proposal. The Revitalising Newcastle team will work closely with the managing contractor to ensure the delivery of accurate information on the proposal to the community, businesses and stakeholders throughout construction.

Should the proposal proceed, targeted consultation and communication activities will include:

- meetings
- briefings
- letters
- newsletters/notifications
- signage
- regular updates on the Revitalising Newcastle website and via social media.

The NSW Government understands that business continuity is important, and will work with businesses to understand their requirements during construction and operation of the proposal. In addition to the above activities, the Revitalising Newcastle team will investigate options for business and precinct activation activities to attract people into these areas during construction.

Consultation activities will ensure that:

- the community and stakeholders have a high level of awareness of all activities and construction related changes associated with construction of the project
- ideas and feedback from the community are encouraged
- accurate and accessible information is available, including regular updates via the websites, meetings, newsletters, notifications and project signage
- timely responses are given to issues and concerns raised by businesses and the community, and construction impacts on businesses and residents are effectively resolved. A project information line, 24-hour emergency response line, and email address will be available, and dedicated engagement managers will provide advice and assistance throughout the construction and operation of the proposal.

3. Overview of submissions

This section provides an overview of the submissions received and the issues raised in submissions.

3.1 Overview

Transport for NSW received 16 submissions during the public display of the supplementary REF, including:

- seven submissions from community members provided in writing or via email
- one submission from an industry or professional organisation
- one submission from a community group
- six submissions from businesses
- one submission from Council.

All submissions received during the public display period were recorded in a consultation database. Submissions were individually numbered, contact details recorded, and key issues identified in each submission were added to the database.

3.2 Summary of issues raised

A breakdown of the key issues raised in submissions is provided in Table 3.1. Since most submissions raised more than one issue, the number of issues identified is greater than the total number of submissions received.

Table 3.1 Overview of key issues raised in submissions

Issue	Description	Number of submissions identifying issue
Need and justification		
Proposal support	Comments stating project support	4
Proposal objectives	Concern regarding the justification for the overall Revitalising Newcastle program	1
Proposal opposition	Comments stating project opposition	6
Alternatives and options		
Additional scope	Suggestions for additional/alternate scope of works to be added to proposal	5
Design and features		
Timing	Requests to delay the proposal construction and operation	3
Health and safety	Issues related to community health and safety, including hazards for disabled users	6
Community engagement		
Consultation	Issues related to consultation activities undertaken/suggestions to improve consultation	5
Assessment and approvals		
REF adequacy	Concerns related to the adequacy of the supplementary REF, including the supporting specialist studies	3

Issue	Description	Number of submissions identifying issue
Request for information	Comment requesting provision of additional report/studies/information	1
Transport, traffic and access		
Public transport	Public transport matters including bus stop locations	5
Traffic	Traffic congestion and flow	11
Access	Pedestrian and vehicle accessibility	4
Loading zones	Removal of loading zones	4
Parking	Removal of parking spaces including standing/stopping zones and disabled parking	10
Business and community impacts		
Impacts to local business	Concerns about negative impacts to local business	6
Land use and property	Concern related to land use and property impacts	1
Social impacts	Concerns about social impacts to local community	3
Other impacts		
Visual amenity	Visual amenity following project construction	1
Tree removal	Concern about tree removal for the proposal	1

4. Responses to submissions

This section provides Transport for NSW's responses to the issues raised in submissions received during the public display of the supplementary REF and indicates where changes have been made to the design or delivery of the proposal or where further investigations to consider issues are being conducted based on feedback (refer to section 5). Any changes required to the mitigation measures proposed in the supplementary REF are included in section 6.

4.1 Need and justification

4.1.1 Proposal support

Summary of issues raised:

Four submissions noted support for the proposed road upgrades, in particular Hannell Street and Honeysuckle Drive upgrades and extension of right turn lanes in King Street.

Response

Transport for NSW is committed to engaging with the community and stakeholders and thanks the community and stakeholders for submissions in support of the proposal.

The community has been clear about their vision and aspirations for Newcastle. Novocastrians are proud of their city and want to see it revitalised. The community and key stakeholders have said Newcastle's city centre was once a thriving place that would benefit from attracting more people to live, work, play and study.

Through the Revitalising Newcastle program, the NSW Government is investing over \$500 million to breathe new life into Newcastle. Light rail is a key pillar of this program that will provide a frequent, reliable and comfortable travel option through the city centre, connect key activity precincts, reinvigorate Hunter and Scott streets, and open up great urban renewal opportunities.

Efficient traffic networks are a key element of well integrated transport networks; supporting bus movements, taxis, commercial vehicle movements as well as private vehicles. As Newcastle grows and new transport initiatives are introduced, changes to existing road networks are needed. Road capacity improvements will complement the introduction of light rail, help prevent congestion as light rail is introduced into Newcastle's city centre and support traffic movements well into the future.

During the supplementary REF public display, Transport for NSW listened to what the community and stakeholders said about wanting better transport solutions for Newcastle and are committed to delivering on these promises. The light rail project including supporting road works and intersection upgrades will provide a frequent, reliable and comfortable travel option through the city centre, make public transport more convenient, help reduce the number of cars in the city centre, and be a catalyst for urban renewal.

4.1.2 Proposal objectives

Summary of issues raised:

One submission noted that the proposed road works are not consistent with delivering Council's vision for the central business district (CBD), especially the reduced pedestrian amenity and lack of cycleway options.

Response

In the light rail submissions report released in August 2016, Transport for NSW committed to working with key stakeholders including Council to develop a suite of additional road upgrades. Transport for NSW also committed to undergo an additional assessment process for these road upgrades to ensure enhanced transparency for the community. As a result, the supplementary REF was prepared and went on public display in November 2016.

The supplementary REF was developed specifically for the proposed road works and intersection upgrades that will support the introduction of light rail. The scope of this report does not extend to the broader work being undertaken by the Revitalising Newcastle team on urban amenity, active transport infrastructure and other initiatives to support other transport and urban renewal outcomes in Newcastle.

Improving road safety and congestion in Newcastle's CBD will have benefits for pedestrians, cyclists and public transport customers collectively.

Transport for NSW is investigating additional active transport improvements in Newcastle's city centre, and has been working on options with key stakeholders, including Council. Transport for NSW remains committed to working with Council to accommodate relevant aspects of Council's vision into the proposal where possible. The proposed road upgrades are considered to compliment Council's vision.

4.1.3 Proposal opposition

Summary of issues raised:

Six submissions expressed opposition to some or all components of the proposal including:

- opposition to some or all of the locations proposed for the road upgrades
- suggested that upgrades should be delayed until the light rail project is operational
- suggested that the light rail project should be located on the heavy rail corridor, not Hunter Street, and that this would alleviate the need for additional road works.

Response

Opposition to some or all of the proposed road upgrades

Efficient traffic networks are a key element of well integrated transport networks; supporting bus movements, taxis, commercial vehicle movements as well as private vehicles. As Newcastle grows and new transport initiatives are introduced, changes to existing road networks are needed. Road capacity improvements will complement the introduction of light rail, help prevent congestion as light rail is introduced into Newcastle's city centre and support traffic movements well into the future.

The proposal is required to support the introduction of light rail and cater for the growing demand for access into Newcastle's city centre. The proposal will help avoid congestion, improve traffic flows, complement the introduction of the light rail project, and help integrate light rail into the existing road network.

In summary, improvements are needed at several critical roads and intersection locations in the city centre to:

- allow the city centre road network to continue to function when anticipated changes in traffic demands, traffic priorities and travel patterns happen, including during construction and operation of light rail in Newcastle

- maintain the operational performance of the road network, improve road efficiency and allow quality integrated public transport services to meet future demand
- improve customer experience by improving the safety, amenity and efficiency of the road network.

Suggested upgrades should be delayed until the light rail project is operational

Transport for NSW is taking a pro-active approach to safety and congestion in the CBD. Traffic modelling indicates that without the proposal, journey times through the CBD will be affected. The modelling undertaken also factors in future development scenarios and demonstrates that the proposal will help alleviate further congestion in the future, and result in safety and amenity benefits. A failure to address predicted congestion in the short term will impact all road users, including private and commercial vehicles and public transport customers, and general amenity in the CBD.

A 'wait and see' approach is not practical or pro-active given the approximate twelve month lead time required for the works when considering the planning, environmental and procurement requirements of such a project. As such, there would be a period of worsening traffic, safety and amenity in the CBD before any rectification works could be undertaken.

There are also efficiencies to be gained by undertaking the proposed works simultaneously with the light rail project, which will reduce the duration and subsequent impact to the CBD of construction activities.

Failure to implement the proposed upgrades as planned may also impact on the construction of the light rail project, which in turn would increase the duration and subsequent impacts of construction activities in the CBD.

Transport for NSW will review the timing of some components of the proposal to assist in reducing impacts to businesses and other stakeholders (see section 5).

Suggested light rail should be located on the heavy rail corridor, not Hunter Street, and this would alleviate the need for additional road works

Many routes were investigated during the planning process for light rail, which considered what transport solution would best work for Newcastle and customers, the role light rail will play in the revitalisation of Newcastle's city centre, integration with other forms of public transport, and future opportunities for expansion of the route.

The selected route for light rail strikes the right balance. It will deliver a frequent, reliable and comfortable travel option through the city centre, connect key activity precincts, help restore Hunter and Scott streets to thriving main streets, and open up great urban renewal opportunities.

Evidence from Australia and around the world confirms that running light rail through urbanised commercial, residential and retail areas is successful in revitalising urban corridors. The light rail route provides easy access to important destinations such as the new university campus and law courts, and will deliver customers directly to local businesses, supporting the local economy. It also encourages people to use public transport in the Newcastle city centre by providing ready, immediate and highly visible points of access.

The light rail route was selected to deliver the best possible outcomes for Newcastle. The NSW Government understands that building new transport infrastructure in areas like Newcastle is complex, and has committed to minimising the impacts of construction where possible.

The closure of the heavy rail line provides the opportunity to re-think how Newcastle's city centre can work for the community, visitors and future employers. We want to improve the liveability of Newcastle, provide more public domain, and enhance the lifestyle that Novocastrians so proudly enjoy.

Constructing light rail in the former heavy rail corridor does not facilitate the points noted above and is contrary to the overall urban transformation objectives for Newcastle.

4.2 Alternatives and options

4.2.1 Additional scope

Summary of issues raised:

Five submissions suggested additional or alternative works that should be included in the proposal, such as:

- additional road upgrades to those proposed including:
 - extension of Wolfe Street, across Scott Street, to Wharf Road
 - King Street should be widened on the southern side, to two lanes, extending from Darby Street for two blocks to Union Street
- request for concrete overpasses
- request for pedestrian crossing at the south-eastern to the south-western corner of the intersection at Darby Street
- the 'left turn permitted' sign on the corner of Throsby and Hannell streets should be reinstated.

Response

The suggestions for additional road upgrades and other works are beyond the scope of this proposal but will be forwarded to Council for their consideration.

4.3 Design and features

4.3.1 Timing

Summary of issues raised:

Two submissions suggested that the proposed additional road upgrades do not need to occur until light rail is implemented and evidence of congestion is apparent. One submission raised concern over timing delays when waiting for the light rail to pass and that this would cause traffic congestion.

Response

The proposal is required to support the introduction of light rail and cater for the growing demand for access into Newcastle's city centre.

The detailed design of the proposal, as well as the cycleway strategy, the parking strategy and the review of the bus network arrangements have all been worked on concurrently by the Revitalising Newcastle team. Ongoing collaboration between the parties responsible for these pieces of work will ensure a coordinated approach to the CBD transport network.

As already stated, there are efficiencies to be gained by undertaking the proposed works simultaneously with the light rail project, which will reduce the duration and subsequent impact to the CBD of construction activities. Failure to implement the proposed upgrades as planned may also impact on the construction of the light rail project, which in turn would increase the duration and subsequent impacts of construction activities in the CBD.

Transport for NSW will review the timing of some components of the proposal to assist in reducing impacts to businesses and other stakeholders (see section 5).

Light rail vehicles are relatively small and quick compared to heavy rail and even buses. It is important to note that there will be no boom gates for light rail and that light rail movements will be coordinated with the traffic lights, so light rail will move across Stewart Avenue while cars are at a normal red light.

The traffic lights on Stewart Avenue between Hunter Street and Honeysuckle Drive will be synchronised – this means they will go red or green at the same time to allow traffic to flow smoothly and continuously along Stewart Avenue.

It is not expected that waiting times for light rail vehicles to pass would be more than several seconds. Light rail systems are integrated with the urban environment and road network. As such, the vehicles do not take long to cross the street and travel easily through intersections in the same way that cars do.

4.3.2 Health and safety

Summary of issues raised:

Six submissions raised a number of issues around safety and mobility access including:

- concern there would be negative impacts to emergency assembly points near Steel Street for local businesses, changes will need to be incorporated into planning
- concern for safety of patrons and their possessions with the need to park at further distances and walk further at potentially dangerous times
- concern over vehicle proximity to pedestrians with road changes
- increased emissions due to the stopping and starting of traffic for the light rail will worsen air quality for the local community
- concern regarding current gradient and depth of gutters around Newcastle. Need to be more accessible for disabled persons
- concern the proposed new slip-lane into King Street at the Civic Park corner will increase the number of road crossings for pedestrians; and that vehicles will approach the slip-lane pedestrian crossing at a higher speed than they would at lights.

Response

Safety has been a key priority in the development and design of the proposal. Safety has been considered and integrated into the proposal and was one of the key assessment criteria when developing the proposal. Safety must be in line with legislative and regulatory guidelines, which include the safety of all road users: cars, pedestrians, motorcyclists and cyclists. Roads and Maritime and Council, as the road owners, have a legislative responsibility to consider the detailed design and the results of safety audits prior to construction commencing.

Prior to construction, Transport for NSW will consult with local emergency services and work with them to ensure the movement of emergency vehicles is not impeded through work sites. These arrangements will be detailed in traffic management plans for each construction area. Consultation will be undertaken with emergency services both before construction and during detailed design to ensure that any specific requirements or issues are identified and included in the final design.

A key focus is ensuring the new light rail system and supporting road upgrades will be accessible by all members of the community. Access to light rail vehicles, stops and across light rail tracks will be fully compliant with the *Disability Discrimination Act 1992*, the *Disability Standards for Accessible Public Transport 2002* and *Australian Standard (AS) 1428.1-2009 Design for access and mobility*.

There is no evidence that light rail vehicles will result in increased emissions to air and reduced air quality.

4.4 Community engagement

4.4.1 Consultation

Summary of issues raised:

Five submissions raised concerns about community consultation, including:

- request for messaging and wayfinding around construction works, and provision of interim business solutions
- concern that the light rail submissions report did not provide adequate responses to issues raised
- concern that the supplementary REF did not attempt to deal with issues that had previously been raised
- concern that messaging in the supplementary REF implies stakeholder support, which may not be accurate.

Response

Transport for NSW is committed to continuing community and stakeholder engagement about the proposal and will work closely with key project partners to ensure the consistent delivery of accurate information on the proposal to the community, local businesses and stakeholders throughout the life of the proposal. This includes regular and ongoing meetings with key stakeholders.

Transport for NSW has committed to develop a community and stakeholder engagement plan and a business activation strategy for the light rail project. The community and stakeholder engagement plan will ensure:

- the community and stakeholders have a high level of awareness of all processes and activities associated with the proposal
- accurate information is made available in an effective and timely manner
- a timely response is given to issues and concerns raised by stakeholders and the community.

The community and stakeholder engagement plan will include measures for direct contact with relevant stakeholders, as well as appropriate signage and wayfinding to be implemented during construction.

The business activation strategy will be developed with local businesses and business groups to ensure that disruption to businesses is minimised and visitors are still attracted to the city during construction. This ongoing engagement process will play an important role in reducing potential impacts.

In the light rail submissions report released in August 2016, Transport for NSW committed to working with key stakeholders including Council to develop a suite of additional road upgrades. Transport for NSW also committed to undergo an additional assessment process for these road upgrades to ensure enhanced transparency for the community, and as a result the supplementary REF was prepared and went on public display in November 2016.

The supplementary REF was developed specifically for road works and intersection upgrades that will support the introduction of light rail, as foreshadowed in the light rail REF. The scope of this report does not extend to the broader work of the Revitalising Newcastle team on urban amenity, active transport infrastructure to support cycling and walking, or other initiatives to support great transport and urban renewal outcomes in Newcastle.

The NSW Government is committed to genuine engagement with stakeholders and the wider community to inform transport decisions for Newcastle. A comprehensive community consultation program was implemented leading up to and during the light rail REF public display period. The supplementary REF for the proposal was publicly displayed from 21 November to 19 December 2016.

Consultation also occurred throughout the strategic planning and development phase of the proposal with a number of stakeholders from organisations located in Newcastle (including Council, peak bodies and associations, and government agencies). This feedback has informed the development of the proposal.

Transport for NSW remains committed to working with Council to accommodate relevant aspects of Council's vision into the proposal where possible.

4.5 Assessment and approvals

4.5.1 REF adequacy

Summary of issues raised:

Three submissions raised concern over the adequacy of the supplementary REF and supporting documentation, including:

- concern that the proposal, in particular traffic impacts, was not adequately assessed in the supplementary REF
- concern Technical Paper 1 is not adequate in its analysis of the traffic impacts of the light rail proposal.

Response

Transport for NSW has complied with its duty under Part 5 of the EP&A Act in preparing the supplementary REF and this submissions report.

In particular, modelling used in the REF is based on a deep understanding of the local traffic environment, and was developed by local experts. The traffic modelling conducted for the light rail REF was comprehensive and reviewed by a number of parties including Roads and Maritime, Transport for NSW, Council and the design team. The modelling presented in both the light rail and supplementary REFs is the agreed outcome of that collaboration process.

The supplementary REF clearly describes both the benefits and impacts on traffic at intersections across the CBD. The proposal proactively addresses the predicted and future issues identified by the modelling. It is designed to support the introduction of light rail whilst ensuring traffic is still able to flow smoothly.

Traffic modelling shows that more motorists will choose to use King Street in response to light rail running on Hunter Street. While this will help avoid additional congestion in the morning peak, traffic modelling currently indicates that there could be some additional congestion in the evening peak, which the proposed works seek to address.

For the purposes of traffic modelling and understanding an intersection's performance, the level of service at an intersection has been adopted as the primary indicator. However, there are a number of factors that should also be considered when planning to address future congestion and the need for road upgrades. These include, but are not limited to, queue lengths at intersections, average delays, future travel behaviours and safety. All of these factors have been taken into consideration in selecting intersections where road upgrades are warranted. In addition, a 'whole of CBD' approach has been adopted with a view to managing journey times through the city centre.

Although only short delays may currently be experienced at a given intersection, the combined impacts of multiple congested intersections affects overall journey times through the CBD. These journey times also have an impact on public transport services and their reliability. This is a key driver for the proposal.

Efficient traffic networks are a key element of well integrated transport networks; supporting bus movements, taxis, commercial vehicle movements as well as private vehicles. As Newcastle grows and new transport initiatives are introduced, changes to existing road networks are needed. Road capacity improvements will complement the introduction of light rail, help prevent congestion as light rail is introduced into Newcastle's city centre and support traffic movements well into the future.

4.5.2 Request for information

Summary of issues raised:

One submission requested additional traffic reports and assessments.

Response

All current information pertaining to the proposal and the light rail project is available on the Revitalising Newcastle website.

4.6 Transport, traffic and access

4.6.1 Public transport

Summary of issues raised:

Five submissions raised concerns about impacts to public transport including:

- concern over the loss of bus stops in the CBD
- a view that the supplementary REF does not address implications of increased use of public transport and removing two bus stops
- a view that the supplementary REF prioritises motor vehicles over pedestrians, cyclists, businesses and public transport users

- concern the supplementary REF defers cycling infrastructure to a cycleway strategy without addressing it
- a view that the proposal will discourage cyclists
- requests for greater public transport use to reduce vehicular traffic into the Newcastle CBD.

Response

The primary purpose of this proposal is to improve the road network to support the introduction of light rail. Accordingly, the focus of the proposal is therefore on the traffic network due to the nature of the proposed works rather than public transport and alternative transport solutions. However, the NSW Government's broader vision for Newcastle is to bring people back to the city centre by strengthening connections between the city and the waterfront, creating job opportunities, providing more public places and spaces, and delivering better transport solutions.

Efficient traffic networks support this vision as they are a key element of well integrated transport networks. Bus movements, taxis, commercial vehicle movements, cyclists, pedestrians and private vehicles all benefit from reduced congestion. As Newcastle grows and new transport initiatives are introduced, changes to existing road networks are needed. Road capacity improvements will complement the introduction of light rail, help prevent congestion as light rail is introduced into Newcastle's city centre and support traffic movements well into the future.

Light rail will provide a frequent, reliable and comfortable travel option through the city centre. It will also connect key activity precincts and reinvigorate Hunter and Scott streets. Light rail will improve accessibility and connectivity in Newcastle's city centre and open up great urban renewal opportunities.

In addition to the program of work being delivered through Revitalising Newcastle, the NSW Government is introducing Newcastle Transport; a new, integrated public transport provider for Newcastle, who will be responsible for running buses, ferries, light rail and the new multi-modal Newcastle Interchange. Newcastle Transport is overhauling the bus and ferry timetables and Newcastle are set to receive better services than ever before.

Active transport including cycling is important to the overall vision for Newcastle's city centre. Through consultation with cyclists and the community, we have learned that they are interested in:

- providing more open space adjacent to Scott Street that allows easy movement from the city to the harbour
- options for cycleways that suit the needs of commuter cyclists, families and recreational cyclists
- options to improve the experience of walking along Hunter Street.

The Revitalising Newcastle team is working with Council to assess options for enhanced cycleway infrastructure in Newcastle's city centre. This work will consider the right solution for both commuters and recreational cyclists. This proposal for road and intersection upgrades has been specifically designed so as not to preclude any possible active transport or bus network changes that may result from additional investigations currently underway.

Traffic modelling shows that light rail will cause traffic patterns in Newcastle's CBD to change. To accommodate this, the road network needs to be upgraded. While there will be fewer vehicles on Hunter Street, there will be increased traffic on Honeysuckle Drive and King Street.

The proposed road and intersections upgrades are consistent with Council's vision for Hunter Street to be an enhanced transportation 'spine', while at the same time reducing vehicles to improve pedestrian amenity and retail opportunities.

4.6.2 Traffic

Summary of issues raised:

Eleven submissions raised concerns about traffic impacts, which included:

- some submissions noted a view that they do not believe there is a problem with congestion and queuing in Newcastle
- suggestion that the current level of congestion does not require the proposed road upgrades and removal of parking and that the proposal will only deliver minor improvements at three intersections and a minor worsening at two
- concern the supplementary REF does not ameliorate concerns about the effect of light rail on traffic in Hunter Street
- concern about the impact of increased numbers of residential developments in the CBD on traffic flow
- suggest weight restrictions be implemented on Throsby Street to assist safe traffic flows.

Response

Transport for NSW is taking a pro-active approach to safety and congestion in the CBD. Traffic modelling indicates that without the proposal, journey times through the CBD will be affected. The modelling undertaken also factors in future development scenarios and demonstrates that the proposal will help alleviate further congestion in the future, and result in safety and amenity benefits. A failure to address predicted congestion will impact all road users, including private and commercial vehicles and public transport customers, and the general amenity in the CBD.

A 'wait and see' approach is not practical or pro-active given the approximate twelve month lead time required for the works considering the planning, environmental and procurement requirements of such a project. As such, there would be a period of worsening traffic, safety and amenity in the CBD before any rectification works are undertaken. There are also efficiencies to be gained by undertaking the proposed works simultaneously with the light rail project, which will reduce the duration and subsequent impact to the CBD of construction activities.

The introduction of the light rail will reduce vehicle traffic on Hunter and Scott streets and local road networks in the city centre as shown by the traffic modelling presented in the light rail REF. Light rail will also improve public transport service and reliability, and reduce private vehicle trips in the city centre as people shift to public transport.

The proposal is required to support the introduction of light rail and cater for the growing demand for access into Newcastle's city centre. In summary, improvements are needed at several critical roads and intersection locations in the city centre to:

- allow the city centre road network to continue to function in response to anticipated changes in traffic demands and travel patterns during construction and operation of light rail
- maintain the operational performance of the road network, improve road efficiency and allow quality integrated public transport services to meet future demand
- improve customer experience by improving the safety, amenity and efficiency of the road network.

For the purposes of traffic modelling and understanding an intersection's performance, the level of service at an intersection is taken as the primary indicator. However, there are a number of factors that should also be considered when planning to address future congestion and the need for road upgrades. These include, but are not limited to, queue lengths at intersections, average delays, managing travel behaviours (such as introducing weight and other restrictions), and safety. All of these factors have been taken into consideration in selecting intersections where road upgrades are warranted. A 'whole of CBD' approach has been adopted with a view to managing journey times through the city centre.

Although only short delays may currently be experienced at a given intersection, the combined impacts of multiple congested intersections substantially effects overall journey times through the CBD. This cumulative effect of multiple minor episodes of congestion could affect people's journey time through the CBD. These journey times also have an impact on public transport services and their reliability. This is a key driver for the proposal.

4.6.3 Access

Summary of issues raised:

Four submissions raised concerns over lack of access due to the proposal:

- concrete median strip in Steel Street will impact access to private property
- extension of the right hand turning lane off Hannell Street into Throsby Street will impact access for residents of the Mariners building
- further consideration should be given to a clearway at the exit of the Mariners building allowing cars to safely cross two lanes of traffic and turn right into Thorsby Street
- concern over impacts to access and egress for vehicles via the King Street slip road during construction.

Response

Potential impacts on driveways will be further investigated as the detailed design progresses. Where possible, adjustments will be made to enable existing residential accesses to be maintained or alternative arrangements will be agreed with property owners. Where changes need to occur, either temporarily or permanently, consultation will occur with the affected parties in order to reduce the potential impact of any inaccessibility. While there may be short periods where access may be disrupted or unavailable during construction, these will aim to be minimised.

4.6.4 Loading zones

Summary of issues raised:

Four submissions raised concerns over the proposed removal of loading zones:

- concern that the supplementary REF does not include provisions for drop off points or loading zones where parking spaces will be removed
- concern delivery and garbage pickup/removal schedules will be impacted by the removal of loading zones
- concern for taxi and disabled pickup/drop off requirements with removal of loading zones
- concern other nearby loading zones are fully utilised during the day and occasionally parked in and that an appropriate alternative is not provided.

Response

During construction, property access will be maintained wherever possible to minimise the impact to local residents and businesses. From time to time, diversions and management measures will be required and the Revitalising Newcastle team will work closely with affected property owners/operators and tenants to minimise disruption.

The Revitalising Newcastle team is committed to working with businesses during construction of to ensure access issues can be resolved.

To ensure businesses have access to the right information at the right time:

- dedicated community engagement managers will provide personalised advice and assistance
- regular forums and newsletters will keep businesses up-to-date on developments
- specific communication will explain road impacts and bus route changes – updates on traffic changes will be provided ahead of time and throughout the project
- signage around construction sites will include directions to businesses
- a 24-hour construction hotline will allow businesses to contact the project team with any concerns
- we will work closely with businesses to minimise the impact of construction on deliveries and services.

The Revitalising Newcastle team will look at the specific needs of businesses in Newcastle, and learn from the successful activation activities undertaken in Sydney, to minimise construction impacts on businesses. In the Sydney city centre, an activation strategy has been developed to attract visitors during construction. Construction work is scheduled outside core retail hours whenever possible, and every opportunity within the construction schedule has been used to minimise the time occupied in any one zone.

The Revitalising Newcastle team will deliver activation strategies designed specifically for Newcastle and engage with the local business community to ensure Newcastle stays open for business during construction.

4.6.5 Parking

Summary of issues raised:

Ten submissions raised concerns about impacts to parking, including:

- suggestion that the loss of car parking is not warranted in response to current congestion on Throsby and Darby streets
- concern that parking will be removed before light rail is implemented and suggestion that peak parking restrictions on Darby Street could address congestion by providing additional traffic lanes during peak periods
- concern that two disability parks in Steel Street, near a health facility, will be removed without replacements
- concern over the increasing number of new developments being built in Newcastle and impact of removing car parks
- suggestion that an approved parking strategy should have been addressed in the supplementary REF.

Response

Transport for NSW worked with Council to develop a comprehensive strategy that looked at ways to alleviate the impact of key transport projects underway in the city centre on parking spaces, as well as making recommendations for managing parking in Newcastle's city centre into the future.

Feedback from the community and stakeholders about parking was diverse and suggestions included replacement parking, 'park and ride' options and timed parking. Part of the planning for future growth in cities like Newcastle includes the provision of better public transport services to help reduce the city's heavy reliance on cars. This will not only improve the city centre's urban amenity but also ensure Newcastle can accommodate future population growth rather than increased traffic congestion.

The Revitalising Newcastle team understands the importance of providing adequate parking for people with disabilities. Should any disabled parking spaces be lost as a result of the proposal, we will prioritise replacement of these car spaces and work closely with Council to determine suitable alternative locations within the city.

4.7 Business and community impacts

4.7.1 Impacts to local business

Summary of issues raised:

Six submissions raised concerns about impacts to local businesses as a result of:

- the removal of parking/loading zones which will reduce customer/client numbers and trade for local business
- removal of vehicle stopping/standing areas outside businesses which will increase delivery and transport costs.

Response

Through the Revitalising Newcastle program, the NSW Government is investing over \$500 million to breathe new life into Newcastle. Revitalising Newcastle aims to bring people back to the city centre by strengthening connections between the city and the waterfront, creating job opportunities, providing more public places and spaces, and delivering better transport solutions.

Light rail is a key project within this broad program of work that will provide a frequent, reliable and comfortable travel option through the city centre. It will also connect key activity precincts, reinvigorate Hunter and Scott streets, and open up great urban renewal opportunities.

Businesses in the city centre will benefit from urban renewal initiatives to bring vibrancy back to Newcastle's city centre and generate community and economic activity.

In addition to the light rail, additional pedestrian walkways have been delivered which connect businesses with potential customers from the waterfront side of the former heavy rail line. New light rail infrastructure and light rail stops at activation hubs will mean local businesses may benefit from increased foot traffic near their premises.

The vision for Newcastle is an activated city and waterfront that attracts people, new enterprises and tourism. The Revitalising Newcastle program will stimulate investment to create jobs, attract innovative industries, higher education and a range of businesses to the city centre. Revitalising Newcastle will also enable Newcastle to have a mix of new public space retail, commercial and residential uses.

International studies have shown that light rail is a preferable mode in which to move public transport users within an inner city environment. Light rail has delivered transformation and renewal to city centres around the world — attracting investment and boosting economic activity.

Transport for NSW worked with Council to develop a comprehensive strategy that looked at ways to alleviate the impact of key transport projects underway in the city centre on parking spaces, as well as making recommendations for managing parking in Newcastle's city centre into the future.

4.7.2 Land use and property

Summary of issues raised:

One submission expressed opposition to the acquisition of public land at Civic Park.

Response

A small portion of Civic Park would be acquired to accommodate the proposed road upgrade at the intersection of Darby and King streets. The size of the land to be acquired is small and would not affect the overall amenity or use of the park. The easing of congestion at this intersection and the enhanced pedestrian arrangements would improve safety and amenity in and around the park.

The impact on Civic Park will be minor. Civic Park will retain its overall shape and character, no trees are proposed for removal, access will be maintained at all times and the impacted area is not used during the monthly Olive Tree Markets. Also, the impacted area of the park is not included under the local heritage listing.

4.7.3 Social impacts

Summary of issues raised:

Three submissions raised the following concerns about social impacts:

- a view that the proposal has the potential to work against urban renewal and urban amenity outcomes, which need to be carefully balanced so as not to compromise the primary objective
- concern that widening of intersections in Hunter Street west will discourage cyclists into the city
- concern that Hunter Street west has the opportunity to become a tree lined boulevard with cycleways, wide footpaths and kerbside dining and that the proposal will impact on this vision for Hunter Street
- concern that Hunter Street and Stewart Avenue upgrades do not consider cyclists and pedestrians, wider footpaths, active street frontages or street plants.

Response

The primary purpose of this proposal is to improve the road network to support the introduction of light rail, and the focus of this proposal is on the traffic network due to the nature of the proposed works.

However the NSW Government's broader vision for Newcastle is to bring people back to the city centre by strengthening connections between the city and the waterfront, creating job opportunities, providing more public places and spaces, and delivering better transport solutions.

Evidence from Australia and around the world confirms that running light rail through urbanised commercial, residential and retail areas is successful in revitalising urban corridors. Light rail is a key element of the Revitalising Newcastle program, which will provide a frequent, reliable and comfortable travel option through the city centre. It will also connect key activity precincts, reinvigorate Hunter and Scott streets, and open up great urban renewal opportunities.

The closure of the heavy rail line provides the opportunity to re-think how Newcastle's city centre can work for the community, visitors and future employers. We want to improve the liveability of Newcastle, provide more public domain, and enhance the lifestyle that Novocastrians so proudly enjoy.

Light rail will drive renewal in the Newcastle city centre. Through light rail, the community will benefit from improved amenity, including enhanced urban design, activation hubs, entertainment precincts, new open space and improved public domain with more pedestrian and vehicle connections.

Community engagement undertaken by UrbanGrowth NSW since 2014, has shown a high level of support for urban renewal and this is being incorporated into all components of the Revitalising Newcastle program.

The urban design for the light rail project has been developed in line with the following principles:

- take the *Hunter Street Revitalisation Final Strategic Framework* (SCAPE strategy, 2010) and *Newcastle 2030* (City of Newcastle, 2013) into account
- recognise the significance of the project area in the Newcastle city centre urban renewal process
- respect, maintain and enhance Newcastle's culture and heritage
- enhance the immediate and broader urban context
- provide for an activated public domain, improved transport opportunities and pedestrian connectivity to existing and proposed local precincts, consider the principles and strategies of the *Newcastle Urban Renewal Strategy* (Department of Planning and Infrastructure, 2014).

The vision for Newcastle aims to transform Hunter and Scott streets to a series of destinations and public spaces. Importantly, the design will also seek to balance the priorities of pedestrians, cyclists, public transport, vehicles and parking.

4.8 Other impacts

4.8.1 Visual amenity

Summary of issues raised:

One submission raised the concern that businesses will have to pay additional fees for garbage collection due to lack of loading zones, which will reduce use of bins and increase litter on the streets, which is a visual impact.

Response

Potential impacts on services will be further investigated as the detailed design progresses. Where possible, adjustments will be made to reduce impacts and/or alternative arrangements will be agreed with property owners.

4.8.2 Tree removal

Summary of issues raised:

One submission felt that the tree removal offset plan should be included in supplementary REF.

Response

When the supplementary REF went on public display, the NSW Government made a commitment to replace more trees than it removes as part of the light rail project and its associated road upgrades. The Revitalising Newcastle team will be working with Council to develop a Tree Offset Strategy that determines the best location for the new trees in Newcastle.

Any trees removed as a result of the project will be offset in accordance with Transport for NSW's *Vegetation Offset Guide* (2016a). The offset will be developed for the entire light rail project in conjunction with the proposal.

5. Further investigations and design modifications

This section describes proposed design or proposal changes formulated in response to ongoing investigations and submissions.

Since the supplementary REF was displayed, further design development has occurred and, in response to submissions, the following modifications are proposed to enhance the overall design and operation of the proposal. The proposed design modifications are minor and consist mainly of a commitment to further investigation, therefore no environmental impact assessment is required.

5.1 Throsby Street/Hannell Street intersection

Additional investigations of traffic performance will be undertaken to determine whether the proposed lane reconfiguration in Throsby Street can be shortened to approximately 20 metres. This could reduce the number of parking spaces to be removed on Throsby Street.

5.2 Stewart Avenue/King Street intersection

The proposed left turn into Little King Street is to be removed from the project scope to reduce potential impacts on planned urban renewal projects for Little King Street and Birdwood Park. Future pedestrian growth is anticipated in the area following the completion of Newcastle Interchange and approved development applications for housing at 500 King Street and a Holiday Inn Hotel at 514 King Street. To address the anticipated pedestrian growth, Council is looking at measures to improve pedestrian permeability and amenity in this location. As such, the diversion of traffic off Stewart Avenue down Little King Street as proposed in the Supplementary REF is to be removed from the project scope.

5.3 Darby Street/King Street intersection

In response to feedback from local businesses about the interaction between traffic congestion and the peak customer times for their businesses, the proposed line-marking changes on Darby and King streets will be delayed until prior to the commencement of light rail operations, to balance local business and traffic flow needs. This change in timing will help ease the transition for local businesses in these streets. Traffic volumes and patterns will be routinely monitored to determine the appropriate timing for the works to be carried out.

Approval for the work is still being sought at this time, so that line-marking can be undertaken in the future at the appropriate time, and to provide transparency for the community about future planned solutions.

5.4 Hunter Street/Steel Street intersection

The proposed intersection upgrade at Hunter and Steel streets provides the safest current option for all road users and in particular, those turning right into Steel Street from Hunter Street. However Transport for NSW will review the proposal at this location, on Council's request, on completion of work on the cycleway strategy, and taking into account the parking strategy and the review of the bus network arrangements by the Revitalising Newcastle team. Any integrated improvements from those strategies will be incorporated into the proposal design where appropriate. In addition, Council's *Hunter Street Revitalisation Final Strategic Framework* (SCAPE strategy, 2010) will provide further guidance.

5.5 Loss of car parks and loading zones

In response to feedback from local businesses, additional analysis will be undertaken to investigate whether peak hour parking restrictions on Darby and King streets would be feasible until light rail is operational, and what times would provide the best balance between congestion relief and parking availability near local businesses. Any time restrictions implemented will be monitored and re-evaluated as necessary during the light rail construction period.

5.6 Services connections

The proposal footprint has been expanded to include connections to services, service relocations and/or extensions required to facilitate the proposed road upgrades. The majority of works for this proposal will occur within the road reserve where a large number of services are located. Due to the linear nature of services and the likely need to relocate these services or establish new connections to accommodate the road upgrades, works may need to occur beyond the footprint of the physical road infrastructure depicted in the Supplementary REF. Any service connection works undertaken as part of this proposal will be subject to the same conditions and mitigation strategies as the proposal.

6. Summary of mitigation measures

This section summarises the mitigation measures proposed in the supplementary REF and any proposed additions or amendments in response to submissions.

Environmental management for the proposal will be carried out as detailed in the supplementary REF. A CEMP would be prepared to include all specific environmental mitigation measures identified in the supplementary REF and this submissions report. More information about the CEMP can be found in Table 6.1 and Table 6.2 in the supplementary REF.

Table 6.1 and Table 6.2 below outline the mitigation measures for the proposal. This list includes any changes to mitigation measures in response to submissions received during the public display period. New mitigation measures are shown in **blue and bold** text. Removal of mitigation measures (or text removed from measures) is shown in ~~strikethrough~~ text.

Note: allocated numbers may vary from the supplementary REF to account for newly inserted or deleted entries.

Table 6.1 Mitigation measures for detailed design/pre-construction

No.	Mitigation measure
1.0	General
1.1	<p>A CEMP would be prepared for the construction phase of the proposal, either as a part of or addendum to the CEMP for the light rail project or as a standalone document. The CEMP would provide a centralised strategy through which all potential environmental impacts would be managed. The CEMP would document processes for demonstrating compliance with the commitments made in the supplementary REF, this submissions report, as well as any other relevant statutory approvals. An outline of the required contents of the CEMP is provided in section 6.1.1 of the supplementary REF.</p> <p>The CEMP would be prepared by the construction contractor and endorsed by the project Environmental Management Representative (EMR) to the satisfaction of Transport for NSW.</p>
1.2	<p>The CEMP would include:</p> <ul style="list-style-type: none"> • the proponent’s environmental policy, objectives and performance targets for construction and operation • reference to all relevant statutory and other obligations, including consents, licenses, approvals, and voluntary agreements required • management policies, procedures and review processes to assess the implementation of environmental management practices and the environmental performance of the proposal against the objective and targets • requirements and guidelines for management in accordance with: <ul style="list-style-type: none"> – conditions of the determination – mitigation measures specified by this REF – relevant construction management guidelines. • requirements in relation to incorporating environmental protection measures and instructions in all relevant standard operating procedures and emergency response procedures • specific procedures, including monitoring, as defined by this REF and the conditions of the determination

No.	Mitigation measure
	<ul style="list-style-type: none"> roles and responsibilities of all personnel and contractors to be employed on site procedures for complaints handling and ongoing communication with the community monitoring and auditing program.
1.3	The CEMP and operational environmental management system would specify requirements in relation to ongoing monitoring during construction and operation. Regular auditing of the environmental management plans would be undertaken. In the event of a non-compliance with the management plan, it would be the proponent's responsibility to ensure appropriate investigation, reporting and implementation of corrective actions.
1.4	Incident management procedures would be developed as part of the CEMP and the operational environmental management system. The procedures would clearly outline the process to be followed in the event of an environmental incident or noncompliance.
2.0	Traffic, transport and access
2.1	The parking strategy, identified as a mitigation measure in the light rail REF, will be reviewed to include consideration of the cumulative parking losses outlined in this supplementary RE
2.2	The cycleway strategy, identified as a mitigation measure in the light rail REF, will be reviewed to will include consideration of the potential cycleway impacts outlined in this supplementary REF.
2.3	Project planning and construction scheduling would consider the need to minimise impacts on motorists during morning and afternoon peak hours, particularly for works on Hannell Street/Stewart Avenue, King Street and Honeysuckle Drive.
2.4	Further design development would be undertaken by Transport for NSW, in consultation with Roads and Maritime, to address residual intersection performance issues on the wider road network.
2.5	<p>Further investigation would be undertaken during detailed design as follows:</p> <ul style="list-style-type: none"> the existing traffic modelling and queue lengths will be reviewed to determine whether the proposed left turn slip lane off Hannell Street into Throsby Street can be shortened to 20 metres the proposed line-marking changes on Darby Street (near King Street) will be delayed until traffic numbers increase sufficiently to warrant the works and/or prior to the commencement of light rail operations further modelling will be undertaken to see if peak hour parking restrictions on Darby and King streets would be feasible and what times would provide the required relief from congestion

No.	Mitigation measure
3.0	Tree removal
3.1	<ul style="list-style-type: none"> • a vegetation management plan would be prepared as part of the CEMP including a detailed list of the measures that would be implemented during construction to minimise the potential impacts on trees to be retained. The management measures to be incorporated would include: <ul style="list-style-type: none"> – the construction plans would clearly document the location and full extent of any vegetation disturbance required. These areas would be clearly marked on the ground to avoid disturbance to adjacent retained vegetation, and exclusion fencing would be installed around trees to be retained – the management of trees near the construction zone would be consistent with the <i>AS 4970-2009 Protection of trees on development sites</i> (incorporating Amendment No. 1 (March 2010)) – tree protection methods would be marked on the environmental control maps – any trees proposed for removal would be replaced and/or offset in accordance with Transport for NSW's <i>Vegetation Offset Guide</i> (2016a). This would be undertaken in consultation with Council – all tree removal, maintenance and protection work would be undertaken by a qualified arborist with appropriate competencies recognised within the Australian Qualification Framework, with a minimum of five years of continual experience within the industry of operational amenity arboriculture, and covered by appropriate and current types of insurance to undertake such works – weeds would be managed and disposed of in accordance with the requirements of the <i>Noxious Weeds Act 1993</i> and/or the Weeds of National Significance weed management guides. The African Olive growing near tree 7 is a declared noxious weed – weed control and management strategies would be documented and implemented in accordance with the <i>Weed Management and Disposal Guide</i> (Transport for NSW, 2015a). This would include procedures to reduce the spread of weeds via vehicles and machinery, such as visual inspection of vehicles prior to exit from site to ensure they are clear of plant material – the Tree Protection Zones (TPZs) and associated controls, including storage and movement restrictions, would be implemented as part of the plan. If works were required within the TPZs, they would be restricted to the area outside of the structural root zone to avoid disturbing the stability and health of the trees. The specific TPZ management measures described in detail in the arboricultural assessment in Technical Paper 2 would be implemented for all of the works within the TPZs of the trees to be retained (see section 5.2.3).
4.0	Noise and vibration
4.1	A construction noise and vibration management plan would be prepared and implemented for the proposal. The construction noise and vibration management plan would include all of the standard mitigation measures prescribed in the <i>Construction Noise Vibration Guideline</i> (Roads and Maritime, 2016).
4.2	The construction noise and vibration management plan would also include the following additional mitigation measures prescribed in Table C1 of the <i>Construction Noise Vibration Guideline</i> (Roads and Maritime, 2016):

No.	Mitigation measure
	<ul style="list-style-type: none"> • general letterbox drop (or equivalent) would be undertaken to the wider locality no less than five working days prior to the start of works • letterbox drop (or equivalent) would be undertaken to affected stakeholders no later than seven calendar days ahead of construction activities. Additional information, such as timing, equipment, methodology, would be provided to more highly affected receivers than covered in general letterbox drops • phone calls detailing relevant information would be made to affected stakeholders within seven calendar days of proposed work • individual briefings would be undertaken to inform affected stakeholders of the impacts of high noise activities and mitigation measures that will be implemented. Stakeholders would be visited at least 48 hours prior to potentially disturbing construction activities • as a guide, all work should be carried out in continuous blocks that do not exceed three hours each, with a minimum respite period of one hour in between each block • the community would be consulted prior to construction commencing on the option to implement duration respite. Duration respite would require an increase in out of hours works in order to complete construction more quickly • work carried out during week day evenings (6pm -10pm), on Saturday (7am – 8am, 1pm – 10pm), and Sundays or public holidays (8am – 6pm) would be limited to no more than three consecutive evenings per week separated by not less than one week except where there is a duration respite • work carried out during the night time on week days (10pm – 7am), Saturday (10pm – 8am), and Sundays or public holidays (6pm – 7am) would be limited to two consecutive nights, separated by not less than one week, except for where there is duration respite.
4.3	<p>Vibration monitoring would be carried out prior to construction commencing to assess the radius of potential influence of high vibration generating activities on adjacent structures. Monitoring would be undertaken in non-sensitive areas and at a range of distances from the source. Results of the monitoring would be compared against predicted vibration levels and the potential for impact refined, if appropriate.</p>
4.4	<p>The effectiveness of source-based mitigation measures, such as changing the operating speed of the vibratory roller to generate a higher frequency of vibration, which may allow for a higher vibration threshold at the structure, would be confirmed once final construction equipment and methodologies have been finalised prior to construction commencing.</p>
4.5	<p>Once final construction equipment and methodologies have been finalised, locations for property condition surveys would be confirmed. Survey would be required for all properties within the recommended buffer distances in Table 5-14, or where pre-construction monitoring indicates that vibration levels from construction activities would exceed the target levels. A property condition survey report should include as a minimum:</p> <ul style="list-style-type: none"> • a visual inspection of all buildings and structures (all internal and external walls, ground level floors and external pavements, all connections of other structures above ground level and their connection at ground level and any exposed foundations) • photographs of all cracks and/or defects observed • a record of the location of all cracks and/or defects observed, and measurements of the crack width/defect size.

No.	Mitigation measure
5.0	Soils and water
5.1	<p>An erosion and sediment control plan would be prepared to manage any potential runoff resulting from the proposed works during construction (in accordance with <i>Managing Urban Stormwater, Soils and Construction Guidelines</i> (the Blue Book, Landcom, 2004)). It would include (but not be limited to) measures to:</p> <ul style="list-style-type: none"> • prevent sediment moving off-site and sediment laden water entering any drainage lines or drain inlets • reduce water velocity and capture sediment on site • minimise the amount of material transported from site to surrounding pavement surfaces • divert clean water around the site.
5.2	Erosion and sediment controls would be established prior to the start of construction works.
5.3	Transport for NSW would consult with the Mine Subsidence Board to determine any specific requirements for the proposal in relation to land within the mine subsidence areas.
6.0	Aboriginal Heritage
6.1	All relevant project staff and contractors would be made aware of their statutory obligations for heritage under the <i>National Parks and Wildlife Act 1974</i> and the <i>Heritage Act 1977</i> , via a heritage induction prior to commencement of work on site.
7.0	Air quality
7.1	Adjacent properties (including the local educational establishments) would be notified of the proposed works, the construction schedule and provided with contact details for any potential air quality, dust or odour issues prior to start of works.
8.0	Land use and property
8.1	Adjacent properties would be notified of the proposed works and the construction timetable, and provided with contact details to report any issues as a result of the construction activities.
8.2	Prior to the commencement of works, any services and utilities that may be impacted by the works are to be identified and relocated or protected, if required, in consultation with asset owners.
8.3	All acquisitions would be undertaken in consultation with landowners and in accordance with the requirements of the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> .
9.0	Socio-economic
9.1	Adjacent properties and the local community and other stakeholders would be notified of the proposed works and the construction timetable for night works, and provided with contact details for the project manager to report any issues as a result of the construction activities.
9.2	Letterbox drops would be undertaken in advance of night works commencing.

No.	Mitigation measure
10.0	Visual amenity
10.1	Project planning and construction scheduling would consider the need to minimise visual and other amenity impacts for recreational users of Civic Park.
11.0	Resource use, hazardous materials and waste
11.1	Procurement would endeavour to use materials and products with a recycled content where that material or product is cost and performance effective.
12.0	Climate changes and sustainability
12.1	Design of the proposal would be undertaken in accordance with the <i>NSW Sustainable Design Guidelines</i> (V3.0, Transport for NSW, 2014). Initiatives recommended by the sustainability assessment to achieve a rating level of at least 'silver' would be implemented.
12.2	The sustainability initiatives would be regularly reviewed, updated and implemented throughout the design development phases.
13.0	Cumulative impacts
13.1	The potential for cumulative impacts would be further considered as the proposal methodology develops and as further information regarding the location and timing of other potential developments is released.
13.2	Transport for NSW would consult with the proponents of other major projects in the area (including internally) to develop strategies to address potential cumulative traffic and transport and noise impacts.
13.3	The parking strategy, identified as a mitigation measure in the light rail REF, will include consideration of the cumulative parking losses outlined in this supplementary REF.
13.4	The cycleway strategy, identified as a mitigation measure in the light rail REF, will include consideration of the potential cycleway impacts outlined in this supplementary REF.

Table 6.2 Mitigation measures for construction

No.	Mitigation measure
1.0	Traffic, transport and access
1.1	Consultation with relevant stakeholders would be undertaken regularly to facilitate the efficient delivery of the works and to minimise congestion and inconvenience to road users. Stakeholders would include contractors on adjacent work sites (particularly the new interchange at Wickham) and others such as Council, bus operators, Roads and Maritime, emergency services, affected businesses, and other relevant organisations (such as the University of Newcastle and major employers in the city centre).
1.2	A construction traffic, transport and access management plan would be prepared as part of the CEMP including a detailed list of the measures that would be implemented during construction to minimise the potential impacts on traffic, transport and access. The management measures to be incorporated would include:

No.	Mitigation measure
	<ul style="list-style-type: none"> • traffic and access would be managed in accordance with Traffic Control at Work Sites (Roads and Traffic Authority, 2010) and in consultation with Roads and Maritime and Council • adequate road signage would be provided to inform drivers of the work, timing and alternative access arrangements • measures to manage traffic flows around the area affected by construction would be provided, including required regulatory and directional signposting, line marking, variable message signs, and all other necessary traffic control devices • the plan would specify routes to be used by heavy construction-related vehicles to minimise impacts on sensitive land uses and businesses • the timing of deliveries would be programmed to minimise traffic and transport impacts • the queuing and idling of construction vehicles in residential streets would be minimised • designated queuing and idling areas would be determined near the work site to minimise disruption to the local community • adequate sight lines would be provided to allow for safe entry and exit from the construction sites • access to all private properties adjacent to the proposal site would be maintained during construction, unless otherwise agreed with relevant property owners • co-ordination with other constructors, including those responsible for constructing the new interchange at Wickham, would be undertaken, particularly regarding works at the Stewart Avenue/Hannell Street intersection
	<ul style="list-style-type: none"> • ongoing consultation and feedback from key stakeholders including Roads and Maritime and Council would be co-ordinated by Transport for NSW to facilitate the efficient completion of the works, and ensure awareness of proposed road network or intersection changes, and the efficacy of mitigation proposed • contractors, including transport/deliveries contractors, would be provided with a copy of the traffic, transport and access management sub-plan to ensure disruptions to the local community are minimised • the plan would include measures to maximise safety and access for pedestrians and cyclists, including details of alternative access arrangements • adequate road signage would be provided to inform pedestrians and cyclists of the work, including timing and alternative access arrangements, and ensure that the risk of accidents and disruption to surrounding land uses is minimised • the plan would include details for the relocation of kiss-and-ride, taxi ranks and bus stops if required, including appropriate signage to direct patrons, in consultation with the relevant operator. • adequate signage would be provided at all stops along the bus routes to clearly show the location of stops and routes • consultation with regional and interstate bus operators would be undertaken to determine their requirements, including any rerouting of services if required.

No.	Mitigation measure
2.0	Tree removal
2.1	The vegetation management plan would be implemented during construction to minimise the potential impacts on trees to be retained.
3.0	Noise and vibration
3.1	The measures outlined in the construction noise and vibration plan would be implemented at all times during construction.
3.2	Vibration measurements would be taken at the commencement of construction to determine site specific conditions and confirm potential vibration impacts and required management.
3.3	Recommended safe working distances for vibration intensive plant taken from the <i>Construction Noise Vibration Guideline</i> (Roads and Maritime, 2016) are provided in Table 5-14.
3.4	No rock hammering would be undertaken outside of standard construction hours.
4.0	Soils and water
4.1	Groundwater encountered during construction would be managed and disposed of in accordance with the <i>Waste Classification Guidelines</i> (Environment Protection Authority, 2014) and the <i>Water Discharge and Reuse Guideline</i> (Transport for NSW, 2015). Groundwater would be managed to ensure it does not cause pollution of waters in accordance with section 120 of the <i>Protection of the Environment Operations Act 1997</i> (POEO Act).
4.2	Erosion and sediment controls would be checked and maintained on a regular basis (including the clearing of sediment form behind the barriers).
4.3	Construction erosion and sediment controls would not be removed until the works are complete and long term erosion and sediment controls are in place.
4.4	All materials onsite or being delivered to the site would be wholly contained within the site. The requirements of the POEO Act would be complied with when placing/stockpiling loose material or when disposing of waste products or during any other activities likely to pollute drains or watercourses.
4.5	Any loose material stockpiles would be stored within the temporary construction compound(s) and would be protected from possible erosion.
4.6	All services and utilities in the area of construction must be appropriately disconnected and reconnected as required. The contractor is required (if necessary) to consult with the various service authorities regarding their requirements for the disconnection of services.
5.0	Aboriginal heritage
5.1	If unrecorded Aboriginal objects are identified in the proposal site during works, then all works in the immediate area must cease and the area should be cordoned off. The Office of Environment and Heritage (OEH) must be notified by ringing the Enviroline on 131 555 so that the site can be adequately assessed and managed.

No.	Mitigation measure
5.2	In the unlikely event that skeletal remains are identified, works would cease immediately near the remains and the area would be cordoned off. The proponent would contact the local NSW Police who will make an initial assessment as to whether the remains are part of a crime scene or are possible Aboriginal remains. If the remains are thought to be Aboriginal, OEH would be contacted by ringing the Enviroline on 131 555. An OEH officer would determine if the remains are Aboriginal or not and a management plan must be developed in consultation with the relevant Aboriginal stakeholders before works recommence.
6.0	Non-Aboriginal heritage
6.1	A heritage induction would be developed for employees and contractors. The induction would outline the responsibilities and requirements for heritage under the <i>Heritage Act 1977</i> . All workers, contractors and visitors would be required to complete the heritage induction.
6.2	<p>A heritage management plan would be prepared as part of the CEMP and implemented during construction. It would include as a minimum:</p> <ul style="list-style-type: none"> • all heritage items in the immediate vicinity of the proposal site would be marked on environmental control maps, site plans, fenced off where appropriate, and avoided • the detailed construction methodologies would take into account the heritage significance of the area and mapped heritage items. Works would be undertaken in a manner that minimises the potential for damage and avoids physical impact on adjacent heritage listed buildings • sufficient protection including temporary fencing would be installed around built heritage items where works are to be undertaken in close proximity to these items, or where a thoroughfare or construction access is required • the sites or items that require dilapidation survey. Dilapidation reports would be prepared prior to construction commencing
	<ul style="list-style-type: none"> • any unforeseen or accidental damage would be made good under the supervision of a qualified engineer with heritage experience following consultation with the Transport for NSW project manager. Damage would be determined based on the findings of the pre-construction dilapidation survey • the construction noise and vibration management plan (refer section 6.6.5) would define the construction methods to be used in the vicinity of heritage listed items and the measures to minimise the likelihood of vibration impacts.
6.3	If, during the course of construction works, suspected historic heritage material is uncovered, works must cease in that area immediately. The OEH must be notified by ringing the Enviroline on 131 555 and works would only recommence when an approved management strategy has been developed and approved.
7.0	Air quality
7.1	Construction vehicles and machinery would park as far away as practicable, from local businesses (particularly food outlets) to minimise disruption.
7.2	Measures (including watering or covering exposed areas) are to be used to minimise or prevent air pollution and dust.

No.	Mitigation measure
7.3	Construction works that generate dust are not to be undertaken during strong winds or in weather conditions where high levels of dust or airborne particulates are likely.
7.4	Vehicles transporting waste or other materials that may produce odours or dust are to be covered during transportation.
7.5	Machinery not in use would be turned off.
7.6	All machinery used onsite would be regularly maintained and in good operating order.
8.0	Land use and property
8.1	Access to private properties, businesses and Civic Park would be maintained at all times unless otherwise negotiated and agreed with landowners.
9.0	Business and community
9.1	Access to local businesses, community services and social infrastructure would be maintained during construction. Where alternative access arrangements need to be made, these would be developed in consultation with relevant service providers, and communicated to businesses and service users.
10.0	Visual amenity
10.1	Construction debris and waste would be removed from site as quickly as is feasible.
10.2	The construction site would be kept tidy and free of general waste from construction workers (e.g. litter).
10.3	Any trees proposed for removal would be replaced and/or offset in accordance with Transport for NSW's <i>Vegetation Offset Guide</i> (2016). This would be undertaken in consultation with Council.
11.0	Resource use, hazardous materials and waste
11.1	<p>A waste management plan would be prepared as part of the CEMP including the following as a minimum:</p> <ul style="list-style-type: none"> • resource management hierarchy principles would be followed to: <ul style="list-style-type: none"> – avoid unnecessary resource consumption as a priority – follow avoidance by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery) – undertake disposal as a last resort • waste material, including soil and spoil to be taken off site, would be classified and managed in accordance with the <i>Waste Classification Guidelines</i> (Environment Protection Authority, 2014) and would be disposed of in accordance with the POEO Act • all waste documentation would be collated and maintained on file in accordance with these guidelines and provided to Transport for NSW as requested • waste material would not to be left onsite once the works have been completed • working areas would be maintained, kept free of rubbish, and cleaned up at the end of each working day

No.	Mitigation measure
	<ul style="list-style-type: none"> at least 90 per cent of construction waste generated during site preparation and construction would be diverted from landfill and either recycled or reused in accordance with Transport for NSW's Sustainability Targets 100 per cent of useable spoil material would be beneficially reused in accordance with Transport for NSW's Sustainability Targets any waste material identified as being contaminated would be managed in accordance with the <i>Contaminated Land Management Act 1997</i> and other relevant legislation and guidelines.
11.2	<p>The waste management plan would include measures to manage and dispose of any contaminated and/or hazardous materials and asbestos encountered during construction including:</p> <ul style="list-style-type: none"> the removal, handling and disposal of any asbestos containing materials would be undertaken by an appropriately licensed contractor, and in accordance with: <ul style="list-style-type: none"> <i>Code of Practice for the Safe Removal of Asbestos 2005</i> <i>Code of Practice for the Management and Control of Asbestos in Workplaces 2005</i> hazards and risks associated with construction activities would be identified prior to construction management measures for each identified hazard/risk would be developed a process for regularly reviewing work practices/procedures would be implemented throughout construction to identify, report, and respond to any new environmental hazards/risks site-specific safety management plans and safe work method statements would be developed and implemented in accordance with work health and safety requirements.
12.0	Climate changes and sustainability
12.1	Construction of the proposal would be undertaken in accordance with the <i>NSW Sustainable Design Guidelines</i> (V3.0, Transport for NSW, 2014). The sustainability initiatives would be regularly reviewed, updated and implemented throughout the construction stage.
13.0	Cumulative impacts
13.1	As far as practicable, works would be scheduled to minimise the potential for cumulative impacts with other projects in the surrounding area.

Table 6.3 Mitigation measures for operation

No.	Mitigation measure
1.0	Traffic, transport and access
1.1	<p>Traffic volumes and behaviour would be monitored regularly over the light rail project construction period to determine the need and timing for the following proposed works:</p> <ul style="list-style-type: none"> line marking to create an additional left turn lane on Darby Street at the King Street intersection removal of car parking and loading zones on Darby Street.

7. Conclusion

This section provides the conclusions to this submissions report.

7.1 Summary

Efficient traffic networks are a key element of well integrated transport networks. Light rail is a key pillar of the broad program of work underway to revitalise Newcastle, and the proposed road and intersection upgrades have been designed to ensure traffic continues to flow smoothly during the construction and operation of light rail.

The supplementary REF included a comprehensive assessment of the likely benefits and environmental impacts resulting from the proposal. Potential impacts were identified and addressed in the REF and mitigation measures have been recommended where appropriate.

The supplementary REF was placed on public display from 21 November to 19 December 2016. A total of 16 submissions were received which included seven submissions from the community, one submission from a peak industry body, six submissions from businesses, one submission from a community group and one submission from Council. This submissions report has documented and considered the submissions received and has outlined Transport for NSW's response.

Transport for NSW is further investigating some matters that were identified in submissions but lie outside the scope of this proposal, like the preparation of a parking strategy and cycleway strategy, and will continue to work with all partners as the program's transport and urban renewal plans further develop and start to shape the future of Newcastle.

7.2 Next steps

Transport for NSW will review the supplementary REF and this submissions report and determine whether the requirements under Part 5 of the EP&A Act have been met. If it determines that the proposal, in light of the project as a whole, is not likely to significantly affect the environment, Transport for NSW will then make a determination as to whether to proceed with the proposal or not.

Should the proposal proceed, feedback from the community and key stakeholders received throughout the development of the proposal to date will help inform the detailed design phase of the proposal, and assist to minimise potential impacts during construction of the proposal.

The proposed consultation and engagement activities with the project stakeholders and the community will also be implemented.

8. References

- Council of the City of Newcastle, 2010, *Newcastle 2030*, Newcastle
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- Roads and Maritime Services, 2016, *Construction Noise and Vibration Guideline*, Sydney
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